City & Southwest

SYDENHAM TO BANKSTOWN

SUBMISSIONS AND PREFERRED INFRASTRUCTURE REPORT

> Volume 2 - Appendices

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> Appendix A - Issue categories and where to find responses to issues raised in submissions

Appendix A - Issue categories and where to find responses to issues raised in community submissions

Guide to tables

As described in Section 4, an assessment of each submission was undertaken, identifying all issues raised and coding the issues. A total of 28 key issues and 131 sub-issues were identified and coded throughout the submission review process.

The list of issues, together with where they are addressed in this report, is provided in Table A.1. Table A.2 identifies the issues raised in each submission (provided as the issue code).

Table A.1 Issue code and section

Issue code	Issue	Where addressed in this report
A. Assessment and approvals		
A1	Assessment and approval process	Section 5.1.1
A2	Adequacy of the EIS	Section 5.1.2
C. Stakeholder and community Consultation		
C1	Consultation prior to exhibition	Section 5.2.1
C2	Consultation during exhibition	Section 5.2.2
C3	Future consultation and engagement	Section 5.2.3
PN. Project need and justification		
PN1	Support/objection	Section 5.3.1
PN2	Strategic need for Sydney Metro	Section 5.3.2
PN3	Need for the project	Section 5.3.2
PN4	Benefits of the project and the broader metro network	Section 5.3.3
PN5	Development considerations	Section 5.3.4
PN6	Consistency with other transport and land use strategies and policies	Section 5.3.5
PN7	Project costs and funding	No issues raised
PN8	Other	No issues raised
PA. Project alternatives and options		
PA1	Process of alternatives and options assessment process	Section 5.4.1
PA2	Strategic alternatives to Sydney Metro as a whole	Section 5.4.2
PA3	Alternatives to this project	Section 5.4.3
PA4	Design options within the project	Section 5.4.4
DD. Design development and place- making		
DD1	Design process	No issues raised
DD2	Heritage considerations	Section 5.5.1
DD3	Place making and future design considerations	Section 5.5.2
DD4	Other design considerations	No issues raised
PDD. Project description – design features		
PDD1	Characteristics of the metro product trains and facilities	Section 5.6.1
PDD2	Station works features	Section 5.6.2
PDD3	Facilities around stations/station area features	Section 5.6.3
PDD4	Track features	Section 5.6.4
PDD5	Ancillary facilities - S substations	Section 5.6.5
PDD6	Other ancillary facilities and services - other	Section 5.6.6
PDD7	Active transport corridor (ATC)	Section 5.6.7
PDD8	Other design issues	Section 5.6.8

Issue code	Issue	Where addressed in this report
PDO. Project description – operation		
PDO1	Linkages and connections to other transport	Section 5.7.1
PDO2	Journey characteristics and time	Section 5.7.2
PDO3	Operational characteristics	Section 5.7.3
PDO4	Other	Section 5.7.4
PDC.	Project description - construction	
PDC1	Stations construction method	No issues raised
PDC2	Corridor works - construction method	No issues raised
PDC3	Ancillary works - method No issues raised	No issues raised
PDC4	Construction compounds, work sites and access	Section 5.8.1
PDC5	Construction program and possessions	Section 5.8.2
PDC6	Alternative transport arrangements during possessions/TTS construction (incl TTS)	Section 5.8.3
PDC7	Construction hours	Section 5.8.4
PDC8	Utilities management	No issues raised
PDC9	Other construction issues	Section 5.8.5
TC. Construction traffic, transport and access		
TC1	Assessment method	Section 5.9.1
TC2	Construction traffic and haul routes(incl haul routes)	Section 5.9.2
TC3	Active transport impacts	Section 5.9.3
TC4	Public transport impacts	Section 5.9.4
TC5	Road network performance	Section 5.9.25
TC6	Impacts of temporary transport arrangements during rail possession/impacts of temporary transport arrangements	Section 5.9.5
TC7	Parking impacts	Section 5.9.6
TC8	Bridge works	Section 5.9.7
TC9	Special events	No issues raised
TC10	Emergency services	Section 5.9.8
TC11	Other issues	No issues raised
TO. Operational traffic, transport and access		
TO1	Assessment method	No issues raised
TO2	Active transport impacts	Section 5.10.1
TO3	Servicing changes	Section 5.10.2
TO4	Impacts on travel times	Section 5.10.2
TO5	Other public transport impacts	Section 5.10.3
TO6	Parking and loading zones impacts	Section 5.10.4
TO5	Other issues	Section 5.10.5
NC. Construction noise and vibration		
NC1	Assessment method	Section 5.11.1
NC2	Construction noise impacts	Section 5.11.2
NC3	Out of hours noise	Section 5.11.3
NC4	Construction traffic noise	Section 5.11.4
NC5	Vibration impacts and management	Section 5.11.5
NC6	Noise impact mitigation and management	Section 5.11.6
NC5	Other issues	No issues raised
NO. Operational noise and vibration		
NO1	Assessment method	No issues raised
NO2	Noise from metro trains	Section 5.12.1

Issue code	Issue	Where addressed in this report
NO3	Noise from stations and ancillary facilities	Section 5.12.2
NO4	Vibration impacts during operation	Section 5.12.3
NO5	Impact mitigation and management	Section 5.12.4
NO6	Other issues	Section 5.12.5
HN. Non-Aboriginal heritage		
HN1	Assessment method	Section 5.13.1
HN2	Heritage impacts of the project overall	Section 5.13.2
HN3	Impacts to heritage listed stations	Section 5.13.3
HN4	Impacts to other heritage items	Section 5.13.4
HN5	Impacts to heritage conservation areas	Section 5.13.6
HN6	Impacts to archaeological sites	Section 5.13.5
HN7	Other issues	No issues raised
HA. Aboriginal heritage		
HA	Impacts on Aboriginal sites heritage	Section 5.14.1
LP. Land use and property		
LP1	Direct impacts on land use/properties during construction	Section 5.15.1
LP2	Direct impacts on land use/properties during operation	Section 5.15.1
LP3	Future development opportunities	No issues raised
LP4	Impacts of acquisition	Section 5.15.2
LP5	Impacts on to property values	Section 5.15.3
LP6	Compensation	Section 5.15.3
LP5	Other issues	No issues raised
SE. Socio-economic impacts		
SE1	Construction impacts on community infrastructure	Section 5.16.1
SE2	Construction amenity impacts (community members). Community and amenity impacts during construction	Section 5.16.2
SE3	Other construction impacts	Section 5.16.2
SE4	Operation impacts on community infrastructure	No issues raised
SE5	Operation amenity impacts, Community and amenity impacts during operation construction	Section 5.16.3
SE6	Other operation impacts	Section 5.16.3
SC. Soils and contamination		
SC1	Contamination	No issues raised
SC2	Other issues	No issues raised
B. Business impacts		
B1	Acquisition	No issues raised
B2	Access to businesses during construction Impacts to businesses during construction	Section 5.17.1
B3	Construction amenity impacts	Section 5.17.1
B4	Other construction impacts on businesses	No issues raised
B5	Impacts to businesses during operation	Section 5.17.2
B6	Compensation to businesses	No issues raised
V. Visual impacts (including trees)		
V1	Impacts on trees	Section 5.18.1
V2	Other construction visual impacts	No issues raised
V3	Impacts on character	Section 5.18.2
V4	Other operation visual impacts	Section 5.18.3

Issue code	Issue	Where addressed in this report
SC. Soils and contamination		
SC1	Contamination	No issues raised
SC2	Other issues	No issues raised
HW. Hydrology, flooding and water quality		
HW1	Impacts on flooding during construction	Section 5.19.1
HW2	Impacts on flooding during operation	Section 5.19.2
HW3	Water quality	Section 5.19.3
HW4	Other issues	No issues raised
FF. Biodiversity		
FF1	Clearing along the rail corridor	Section 5.20.2
FF2	Impacts to threatened species and communities	No issues raised
FF3	Other (incl adequacy)	Section 5.20.1, 5.20.3
AQ. Air quality		
AQ	Construction impacts	Section 5.21.1
AQ2	Operation impacts	Section 5.21.2
SCC. Sustainability and climate change		
SCC1	Sustainability policy and strategy	Section 5.22.1
SCC2	Resource use	Section 5.22.2
SCC3	Climate change	Section 5.22.3
HRS. Hazards, risks and safety		
HRS1	Construction impacts	Section 5.23.1
HRS2	Operation impacts	Section 5.23.2
WM. Waste management		
WM1	Construction impacts	Section 5.24.1
WM	Operation impacts	No issues raised
CI. Cumulative impacts		
CI1	Impacts combined with WestConnex	Section 5.25.1
CI2	Impacts combined with C2S	No issues raised
CI3	Other cumulative impacts	Section 5.25.2
EM. Future design and environmental management		
EM1	Construction environmental management arrangements	Section 5.26.1
EM2	Operational environmental management arrangements	Section 5.26.1
EM3	Detailed design process	No issues raised
EM4	Design guidelines	No issues raised
OS. Out of scope		
OS1	Issues relating to other Sydney Metro projects	Section 5.27.1
OS2	Non-metroOther issues	Section 5.27.2

Table A.2 Issues raised by submissions

The first column of table shows the submission number assigned by the Department of Planning and Environment. The second column shows the issues raised by the submission, as coded for entry into the database. The issue covered by each issue code, and where it is addressed in this report, is detailed in Table A.1.

Submission Number	Issues
1	PN1, PN4, PN5, PA3, PDD1, PDO3
2	PN1, PN4
3	PN1, PN4
4	PN1, PN4
5	PN1, PN4
500001	PN1, PN4
6	PN5
7	PN1
8	PN1, PN3, PN5, PDC5, B5, V3
9	PN5, PA3, PDD2, TO7
10	PN1
11	OS1
12	PDD2, PDO1,PDO2, TO3, TO4
13	OS1
14	PN3, TO4, OS1
15	PN1, PN3, PA3, PA4, PDO2, TO3, OS2
16	PN1, PN3, PA3, PDO2, TO3, TO4
17	PN1, PN3
18	PDD7
19	PN1, PDC5, CI3
20	DD2, PDD7, HN2
21	PN1, PA2
22	PN1, PN3, PN5, PA2, PA3, PDD1, PDD3, PDO2, PDC5, HN2, SE2, SE5, SE6
23	PN1, PDD1, B5
24	PN1, PN3, PN4, PA2, TC6
25	PN5
26	PN1, PA4, PDO1, OS1
27	NSW Department of Primary Industries
28	Sydney Water
29	NSW Heritage Council
30	PN1, PN5, PA2, PA4, PDO2, HN2, OS2
3000001	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
31	PN1, PA3, DD3, NO2, NO4, B5, FF3, AQ2, OS1
32	A1, PN1, PN5, PA4, PDD1, PDD2, PDD8, PDC6, PDC7, PDC9, TO3, TO6, NC1, HA1, HN4, SE3, B2, V1, HW1, HW2, FF3, AQ1, HRS1, WM1, OS2
33	PN1, PA4, PDC6, TO5
34	PN1, PN3, PA2, PA3, PDO3, TC2, TC4, TO3, OS2
35	PN1, PN5, PA3, PDD7
36	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
37	Ausgrid
38	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
39	PN1, PN5, PA3
40	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
41	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
42	PDO1, C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
43	PDO1, C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
44	PN1, PN3, PA2, PDD2, PDO3
45	PDC6
46	C3, PN1, PDD3, TC7, LP2, B2, B5
4600001	PA4, PDD2, NC2, B2

Submission Number	Issues
47	C2, PN1, PN3, PN5, PA3, PDC6, PDC7, TC2, TC6, TC7, NC2, NC3 NC5, NC6, HN2, HN3, CI3, SCC3, SE2, V3
48	C1, C2, PN1, PN3, PN4, PN5, PA1,PA2, PA3, PDD1, PDD2, PDO1, PDO2, PDO3, TC2, NC2, NC5, HN1, HN2, HN3, V3, SCC3, WM1, HRS2, CI1,CI3, OS2
49	C3, PN1, PA4, PDD6, HN4
50	C3, PN1, PA4, PDD6, HN4
51	PN1, PN3, PN5, PA1, PA2, NC2, NC3, NC4, NC5, HN2, HN4, SE2, V3, SCC3
52	NSW Environment Protection Authority
53	PN1, PA4, PDD6, HN4
54	PDO3, PDO4, OS1
55	PN3 C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
56	PN1, PA4, PDD6, HN4, CI3
57	PN1, PDD6, TC2, TC3, SE2, CI3
58	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
59	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
60	C2, PN1, PN3, PN5, PA1, PDD2, PDO3, TC8, EM1, EM2
61	C3, PN1, PN3, PA1, DD2, PDD1, TC6 TO3, SE2, V3, OS2
62	PN1, PN3, SE2, V3
63	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
64	PN1, PA1, SE5
65	PN1, PN5, TC2, TC8, NC5, HN2, HN4, SE2, V3, CI3, OS2
66	A2, PN1, PN3, PN4, PA3, PDD1, TC6, HN2, SE2, V3, OS2 C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
67	PN1, PN3, PA3, TC2, TC6 C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
68	PN1, PN3, PN5, PA2, PA3, PDO3, TC4, TC8, TO3, TO4, HN3
69	PN1, PN3, PA3
70	C2, PN1, PN3, TC6, SE2
71	PN1, PN3, PN5, PA3, NC2, HN2, SE2, SCC2
72	C2, PN1, DD2, PDD2, TC7, TO7, NO5, HN3
73	PN1, PDD2, OS1
74	PN1, PN3, PN5, PDD1, PDO3, PDC6, TC6, TO3, NC3, HN2, LP4
75	PN3, PA2, PA4, PDD1, PDD8, PDO1, PDO2, PDO3, OS2
76	PN1, PDD8, PDO2, PDO3
77	PN1, NC2,NO3, LP5, SE5, V4, AQ1
78	PN1, PN3, HN2, SE2
7800001	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
79	C3, PN1, PDC4, NC2, NC6, NO3, NO5
80	PN1, NC2, NC6, NO2, NO5
81	A2, C2, PN1, PN3, PN5, PA2, PDD2, TC2, TO6, HN2, HN4, NC2, NC3, NC4, NC5, AQ1, SCC3
82	C2, PN1, PN3, PN5, PDO2, TC2, TC5, TC6, NC2, NC6, HN2
83	A2, C2, PN1, PN3, PN5, PA2, TC2, TC6, NC2, NC3, NC5, HN2, HN4, B5, V3, AQ1, SCC3
84	PN1, PN3, PDO3
85	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
86	PN1, PDD3, PDD5, PDD6, NC2, NO5, LP5
87	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
88	A2, C2, PN1, PN3, PA3, DD3, PDD1, TO3, NC2, HN2, HN3, SE5, V4, AQ1, OS2
89	A2, C2, PN1, PN3, PN4, PN5, PA1, PA2, PDD1, PDO1, PDC6, TC2, TC6, TC7, TO4, NC2, NC3, NC5, NC6, HN2, HN3, V3, CI3, OS2
90	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
91	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
92	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
93	PN1, PN3, PN5, PA2, SE2, TO4
94	PN1, PN3, PN4, PN5, PA3, PDO2, TC6, TO3, TO4, OS1
95	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
96	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
97	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2

Submission Number	Issues
98	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
99	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
100	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
101	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
102	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
103	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
104	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
105	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
106	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
107	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
108	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
109	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
110	PN5 C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
111	A2, C2, C3, PN1, PN2, PN3, PN4, PN5, PA2, DD2, DD3, PDD1, PDD2, PDD3, PDO1, PDO3, TC2, TC5, NC2, NC5, HN1, HN2, HN3, SE2, V1, HRS2
112	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
113	PN1, NO3, LP1, HRS2, OS2
114	PN1,PN3, PN5, TO3, HN2, OS1
115	PN1, PDO3, SE5
116	PN1,PN3, PN5, PA2, TC2, NC2, LP4
11600001	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
117	PN1, PN5, DD3, TC2, TC6, HN2, SE2, B2, V1, OS2
118	PN1, PN2, PN5, PA2, PA3, PDD1, PDO3, TC2, TC6, TO3, NC2, NC6, HN2, SE2
119	PN1, PN2, PN3, PN5, PA2, DD3, TO5, OS2
120	PN1, PDD8, TC8, FF1, FF3, EM1, V1
121	PN1
122	PN1, PDD3, PDD8
123	PN1, PN2, PN3, PDC6
124	PN1, PDD5, PDD7, PDC7, NC3
125	C2, PN1, PN2, PN3, PN5, PA2, PDO3 TC2 TC6 NC2, SE2, V3
126	PN1, PN3, PN5, PDO3
127	NC2, NO3, NO5, PDD5, V4
128	PN1, PN3, PDD1
129	PN1, PDD2, PDO2, PDC6, TC6, SCC1, OS1
130	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
131	PN1, PN3, PA2, PA3, PDO2 C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
132	PN1, PN3, PN5, PA3, HN2
133	C1, PN1, PN3, PN5, PA3, TC6, HN3
134	A2, C2, PN1, PN3, PN5, PA2, PA3, PDD5, PDD6, PDC6, PDO3, NC2, NO2, NO4, HN2, SE5, SCC3
135	PN1, PN3, TC2
136	PN1, PN3, SE2, CI3
137	PN1, PN3, PN5, PDC5, PDO1, TC2, TC4, TC6, TC7, TC8, HN2, B2
138	PN1, PN2, PN5,TC2, TC4, TC7, TC8, TO3, HN2, SE1, B2
139	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
140	PN1, PN2, PN5, PDC5, PDO2, PDO3, TC2,TC6
141	PN1, PN5
142	PN1, PN5, PDD7, PDC6, TC2, FF3, V1
143	PN1, PN3, PN5, PA2, PDO3, TO3, TO4, HN2 SE1, B2, B5
144	PN1, PN3, PN5, PDC5, TC2, TC7, TC8, TO3, SE1, B2, B5, OS1
145	C2, PN1, PN3, PN5, PA3, TC6, HN3, V3
146	C2, PN1, PN3, PA3, PDD3, PDC4, PDC5, PDC6, PDO1, TC2, NC2, NC3, HN2, SE2, B2, HW2, FF1, CI3
147	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
148	PN1, PA4, PDD2, PDD3
149	PN1, PN3, PDD2, V3, OS2

Submission Number	Issues
150	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
151	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
152	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
153	Sydney Airport
154	National Trust of Australia
155	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
156	PN1, PN2, PN3, PA1, PDD1, TC2, TC6
157	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
158	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
159	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
160	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
161	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
162	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
163	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
164	PN1, PN3, PN5, PA3, PDD1, PDC6, HN2, SE2, V3
165	PN1, PN3, PN5, PA3, PDD1, PDC6, HN2, SE2, V3
166	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
167	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
168	PN1, PDD3, PDD8, TC2, TO6, TO7
169	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
170	A2, C1, PN1, PN5, PA3, PDD1, PDO3, OS1, OS2
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171	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
172	PN1, PN4, PA3, PDD1, TC6, TC7, NC2, NC5, AQ1, OS2, OS1
173	PN2, PN3, PN5, PA2, PA3, PDD1, PDO1, PDO2, HN2
174	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
175	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
176	PN1, PN4, TC6, SE2
177	PN1, TC6
178	C1, C2, PN1, PDD3, PDD8, HN3, B5, V1
179	PN1, PDD6, TC2, SE2
180	PN1, PA4, TC7, HN4, V3, PN1, PN3, PN5, PA3, PDD1, PDC6, HN2, SE2, V3
181	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
182	TO4, C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
183	C1, C2, PN1, PN3, PN5, PA3, PDD2 PDD3, PDO1, TC2, TC6, TC7, HN2, HN4, HN5, V1, V3, FF3
184	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
185	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
186	C1, C2, PN1, PN3, PN4, DD3, PDD1, PDD8, TO7, NC3, NC5, SE5, V1, V4
187	PN1, PN3, PN5, PDD1, PDO2, TC4, TC6, TC8, NC2
188	PN1, PN4, PN5, PDD1, PDC5, PDO2, TC2, TC6, TO3, NC2, HN3
189	PN1, PN3, PN5, PA3, PDD1, PDC6, HN2, SE2, V3
190	PN1, PN3, PN5, PA3, PDD1, PDC6, HN2, SE2, V3
191	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
192	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
193	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
194	C2, PN1, PN5, PA1, DD3, PDD8, HN5, SE2, FF1, FF3, V1, V3
195	PN1, PDD5, NC2, NC6, NO3, NO5, V4, OS2
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196	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
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198	PN1, PN3, PN4, PN5, PN6, PA2, PDD2, PDD3, PDO2, PDO3, SCC3, OS2
19800001	PN1, PDO3
199	C2, PN1, PN3, PN4, PN5, PA2, PA3, PDD1, TC2, TC6, TC7, NC3, NC5, NC6, HN2, HN3, V3, CI3
200	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
201	PN1, PN3, PN5, TC6, HN2, V3

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202	PN1, PN3
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204	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
205	PN1, PA1, PDD1, PDD2, PDO1
206	PN1, PN2, PA2, PDD1, PDO2, PDO3, TO3, TO4, OS1
207	PN1, PN3, PN5, PDD1, PDO3, TC2, TC4
208	C2, PN1, PN3, PN4, PN5, PA2, PA3, PDD1, TC2, TC6, TC7, TO3, NC3, NC5, NC6, HN2, HN3, V3, CI3
209	PN1, PN3, PN5, PDO3, TC2, TC6, TC8, TO3, HN3, SE1, B2
210	PN1, PN3, PN5, PDD1, PDO3, TO3, SE2
211	PN1, PN3, PDD2, TC2, TC6, NC2, HN2
212	PN1, PN3, PN5, PA2, PDO3, SCC3
213	PN3, PA2, PA3, PDD7, PDO1, PDC6, OS1, TO3
214	PN1, PN3, PN5, PDD1, PDO3, TC2, TC4, TC6, TC8, TO3, HN3, SE1, B2, CI1, CI3
215	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
216	PN1
217	C3, PN1, TC1, TC2, TC6, NC6, SE2, LP6
218	PN1, PN3, PN5 C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
219	PN1, PN3, PN5, PDD1, TO3
220	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
221	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
222	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
223	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
224	V3, FF1, C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
225	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
226	C2, PN1, PN3, PN5, PDD1, TC4, TC6, HN3, SE1
227	PN1, PN3, PN5, PDC5, HN2, CI3
228	PN1, PN3, PA2, PA3, C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
229	PDO3, C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
230	C3, PN1, TC7, TC8, TC10, B2, B3, B5
231	PN2, PN3, PA3, PDO3, TC2, TC6, TO3, LP4, SE1, C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
232	PN3, PDD8, PDC6, TC6, HN3, C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
233	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
234	NSW Health
235	PN1, PN3, PN4, PN5, PA3, DD2, PDD1, PDC6, TC2, TO3, NC3, NC5, HN2, HN3, HN6, V1, V4
236	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
237	Office of Environment and Heritage
238	PN1, V4
239	PN1, PDD1
240	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
241	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
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249	PN1, PN3, PN5, PA3, PDD1, PDD8, TC6, OS2
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251	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
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253	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2

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254	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
255	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
256	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
257	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
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262	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
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277	A2, C1, C2, PN1, PN3, PN5, PA2, PDC6, NC2, NC3, NC5, TC2, TC6, HN2, V3, SCC3, AQ1
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279	PN1, PN3, PN5, PA2, PDD1, PDO3, OS1, OS2
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281	PN1, PN3, PN5, PA2, PDD1, PDO3, TO3
282	C2, PN1, PN3, PN4, PN5, PA3, PDD2, PDD8, PDC5, TC6, TO3, HN3, V4, OS1
283	A2, C2, PN1, PN3, PN5, PA2, PDC6, TC2, TC6, NC2, NC3, NC5, HN3, HN4, V3, SCC3
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285	PN1, PA2, PA3, OS2
286	C2, PN1, PN3, PN5, PA2, PA3, PDD1, PDO3, PDO1, HN2, SE2, B2
287	C2, PN1, PN2, PN3, PN4, PN5, PDD1, PDO3, TC6, TO3, HN2, B5
288	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
289	Inner West Council
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291	PN1, PN3, PDD2, HN3
292	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
293	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
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297	B2, C2, HN2, PA2, PA3, PDD1, PDO3, PDO1, PN1, PN3, PN5, SE2
298	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
299	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
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311	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
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317	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
318	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
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330	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
331	C2, PN1, PN3, PN4, PN5, PA2, PA3, PDD1, TC2, TC6, TC7, NC3, NC5, NC6, HN2, HN3, V3, CI3
332	PN1, PN3, PN5, PDO3, TC2, SE2, FF3, SCC1
333	PN1, PN3, PN5, PA2, HN2
334	PN1, PA4, HN3
335	C2, PN1, PN5, PA3, PDO3, TC2, TC4, TC8
336	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
337	PN1, PN5, PA2, PA3, TO3
338	A2, C2, PN1, NC2, NC3, NC5, NC6, NO5, TC6, TC8, V4
339	PN1, PA2, PA3, PDO1
340	C2, PN1, PN3, PA2, PDD1, TC6, TO4, NC2, SE2
341	PN1, PN2, PN3, PA2, PA3, PDD1, PDD2, TC6
342	GreenWay
343	PN1, PN5, PA2, PDO1, TC6, HN2, HN3, LP6, C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
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345	C1, PN1, PN3, PN5, PDO3, NC2, NC3, NC5
346	PN1, PN2, PN5, PDO3, TC2, TC4, TC7, TC8, TO3, HN2, SE1, SE2, B5
347	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
348	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
349	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
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365	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2

Submission Number	Issues
366	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
367	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
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369	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
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379	C2, PN1, PN3, PN5, PA2, PA3, PDD1, PDO1, PDO3, HN2, SE2, B2
380	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
381	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
382	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
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396	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
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412	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
413	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
414	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
415	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
416	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
417	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
418	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
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Submission Number	Issues
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424	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
425	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
426	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
427	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
428	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
429	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
430	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
431	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
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436	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
437	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
438	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
439	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
440	Australian Institute of Architects
441	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
442	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
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462	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
463	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
464	PN1, PN3, PN5, PA2, TC6, HN2, V3
465	PN1, PN3, PN5, TC6, HN2, V3
466	PN1, PN3, PN5, TC6, HN2, V3
467	PN1, PDD8, HW2
468	TO3, C2, PN1, PN3, PN4, PN5, PA2, PA3, PDD1, TC2, TC6, TC7, NC3, NC5, NC6, HN2, HN3, V3, CI3
469	PN1, PN3, PN5, PA2, SE2, C2, PN1, PN3, PN4, PN5, PA2, PA3, PDD1, TC2, TC6, TC7, NC3, NC5, NC6, HN2, HN3, V3, CI3
470	PN1, PN5, PA2, PDO1
471	C2, PN1, PN3, PN5, PA2, PDD1, PDO2, PDO3, PDC5, TC6, TO3, NC6, SE2, SE6, CI1, OS1, OS2
47100001	PN1,PN3, PN4, PDO3, SE5
472	PN1, PN3, PN5, PA3, C2, PN1, PN3, PN4, PN5, PA2, PA3, PDD1, TC2, TC6, TC7, NC3, NC5, NC6, HN2, HN3, V3, CI3
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476	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
477	PN1, PN3, PN5, PA3, PDO2, TC2, HN2
478	PN1, PN3, PN5, PA3, PDO2, TC2, HN2
479	PN1, TC3, TO2, V1
480	C2, PN1, PN3, PN4, PN5, PA2, PA3, PDD1, TC2, TC6, TC7, NC3, NC5, NC6, HN2, HN3, V3, CI3
481	PN1, PN3, PN5, PDO1, PDO3, TC2, TC8
482	PN1, PN3, PN5, PDO1, PDO3, TC2, TC8
483	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
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493	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
494	PN1, PN5, PA2, PDD1, HN2, FF1, CI3
495	PN1, PN3, PA2, PDD1, PDD4, PDO2, PDO3, TC2, TC3, NC6, SE2, V1
496	C1, PN1, PN2, PN3, PA2, PA3, PDO2, PDO3, TC6, SE5
497	C1, PN1, PN3, PN5, PDD1, PDO3, TC6, TO3, HN2, SE2, SE5, B2
498	C2, PN1, PN2, PDO1, PDO3, TC6, SE5
499	C2, PN1, PN3, PN5, TC6
500	DD3, PDD2, PDD8, OS2
501	PN1, PN5, TC2, TC6, NC3, NC5, HN3, SE5
50100001	PN1, PN5, TC2, TC6, NC3, NC5, HN3, SE5
502	PN1, PN3, PN4, PN5, PA3, PDD1, PDO3, TO3, TO4, SE2
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504	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
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520	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
521	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
522	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
523	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
524	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
525	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
526	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
527	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
528	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2

Submission Number	Issues
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531	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
532	PN1, PN3, PN5, PDD1, PDO3
533	C2, PN1, PN3, PN4, PN5, PA2, PA3, PDD1, TC2, TC6, TC7, NC3, NC5, NC6, HN2, HN3, V3, CI3
534	A2, PN1, PN4, PA3, PDD2, PDD3, PDO4, TO6, NC2, NC3, NC6, HN2, LP1, SE2, CI1
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536	A2, PN1, PN4, PA3, PDD2, PDD3, PDO4, SE2, TO6, NC2, NC3, NC6, HN2, LP1, CI1
537	PN1, PN3, PA2, PA3, DD2, PDD2, PDD3, PDD7, TC2, TC6, TO6, NC1, NC2, NC5, NO2, HN2, HN5, B2, V1, V3, SCC3, HRS2
538	C2, PN1, PN3, PN5, PA2, PA3, PDC6, TC6, NC2, NC3, NC5, HN2, HN4, V3, SCC3, SE2
539	LP1, FF3, V1
540	PN1, PN3, PA2, PDD1, PDD3
541	C2, PN1, PN3, PN4, PN5, PA2, PA3, PDD1, TC2, TC6, TC7, NC3, NC5, NC6, HN2, HN3, V3, CI3
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543	PN1, PA4
544	A2, PN1, PN3, PN5, PA2, PDD1, PDO1, HN2, SE2
LS1	A2, PN3, PA4, PDD7, PDD8, PDO4, PDC4, HW3, FF1, FF3
LS2	PN1, PA4, NC2, NC3, NC5, NC6, NO5, NO6, HN4, LP5, V4, HRS2
LS3	PN3, PN5, PDD2, PDD3, PDD7, PDO3, PDC4, PDC5, TC2, TC6, TC7, TC8, NC3, HN3, LP4, SE1, V1, HW2, CI1, OS1
LS4	A1, A2, C1, PN1, PN3, PN5, PDD2, PDD6, PDO1, TC6, TC7,TC8, TO6, NC2, NC3, HN1, HN2, HN3, HN4, HN5, LP4, SE1, B2, CI3
LS5	Canterbury Bankstown Council

Table A.3 Identification of late submissions

Submitter	Submission number
Cooks River Valley Association	LS1
Community member	LS2
Ms Jo Haylen MP	LS3
Keep Our Area Suburban	LS4

SYDENHAM TO BANKSTOWN

SUBMISSIONS AND PREFERRED INFRASTRUCTURE REPORT

> Appendix A - Issue categories and where to find responses to issues raised in submissions

City & Southwest

SYDENHAM TO BANKSTOWN

SUBMISSIONS AND PREFERRED INFRASTRUCTURE REPORT

> Appendix B - Preferred project description

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Transport for NSW

Sydney Metro City & Southwest

Sydenham to Bankstown upgrade

Submissions and Preferred Infrastructure Report

Preferred project description

Final

June 2018

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Table index

Figure index

1. Preferred project description – operation

This section provides a description of the preferred project's operational features, and how the preferred project would operate. The preferred project's construction description is provided in Section 2.

1.1 Preferred project infrastructure and features

The main infrastructure and features that form part of the preferred project are described in this section, and are shown in Figure 1.1. These include:

- works to upgrade the 10 stations and station areas between Marrickville and Bankstown (inclusive) and to provide lifts at stations where there are none currently
- works to allow for a metro service to Bankstown, including:
  - station works
  - track and rail system facility works
  - other works to support metro operations.

It is noted that the project scope described in this section is based on the level of design developed to date. Detailed design would include further engineering, construction planning, and detailed assessment work, and would be subject to further input from key stakeholders and consultation with the community.

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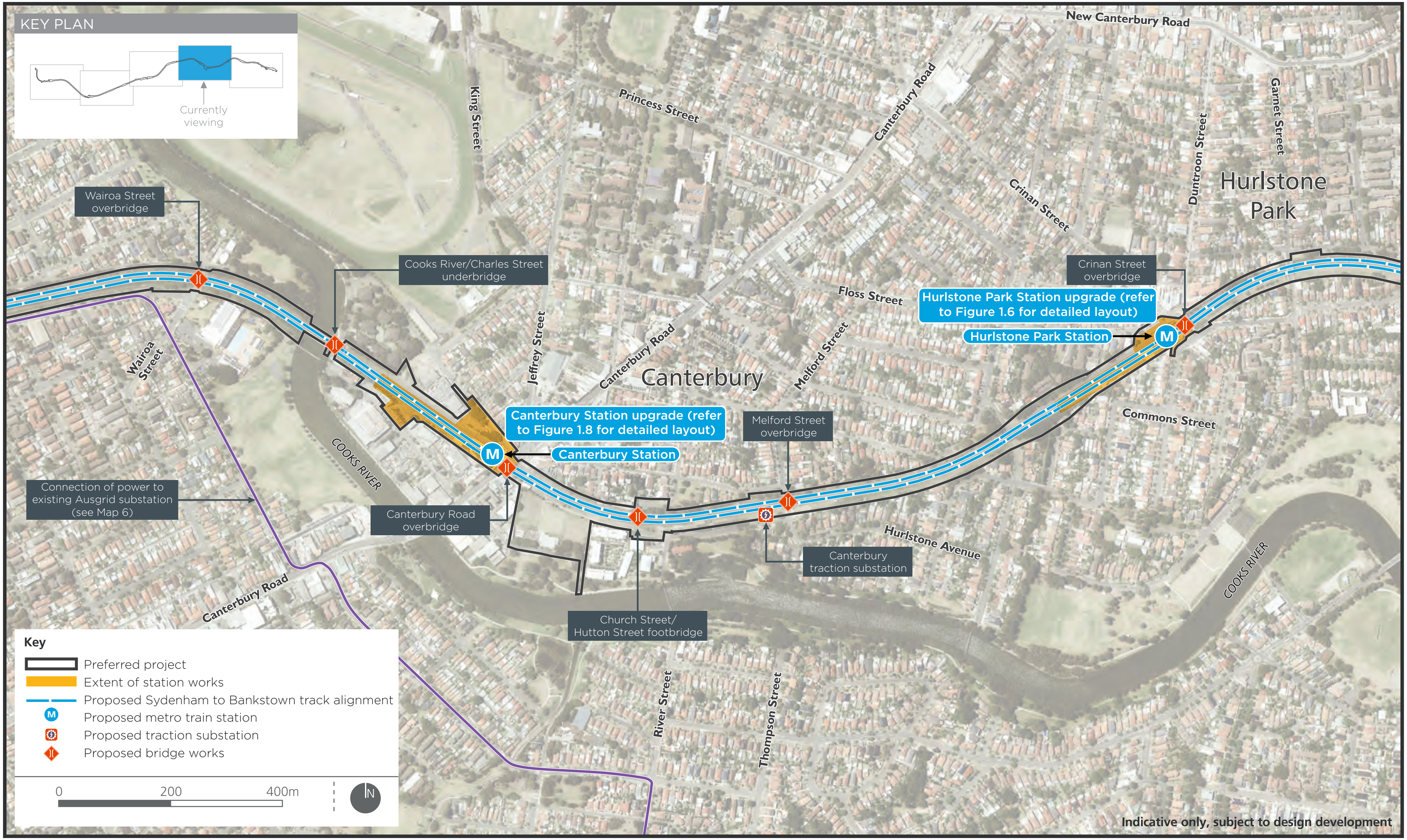
Preferred project infrastructure and features - map 1

FIGURE 1.1



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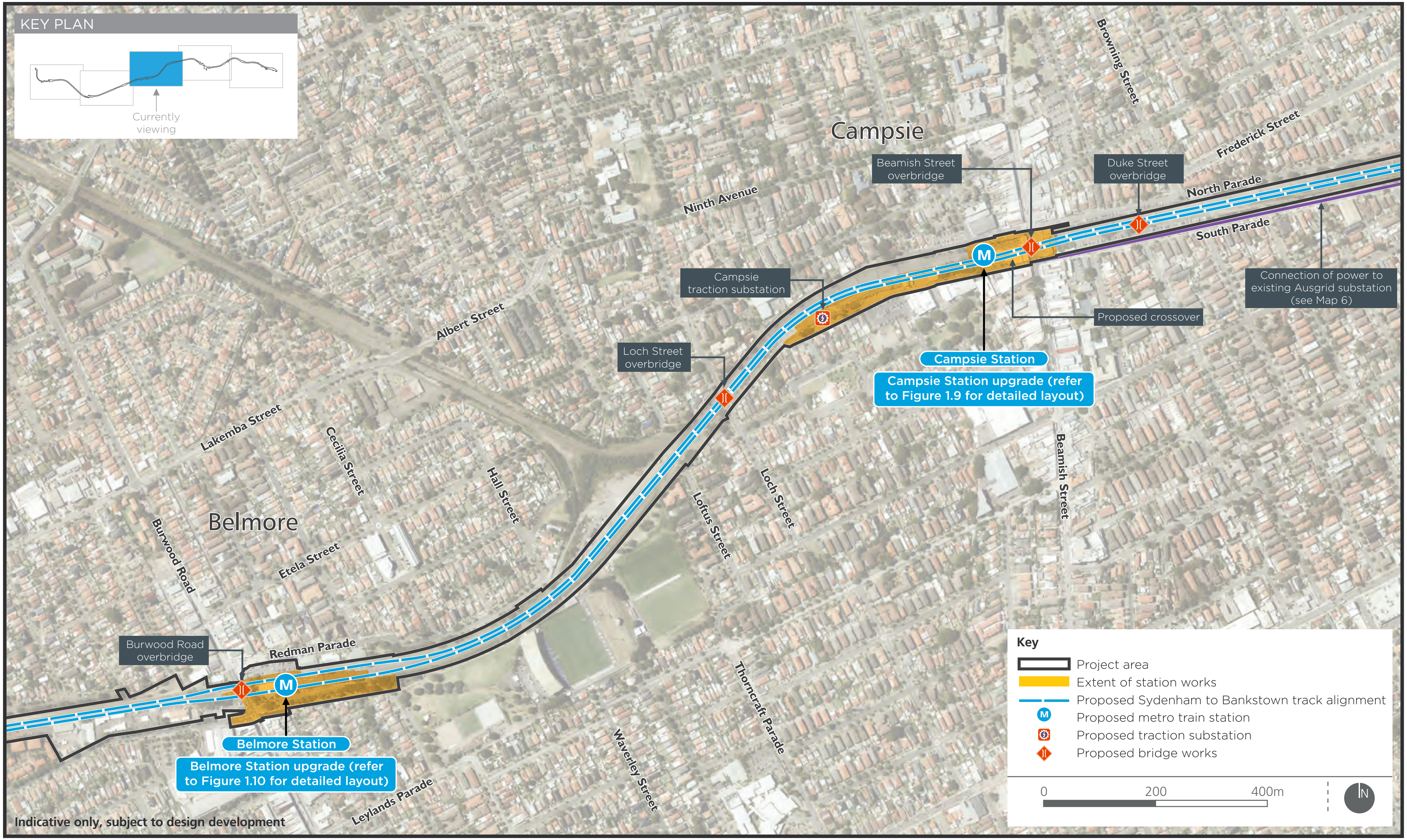
Preferred project infrastructure and features - map 2

FIGURE 1.1



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Preferred project infrastructure and features - map 3

FIGURE 1.1

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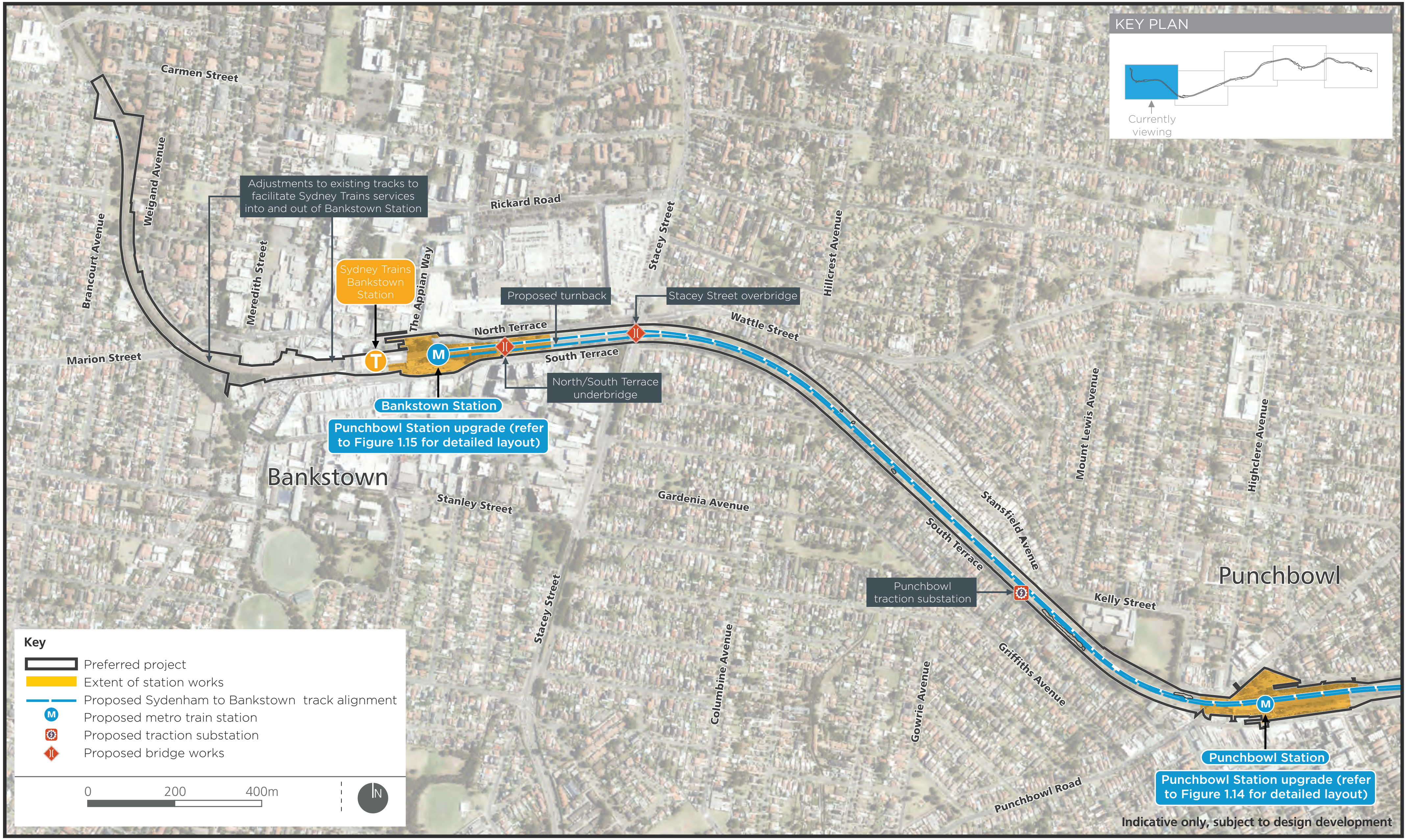
Preferred project infrastructure and features - map 4

FIGURE 1.1



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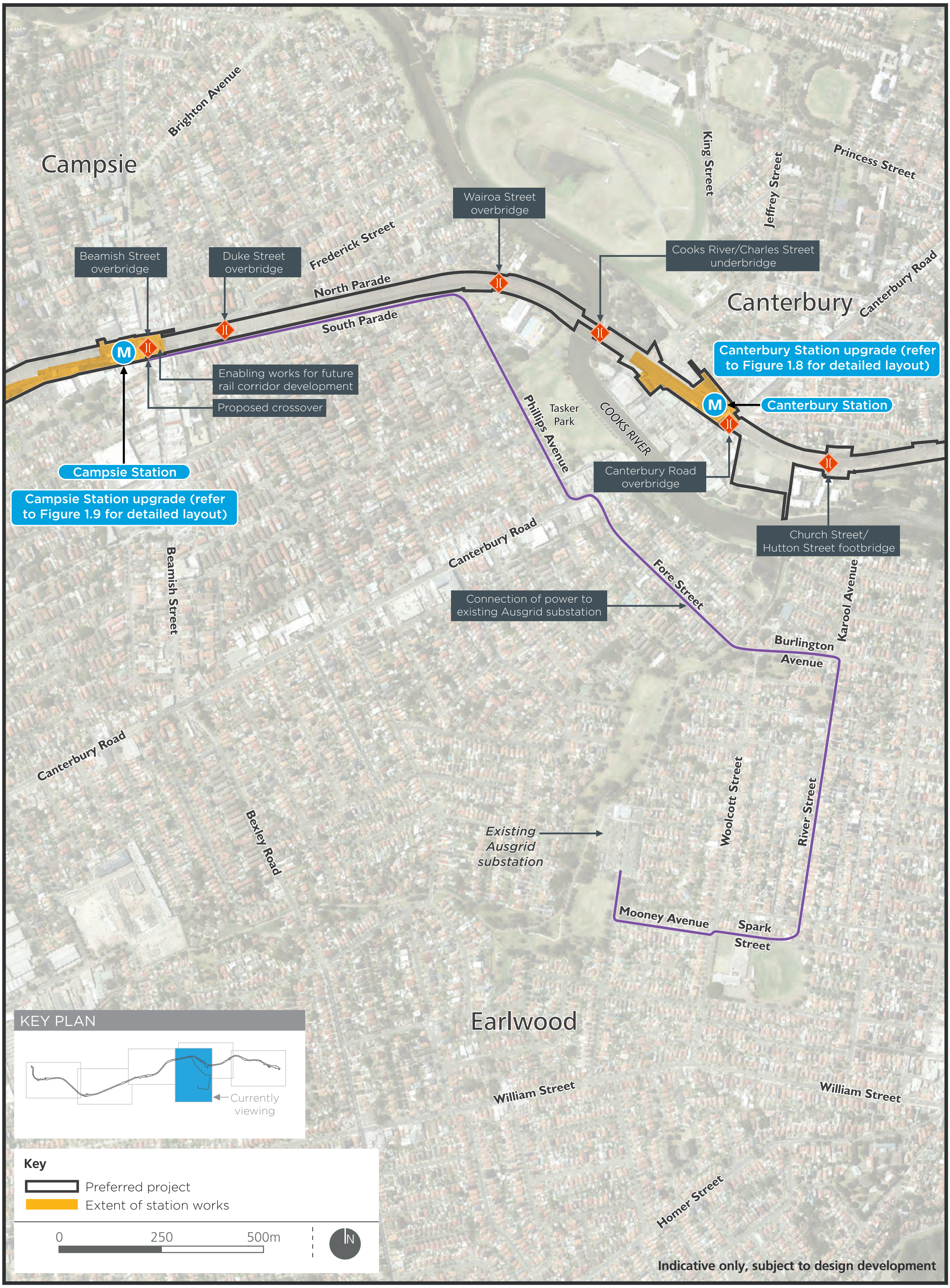
Preferred project infrastructure and features - map 5

FIGURE 1.1



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Preferred project infrastructure and features - map 6

FIGURE 1.1

1.1.1 Works to upgrade stations

The preferred project includes upgrading the 10 stations between Marrickville and Bankstown.

The works required at each station depend on the nature and condition of the existing facilities, and generally include:

- platform works, which could include:
  - re-levelling of the platforms to provide a consistent height and finish
  - provision of platform screen doors
  - provision of emergency egress ramps
- new lifts to access the station and station platforms at stations that do not currently have lift access
- refurbishment/repurposing of station buildings on platforms or at station entrances, including control and communication rooms, toilets, staff facilities, storerooms, and offices
- provision of accessible toilets
- renewing/revitalising of station interiors and exteriors, where required
- signage and wayfinding at the station.

Works would also be undertaken in the areas around the stations (i.e. the station area) to better integrate with other modes of transport. This would include:

- enhancements to footpaths / paving and lighting in the vicinity of station entrances
- landscaping and street furniture particularly within the areas near station entrances and along the corridor
- provision of new and/or relocated bicycle parking facilities
- new, upgraded or relocated parking and kerb side facilities, including accessible parking, kiss and ride, and taxi facilities.

A more detailed description of the works proposed at each station is provided in the following sections. The exact nature of the works required at each station would be confirmed as an outcome of the detailed design process, which would be informed by the *Around the Tracks: urban design for heavy and light rail* (Transport for NSW, 2016).

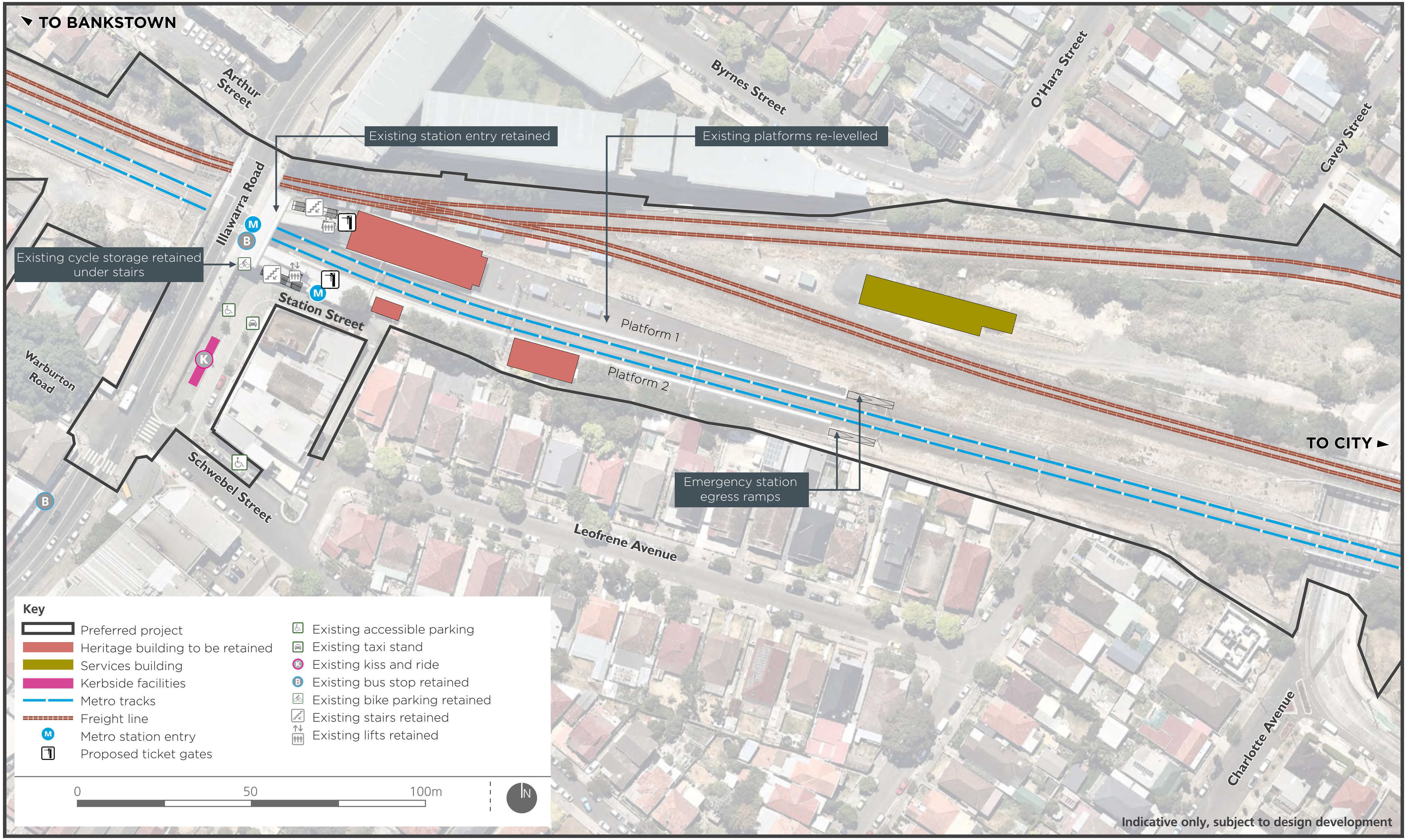
Marrickville Station

Marrickville Station is located east of the Illawarra Road overbridge. The station area is bound to the north by a multi-storey residential apartment building, located on the corner of Illawarra Road and Byrnes Street, to the south by Station Street and residential dwellings fronting Leofrene Avenue, and to the west by Illawarra Road. Station entrances are located on Illawarra Road and in Station Street.

Marrickville Station was recently upgraded as part of Transport for NSW's Transport Access Program. The key works proposed as part of the preferred project are shown on Figure 1.2 and summarised in Table 1.1. An artist's impression is provided in Figure 1.3.

Table 1.1 Marrickville Station key design elements

Description
Station works
• The existing station entrance from Illawarra Road would be retained. The existing lifts would also be retained. • The existing at-grade entry from Station Street to platform 2 would be retained. • The existing heritage listed platforms would be re-levelled. • The existing station buildings, including the recently completed elevated concourse and associated canopy, would be retained. • The existing heritage station buildings on platforms 1 and 2 would be retained and repurposed. • The former booking office on platform 2 would be retained.
Station area
• All bus stops would be retained in their current locations, including the southbound bus stop on Illawarra Road which was recently relocated as part of the upgrades to the station. • The existing kiss and ride facility on the western side of Station Street would be retained. • The existing accessible parking space on Station Street would be retained. • The existing taxi zone on Station Street would be retained. • The existing bike storage/parking facility below the station stairs would be retained. • The existing cycle route along the southern side of the rail corridor would be rerouted along Schwebel Street, Leofrene Avenue, and Riverdale Avenue.



Marrickville Station - indicative layout of key design elements

FIGURE 1.2

Marrickville Station - artist's impression

FIGURE 1.3

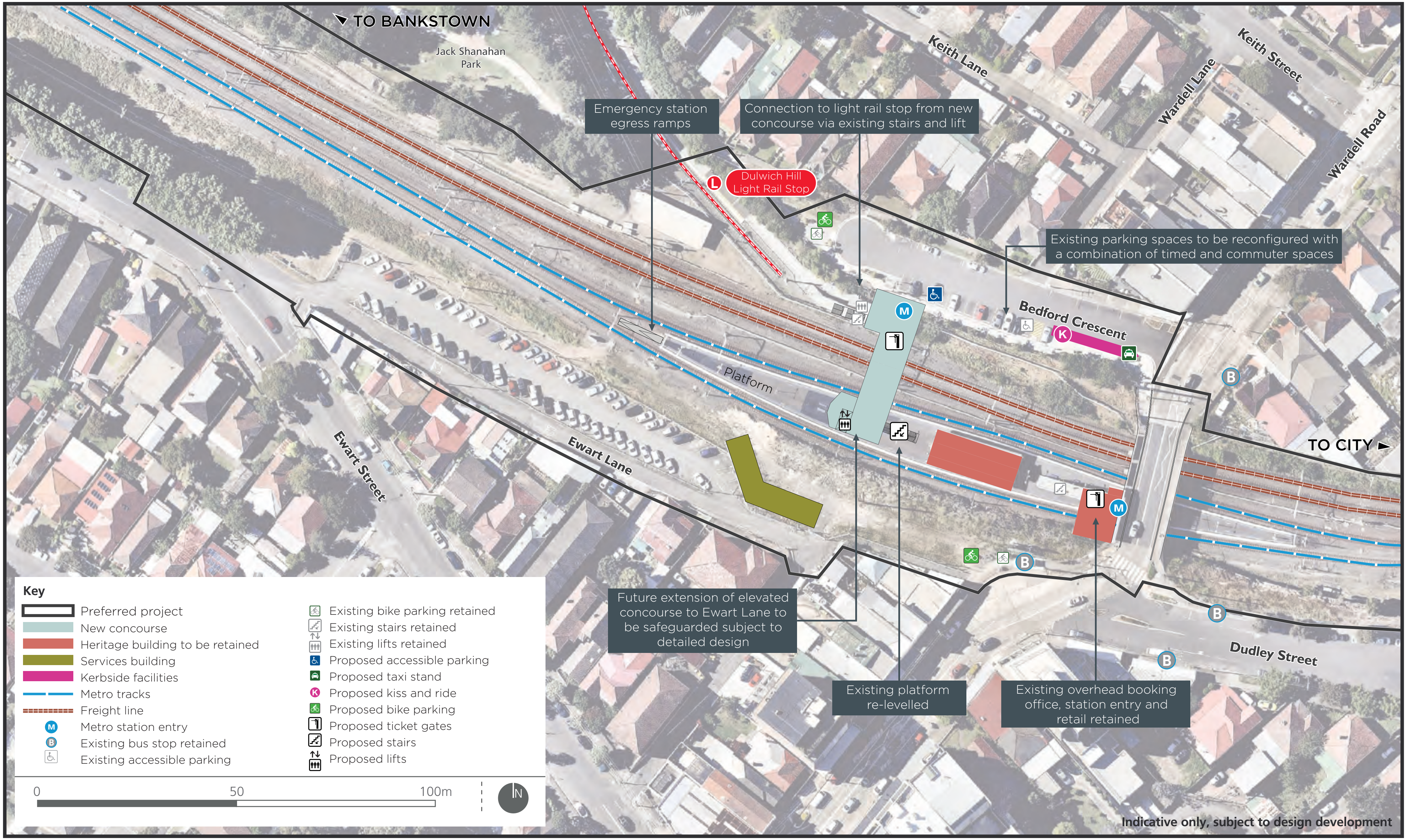
Dulwich Hill Station

Dulwich Hill Station is located west of the Wardell Road overbridge. The station area is bounded by Bedford Crescent to the north, Ewart Lane to the south, and Wardell Road to the east. The station entrance is on Wardell Road.

The key works proposed as part of the preferred project are shown in Figure 1.4 and summarised in Table 1.2. An artist's impression is provided in Figure 1.5.

Table 1.2 Dulwich Hill Station key design elements

Description
Station works
• The existing station entrance would be retained and upgraded. • A new elevated station concourse would be provided with new stairs and a lift, and would connect the station platform to the Dulwich Hill light rail stop. The concourse would be accessed from a new station entrance at Bedford Crescent (northern side). The future extension of the new elevated concourse to Ewart Lane has been safeguarded. • The existing heritage listed platforms would be re-levelled. • The existing heritage listed overhead booking office and station building on the platform would be retained and repurposed. • The existing retail within the overhead booking office would be retained.
Station area
• The existing bus stops located on Dudley Street and Wardell Road would be retained. • Existing pedestrian pathways surrounding the station would be upgraded, including from Ewart Lane to Wardell Road and from Keith Lane to Bedford Crescent. • New kiss and ride and taxi facilities would be provided on the southern side of Bedford Crescent at its eastern end. • The two existing accessible parking spaces on the southern side of the Bedford Crescent would be retained and one new accessible parking space would be provided. • Existing bike parking on Wardell Road to the south of the station would be retained. • New bike parking facilities would be provided on Wardell Road to the south of the station. • The existing bike parking spaces on Bedford Crescent would be retained and additional spaces provided.



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Dulwich Hill Station - indicative layout of key design elements

FIGURE 1.4

Dulwich Hill Station - artist's impression

FIGURE 1.5

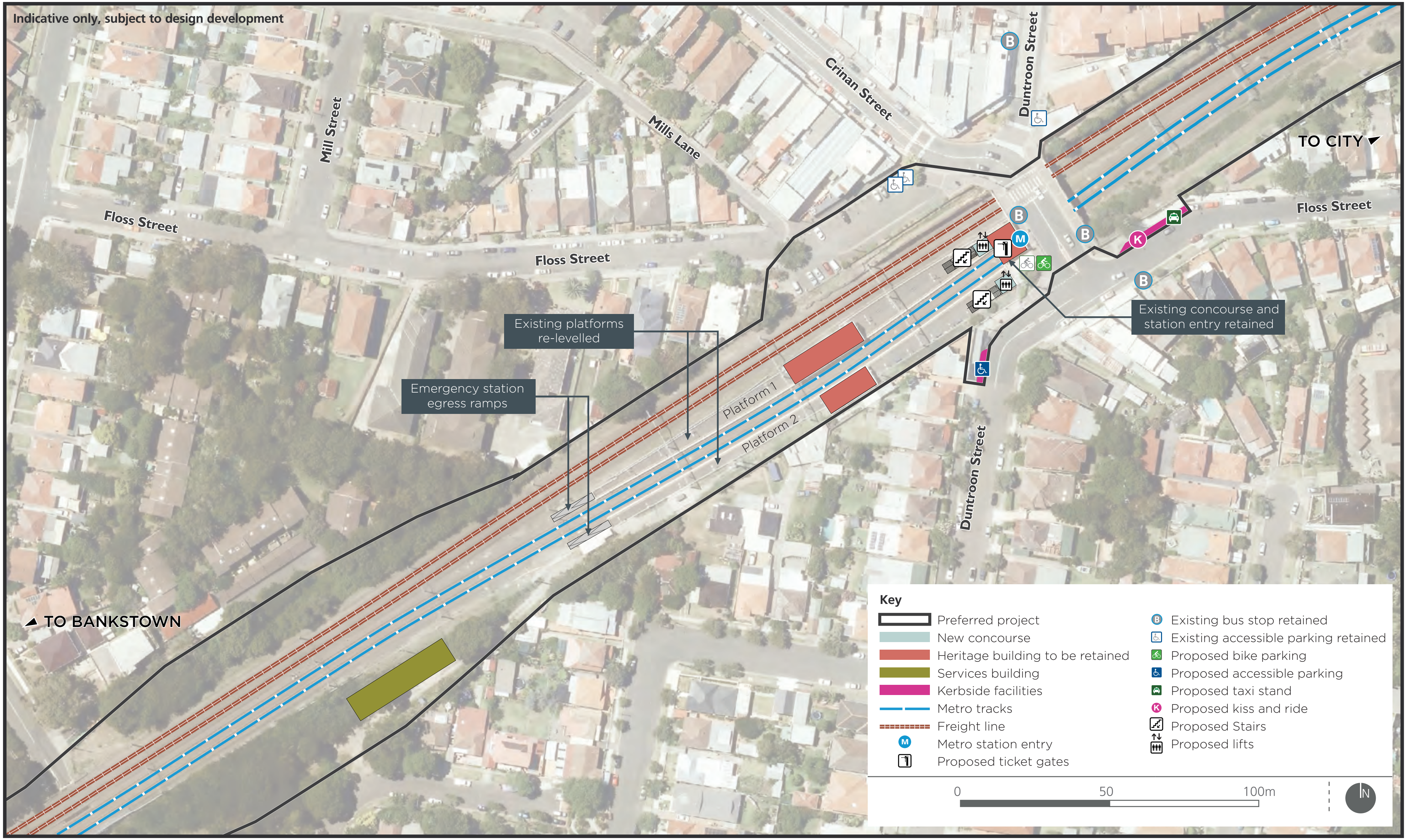
Hurlstone Park Station

Hurlstone Park Station is located to the west of the Crinan Street overbridge. The station area is bounded by Crinan and Floss streets and residential dwellings to the north, Duntroon Street and residential dwellings to the south, and Crinan Street to the west (on the bridge). The station entrance is on the overbridge.

The key works proposed as part of the preferred project are shown in Figure 1.6 and summarised in Table 1.3. An artist's impression is provided in Figure 1.7.

Table 1.3 Hurlstone Park Station key design elements

Description
Station works
• The existing station entrance would be retained and upgraded. • Two new lifts would be provided. • The existing stairs would be removed and replaced. • The existing heritage listed platforms would be re-levelled. • The existing heritage listed overhead booking office and heritage buildings on platforms 1 and 2 would be retained and repurposed.
Station area
• The existing bus stops on the overbridge would be retained. • New kerbside facilities would be located on Floss Street, on the eastern side of the overbridge adjacent to the station. • The existing accessible parking spaces on Floss Street and Duntroon Street on the northern side of the rail corridor would be retained. • New accessible parking would be provided on Duntroon Street on the southern side of the rail corridor. • The existing bike parking on Crinan Street outside the station entrance would be retained and additional bike parking provided.



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Hurlstone Park Station - indicative layout of key design elements

FIGURE 1.6

Hurlstone Park Station - artist's impression

FIGURE 1.7

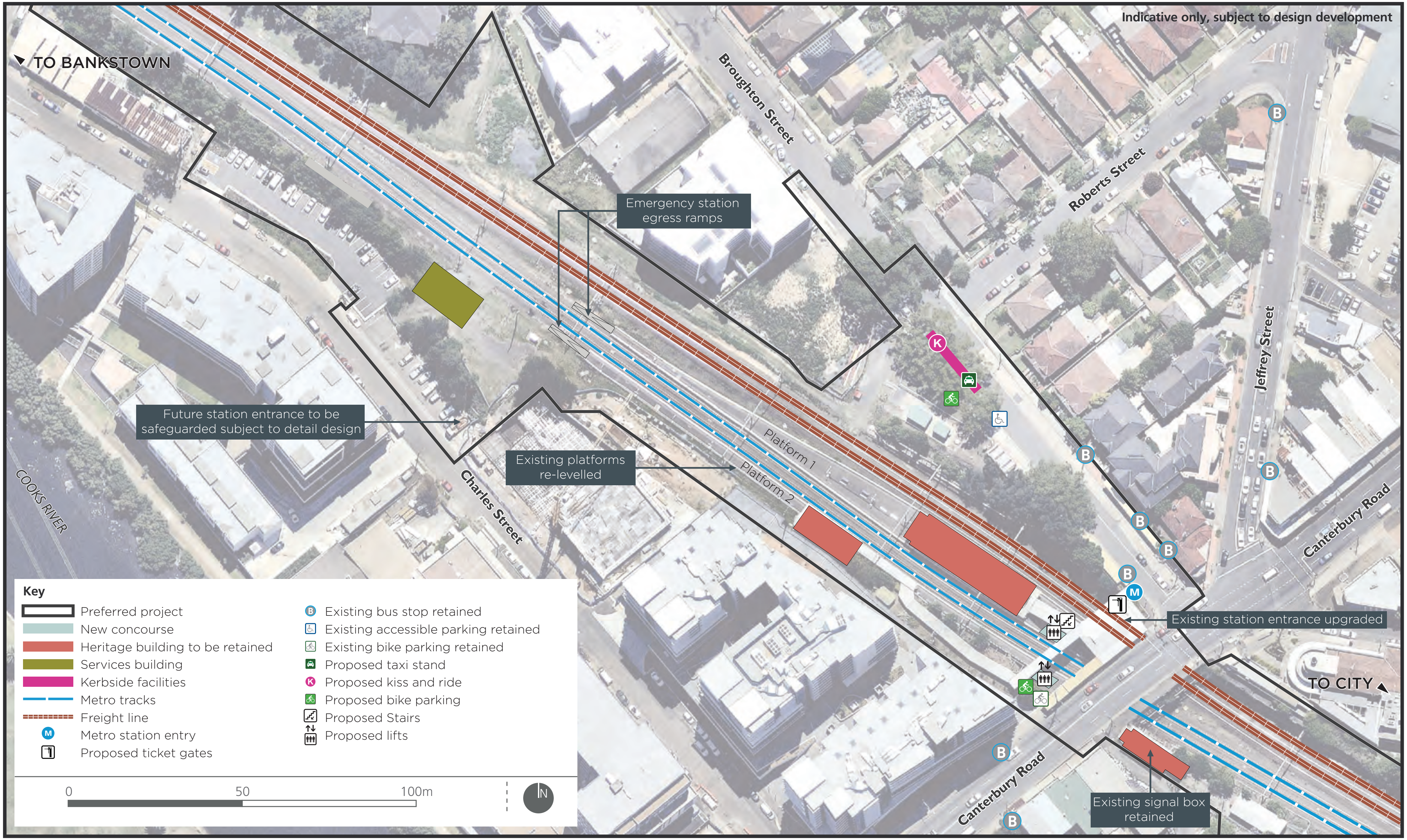
Canterbury Station

Canterbury Station is located to the north-west of the Canterbury Road overbridge. The station area is bounded by Broughton Street to the north, a large mixed use development fronting Charles Street to the south, and Canterbury Road to the east. The station entrance is on Canterbury Road.

The key works proposed as part of the preferred project are shown in Figure 1.8 and summarised in Table 1.4.

Table 1.4 Canterbury Station key design elements

Description
Station works
• The existing station entrance would be retained and upgraded. • The design provides for a potential future station entrance on Charles Street, to enable access to platform 2. • The existing heritage listed platforms would be re-levelled. • The existing stairs from platform 1 to the footbridge would be replaced with new stairs. • Two new lifts to the platforms would be provided. • The existing heritage listed footbridge and overhead booking office would be retained. • The existing heritage listed buildings on platforms 1 and 2 would be retained and repurposed. • The existing heritage listed signal box on the south-eastern side of the Canterbury Road overbridge would be retained.
Station area
• The existing bus stops on Broughton Street and Canterbury Road would be retained and the bus shelters on Broughton Street would be refurbished. • Existing pedestrian pathways surrounding the station would be upgraded. • New kerbside facilities would be provided on Broughton Street. • The existing accessible parking space on Broughton Street would be retained. • The existing bike parking on Canterbury Road would be retained and additional bike parking provided. • New bike parking would be provided on Broughton Street, directly south of the proposed kerbside facilities.



Canterbury Station - indicative layout of key design elements

FIGURE 1.8

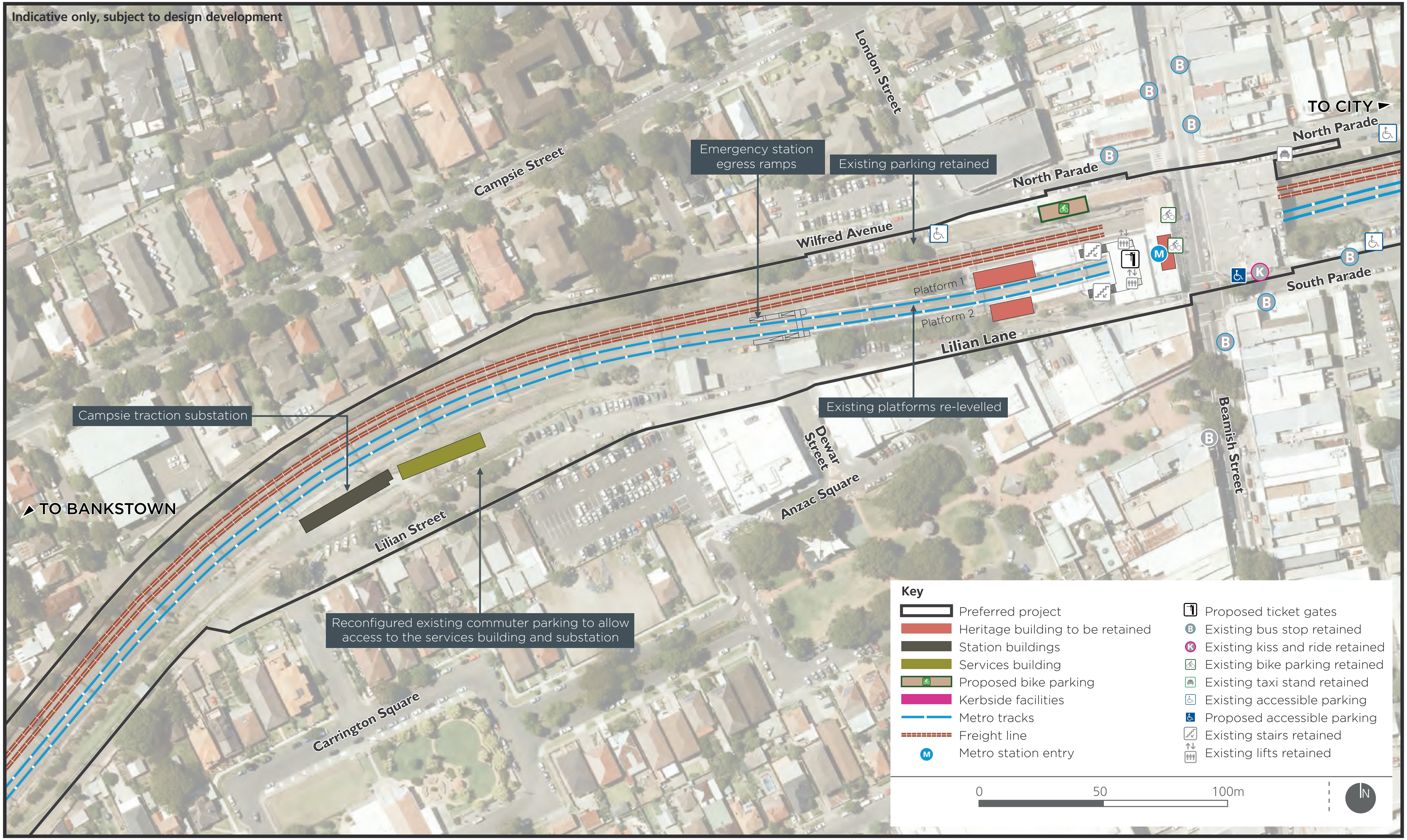
Campsie Station

Campsie Station is located to the west of the Beamish Street overbridge. The station area is bounded by Lilian Lane/South Parade to the south, Wilfred Avenue/North Parade to the north, and Beamish Street to the east. The station entrance is located on the overbridge.

The key works proposed as part of the preferred project are shown in Figure 1.9 and summarised in Table 1.5.

Table 1.5 Campsie Station key design elements

Description
Station works
• The existing station entrance at Beamish Street would be retained and upgraded. • The existing heritage listed platforms would be re-levelled. • The existing heritage listed buildings on platforms 1 and 2 would be retained and repurposed.
Station area
• The existing bus stops located in the vicinity of the station would be retained. • The existing kiss and ride facility on South Parade would be retained and a new accessible park provided at this location. • The existing taxi stand on North Parade would be retained. • The existing accessible parking on North Parade, Wilfred Avenue, and South Parade would be retained. • The existing bike parking on Beamish Street outside the station would be retained. • New bike parking facilities would be provided on North Parade.



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Campsie Station - indicative layout of key design elements

FIGURE 1.9

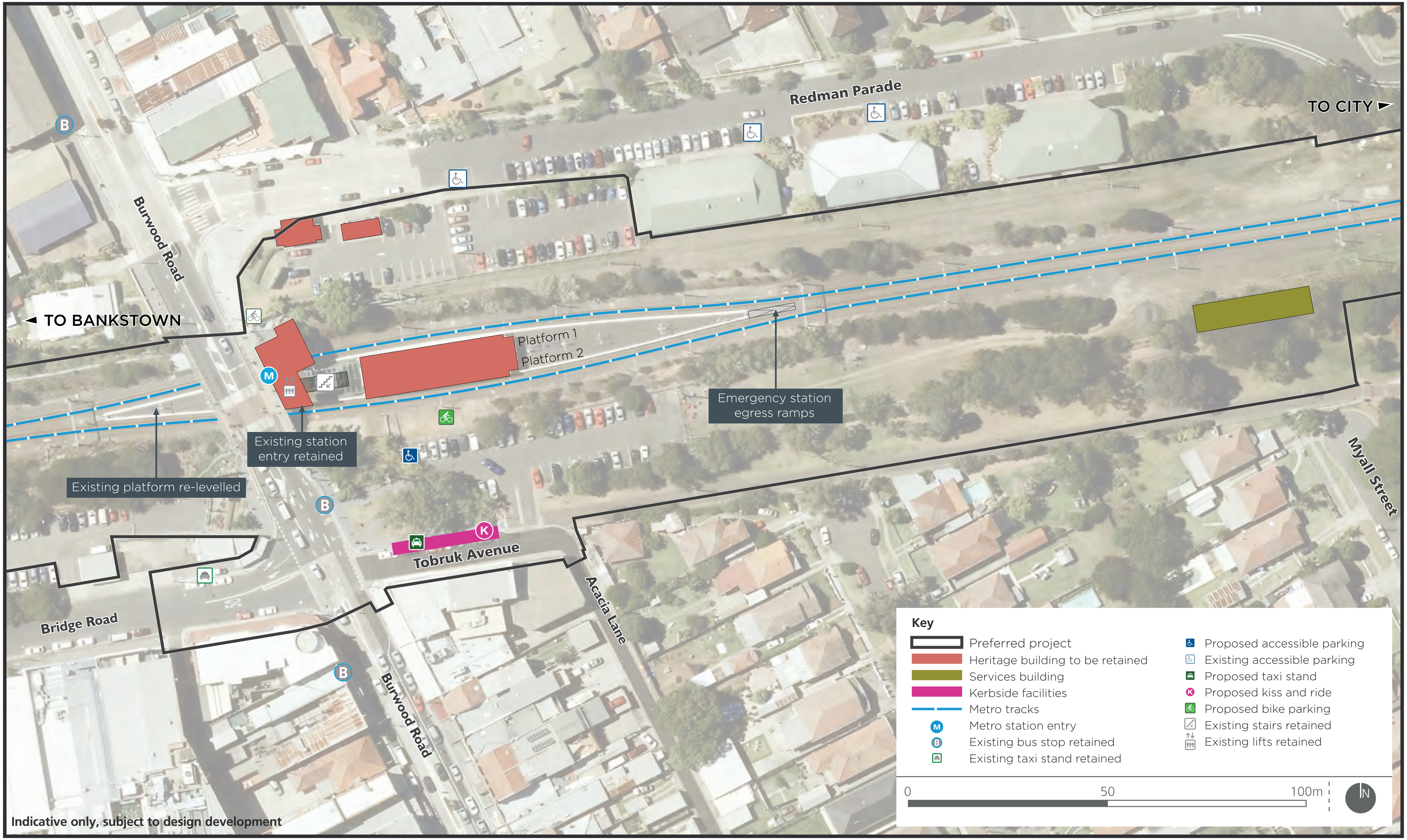
Belmore Station

Belmore Station is located to the east of the Burwood Road overbridge. To the north and south, the station area is bounded by commuter car parks fronting Redman Parade and Tobruk Avenue respectively. To the west, the station area is bounded by Burwood Road. The existing station entrance is located on the Burwood Road overbridge.

The key works proposed as part of the preferred project are shown in Figure 1.10 and summarised in Table 1.6.

Table 1.6 Belmore Station key design elements

Description
Station works
• The existing station entrance would be retained and upgraded. • The existing heritage listed platforms would be re-levelled. • The existing heritage listed platform building and overhead booking office would be retained and repurposed. • The existing heritage buildings located within the car park to the north of the station would be retained.
Station area
• The existing bus stops in the vicinity of the station would be retained. • New taxi and kiss and ride facilities, would be provided on Tobruk Avenue. • New accessible parking spaces would be provided in the Tobruk Avenue car park. • The existing accessible parking along Redman Parade would be retained. • New bike parking would be provided within the Tobruk Avenue car park. • The existing bike parking on Burwood Road to the north of the station entrance would be retained.



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Belmore Station - indicative layout of key design elements

FIGURE 1.10

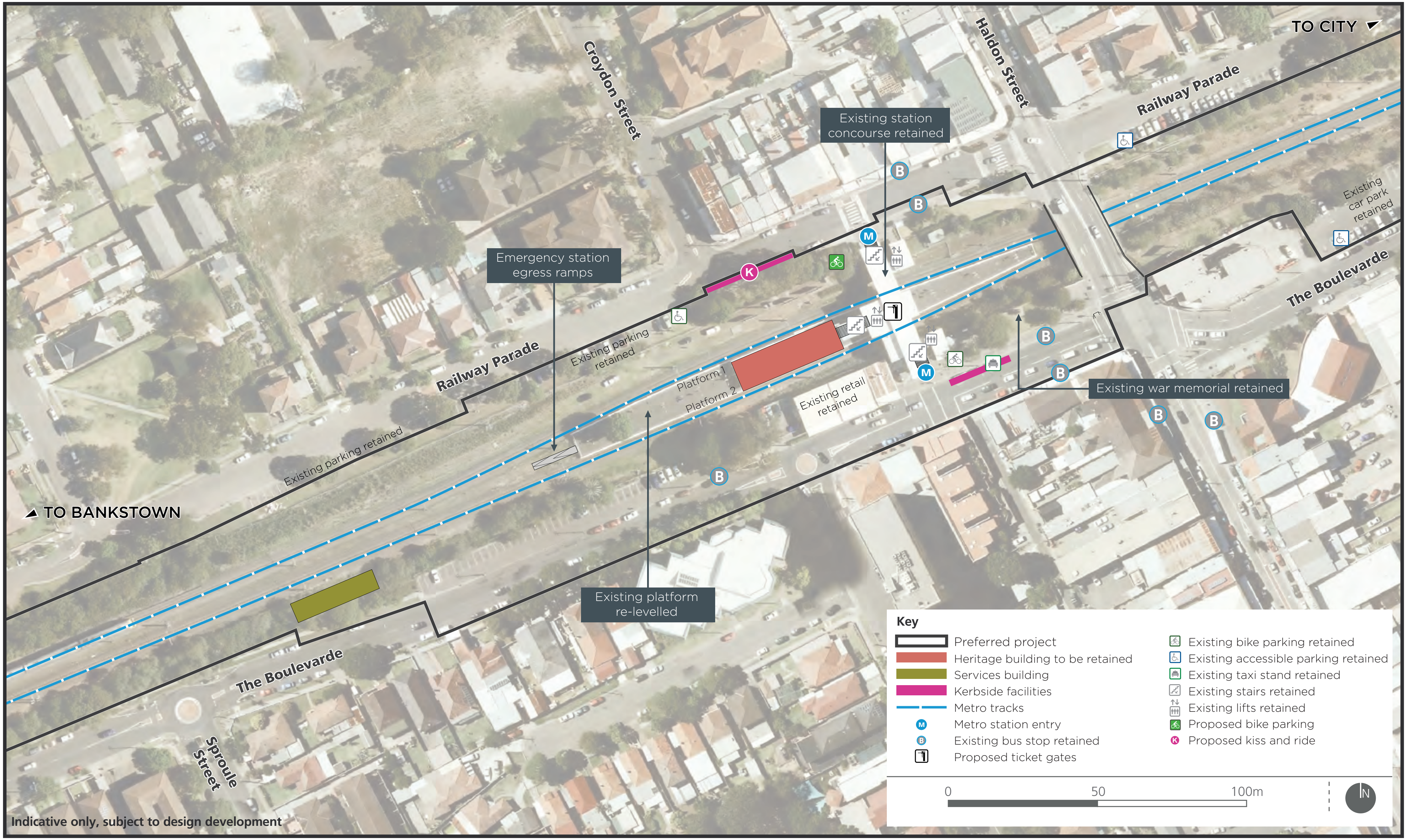
Lakemba Station

Lakemba Station is located about 60 metres to the west of the Haldon Street overbridge. The station area is bounded by Railway Parade to the north and The Boulevarde to the south. Access to the station is provided off Railway Parade and The Boulevarde.

The key works proposed as part of the preferred project are shown in Figure 1.11 and summarised in Table 1.7.

Table 1.7 Lakemba Station key design elements

Description
Station works
• The existing station entrance would be retained. • The existing heritage listed platforms would be re-levelled. • The existing heritage station building on the platform would be retained and repurposed.
Station area
• The existing bus stops located on The Boulevarde, Railway Parade, and Haldon Street (south) would be retained. • The existing bike parking on the northern side of The Boulevarde would be retained. • New bike parking would be provided on the southern side of Railway Parade. • New kiss and ride kerbside facilities would be provided on Railway Parade (west of new station entrance) and new taxi kerbside facilities would be provided on The Boulevarde (east of the new station entrance). • The existing accessible parking on Railway Parade and The Boulevarde would be retained.



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Lakemba Station - indicative layout of key design elements

FIGURE 1.11

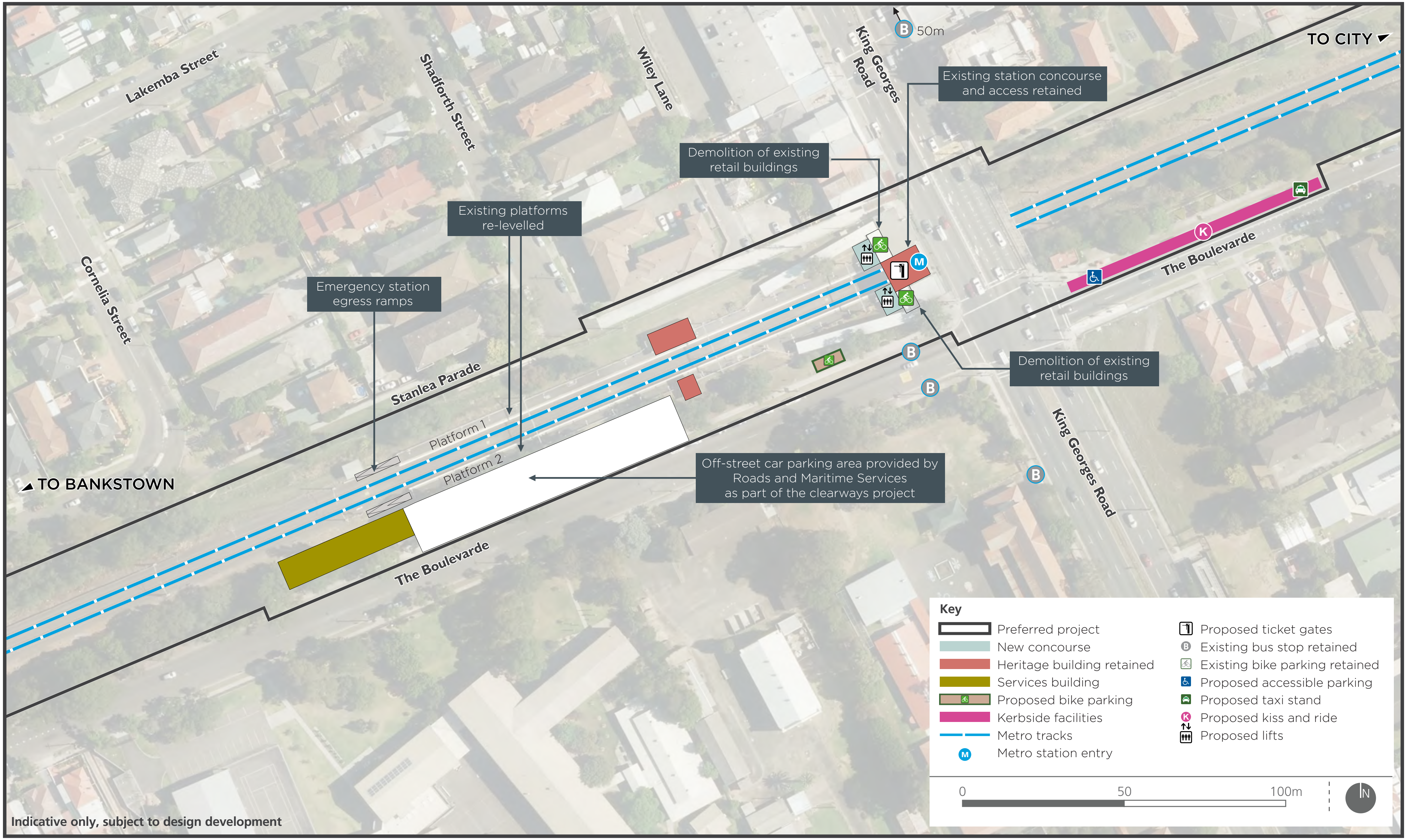
Wiley Park Station

Wiley Park Station is located to the west of the King Georges Road overbridge. The station area is bounded by Stanlea Parade walkway to the north, by King Georges Road to the east and The Boulevarde to the south. The station entrance is located on the overbridge.

The key works proposed as part of the preferred project are shown in Figure 1.12 and summarised in Table 1.8. An artist's impression is provided in Figure 1.13.

Table 1.8 Wiley Park Station key design elements

Description
Station works
• The existing station entrance would be retained and upgraded. • The existing retail shop and a disused premises at the station entrance would be demolished. • Two new lifts would be provided. • The existing heritage listed platform would be re-levelled. • The existing heritage listed overhead booking office, concourse and platform buildings would be retained and repurposed.
Station area
• The existing bus stops would be retained. • Existing pedestrian pathways surrounding the station would be upgraded. • New bike parking would be provided on The Boulevarde and at the station entrance. • New kerbside facilities and accessible parking would be provided on The Boulevarde, east of King Georges Road.



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Wiley Park Station - indicative layout of key design elements

FIGURE 1.12

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Wiley Park Station - artist's impression

FIGURE 1.13

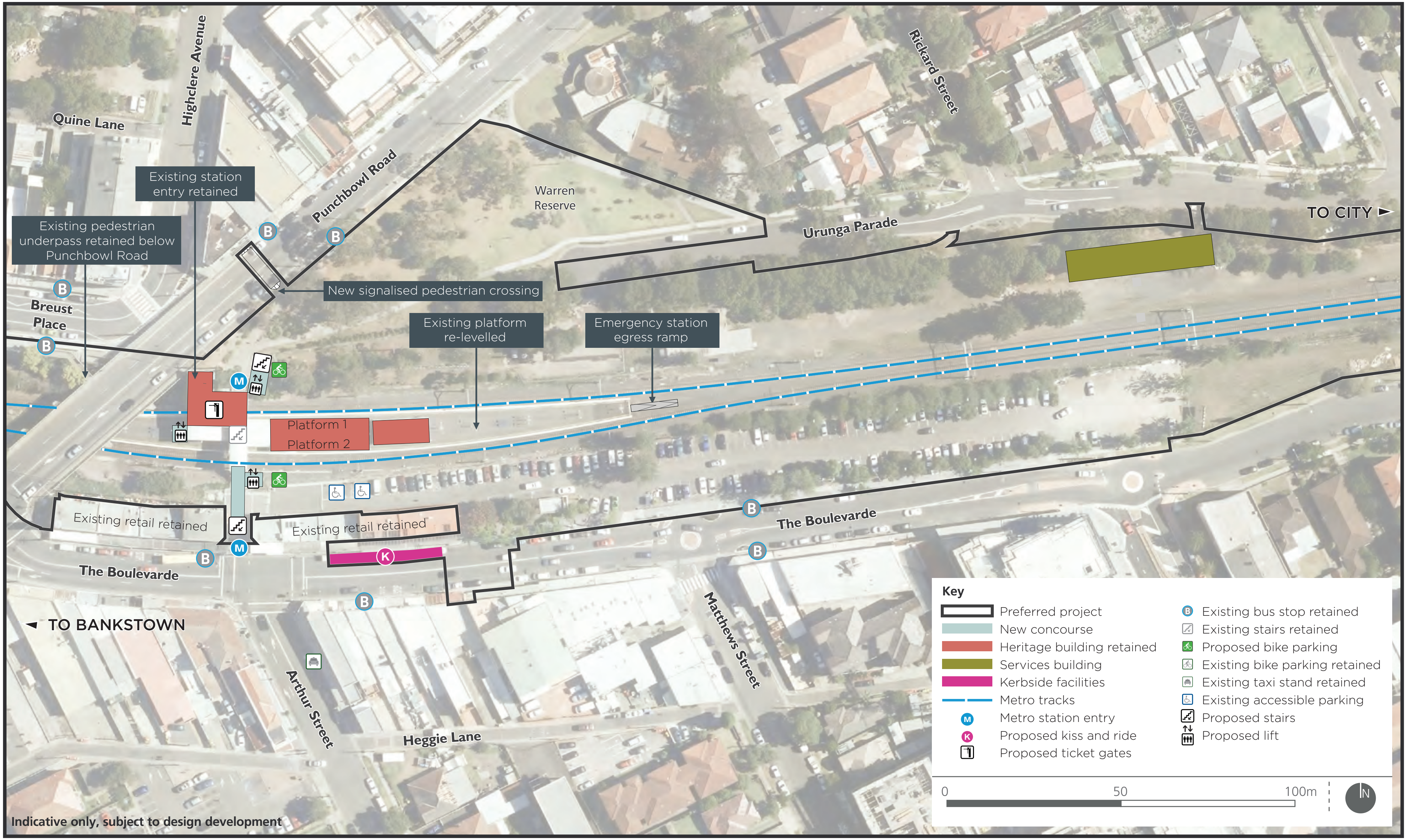
Punchbowl Station

Punchbowl Station is located to the east of the Punchbowl Road overbridge. The station area is bounded by commercial land uses and a car park fronting The Boulevarde to the south, Warren Reserve and Urunga Parade to the north, and Punchbowl Road to the west. The station entrances are located on Punchbowl Road (via Warren Reserve) to the north, and The Boulevarde to the south.

The key works proposed as part of the preferred project are shown in Figure 1.14 and summarised in Table 1.9.

Table 1.9 Punchbowl Station key design elements

Description
Station works
• The existing station entrance would be retained and upgraded. • Three new lifts and two new stairs would be provided. • The existing concourse footbridge would be extended to accommodate new lifts and stairs. • The existing stairs to both entrances would be replaced. • The existing heritage listed platform would be re-levelled. • The existing heritage listed station buildings and overhead booking office would be retained.
Station area
• The existing bus stops on Punchbowl Road and The Boulevarde would be retained. • New bike parking would be provided at the northern and southern station entrances. • Kerbside facilities would be provided on The Boulevarde. • The existing accessible parking adjacent to the southern station entrance would be retained. • A new pedestrian crossing would be provided on Punchbowl Road north-east of Bruest Place. • The existing pedestrian underpass below Punchbowl Road would be retained and upgraded.



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Punchbowl Station - indicative layout of key design elements

FIGURE 1.14

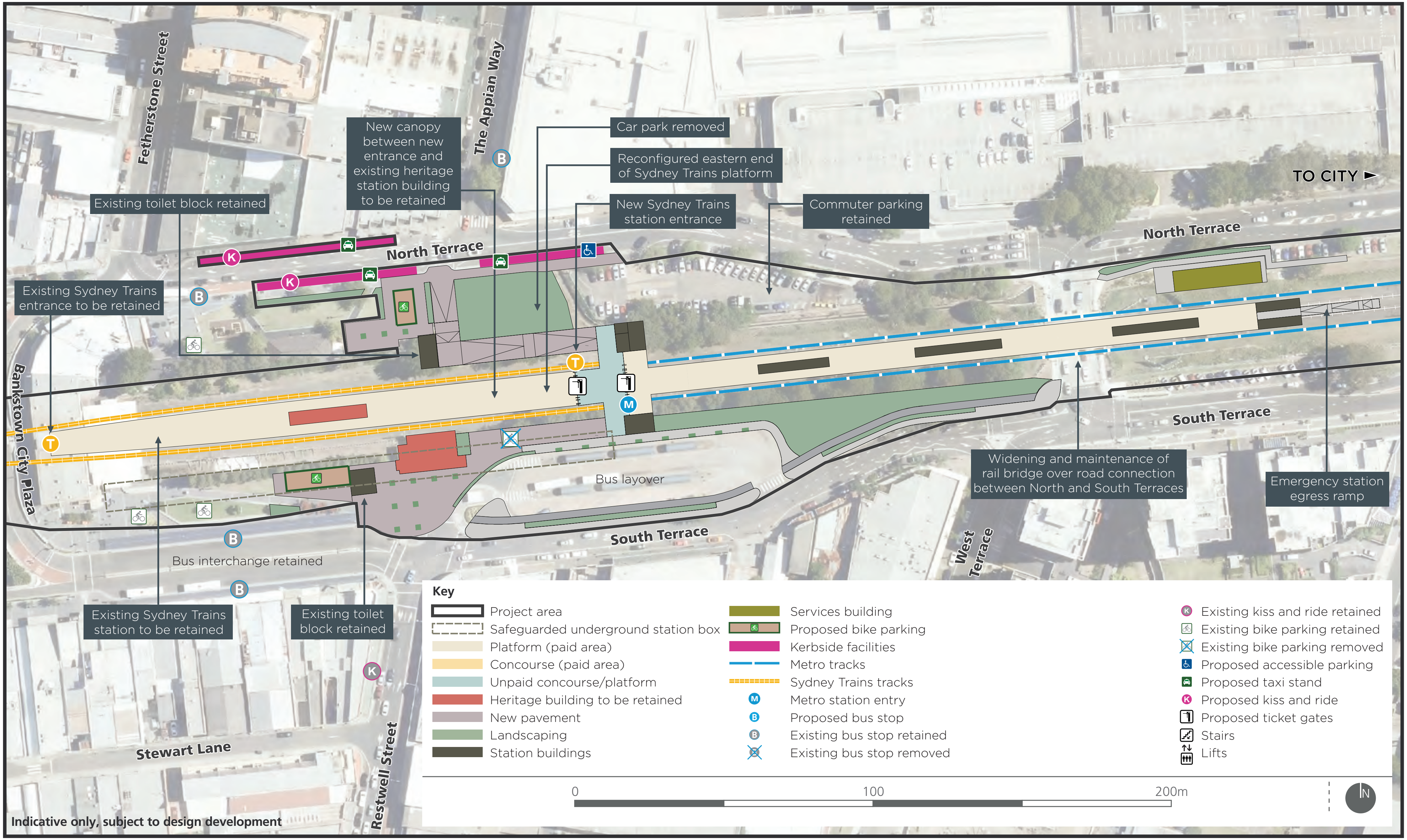
Bankstown Station

Bankstown Station is located to the east of the Bankstown City Plaza overbridge. The station area is bounded by North Terrace to the north, South Terrace to the south, and Bankstown City Plaza to the west. A new Sydney Metro station would be constructed to the east and adjoining the existing Sydney Trains Bankstown Station.

The key works proposed as part of the preferred project are as per those proposed as part of the exhibited project and are shown in Figure 1.15 and summarised in Table 1.10. Figure 1.15 also shows how the design safeguards for a potential future underground station.

Table 1.10 Bankstown Station key design elements

Description
Station works
• The existing Sydney Trains station entrance at Bankstown City Plaza would be retained. • A new at-grade corridor crossing would be provided at the eastern end of the existing Sydney Trains platform and would provide access to both Sydney Trains and new Sydney Metro platforms. • New station plazas would be constructed at station entrances on both sides of the rail corridor. • The heritage listed Sydney Trains platforms would be retained with minor modifications required at the eastern end. • New Sydney Metro platforms would be constructed to the east of the new at-grade corridor crossing. • All station buildings (including the heritage listed station building and Parcels Office) on the Sydney Trains platforms would be retained. • A new canopy would be constructed over the Sydney Trains platform between the new station entrance and the existing platform building.
Station area
• The bus layover area on South Terrace would be retained with minor adjustments to accommodate the new station entrance. • The bus interchange area on South Terrace, near the existing station entrance, would be retained. • The existing bus stop on the northern side of station on North Terrace would be retained. • A new ‘at grade’ corridor crossing would be provided at the eastern end of the existing Sydney Trains platform and would provide access to both Sydney Trains and new Sydney Metro platforms. • Changes would be made to kerbside facilities and parking along North Terrace, between the new station entrances and the existing entrance. Existing kerbside facilities (i.e. taxi rank) on northern side of North Terrace would be retained. • New bike parking would be provided on both sides of the station within the new station plazas. • Removal of existing car park located adjacent to the Appian Way off North Terrace, resulting in the loss of 10 off-street spaces.



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Bankstown Station - indicative layout of key design elements

FIGURE 1.15

1.1.2 Works to convert stations and the rail line to Sydney Metro operations – station and track works

The works described in this section are required to upgrade the T3 Bankstown Line, including the stations in the project area, to enable metro train services to operate.

Station works

To operate metro services, the following works would be required in addition to those described in Section 1.1.1:

- installation of platform screen doors on each side of all platforms which would open at the same time as the train doors once an arriving train has stopped, and would close simultaneously with the train doors
- fixed or mechanical gap fillers on platforms to ensure that the gap between the platform and the train is minimal – these devices automatically narrow the gap when the train arrives at the platform
- provision of operational facilities for Sydney Metro (such as station services buildings – described below).

Station services buildings

New services buildings would be located at all stations to house communications equipment, signalling equipment, electrical equipment and other rail systems equipment. Services buildings would be located where possible on land within the existing rail corridor close to the stations. The indicative locations of these buildings is shown in the figures provided in Section 1.1.1. Final locations would be confirmed during detailed design.

Track and rail system facility works

Track works

The preferred project would use the existing Sydney Trains tracks. In some locations, there may be a need to upgrade/replace the existing track, which would involve replacing the rails, sleepers, fastenings and ballast. The track may need to be replaced because of its condition.

Changes to the track alignment would be undertaken:

- around Bankstown Station to facilitate the separation of the metro tracks from the Sydney Trains network
- at the location of the new turnbacks and crossovers.

Track works would also include connecting to the metro tracks being provided west of Sydenham Station as part of the Chatswood to Sydenham project.

Turnback and crossover facilities

Turnback facilities allow trains to change direction while crossover facilities allow a train on one track to cross over to the other track. Installation of these features would facilitate train movement within the rail corridor. New turnback and crossover facilities are likely to be required at the following locations:

- new crossover on the eastern side of Campsie Station
- replacement of the existing track crossover to the east of Bankstown Station with a new Sydney Metro turnback
- a reconfigured rail junction and turnback to the west of Bankstown Station for Sydney Trains services.

The turnback and crossover facilities would involve the installation of new rails, sleepers, fastenings, and ballast, and new switches at crossover locations.

Signalling and train control

All sections of the Sydney Metro network would use advanced signalling technology to support safe operations. This would be controlled from the Sydney Metro Trains Facility at Tallawong Road, Rouse Hill. The system would:

- control the stopping of trains at stations
- ensure trains stop at the correct location on the platform
- control train speed
- initiate the opening and closing of train and platform screen doors.

Communications systems and masts

The preferred project would include an integrated information system to communicate with customers or metro staff via audio and visual links at each station and on trains. The communications equipment would be housed within designated services areas at each station. Equipment for radio communications, customer telecommunications, closed-circuit televisions, and emergency warning systems would be housed in the service areas at each station.

To facilitate automated operations, telecommunications masts would be positioned along the rail corridor between 180 and 250 metre intervals. The height of each mast would vary between three to six metres. Masts would consist of a concrete or steel pole.

Other track and rail system works

The following work would also be undertaken as part of the track and rail system facility works:

- adjustment of existing overhead wiring along the line to meet Sydney Metro operational requirements and Sydney Trains requirements
- adjustment of existing Sydney Trains rail systems, including removal of existing junctions to segregate the metro tracks from Sydney Trains tracks, and removal of redundant Sydney Trains systems (e.g. signalling, communications)
- utility and rail system protection and relocation works within the construction footprint.

With the exception of the utility protection and relocation works described in Section 2.10, these works would take place within the rail corridor.

1.1.3 Works to convert stations and the rail line to Sydney Metro operations – other works

Upgrading bridges along the rail corridor

Works are required to 16 road overbridges and six underbridges located within the project area (refer Table 1.11). The type of works required would vary, and would be confirmed during detailed design.

Generally, the bridge upgrade works would consist of providing enhanced protection to existing bridge piers, installation of anti-throw screens, vertical protection screens, vehicle collision barriers and general maintenance work.

The locations of the bridges proposed to be upgraded are shown in Figure 1.1.

Table 1.11 Overbridges and underbridges where works are proposed

Bridge	
Overbridge	Burwood Road overbridge, Belmore
Illawarra Road overbridge, Marrickville	Moreton Street overbridge, Belmore
Livingstone Road overbridge, Marrickville	Haldon Street overbridge, Lakemba
Albermarle Street overbridge, Dulwich Hill	King Georges Road overbridge, Wiley Park
Wardell Road overbridge, Dulwich Hill	Stacey Street overbridge, Bankstown
Crinan Street overbridge, Hurlstone Park	**Underbridge**
Church/Hutton Street footbridge, Canterbury	Meeks Road underbridge, Marrickville
Melford Street overbridge, Canterbury	Victoria Road underbridge, Marrickville
Canterbury Road overbridge, Canterbury	Ness Avenue/Terrace Road underbridge, Dulwich Hill
Beamish Street overbridge, Campsie	Cooks River/Charles Street underbridge, Canterbury
Duke Street footbridge, Campsie	Wairoa Street underbridge, Campsie
Loch Street overbridge, Campsie	North/South Terrace underbridge, Bankstown

Traction power supply

The Sydney Metro network traction power system would be designed to operate as an independent standalone system, segregated from the Sydney Trains network. All Sydney Metro traction power infrastructure would be controlled and monitored from the Sydney Metro Trains Facility at Rouse Hill.

Substations

Five new traction substations are required to power the metro trains. These would all be located within the existing rail corridor in the following locations:

- Dulwich Hill – southern side of the railway corridor at Randall Street
- Canterbury – southern side of the railway corridor, north of Hutton Street and west of the Melford Street overbridge
- Campsie – southern side of the railway corridor, north of Lilian Street and east of Carrington Street
- Lakemba – southern side of the railway corridor, north of The Boulevarde and west of Taylor Street
- Punchbowl – southern side of the railway corridor, north of South Terrace and east of Scott Street.

The proposed locations of these substations are shown on Figure 1.1. These locations are indicative, and the final locations would be confirmed during detailed design.

The substations would be above ground, and would be positioned within a secure compound within the rail corridor. The compound would include a parking area for one or two vehicles, and a loading dock for deliveries.

Traction power supply cable

To provide a reliable source of power to the new traction substations, a 33 kilovolt high voltage electricity supply cable is proposed between the Campsie traction substation and the existing Ausgrid Canterbury electrical substation, which is located about one kilometre south of Canterbury Station in Earlwood.

The route for the power supply cable would be about 3.5 kilometres long, and would be located within the following road reserves:

- Beamish Street
- South Parade
- Phillips Avenue
- Canterbury Road
- Fore Street
- Burlington Avenue
- Karool Avenue/ River Street
- Spark Street
- Mooney Avenue
- Westfield Street.

The indicative alignment is shown on Figure 1.1.

Maintenance access

Maintenance access to the rail corridor would be generally similar to the existing situation. Where the ARTC operated freight line is located within the corridor (between east of Marrickville Station and west of Campsie Station), the metro tracks would be accessed from the southern side of the corridor only, and the freight rail tracks would be accessed from the northern side of the corridor. For other sections of the corridor, the metro tracks would be accessed from both sides of the corridor.

Access to the rail corridor would be via existing access gates wherever possible. There are currently about 70 gates along the southern side of the corridor and about 55 gates along the northern side of the corridor. These access points are a mix of pedestrian and vehicular gates. Changes to existing accesses or provision of new access gates may be required to provide:

- access to new key infrastructure such as station services buildings and substations
- change of access type (for example, change from pedestrian to vehicular access)
- additional emergency access/egress points.

Some access points would include provision for access by rail-mounted vehicles.

The need for new access points (including for ARTC tracks) would be determined during detailed design.

Security

Security fencing

Security fencing would be installed as part of the preferred project. This would comprise a new security fence along both sides of the rail corridor. In addition, a segregation fence would be installed between the metro tracks and ARTC freight tracks, between west of Marrickville Station and west of Campsie Station.

Security fencing would be constructed from palisade or close-spaced welded mesh. Controlled access points would be provided at appropriate locations.

The design and type of fencing would be confirmed during detailed design, based on relevant Asset Standards Authority standards. Where practicable, fencing would be integrated with noise barriers (described below) where these are required.

Trackside intruder detection system

A trackside intruder detection system, consisting of non-mechanical protection measures, would be installed throughout the rail corridor. Closed circuit television would form part of the system, and would monitor all automatic control areas and stations. These would be fitted to the telecommunications masts positioned along the corridor.

Noise barriers

Noise barriers would be required in some locations to mitigate operational noise impacts. Noise modelling undertaken for the Environmental Impact Statement has identified preliminary locations where noise barriers are potentially required. The final location of barriers would be confirmed during detailed design.

The design of the barriers would form part of an integrated line-wide design process to ensure a consistent approach. Materials would be selected to ensure that the barriers are robust, vandal-resistant, and resilient from damage from vegetation. The design would be simple in form, and the use of textures and patterns would be avoided where possible.

Consultation with relevant stakeholders (including the local community) would be undertaken, to ensure that the design of barriers considers visual amenity.

Drainage

The preferred project would include maintenance of existing track drainage to ensure that stormwater is efficiently conveyed within and across the corridor to the surrounding stormwater drainage system.

1.2 Property requirements

The preferred project would mainly be located on land that forms part of the existing rail corridor and adjacent road reserves owned by the NSW Government or the relevant local council. The design of the preferred project has avoided the need to permanently acquire land and properties. Construction of the preferred project would require the temporary leasing of land and may require the need to cease commercial leases on NSW Government owned land. Leasing requirements and impacts are described below.

1.2.1 Cessation of commercial leases on NSW Government owned land

To undertake the proposed station upgrade works, the preferred project would require access to land, which is currently subject to one existing commercial lease at Wiley Park Station, on land owned by the NSW Government (RailCorp).

The preferred project would require the cessation of the lease at this station.

All the impacted leases would be ceased in accordance with lease agreements held with the NSW Government.

1.2.2 Temporary lease of property

Some areas of land would need to be temporarily leased or occupied for construction compounds and other work sites during construction of the preferred project (refer to Section 2.8 for further details of construction compounds and work sites). The majority of these sites would be located within the rail corridor, which would minimise the potential for direct impacts on land use and property. There would however be some construction compounds and work sites located outside the rail corridor. These areas are generally located within road reserves or other council owned land. In addition, some areas of land may need to be temporarily leased or occupied to provide infrastructure to support the implementation of the temporary transport plans. Following further design development, consultation would be undertaken with the relevant landowner to arrange leasing of the required piece of land.

1.2.3 Land access

Existing commercial leases may expire before access is required or early termination rights may be used. In some limited circumstances, access to public land may be obtained using statutory powers of access.

1.3 Operation of the preferred project

Operation of the preferred project would be as per that described in the exhibited project.

The preferred project would operate in conjunction with Sydney Metro Northwest (which extends from Tallawong to Chatswood stations), and the Sydney Metro City & Southwest Chatswood to Sydenham project (which extends from Chatswood Station to Sydenham Station).

The Sydney Metro network, including the stations, trains and railway line, would be operated and maintained under a public private partnership, with ownership of the infrastructure remaining with the NSW Government.

1.3.1 Timing

Sydney Metro Northwest will be operational by 2019. Sydney Metro City & Southwest would be fully operational by 2024, with the opportunity of operation commencing in two phases. Initially, Sydney Metro Northwest services would be extended by the City & Southwest project, and would operate from Chatswood Station to Sydenham Station. Some months later, metro operations would extend from Sydenham Station to Bankstown Station, with both phases planned to be completed before the end of 2024. The opportunity for phased opening of the project would enable metro trains to operate from Tallawong Station to Sydenham Station prior to the final conversion of the T3 Bankstown Line to metro operations.

1.3.2 Service frequency, capacity, and transfers

Once the project is operational, Sydney Trains services would no longer operate along the T3 Bankstown Line between Sydenham and Bankstown stations. Customers would be able to interchange with Sydney Trains services at Sydenham and Bankstown stations. Sydney Trains services from Bankstown Station to Liverpool and Lidcombe stations would not be affected, and these services would continue to operate.

At opening, six car metro trains would operate at least every four minutes during peak periods (averaging around 15 trains per hour) and at least every ten minutes in the off peak periods.

The project would initially have the capacity to move around 23,000 people per hour in each direction in peak periods. When required to meet increased demand, capacity could be increased to cater for around 40,000 people per hour in each direction. This would be achieved by increasing trains from six car sets to eight car sets, and increasing the service frequency up to 30 trains per hour through the Sydney CBD in peak periods.

This ultimate capacity forms part of the scope of the project.

1.3.3 Hours of operation

The first metro service to depart Tallawong Station (Sydney Metro Northwest) and Bankstown Station (Sydenham to Bankstown upgrade) would arrive at Central Station in the early morning. The last metro service to arrive at Tallawong and Bankstown stations would depart Central Station around midnight, and potentially later on weekends. The operating hours and service levels could be extended to accommodate planned special events, in conjunction with other Sydney public transport services.

The operating hours would be determined as part of the development of service schedules for the project, taking into account customer and maintenance access requirements.

1.3.4 Train types

Trains operating on the Sydney Metro network would be new-generation, single-deck metro trains (similar to those being introduced on Sydney Metro Northwest). The trains will deliver a fast, safe and reliable journey for customers, with high performance standards and good customer amenities. The key features of these trains include:

- fully automated trains, with passengers able to see from one end of the train to the other
- three doors per side per carriage, for faster boarding and alighting
- provision of accessible priority seating for those with a disability or using a wheelchair or mobility device, the elderly or those travelling with a pram or luggage
- emergency intercoms inside trains and customer service assistants at every station and moving throughout the network day and night
- two multi-purpose areas per train for prams, luggage, and bicycles
- on-board real time travel information and live electronic route maps
- level access between the platform and train
- air conditioning
- a new generation of fast, safe and reliable metro trains.

An eight car, single-deck Sydney Metro train has a capacity of about 1,500 passengers which is greater than an existing eight car, double-deck train. With a greater capacity per train and higher service frequency, the Sydney Metro network would be able to move more passengers per hour than existing trains.

Sydney Metro trains also allow customers to get on and off at stations faster, which reduces the time a train is stopped at each station and enables reduced travel times. Platform screen doors at stations would keep objects and people away from the platform edge and allow trains to get in and out of stations much faster. Using modern signalling technology and fully automated trains is also more efficient and would increase the capacity of the metro network.

1.3.5 Seating

Sydney Metro trains contain a mix of seating and standing areas, as well as multi-purpose areas for prams and luggage. Seating on trains would be padded and covered with fabric to improve passenger comfort.

The proposed seating layout would allow for between 5,500 and 6,000 seats per hour in each direction. The seating layout also includes wide aisles to make it easier for customers to get in and out of seats, and in and out of trains, which is further facilitated by the provision of three doors on each side of each carriage.

As an added safety benefit, metro customers will be able to see from one end of the train to the other from their seats, as no doors will divide the carriages.

An indicative image of a metro train interior is provided in Figure 1.16.

Figure 1.16 Indicative Sydney Metro train interior

1.3.6 Ticketing and pricing

The existing Opal electronic ticketing system will be used on the Sydney Metro network, which will allow for a ticketing system integrated with all other modes of public transport (Sydney Trains operated trains, buses, ferries, and light rail services). This system would be installed at all stations.

Fares for Sydney Metro would be set by the NSW Government. Ticket pricing for all transport in NSW is determined by the Independent Pricing and Regulatory Tribunal of New South Wales (IPART), and by NSW Government policy. The NSW Government reviews this pricing annually and may consider a change to the Opal policy at any time. Sydney Metro service pricing would be reviewed in line with the pricing review process for other forms of transport.

1.3.7 Stabling and maintenance

The stabling and maintenance of metro trains would occur at two locations:

- Tallawong Road at the Sydney Metro Trains Facility (constructed as part of Sydney Metro Northwest)
- Sydenham at the Sydney Metro Trains Facility South (constructed as part of the Chatswood to Sydenham project).

The Sydney Metro Trains Facility is proposed to be the primary stabling facility for the overall metro network as it would contain the heavy maintenance facilities required to manage the system.
The Sydney Metro Trains Facility South is located about 750 metres north-east of the existing Sydenham Station. This facility would provide for overnight stabling of Sydney Metro trains, and light reactive maintenance activities to minimise the need to send trains to the Sydney Metro Trains Facility.

1.3.8 Emergency and incident management

The operational management plan for the project would include procedures for incident and emergency management.

2. Preferred project description – construction

This section provides a description of the indicative construction methodology for the preferred project. This includes an outline of the construction process and likely activities; the proposed approach to avoiding or minimising impacts during construction; the estimated construction resources that would be required; and an indicative construction program. The section also provides information on the proposed approach to out of hours work; utilities management during construction; and the alternative transport arrangements that would be implemented during temporary closures of the stations and track required during construction.

2.1 Overview

2.1.1 Key construction stages

Construction of the preferred project would broadly involve the following key stages:

- enabling works (described in Section 2.2)
- main construction works, including track and station works (described in Sections 2.3 to 2.5)
- finishing works (described in Section 2.6.1)
- testing and commissioning (described in Section 2.6.2), including final conversion to Sydney Metro systems.

The construction methodology presented in this section is indicative and would continue to be modified and refined as the design process continues. A final construction methodology and program would be developed by the construction contractor when appointed.

Key construction areas, including the proposed construction compounds, work sites, and haul routes proposed for use during construction, are shown in Figure 2.1.

Construction of the preferred project would commence in 2018/2019 once all necessary approvals are obtained and the metro service to Bankstown would commence operation in 2024.

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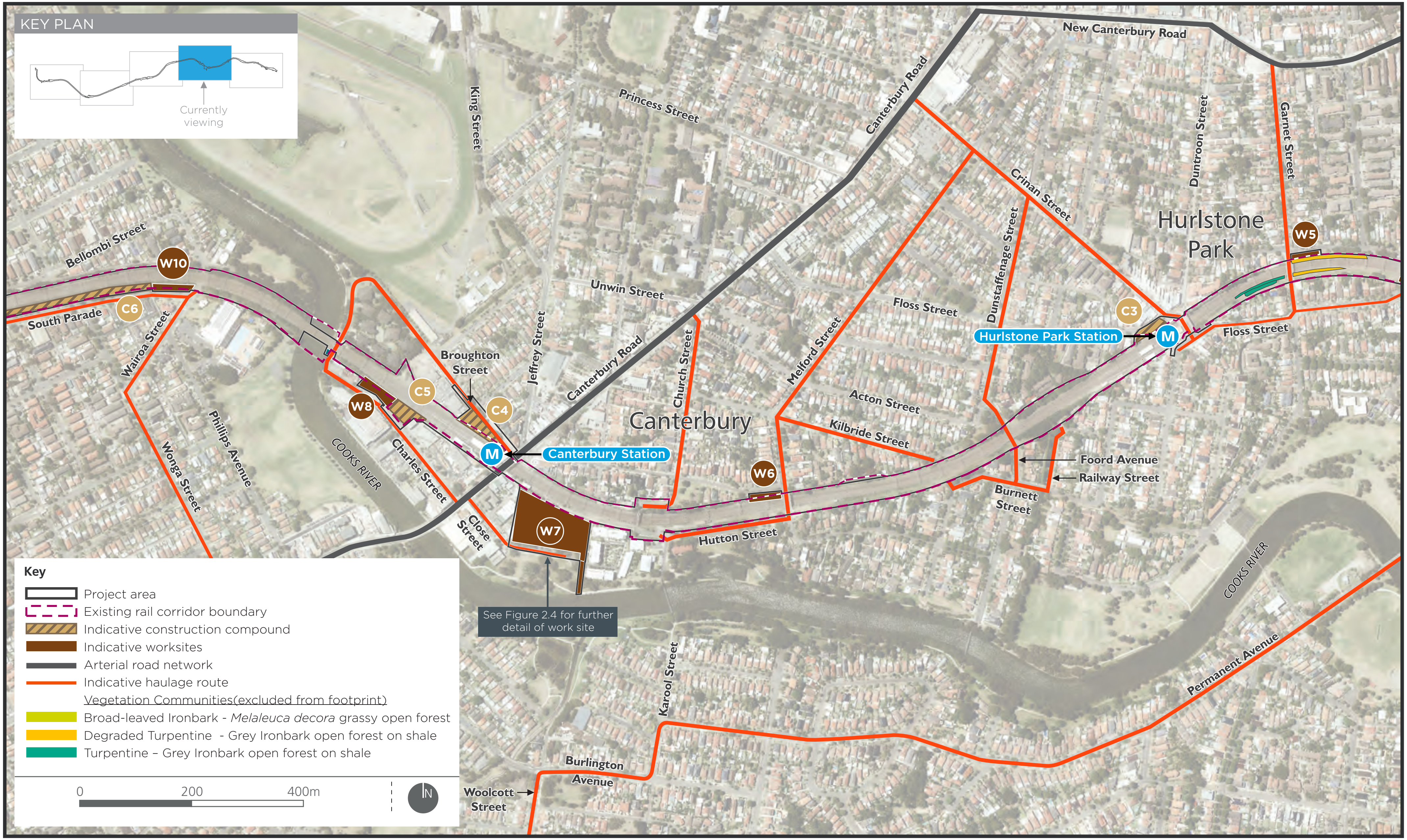
Preferred project area - construction activities - map 1

FIGURE 2.1



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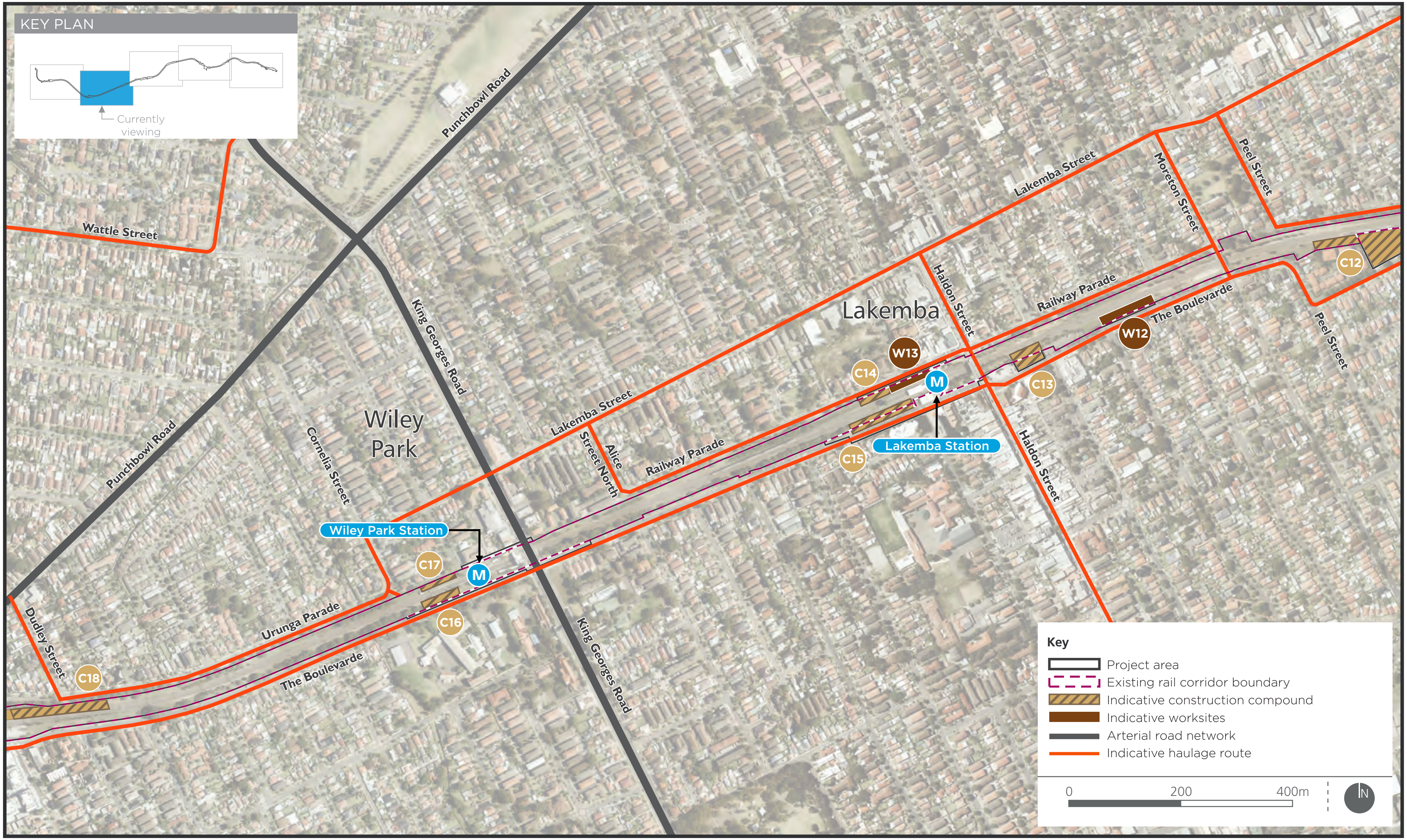
Preferred project area - construction activities - map 2

FIGURE 2.1

Sydney Metro | city & southwest

Preferred project area - construction activities - map 3

FIGURE 2.1



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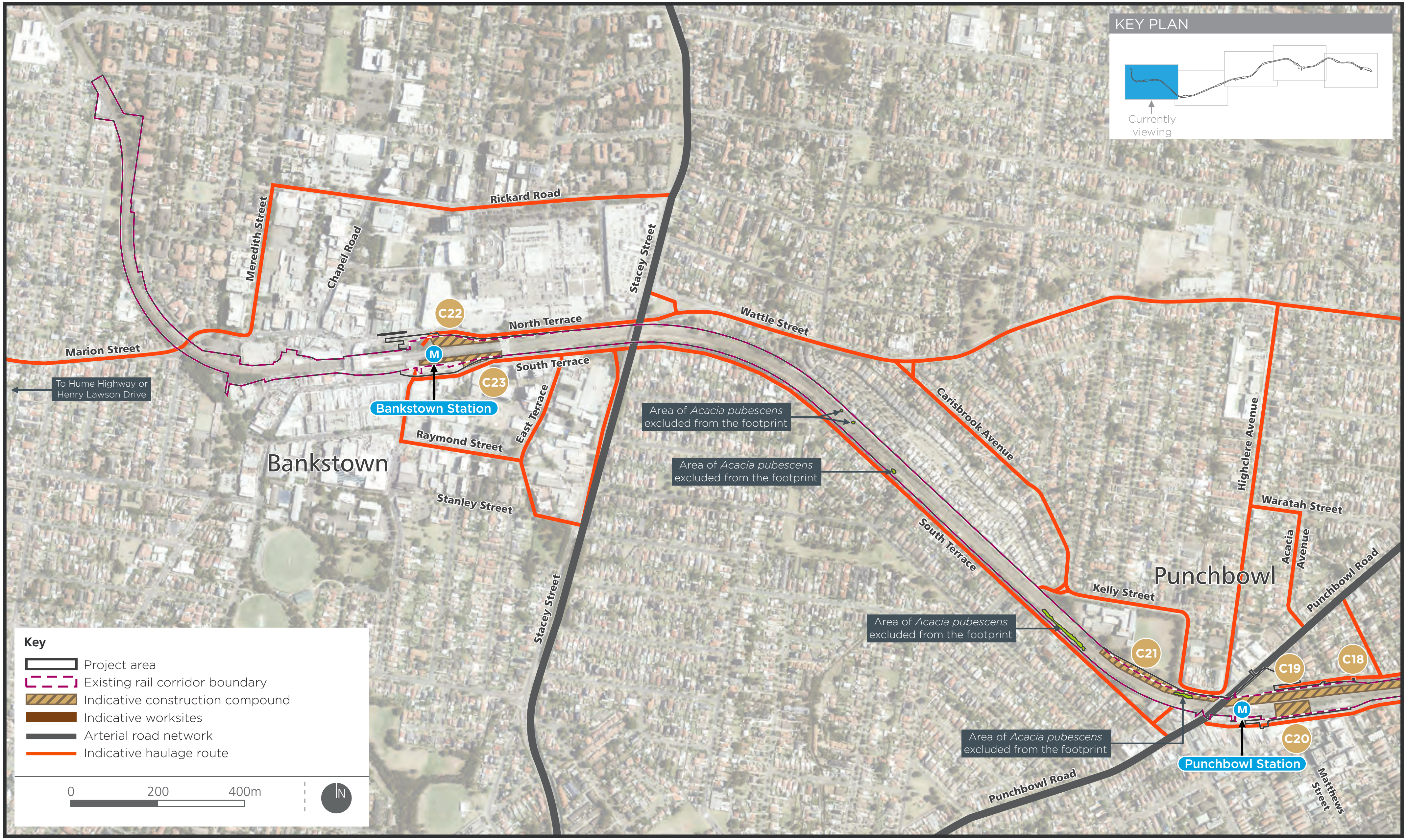
Preferred project area - construction activities - map 4

FIGURE 2.1



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Preferred project area - construction activities - map 5

FIGURE 2.1

2.1.2 Approach to avoiding or minimising impacts during construction

Construction planning

Design development has included a focus on avoiding and/or minimising the potential for impacts during all key stages of construction. The indicative construction methodology described in this section has been developed with consideration given to the environmental constraints and issues identified during the early stages of the design and environmental assessment process.

Construction environmental management

The *Sydney Metro City & Southwest Construction Environmental Management Framework* (Sydney Metro, 2017a) (the 'Construction Environmental Management Framework') defines the approach to environmental management and monitoring during construction of Sydney Metro City & Southwest as a whole. The framework is a linking document between the planning approval documentation and the construction environmental management documentation (including the Construction Environmental Management Plan), which would be developed and implemented by the construction contractor/s.

The *Sydney Metro City & Southwest Construction Noise and Vibration Strategy* (Sydney Metro, 2017b) (the 'Construction Noise and Vibration Strategy') defines how construction noise and vibration will be managed for Sydney Metro City & Southwest as a whole. The strategy provides a framework for managing construction noise and vibration impacts in accordance with the *Interim Construction Noise Guideline,* to provide a consistent approach to management and mitigation across all Sydney Metro projects.

2.2 Enabling works

Enabling works for major infrastructure (also known as early works) are typically carried out before the start of substantial construction to establish key construction sites and provide protection to the public where required. It is noted that some enabling works may require additional approvals prior to being implemented. However, these works are described chronologically here to aid comprehension.

2.2.1 Site establishment

Site establishment works are expected to include:

- carrying out heritage investigations, protection and archival recordings in accordance with the construction environmental management plan
- install site environment management and traffic controls in accordance with the construction environmental management plan
- establishing construction compounds and work sites
- supplying power, water and other utilities to construction compounds and other areas within the construction work area (whether temporary or permanent supplies)
- relocating, adjusting and protecting utilities and services affected by the project
- removing buildings and other structures where required (further information is provided in Section 2.2.2)
- potential remediation works (subject to identification of contaminated materials)
- adjusting or removing Sydney Trains rail infrastructure (signalling, communication routes) within the rail corridor
- vegetation clearance (as required) within the rail corridor.

2.2.2 Building removal works

A number of Sydney Trains buildings (e.g. section huts) located along the corridor would need to be removed. The need for removal of these buildings would be confirmed during detailed design.

Removal works would be carried out by licensed contractors. Typically, building removal would involve:

- establishment of hoarding, scaffolding and protection barriers around the perimeter of the site of the building to be removed
- all services into the buildings would be decommissioned, made safe and redundant
- soft stripping of internal building materials
- demolition of the building using an excavator, bobcat, cranes or other conventional methods following a top-down approach
- temporary propping and/or waterproofing provided for structural integrity of adjacent structures.

A hazardous materials analysis would be carried out prior to stripping and demolition of the main structure. Hazardous materials would be removed and disposed of in accordance with relevant legislation, codes of practice, and Australian Standards.

Materials such as bricks, tiles, timber, plastics and metals would be sorted where practicable and sent to a waste facility with recycling capabilities.

2.2.3 Transport network adjustments

Enabling works for transport infrastructure, including roads, would reduce the duration of construction works and associated disruptions to traffic and surrounding land uses. The indicative transport network adjustments proposed to be undertaken as part of enabling works would generally include:

- road modifications to facilitate the movement of construction vehicles, such as redesigned intersections and road layouts, kerb modifications, turn restrictions, changes to line marking, signage, and restrictions on parking at intersections
- optimisation of traffic signals to facilitate network management, including phase adjustments, bus priority measures, and geometry upgrades
- provision of minor access roads to construction compounds and work sites from the road network and access gates into the rail corridor (where required)
- temporary relocation of pedestrian and cycle paths and the provision of property access
- temporary relocation of some existing bus stops and associated facilities, bus service rerouting, and installation of infrastructure to support temporary bus services (such as new bus stops and shelters)
- relocation of kerbside facilities, including taxi ranks, mail zones, loading zones, and associated modifications to advisory signage
- relocation of pedestrian access points into stations and improvements to walkways and lighting, wayfinding, and information signage
- changes to parking, including on and off street parking and access changes
- installation of monitoring devices such as CCTV, to aid real-time traffic monitoring and improved incident response.

Some of this work would be undertaken in advance of the commencement of major station and corridor construction activities, while some works will continue concurrently with this more substantial construction.

These adjustments would be confirmed during detailed design and construction planning.

2.3 Station works

2.3.1 Outline methodology

Station works would be staged to suit operational requirements and the availability of possession periods.

The following general work activities would be undertaken for a typical station upgrade:

- Site establishment and enabling works:
  - establishment of site compound (erection of fencing, tree protection zones, site offices, amenities and plant/material storage areas, etc)
  - relocation of services/seats/bins on platforms.
- Lift and stairs construction:
  - erection of hoardings
  - removal/demolition of existing structures (existing canopies, shelters and stairs etc)
  - construction of footings/foundations for new stairs and lift shafts (on platforms)
  - construction of footings/foundations for new stairs and lift shafts (outside platforms areas)
  - fit out of stairs and anti-throw screens
  - installation of lifts
  - installation of fixtures, lighting and CCTV cameras for areas affected by construction works.
- Station works:
  - reuse and refurbishment of station and services buildings (including mechanical/electrical/building fit-out)
  - platform works and re-levelling
  - station area works
  - provision of new kerbside and bike parking facilities
  - landscaping, painting and paving works.
- Finalisation:
  - landscaping and public domain works, including installation of wayfinding signage to the station.
- Testing and commissioning:
  - various activities to test and commission power supplies, lifts, lighting, modifications to station services, ticketing systems and communication and security systems.

2.3.2 Tree removal and management

The preferred project would involve trimming or removing trees in the vicinity of stations. A tree is defined by Australian Standard AS 4373-2007 as ‘A long lived woody perennial plant growing to greater than (or usually greater than) three metres in height, with one or relatively few main stems or trunks’.

Table 2.1 provides an estimate of the number of trees with the potential to be affected within station areas, based on a preliminary survey conducted. The final number of trees that may need to be trimmed or removed in each area would be confirmed during detailed design and final construction planning. Minimising impacts to trees would be a key obligation incorporated into the construction contract.

Table 2.1 Number of trees at stations with the potential to be impacted

Station	Native trees	Exotic trees	Total trees
Marrickville	50	15	65
Dulwich Hill	11	2	13
Hurlstone Park	8	9	17
Canterbury	38	7	45
Campsie	28	6	34
Belmore	61	11	72
Lakemba	67	0	67
Wiley Park	22	41	63
Punchbowl	25	22	47
Bankstown	79	1	80

Note: The table presents the maximum number of trees around stations with the potential to be impacted during construction. The final numbers would be confirmed during detailed design. It does not include other trees along the corridor that may also need to be removed as part of general vegetation removal in the rail corridor (refer to Section 2.4.3).

Impacts to trees would be minimised wherever practicable. Where removal of trees is unavoidable, trees would be replaced in accordance with the Tree Management Strategy for the preferred project, which would be prepared in consultation with relevant stakeholders (including local councils). The Tree Management Strategy for construction would be used to guide the management of trees that need to be removed, protected, or trimmed. The strategy would address:

- minimising the need for tree removal
- protection of trees being retained
- replacement of trees being removed.

The strategy would provide for the following:

- consideration of all options to minimise the need for tree removal and to retain as many trees as possible
- preparation of comprehensive tree reports (by a qualified arborist) for trees requiring protection, pruning, or removal, to guide the approach to managing trees
- measures to minimise damage to, and ensure the health and stability of, trees to be retained, in accordance with *AS4970-2009 Protection of trees on development sites*
- replacement of trees where removal cannot be avoided, in accordance with the following general principles:
  - replacement of removed trees on a two for one ratio
  - provision of replacement trees to achieve similar outcomes as those removed where possible, such as screening, amenity, etc
  - tree species, and minimum tree size and height, in consultation with the relevant council

- trees to be planted within or in close proximity to the project area, or in another location determined in consultation with the relevant council
- trees planted in the vicinity of stations would be in accordance with the station design and precinct plans for the preferred project.

2.4 Corridor works

2.4.1 Track works

As described in Section 1.1.3, the preferred project would involve changes to the existing track at Campsie and Bankstown. There may, however, also be a requirement to upgrade or replace track or supporting infrastructure elsewhere along the rail corridor following further investigations to be undertaken as part of detailed design.

Rail work would involve:

- removing existing fastenings, rail and sleepers
- placement of ballast (consisting of either recycled or new ballast) and sleepers on the formation
- tamping and profiling the ballast around the sleepers and to a smooth alignment
- installing, fixing, and welding the rails to the sleepers
- installing cable and equipment, including signalling, communications and electrical systems
- installing overhead wiring for rolling stock
- maintenance of existing track drainage.

2.4.2 Bridge works

It is anticipated that most bridges would be able to remain partially open to traffic during the installation of new traffic barriers and anti-throw screens.

Construction would typically involve:

- close bridge lanes and/or footpaths depending on requirements
- existing parapets being removed down to the existing bridge slab
- precast parapet sections being positioned with the use of cranes and fixed to the bridge deck, throw screens would be prefabricated prior to installation
- installation of bridge protection measures
- modifications and maintenance where required
- bridge lanes and/or footpaths reopened to traffic.

2.4.3 Other corridor works

The preferred project would require works along the length of the corridor as follows:

- installation of new communications services routes
- maintenance works to existing track drainage
- installation of fencing.

2.4.4 Removal of vegetation within the rail corridor

The biodiversity assessment for the preferred project was undertaken based on the assumption that all vegetation within the rail corridor would need to be removed to construct the preferred project, with the exception of:

- native vegetation that would require biodiversity offsets if removed (specifically areas of 'Turpentine - Grey Ironbark open forest on shale', 'Degraded Turpentine - Grey Ironbark open forest on shale' and 'Broad-leaved Ironbark – Grey Box' (shown on Figure 2.1)
- identified areas of the threatened species Downy Wattle located within the rail corridor between Punchbowl and Bankstown stations (shown in Figure 2.1).

Based on this assumption, about 16.3 hectares of vegetation (not including vegetation classed as exotic grassland) may need to be removed, including:

- up to 7.3 hectares of planted native vegetation
- up to nine hectares of exotic scrub and forest.

It is expected that large areas of the planted native vegetation and exotic scrub and forest would not require removal for the corridor works, however this is subject to the detailed design of the proposed works, including fencing and the communications services route.

This vegetation would potentially include trees that provide screening along the corridor for surrounding properties. The need to clear vegetation would be reviewed by the construction contractor/s and minimised wherever practicable.

Where removal of trees is unavoidable, trees would be replaced in accordance with the Tree Management Strategy, which would be prepared in consultation with relevant stakeholders (including local councils). The strategy would be used to guide the management of trees that need to be removed, and to consider options for their replacement. A summary of this strategy is provided in Section 2.3.2.

2.5 Associated infrastructure

2.5.1 Substations and station services buildings

Construction of substations and services buildings would generally involve:

- enabling works (as described in Section 2.2)
- earthworks to provide a level site
- piling works and site excavation for in-ground services:
  - use of piling rigs to construct piles required for ground slab
  - excavation of building and bund yard areas for construction of in-ground pits and conduits
  - excavation for oil/water separator tank and related services (for substations)
- preparation of concrete slab in location of substation or services building
- buildings would potentially be prefabricated off-site and delivered and installed on a concrete slab or would be constructed on site using prefabricated segments of the building
- fit out, including connection to the electrical network for substations
- connection to the overhead wiring structures which would require some trenching activities, (the size and location of trenches would be confirmed during detailed design)
- finishing, testing and commissioning as described in Section 2.6.

2.5.2 Traction power supply cable

Construction of the proposed traction power supply feeder from Campsie Station to Ausgrid's Canterbury Substation in Earlwood would be undertaken generally via trenching along the alignment. The use of horizontal directional drilling to install the cable would potentially be used in the following locations to minimise impacts:

- along Canterbury Road due to high traffic volumes
- between River Street and Karool Avenue due to a substantial change in elevation between the two streets - at this location, there is also a local heritage item which would need to be considered
- along Westfield Street (including the substation access road) between Mooney Avenue and the Canterbury Substation.

The alignment also crosses Cup and Saucer Creek on Fore Street, Canterbury, via an existing bridge. This crossing would involve integrating the cable into the bridge structure, and works within the creek would not be required. The final design of this crossing would be confirmed during detailed design.

2.6 Finishing, testing and commissioning

2.6.1 Finishing works

At the end of the construction phase, the contractor would remove construction equipment from the construction sites. Where relevant, sites that were occupied temporarily and do not form part of the operational footprint would be rehabilitated and revegetated.

As part of the operational readiness phase, the contractor would progressively deliver the station upgrades described in Section 1. Typically, this would involve the progressive removal of construction equipment, site sheds, hoardings and other temporary construction site elements.

Landscaping and finishing works would be undertaken at permanent operational sites. All construction work sites, compounds and access routes would be returned to the same or better condition than prior to construction commencement. Site reinstatement and rehabilitation would be undertaken progressively during the works, and would include the following activities:

- demobilise site compounds and facilities
- remove materials, waste and redundant structures from the works sites
- forming, and stabilising of spoil mounds
- decommission temporary work site signs
- remove temporary fencing
- establish permanent fencing
- decommission site access roads that are no longer required
- restoration of disturbed areas as required, including revegetation where required.

Site rehabilitation would be undertaken in accordance with the construction environmental management plan, guided by the Construction Environmental Management Framework, as described in Section 2.1.2.

2.6.2 Conversion to Sydney Metro systems and testing and commissioning

During this last stage of construction, the rail line would be converted to Sydney Metro systems. This would include works such as the installation of new signalling systems, controls, communication systems, and platform screen doors.

Testing and commissioning (checking) of the rail line and communication/signalling systems would be undertaken to ensure that all systems and infrastructure are designed, installed, and operating according to Sydney Metro's operational requirements.

The rail systems at each site (stations and services facilities) would be commissioned progressively as standalone entities. This would include:

- removal of any redundant Sydney Trains assets
- installation of platform screen doors and gap fillers.

Once all services are installed, testing and commissioning of the whole system would occur in three stages:

- collection of safety and quality assurance documentation and commissioning of readiness checks
- installation and operation tests and checks
- final inspection, site acceptance tests, commissioning and validation of individual systems.

During the final stages of commissioning, test trains would run on the line to test the signalling system and controls and the traction power supply.

This final stage of conversion and commissioning works would be undertaken during the final extended period rail possession (refer to Section 2.7.2). Alternative transport arrangements for rail customers would be implemented during this period (refer to Section 2.11).

2.7 Construction program and timing

2.7.1 Program

An indicative construction program is provided in Figure 2.2.

Construction of the preferred project would commence once all necessary approvals are obtained (anticipated to be in 2018/2019). Upgraded stations would be progressively delivered from 2019 until 2022, with the main station upgrade works estimated to take about one year for each station, however, the works would be spread across the entire project construction period (depending on the extent of works required). Works to upgrade other infrastructure would also occur during this period to improve the reliability of services.

Station works would potentially be staggered throughout the overall construction period so that not all station works would be undertaken at once. This would mean that most stations would be open to customers for the majority of the construction period. A typical construction program for station works is provided in Figure 2.3.

Sydney Trains services would continue to operate to each station throughout the construction period (excluding during possessions or any other closure periods).

Figure 2.2 Indicative construction program for the preferred project

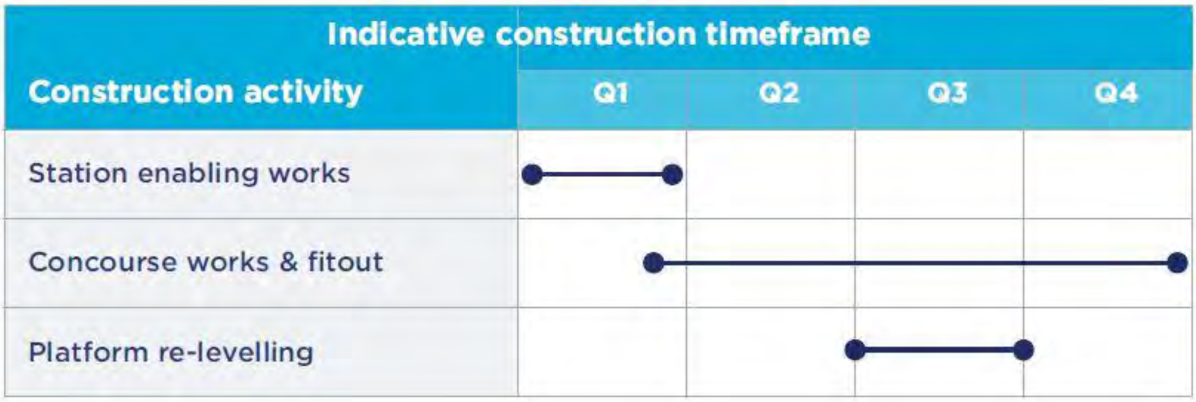


Figure 2.3 Indicative construction program for station works

2.7.2 Rail possession periods

Some construction works would need to be undertaken during rail possession periods when trains are not operating, to ensure that works are carried out as efficiently as possible and that worker safety is maintained. This would include possessions of both the Sydney Trains tracks, and the freight tracks located between Marrickville and west of Campsie stations. Works that may need to be undertaken during possession periods include:

- station works and activities on stations which cannot be undertaken during operation of the network
- track and corridor works
- bridge works.

This indicative possession program would be reviewed during detailed design in line with construction planning to ensure the available possessions are sufficient to complete the works. The schedule of possessions would be reviewed to reduce the overall impacts to the community as far as possible.

During each possession period when the rail lines are closed, alternative transport arrangements would be implemented to ensure that rail customers can continue to reach their destinations. A description of the proposed temporary transport arrangements that would be implemented during these periods is provided in Section 2.11.

Outside the possessions described below (for both Sydney Trains and freight lines) services would operate in parallel within any construction works not located close to the operational tracks.

Standard weekend possessions

Sydney Trains currently schedules routine maintenance possessions on four weekends each calendar year. Subject to detailed construction planning, these scheduled maintenance possessions would also be used to complete the preferred project works.

Additional weekend possessions

Up to an additional eight weekend possessions would be required each year to complete the preferred project works. Works to be undertaken during standard and additional weekend possessions would include installation of communications services routes, bridge works, fencing and station works that need to be undertaken from or interface with the rail track.

School holiday possessions

This would involve up to a two week possession of the T3 Bankstown Line (either in full or part) during the Christmas school holiday periods. Opportunities to minimise the number or duration of school holiday possessions would be further investigated during detailed design and following appointment of the construction contractor.

The assessment assumes the use of a full line possession during the Christmas school holiday periods. This would be in addition to the standard and additional weekend possessions outlined above. It is proposed to undertake possessions during the Christmas school holiday periods because there is:

- lower patronage on the Sydney Trains network generally and this would reduce inconvenience for school children and parents
- less traffic on the surrounding road network, which would assist the efficient operation of rail replacement bus services
- increased availability of buses and drivers for rail replacement bus services
- increased rail capacity available on other lines to accommodate customers who would normally travel on the T3 Bankstown Line.

Freight track possessions

The section of the rail corridor between east of Marrickville and west of Campsie is shared with freight tracks managed by ARTC. ARTC currently has four weekend possessions a year available for maintenance of the corridor. These periods coincide with the standard Sydney Trains possessions described above.

Given the proximity of the ARTC tracks, any works required would need to be undertaken during these possessions, unless otherwise agreed with ARTC.

Consultation would be undertaken with ARTC throughout the construction phase to ensure there are no impacts on the operation of freight services.

Night-time weekday possessions

Night-time weekday possessions would involve closure of the rail line once the evening peak train services have concluded and the line would be re-opened prior to morning train services commencing. Night-time weekday possessions would be required on an occasional basis to prepare the rail corridor ahead of weekend or school holiday possessions and maximise the activities that can be undertaken during these possessions. Other low noise generating activities, such as survey and investigations, may also be undertaken during this time.

Final possession

Once the stations have been upgraded, there would need to be a final possession period of between three and six months in duration. This final possession period is to enable the works that can only be completed once Sydney Trains services are no longer operating, and would include works such as the installation of new signalling, communication systems, and platform screen doors. It would involve full closure of the line to enable it to be converted to Sydney Metro systems, as described in Section 2.6.2.

The duration of the final possession would be as short as practicable to bring Sydney Metro trains into service. The duration of this possession would be refined in consultation with relevant stakeholders, and the community would be informed of any proposed changes once they are confirmed.

2.7.3 Temporary station closures

Individual stations may also be closed for up to 2 months to complete the station works. Up to three stations may be closed at any one time. Temporary rail replacement buses would be provided during these periods in accordance with the alternative transport arrangements described in Section 2.11.

Prior to any closures, the community (including customers) would be notified about any proposed changes to access.

2.7.4 Working hours including out of hours work framework

The scale and complexity of works required will mean that works will need to be undertaken during recommended standard working hours as well as at other times including: weekends, public holidays and in the evening and night time.

During non-possession periods, the majority of works would be undertaken during recommended standard hours as defined by the *Interim Construction Noise Guideline* which are:

- Monday to Friday: 7am to 6pm
- Saturday: 8am to 1pm
- Sundays and public holidays: no work.

Activities resulting in impulsive or tonal noise emissions would be limited to these hours, except as permitted by an environment protection licence which would be obtained once the preferred project is approved.

During possession periods (described in Section 2.7.2), works may be undertaken 24 hours per day, and involve working both during and outside the recommended standard hours.

During these periods, the use of highly noise intensive equipment, including ballast tamping, would not be used during the night-time period (between 10pm and 7am), unless constraints exist such as:

- works requiring a weekend rail possession and where those works cannot be undertaken during daytime and evening periods, due to the limited duration of the rail possession; or
- works subject to requirements of the relevant road authorities, emergency services, or the Sydney Coordination Office.

Out of hours work framework

The approach to out of hours work would involve preparing an Out of Hours Work Strategy to guide the assessment, management, and approval of works outside recommended standard hours. The strategy would be developed to ensure that out of hours works are managed effectively during construction, to avoid incidents and reduce impacts to the community as a result of out of hours work. It would:

- be consistent with the Construction Noise and Vibration Strategy for the project (described in Section 2.1.2), which includes a requirement for out of hours work to be included in the Construction Noise Impact Statements required under the strategy
- be prepared in accordance with the conditions of approval for the project
- take into account the results of the construction noise assessment for the Environmental Impact Statement
- address the requirements of the environment protection licence for the project
- provide guidance for the preparation of out of hours work plans for each construction work site and for key works (including for each station), which would be prepared in consultation with key stakeholders (including the EPA) and the community
- document procedures to control potential impacts
- identify responsibilities for implementation and management including managing complaints.

The strategy would be prepared in consultation with key stakeholders (including the EPA) and be approved prior to works commencing.

2.8 Construction compounds, work sites and access

The project area includes all areas required to construct the preferred project. The majority of construction would be located within the rail corridor from west of Sydenham to west of Bankstown.

Within the project area, a number of construction compounds would be required to support construction activities at stations, and at other key locations where civil works are required. In addition to the compounds, a number of work sites would also be used to facilitate construction of certain project elements.

For the purposes of the preferred project, it is assumed that construction activities would occur along the entire length of the rail corridor within the project area. Construction activities would include clearing and grubbing, fencing, stockpiling, and material laydown. These activities would move progressively along the project area.

There would also be established work areas within the project area. Work in these areas could include activities such as excavation, piling, and structural concreting.

Plant used for these activities would include vacuum trucks, cranes, generators, rollers, piling rig, water tankers, street sweepers and excavators.

Construction activities at these sites could occur concurrently at different locations along the project area.

Further information on the indicative construction activities within the project area is provided in Sections 2.2 to 2.6.

2.8.1 Construction compounds

Construction compounds would be required at each station to support construction activities and associated works. The location of construction compounds is shown on Figure 2.1. A summary of each compound is provided in Table 2.2.

Construction compounds would generally include site offices, worker amenities (such as toilets, change rooms, meal rooms, shower facilities and first aid facilities), workshops, material storage and lay down areas (including dangerous goods storage), plant and vehicle parking, loading and removal areas, and site security facilities.

Compounds would generally be located on land owned by RailCorp, mainly located within the rail corridor. Some compounds would need to be located on land outside of the rail corridor on other public land (i.e. owned by a government agency or council).

Table 2.2 Construction compound locations

Map Ref	Location	Existing use	Duration of use[1]
C1	Victoria Road, Marrickville	Rail corridor	Short-term
C2	Ewart Lane, Dulwich Hill	Rail corridor, parking	Short-term
C3	Floss Street, Hurlstone Park	Roads reserve and rail corridor	Short-term
C4	Broughton Street, Canterbury	Rail corridor and rail uses	Short-term
C5	Charles Street, Canterbury	Rail corridor, parking	Short-term
C6	South Parade, Campsie	Rail corridor	Short-term
C7	North Parade/Wilfred Avenue, Campsie	Rail corridor, road reserve with parking	Short-term
C8	Lilian Street, Campsie	Rail corridor, parking	Short-term
C9	Tobruk Avenue, Belmore	Rail corridor, open space	Short-term
C10	Redman Parade, Belmore	Parking and rail corridor	Short-term
C11	Railway Parade, Belmore	Rail corridor, open space	Short-term
C12	Bridge Road, Belmore	Sydney Trains maintenance facility	Long-term
C13	The Boulevarde, Lakemba	Rail corridor, parking	Short-term
C14	Railway Parade, Lakemba	Rail corridor, parking	Short-term
C15	The Boulevarde, Lakemba	Rail corridor, parking	Short-term
C16	The Boulevarde, Wiley Park	Rail corridor, road verge	Short-term
C17	Urunga Parade, Wiley Park	Rail corridor, road verge	Short-term
C18	Urunga Parade, Punchbowl	Rail corridor	Short-term
C19	Urunga Parade, Punchbowl	Rail corridor, road reserve	Long-term
C20	The Boulevarde, Punchbowl	Parking and corridor	Short-term
C21	Bruest Place, Punchbowl	Rail corridor	Short-term
C22	South Terrace, Bankstown	Rail corridor	Short-term
C23	North Terrace, Bankstown	Rail corridor, road reserve	Short-term

Note: 1. Short-term: area is to be used for up to about 18 months. Long-term: area is to be used for over 18 months and potentially for the entire construction period. The duration of use of these sites would be minimised where possible.

2.8.2 Work sites

In addition to the compounds and general construction activities within the rail corridor, there are also a number of other sites where construction activities would be undertaken, or where support would be provided for other construction areas. These sites would generally be located outside the rail corridor, are shown in Figure 2.1 and are listed in Table 2.3.

Table 2.3 Work sites located outside of the rail corridor

Map ref	Location	Existing use	Proposed use	Duration of use[1]
W1	Myrtle Street, Marrickville	Rail corridor and vacant land on residential property	Support for station works and relocation of services	Short-term
W2	Albermarle Street bridge	Roadway/ rail corridor	Bridge works	Short-term
W3	Dulwich Hill	Rail corridor and Council car park	Crane location for construction of station	Short-term
W4	Terrace Road bridge	Rail corridor and road verge	Bridge works	Short-term
W5	Garnet Street/The Parade, Dulwich Hill	Rail corridor and road verge/informal parking	Bridge works	Short-term
W6	Melford Street/Canberra Street, Hurlstone Park	Rail corridor and road reserve	Bridge works	Short-term
W7	Close Street, Canterbury	Former Canterbury Bowling and Community Club	Support for Canterbury Station works and corridor works including car parking	Long-term
W8	Charles Street, Canterbury	Rail corridor and car park	Station works	Short-term
W9	South Parade at Wairoa Street, Canterbury	Rail corridor and road verge	Bridge works	Short-term
W10	Lillian Lane, Campsie	Rail corridor and road verge	Bridge works	Short-term
W11	Redman Parade, Belmore	Rail corridor and road reserve	Bridge works	Short-term
W12	The Boulevarde	Rail corridor and road verge	Substation works	Short-term
W13	Railway Parade, Lakemba	Rail corridor and car parking	Station works	Short term

Note: 1. Short-term: area is to be used for up to about 18 months. Long-term: area is to be used for over 18 months and potentially for the entire construction period. The duration of use of these sites would be minimised where possible.

Work site 7 is proposed on the former Canterbury Bowling and Community Club. As a result, further detail is provided in Figure 2.4 to assist the community understand the potential construction layout and associated impacts (for example, site access points, construction areas), and the area of site available for continuing use.

2.8.3 Environmental management at construction compounds and work sites

Compounds and work sites would be managed in accordance with the approach to environmental management for construction as a whole (described in Section 2.1.2). Environmental controls would be implemented at all sites, in accordance with the construction environmental management plan. Impacts to trees would be minimised wherever practicable. Trees would be managed in accordance with the Tree Management Strategy for the preferred project, described in Section 2.3.2.

2.8.4 Approach for selecting additional construction compounds and work sites

Although every endeavour has been made to identify sufficient space needed for construction, the construction contractor may require additional construction compounds and/or work sites to those described above. This could include changes to the extent of compound or work sites.

Additional or alternative location compounds and/or work sites would be determined based on the following criteria:

- located more than 50 metres from a waterway, unless an erosion and sediment control plan is developed and implemented
- have ready access to the road network
- be located to minimise the need for heavy vehicles to travel on local streets and/or through residential areas
- be located on relatively level land
- be separated from the nearest residences by at least 200 metres, unless reasonable and feasible noise and light spill mitigation measures are implemented
- not require native vegetation clearing beyond that already required for the project
- not have any more than a minor impact on heritage items beyond those already assessed for the project
- not unreasonably affect the land use of adjacent properties
- be above the five per cent annual exceedance probability flood level, unless a contingency plan to manage flooding is prepared and implemented
- provide sufficient space for the storage of raw materials to minimise, to the greatest extent practical, the number of deliveries required outside standard daytime construction hours.

Any additional compounds or work sites would potentially require additional land outside the rail corridor. Consultation would be undertaken with any impacted landowners (including councils) to discuss any additional land requirements. As described in Section 1.2.2, leases would be entered into as required.

Figure 2.4 Indicative layout for work site 7

2.8.5 Access to construction compounds and work sites

Construction areas would be generally accessed via existing corridor gates along the rail corridor. In some locations, new gates would also be installed.

Preliminary access routes to the construction compounds, work sites and the rail corridor in general are shown in Figure 2.1.

2.8.6 Worker parking

Some parking would be provided for construction workers within compounds and/or work sites where practicable. However, these spaces would generally be no more than 10 per compound or work site. Opportunities for additional construction worker parking would be investigated during detailed construction planning, particularly for larger sites.

2.8.7 Temporary site hoarding and fencing

Erection of site hoarding and fencing would be required to provide temporary enclosure of work sites and work areas to ensure the safety of the public.

Hoardings/fencing would be required in and around areas of heavy pedestrian usage, potentially including the temporary closure and/or diversion of pedestrian thoroughfares as well as management of pedestrians around work sites and past work site access points. Hoardings/fencing may also be erected to protect buildings or structures and to provide protection from dust and debris generated during construction.

The type of hoarding or fencing used would be further developed during detailed design and would consider the following principles:

- Reflect the context within which the construction sites are located and are sensitive to existing visual characteristics of neighbouring areas.
- Include artwork, graphics and images to enhance the visual appearance of temporary works in high visibility locations. This may include Sydney Metro advertising or public awareness campaigns.
- Provide community information, including contact numbers for enquiries or complaints.
- Ensure safety for vehicles and pedestrians is not compromised, with the principles of Crime Prevention through Environmental Design to be applied in the design of hoarding or fencing.
- Minimise impacts of visibility of businesses in the vicinity, where not possible signage would be provided to direct people to any obscured businesses.
- Be regularly inspected and kept clean and free of dust build up. Graffiti would be removed or painted over promptly.
- Consider use of chain-link or similar style of steel fencing in areas with limited public interface (i.e. away from stations).

An example of the style of hoarding which would be used is provided in Figure 2.5.

Figure 2.5 Indicative hoarding to be used at compounds and work sites

2.8.8 Preliminary haulage routes

Preliminary identification of haulage routes has been undertaken with consideration to the sensitive nature of surrounding residential areas. Preliminary haulage routes have been identified for each construction compound and other site access points likely to be required. The preliminary routes are shown on Figure 2.6 at a regional scale, and in more detail on Figure 2.1. The routes were developed to minimise impacts on residential streets as far as possible, while providing the most direct route to the arterial road network. Where possible, routes avoid movements through town centres, such as the Marrickville town centre located on Illawarra Road.

These preliminary haulage routes would be reviewed during detailed design and confirmed following appointment of the construction contractor. In general, vehicle movements would be scheduled to be undertaken outside peak periods and in some locations (e.g. near Wiley Park and Punchbowl stations where schools are nearby), outside school start and finish times. However, there would be a need for some vehicle movements during these periods.

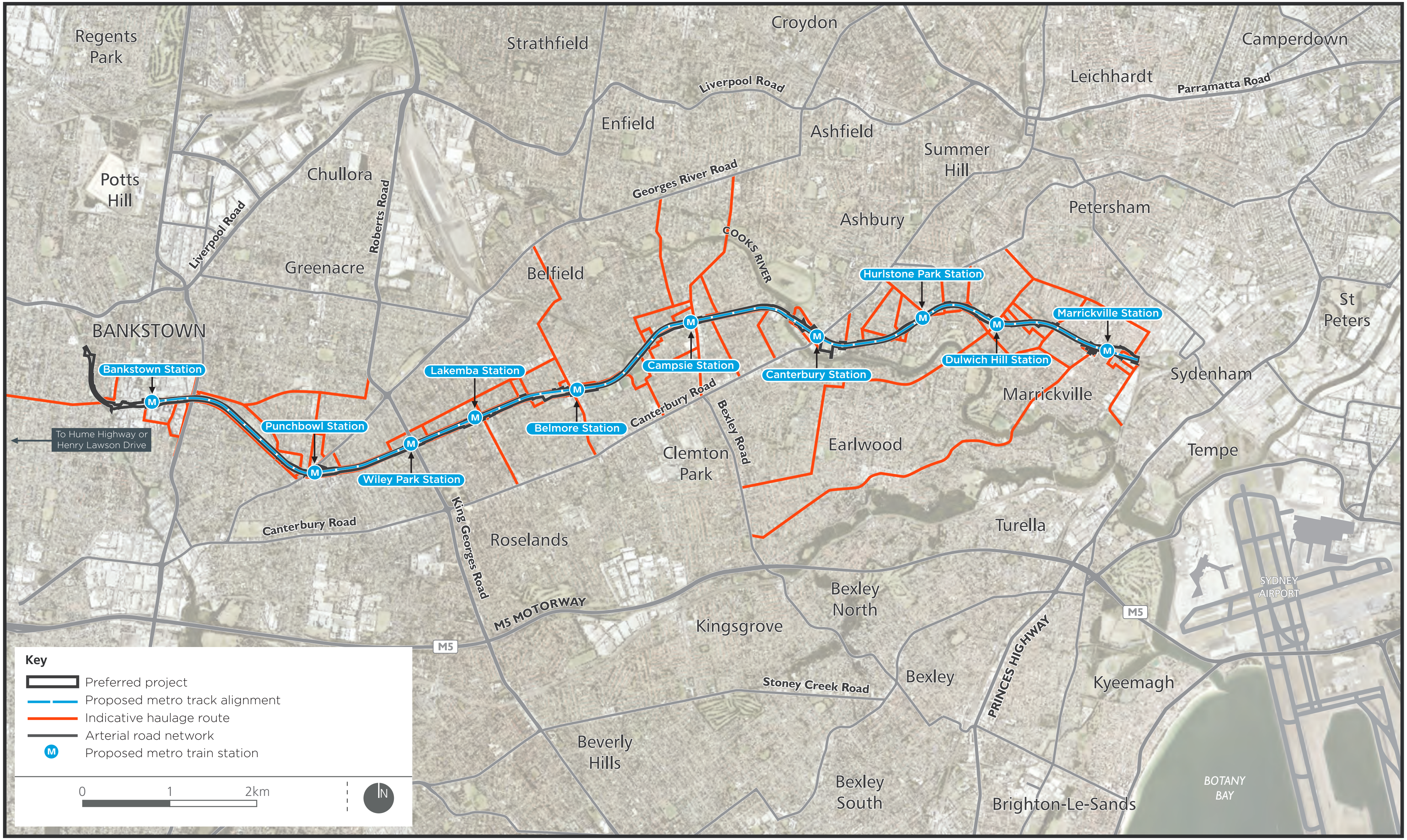
2.8.9 Construction traffic volumes

Construction traffic would include heavy and light vehicles associated with spoil and waste removal, material deliveries, and the arrival and departure of construction workers. The indicative construction traffic volumes are based on the following vehicle types:

- light vehicles – up to 4.5 tonnes
- heavy vehicles – up to 19 metres long (includes rigid and semi-trailer vehicles), greater than 4.5 tonnes.

Estimated traffic volumes are summarised in Table 2.4. These volumes are indicative of possession periods when vehicle movements would be at their maximum. Vehicle volumes are expected to approximately halve during non-possession periods.

The frequency of vehicle movements during construction would be further determined during detailed construction planning which would be undertaken following the appointment of a construction contractor.



Sydney METRO | city & southwest

Preliminary haulage routes

FIGURE 2.6

Table 2.4 Estimated construction traffic volumes during possession periods

Construction compound	Vehicles per hour - AM peak (7.30 - 8.30am)[1]		Vehicles per hour - PM peak (4.15 - 5.15pm)[1]		Heavy vehicles per hour outside recommended standard hours[1]	
	Heavy vehicles	Light vehicles	Heavy vehicles	Light vehicles	Evening (6pm - 10pm)	Night (10pm - 7am)
Marrickville	20	20	20	20	18	18
Dulwich Hill	20	20	20	20	18	18
Hurlstone Park	20	20	20	20	18	18
Canterbury	48	44	48	44	18	18
Campsie	20	20	20	20	18	18
Belmore	20	20	20	20	18	18
Lakemba	20	20	20	20	18	18
Wiley Park	20	20	20	20	18	18
Punchbowl	20	20	20	20	18	18
Bankstown	20	20	20	20	18	18

Notes: 1. Figures are for possession periods, which represent the worst-case situation, and represent two-way total traffic volumes.

2.9 Workforce and construction resources

2.9.1 Workforce

During non-possession periods, it is estimated that a workforce of approximately 470 people would be required on average, with up to 700 people required during peak construction activity. During possession periods, it is estimated that a workforce of approximately 715 people would be required on average, with up to 1,540 people required during peak construction activity. An indicative breakdown of workforce staffing per station area is provided in Table 2.5.

The workforce would be encouraged to use public transport to reduce the number of vehicles accessing and needing to park in the project area. The majority of worker vehicles are likely to access the site outside the morning and afternoon traffic peaks.

Table 2.5 Indicative construction workforce estimates

Location	Non-possession periods		Possession periods	
	Peak	Average	Peak	Average
Marrickville Station	60	40	130	65
Dulwich Hill Station	60	40	130	65
Hurlstone Park Station	60	40	140	65
Canterbury Station	75	50	160	75
Campsie Station	75	50	160	75
Belmore Station	60	40	130	60
Lakemba Station	60	40	130	60
Wiley Park Station	60	40	130	60
Punchbowl Station	60	40	130	60
Bankstown Station	135	90	300	130

2.9.2 Materials and water usage

A variety of materials would be required to construct the preferred project. The major items and indicative quantities are listed in Table 2.6.

It is estimated that about 45,000 cubic metres of fill material would be required to construct the preferred project. It is expected that all, or the vast majority of, fill material could consist of spoil excavated from the project area.

Table 2.6 Indicative material and water usage estimates

Location	Concrete (m^3)	Steel (tonnes)	Water (litres)	Ballast (tonnes)
Marrickville Station	300 to 500	100	300,000	0
Dulwich Hill Station	300 to 500	100	300,000	0
Hurlstone Park Station	300 to 500	100	200,000	0
Canterbury Station	300 to 500	100	250,000	0
Campsie Station	300 to 500	100	400,000	0
Belmore Station	200	100	300,000	0
Lakemba Station	300 to 500	100	500,000	0
Wiley Park Station	300 to 500	100	200,000	0
Punchbowl Station	300 to 500	100	500,000	0
Bankstown Station	800	50	600,000	2,934
Corridor between Bankstown to Punchbowl	200	80	1,200,000	6,000

2.9.3 Construction plant and equipment

An indicative list of the plant and equipment expected to be used during construction is provided in Table 2.7. The actual plant and equipment used at each work site would be further refined during the detailed design stage and upon appointment of the construction contractor.

2.9.4 Site servicing requirements

Utilities such as water, power, sewer and telecommunications would need to be supplied to work areas. Generally, these utilities are located close to the sites (such as the adjacent footpath) and the supply is considered 'business as usual' for utility companies. The proposed approach to utilities management is described in Section 2.10.

Table 2.7 Indicative construction plant and equipment

Scenario	Back hoe	Ballast tamper	Bobcat	Cable trailer and truck	Cable winch	Compressor	Concrete pump	Concrete truck / agitator	Diamond saw	Excavator	Franna crane	Generator	Hand tools	Horizontal direction drill	Mobile crane (300 tonne)	Mobile crane (50 tonne)	Piling rig (bored)	Roller (non-vibratory)	Truck	Water tanker	Welding equipment
General work sites			✓			✓	✓	✓		✓	✓	✓	✓			✓	✓	✓	✓	✓	✓
Corridor works - ground and track		✓	✓			✓				✓	✓	✓	✓		✓	✓		✓	✓	✓	✓
Corridor works - track support systems	✓	✓	✓								✓	✓	✓			✓			✓		✓
Station work sites			✓			✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
Bridge work sites			✓			✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
Substation work sites			✓				✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	
Power supply feeder			✓	✓	✓						✓			✓					✓		

2.10 Utilities management

The potential impacts on key utilities, and the proposed approach to managing utilities during construction, are considered in this section.

2.10.1 Utilities identification

There are a number of active and disused utilities located within and/or crossing the project area (either underground, aboveground or via existing road overbridges) with the potential to be affected by construction of the preferred project.

The location of trunk utilities has been based on Dial Before You Dig searches; and a review of utility data, including as-built surveys, and agency and council records. Preliminary consultation has also been held with utility owners, including Sydney Water, Ausgrid, Telstra, TPG, and Qenos.

The following utility owners have assets which may require adjustment, protection, and/or relocation as part of the preferred project:

- Sydney Water:
  - potable water mains
  - stormwater drains and channels
  - wastewater mains/tunnels including potentially disused assets
- Ausgrid:
  - underground electricity cables (potentially up to 132 kilovolts)
  - 33 kilovolt underground electricity cables
  - high voltage underground electricity cables
  - low voltage overhead and underground electricity cables
  - abandoned underground cables
- Qenos:
  - high pressure gas pipeline (currently filled with inert nitrogen gas)
- Jemena:
  - high pressure gas main (primary and secondary mains)
  - medium pressure gas main
  - low pressure gas main
- Telstra:
  - underground cables
  - underground and above ground service connections (i.e. to stations)
  - optic fibre underground cables
  - aerial optic fibre and coaxial cables
  - underground copper wire
  - vacant cable conduits
- NBN:
  - network cables
- Optus:
  - underground optic fibre cables
  - aerial optic fibre and coaxial cables

- Inner West and Canterbury-Bankstown councils:
  - stormwater channels
  - underground stormwater pipes
  - drainage culverts.

A number of the above assets are positioned within or below the existing road overbridges crossing the rail corridor.

2.10.2 Potential impacts and management framework

The *Sydney Metro City & Southwest Sydenham to Bankstown Upgrade Utilities Management Framework* (Sydney Metro, 2017c) (the 'Utilities Management Framework') has been prepared, adopting a risk-based approach to avoiding and/or minimising impacts associated with the relocation and/or adjustment of public utilities affected by the preferred project. The framework provides a consistent approach to the assessment and management of public utilities relocation/adjustment across all project activities. An outline of the framework is provided below.

The framework comprises the following steps:

- confirm affected utilities
- design response to potential conflict with a public utility including whether the utility can be avoided
- detailed assessment of requirements to meet utility owners specifications
- integration with utility owners through the Sydney Metro Utilities Working Group
- environmental assessment Australian Standard for risk management - *AS/NZS ISO 31000:2009, Risk management - Principles and guidelines*
- construction management which identifies typical mitigation measures successfully adopted by Transport for NSW on similar projects
- rehabilitation and re-instatement protocols following utility relocation/adjustment in roadways, footpaths and open space areas
- communications and notifications that can be expected and how these would be managed.

2.11 Alternative transport arrangements

2.11.1 Temporary Transport Strategy

The *Sydney Metro City & Southwest Sydenham to Bankstown Temporary Transport Strategy* (Sydney Metro, 2017d) (the 'Temporary Transport Strategy') describes the process for planning the integrated, multi-modal transport network changes required during possessions of the T3 Bankstown Line to enable construction of the preferred project.

The strategy outlines a number of components for alternative public transport arrangements by rail and bus during construction, to minimise impacts to customers during station closures and/or possession periods. The strategy provides:

- objectives for customers and bus services
- customer markets to be served by temporary transport management plans
- potential options to maintain public transport connections to and from affected rail stations
- potential impacts associated with temporary transport options and the level of assessment to be provided in temporary transport management plans

- temporary transport facilities and measures required to support the implementation of temporary transport management plans, ensuring accessible services are provided
- the process for developing temporary transport management plans, including stakeholder and community consultation
- performance outcomes for temporary transport plans.

The strategy would continue to be informed by stakeholder and community input, with the approach refined based on understanding customer needs and ongoing development of alternatives to deliver improved customer outcomes.

2.11.2 Temporary transport management arrangements

Guided by the Temporary Transport Strategy, temporary transport plans would be prepared for each possession period prior to works being undertaken, to manage the alternative transport arrangements. The temporary transport plan would define the initiatives to be implemented to assist customers affected by closures of the rail line, and the measures to minimise potential impacts associated with proposed alternative arrangements.

Each temporary transport plan would define the processes by which the impacts created by closures of the T3 Bankstown Line, and the operation of temporary train and bus services, would be managed. Each temporary transport plan would comprise a temporary transport service plan and a temporary transport management plan.

The temporary transport plans may include consideration of the following, depending on the type and duration of rail possession:

- increasing rail service frequencies on the T2 Inner West Line (between Lidcombe and the CBD) and the T8 Airport and South Line (between Revesby and the CBD)
- delivering a temporary bus service plan to carry customers from T3 Bankstown Line stations to stations on the T2 Inner West Line and the T8 Airport and South Line, including increasing the frequency of existing bus services at specific locations acknowledging that customers may prefer to use those instead of rail replacement services
- improving cycle facilities at stations on other lines
- potential road network enhancements and infrastructure improvements to support additional bus operations, such as:
  - directional signs to/from the rail station
  - bus route information displays
  - temporary seating and marquees for weather protection
  - relocation of bus stop poles
  - changes to bus zone signs.
- reviewing the facilities and commuter parking provision at stations on other lines that passengers may use
- the need to cater for special events such as New Years Eve during the Christmas shutdowns or NRL games held at Belmore Oval as to adequately handle crowds, this would include coordination with event organisers, the Sydney Coordination Office, councils and the Transport Management Centre.

To apply the learnings from previous temporary transport plans, development of the first temporary transport plan for the preferred project would include a review of the temporary transport plan for the Sydney Metro Epping to Chatswood conversion, which will have concluded by that time. Subsequent temporary transport plans for the Bankstown to Sydenham project would be developed with consideration given to the ones that preceded it, in an ongoing process of revision and refinement. Development of the plans would also include consultation with key stakeholders.

Where a plan identifies the need for additional infrastructure to support its implementation, the need for additional assessment and approval for the infrastructure would be determined in line with the approach to design refinements for the project, and specified in the plan. This would include identifying any temporary leases required to support the implementation of the temporary transport management plans.

A number of different approaches are available for providing temporary bus services. Each approach may form a component of the temporary transport plans. These components, shown in Figure 2.7, include:

- buses that stop at all stations along the corridor (required for all possession types)
- buses that only stop at a limited number of stations before continuing an express service to the end of journey location (required for all possession types)
- buses that move passengers to another rail line such as the T2 Inner West Line, the T8 Airport and South Line and the T1 North Shore, Northern & Western Line (to be considered for the Christmas school holiday and final possessions)
- an increase in the frequency of existing bus services at specific locations, acknowledging that customers may prefer to use those instead of the rail replacement bus service (to be considered for the Christmas school holiday and final possessions).

During temporary closures of stations, buses would move passengers to the nearest open station.

Further details of these options and the process and criteria that would be used to inform decision making when multiple temporary transport service options are available for each possession period are outlined in the Temporary Transport Strategy.

2.11.3 Changes resulting from temporary transport arrangements

Closure of the stations between Marrickville and Bankstown during possessions would result in a number of flow-on effects to the Sydney Trains network and the need for operational changes beyond this section of the line, including at Birrong and Yagoona stations. Changes may also occur at stations on the T2 Airport and South Line between Revesby and Sydenham, and between Strathfield and Redfern. Changes may also occur at stations on the T4 Eastern Suburbs & Illawarra Line.

Adjustments to rail services would need to be put in place to reallocate capacity across the network, including some expected additional capacity that may be provided on the T8 Airport and South Line.

Similarly, changes to bus routes and facilities, and car parking arrangements, may result from the need to provide temporary bus zones near stations, and/or to provide temporary park and ride facilities at other locations supported by the temporary bus services.

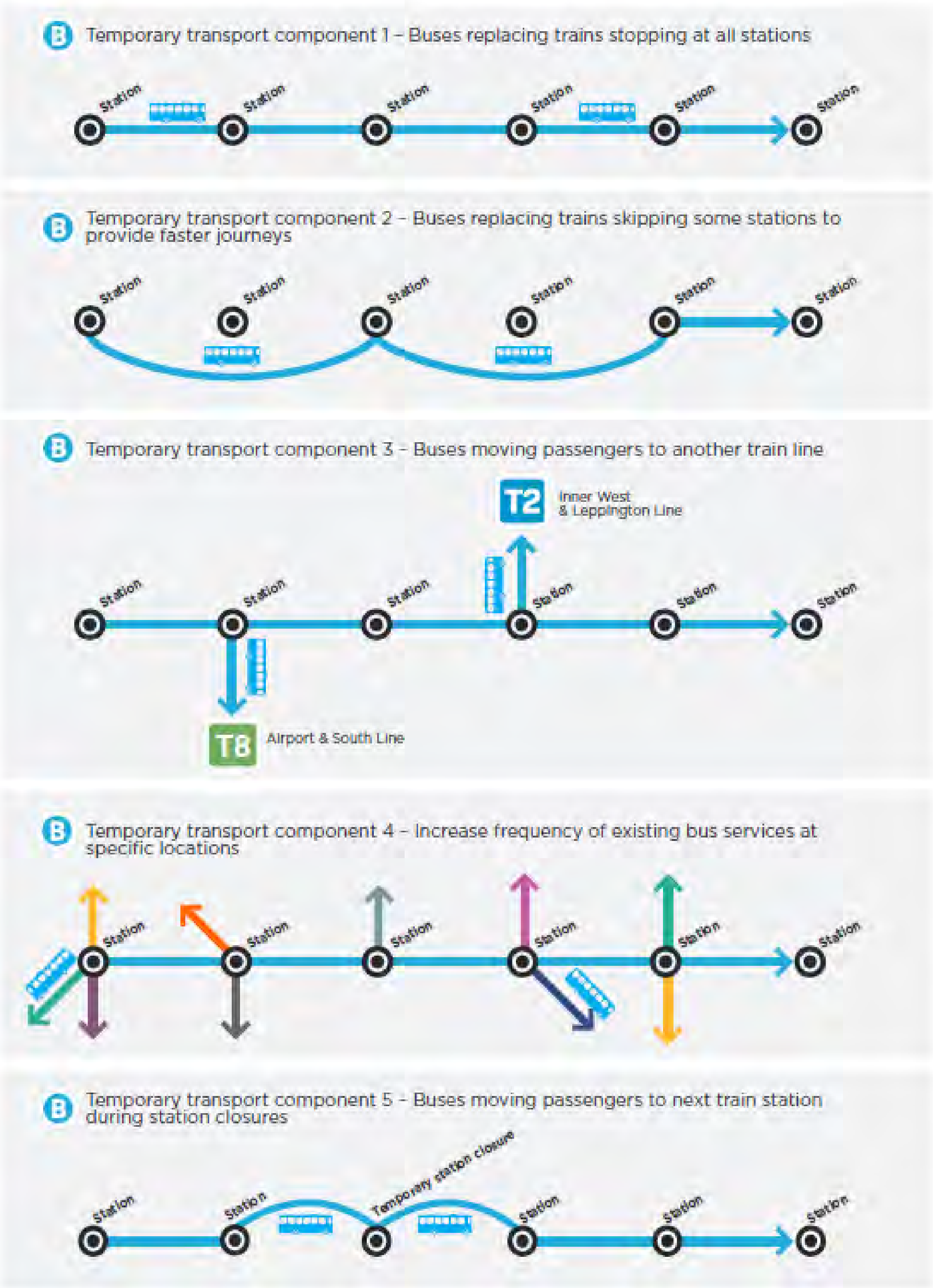


Figure 2.7 Temporary transport management plan components

SYDENHAM TO BANKSTOWN

SUBMISSIONS AND PREFERRED INFRASTRUCTURE REPORT

> Appendix B – Preferred project description

City & Southwest

SYDENHAM TO BANKSTOWN

SUBMISSIONS AND PREFERRED INFRASTRUCTURE REPORT

> Appendix C - Applicability of Secretary's environmental assessment requirements

Appendix C – Applicability of the Secretary's environmental assessment requirements

Desired Performance Outcome	Requirement	Applicable to preferred project? (Yes/No (with explanation))
1. Environmental Impact Assessment The process for assessment of the proposal is transparent, balanced, well focussed and legal.	1. The Environmental Impact Statement must be prepared in accordance with Part 3 of Schedule 2 of the Environmental Planning and Assessment Regulation 2000 (the Regulation).	Yes.
	2. It is the Proponent's responsibility to determine whether the project needs to be referred to the Commonwealth Department of the Environment for an approval under the Commonwealth Environment is transparent, balanced, well focussed and Protection and Biodiversity Conservation Act 1999 (EPBC Act). The Proponent must contact the Commonwealth Department of the Environment immediately if it is determined that an approval is required under the EPBC Act, as supplementary environmental assessment requirements may need to be issued to ensure a streamlined assessment under the Bilateral agreement can be achieved.	Yes.
	3. Where the project requires approval under the EPBC Act and is being assessed under the Bilateral Agreement the EIS should address: (a) Consideration of Protected Matters that may be impacted by the development where the Commonwealth Minister has determined that the proposal is a Controlled Action. (b) Identification and assessment of those Protected Matters that are likely to be significantly impacted. (c) Details of how significant impacts to Protected Matters have been avoided, mitigated and, if necessary, offset. (d) Consideration of, and reference to, relevant conservation advices, recovery plans and threat abatement plans.	Yes.
	4. The onus is on the Proponent to ensure legislative requirements relevant to the project are met.	Yes.
2. Environmental Impact Statement The project is described in sufficient detail to enable clear understanding that the project has been developed through an iterative process of impact identification and assessment and project refinement to avoid, minimise or offset impacts so that the project, on balance, has the least adverse environmental, social and economic impact, including its cumulative impacts.	1. The EIS must include, but not necessarily be limited to, the following: (a) executive summary; (b) a description of the project, including all components and activities (including ancillary components and activities) required to construct and operate it; (c) a statement of the objective(s) of the project; (d) a summary of the strategic need for the project with regard to its critical State significance and relevant State Government policy; (e) an analysis of feasible alternatives to the project; (f) a description of feasible options within the project;	Yes.

Desired Performance Outcome	Requirement	Applicable to preferred project? (Yes/No (with explanation))
	(g) a description of how alternatives to and options within the project were analysed to inform the selection of the preferred alternative/option. The description must contain sufficient detail to enable an understanding of why the preferred alternative to and options(s) within the project were selected; (h) describe opportunities for further network expansion and consideration of relationship to other Government public transport initiatives; (i) a concise description of the general biophysical and socio-economic environment that is likely to be impacted by the project (including offsite impacts). Elements of the environment that are not likely to be affected by the project do not need to be described; (j) a demonstration of how the project design has been developed to avoid or minimise likely adverse impacts; (k) the identification and assessment of key issues as provided in the 'Assessment of Key Issues' performance outcome; (l) a statement of the outcome(s) the proponent will achieve for each key issue; (m) measures to avoid, minimise or offset impacts must be linked to the impact(s) they treat, so it is clear which measures will be applied to each impact; (n) consideration of the interactions between measures proposed to avoid or minimise impact(s), between impacts themselves and between measures and impacts; (o) an assessment of the cumulative impacts of the project taking into account other projects that have been approved but where construction has not commenced, projects that have commenced construction, and projects that have recently been completed (for example WestConnex and approved construction in the relevant precincts); (p) statutory context of the project as a whole, including: - how the project meets the provisions of the EP&A Act and EP&A Regulation; - a list of approvals that must be obtained under other Acts or laws before the project may lawfully be carried out; (q) a chapter that synthesises the environmental impact assessment and provides: - a succinct but full description of the project for which approval is sought; - a description of uncertainties that still exist around design, construction methodologies and/or operational methodologies and how these will be resolved in the next stages of the project; - a compilation of the impacts of the project that have not been avoided; - a compilation of the proposed measures associated with each impact to avoid or minimise (through design refinements or ongoing management during construction and operation) or offset these impacts;	

Desired Performance Outcome	Requirement	Applicable to preferred project? (Yes/No (with explanation))
	- a compilation of the outcome(s) the proponent will achieve; and - the reasons justifying carrying out the project as proposed, having regard to the biophysical, economic and social considerations, including ecologically sustainable development and cumulative impacts. (r) relevant project plans, drawings, diagrams in an electronic format that enables integration with mapping and other technical software. 2. The EIS must only include data and analysis that is reasonably needed to make a decision on the proposal. Relevant information must be succinctly summarised in the EIS and included in full in appendices. Irrelevant, conflicting or duplicated information must be avoided.	
3. Assessment of Key Issues* Key issue impacts are assessed objectively and thoroughly to provide confidence that the project will be constructed and operated within acceptable levels of impact. * Key issues are nominated by the Proponent in the CSSI project application and by the Department in the SEARs. Key issues need to be reviewed throughout the preparation of the EIS to ensure any new key issues that emerge are captured. The key issues identified in this document are not exhaustive but are key issues common to most CSSI projects.	1. The level of assessment of likely impacts must be proportionate to the significance of, or degree of impact on, the issue, within the context of the proposal location and the surrounding environment. The level of assessment must be commensurate to the degree of impact and sufficient to ensure that the Department and other government agencies are able to understand and assess impacts. 2. For each key issue the Proponent must: (a) describe the biophysical and socio-economic environment, as far as it is relevant to that issue; (b) describe the legislative and policy context, as far as it is relevant to the issue; (c) identify, describe and quantify (if possible) the impacts associated with the issue, including the likelihood and consequence (including worst case scenario) of the impact (comprehensive risk assessment), and the cumulative impacts; (d) demonstrate how potential impacts have been avoided (through design, or construction or operation methodologies); (e) detail how likely impacts that have not been avoided through design will be minimised, and the predicted effectiveness of these measures (against performance criteria where relevant); and (f) detail how residual impacts will be managed or offset, and the approach and effectiveness of these measures. 3. Where multiple reasonable and feasible options to avoid or minimise impacts are available, they must be identified and considered and the proposed measure justified taking into account the public interest.	Yes.

Desired Performance Outcome	Requirement	Applicable to preferred project? (Yes/No (with explanation))
4. Consultation The project is developed with meaningful and effective engagement during project design and delivery.	1. The project and its assessment must be informed by consultation, including with relevant government agencies (including the Department of Planning and Environment (Growth, Designs and Programs) and within the Transport for NSW cluster (such as Roads and Maritime Services and Sydney Trains), local councils, infrastructure and service providers, special interest groups, affected landowners, businesses and the community. The consultation process must be undertaken in a manner commensurate with expected levels of impact and stakeholder significance. 2. The Proponent must document the consultation process, and demonstrate how the project has responded to the inputs received (inclusive of a strategy of engagement with key stakeholders on key design elements of the project). 3. The Proponent must describe the timing and type of community consultation proposed during the design and delivery of the project, the mechanisms for community feedback, the mechanisms for keeping the community informed, and procedures for complaints handling and resolution.	Yes.
5. Biodiversity The project design considers all feasible measures to avoid and minimise impacts on terrestrial and aquatic biodiversity. Offsets and/or supplementary measures are assured which are equivalent to remaining impacts of project construction and operation.	1. The Proponent must assess biodiversity impacts in accordance with the current guidelines including the Framework for Biodiversity Assessment FBA). 2. The Proponent must assess impacts on biodiversity values not covered by the FBA as specified in s2.3. 3. The Proponent must assess impacts on the Long-nosed Bandicoot Inner Western Sydney Population (including an assessment of vehicle strike (from more frequent trains) and a loss of threatened species and their habitat which is not associated with vegetation (e.g. building demolition, bridge reconstruction, etc.). and provide the information specified in s9.2 of the FBA. 4. The Proponent must identify whether the project as a whole, or a component of the project, would be classified as a Key Threatening Process (KTP) in accordance with the listings in the Threatened Species Conservation Act 1997 (TSC Act), Fisheries Management Act 1994 (FM Act) and Environmental Protection and Biodiversity Conservation Act 2000 (EPBC Act).	Yes.

Desired Performance Outcome	Requirement	Applicable to preferred project? (Yes/No (with explanation))
6. Flooding and Hydrology The project minimises adverse impacts on existing flooding characteristics. Construction and operation of the project avoids or minimises the risk of, and adverse impacts from, infrastructure flooding, flooding hazards, or dam failure. Long term impacts on surface water and groundwater hydrology (including drawdown, flow rates and volumes) are minimised. The environmental values of nearby, connected and affected water sources, groundwater and dependent ecological systems including estuarine and marine water (if applicable) are maintained (where values are achieved) or improved and maintained (where values are not achieved). Sustainable use of water resources.	1. The Proponent must assess and model (where appropriate), taking into account relevant Council-adopted flood models or latest flood data available from Councils, the impacts on flood behaviour during construction and operation for flood events ranging from the 1% AEP up to the probable maximum flood (taking into account sea level rise and storm intensity due to climate change) including: (a) detrimental increases in the potential flood affectation of other properties, assets and infrastructure; (b) consistency (or inconsistency) with applicable Council floodplain risk management plans; (c) compatibility with the flood hazard of the land; (d) compatibility with the hydraulic functions of flow conveyance in floodways and storage areas of the land; (e) downstream velocity and scour potential; (f) impacts the development may have upon existing community emergency management arrangements for flooding. These matters must be discussed with the State Emergency Services and Council; and (g) impacts the development may have on the social and economic costs to the community as a consequence of flooding. 2. The Proponent must describe (and map) the existing hydrological regime for surface and groundwater resource (including reliance by users and for ecological purposes} likely to be impacted by the project, including stream orders, as per the FBA. 3. The Proponent must assess (and model if appropriate) the impact of the construction and operation of the project and ancillary facilities (both built elements and discharges} on surface and groundwater hydrology in accordance with the current guidelines, including: (a) minimising the effects of proposed stormwater and wastewater management during construction and operation on natural hydrological attributes (such as volumes, flow rates, management methods and re-use options) and on the conveyance capacity of existing stormwater systems where discharges are proposed through such systems; and (b) water take (direct or passive} from surface and groundwater sources with estimates of annual volumes during construction and operation. 4. The Proponent must identify requirements for baseline monitoring of hydrological attributes.	Yes (for construction). The Environmental Impact Statement considered the impact of the construction of the exhibited project on potential flood events, water quality, surface water and groundwater resources. This is still relevant to the preferred project. Limited applicability (for operation). The operation of the preferred project would not result in a worsening of existing flooding or flood hazard within or surrounding the rail corridor (refer to Section 14.1 of this report).

Desired Performance Outcome	Requirement	Applicable to preferred project? (Yes/No (with explanation))
7. Heritage The design, construction and operation of the project facilitates, to the greatest extent possible, the long term protection, conservation and management of the heritage significance of items of environmental heritage and Aboriginal objects and places. The design, construction and operation of the project avoids or minimises impacts, to the greatest extent possible, on the heritage significance of environmental heritage and Aboriginal objects and places.	1. The Proponent must identify and assess direct and/or indirect impacts (including cumulative impacts) to the heritage significance of: (a) Aboriginal places and objects, as defined under the National Parks Aboriginal Cultural Heritage Consultation requirements and Wildlife Act 1974 and in accordance with the principles and methods of assessment identified in the current guidelines; (b) Aboriginal places of heritage significance, as defined in the Standard Instrument - Principal Local Environmental Plan; (c) environmental heritage, as defined under the Heritage Act 1977; and (d) items listed on the National and World Heritage lists. 2. Where impacts to State or locally significant heritage items are identified, the assessment must: (a) include a statement of heritage impact for all heritage items (including significance assessment); (b) consider impacts to the item of significance caused by, but not limited to, vibration, demolition, archaeological disturbance, altered historical arrangements and access, visual amenity, landscape and vistas, curtilage, subsidence and architectural noise treatment (as relevant); (c) outline measures to avoid and minimise those impacts in accordance with the current guidelines; (d) be undertaken by a suitably qualified heritage consultant(s) (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria); (e) have regard to the specific and broader values of historic structures (such as footbridges, overhead booking offices, platforms and platform buildings) and conservation approaches provided in the relevant conservation strategies and design guides and conservation management plans, as applicable; and (f) identify potential uses for heritage items to be retained within the corridor. 3. Where archaeological investigations of Aboriginal objects are proposed these must be conducted by a suitably qualified archaeologist, in accordance with section 1.6 of the Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (DECCW 2010). 4. Where impacts to Aboriginal objects and/or places are proposed, consultation must be undertaken with Aboriginal people in accordance with the current guidelines. The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be assessed.	Yes.

Desired Performance Outcome	Requirement	Applicable to preferred project? (Yes/No (with explanation))
8. Noise and Vibration - Amenity Construction noise and vibration (including airborne noise, ground-borne noise and blasting) are effectively managed to minimise adverse impacts on acoustic amenity. Increases in noise emissions and vibration affecting nearby properties and other sensitive receivers during operation of the project are effectively managed to protect the amenity and well-being of the community.	1. The Proponent must assess construction and operational noise and vibration impacts in accordance with relevant NSW noise and vibration guidelines. The assessment must include consideration of impacts to sensitive receivers including small businesses, and include consideration of sleep disturbance and, as relevant, the characteristics of noise and vibration (for example, low frequency noise). 2. The EIS must include a framework for both an Out of Hours Works Strategy and the development of an Out of Hours Works Plan which incorporates community consultation.	Yes.
9. Noise and Vibration - Structural Construction noise and vibration (including airborne noise, ground-borne noise and blasting) are effectively managed to minimise adverse impacts on the structural integrity of buildings and items including Aboriginal places and environmental heritage. Increases in noise emissions and vibration affecting environmental heritage as defined in the Heritage Act 1977 during operation of the project are effectively managed.	1. The Proponent must assess construction and operation noise and vibration impacts in accordance with relevant NSW noise and vibration guidelines. The assessment must include consideration of impacts to the structural integrity and heritage significance of items (including Aboriginal places and items of environmental heritage). 2. The Proponent must demonstrate that blast impacts are capable of complying with the current guidelines, if blasting is required.	Yes.

Desired Performance Outcome	Requirement	Applicable to preferred project? (Yes/No (with explanation))
10. Socio-economic, Land Use and Property The project minimises adverse social and economic impacts and capitalises on opportunities potentially available to affected communities. The project minimises impacts to property and business and achieves appropriate integration with adjoining land uses, including maintenance of appropriate access to properties and community facilities, and minimisation of displacement of existing land use activities, dwellings and infrastructure.	1. The Proponent must assess social and economic impacts of the project. This must be done having regard to issues raised by relevant communities and businesses. 2. The Proponent must assess impacts from construction and operation on potentially affected properties, businesses, recreational users and land and water users including property acquisitions/adjustments, access, amenity and relevant statutory rights.	Yes.
11. Soils The environmental values of land, including soils, subsoils and landforms, are protected. Risks arising from the disturbance and excavation of land and disposal of soil are minimised, including disturbance to acid sulfate soils and site contamination.	1. The Proponent must assess whether the land is likely to be contaminated and identify if remediation of the land is required, having regard to the ecological and human health risks posed by the contamination in the context of past, existing and future land uses. Where assessment and/or remediation is required, the Proponent must document how the assessment and/or remediation would be undertaken in accordance with current guidelines.	Yes.
12. Sustainability The project reduces the NSW Government's environmental footprint and operating costs and optimises the social outcomes that can be leveraged through construction and operations. Conservation of natural resources is maximised.	1. The Proponent must assess the sustainability of the project in accordance with the Infrastructure Sustainability Council of Australia (ISCA) Infrastructure Sustainability Rating Tool or equivalent and relevant rating tool. 2. The Proponent must review the project against the current guidelines including targets and strategies to improve Government efficiency in use of water, energy and transport.	Yes.

Desired Performance Outcome	Requirement	Applicable to preferred project? (Yes/No (with explanation))
13. Transport and Traffic Network connectivity, safety and efficiency of the transport system in the vicinity of the project are managed to minimise impacts. The safety of transport system customers is maintained. Impacts on network capacity and the level of service are effectively managed. Works are compatible with existing infrastructure and future transport corridors.	1. The Proponent must assess construction transport and traffic (vehicle, pedestrian and cyclists) impacts, including, but not necessarily limited to: (a) a considered approach to route identification and scheduling of transport movements; (b) the number, frequency and size of construction related vehicles (passenger, commercial and heavy vehicles, including spoil management movements); (c) (d) the need to upgrade roads proposed for construction vehicle routes including impacts of road closures, construction worker parking and impacts on availability of public parking; (e) the nature of existing traffic (types and number of movements) on construction access routes (including consideration of peak traffic times and sensitive road users and parking arrangements); (f) information on how construction and scheduling of works will be coordinated in regard to cumulative traffic impacts resulting from concurrent work on WestConnex and other approved key construction projects. (g) access constraints and impacts on public transport, pedestrians and cyclists including: - impacts on customers and the reliability of suburban and intercity rail services (including increased demand for rail services on other lines, particularly the T2 Inner West, Tl North Shore, Northern and Western Lines) during possession periods and testing and commissioning of metro trains; - alternative transport arrangements for customers during rail possessions and closure of the rail line (including how the Temporary Transport Plan will be developed in consultation with relevant Councils and the community); and - identification of key traffic performance issues in the surrounding areas during rail shutdowns and implementation of alternate transport arrangements. (h) the need to close, divert or otherwise reconfigure elements of the road and cycle network associated with construction of the project. 2. The Proponent must assess the operational transport impacts of the project, including the wider transport interactions {local and regional roads, changes to commuter parking and loading zones, provision of kiss and ride facilities, cycling, public and freight transport). The EIS must define a transport hierarchy and a framework for an active transport strategy.	Yes.

Desired Performance Outcome	Requirement	Applicable to preferred project? (Yes/No (with explanation))
14. Place Making and Urban Design The project design capitalises on opportunities to improve place, character and quality of the surrounding built and natural environment (including adjoining public spaces). The project contributes to the accessibility and connectivity of communities.	1. The Proponent must deliver functional 'place' outcomes of public benefit, inclusive of how the project integrates with proposed land use changes occurring within the corridor, and how it contributes to the accessibility and connectivity of existing and future communities (with specific consideration given to the Sydenham to Bankstown Urban Renewal Corridor Strategy (as updated)). This must be done in collaboration with the Department of Planning and Environment and Councils, and must include but is not limited to: (a) the defining of existing and proposed station precincts including implications for urban renewal; (b) identifying design principles, strategies and opportunities to enhance healthy, cohesive and inclusive communities (including consideration of government strategies and plans); (c) identifying the urban design and landscaping aspects and user facilities of the project and its components; (d) assessing the impact of the project on the urban and natural fabric; (e) incorporating the use of Crime Prevention Through Environmental Design (CPTED) principles during the design development process. 2. The Proponent must describe the accessibility elements of the project including relevant accessibility legislation and guidelines and: (a) impacts on pedestrian access in and around stations and connecting streets (including consideration of land use change); (b) enhancing the accessibility of each station and the general vicinity of walking and cycling catchments; (c) the provision of infrastructure to support accessible paths of travel and interchange; (d) impacts on cyclists (including provision of and integration with active transport routes) and pedestrian access and safety; and (e) minimising barriers across the rail corridor and opportunities to integrate cycling and pedestrian elements with surrounding networks and in the project. 3. The Proponent must assess the visual and landscape impacts of the project and ancillary infrastructure on: (a) views and vistas; (b) streetscapes, key sites and buildings; (c) landscaping, green spaces and existing trees; (d) heritage items including Aboriginal places and environmental heritage; and (e) the local community. 4. The Proponent must provide artist impressions and perspective drawings of the project from key receiver locations to illustrate the project.	Limited applicability. The preferred project has been revised to retain all existing station entrances. The preferred project design around station entrances takes this outcome and requirement into account. Importantly, it does not preclude (and in some instances safeguards) further works to integrate with future development within the proposed urban renewal corridor. Once the planning for the urban renewal corridor is further advanced and has been established through the involvement of the community, the form of place around the preferred project interfaces with the corridor can be identified in order to deliver the long-term functional outcomes. As such, the applicability of the place making and urban design Secretary's environmental assessment requirements to the preferred project is limited.

Desired Performance Outcome	Requirement	Applicable to preferred project? (Yes/No (with explanation))
15. Water - Quality The project is designed, constructed and operated to protect the NSW Water Quality Objectives where they are currently being achieved, and contribute towards achievement of the Water Quality Objectives over time where they are currently not being achieved, including downstream of the project to the extent of the project impact including estuarine and marine waters (if applicable).	1. The Proponent must: (a) state the ambient NSW Water Quality Objectives (NSW WQO) and environmental values for the receiving waters relevant to the project, including the indicators and associated trigger values or criteria for the identified environmental values; (b) identify pollutants that may be introduced into the water cycle and describe the nature and degree of impact that discharge(s) may have on the receiving environment, including consideration of all pollutants that pose a risk of non-trivial harm to human health and the environment; (c) identify the rainfall event that the water quality protection measures will be designed to cope with; (d) assess the significance of identified impacts including consideration of the relevant ambient water quality outcomes; (e) demonstrate how construction and operation of the project will, to the extent that the project can influence, ensure that: - where the NSW WQOs for receiving waters are currently being met they will continue to be protected; and - where the NSW WQOs are not currently being met, activities will work toward their achievement over time.	Yes.
16. Utilities The project is designed, constructed and operated to minimise impacts to utilities and provision of such to the public.	1. The Proponent must identify and assess potential impacts on key identified active or disused public trunk utilities infrastructure (including communications, electricity, gas, and water and sewerage). 2. Where impacts on utilities are expected, the Proponent must prepare a utilities management framework, to identify a management strategy for options, including relocation or adjustment of the utilities. 3. The utilities management framework must identify ways in which opportunities to integrate with and support initiatives adopted by Councils and utilities providers and how access to assets will be maintained during construction.	Yes.

SYDENHAM TO BANKSTOWN

SUBMISSIONS AND PREFERRED INFRASTRUCTURE REPORT

> Appendix C – Applicability of Secretary's environmental assessment requirements

City & Southwest

SYDENHAM TO BANKSTOWN

SUBMISSIONS AND PREFERRED INFRASTRUCTURE REPORT

> Appendix D - Traffic, transport and access assessment

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Transport for NSW
07-Jun-2018

Sydney Metro City & Southwest Sydenham to Bankstown Upgrade

Submissions and Preferred Infrastructure Report
Traffic, Transport and Access Assessment

Sydney Metro City & Southwest Sydenham to Bankstown Upgrade

Submissions and Preferred Infrastructure Report

Traffic, Transport and Access Assessment

Client: Transport for NSW

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			Name / Position	Signature
1	7-Jun-2018	FINAL	Duncan Tindall Associate Director - Transportation	D Tindall

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1.0 Introduction

1.1 Overview

Transport for NSW is developing the Sydenham to Bankstown upgrade component of Sydney Metro City & Southwest (the project). The project involves upgrading 10 existing stations west of Sydenham (Marrickville to Bankstown inclusive), and a 13 kilometre long section of the Sydney Trains T3 Bankstown Line, between west of Sydenham Station and west of Bankstown Station, to improve accessibility for customers and meet the standards required for metro operations. The project would enable Sydney Metro to operate beyond Sydenham, to Bankstown.

The Environmental Impact Statement for the project was exhibited in August 2017 (the exhibited project). To address a number of issues raised in submissions during the public exhibition period, Transport for NSW has developed a design solution that enables the retention of existing station entrances, heritage buildings and concourses, but enables upgrades that provide accessible stations.

Importantly, these changes to the exhibited project have enabled the development of a preferred project that not only addresses a number of the issues raised in submissions, but also significantly minimises potential impacts – especially in respect of construction noise, traffic, heritage and vegetation impacts, while delivering a world class metro (the preferred project).

This report provides a description of the proposed changes to the traffic, transport and access for the preferred project, and the impacts of those during construction and operation. This document should be read in conjunction with Technical Paper 1: Traffic Transport and Access (AECOM, 2017) of the EIS (EIS Technical Paper 1) and the main Submissions and Preferred Infrastructure Report (SPIR), to which this is an appendix. This document does not repeat the assessment of impacts where there has been no change to the exhibited project. Where there has been a change to the exhibited project that results in amended impacts, these impacts are assessed.

The SPIR provides the full details of how the exhibited project has evolved to the preferred project. For the purposes of this report, the following key changes are considered:

- changes to construction sequencing, including a reduction in the duration of possession periods. The possession periods for the exhibited project included two weeks during the July school holiday periods and six weeks during the Christmas school holiday periods. Possession periods for the preferred project include:
  - additional weekend possessions - up to an additional eight weekend possessions would be required each year to complete the preferred project works.
  - school holiday possessions – this would involve up to a two week possession of the T3 Bankstown Line during the Christmas school holiday periods
  - night-time weekday possessions – this would be on an occasional basis to prepare the rail corridor ahead of weekend or school holiday possessions.
- station construction periods resulting in the closure of up to three stations concurrently for up to two months
- revised works to road bridges
- retaining and enhancing existing station layouts to facilitate improved operations with supporting precinct improvements to promote customer access.

1.2 Structure of Document

This report is structured in a manner that broadly replicates EIS Technical Paper 1. Section 2 confirms the general transport context of the preferred project and project area and provides details of the methodology used for the assessment of the preferred project. Sections 3 to 5 provide the assessment of the impacts for the construction phase and the operational phase of the preferred project. Section 6 provides the updated mitigation measures for the preferred project.

2.0 Methodology

2.1 Overview

The methodology for this report is as detailed in Chapter 4 of EIS Technical Paper 1.

Where clarification or amendments have been required to this methodology this has been outlined below.

2.2 Baseline Conditions

Whilst a number of months have elapsed since the preparation of EIS Technical Paper 1, there have been no changes to existing conditions in and surrounding the project area that result in a materially different baseline for the assessment.

This is particularly so given that the preferred project impacts are generally being assessed for a future assessment year, either during construction or beyond in the operational phase. Therefore for the purposes of assessment, no changes to the baseline conditions have been considered in this report.

2.3 Modelling and Possession Periods Background Traffic Flows

The same source data and calibrated intersection models have been used for the intersection modelling presented in **Section 4** of this report, as in EIS Technical Paper 1. However, to assess the possession regime for the preferred project the models have been further developed using the approach described below. This adapted the original models which forecast a 'typical weekday' into models that forecast the conditions which are expected to occur from the last week of December for a period no longer than two weeks (Christmas period).

To determine the background traffic flows for this period, data from previous years was used to establish the proportional reduction in traffic from atypical weekday. This reduction was then applied to the observed traffic counts used to build the 'typical weekday' models to create the input traffic demand for the 'Christmas period possession' models. The models were then run as per the methodology described in EIS Technical Paper 1.

Modelling was not carried out for weekend conditions or night-time weekday possessions as the impacts would be the same or less than the weekend possessions that occur regularly on the T3 Bankstown Line at present. This is further discussed below in **Section 2.6**.

A more detailed methodology for the derivation of the Christmas period traffic flow factor, as well as the source of the data, is outlined further below.

Modelled Scenarios

Section 4 presents the assessment of the following scenarios:

a. 2023 Future typical conditions, (as per the exhibited project)

b. 2023 future conditions + construction traffic + refined baseline Temporary Transport Plan buses (refined baseline TTP) (as per the exhibited project)

c. 2023 future conditions Christmas period (new assessment for the preferred project)

d. 2023 future conditions Christmas period + construction traffic (new assessment for the preferred project)

e. 2023 future conditions Christmas Period + construction traffic + refined baseline TTP (new assessment for the preferred project).

Scenarios A and C show reference conditions that are forecast to exist in 2023 without accounting for any impacts related to the preferred project. Scenario B, which is as reported in EIS Technical Paper 1, remains the relevant assessment for the final three to six month possession in the final construction year of the preferred project. Scenarios D and E relate to the Christmas period possessions that are now proposed for the main construction activities for the preferred project.

The traffic flows used for each of these scenarios for every intersection modelled is contained in **Appendix A**.

Performance Indicators

In order to assess the impact of the above scenarios on the performance of the intersections, the main indicators were:

- Degree of Saturation (DoS): the ratio between traffic volumes and capacity (v / c) of the intersection, used to measure how close to capacity an intersection is operating. The DoS is a direct measure of the congestion level of the intersection and as DoS approaches 1.0, both queue length and delays increase rapidly. Satisfactory operations usually occur with a DoS lower than 0.9.
- Average delay: duration, in seconds, of the average vehicle waiting time at an intersection;
- Level of Service (LoS): a measure of the overall performance of the intersection. The levels of service (LoS) presented in **Table 2.1** are in accordance to the RMS Traffic Modelling Guidelines and LoS gives an indication of how well the intersection is performing in regards to delay in seconds faced by vehicles. For signalised intersections the LoS is based on the average intersection delay, and the most delayed movement for priority controlled intersections and roundabouts.

Table 2.1 Level of Service Delay Bands

Level Of Service (LoS)	Average Delay (sec / vehicle)	Traffic Signals and Roundabouts
A	Less than 14	Good operation
B	15 to 28	Good with acceptable delays and spare capacity
C	29 to 42	Satisfactory
D	43 to 56	Operating near capacity
E	57 to 70	At capacity; at signals incidents would cause excessive delays
F	> 70	Exceeds capacity; roundabouts require other control mode

Determining Christmas Period Background Traffic Flows

To determine a suitable factor, the traffic volume trends in the project area were determined. The Roads and Maritime Services (RMS) Traffic Volume Viewer (RMS Viewer) was used to obtain traffic volumes at chosen locations. Locations were chosen on the basis of proximity to the project area and availability of data over the 2016 / 2017 Christmas period. Data was obtained from the month of November 2016 to February 2017 to help identify any outliers in the data.

Six traffic count sites were selected from the data available through the RMS viewer:

- Princes Highway (200 m east of Brodie Spark Drive)
- Bexley Road (60 m north of South Western Motorway (M5))
- King Georges Road (30 m north of Roseland Avenue)
- Canterbury Road (30 m west of Sproule Street)
- Fairford Road (110 m North of south Western Motorway (M5))
- Hume Highway (70 m east of Stacey Street).

Observing trends at each of the sites during the Christmas period it was identified that the highest recorded volumes on weekdays were during the AM peak (6-10 am) and PM peak (3-7 pm). These volumes were used as a conservative estimate of traffic volumes during the Christmas period.

Traffic volumes were split into weeks (weekday volumes only) for both directions of movement (i.e. northbound / southbound). The directions of traffic movement were simplified to citybound (north and east) and outbound (south and west) movements.

Average hourly flows were taken over the entire week for both the AM and PM peak. The maximum average hourly flows were then taken over the months of November 2016 and February 2017. A graph of the maximum weekly average flows in each direction were plotted to visually identify any discrepancies in the data.

The traffic volumes over the weekdays of November 2016 for all sites was averaged and used as the base for assessment against the volumes over the Christmas period. The monthly average was used due to the observed decrease in traffic volumes in the weeks prior to the Christmas period. The first week of January 2017 (2^{nd} -6^{th}) was the volume used to represent the Christmas period. This week was used as a conservative estimate of the drop in traffic volumes over the Christmas period. The first week of the possessions was noted to have lower volumes, however we used the second week data, and not an average of the flows) in order to provide a better assessment of the impacts of the possession.

A factor was calculated based on the difference in traffic volumes for the November 2016 monthly average and the first week of January 2017 for both the AM and PM peak for citybound and outbound directions. **Table 2.2** and **Table 2.3** illustrate the factor determined for the citybound and outbound directions respectively.

Fairford Road was excluded from the calculation of the ratio as no citybound volumes were available (shown as N / A) on the RMS viewer. Hume Highway was also excluded as traffic volumes were atypical of the other data, and given the different nature of the Highway to the more local roads was considered to be not applicable for this purpose.

The figures highlighted in yellow represent the factor applied to both light and heavy vehicles in the traffic modelling to represent the estimated decrease in traffic volumes during the Christmas period.

Table 2.2 Percentage Reduction in Citybound Traffic Volumes Over the Christmas Period 2016 / 2017

		Traffic Volume Reduction (%)					
		AM			PM		
Location No.	**Count Location**	**26-30 Dec**	**2- 6 Jan**	**9-13 Jan**	**26-30 Dec**	**2- 6 Jan**	**9-13 Jan**
1	Princes Hwy	44%	33%	11%	10%	10%	5%
2	Bexley Road	44%	39%	29%	22%	10%	3%
3	King George Road	31%	30%	4%	-1%	-0.1%	-6%
4	Canterbury Rd	45%	40%	9%	28%	23%	16%
5	Fairford Road	N / A	N / A	N / A	N / A	N / A	N / A
6	Hume Highway	21%	17%	N / A	-19%	-23%	-35%
Average		37%	**36%**	**13%**	**20%**	**9%**	**4%**

Table 2.3 Percentage Reduction in Outbound Traffic Volumes Over the Christmas Period 2016 / 2017

		Traffic Volume Reduction (%)					
		AM			PM		
Location No.	**Count Location**	**26-30 Dec**	**2- 6 Jan**	**9-13 Jan**	**26-30 Dec**	**2- 6 Jan**	**9-13 Jan**
1	Princes Hwy	9%	N / A	N / A	49%	N / A	N / A
2	Bexley Road	N / A	44%	29%	N / A	10%	14%
3	King George Road	6%	13%	5%	17%	7%	3%
4	Canterbury Rd	29%	28%	20%	17%	7%	-1%
5	Fairford Road	N / A	26%	12%	N / A	26%	11%
6	Hume Highway	28%	21%	3%	-2%	-21%	-26%
Average		**18%**	**29%**	**14%**	**28%**	**8%**	**0%**

The above tables show a general trend of greater reductions in the morning peak citybound than the evening peak outbound. Whilst there may be an expectation that these should be equivalent, there are several potential reasons for this not to be the case. The data is for a period where there will be a significant number of people who are not making their usual work related business trips, and instead making additional leisure or retail trips. Whilst not always the case, the timing of these recreational trips is more likely to occur after 9am. Therefore whilst the AM peak citybound shows a large reduction through the removal of the business trips, the PM has the reduction offset by an increase in the recreational trips over the 'typical' weekday.

These percentages were then applied to each turning movement of the intersection models previously used for the 'typical weekday' to create the 'Christmas period possession' models used for the assessment presented in **Section 3**. Separate factors were applied to AM / PM and north and east / south and west arms of each intersection to reflect the differences in the reductions shown above. This provided a baseline for the assessment of the traffic impacts during the Christmas period possessions.

2.4 Construction Haulage Traffic

The construction works associated with the preferred project has been revised since the assessment for the exhibited project in EIS Technical Paper 1. However, in traffic terms, the peak hourly volumes would likely be the same although there would be a reduction in the duration of the peak construction periods. So, whilst the total impact from construction may reduce as a result of the preferred project, the peak hourly volumes remain as per EIS Technical Paper 1.

2.5 Bridge Works

One of the most significant changes as a result of the preferred project is the revised bridge works along the project area. The assessment described in EIS Technical Paper 1 showed that the bridge works required significant bridge closures and diversions and resulted in significant impacts to the road network.

The preferred project does not require the closure of the bridges for extended periods of time. Bridge works for the preferred project includes the installation of new traffic barriers, anti-throw screens as well as other protection measures as required.

It is anticipated that bridges would be able to remain open to traffic during these works. However, in some instances short term lane restrictions for the protection of workforce would be required. These works could be carried out over night or at weekends and traffic management would be in place to facilitate safe movement of traffic without diversion (ie two way traffic controlled by stop / slow boards). Some bridge works may also be carried out during the possession of the rail line.

During these works it is likely that there would need to be footpath closures to ensure the safety of pedestrians and cyclists. The duration of these closures would be minimised to reduce the impacts, however updated assessments of the potential impacts on pedestrians and cyclists is provided in **Section 4**.

2.6 Temporary Transport Strategy

EIS Technical Paper 1 presented a Temporary Transport Strategy (TTS) which outlined the approach for the use of replacement bus services for periods when trains were not able to run on the T3 Bankstown Line during the construction of the exhibited project. The TTS contained a potential service network for the replacement buses, named the refined baseline TTP, and this has been used for this assessment. The refined baseline TTP is assumed to replicate the service frequency and routes required during the Christmas period possessions.

As outlined in **Section 1.1**, there are three further construction period scenarios that have been considered in this assessment:

- the additional weekend possessions
- the night-time weekday possessions
- where up to three stations are closed concurrently, for up to two months.

During the additional weekend possessions, replacement buses would replicate the rail possessions that currently occur on up to four weekends a year for routine maintenance by Sydney Trains. The frequency of these buses during this time is up to 28 buses per hour. The impact of the preferred project during these additional weekend possessions has been assumed to be consistent with the impacts of these standard weekend possessions and traffic modelling has not been undertaken for this scenario.

Whilst no formal data on traffic conditions is available for these standard weekend possessions, the operation of the rail replacement bus services is known to occur without significant disruption. However, as detailed in the TTS, monitoring would be undertaken during these possessions and the outcome of that monitoring would be utilised to refine the approach to these closures during the preferred project.

Specific observation and consideration would occur at the following locations during the weekend possessions, which are known to result in some inefficiency during the standard weekend possessions:

- Campsie Station: The tight turn at Beamish Street and South Parade reduces efficiency and so alternate routes should be investigated as part of the further development of the refined baseline TTP
- Punchbowl Station: The Punchbowl Road signalised intersection with The Boulevarde does not operate efficiently when the rail replacement bus services are running. With more frequent weekend possessions, measures to improve the operation of this intersection would be considered as part of the further development of refined baseline TTP
- Sydenham Station: The passenger stop facilities at Sydenham are at capacity, and further stop locations and waiting space would be required and considered in the development of the refined baseline TTP.

Night-time weekday possessions would involve closure of the rail line once the evening peak train services have concluded and the line would be re-opened prior to morning train services commencing. Night-time weekday possessions would be required on an occasional basis to prepare the rail corridor ahead of weekend or school holiday possessions and maximise the activities that can be undertaken during these possessions. Other low noise generating activities, such as survey and investigations, may also be undertaken during this time. During the night-time weekday possessions, replacement buses would be provided to move customers (low patronage) that use the late evening train services.

Due to the low passenger numbers, and the significantly reduced background traffic flows no specific assessment has been undertaken for the night-time possessions. The transport effects would be minimal to negligible and constrained to the routes of the replacement buses. These routes are assumed to be the same as for the refined baseline TTP, but with a significantly reduced frequency.

It is recognised that there may be an overlap in scenarios, such as night-time or weekend possessions during the two month station closure period. However in this scenario the station closures do not change the impacts of the possessions as they result in all the stations being closed. Therefore no additional or cumulative assessment is required.

Where up to three stations are closed concurrently for up to two months for boarding and alighting, the T3 Bankstown Line train services would continue to run and other stations along the corridor would still be operational. In this situation buses would operate to take passengers from the closed stations to the nearest operational stations where they can board and alight trains. These bus services would not only operate over a much reduced distance to the refined baseline TTP, but also need to carry fewer customers, and therefore require a smaller bus fleet. **Section 4** of this report describes the forecast impacts during these station closures.

3.0 Construction Assessment

3.1 Overview

This section presents the intersection modelling analysis undertaken for the Christmas period possession. EIS Technical Paper 1 contained data on a typical weekday, and that is replicated below to assist with interpreting the potential impacts when compared to the exhibited project. Detailed intersection modelling results are contained in **Appendix B.**

The LoS and DoS shown in the tables below consistently shows that the changes to the construction programme for the preferred project has a significant reduction in the impacts of construction compared to that assessed in the EIS. This arises as a result of the possession periods (excluding the final possession period) occurring during a period of the year when the traffic flows are well below the typical levels, even with the addition of the construction and refined baseline TTP vehicles associated with the project.

Also shown below are several locations where there are some intersections or specific movements which have a slight increase in delays as a result of the additional construction and refined baseline TTP buses during the Christmas period possessions. These increased delays are generally very minor, less than 30 seconds, and so given the short period of the works during the Christmas period and weekends would not warrant specific mitigations to address and the impact on the public is minimal at this level of delay. However, the Temporary Transport Management Plans that would be developed for the possession periods, guided by the TTS, would seek to minimise delays during construction and opportunities to reduce the impact of construction would be considered as part of this more detailed planning. Where there are more significant delays, mitigation is discussed.

Following the presentation of the intersection modelling of the Christmas period possession, this section provides a discussion of the impacts of the closure of up to three stations for up to two months where buses would shuttle customers to adjacent stations for boarding and alighting.

3.2 Sydenham Station

3.2.1 Road Network Operation and Intersection Performance

Three intersections were modelled in the area surrounding Sydenham Station. Although no construction works would occur at this location as part of the preferred project, refined baseline TTP buses would operate to this station and may affect these intersections.

Road Network Performance - AM Weekday Peak

Table 3.1 provides a summary of the intersection assessment undertaken for this station.

Table 3.1 Sydenham Station Intersection Assessment – AM Peak

Sydenham Station – AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas period possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
B.19 Gleeson Avenue / Burrows Road (Signals)					**Year Capped: 2023**
Demand Flow (veh)	2155	2268	1451	No Vehicles	1588
Average Delay per Vehicle (Average over all arms in seconds)	15	17	14		17
LoS (Overall)	B	B	A		B
DoS (Worst Movement)	0.67	0.76	0.47		0.88
H.23 Gleeson Avenue / Railway Parade (Signals)					**Year Capped: 2023**
Demand Flow (veh)	2650	2762	1888	No Vehicles	2026
Average Delay per Vehicle (Average over all arms in seconds)	5	5	5		5
LoS (Overall)	A	A	A		A
DoS (Worst Movement)	0.54	0.58	0.38		0.54
H.24 Gleeson Avenue / Unwins Bridge Road (Signals)					**Year Capped: 2023**
Demand Flow (veh)	2286	2286	1565	No Vehicles	1593
Average Delay per Vehicle (Average over all arms in seconds)	37	37	24		24
LoS (Overall)	C	C	B		B
DoS (Worst Movement)	0.92	0.92	0.46		0.47

For all three intersections modelled, the increase in delay during the Christmas period possession resulting from future traffic growth and refined baseline TTP result in a LoS 'B' or better. A LoS 'B' would not cause noticeable delays for commuters in the peak hour in Sydney.

The traffic conditions resulting from the refined baseline TTP during the Christmas period possession are generally equivalent or improved from a future typical weekday peak.

Road Network Performance - PM Weekday Peak

Table 3.2 provides a summary of the intersection assessment undertaken for this station.

Table 3.2 Sydenham Station Intersection Assessment – PM Peak

Sydenham Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas period possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
B.19 Gleeson Avenue / Burrows Road (Signals)					**Year Capped: 2023**
Demand Flow (veh)	2605	2717	2382	No Vehicles	2522
Average Delay per Vehicle (Average over all arms in seconds)	29	32	29		31
LoS (Overall)	C	C	C		C
DoS (Worst Movement)	0.84	0.77	0.61		0.71
H.23 Gleeson Avenue / Railway Parade (Signals)					
Demand Flow (veh)	2940	3054	2707	No Vehicles	2846
Average Delay per Vehicle (Average over all arms in seconds)	4	5	4		4
LoS (Overall)	A	A	A		A
DoS (Worst Movement)	0.50	0.54	0.46		0.51
H.24 Gleeson Avenue / Unwins Bridge Road (Signals)					
Demand Flow (veh)	2688	2688	2464	No Vehicles	2492
Average Delay per Vehicle (Average over all arms in seconds)	33	33	29		28
LoS (Overall)	C	C	C		B
DoS (Worst Movement)	0.79	0.79	0.64		0.72

For all three intersections modelled, the increase in delay during the Christmas period possession resulting from future traffic growth and refined baseline TTP scenario result in a LoS 'C' or better. A LoS 'C' would generally be considered reasonable during peak periods.

The traffic conditions resulting from the refined baseline TTP during the Christmas period possession are generally equivalent or improved from a future typical weekday peak.

3.3 Marrickville Station

3.3.1 Road Network Operation and Intersection Performance

Five intersections were modelled in the area surrounding Marrickville Station.

Road Network Performance - AM Weekday Peak

Table 3.3 provides a summary of the intersection assessment undertaken for this station.

Table 3.3 Marrickville Station Intersection Assessment – AM Peak

Marrickville Station – AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
B.16 Illawarra Road / Warren Road (Signals)					**Year Capped: 2023**
Demand Flow (veh)	1545	1601	1037	1063	1093
Average Delay per Vehicle (Average over all arms in seconds)	25	28	21	21	24
LoS (Overall)	B	B	B	B	B
DoS (Worst Movement)	0.81	0.89	0.54	0.54	0.89
B.17 Marrickville Road / Illawarra Road (Signals)					**Year Capped: 2023**
Demand Flow (veh)	1935	2073	1297	1322	1434
Average Delay per Vehicle (Average over all arms in seconds)	22	37	17	18	18
LoS (Overall)	B	C	B	B	B
DoS (Worst Movement)	0.83	0.98	0.46	0.50	0.60
B.18 Marrickville Road / Victoria Road (Signals)					**Year Capped: 2023**
Demand Flow (veh)	2234	2345	1492	1492	1603
Average Delay per Vehicle (Average over all arms in seconds)	49	192	31	31	29
LoS (Overall)	D	F	C	C	C
DoS (Worst Movement)	1.03	1.38	0.89	0.89	0.84
B.19 Petersham Road / Illawarra Road					**Year Capped: 2023**
Demand Flow (veh)	1271	1328	848	874	905
Average Delay per Vehicle (Average over all arms in seconds)	17	16	16	16	15

Marrickville Station – AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
LoS (Overall)	B	B	B	B	B
DoS (Worst Movement)	0.50	0.54	0.31	0.32	0.34
B.38 Marrickville Station Overbridge (Signals)					**Year Capped: 2023**
Demand Flow (veh)	1141	1197	759	784	815
Average Delay per Vehicle (Average over all arms in seconds)	4	4	3	3	4
LoS (Overall)	A	A	A	A	A
DoS (Worst Movement)	0.49	0.53	0.31	0.33	0.35

For all five intersections modelled, the increase in delay during the Christmas period possession resulting from future traffic growth, construction traffic and refined baseline TTP scenario result in a LoS 'C' or better. A LoS 'C' would generally be considered reasonable during peak periods.

The traffic conditions resulting from the construction traffic and the refined baseline TTP during the Christmas period possession are generally equivalent or improved from a future typical weekday peak.

Road Network Performance - PM Weekday Peak

Table 3.4 provides a summary of the intersection assessment undertaken for this station.

Table 3.4 Marrickville Station Intersection Assessment – PM Peak

Marrickville Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
B.16 Illawarra Road / Warren Road (Signals)					**Year Capped: 2023**
Demand Flow (veh)	1847	1904	1694	1721	1751
Average Delay per Vehicle (Average over all arms in seconds)	22	23	23	23	23
LoS (Overall)	B	B	B	B	B
DoS (Worst Movement)	0.89	0.88	0.91	0.92	0.90
B.17 Marrickville Road / Illawarra Road (Signals)					**Year Capped: 2023**
Demand Flow (veh)	2016	2152	1850	1875	1986
Average Delay per Vehicle (Average over all arms in seconds)	20	27	19	32	35
LoS (Overall)	B	B	B	C	C
DoS (Worst Movement)	0.73	0.90	0.67	0.95	0.97
B.18 Marrickville Road / Victoria Road (Signals)					**Year Capped: 2023**
Demand Flow (veh)	2600	2713	2387	2387	2500
Average Delay per Vehicle (Average over all arms in seconds)	66	71	41	41	53
LoS (Overall)	E	F	C	C	D
DoS (Worst Movement)	1.07	1.05	0.90	0.90	0.99
B.19 Petersham Road / Illawarra Road (Signals)					**Year Capped: 2023**
Demand Flow (veh)	1381	1437	1267	1293	1322
Average Delay per Vehicle (Average over all arms in seconds)	12	12	12	12	12
LoS (Overall)	A	A	A	A	A
DoS (Worst Movement)	0.53	0.58	0.49	0.50	0.53

Marrickville Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
B.38 Marrickville Station Overbridge (Signals)					**Year Capped: 2023**
Demand Flow (veh)	1257	1313	1152	1178	1208
Average Delay per Vehicle (Average over all arms in seconds)	5	5	4	4	4
LoS (Overall)	A	A	A	A	A
DoS (Worst Movement)	0.54	0.58	0.49	0.51	0.53

Four of the five intersections modelled have a LoS 'C' or better during the Christmas period possession resulting from future traffic growth, construction traffic and refined baseline TTP scenario. A LoS 'C' would generally be considered reasonable during peak periods.

The Marrickville / Victoria Road intersection is predicted to operate with a LoS 'E' on a typical weekday after accounting for future traffic growth, but no construction traffic or refined baseline TTP. The modelling above shows that the operation of this intersection with construction traffic and the refined baseline TTP buses during the Christmas period possession is forecast to operate with less delay than a typical future weekday peak. Therefore the impacts of the construction traffic and refined baseline TTP are considered minor in the context of the further traffic growth, and its effect on the intersection.

The analysis concludes that acceptable peak hourly intersection operation can be maintained with the addition of construction and refined baseline TTP traffic during the Christmas period possession.

3.4 Dulwich Hill Station

3.4.1 Construction Haulage Routes

Construction vehicle routes have been updated at the Wardell Road / Ewart Street intersection to reflect the preferred project. It is likely that some construction vehicles would travel to / from the north and turn onto Ewart Street West at the Wardell Road / Ewart Street intersection to access the construction compound. Approximately 15 construction vehicles are expected to pass through this intersection per hour in peak periods, as shown in **Appendix A**. These vehicle movements have therefore been included in the SIDRA models.

3.4.2 Road Network Operation and Intersection Performance

Six intersections were modelled in the area surrounding Dulwich Hill Station.

Road Network Performance - AM Weekday Peak

Table 3.5 provides a summary of the intersection assessment undertaken for this station.

Table 3.5 Dulwich Hill Station Intersection Assessment – AM Peak

Dulwich Station – AM Peak					
Scenario	**EIS**		**Preferred Project**		
	Future (Typical week)	**Future + Construction + Refined Baseline TTP (Typical week)**	**Future (Christmas Period Possession)**	**Future + Construction (Christmas period possession)**	**Future + Construction + Refined Baseline TTP (Christmas period possession)**
B.15 Wardell Road / Ewart Street (Signals)					**Year Capped: 2023**
Demand Flow (veh)	1827	1904	1231	1276	1338
Average Delay per Vehicle (Average over all arms in seconds)	102	179	24	27	30
LoS (Overall)	F	F	B	B	C
DoS (Worst Movement)	1.10	1.13	0.59	0.70	0.77
H.16 Wardell Road / Dudley Street (Priority Controlled)					**Year Capped: 2023**
Demand Flow (veh)	1322	1385	885	885	947
Average Delay per Vehicle (Average over all arms in seconds)	18	31	6	6	8
Average Delay per Vehicle (Worst Movement in seconds)	65	85	23	23	26
LoS (Overall)	E	F	B	B	B
DoS (Worst Movement)	0.91	0.99	0.59	0.59	0.65
B.28 Canterbury Road / Marrickville Road (Signals)					**Year Capped: 2023**
Demand Flow (veh)	2644	2685	1759	1759	1810
Average Delay per Vehicle (Average over all arms in seconds)	22	22	20	20	20
LoS (Overall)	B	B	B	B	B
DoS (Worst Movement)	0.95	0.95	0.86	0.86	0.86

Dulwich Station – AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.25 Ewart Street / Bayley Street (Priority Controlled)					**Year Capped: 2023**
Demand Flow (veh)	705	741	483	488	519
Average Delay per Vehicle (Average over all arms in seconds)	1	2	1	1	2
Average Delay per Vehicle (Worst Movement in seconds)	15	16	10	10	11
LoS (Overall)	B	B	A	A	A
DoS (Worst Movement)	0.30	0.30	0.21	0.21	0.21
H.36 New Canterbury Road / Terrace Road (Priority Controlled)					**Year Capped: 2023**
Demand Flow (veh)	2494	2578	1668	1701	1752
Average Delay per Vehicle (Average over all arms in seconds)	1	1	1	1	1
Average Delay per Vehicle (Worst Movement in seconds)	10	13	8	9	10
LoS (Overall)	A	A	A	A	A
DoS (Worst Movement)	0.64	0.65	0.41	0.41	0.43
H.37 Wardell Road / Marrickville Road (Signals)					**Year Capped: 2023**
Demand Flow (veh)	2123	2221	1456	1473	1554
Average Delay per Vehicle (Average over all arms in seconds)	51	88	24	24	24
LoS (Overall)	D	F	B	B	B
DoS (Worst Movement)	1.10	1.20	0.53	0.55	0.59

For all six intersections modelled, the increase in delay during the Christmas period possession resulting from future traffic growth, construction traffic and refined baseline TTP scenario results in a LoS 'C' or better. A LoS 'C' would generally be considered reasonable during peak periods.

The traffic conditions resulting from the construction traffic and refined baseline TTP during the Christmas period possession are generally equivalent or improved from a future typical weekday peak. The analysis concludes that acceptable peak hourly intersection operation can be maintained with the addition of construction and refined baseline TTP traffic during the Christmas period possession.

Road Network Performance - PM Weekday Peak

Table 3.6 provides a summary of the intersection assessment undertaken for this station.

Table 3.6 Dulwich Hill Intersection Assessment – PM Peak

Dulwich Hill Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
B.15 Wardell Road / Ewart Street (Signals)					**Year Capped: 2023**
Demand Flow (veh)	2241	2317	2053	2098	2159
Average Delay per Vehicle (Average over all arms in seconds)	55	88	39	41	61
LoS (Overall)	D	F	C	C	E
DoS (Worst Movement)	1.01	1.11	0.90	0.92	1.05
H.16 Wardell Road / Dudley Street (Priority Controlled)					
Demand Flow (veh)	1527	1588	1399	1399	1460
Average Delay per Vehicle (Average over all arms in seconds)	10	13	8	8	10
Average Delay per Vehicle (Worst Movement in seconds)	58	73	41	41	50
LoS (Overall)	E	F	C	C	D
DoS (Worst Movement)	0.82	0.85	0.76	0.76	0.78
B.28 Canterbury Road / Marrickville Road (Signals)					
Demand Flow (veh)	2600	2650	2385	2385	2435
Average Delay per Vehicle (Average over all arms in seconds)	23	25	22	22	24
LoS (Overall)	B	B	B	B	B
DoS (Worst Movement)	0.61	0.65	0.54	0.54	0.60
H.25 Ewart Street / Bayley Street (Priority Controlled)					
Demand Flow (veh)	879	914	805	809	839

Dulwich Hill Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
Average Delay per Vehicle (Average over all arms in seconds)	2	2	2	2	2
Average Delay per Vehicle (Worst Movement in seconds)	19	20	16	16	18
LoS (Overall)	B	B	A	A	A
DoS (Worst Movement)	0.40	0.43	0.36	0.37	0.39
H.36 New Canterbury Road / Terrace Road (Priority Controlled)					Year Capped: 2023
Demand Flow (veh)	2492	2577	2287	2320	2372
Average Delay per Vehicle (Average over all arms in seconds)	1	2	1.0	1	2
Average Delay per Vehicle (Worst Movement in seconds)	22	36	18	25	27
LoS (Overall)	B	C	B	B	B
DoS (Worst Movement)	0.61	0.64	0.59	0.56	0.59
H.37 Wardell Road / Marrickville Road (Signals)					Year Capped: 2023
Demand Flow (veh)	2393	2494	2193	2211	2295
Average Delay per Vehicle (Average over all arms in seconds)	36	70	29	30	34
LoS (Overall)	C	E	C	C	C
DoS (Worst Movement)	0.92	1.25	0.73	0.76	0.87

For five of the six intersections modelled, the increase in delay during the Christmas period possession resulting from future traffic growth, construction traffic and refined baseline TTP scenarios result in a LoS ‘C’ or better. A LoS ‘C’ would generally be considered reasonable during peak periods.

The Wardell / Ewart Street intersection is forecast to experience a deterioration in performance as a result of the addition of the refined baseline TTP. The intersection has a LoS of ‘C’ in the Christmas period possession when combined with the future and construction traffic scenarios, which worsens to a LoS ‘E’ with the addition of the refined baseline TTP.

The through and right turning movements from the Wardell Street east approach are the worst performing movements with an average delay of just over 90 seconds in the refined baseline TTP scenario. This delay results from the right turning movement occurring at the same time as the opposing Wardell west approach through traffic. The additional refined baseline TTP buses at the opposing west results in the decreased level of service. Whilst less than desirable, a delay of 90 seconds in the peak periods is unlikely to result in congestion beyond the immediate location.

The level of service at the Wardell / Ewart Street intersection on a future typical weekday peak is 'D' with an average delay of 55 seconds. The increase in average delay for the Christmas period possession with construction traffic and refined baseline TTP is only approximately six seconds. As the deterioration of the intersection between a normal weekday and the Christmas period possession with construction traffic and refined baseline TTP is not large, the impacts of the preferred project are considered negligible.

3.5 Hurlstone Park Station

3.5.1 Road Network Operation and Intersection Performance

Four intersections were modelled in the area surrounding Hurlstone Park Station.

Road Network Performance - AM Weekday Peak

Table 3.7 provides a summary of the intersection assessment undertaken for this station.

Table 3.7 Hurlstone Park Station Intersection Assessment – AM Peak

Hurlstone Park Station – AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
B.14 Canterbury Road / Crinan Street Signals)		**Year Capped: 2023**			
Demand Flow (veh)	3322	3436	2240	2274	2354
Average Delay per Vehicle (Average over all arms in seconds)	24	26	19	20	21
LoS (Overall)	B	B	A	A	A
DoS (Worst Movement)	0.67	0.73	0.44	0.45	0.49
B.27 Old Canterbury Road / New Canterbury Road (Signals)		**Year Capped: 2023**			
Demand Flow (veh)	3266	3316	2191	2225	2275
Average Delay per Vehicle (Average over all arms in seconds)	34	41	22	22	22
LoS (Overall)	C	C	B	B	B
DoS (Worst Movement)	0.96	0.99	0.67	0.73	0.78

Hurlstone Park Station – AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.17 Crinan Street / Floss Street – South of Railway (Priority Controlled)					**Year Capped: 2023**
Demand Flow (veh)	772	852	502	518	582
Average Delay per Vehicle (Average over all arms in seconds)	8	8	9	9	9
Average Delay per vehicle (Worst Movement in seconds)	12	13	15	15	15
LoS (Overall)	A	A	A	A	A
DoS (Worst Movement)	0.28	0.37	0.17	0.19	0.25
H.18 Floss Street / Crinan Street / Duntroon Street (Priority Controlled)					**Year Capped: 2023**
Demand Flow (veh)	837	932	563	594	658
Average Delay per Vehicle (Average over all arms in seconds)	2	3	2	2	2
Average Delay per vehicle (Worst Movement in seconds)	13	17	10	10	12
LoS (Overall)	A	B	A	A	A
DoS (Worst Movement)	0.25	0.30	0.16	0.18	0.21

All four intersections modelled have a LoS 'B' or better during the Christmas period possession resulting from future traffic growth, construction traffic and refined baseline TTP scenario. A LoS 'B' would not cause noticeable delays for commuters in the peak hour in Sydney.

The traffic conditions resulting from the construction traffic and refined baseline TTP during the Christmas period possession are generally equivalent or improved from a future typical weekday peak.

Road Network Performance - PM Peak

Table 3.8 provides a summary of the intersection assessment undertaken for this station.

Table 3.8 Hurlstone Park Station Intersection Assessment – PM Peak

Hurlstone Park Station – PM Peak					
Scenario	**EIS**		**Preferred Project**		
	Future (Typical week)	**Future + Construction + Refined Baseline TTP (Typical week)**	**Future (Christmas Period Possession)**	**Future + Construction (Christmas period possession)**	**Future + Construction + Refined Baseline TTP (Christmas period possession)**
B.14 Canterbury Road / Crinan Street Signals)					**Year Capped: 2023**
Demand Flow (veh)	3595	3710	3295	3330	3410
Average Delay per Vehicle (Average over all arms in seconds)	20	27	18	19	23
LoS (Overall)	B	B	B	B	B
DoS (Worst Movement)	0.78	0.83	0.90	0.92	0.75
B.27 Old Canterbury Road / New Canterbury Road (Signals)					**Year Capped: 2023**
Demand Flow (veh)	3772	3823	3457	3492	3544
Average Delay per Vehicle (Average over all arms in seconds)	36	37	34	34	34
LoS (Overall)	C	C	C	C	C
DoS (Worst Movement)	0.91	0.90	0.90	0.90	0.90
H.17 Crinan Street / Floss Street – South of Railway (Priority Controlled)					**Year Capped: 2023**
Demand Flow (veh)	711	787	649	664	724
Average Delay per Vehicle (Average over all arms in seconds)	7	8	8	8	8
Average Delay per vehicle (Worst Movement in seconds)	13	14	14	14	14
LoS (Overall)	A	A	A	A	A
DoS (Worst Movement)	0.24	0.29	0.21	0.23	0.26

Hurlstone Park Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.18 Floss Street / Crinan Street / Duntroon Street (Priority Controlled)		Year Capped: 2023			
Demand Flow (veh)	792	883	726	756	817
Average Delay per Vehicle (Average over all arms in seconds)	3	3	2	3	3
Average Delay per vehicle (Worst Movement in seconds)	14	17	13	14	16
LoS (Overall)	B	B	A	A	A
DoS (Worst Movement)	0.19	0.24	0.18	0.20	0.22

All four intersections modelled have a LoS ‘C’ or better during the Christmas period possession resulting from future traffic growth, construction traffic and refined baseline TTP scenario. A LoS ‘C’ would generally be considered reasonable during peak periods.

The traffic conditions resulting from the construction traffic and refined baseline TTP during the Christmas period possession are generally equivalent or improved from a future typical weekday peak. The analysis concludes that acceptable peak hourly intersection operation can be maintained with the addition of construction and refined baseline TTP traffic during the Christmas period possessions.

3.6 Canterbury Station

3.6.1 Road Network Operation and Intersection Performance

Four intersections were modelled in the area surrounding Canterbury Station.

Road Network Performance - AM Weekday Peak

Table 3.9 provides a summary of the intersection assessment undertaken for this station.

Table 3.9 Canterbury Station Intersection Assessment - AM Peak

Canterbury Station – AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
B.13 Canterbury Road / Wonga Street (Signals)				**Year Capped: 2023**	
Demand Flow (veh)	3726	3834	2488	2515	2596
Average Delay per Vehicle (Average over all arms in seconds)	21	21	14	14	15
LoS (Overall)	B	B	A	A	B
DoS (Worst Movement)	0.82	0.84	0.54	0.56	0.60
H.14 Canterbury Road / Charles Street (Priority Controlled)				**Year Capped: 2023**	
Demand Flow (veh)	3442	3551	2313	2342	2422
Average Delay per Vehicle (Average over all arms in seconds)	5	6	1	1	1
Average Delay per Vehicle (Worst Movement in seconds)	460	608	63	67	78
LoS (Worst Movement)	F	F	E	E	F
DoS (Worst Movement)	0.57	0.60	0.37	0.38	0.40
H.15 Canterbury Road / Jeffrey Street (Signals)				**Year Capped: 2023**	
Demand Flow (veh)	3568	3687	2404	2443	2524
Average Delay per Vehicle (Average over all arms in seconds)	17	18	16	16	16
LoS (Overall)	B	B	B	B	B
DoS (Worst Movement)	0.88	0.88	0.86	0.86	0.86
H.14 Canterbury Road / Close Street (Priority Controlled)				**Year Capped: 2023**	
Demand Flow (veh)	3405	3527	2291	2333	2413
Average Delay per Vehicle (Average over all arms in seconds)	0	0	0	0	0
Average Delay per Vehicle (Worst Movement in seconds)	21	25	10	10	11
LoS (Worst Movement)	B	B	A	A	A
DoS (Worst Movement)	0.56	0.59	0.37	0.37	0.39

For three of the four intersections modelled, the increase in delay during the Christmas period possession resulting from future traffic growth, construction traffic and refined baseline TTP scenario result in a LoS ‘B’ or better. A LoS ‘B’ would not cause noticeable delays for commuters in the peak hour in Sydney.

The Canterbury Road / Charles Street intersection has future LoS ‘F’ during a typical weekday which is based on the worst movement (right turn movement out from Charles Street). The modelling output shows that the average intersection delay across all arms would be approximately one second for during the Christmas period possession with construction traffic and refined baseline TTP, and the delay for the worst movement would be just over one minute. This implies that the main (through) movement is operating with negligible delay and the level of service is being heavily influenced by the small volumes of traffic turning left and right out of Charles Street.

While the Canterbury Road / Charles Street intersection model is showing a level of service ‘F’ for the worst movement during the Christmas period possession with construction traffic and refined baseline TTP, the delay is lower than the future typical weekday scenario. The impact of the preferred project on this intersection is therefore considered to be negligible. However, it is understood that there is a proposal to signalise this intersection. Whilst details of this proposal were not available at the time of assessment, the addition of signals would allow traffic on the Charles Street arm to egress with much less delay than currently where there is the need to find a gap in the traffic flow on Canterbury Road.

Road Network Performance - PM Weekday Peak

Table 3.10 provides a summary of the intersection assessment undertaken for this station.

Table 3.10 Canterbury Station Intersection Assessment – PM Peak

Canterbury Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
B.13 Canterbury Road / Wonga Street (Signals)				**Year Capped: 2023**	
Demand Flow (veh)	4094	4201	3748	3775	3855
Average Delay per Vehicle (Average over all arms in seconds)	23	23	21	21	23
LoS (Overall)	B	B	B	B	B
DoS (Worst Movement)	0.83	0.86	0.78	0.79	0.9
H.14 Canterbury Road / Charles Street (Priority Controlled)				**Year Capped: 2023**	
Demand Flow (veh)	3870	3978	3547	3575	3655
Average Delay per Vehicle (Average over all arms in seconds)	2	2	1	1	1
Average Delay per Vehicle (Worst Movement in seconds)	574	570	357	386	486
LoS (Worst Movement)	F	F	F	F	F
DoS (Worst Movement)	0.60	0.64	0.55	0.56	0.58

Canterbury Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.15 Canterbury Road / Jeffrey Street (Signals)				**Year Capped: 2023**	
Demand Flow (veh)	4017	4138	3683	3721	3803
Average Delay per Vehicle (Average over all arms in seconds)	27	27	33	32	25
LoS (Overall)	B	B	C	C	B
DoS (Worst Movement)	0.93	0.93	0.93	0.93	0.93
H.14 Canterbury Road / Close Street (Priority Controlled)				**Year Capped: 2023**	
Demand Flow (veh)	3832	3955	3513	3555	3634
Average Delay per Vehicle (Average over all arms in seconds)	1	2	1	1	1
Average Delay per Vehicle (Worst Movement in seconds)	45	53	34	36	40
LoS (Worst Movement)	D	D	C	C	C
DoS (Worst Movement)	0.57	0.61	0.53	0.54	0.56

For three of the four intersections modelled, the increase in delay during the Christmas possession period resulting from future traffic growth, construction traffic and refined baseline TTP scenarios result in a LoS ‘B’ or better. A LoS ‘B’ would not cause noticeable delays for commuters in the peak hour in Sydney.

Canterbury Road / Charles Street has future LoS ‘F’ during a typical weekday which is based on the worst movement (right turn movement out from Charles Street).

As per the AM peak, the model shows that the average intersection delay across all arms for the Canterbury Road / Charles Street intersection would be approximately one second for during the Christmas possession period with construction traffic and refined baseline TTP and the delay for the worst movement would be over eight minutes. This implies that the main (through) movement is operating with negligible delay and the level of service is being heavily influenced by the small volumes of traffic turning left and right out of Charles Street. As discussed above, this intersection is understood to be signalised in the near future, and therefore traffic will be able to leave Charles Street with reduced delay.

While the model is showing a level of service ‘F’ for the worst movement for the Canterbury Road / Charles Street intersection , the traffic conditions resulting from the construction traffic and refined baseline TTP scenarios during the Christmas period possession are less than a normal weekday peak at this intersection in the future. At the peak of construction, approximately 30 additional construction vehicle movements per hour would be added to the intersection across the approaches, which is less than 1 per cent of the total traffic. The impact of the preferred project on this intersection is considered negligible. The analysis forecasts that, with the exception of the Canterbury Road / Charles Street intersection, acceptable peak hourly intersection operation can be maintained with the addition of construction and refined baseline TTP traffic during the Christmas period possession.

3.7 Campsie Station

3.7.1 Road Network Operation and Intersection Performance

Seven intersections were modelled in the area surrounding Campsie Station.

Road Network Performance - AM Weekday Peak

Table 3.11 provides a summary of the intersection assessment undertaken for this station.

Table 3.11 Campsie Station Intersection Assessment – AM Peak

Campsie Station – AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
B.10 Beamish Street / Ninth Avenue (Signals)					**Year Capped: 2023**
Demand Flow (veh)	1944	1990	1348	1364	1394
Average Delay per Vehicle (Average over all arms in seconds)	15	16	13	14	14
LoS (Overall)	B	B	A	A	A
DoS (Worst Movement)	0.69	0.71	0.47	0.45	0.50
B.11 Beamish Street / Clissold Parade (Signals)					**Year Capped: 2023**
Demand Flow (veh)	1641	1739	1118	1134	1216
Average Delay per Vehicle (Average over all arms in seconds)	28	38	11	11	12
LoS (Overall)	B	C	A	A	A
DoS (Worst Movement)	0.81	0.92	0.45	0.47	0.50
B.12 Beamish Street / South Parade (Signals)					**Year Capped: 2023**
Demand Flow (veh)	1632	1730	1106	1123	1204
Average Delay per Vehicle (Average over all arms in seconds)	21	29	18	18	22
LoS (Overall)	B	C	B	B	B
DoS (Worst Movement)	0.90	0.91	0.66	0.69	0.95

Campsie Station – AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.11 Beamish Street / North Parade (Priority Controlled)[1]		**Year Capped: 2023**			
Demand Flow (veh)	1593	1699	1094	1118	1200
Average Delay per Vehicle (Average over all arms in seconds)	2	3	2	2	2
Average Delay per vehicle (Worst Movement in seconds)	31	38	27	33	35
LoS (Overall)	C	C	B	C	C
DoS (Worst Movement)	0.71	0.72	0.30	0.37	0.37
H.12 Beamish Street / Amy Street (Signals)		**Year Capped: 2023**			
Demand Flow (veh)	1257	1267	873	882	882
Average Delay per Vehicle (Average over all arms in seconds)	8	8	8	8	8
LoS (Overall)	A	A	A	A	A
DoS (Worst Movement)	0.51	0.52	0.35	0.36	0.36
H.13 Canterbury Road / Beamish Street (Signals)		**Year Capped: 2023**			
Demand Flow (veh)	4642	4642	3143	3153	3153
Average Delay per Vehicle (Average over all arms in seconds)	38	38	32	32	32
LoS (Overall)	C	C	C	C	C
DoS (Worst Movement)	0.95	0.95	0.96	0.96	0.96

[1] This intersection has been modelled within a local network of Beamish Street/Clissold Street and Beamish Street/South Parade Street intersections in order to take the northbound and southbound gaps in the traffic flows into account.

Campsie Station – AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.34 Ninth Avenue / Loch Street (Roundabout)		**Year Capped: 2023**			
Demand Flow (veh)	2270	2301	1551	1551	1582
Average Delay per Vehicle (Average over all arms in seconds)	20	26	6	6	6
Average Delay per vehicle (Worst Movement in seconds)	44	63	8	8	8
LoS (Worst Movement)	D	E	A	A	A
DoS (Worst Movement)	0.97	1.01	0.51	0.51	0.53

For all seven intersections modelled, the increase in delay during the Christmas period possession resulting from future traffic growth, construction traffic and refined baseline TTP scenario result in a LoS 'C' or better. A LoS 'C' would generally be considered reasonable during peak periods.

The traffic conditions resulting from the construction traffic and refined baseline TTP works during the Christmas period possession are generally equivalent or improved from a future typical weekday peak. The analysis concludes that acceptable peak hourly intersection operation can be maintained with the addition of construction and refined baseline TTP traffic during the Christmas period possession.

Road Network Performance - PM Weekday Peak

Table 3.12 provides a summary of the intersection assessment undertaken for this station.

Table 3.12 Campsie Station Intersection Assessment – PM Peak

Campsie Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
B.10 Beamish Street / Ninth Avenue (Signals)					**Year Capped: 2023**
Demand Flow (veh)	2065	2111	1897	1913	1944
Average Delay per Vehicle (Average over all arms in seconds)	17	18	16	16	16
LoS (Overall)	B	B	B	B	B
DoS (Worst Movement)	0.71	0.79	0.65	0.68	0.68
B.11 Beamish Street / Clissold Parade (Signals)					**Year Capped: 2023**
Demand Flow (veh)	1762	1860	1615	1630	1712
Average Delay per Vehicle (Average over all arms in seconds)	60	180	20	22	62
LoS (Overall)	E	F	B	B	E
DoS (Worst Movement)	1.05	1.35	0.85	0.87	1.06
B.12 Beamish Street / South Parade (Signals)					**Year Capped: 2023**
Demand Flow (veh)	1692	1790	1551	1568	1648
Average Delay per Vehicle (Average over all arms in seconds)	25	93	21	22	32
LoS (Overall)	B	F	B	B	C
DoS (Worst Movement)	0.96	1.79	0.93	0.92	0.91

Campsie Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.11 Beamish Street / North Parade (Priority Controlled)[2]		**Year Capped: 2023**			
Demand Flow (veh)	1609[3]	1545[4]	1508	1531	1614
Average Delay per Vehicle (Average over all arms in seconds)	2	3	2	2	3
Average Delay per vehicle (Worst Movement in seconds)	29	43	33	42	45
LoS (Overall)	C	D	C	C	D
DoS (Worst Movement)	0.72	0.67	0.68	0.70	0.66
H.12 Beamish Street / Amy Street (Signals)		**Year Capped: 2023**			
Demand Flow (veh)	1399	1408	1286	1295	1295
Average Delay per Vehicle (Average over all arms in seconds)	17	19	11	11	11
LoS (Overall)	B	B	A	A	A
DoS (Worst Movement)	0.94	0.96	0.86	0.88	0.88
H.13 Canterbury Road / Beamish Street (Signals)		**Year Capped: 2023**			
Demand Flow (veh)	4253	4252	3897	3907	3907
Average Delay per Vehicle (Average over all arms in seconds)	35	34	33	33	33
LoS (Overall)	C	C	C	C	C
DoS (Worst Movement)	0.94	0.92	0.92	0.93	0.93

[2] This intersection has been modelled within a local network of Beamish Street/Clissold Street and Beamish Street/South Parade Street intersections in order to take the northbound and southbound gaps in the traffic flows into account.
[3] Arrival flow is reduced by the model due to capacity constraint at oversaturated upstream lanes.
[4] Arrival flow is reduced by the model due to capacity constraint at oversaturated upstream lanes.

Campsie Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.34 Ninth Avenue / Loch Street (Roundabout)		**Year Capped: 2023**			
Demand Flow (veh)	2518	2548	2309	2309	2340
Average Delay per Vehicle (Average over all arms in seconds)	21	26	12	12	13
Average Delay per vehicle (Worst Movement in seconds)	29	37	13	13	14
LoS (Worst Movement)	B	C	A	A	A
DoS (Worst Movement)	0.97	0.99	0.86	0.86	0.88

For six of the seven intersections modelled, the increase in delay during the Christmas period possession resulting from future traffic growth, construction traffic and refined baseline TTP scenario result in a LoS 'D' or better. A LoS 'D' would generally be considered reasonable during peak periods.

The Beamish Street / Clissold Parade intersection is forecast to experience a deterioration in performance as a result of the addition of the refined baseline TTP. The intersection has a LoS of 'B' during the Christmas period possession with future and construction traffic, which worsens to a LoS 'E' with the addition of the refined baseline TTP traffic. The traffic conditions in the refined baseline TTP scenario are generally equivalent to a future typical weekday peak. The impacts of the preferred project are therefore considered to be negligible.

Whilst the Beamish Street / Clissold Parade intersection would have a Los E and be slightly over capacity in the evening peak, the preferred project is not predicted to result in impacts that would cause any significant disruption to travel through or around the project area. The forecast level of delay is typical of the minor works that frequently occur for road maintenance or works to revise intersection layouts.

3.8 Belmore Station

3.8.1 Road Network Operation and Intersection Performance

Four intersections were modelled in the area surrounding Belmore Station.

Road Network Performance - AM Weekday Peak

Table 3.13 provides a summary of the intersection assessment undertaken for this station.

Table 3.13 Belmore Station Intersection Assessment – AM Peak

Belmore Station – AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
B.08 Burwood Road / Bridge Road (Priority Controlled)					**Year Capped: 2023**
Demand Flow (veh)	1760	1826	1190	1225	1256
Average Delay per Vehicle (Average over all arms in seconds)	12	21	3	4	4
Average Delay per Vehicle (Worst Movement in seconds)	322	679	48	54	59
LoS (Overall)	F	F	D	D	E
DoS (Worst Movement)	1.03	1.46	0.45	0.47	0.48
B.09 Burwood Road / Redman Parade (Priority Controlled)					**Year Capped: 2023**
Demand Flow (veh)	1813	1875	1228	1259	1290
Average Delay per Vehicle (Average over all arms in seconds)	4	5	2	2	2
Average Delay per Vehicle (Worst Movement in seconds)	93	130	27	29	32
LoS (Overall)	F	F	B	C	C
DoS (Worst Movement)	0.69	0.74	0.49	0.51	0.53
H.20 Burwood Road / Lakemba Street (Signals)					**Year Capped: 2023**
Demand Flow (veh)	2300	2202	1557	1587	1618
Average Delay per Vehicle (Average over all arms in seconds)	36	46	13	14	14
LoS (Overall)	C	D	A	A	A
DoS (Worst Movement)	0.97	1.03	0.49	0.49	0.48

Belmore Station – AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.33 Canterbury Road / Burwood Road (Signals)					**Year Capped: 2023**
Demand Flow (veh)	2774	2774	1839	1863	1863
Average Delay per Vehicle (Average over all arms in seconds)	13	13	12	12	12
LoS (Overall)	A	A	A	A	A
DoS (Worst Movement)	0.91	0.91	0.92	0.91	0.91

For three of the four intersections modelled, the increase in delay during the Christmas period possession resulting from future traffic growth, construction traffic and refined baseline TTP scenario result in a LoS ‘C’ or better. A LoS ‘C’ would generally be considered reasonable during peak periods.

Burwood Road / Bridge Road has a LoS ‘D” for the worst movement during the Christmas period possession with construction traffic and refined baseline TTP. These traffic conditions are an improvement from a typical future weekday peak. The effects of the preferred project are therefore considered to be negligible.

The analysis concludes that acceptable peak hourly intersection operation can be maintained with the addition of construction and refined baseline TTP traffic during the Christmas period possessions.

Road Network Performance - PM Weekday Peak

Table 3.14 provides a summary of the intersection assessment undertaken for this station.

Table 3.14 Belmore Station Intersection Assessment – PM Peak

Belmore Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
B.08 Burwood Road / Bridge Road (Priority Controlled)					**Year Capped: 2023**
Demand Flow (veh)	1787	1853	1638	1673	1703
Average Delay per Vehicle (Average over all arms in seconds)	14	24	8	11	12
Average Delay per Vehicle (Worst Movement in seconds)	297	644	118	214	241
LoS (Overall)	F	F	F	F	F
DoS (Worst Movement)	1.05	1.46	0.70	0.92	0.96
B.09 Burwood Road / Redman Parade (Priority Controlled)					**Year Capped: 2023**
Demand Flow (veh)	1795	1857	1646	1677	1707
Average Delay per Vehicle (Average over all arms in seconds)	4	5	3	3	4
Average Delay per Vehicle (Worst Movement in seconds)	103	152	65	75	87
LoS (Overall)	F	F	E	F	F
DoS (Worst Movement)	0.72	0.76	0.66	0.68	0.70
H.20 Burwood Road / Lakemba Street (Signals)					**Year Capped: 2023**
Demand Flow (veh)	2558	2442	2343	2373	2403
Average Delay per Vehicle (Average over all arms in seconds)	27	57	17	17	21
LoS (Overall)	B	D	B	B	B
DoS (Worst Movement)	0.90	1.12	0.64	0.66	0.75

Belmore Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.33 Canterbury Road / Burwood Road (Signals)		**Year Capped: 2023**			
Demand Flow (veh)	3106	3106	2844	2869	2869
Average Delay per Vehicle (Average over all arms in seconds)	24	24	20	21	21
LoS (Overall)	B	B	B	B	B
DoS (Worst Movement)	0.97	0.97	0.97	0.96	0.96

Two of the four intersections have a LoS ‘B’ during the Christmas period possession resulting from future traffic growth, construction traffic and refined baseline TTP scenario. A LoS ‘B’ would not cause noticeable delays for commuters in the peak hour in Sydney.

The remaining two intersections have a level of service ‘F’ in the Christmas period possession with construction traffic and refined baseline TTP. These traffic conditions are generally equivalent to a future typical weekday peak without any project related impacts. The impact of the preferred project on these intersections are therefore considered negligible. The analysis forecasts that, with the exception of the Burwood Road / Bridge Road and Burwood Road / Redman Parade intersections, acceptable peak hourly intersection operation can be maintained with the addition of construction and refined baseline TTP traffic during the Christmas period possession.

3.9 Lakemba Station

3.9.1 Construction Haulage Routes

Construction vehicle volumes have been updated at the pedestrian crossing on The Boulevarde to reflect minor changes in construction access arrangements in the preferred project compared to the exhibited project. Construction vehicles would use The Boulevarde / Haldon Street intersection during construction of the preferred project. Seven construction vehicles are modelled turning into The Boulevarde West and five construction vehicles are modelled turning out of The Boulevarde. The pedestrian crossing is approximately 55 m west of the intersection on The Boulevarde. For consistency, construction vehicles were also added to the model for the pedestrian crossing.

3.9.2 Road Network Operation and Intersection Performance

Six intersections were modelled in the area surrounding Lakemba Station.

Road Network Performance - AM Weekday Peak

Table 3.15 provides a summary of the intersection assessment undertaken for this station.

Table 3.15 Lakemba Station Intersection Assessment – AM Peak

Lakemba Station – AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
B.07 The Boulevarde / Haldon Street (Signals)					**Year Capped: 2023**
Demand Flow (veh)	2102	2171	1416	1453	1485
Average Delay per Vehicle (Average over all arms in seconds)	65	108	21	21	22
LoS (Overall)	E	F	B	B	B
DoS (Worst Movement)	1.05	1.21	0.58	0.61	0.65
H.07 Lakemba Street / Wangee Road (Signals)					**Year Capped: 2023**
Demand Flow (veh)	1729	1729	1158	1158	1158
Average Delay per Vehicle (Average over all arms in seconds)	18	18	18	18	18
LoS (Overall)	B	B	B	B	B
DoS (Worst Movement)	0.92	0.92	0.89	0.89	0.89
H.08 Haldon Street / Railway Parade (Priority Controlled)					**Year Capped: 203**
Demand Flow (veh)	1511	1527	1036	1052	1052
Average Delay per Vehicle (Average over all arms in seconds)	20	32	5	5	5
Average Delay per Vehicle (Worst Movement in seconds)	186	326	28	32	32
LoS (Worst Movement)	F	F	B	B	B
DoS (Worst Movement)	1.03	1.22	0.47	0.47	0.47

Lakemba Station – AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.09 Lakemba Street / Haldon Street (Signals)					**Year Capped: 2023**
Demand Flow (veh)	1929	1929	1312	1312	1312
Average Delay per Vehicle (Average over all arms in seconds)	15	15	14	14	14
LoS (Worst Movement)	B	B	A	A	A
DoS (Worst Movement)	0.59	0.59	0.37	0.37	0.37
H.10 Ped Crossing on The Boulevarde (Signals)					**Year Capped: 2023**
Demand Flow (veh)	1111	1154	745	756	788
Average Delay per Vehicle (Average over all arms in seconds)	4	4	3	3	3
LoS (Worst Movement)	A	A	A	A	A
DoS (Worst Movement)	0.46	0.46	0.29	0.30	0.32
H.21 Canterbury Road / Haldon Street (Signals)					**Year Capped: 2023**
Demand Flow (veh)	3051	3088	2036	2074	2074
Average Delay per Vehicle (Average over all arms in seconds)	12	13	11	13	13
LoS (Overall)	A	A	A	A	A
DoS (Worst Movement)	0.86	0.90	0.87	0.92	0.92

For all six intersections modelled, the increase in delay during the Christmas period possession resulting from future traffic growth, construction traffic and refined baseline TTP scenario result in a LoS ‘B’ or better. A LoS ‘B’ would not cause noticeable delays for commuters in the peak hour in Sydney.

The traffic conditions resulting from the construction traffic and refined baseline TTP traffic during the Christmas period possession are generally equivalent or improved from a future typical weekday peak. The analysis concludes that acceptable peak hourly intersection operation can be maintained with the addition of construction and refined baseline TTP traffic during the Christmas possession periods.

Road Network Performance - PM Weekday Peak

Table 3.16 provides a summary of the intersection assessment undertaken for this station.

Table 3.16 Lakemba Station Intersection Assessment – PM Peak

Lakemba Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
B.07 The Boulevarde / Haldon Street (Signals)					**Year Capped: 2023**
Demand Flow (veh)	2138	2206	1958	1995	2027
Average Delay per Vehicle (Average over all arms in seconds)	61	99	30	39	46
LoS (Overall)	E	F	C	C	D
DoS (Worst Movement)	1.10	1.18	0.93	0.99	1.03
H.07 Lakemba Street / Wangee Road (Signals)					**Year Capped: 2023**
Demand Flow (veh)	1900	1900	1741	1741	1741
Average Delay per Vehicle (Average over all arms in seconds)	20	20	19	19	19
LoS (Overall)	B	B	B	B	B
DoS (Worst Movement)	0.90	0.90	0.89	0.89	0.89
H.08 Haldon Street / Railway Parade (Priority Controlled)					**Year Capped: 2023**
Demand Flow (veh)	1526	1541	1400	1415	1415
Average Delay per Vehicle (Average over all arms in seconds)	22	31	12	14	14
Average Delay per Vehicle (Worst Movement in seconds)	177	271	72	100	100
LoS (Worst Movement)	F	F	E	F	F
DoS (Worst Movement)	1.06	1.18	0.82	0.91	0.91

Lakemba Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.09 Lakemba Street / Haldon Street (Signals)		**Year Capped: 2023**			
Demand Flow (veh)	2105	2105	1931	1931	1931
Average Delay per Vehicle (Average over all arms in seconds)	13	13	13	13	13
LoS (Worst Movement)	A	A	A	A	A
DoS (Worst Movement)	0.57	0.57	0.50	0.50	0.50
H.10 Ped Crossing on The Boulevarde (Signals)		**Year Capped: 2023**			
Demand Flow (veh)	1167	1210	1069	1080	837
Average Delay per Vehicle (Average over all arms in seconds)	3	4	3	3	3
LoS (Worst Movement)	A	A	A	A	A
DoS (Worst Movement)	0.38	0.42	0.35	0.36	0.31
H.21 Canterbury Road / Haldon Street (Signals)		**Year Capped: 2023**			
Demand Flow (veh)	3370	3409	3087	3126	3126
Average Delay per Vehicle (Average over all arms in seconds)	15	15	14	16	16
LoS (Overall)	B	B	A	B	B
DoS (Worst Movement)	0.90	0.88	0.88	0.92	0.92

For four of the six intersections modelled, the increase in delay during the Christmas period possession resulting from future traffic growth, construction traffic and refined baseline TTP scenario result in a LoS ‘C’ or better. A LoS ‘C’ would generally be considered reasonable during peak periods.

The intersection at The Boulevarde / Haldon Street has a LoS ‘D’ and the intersection at Haldon Street / Railway Parade has a LoS ‘F’ during the Christmas period possession with construction traffic and refined baseline TTP scenarios. Both of these intersections have improved traffic conditions compared to a future typical weekday peak. The impact of the preferred project is therefore considered to be negligible. The analysis forecasts that, with the exception of the Haldon Street / Railway Parade intersection, acceptable peak hourly intersection operation can be maintained with the addition of construction and TTP traffic during the Christmas possession periods.

3.10 Wiley Park Station

3.10.1 Construction Haulage Routes

Construction vehicle volumes have been updated at the King Georges Road / Lakemba Street intersection to reflect changes between the exhibited project and the preferred project. Construction vehicles would use the King Georges Road / Lakemba Street intersection. The modelling previously directed construction vehicles onto King Georges Road North. The SIDRA model has been updated to direct the eight construction vehicles per hour along the primary haulage route on Lakemba Street east.

3.10.2 Road Network Operation and Intersection Performance

Two intersections were modelled in the area surrounding Wiley Park Station.

Road Network Performance - AM Weekday Peak

Table 3.17 provides a summary of the intersection assessment undertaken for this station.

Table 3.17 Wiley Park Station Intersection Assessment – AM Peak

Wiley Park Station – AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.06 King Georges Road / Lakemba Street (Signals)					**Year Capped: 2023**
Demand Flow (PCU)	6483	6528	4364	4409	4409
Average Delay per PCU (Overall)	30	30	17	17	18
LoS (Overall)	C	C	B	B	B
DoS (Worst Movement)	0.95	0.95	0.67	0.63	0.68
B.06 King Georges Road / The Boulevarde (Signals)					**Year Capped: 2023**
Demand Flow (PCU)	6468	6577	4368	4417	4477
Average Delay per PCU (Overall)	45	57	25	24	27
LoS (Overall)	D	E	C	C	C
DoS (Worst Movement)	0.98	0.96	0.64	0.64	0.68

For both of the intersections modelled, the increase in delay during the Christmas period possession resulting from future traffic growth, construction traffic and refined baseline TTP scenario result in a LoS ‘C’ or better. A LoS ‘C’ would generally be considered reasonable during peak periods.

The traffic conditions resulting from construction traffic and refined baseline TTP traffic during the Christmas period possession are improved from a future typical weekday peak.

Road Network Performance - PM Weekday Peak

Table 3.18 provides a summary of the intersection assessment undertaken for this station.

Table 3.18 Wiley Park Station Intersection Assessment – PM Peak

Wiley Park Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.06 King Georges Road / Lakemba Street (Signals)					**Year Capped: 2023**
Demand Flow (PCU)	6277	6322	5746	5791	5791
Average Delay per PCU (Overall)	43	38	27	27	27
LoS (Overall)	D	C	B	B	B
DoS (Worst Movement)	0.96	0.98	0.86	0.86	0.86
B.06 King Georges Road / The Boulevarde (Signals)					**Year Capped: 2023**
Demand Flow (PCU)	6432	6511	5890	5939	5999
Average Delay per PCU (Overall)	50	53	37	39	43
LoS (Overall)	D	D	C	C	D
DoS (Worst Movement)	0.96	0.95	0.88	0.90	0.93

For King Georges Road / Lakemba Street, the increase in delay during the Christmas period possession resulting from future traffic growth, construction traffic and refined baseline TTP scenario results in a LoS ‘C’. A LoS ‘C’ would generally be considered reasonable during peak periods.

The intersection at King Georges Road / The Boulevarde is a LoS ‘D’ during the Christmas period possession with construction traffic and refined baseline TTP, however the traffic conditions are improved from a future typical weekday peak. The analysis concludes that acceptable peak hourly intersection operation can be maintained with the addition of construction and refined baseline TTP traffic during the Christmas period possessions.

3.11 Punchbowl Station

3.11.1 Road Network Operation and Intersection Performance

Four intersections were modelled in the area surrounding Punchbowl Station.

Road Network Performance - AM Weekday Peak

Table 3.19 provides a summary of the intersection assessment undertaken for this station.

Table 3.19 Punchbowl Station Intersection Assessment – AM Peak

Punchbowl Station – AM Peak					
Scenario	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
B.04 Punchbowl Road / South Terrace (Signals)					**Year Capped: 2023**
Demand Flow (PCU)	2637	2709	1776	1788	1848
Average Delay per PCU (Overall)	75	85	22	23	23
LoS (Overall)	F	F	B	B	B
DoS (Worst Movement)	1.02	1.03	0.68	0.3	0.48
B.05 Punchbowl Road / The Boulevarde (Signals)					**Year Capped: 2023**
Demand Flow (PCU)	3153	3237	2112	2136	2196
Average Delay per PCU (Overall)	40	46	21	21	20
LoS (Overall)	C	D	B	B	B
DoS (Worst Movement)	0.99	1.05	0.72	0.71	0.74
H.05 Punchbowl Road / Rossmore Avenue (Priority Controlled)					**Year Capped: 2023**
Demand Flow (PCU)	1153	1189	819	825	855
Average Delay per PCU (Overall)	2	2	1	1	1
Average Delay per PCU (Worst Movement)	2	2	1	1	1
LoS (Worst Movement)	A	A	A	A	A
DoS (Worst Movement)	0.42	0.42	0.30	0.30	0.30
H.22 The Boulevarde / Arthur Street (Signals)					**Year Capped: 2023**
Demand Flow (PCU)	1574	1646	935	947	1007
Average Delay per PCU (Overall)	21	17	15	15	15
LoS (Overall)	B	B	B	B	B
DoS (Worst Movement)	0.71	0.77	0.48	0.27	0.32

All four intersections modelled have a LoS ‘C’ or better during the Christmas period possession resulting from future traffic growth, construction traffic and refined baseline TTP scenario. A LoS ‘C’ would generally be considered reasonable during peak periods.

The traffic conditions resulting from the construction and refined baseline TTP traffic during the Christmas period possession are generally equivalent or improved from a future typical weekday peak. The analysis concludes that acceptable peak hourly intersection operation can be maintained with the addition of construction and refined baseline TTP traffic during the Christmas period possessions.

Road Network Performance - PM Weekday Peak

Table 3.20 provides a summary of the intersection assessment undertaken for this station.

Table 3.20 Punchbowl Station Intersection Assessment – PM Peak

Punchbowl Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
B.04 Punchbowl Road / South Terrace (Signals)					**Year Capped: 2023**
Demand Flow (PCU)	2620	2662	2405	2417	2477
Average Delay per PCU (Overall)	33	35	27	28	28
LoS (Overall)	C	C	B	B	B
DoS (Worst Movement)	0.87	0.91	0.70	0.70	0.73
B.05 Punchbowl Road / The Boulevarde (Signals)					**Year Capped: 2023**
Demand Flow (PCU)	2969	3053	2725	2749	2809
Average Delay per PCU (Overall)	35	38	31	31	32
LoS (Overall)	C	D	C	C	C
DoS (Worst Movement)	0.87	0.93	0.83	0.82	0.84
H.05 Punchbowl Road / Rossmore Avenue (Priority Controlled)					**Year Capped: 2023**
Demand Flow (PCU)	1423	1459	1310	1316	1346
Average Delay per PCU (Overall)	2	2	2	2	2
Average Delay per PCU (Worst Movement)	2	2	2	2	2
LoS (Worst Movement)	A	A	A	A	A
DoS (Worst Movement)	0.48	0.48	0.44	0.44	0.44
H.22 The Boulevarde / Arthur Street (Signals)					**Year Capped: 2023**
Demand Flow (PCU)	1574	1646	1447	1459	1519
Average Delay per PCU (Overall)	17	17	15	15	15
LoS (Overall)	B	B	B	B	B
DoS (Worst Movement)	0.71	0.77	0.60	0.55	0.59

All four intersections modelled have a LoS 'C' or better during the Christmas period possession resulting from future traffic growth, construction traffic and refined baseline TTP scenario. A LoS 'C' would generally be considered reasonable during peak periods.

The traffic conditions resulting from the construction traffic and refined baseline TTP traffic during the Christmas period possession are generally equivalent or improved from a future typical weekday peak. The analysis concludes that acceptable peak hourly intersection operation can be maintained with the addition of construction and refined baseline TTP traffic during the Christmas period possessions.

3.12 Bankstown Station

3.12.1 Road Network Operation and Intersection Performance

Ten intersections were modelled in the area surrounding Bankstown Station.

Road Network Performance - AM Weekday Peak

Table 3.21 provides a summary of the intersection assessment undertaken for this station.

Table 3.21 Bankstown Station Intersection Assessment – AM Peak

Bankstown Station – AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
B.01 South Terrace / Restwell Street (Signals)		**Year Capped: 2023**			
Demand Flow (Veh)	1299	1385	887	902	974
Average Delay per Vehicle (Average over all arms in seconds)	25	35	26	27	35
LoS (Overall)	B	C	B	B	C
DoS (Worst Movement)	0.64	0.79	0.47	0.47	0.63
B.02 Restwell Street / Raymond Street (Signals)		**Year Capped: 2023**			
Demand Flow (Veh)	1588	1612	1071	1079	1095
Average Delay per Vehicle (Average over all arms in seconds)	26	28	20	20	21
LoS (Overall)	B	B	B	B	B
DoS (Worst Movement)	0.83	0.86	0.56	0.56	0.59
B.03 South Terrace / West Terrace (Signals)		**Year Capped: 2023**			
Demand Flow (Veh)	2550	2589	1689	1697	1727
Average Delay per Vehicle (Average over all arms in seconds)	30	31	28	28	28

Bankstown Station – AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
LoS (Overall)	C	B	B	B	B
DoS (Worst Movement)	0.63	0.67	0.41	0.42	0.45
H.01 Meredith Street / Marion Street (Signals)					Year Capped: 2023
Demand Flow (Veh)	2905	2905	1937	1937	1937
Average Delay per Vehicle (Average over all arms in seconds)	32	32	26	26	26
LoS (Overall)	C	C	B	B	B
DoS (Worst Movement)	0.90	0.91	0.61	0.61	0.61
H.02 Stacey Street / Wattle Street (Signals)					Year Capped: 2023
Demand Flow (Veh)	5049	5064	3398	3413	3413
Average Delay per Vehicle (Average over all arms in seconds)	16	17	12	12	12
LoS (Overall)	B	B	A	A	A
DoS (Worst Movement)	0.81	0.89	0.67	0.67	0.67
H.03 North Terrace / Wattle Street (Roundabout)					Year Capped: 2023
Demand Flow (Veh)	2985	3001	1980	1995	1995
Average Delay per Vehicle (Average over all arms in seconds)	10	11	6	6	6
Average Delay per Vehicle (Worst Movement in seconds)	22	22	14	14	14
LoS (Worst Movement)	B	B	A	A	A
DoS (Worst Movement)	0.77	0.95	0.41	0.41	0.41
H.04 Stanley Street / Stacey Street (Signals)					Year Capped: 2023
Demand Flow (Veh)	4885	4926	3295	3336	3336
Average Delay per Vehicle (Average over all arms in seconds)	26	28	21	22	22
LoS (Overall)	B	B	B	B	B

Bankstown Station – AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
DoS (Worst Movement)	0.95	0.95	0.83	0.83	0.83
H.30 The Appian Way / North Terrace (Priority Controlled)					Year Capped: 2023
Demand Flow (Veh)	1387	1409	961	961	983
Average Delay per Vehicle (Average over all arms in seconds)	9	10	6	6	7
Average Delay per Vehicle (Worst Movement in seconds)	26	34	16	16	18
LoS (Worst Movement)	B	C	B	B	B
DoS (Worst Movement)	0.68	0.76	0.48	0.48	0.48
H.31 Marion Street / Oxford Avenue (Signals)					Year Capped: 2023
Demand Flow (Veh)	2937	2937	1969	1969	1969
Average Delay per Vehicle (Average over all arms in seconds)	23	23	18	18	18
LoS (Overall)	B	B	B	B	B
DoS (Worst Movement)	0.75	0.75	0.47	0.47	0.47
H.32 Marion Street / Greenwood Avenue (Signals)					Year Capped: 2023
Demand Flow (Veh)	3741	3741	2488	2488	2488
Average Delay per Vehicle (Average over all arms in seconds)	33	33	27	27	27
LoS (Overall)	C	C	B	B	B
DoS (Worst Movement)	0.89	0.89	0.49	0.49	0.49

For all ten intersections modelled, the increase in delay during the Christmas period possession resulting from future traffic growth, construction traffic and refined baseline TTP scenario result in a LoS 'C' or better. A LoS 'C' would generally be considered reasonable during peak periods.

All the intersections except for South Terrace / Restwell Street are predicted to operate more efficiently during the Christmas period possession with construction traffic and refined baseline TTP than on a typical weekday after accounting for general traffic growth, but no construction traffic or refined baseline TTP. As the operation of the intersection with construction traffic and refined baseline

TTP during the Christmas period possession is expected to be more efficient than the weekday future, the effects of the construction traffic and refined baseline TTP are considered to be negligible.

South Terrace / Restwell Street intersection is expected to have a worsened level of service in the Christmas period possession with construction traffic and refined baseline TTP than in the future weekday peak scenario (with no construction traffic or refined baseline TTP). The level of service for the worst case scenario in the Christmas period possession however is still only LOS 'C', and so is considered to be a minor impact at this intersection. The analysis concludes that acceptable peak hourly intersection operation can be maintained with the addition of construction and the refined baseline TTP traffic during the Christmas period possessions.

Road Network Performance - PM Weekday Peak

Table 3.22 provides a summary of the intersection assessment undertaken for this station.

Table 3.22 Bankstown Station Intersection Assessment – PM Peak

Bankstown Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
B.01 South Terrace / Restwell Street (Signals)					**Year Capped: 2023**
Demand Flow (Veh)	1141	1229	1052	1067	1140
Average Delay per Vehicle (Average over all arms in seconds)	27	38	27	28	36
LoS (Overall)	B	C	B	B	C
DoS (Worst Movement)	0.61	0.79	0.57	0.58	0.75
B.02 Restwell Street / Raymond Street (Signals)					**Year Capped: 2023**
Demand Flow (Veh)	1456	1479	1337	1345	1361
Average Delay per Vehicle (Average over all arms in seconds)	26	29	24	24	25
LoS (Overall)	B	C	B	B	B
DoS (Worst Movement)	0.82	0.86	0.75	0.77	0.79
B.03 South Terrace / West Terrace (Signals)					**Year Capped: 2023**
Demand Flow (Veh)	2530	2568	2312	2319	2350
Average Delay per Vehicle (Average over all arms in seconds)	30	31	29	30	30
LoS (Overall)	C	C	C	C	C
DoS (Worst Movement)	0.69	0.74	0.62	0.63	0.69

Bankstown Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.01 Meredith Street / Marion Street (Signals)					**Year Capped: 2023**
Demand Flow (Veh)	3054	3054	2798	2798	2798
Average Delay per Vehicle (Average over all arms in seconds)	42	42	36	36	36
LoS (Overall)	C	C	C	C	C
DoS (Worst Movement)	0.92	0.92	0.84	0.84	0.84
H.02 Stacey Street / Wattle Street (Signals)					**Year Capped: 2018**
Demand Flow (Veh)	6058	6074	5551	5567	5567
Average Delay per Vehicle (Average over all arms in seconds)	39	40	39	39	39
LoS (Overall)	C	C	C	C	C
DoS (Worst Movement)	1.10	1.10	0.90	0.91	0.91
H.03 North Terrace / Wattle Street (Roundabout)					**Year Capped: 2023**
Demand Flow (Veh)	2664	2680	2436	2452	2452
Average Delay per Vehicle (Average over all arms in seconds)	20	20	11	11	11
Average Delay per Vehicle (Worst Movement in seconds)	81	81	29	29	29
LoS (Worst Movement)	F	F	C	C	C
DoS (Worst Movement)	0.99	0.99	0.78	0.78	0.78
H.04 Stanley Street / Stacey Street (Signals)					**Year Capped: 2017**
Demand Flow (Veh)	5631	5672	5159	5201	5201
Average Delay per Vehicle (Average over all arms in seconds)	18	27	13	13	13
LoS (Overall)	B	B	A	A	A
DoS (Worst Movement)	1.10	1.24	0.90	0.88	0.88

Bankstown Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.30 The Appian Way / North Terrace (Priority Controlled)				**Year Capped: 2022**	
Demand Flow (Veh)	1490	1511	1369	1369	1390
Average Delay per Vehicle (Average over all arms in seconds)	27	52	15	15	30
Average Delay per Vehicle (Worst Movement in seconds)	121	267	54	54	137
LoS (Worst Movement)	F	F	D	D	F
DoS (Worst Movement)	1.07	1.25	0.93	0.93	1.09
H.31 Marion Street / Oxford Avenue (Signals)				**Year Capped: 2023**	
Demand Flow (Veh)	2891	2891	2652	2652	2652
Average Delay per Vehicle (Average over all arms in seconds)	17	17	15	15	15
LoS (Overall)	B	B	B	B	B
DoS (Worst Movement)	0.90	0.90	0.87	0.87	0.87
H.32 Marion Street / Greenwood Avenue (Signals)				**Year Capped: 2023**	
Demand Flow (Veh)	3923	3923	3594	3594	3594
Average Delay per Vehicle (Average over all arms in seconds)	29	30	29	29	30
LoS (Overall)	C	C	C	C	C
DoS (Worst Movement)	0.90	0.91	0.90	0.91	0.91

For nine of the ten intersections modelled near Bankstown, the increase in delay during the Christmas period possession resulting from future traffic growth, construction traffic and refined baseline TTP scenario result in a LoS 'C' or better. A LoS 'C' would generally be considered reasonable during peak periods.

The Appian Way / North Terrace is forecast to have a level of service 'F' with the introduction of future traffic volumes. Construction traffic does not affect the intersection, but the refined baseline TTP travels along the Appian Way and onto North Terrace. The increase in average delay for the whole intersection only increases by approximately three seconds when comparing a typical future weekday to the Christmas period possession with construction traffic and refined baseline TTP.

The worst movement is the right turn from The Appian Way onto North Terrace with a delay of two minutes on a typical weekday in the future. The delay on this movement is only increased by about 16 seconds in Christmas period possession with construction traffic and refined baseline TTP. The impacts of the preferred project is therefore considered to be negligible. The analysis forecasts that, with the exception of the Appian Way / North Terrace intersection, acceptable peak hourly intersection operation can be maintained with the addition of construction and refined baseline TTP traffic during the Christmas period possessions.

3.13 Regents Park Station

3.13.1 Road Network Operation and Intersection Performance

One intersection was modelled in the area surrounding Regents Park Station. Although no construction works would occur at this location as part of the preferred project, refined baseline TTP buses would operate to this station and may affect these intersections.

Road Network Performance - AM and PM Weekday Peak

Table 3.23 and **Table 3.24** below shows a summary of the intersection assessment undertaken for this station.

Table 3.23 Regents Park Station Intersection Assessment – AM Peak

Regents Park Station – AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.35 Auburn Road / Amy Street (Roundabout)					**Year Capped: 2023**
Demand Flow (veh)	2433	2446	1670	No Vehicles	1683
Average Delay per Vehicle (Average over all arms in seconds)	13	14	7		7
Average Delay per vehicle (Worst Movement in seconds)	18	18	9		9
LoS (Overall)	B	B	A		A
DoS (Worst Movement)	0.81	0.82	0.45		0.47

Table 3.24 Regents Park Station Intersection Assessment – PM Peak

Regents Park Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.35 Auburn Road / Amy Street (Roundabout)		Year Capped: 2023			
Demand Flow (veh)	2193	2205	2013	No Vehicles	2025
Average Delay per Vehicle (Average over all arms in seconds)	10	10	9		9
Average Delay per vehicle (Worst Movement in seconds)	12	13	10		11
LoS (Overall)	A	A	A		A
DoS (Worst Movement)	0.65	0.65	0.58		0.58

In the AM and PM peak the increase in delay during the Christmas period possession resulting from future traffic growth and refined baseline TTP scenario result in an overall LoS 'A' for the intersection. The operation of the intersection with refined baseline TTP in both peaks during the Christmas period possession is also expected to be more efficient than the weekday future. The analysis concludes that acceptable peak hourly intersection operation can be maintained with the addition of construction and refined baseline TTP traffic during the Christmas period possessions.

3.14 Lidcombe Station

3.14.1 Road Network Operation and Intersection Performance

Four intersections were modelled in the area surrounding Lidcombe Station. Although no construction works would occur at this location as part of the preferred project, refined baseline TTP buses would operate to this station and may affect these intersections.

Road Network Performance - AM Weekday Peak

Table 3.25 shows a summary of the intersection assessment undertaken for this station.

Table 3.25 Lidcombe Station Intersection Assessment – AM Peak

Lidcombe Station – AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.26 Joseph Street / Georges Ave (Signals)					**Year Capped: 2023**
Demand Flow (veh)	5914	5928	3938	No Vehicles	3952
Average Delay per Vehicle (Average over all arms in seconds)	20	20	20		20
LoS (Overall)	B	B	B		B
DoS (Worst Movement)	0.96	0.96	0.88		0.92
H.27 Olympic Drive / Joseph Street (Signals)					**Year Capped: 2023**
Demand Flow (veh)	5117	5131	3414	No Vehicles	3428
Average Delay per Vehicle (Average over all arms in seconds)	5	5	5		5
LoS (Overall)	A	A	A		A
DoS (Worst Movement)	0.76	0.78	0.51		0.53
H.28 Vaughan Street / Joseph Street (Signals)					**Year Capped: 2023**
Demand Flow (veh)	1453	1468	997	No Vehicles	1012
Average Delay per Vehicle (Average over all arms in seconds)	13	13	11		11
LoS (Overall)	A	A	A		A
DoS (Worst Movement)	0.80	0.80	0.52		0.57
H.29 Olympic Drive / Church Street (Signals)					**Year Capped: 2023**
Demand Flow (veh)	5367	5381	3579	No Vehicles	3593
Average Delay per Vehicle (Average over all arms in seconds)	41	49	20		22
LoS (Overall)	C	D	B		B
DoS (Worst Movement)	0.96	0.98	0.63		0.65

All four intersections modelled have a LoS 'B' or better during the Christmas period possession resulting from future traffic growth and refined baseline TTP scenario. A LoS 'B' would not cause noticeable delays for commuters in the peak hour in Sydney.

The traffic conditions resulting from the refined baseline TTP during the Christmas period possession are generally equivalent or improved from a future typical weekday peak. The analysis concludes that acceptable peak hourly intersection operation can be maintained with the addition of construction and TTP traffic during the Christmas period possessions.

Road Network Performance - PM Weekday Peak

Table 3.26 provides a summary of the intersection assessment undertaken for this station.

Table 3.26 Lidcombe Intersection Assessment – PM Peak

Lidcombe Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.26 Joseph Street / Georges Ave (Signals)		**Year Capped: 2023**			
Demand Flow (veh)	5856	5871	5366	No Vehicles	5380
Average Delay per Vehicle (Average over all arms in seconds)	25	25	25		25
LoS (Overall)	B	B	B		B
DoS (Worst Movement)	0.91	0.94	0.90		0.91
H.27 Olympic Drive / Joseph Street (Signals)		**Year Capped: 2023**			
Demand Flow (veh)	4967	4981	4550	No Vehicles	4564
Average Delay per Vehicle (Average over all arms in seconds)	6	6	6		6
LoS (Overall)	A	A	A		A
DoS (Worst Movement)	0.72	0.73	0.66		0.67
H.28 Vaughan Street / Joseph Street (Signals)		**Year Capped: 2023**			
Demand Flow (veh)	1591	1606	1460	No Vehicles	1475
Average Delay per Vehicle (Average over all arms in seconds)	14	14	14		14
LoS (Overall)	B	B	A		A
DoS (Worst Movement)	0.56	0.58	0.52		0.54

Lidcombe Station – PM Peak					
Scenario	**EIS**		**Preferred Project**		
	Future (Typical week)	**Future + Construction + Refined Baseline TTP (Typical week)**	**Future (Christmas Period Possession)**	**Future + Construction (Christmas period possession)**	**Future + Construction + Refined Baseline TTP (Christmas period possession)**
H.29 Olympic Drive / Church Street (Signals)					**Year Capped: 2023**
Demand Flow (veh)	5306	5320	4859		4873
Average Delay per Vehicle (Average over all arms in seconds)	56	65	43	No Vehicles	48
LoS (Overall)	D	E	D		D
DoS (Worst Movement)	0.94	0.97	0.86		0.89

For three of the four intersections modelled, the increase in delay during the Christmas period possession resulting from future traffic growth and refined baseline TTP scenario result in a LoS ‘B’ or better. A LoS ‘B’ would not cause noticeable delays for commuters in the peak hour in Sydney.

The intersection at Olympic Drive / Church Street has a LoS ‘D’ in the Christmas period possession with refined baseline TTP. These traffic conditions are an improvement from a future typical weekday peak. The impacts of the preferred project are therefore considered to be negligible. The analysis concludes that acceptable peak hourly intersection operation can be maintained with the addition of construction and refined baseline TTP traffic during the Christmas period possessions.

3.15 Birrong Station

3.15.1 Road Network Operation and Intersection Performance

One intersection was modelled in the area surrounding Birrong Station. Although no construction works would occur at this location as part of the preferred project, refined baseline TTP buses would operate to this station and may affect these intersections.

Road Network Performance - AM and PM Weekday Peak

Table 3.27 and **Table 3.28** provide a summary of the intersection assessments undertaken for this station.

Table 3.27 Birrong Station Intersection Assessment – AM Peak

Birrong Station – AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.44 Auburn Road / Moller Avenue (Priority Controlled)		**Year Capped: 2023**			
Demand Flow (veh)	1396	1437	944	No Vehicles	985
Average Delay per Vehicle (Average over all arms in seconds)	1	1	0		0
Average Delay per Vehicle (Worst Movement in seconds)	41	47	17		19
LoS (Worst Movement)	C	D	B		B
DoS (Worst Movement)	0.39	0.41	0.25		0.3

Table 3.28 Birrong Station Intersection Assessment – PM Peak

Birrong Station – PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.44 Auburn Road / Moller Avenue (Priority Controlled)		**Year Capped: 2023**			
Demand Flow (veh)	1440	1481	1319	No Vehicles	1359
Average Delay per Vehicle (Average over all arms in seconds)	0	0	0		0
Average Delay per Vehicle (Worst Movement in seconds)	28	31	23		25
LoS (Worst Movement)	B	C	B		B
DoS (Worst Movement)	0.40	0.42	0.37		0.39

In the AM and PM peak the increase in delay during the Christmas period possession resulting from future traffic growth and refined baseline TTP scenario result in a LoS ‘B’ for the worst movement. A LoS ‘B’ would not cause noticeable delays for commuters in the peak hour in Sydney.

The operation of the intersection with refined baseline TTP in both peaks during the Christmas period possession is expected to be more efficient than the weekday future. Therefore the impacts of the construction traffic and refined baseline TTP are considered to be negligible. The analysis concludes that acceptable peak hourly intersection operation can be maintained with the addition of construction and refined baseline TTP traffic during the Christmas period possessions.

3.16 Yagoona Station

3.16.1 Road Network Operation and Intersection Performance

Two intersections were modelled in the area surrounding Yagoona Station. Although no construction works would occur at this location as part of the preferred project, refined baseline TTP buses would operate to this station and may affect these intersections.

Road Network Performance - AM and PM Weekday Peak

Table 3.29 and **Table 3.30** provide a summary of the intersection assessments undertaken for this station.

Table 3.29 Yagoona Station Intersection Assessment – AM Peak

Yagoona Station– AM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.42 Chapel Rd / Hume Hwy (Signals)		**Year Capped: 2023**			
Demand Flow (veh)	4666	4706	3159	No Vehicles	3199
Average Delay per Vehicle (Average over all arms in seconds)	36	42	34		36
LoS (Overall)	C	C	C		C
DoS (Worst Movement)	0.83	0.90	0.56		0.59
H.43 Church Rd / Hume Hwy (Priority Controlled)		**Year Capped: 2023**			
Demand Flow (veh)	4426	4467	2963	No Vehicles	3004
Average Delay per Vehicle (Average over all arms in seconds)	19	27	3		7
Average Delay Per Vehicle (Worst Movement in seconds)	943	778	612		574
LoS (Overall)	F	F	F		F
DoS (Worst Movement)	1.1	1.76	0.91		0.91

Table 3.30 Yagoona Intersection Assessment – PM Peak

Yagoona Station– PM Peak					
Scenario	EIS		Preferred Project		
	Future (Typical week)	Future + Construction + Refined Baseline TTP (Typical week)	Future (Christmas Period Possession)	Future + Construction (Christmas period possession)	Future + Construction + Refined Baseline TTP (Christmas period possession)
H.42 Chapel Rd / Hume Hwy (Signals)		**Year Capped: 2023**			
Demand Flow (veh)	5591	5632	5126	No Vehicles	5168
Average Delay per Vehicle (Average over all arms in seconds)	38	41	35		37
LoS (Overall)	C	C	C		C
DoS (Worst Movement)	0.89	0.89	0.91		0.91
H.43 Church Rd / Hume Hwy (Priority Controlled)		**Year Capped: 2023**			
Demand Flow (veh)	4614	4655	4225	No Vehicles	4265
Average Delay per Vehicle (Average over all arms in seconds)	4	23	3		8
Average Delay Per Vehicle (Worst Movement in seconds)	284	929	311		315
LoS (Overall)	F	F	F		F
DoS (Worst Movement)	0.91	1.79	0.91		1.1

In the AM and PM peak for Chapel Road / Hume Highway, the increase in delay during the Christmas period possession resulting from future traffic growth haulage traffic and refined baseline TTP scenario result in an overall LoS ‘C’. A LoS ‘C’ would generally be considered reasonable during peak periods.

Church Road / Hume Highway has a LoS ‘F’ in the Christmas period possession with refined baseline TTP. In the AM peak the operation of the intersection is more efficient than a typical weekday in the future. The effects of the preferred project in the AM peak are therefore considered negligible.

In the PM peak the Christmas period possession with refined baseline TTP leads to an increase in average delay of just over 30 seconds when compared to a normal weekday in the future. Monitoring of the conditions and efficiency of the refined baseline TTP would be required. Potential mitigations may be required if there are found to be significant delays for existing traffic including alternate routes for some or all refined baseline TTP routes. The analysis forecasts that, with the exception of the Church Road / Hume Highway intersection, acceptable peak hourly intersection operation can be maintained with the addition of construction and refined baseline TTP traffic during the Christmas period possessions.

3.17 Additional Works Requiring Station Closures

3.17.1 Introduction

The construction of the preferred project would also require the closure of up to three stations for up to two months to complete station works.

During the station closures, the T3 Bankstown Line trains would still operate (with the exception of planned weekend or night possessions as described in Section 2.6), however passengers would be unable to board or alight at the closed stations. The station works may potentially be completed at two to three neighbouring stations (i.e. Dulwich Hill and Marrickville Station) at the same time and would require TTP buses for passengers to get to the nearest operational stations.

The TTP buses would utilise the refined baseline TTP routes, as outlined in the EIS Technical Paper 1. It should be noted that the number of TTP buses required during station closures would be lower than assumed in EIS Technical Paper 1 during a full-line closures as the majority of the passengers would still be able to use the train. It is only passengers who usually board or alight at the closed stations that would be impacted by the closures, and so a reduced capacity TTP would be needed. As such, for the purpose of a worst case assessment, impacts have been interpolated as being between the future typical weekday scenario with construction vehicles and the refined baseline TTP scenario with between 15 and 55 buses per hour in each direction plus the construction traffic. Although mitigation has been identified on this worse case assessment, the mitigation requirements would be reviewed and guided by the TTS.

In addition, the potential impact to parking at stations adjacent to the closed stations is discussed below.

For the purposes of assessment the following scenarios of the stations that may be closed simultaneously have been assumed as follows:

- Marrickville and Dulwich Hill and Station closure scenario
- Hurlstone Park and Canterbury Station closure scenario
- Campsie and Belmore Station closure scenario
- Lakemba and Punchbowl Station closure scenario.

The program of station closures would continue to be developed and the temporary transport approach managed in line with the TTS. Whilst the final sequence may differ in order, or with different combinations of station closures, the impacts are expected to be equivalent to that assessed below.

The assessment of the above scenarios is provided below.

3.17.2 Marrickville and Dulwich Hill Station Closures

During the Marrickville / Dulwich Hill Station closure scenario there would be TTP buses carrying passengers to Hurlstone Park and Sydenham stations. Our assessment of the impacts of these TTP buses, in combination with construction traffic, is provided below. This assessment references back to the assessment provided for the refined baseline TTP, in EIS Technical Paper 1.

3.17.2.1 Sydenham Station

At Sydenham Station intersections modelled operate as a LoS C or better in all scenarios with the refined baseline TTP traffic, therefore under the Marrickville / Dulwich Hill Station closure scenario the intersections would continue to operate with no significant delay or impact.

3.17.2.2 Marrickville Station

At Marrickville Station the Marrickville Road / Victoria Road intersection is expected to operate at LoS D and LoS F in the construction traffic and refined baseline TTP scenarios, respectively. Therefore during this scenario the intersection is likely to perform at a LoS E and cause some noticeable delay to drivers in the AM peak. All other intersections operate at LoS C or better with refined baseline TTP traffic and would also operate in this scenario without any significant delay to road users.

To mitigate the predicted delay at Marrickville Road / Victoria Road intersection, an additional signal phase for the Marrickville west approach and east approach was proposed as part of the recommended mitigations in EIS Technical Paper 1, subject to RMS approval. This mitigation would be considered for this scenario should the bus volumes during these station closures reflect those of the refined baseline TTP. Such mitigation could bring the average delay to less than 10 seconds over the future typical weekday peak conditions.

3.17.2.3 Dulwich Hill Station

At Dulwich Hill Station the Wardell Road / Ewart St, Wardell Road / Dudley St and Wardell Road / Marrickville Road intersections operate at LoS E or worse in the refined baseline TTP scenarios and are discussed further below in the context of the Marrickville / Dulwich Hill Station closure scenario.

The Wardell Road / Ewart St intersection operates at LoS F in both the construction traffic and refined baseline TTP scenarios in the AM peak. It is likely that this intersection would remain at LoS F during the Marrickville / Dulwich Hill Station closure scenario, with significant additional delay compared to the future typical weekday AM peak conditions. In the PM peak the intersection would likely run at a borderline LoS E / F with a marginal increase in delay. To mitigate this potential impact in this scenario an additional signal phase for the Ewart St north approach and Wardell Road east approach in the AM and PM peaks respectively could be considered, as described for the exhibited project in EIS Technical Paper 1, subject to RMS approval. This would reduce the impact of the TTP buses in this scenario to minor.

The Wardell Road / Dudley St intersection operates at a LoS E and LoS F in the construction traffic and refined baseline TTP scenarios respectively in both the AM and PM peaks. It is expected that this intersection would operate at a LoS F and LoS E in the AM and PM peaks respectively in the Marrickville / Dulwich Hill Station closure scenarios. This is likely to cause a negligible impact to the delay experienced by drivers and passengers on a typical day, and so it is not proposed to develop a specific mitigation for this scenario. However mitigation requirements would be reviewed and guided by the TTS.

In the AM peak the Wardell Road / Marrickville Road intersection operates at LoS E and LoS F in the construction traffic and refined baseline TTP scenarios respectively. It is expected that this intersection would likely operate at LoS F during Marrickville / Dulwich Hill Station closure scenario. In the PM peak the intersection operates at LoS C and LoS E in the construction traffic and refined baseline TTP scenarios respectively. In the Marrickville / Dulwich Hill Station closure scenario it is expected that the intersection would run at a LoS D with negligible delay to drivers or passengers. Within EIS Technical Paper 1 several mitigations were proposed for this intersection during the refined baseline TTP. These were phasing changes, revisions to the lane utilisations and phase timings, subject to RMS approval. These mitigations would also be appropriate for consideration for this scenario, and would result in the forecast AM peak impacts being minimised.

All other intersections operate at LoS D or better with refined baseline TTP buses and would operate without any significant delay to drivers or passengers during Marrickville / Dulwich Hill Station closure scenario.

3.17.2.4 Hurlstone Park Station

At Hurlstone Park Station intersections modelled operate at a LoS C or better in the construction traffic and refined baseline TTP scenarios respectively, therefore there would be negligible impact during the Marrickville / Dulwich Hill Station closure scenario.

A key consideration during the Marrickville / Dulwich Hill Station closure scenario is that there are 50 commuter parking spaces at Hurlstone Park Station and 1,208 spaces in the surrounding area. Of the parking space available, the off-street parking is 100 per cent utilised and the on-street parking is 54 per cent utilised. Therefore some commuters who usually drive to Dulwich Hill Station would have space to park near Hurlstone Park Station, but this may result in others having to park further away from Hurlstone Park Station or utilise the TTP buses from Dulwich Hill Station.

3.17.3 Hurlstone Park and Canterbury Station Closures

During the Hurlstone Park / Canterbury Station closure scenario there would be TTP buses carrying passengers to Dulwich Hill and Campsie stations. Our assessment of the impacts of these buses TTP, in combination with construction traffic, is provided below. This assessment references back to the assessment provided of the refined baseline TTP, in combination with construction traffic, provided in EIS Technical Paper 1.

3.17.3.1 Dulwich Hill Station

A key consideration during the Hurlstone Park / Canterbury Station closure scenario is that there are 55 commuter parking spaces in Dulwich Hill Station and 1,330 spaces in the surrounding area. Of the parking space available, the off-street parking is 100 per cent utilised and the on-street parking is 73 per cent utilised. Therefore some commuters who usually drive to Hurlstone Park Station would have space to park near Dulwich Hill Station, but this may result in others having to park further away from Dulwich Hill Station, or utilise the TTP buses from Hurlstone Park Station.

Intersection impacts would be the same as discussed above in **Section 3.17.2.3**.

3.17.3.2 Hurlstone Park Station

At Hurlstone Park Station all surrounding intersections operate at LoS C or with the refined baseline TTP traffic, therefore it is forecast that there would be negligible impact during the Hurlstone Park / Canterbury Station closure scenario.

3.17.3.3 Canterbury Station

At Canterbury Station the Canterbury Road / Charles St intersection is forecast to operates at LoS F in the construction traffic and refined baseline TTP scenarios in both the AM and PM peaks. Therefore during the implementation of Hurlstone Park / Canterbury Station closure scenario the intersection is forecast to continue to operate at LoS F with a significant delay of approximately 60 seconds in addition to the future typical weekday PM peak intersection delay (approximately five minutes). This delay occurs as Charles Street is priority controlled, and temporary traffic control to assist TTP buses leaving Charles Street could be considered to deliver greater efficiency to the replacement buses, subject to RMS approval. However, as noted above, this intersection would potentially be signalled prior to when construction for the project would occur, and so there may be significantly reduced delays for both the baseline and the incremental delay associated with the preferred project.

All other intersections operate at LoS D or better with refined baseline TTP traffic and would operate without any significant delay during this phase.

3.17.3.4 Campsie Station

There are 138 commuter parking spaces in Campsie Station and 1,541 spaces in the surrounding area. Of the parking space available, the off-street parking is 100 per cent utilised and the on-street parking is 85 percent utilised. Therefore some commuters who usually drive to Canterbury Station would have space to park near Campsie Station, but this may result in others having to park further away from Campsie Station or utilise the TTP buses from Canterbury Station.

Intersection impacts are as assessed above in **Section 3.17.4.2**.

3.17.4 Belmore and Campsie Station Closures

During the Campsie / Belmore Station closure scenario there would be TTP buses carrying passengers to Lakemba and Canterbury stations. Our assessment of the impacts of these TTP buses, in combination with construction traffic, is provided below. This assessment references back to the assessment provided of the refined baseline TTP, in combination with construction traffic, provided in EIS Technical Paper 1.

3.17.4.1 Canterbury Station

There are 32 commuter parking spaces in Canterbury Station and 849 spaces in the surrounding area. The off-street parking is 84 per cent utilised and the on-street parking is 59 per cent utilised. Therefore some commuters who usually drive to Campsie Station would have space to park near Canterbury Station, but this may result in others having to park further away from Campsie Station or utilise the TTP buses from Campsie Station.

Intersection impacts are as assessed above in **Section 3.17.3.3**.

3.17.4.2 Campsie Station

At Campsie Station the Beamish St / Ninth Ave, Beamish St / South Parade, Beamish St / North Parade and Ninth Ave / Loch St intersections are forecast to operate at LoS E or worse in the refined baseline TTP scenarios in either the AM or PM peaks and are discussed further below in the context of the Campsie / Belmore Station closure scenario.

The Beamish St / Clissold Parade intersection would operate at LoS E and LoS F in the construction traffic and refined baseline TTP scenarios respectively in the PM peak, and therefore it is forecast that the intersection would operate at LoS E / F during the Campsie / Belmore Station closure scenario. The impact of this scenario would be a delay of up to approximately 60-90 seconds, however, as outlined above, the actual delay in these periods is likely to be less as this is a worst case assessment. Mitigation requirements would be reviewed and guided by the TTS.

The Beamish St / South Parade intersection operates at LoS B and LoS F in the construction traffic and refined baseline TTP scenarios respectively in the PM peak. Given the low number of replacement buses likely to be needed during the Campsie / Belmore Station closure scenario, the impact of this scenario would be closer to the construction traffic scenario, and therefore result in LoS C or D, and so the impact would therefore be negligible.

The Beamish St / North Parade intersection operates at LoS F in the construction traffic and refined baseline TTP scenario in the PM peak. The effect of the Campsie / Belmore Station closure scenario would be some 60 seconds of delay which is borderline LoS E / F, however, as outlined above, the actual delay in these periods is likely to be less as this is a worst case assessment. Mitigation requirements would be reviewed and guided by the TTS.

The Ninth Ave / Loch St intersection operates at LoS D and LoS E in the construction traffic and refined baseline TTP scenarios respectively in the AM peak. It is likely that this intersection would operate at a LoS D during the Campsie / Belmore Station closure scenario which would result in a minor impact to this intersection.

All other intersections operate at LoS D or better with refined baseline TTP traffic and would operate without any significant delay during the Campsie / Belmore Station closure scenario.

3.17.4.3 Belmore Station

At Belmore Station the Burwood Rd / Bridge Rd, Burwood Rd / Redman Parade and Burwood Rd / Lakemba St intersections operate at LoS F in the refined baseline TTP scenarios in both the AM and PM peaks and are discussed further below in the context of the Campsie / Belmore Station closure scenario.

The Burwood Rd / Bridge Rd intersection operates at LoS F in both the construction traffic and refined baseline TTP scenarios in the AM and PM Peaks and would remain at LoS F during the Campsie Belmore Station closure scenario with significant additional delay compared to the future typical weekday conditions. To mitigate this the through and right turn movements from Bridge Rd could be temporarily banned to reduce the impact.

The Burwood Rd / Redman Parade intersection operates at LoS F in both the construction traffic and refined baseline TTP scenarios in the AM and PM peaks and would remain at LoS F during the Campsie / Belmore Station closure scenario with significant additional delay (30-45 seconds) compared to the typical weekday conditions.

In the AM peak the Burwood Rd / Lakemba St intersection operates at LoS C and LoS F in the construction traffic and refined baseline TTP scenarios respectively and would likely operate at LoS D during the Campsie / Belmore Station closure scenario. In the PM peak the intersection operates at LoS B and LoS F in the construction and refined baseline TTP scenarios respectively. In the Campsie / Belmore Station closure scenario it is expected that the intersection would run at a LoS D with negligible delay to commuters. To mitigate this, optimum phase times could be considered to better allocate green time against increased traffic volumes. The dual movement through and right turn lane from Lakemba St west could also be temporarily changed to a right only due to the very high right turn flows.

The mitigations discussed above are the same mitigations as identified in EIS Technical Paper 1, subject to RMS approval.

All other intersections operate at LoS B or better with the refined baseline TTP traffic and would operate without any significant impact during the Campsie / Belmore Station closure scenario.

3.17.4.4 Lakemba Station

At Lakemba Station The Boulevarde / Haldon St and Haldon St / Railway Parade intersections operate at LoS F in the refined baseline TTP scenarios in both the AM and PM peaks and are discussed further below in the context of the Campsie / Belmore Station closure scenario.

The Boulevarde / Haldon St intersection is forecast to operate at LoS E in the future typical weekday scenarios, and this deteriorates to LoS F when construction traffic and refined baseline TTP scenarios are added. In the Campsie / Belmore Station closure scenario this would also be expected to be LoS F with an additional average delay to road users of about 30 seconds, which is a minor impact on top of the ‘baseline’ 60 and 90 seconds (in the AM and PM respectively).

The Haldon St / Railway Parade intersection is forecast to operate at LoS F in the future regardless of any construction impacts of the preferred project. The modelling in EIS Technical Paper 1 showed that the delay would increase above this already congested level when the construction traffic and refined baseline TTP was added without mitigation. However, as shown in Technical Paper 1, if the intersection is signalised then the delay would reduce and the revised intersection is forecast to operate at LoS B. As such, if this mitigation measure is employed during the Campsie / Belmore Station closure scenario, impacts to this intersection would be considered negligible.

The mitigations discussed above are the same mitigations as identified in EIS Technical Paper 1, and are included within the scope of mitigations proposed within the EIS, subject to RMS approval.

There are 138 commuter parking spaces in Lakemba Station and 1,498 spaces in the surrounding area. Of the parking space available, the off-street parking is 86 per cent utilised and the on-street parking is 85 per cent utilised. Therefore there is limited opportunity for commuters who usually drive to Belmore Station to park near Lakemba Station. As a result it is likely that the parking would reach capacity earlier at Lakemba than normal during Campsie / Belmore Station closure scenario, and those arriving later would need to park further away and walk or utilise the TTP buses from Belmore Station.

3.17.5 Lakemba and Punchbowl Station Closures

During the Lakemba / Punchbowl Station closure scenario there would be TTP buses carrying passengers to Wiley Park Station. Our assessment of the impacts of these TTP buses, in combination with construction traffic, is provided below. This assessment references back to the assessment provided of the refined baseline TTP, in combination with construction traffic, provided in EIS Technical Paper 1.

3.17.5.1 Lakemba Station

The effects of the closure on intersections at Lakemba are as described in the previous section.

There are 138 commuter parking spaces in Lakemba station and 1498 spaces in the surrounding area. Of the parking space available, the off-street parking is 86 per cent utilised and the on-street parking is 85 per cent utilised. Therefore commuters who usually drive to Belmore Station would have space to park near Lakemba station and others are able to either park further away and walk or utilise the TTP buses from Belmore Station.

3.17.5.2 Wiley Park Station

At Wiley Park Station all surrounding intersections operate at LoS D or better in all scenarios with the refined baseline TTP traffic, therefore it can be assumed that intersections would operate with no significant delay during the Lakemba / Punchbowl Station closure scenario.

There are no commuter parking spaces at Wiley Park Station, however there are 746 spaces in the surrounding area. Of the parking space available, the off-street parking is 60 per cent utilised and the on-street parking is 63 per cent utilised. Therefore some commuters who usually drive to either Punchbowl or Lakemba stations would have space to park near Wiley Park station and others are able to either park further away and walk or utilise the TTP buses from Punchbowl or Lakemba stations.

3.17.5.3 Punchbowl Station

At Punchbowl Station the Punchbowl Rd / South Terrace intersection operates at LoS F in the future typical weekday without any project related construction or TTP buses during the AM peak. Modelling in EIS Technical Paper 1 showed that there is a negligible further intersection delay when construction and TTP vehicles are added, so the impact of Lakemba / Punchbowl Station closure scenario would also be negligible. In the PM there would be similarly negligible impact with the intersection operating at LoS C.

The intersection impact assessment is as reported above.

3.17.6 Conclusion

The assessment has shown that the potential impact of the stations closures on the road network and parking availability would generally be negligible, however, in some cases some mitigation would need to be considered to achieve an acceptable level of impact. Mitigation requirements would be reviewed and guided by the TTS.

4.0 Bridge Works

4.1 Overview

Section 6 of EIS Technical Paper 1 discussed a series of upgrade works to 26 bridges within the project area. This included pedestrian, rail and road traffic bridges.

Following feedback received during the exhibition of the EIS in August 2017, the project has been refined to minimise impacts, including construction traffic impacts. An assessment of the preferred project, with a decrease in construction impacts from bridge works, is presented in this section via a qualitative update to Section 6 of Technical Paper 1. The preferred project bridge works are described in **Section 3.4**, and in more detail in the SPIR.

4.2 Proposed Works and Impacts

As outlined in **Section 3.4**, the construction of protection measures on bridges for the preferred project can occur without bridge closures, and would be limited to some lane restrictions at nights and / or on weekends. The vehicle diversions and impact on traffic explained in Section 6.5 to 6.32 of Technical Paper 1 would no longer occur, resulting in reduced impacts as a result of preferred project, when compared to the exhibited project.

However, during the works required on the bridges, some disruptions to pedestrians and cyclists would occur due to the potential need for footpath closures. Where a bridge has footpaths on both sides, only one throw screen would be constructed at a time. This would enable diversions of pedestrians and cyclists to the opposite side of the bridge.

The following bridges only have footpaths on one side of the road:

- Albermarle Street Overbridge
- Stacey Street Overbridge.

Closure of the footpath for construction of throw screens would therefore not enable pedestrians to be diverted to the opposite side of the road. Instead, pedestrians and cyclists could be diverted via neighbouring bridges. The option to close a traffic lane for use as a temporary footpath would also be considered. These diversions and associated mitigations will be documented in a Pedestrian Management Plan to be prepared as part of the Construction Traffic Management Plan process. The diversion routes and impact of these diversions are as per EIS Technical Paper 1, Section 6.8 and Section 6.30.

Garnet Street Overbridge, to the east of Hurlstone Park Station, has footpaths on both sides, however these footpaths are narrow. Construction management during this period can be implemented to move pedestrians to the footpath that has remained open, however, this management process would need to be cognisant of the volumes of pedestrians using the overbridge. Signage could be erected prior to the works warning of the upcoming works and encouraging pedestrians to use an alternative route. A Pedestrian Management Plan would be prepared as part of the Construction Traffic Management Plan process.

Duke Street Footbridge and Church Street / Hutton Street Footbridge are footbridges and would therefore require full closures to allow bridge works to proceed. Diversions would be required to neighbouring bridges. The diversion routes and impact of these diversions are as per EIS Technical Paper 1, Section 6.19 and Section 6.15.

5.0 Operational assessment

5.1 Description of the Preferred Project

Section 8.1 of the Environmental Impact Statement (Project infrastructure and features) described the operational features of the exhibited project. To address a number of issues raised in submissions during the public exhibition period of the Environmental Impact Statement, Transport for NSW has developed a design solution that enables the retention of existing station entrances, heritage buildings and concourses, but enables upgrades that provide accessible stations.

Importantly, these changes to the exhibited project have enabled the development of a preferred project that not only addresses a number of the issues raised in submissions, but also significantly minimises potential impacts – especially in respect of construction noise, traffic, heritage and vegetation impacts, while delivering a world class metro (the preferred project).

Chapter 9 of this SPIR outlines the changes to the operational features of the exhibited project and discusses the updated station designs for the preferred project.

An assessment of the preferred project is provided below for each station with reference to the existing environment and the assessment in EIS Technical Paper 1. There have been no changes to the Bankstown station design from the exhibited project.

As the preferred project involves the retention of the existing station entrances, there is an opportunity to retain the existing supporting infrastructure where possible, including kerbside facilities, accessible parking and bike parking.

In addition, Transport for NSW is developing a Walking and Cycling Strategy for the preferred project. This Strategy would further identify specific measures that would encourage walking and cycling as a means to access the metro stations. The walking and cycling facilities that are proposed as part of the preferred project have therefore been considered to be baseline facilities and are discussed below. The implementation of further walking and cycling facilities, as informed by the Walking and Cycling Strategy, would be considered as part of the detailed design. Further, the provision of interchange facilities, beyond those identified below, would be determined during the preparation of Interchange Access Plans to inform the final design of the transport and access facilities and services.

5.2 Marrickville Station

All existing facilities would be retained at Marrickville Station, including kiss and ride spaces and the existing taxi zone on Station Street, accessible parking on Station Street and the bike parking below the existing station stairs.

To minimise property acquisition, the additional bike parking proposed as part of the exhibited project does not form part of the preferred project. The need for, and location of, additional bike parking at the station would be informed by the Walking and Cycling Strategy and considered as part of detailed design.

The signalisation of Schwebel Street / Illawarra Street intersection and the zebra crossing proposed as part of the exhibited project, does not form part of the preferred project. The need to upgrade or improve pedestrian facilities would be informed by the Walking and Cycling Strategy and considered as part of detailed design. The signalised pedestrian crossing on Illawarra Road overbridge would be retained as part of the preferred project to accommodate safe pedestrian and cyclist access across Illawarra Road, therefore there would be no impact from the preferred project relative to the existing situation.

The exhibited project involved the construction of a new accessible ramp from the southern station entrance to Schwebel Street along Station Street. This does not form part of the preferred project. As such, no additional kiss and ride spaces would be provided and, due to the existing grade of Station Street, the existing kiss and ride and accessible parking spaces would continue to not be fully accessible to the station entrance. Opportunities for the inclusion of an accessible vehicular drop off point at the station entrance would be investigated as part of the detailed design.

5.3 Dulwich Hill Station

The EIS Technical Paper 1 noted that about 10 on-street parking spaces would be lost as a result of the proposed kerbside facilities on the southern side of Bedford Crescent. The preferred project would allow the existing on-street parking spaces on Bedford Crescent to be retained, including the existing accessible parking spaces. The changes would also mean that the accessible parking spaces would be located closer to the station entrance providing a positive impact. Further information about changes to parking impacts is provided in **Section 5.11 and 5.12** of this report.

The preferred project involves the upgrade of existing pedestrian pathways surrounding the station, including from Ewart Lane to Wardell Road and from Keith Lane to Bedford Crescent, creating a positive impact on pedestrian accessibility to the station. The future extension of the new elevated concourse to Ewart Lane would be safeguarded subject to detailed design.

The existing bike parking on Bedford Crescent would be retained and additional spaces provided, and would be located close to the proposed new station entrance. Additional bike parking would also be provided to the south of the existing station entrance, catering to the future bike parking demand.

As per the exhibited project, the preferred project would continue to provide improved interchange between light rail and the station platform.

Due to the retention of the existing station entrance, the existing bus stop locations provide closer access to the station than the exhibited project. The preferred project would therefore be neutral in terms of impact for public transport accessibility to the station compared to the current situation, but positive when compared to the exhibited project.

5.4 Hurlstone Park Station

The proposed accessible parking space on Duntroon Street would improve the legibility and accessibility of this space, when compared to the exhibited project, as it would be located closer to the southern station entrance which is a positive impact.

The exhibited project included new pedestrian crossings on Crinan Street and Duntroon Street. These crossings do not form part of the preferred project. The need to upgrade or improve pedestrian facilities would be informed by the Walking and Cycling Strategy and considered as part of detailed design.

As a new station entrance is not being provided as part of the preferred project, the proposed bike parking on Floss Street on the northern side of the station does not form part of the preferred project. However, additional bike parking would be provided at its existing location adjacent to the station entrance and would increase the availability of bike parking in close proximity to the station entrance. This therefore would result in a minor positive impact for cycle access from the preferred project.

5.5 Canterbury Station

The proposed relocation of kerbside facilities to the north-west along Broughton Street, when compared to the exhibited project, would enable the bus stop on the southern side of Broughton Street to be retained in its existing location, which would be accessible to the upgraded Broughton Street station entrance. The existing bus shelters on Broughton Street would also be refurbished. The impact for the preferred project would therefore be neutral compared to the exhibited project.

The relocated kerbside facilities would result in the loss of six untimed, on-street parking spaces in Broughton Street. The potential impacts associated with the loss of six spaces would be similar to that assessed in EIS Technical Paper 1, being a small proportion of the existing on-street parking located in the vicinity of the station.

As shown in Table 10.13 of the Environmental Impact Statement (Parking facilities at Canterbury Station) and Section 3 of EIS Technical Paper 1 (Local traffic and transport context), there are about 597 unrestricted on-street parking spaces and 107 unrestricted off-street parking spaces within 400 metres of the station. Although the existing demand for off-street / commuter parking is relatively high (represented by a utilisation rate of 86 per cent), there is considered to be a moderate demand for on-street spaces (a utilisation of 59 per cent). As a result, there would be some capacity to absorb the loss of these spaces. It is recognised that alternative parking may be located further from the customer's preferred destination which would be a minor negative impact.

The preferred project involves the provision of additional bike parking at the existing location on Canterbury Road, adjacent to the retained station entrance, as well as a new bike parking area on Broughton Street. As Broughton Street is identified as a cycle friendly route in the former Canterbury City Council's Cycleways Plan, this location is highly accessible. The preferred project would provide a minor positive impact for cycle access.

The design provides for a potential future station entrance on Charles Street, to enable access to platform 2.

5.6 Campsie Station

The retention of the existing station entrance would be more convenient for less mobile passengers as the retained and additional accessible parking spaces are located closer to the station entrance, and is therefore a positive impact. All passengers would also benefit from the Kiss and Ride facilities on South Parade being retained which would be located approximately the same distance from the station entrance as in the exhibited project.

As the existing station entrance would be retained, the provision of new bike parking to the south of the station (adjacent to the new station building) does not form part of the preferred project. However, the retention of the existing bike parking adjacent to the station entrance and the provision of additional bike parking on North Parade would offer relatively good access to the station.

The retained bus stops would be in close proximity to the retained station entrance, which would be neutral in respect to the public transport access impacts from the preferred project.

5.7 Belmore Station

The provision of kerbside facilities and bike parking identified for the preferred project is generally consistent with the locations in the exhibited project. New taxi and kiss and ride facilities would be provided on Tobruk Avenue, and a new accessible parking space would be provided in the Tobruk Avenue car park. However, the provision of additional kiss and ride spaces on the northern side of the station is no longer provided as the new northern station entrance does not form part of the preferred project.

The preferred project would retain the existing bus stops on Burwood Road in close proximity to the retained station entrance.

The signalisation of the Burwood Road / Tobruk Avenue intersection does not form part of the preferred project. However, the signalised pedestrian crossing on Burwood Road overbridge will be retained to accommodate safe pedestrian and cyclist access across, and as such there would be no impact from the preferred project relative to the existing situation.

5.8 Lakemba Station

The changes in the preferred project are relatively minor in relation to the traffic and transport impacts. The changes to the bike parking location is negligible in terms of access for cyclists. Relocation of these facilities would also improve the permeability and legibility of the lift access to the station.

Connectivity to other public transport is unchanged. The additional accessible parking spaces near the new station entrance as part of the exhibited project do not form part of the preferred project as the existing station entrance is being retained. There are three existing accessible parking spaces in close proximity to the existing station entrance, although there is not a fully accessible path of travel from these spaces to the station entrance. The preferred project includes the retention of the current arrangement and so does not constitute an adverse impact. Opportunities for the inclusion of an accessible vehicular drop off point would be investigated as part of the detailed design.

5.9 Wiley Park Station

The retained station entrance for the preferred project has a negligible impact on the access to the station for passengers when compared to the existing situation and the exhibited project. The preferred project would upgrade the existing pedestrian pathways surrounding the station, including an upgrade of the laneway to Stanlea Parade which would provide a positive impact for pedestrian accessibility to the station.

The bike parking locations provide easier access to the retained station entrance which would be a minor positive impact.

The proposed kerbside facilities on The Boulevarde have been re-arranged to provide the accessible parking spaces closer to the station entrance, improving accessibility.

5.10 Punchbowl Station

The impact of the preferred project relative to the assessment contained within EIS Technical Paper 1 is confined largely to the northern side of the station. The preferred project is very similar to the existing situation. As such, there would be minor impacts from the preferred project on walking, cycling or accessibility for those customers approaching or leaving to the north of the station. The additional pedestrian crossing at Punchbowl Road is however a positive impact that is being provided as part of the preferred project to improve access to the existing bus stops.

To the south, the retention of the bus stop adjacent to the station entrance is a positive impact for public transport users. The retention of the existing accessible parking spaces adjacent to the new lifts at the southern station entrance is also a positive impact for mobility impaired commuters. The provision of kiss and ride facilities is also a positive impact.

5.11 Changes to On-Street Parking

The number of on-street parking spaces (excluding time restricted parking) affected at each station as a result of the provision or reconfiguration of kerbside facilities from the exhibited project was summarised in Table 8.5 of EIS Technical Paper 1.

The preferred project has resulted in several changes compared to the exhibited project which have reduced the impacts on parking. The changes are summarised in **Table 5.1**.

Table 5.1 On-Street Parking Spaces Affected by Kerbside Facilities

Station	Parking Spaces Affected by Kerbside Facilities (Exhibited Project)	Parking Spaces Affected by Kerbside Facilities (Preferred Project)	Location of Impacts
Marrickville	2	0	Schwebel Street
Dulwich Hill	10	3	Bedford Crescent
Hurlstone Park	5	6	Duntroon Street (south) and Floss Street (east)
Canterbury	2	6	Broughton Street
Campsie	20	0	North Parade and South Parade
Belmore	5	5	Tobruk Avenue
Lakemba	7	7	Railway Parade
Wiley Park	10	10	The Boulevarde
Punchbowl	20	5	Urunga Parade and The Boulevarde
Bankstown	0	0	-
TOTAL	81	42	

As a result the impacts on parking from the preferred project are reduced compared to the exhibited project.

As noted in Section 11.5 of the Environmental Impact Statement (Approach to mitigation and management), Transport for NSW would work with local councils to minimise adverse impacts from adjustments to parking and other kerbside uses in local streets. This would include, for example, relocation of spaces to other kerbside areas, or consideration of kiss and ride facilities that are only available during specified periods of the day (such as the peak periods). In this situation, spaces would potentially be available at other times for short-term parking. Such an arrangement would minimise the loss of spaces for the majority of the day, but would ensure that kiss and ride facilities are provided during periods when they are most likely to be needed.

This commitment is confirmed by revised mitigation measure TO1, which provides for further consideration of car parking management at stations in consultation with relevant stakeholders. This consultation would be undertaken during detailed design to inform the final station layouts.

All stations are considered to have capacity within a 400 metre walking catchment to offset the loss of these spaces in the event that alternative arrangements cannot be identified.

5.12 Changes to Commuter Parking

An assessment of the operational impacts of station infrastructure on parking around the stations, including dedicated commuter parking and other on and off street parking, was provided in Section 11.4 of the Environmental Impact Statement (Impact assessment – operational traffic, transport and access).

Since exhibition, parking impacts have been reduced as a result of the changes to the preferred project relative to the exhibited project.

The updated estimates of operational commuter parking impacts as a result of new station infrastructure is summarised in **Table 5.2.**

Table 5.2 Commuter Parking Spaces Affected by the Preferred Project

Station	Exhibited Project (Reduction of Spaces)	Preferred Project (Reduction of Spaces)	Location of Impacts
Marrickville	0	0	-
Dulwich Hill	25[1]	0	Bedford Crescent and Ewart Lane Carpark
Hurlstone Park	0	0	-
Canterbury	0	0	-
Campsie	15[1]	0	North Parade and South Parade
Belmore	7[2]	0	Redman Avenue
Lakemba	16[2]	0	Railway Parade
Wiley Park	0	0	-
Punchbowl	23[1]	0	The Boulevarde carpark
Bankstown	10	10	The Appian Way
TOTAL	96	10	

Note 1: The Environmental Impact Statement identified the net loss or gain of commuter parking at these locations, taking into account where existing parking areas would be reconfigured or extended to provide offset commuter parking spaces. This table presents the impacts of the exhibited project without the provision of reconfigured parking areas at these locations to offset this impact.

Note 2: The commuter parking spaces lost at Belmore and Lakemba were incorrectly not identified in the exhibited Environmental Impact Statement. The seven commuter spaces to be removed at Belmore were to accommodate the northern station entrance and plaza as part of the exhibited project. The 16 commuter spaces to be removed at Lakemba were to provide for the active transport corridor and associated reconfiguration of the car park on The Boulevarde as part of the exhibited project.

The exhibited and preferred project aims to achieve a no net loss of dedicated commuter parking spaces located on NSW Government owned land between Marrickville and Bankstown stations. This commitment applies to parking that is not currently time restricted, and is formally line marked and / or signposted as a dedicated commuter car park zone or area.

The proposed loss of 10 dedicated commuter parking spaces (summarised above) would be offset by the provision of new commuter parking spaces at stations along the alignment. This commitment is confirmed by mitigation measure TO1, which provides for further consideration of car parking management at stations in consultation with relevant stakeholders. This consultation would be undertaken during detailed design to inform the final station layouts.

In addition, as per mitigation measure TO7, Transport for NSW commits to monitoring the demand for commuter car parking spaces between Bankstown and Marrickville stations, and continuing to consider opportunities for, and the implications of, meeting this demand. Where demand is not considered to be met, Transport for NSW would investigate ways to manage demand, subject to consideration of local station and town centre implications, including local traffic conditions.

6.0 Mitigation Measures

As a result of the assessment within this document, it is not proposed that any additional mitigation measures are required. Some modifications to mitigation measures identified for the exhibited project are required and these are provided in Table 6.1. The majority of these changes relate to removal of mitigation measure that are no longer relevant to the preferred project (i.e. management of bridge closures). New mitigation measures or additions to existing mitigation measures are shown in **bold** text, with deletions shown with a ~~strikethrough~~.

As noted in previous sections, the development of the Construction Traffic Management Plans and the monitoring that would occur with these, as detailed in EIS Technical Paper 1 would remain relevant for the preferred project.

Table 6-1 Revised environmental mitigation measures

ID	Impact	Mitigation measures
Design/pre-construction		
TC1	*Temporary transport arrangements*	Guided by the Temporary Transport Strategy, detailed temporary transport plan/s would be developed prior to construction to manage the movement of people along the T3 Bankstown Line during possession periods. The plans would be developed in consultation with key stakeholders (including the Sydney Coordination Office, Roads and Maritime Services, Sydney Trains, local councils, emergency services, and bus operators), and would address the requirements specified by the Temporary Transport Strategy. The development of each plan would consider, as a minimum: a review of the road network constraints along any proposed rail replacement bus route further traffic analysis of key intersections used by rail replacement buses potential impacts to local road networks affected by rail passengers diverting to cars to reach their destinations the design of temporary facilities at bus stop locations in consultation with the relevant road authority expected changes to parking demand at other stations, displacement of existing parking, and any upgrades that may be required.
TC2		Transport for NSW would consult with Roads and Maritime Services, the State Transit Authority, **the Inner West and Canterbury-Bankstown councils**, and bus operators, to identify opportunities to minimise impacts to bus layovers and existing bus stops during operation of rail replacement buses.
~~TC3~~		~~Detailed analysis of the network impacts of proposed bridge work would be undertaken, and management measures would be developed, in consultation with Roads and Maritime Services, and the Sydney Coordination Office. Measures would include restricting work to some bridges during off peak and/or holiday periods, where practicable, including the following bridges as a minimum:~~ ~~Charlotte Avenue underbridge~~ ~~Illawarra Road underbridge~~ ~~Burwood Road overbridge~~ ~~Haldon Street overbridge~~ ~~King Georges Road overbridge~~ ~~Stacey Street overbridge.~~

ID	Impact	Mitigation measures
TC3	*Impacts of bridge works*	The impacts on the surrounding road network of lane closures resulting from bridge works across the rail corridor would be assessed in detail, to identify the suite of management measures to be implemented for each closure required. This would be undertaken in consultation with Roads and Maritime Services, the Sydney Coordination Office, the Inner West and Canterbury-Bankstown councils, emergency services, and relevant bus operators. Planning for partial bridge closures would consider bus rerouting and timetabling, with the intention of minimising impacts to bus customers and bus operators.
~~TC6~~	~~*Pedestrian access to Belmore Sports Ground*~~	~~Work affecting the pedestrian underpass providing access to and from the Belmore Sports Ground would be timed, in consultation with the facility manager and owners, to ensure that suitable access is provided. This would include (if necessary) avoiding disruptions to access during events, such as game days at Belmore Oval. Local diversions would be put in place during periods of closure.~~
TC4	*Parking impacts during construction*	Opportunities to reduce the loss of existing on and off street car parking (including the amount of spaces reduced and the time associated with this reduction) would be reviewed during detailed design and construction planning.
TC5		Where parking spaces are lost or access is impeded, particularly for extended periods, alternative parking would be provided wherever feasible and reasonable. This would include consideration of other privately owned (or vacant) land within close proximity to affected stations.
TC6	*Impacts of intersection performance*	Further consideration of the need for intersection modifications would be undertaken, to improve intersection performance at locations most affected by the addition of construction heavy vehicles **and** rail replacement buses ~~and diverted traffic~~. This would be undertaken in consultation with Roads and Maritime Services, the Sydney Coordination Office, and the relevant road authority. The improvements considered would include: modification to the existing traffic signal phasing lane priority changes changing lane designations (line markings and signage) kerbside changes (such as removing on street parking or implementing no standing zones at peak times to increase lane capacity) physical geometric changes (such as minor kerb cut-backs to enable large vehicles to safely move through intersections) restricting turning movements where traffic demand is low.
TC7	*Changes to cyclist facilities during construction*	Where existing cycle facilities (e.g. bike parking) would be temporarily unavailable at a station, suitable replacement facilities would be provided while the facility is unavailable.
TO1	*Parking impacts during operation*	Further consideration of car parking management at stations would be undertaken in consultation with Roads and Maritime Services, the Sydney Coordination Office, and the Inner West and Canterbury-Bankstown councils, to minimise adverse impacts of operation on parking and other kerbside use in local streets.

ID	Impact	Mitigation measures
TO2	*Consideration of cross corridor connections*	Transport for NSW, in consultation with Canterbury-Bankstown Council, would investigate the feasibility of the provision of a cross-corridor connection between Bankstown and Punchbowl stations. Should a cross-corridor connection be deemed feasible, Transport for NSW would work with Canterbury-Bankstown Council and the Department of Planning and Environment to safeguard its future delivery.
Construction		
TC8	*Management of traffic, transport and access*	A construction traffic management plan would be prepared and implemented prior to construction. The plan would be prepared in accordance with the Construction Environmental Management Framework, and would detail, as a minimum: • how traffic would be managed when construction works are being carried out • the activities proposed and their impact on the road network and on road users • how these impacts would be addressed. The plan would be prepared in consultation with the Traffic and Transport Liaison Group, and would be approved by the relevant authority before construction commences.
TC9	*Changes to public transport services and alternative transport arrangements*	Modification of existing bus stops, or implementation of new stops and alterations to service patterns, would be carried out by Transport for NSW in consultation with the Sydney Coordination Office, Roads and Maritime Services, the Inner West and Canterbury-Bankstown councils, and bus operators.
TC10		• Transport for NSW would undertake an extensive community awareness and information campaign before changes to public transport services are implemented. This would include a range of communication activities such as: • information at stations • wayfinding signage • clearly marked bus stop locations • letter box drops • web based information and transport 'app' where changes to travel are found in a single place • information via 131 500 • advertising in local papers • email information bulletins.
TC13	*Impacts on intersection performance*	Intersection operation would be optimised, where reasonable and feasible, to improve intersection performance at the worst affected intersections along construction haulage routes and / or rail replacement bus routes. This may include modifying signal phase times or sequences at traffic signal controlled intersections.
TC11	*Impacts on special events*	Consideration of special events would be undertaken as part of construction work programming. For special events that require specific traffic and pedestrian management, measures would be developed and implemented in consultation with Roads and Maritime Services, the Inner West and Canterbury-Bankstown councils, and the organisers of the event.

ID	Impact	Mitigation measures
TC12	*Impacts of construction compounds and work sites*	Vehicle access to and from construction sites would be managed to ensure pedestrian, cyclist, and motorist safety. Depending on the location, this may require manual supervision, barrier placement, temporary traffic signals, modifications to existing traffic signals, or police assistance.
TC13	*Construction vehicles*	Construction vehicles (including contractor staff vehicles) would be managed to: minimise parking or queuing on public roads minimise use of residential streets to gain access to work sites or compounds minimise vehicle movements near schools, particularly during school start and finish times.
TC14	*Signage*	Directional signage and line marking would be used to direct and guide drivers, pedestrians, and other road users past construction compounds and work sites, and on the surrounding road network. This may be supplemented by variable message signs to advise drivers of potential delays, traffic diversions, speed restrictions, or alternate routes.
TC15	*Construction parking impacts*	Construction sites would be managed to minimise construction worker parking on surrounding streets. A worker car parking strategy would be developed in consultation with the relevant local council to identify measures to reduce the impact on the availability of on street and off street parking. The strategy would identify potential mitigation measures including alternative parking locations. The strategy would encourage contractor staff to: use public transport car share park in a designated off site area and access construction sites via shuttle bus.
TC16	*Traffic incidents*	In the event of a traffic related incident, co-ordination would be carried out with the Sydney Coordination Office and Transport Management Centre's Operations Manager.
TC17	*Changes to road, pedestrian and cyclist networks*	The community would be notified in advance of proposed road and pedestrian network changes through appropriate forms of community notification.
TC18	*Impacts on pedestrian or cyclist paths*	A condition survey would be undertaken to confirm changes to routes proposed to be used by pedestrians and / or cyclists are suitable (e.g. suitably paved and lit), with identified modification requirements discussed with the Inner West and / or Canterbury-Bankstown councils and implemented prior to use of the routes.

ID	Impact	Mitigation measures
TC19	*Pedestrian, cyclist and motorist safety*	Pedestrian, cyclist, and motorist safety in the vicinity of the construction sites would be addressed during construction planning and development of the construction traffic management plan. Measures that may be implemented to assist in multi modal traffic management include: speed awareness signs in conjunction with variable message signs near construction sites to provide alerts to drivers a community engagement program to provide road safety education and awareness to road users about sharing the road safely with heavy vehicles heavy vehicle training for drivers to understand route constraints, safety issues, and limiting the use of compression braking safety technology and equipment installed on heavy vehicles to enhance vehicle visibility, eliminate vehicles' blind spots, and monitor vehicle location, speeding compliance, and driver behaviour.
TC20	*Impacts to access*	Access for residents, businesses, and community infrastructure would be maintained. Where disruption to access cannot be avoided, consultation would be undertaken with the owners and occupants of affected properties, to confirm their access requirements and to discuss alternatives.
TC21		Access to stations and surrounding properties for emergency vehicles would be provided at all times. Emergency service providers (i.e. police and ambulance) would be consulted throughout construction to ensure they are aware of **station closures**, changes to access, including **bridge** lane~~, bridge or road~~ closures, and changes to station or rail corridor access.
TC22	*Co-ordination of cumulative traffic effects*	The potential cumulative effects of construction traffic from multiple construction sites within the project ~~(including bridge works)~~ would be further considered during development of the construction traffic management plan. Where there is potential for cumulative impacts across the project, these issues would be addressed with the assistance of the Traffic and Transport Liaison Group.
Operation		
TO3	*Walking and Cycling*	Transport for NSW would **develop a Walking and Cycling Strategy in consultation with Inner West Council, Canterbury-Bankstown Council and other relevant stakeholders, which would identify walking and cycling facilities to encourage active transport to the station precincts.** ~~work with the Inner West and Canterbury-Bankstown councils to identify and provide improvements and minimise adverse impacts to the surrounding pedestrian network.~~
~~TO4~~	~~*Cycling*~~	~~Transport for NSW would work with the Inner West and Canterbury-Bankstown councils and other relevant stakeholders to enhance areas around stations for cyclists.~~
TO4	*Bus*	Transport for NSW would work with the Sydney Co-ordination Office, Roads and Maritime Services, the Inner West and Canterbury-Bankstown councils, and bus operators to identify improvements to bus stops and services.

ID	Impact	Mitigation measures
~~TO6~~	*~~Active transport corridor~~*	~~Transport for NSW would work with, the Department of Planning and Environment, and, to support the development of an active transport corridor along the alignment, including walking and cycling infrastructure. Transport for NSW would deliver sections of the active transport corridor around stations.~~
TO5	*Commuter parking*	Transport for NSW would monitor the demand for additional commuter car parking spaces and consider opportunities for, and implications of, meeting this demand between Bankstown and Marrickville stations. Transport for NSW would investigate ways to manage demand, ~~consider provision for additional commuter car parking,~~ subject to consideration of local station and town centre implications, including local traffic conditions.

Appendix A

Detailed Intersection Assessment Diagrams

Sydenham Area

Traffic volume diagrams for modelled intersections (measured in number of vehicles)

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	336	239	-	0
PM	342	314	-	0
AM	1487	1058	-	55
PM	1136	1046	-	55

95%ile Observed Queue	E	S
AM Peak (m)	53	0
PM Peak (m)	65	0

	AM	PM
2023 (Typical)	827	1463
2023 (Dec/Jan)	591	1347
Construction	-	-
Refined TTS	55	55

	AM	PM	AM	PM
2023 (Typical)	895	744	374	301
2023 (Dec/Jan)	639	686	239	274
Construction	-	-	-	-
Refined TTS	0	0	55	55

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	10	9	-	0
PM	36	34	-	0
AM	2	1	-	0
PM	3	3	-	0
AM	5	3	-	0
PM	10	9	-	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	241	154	-	55
PM	528	481	-	55
AM	24	17	-	0
PM	40	37	-	0

95%ile Observed Queue	N	S	E	W
AM Peak (m)	70	46	65	11
PM Peak (m)	124	86	121	25

	AM	PM
2023 (Typical)	603	942
2023 (Dec/Jan)	389	858
Construction	-	-
Refined TTS	0	0

	AM	PM	AM	PM	AM	PM
2023 (Typical)	264	92	642	546	109	69
2023 (Dec/Jan)	187	85	458	503	70	63
Construction	-	-	-	-	-	-
Refined TTS	0	0	0	0	0	0

95%ile Observed Queue	N	S	E	W
AM Peak (m)	117	35	63	74
PM Peak (m)	59	65	82	27

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	1	1	-	0
PM	1	1	-	0
AM	321	206	-	0
PM	171	155	-	0
AM	39	28	-	0
PM	32	29	-	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	27	17	-	0
PM	75	68	-	0
AM	348	248	-	0
PM	673	620	-	0
AM	52	37	-	0
PM	67	62	-	0

	AM	PM	AM	PM	AM	PM
2023 (Typical)	30	171	401	745	52	46
2023 (Dec/Jan)	21	157	261	679	33	41
Construction	-	-	-	-	-	-
Refined TTS	0	0	0	0	0	0

Marrickville Area

Traffic volume diagrams for modelled intersections (measured in number of vehicles)

Note:

Bridges NBD - Northbound traffic to be split 50% to Charlotte Avenue Underbridge and 50% to Livingstone Road Overbridge.

Bridges SBD - Southbound traffic to be split 50% to Charlotte

	AM	PM	AM	PM	AM	PM
2023 (Typical)	17	40	89	257	16	22
2023 (Dec/Jan)	12	37	63	236	10	20
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	0	0

95%ile Observed Queue	N	S	E	W
AM Peak (m)	21	103	54	96
PM Peak (m)	65	67	82	60

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	75	48	0	0
PM	47	43	0	0
AM	716	463	0	40
PM	379	346	0	40
AM	55	39	0	0
PM	102	93	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	9	6	0	0
PM	11	10	0	0
AM	351	252	0	40
PM	672	619	0	40
AM	93	67	13	15
PM	172	159	13	15

	AM	PM	AM	PM	AM	PM
2023 (Typical)	28	40	280	145	207	128
2023 (Dec/Jan)	20	37	180	132	137	117
Construction	0	0	0	0	13	13
Refined TTS	0	0	0	0	15	15

	AM	PM	AM	PM	AM	PM
2023 (Typical)	99	185	163	460	57	34
2023 (Dec/Jan)	74	176	119	435	39	33
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	200	135	0	0
PM	150	141	0	0
AM	524	347	0	55
PM	266	249	0	55
AM	32	24	0	0
PM	86	82	0	0

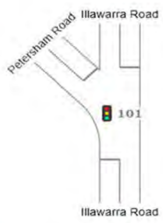
	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	44	30	0	0
PM	47	44	0	0
AM	271	199	0	55
PM	542	513	0	55
AM	71	52	0	0
PM	327	309	0	0

95%ile Observed Queue	N	S	E	W
AM Peak (m)	65	128	51	128
PM Peak (m)	123	117	175	75

	AM	PM	AM	PM	AM	PM
2023 (Typical)	52	59	387	204	276	170
2023 (Dec/Jan)	38	56	254	191	181	159
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	0	0

	AM	PM	AM	PM
2023 (Typical)	31	74	207	600
2023 (Dec/Jan)	20	68	148	552
Construction	0	0	13	13
Refined TTS	0	0	15	15

	AM	PM	AM	PM
2023 (Typical)	214	202	74	35
2023 (Dec/Jan)	152	186	47	32
Construction	0	0	0	0
Refined TTS	0	0	0	0



95%ile Observed Queue	W	N	S
AM Peak (m)	57	78	63
PM Peak (m)	56	78	35

	AM	PM	AM	PM
2023 (Typical)	208	127	538	343
2023 (Dec/Jan)	133	117	349	313
Construction	0	0	13	13
Refined TTS	0	0	15	15

	AM	PM
2023 (Typical)	415	794
2023 (Dec/Jan)	294	730
Construction	13	13
Refined TTS	15	15

	AM	PM
2023 (Typical)	726	463
2023 (Dec/Jan)	465	422
Construction	13	13
Refined TTS	15	15

	AM	PM	AM	PM	AM	PM
2023 (Typical)	18	53	284	735	15	18
2023 (Dec/Jan)	12	49	204	677	10	16
Construction	0	0	13	13	0	0
Refined TTS	15	15	0	0	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	33	21	0	15
PM	39	36	0	15
AM	137	87	0	0
PM	113	103	0	0
AM	171	122	0	0
PM	171	158	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	75	48	0	0
PM	98	89	0	0
AM	119	85	0	0
PM	188	173	0	0
AM	12	9	0	0
PM	28	26	0	0

	AM	PM	AM	PM
2023 (Typical)	22	24	660	379
2023 (Dec/Jan)	16	22	424	345
Construction	0	0	13	13
Refined TTS	0	0	0	0

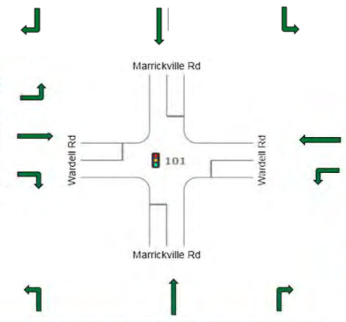
95%ile Observed Queue	N	S	E	W
AM Peak (m)	81	68	61	96
PM Peak (m)	75	89	96	54

Dulwich Hill Area (Map 1)

Traffic volume diagrams for modelled intersections (measured in number of vehicles)

	AM	PM	AM	PM	AM	PM
2023 (Typical)	33	55	600	257	38	42
2023 (Dec/Jan)	26	58	477	273	27	44
Construction	0	0	0	0	0	0
Refined TTS	0	0	25	25	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	19	13	0	0
PM	40	42	0	0
AM	387	276	0	0
PM	256	268	0	0
AM	160	126	9	15
PM	100	106	9	15

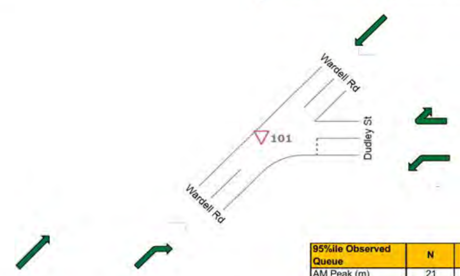


	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	201	158	0	0
PM	523	554	0	0
AM	50	39	0	0
PM	33	35	0	0

95%ile Observed Queue	N	S	E	W
AM Peak (m)	127	42	57	140
PM Peak (m)	57	99	119	70

	AM	PM	AM	PM	AM	PM
2023 (Typical)	100	253	304	483	22	37
2023 (Dec/Jan)	71	268	218	507	16	39
Construction	9	9	0	0	0	0
Refined TTS	15	15	25	25	0	0

	AM	PM	AM	PM
2023 (Typical)	425	827	35	38
2023 (Dec/Jan)	302	761	23	35
Construction	0	0	0	0
Refined TTS	15	15	0	0



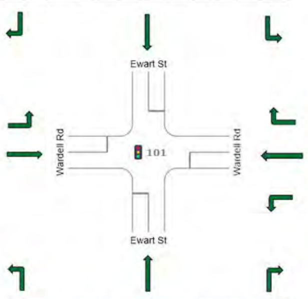
	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	25	16	0	0
PM	27	24	0	0
AM	57	42	0	15
PM	78	72	0	15

95%ile Observed Queue	N	E	W
AM Peak (m)	21	7	91
PM Peak (m)	92	14	29

	AM	PM	AM	PM
2023 (Typical)	758	529	21	28
2023 (Dec/Jan)	487	481	15	26
Construction	0	0	0	0
Refined TTS	15	15	15	15

	AM	PM	AM	PM	AM	PM
2023 (Typical)	76	97	248	227	174	99
2023 (Dec/Jan)	54	89	197	208	94	90
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	30	30

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	25	16	0	0
PM	17	15	0	0
AM	638	412	0	0
PM	379	346	0	0



	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	54	34	15	30
PM	116	106	15	30
AM	345	246	0	0
PM	798	734	0	0
AM	32	23	0	0
PM	46	42	0	0

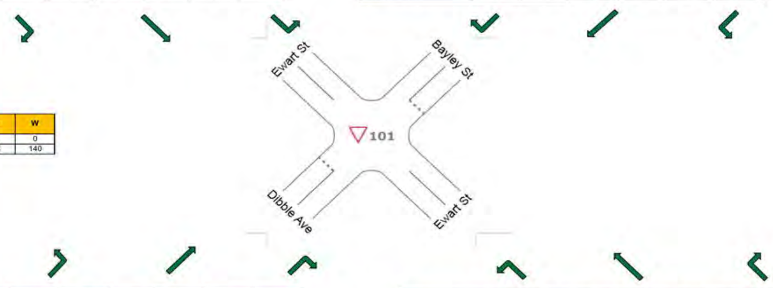
95%ile Observed Queue	N	S	E	W
AM Peak (m)	107	70	135	170
PM Peak (m)	91	103	235	109

	AM	PM	AM	PM	AM	PM
2023 (Typical)	52	105	158	298	24	59
2023 (Dec/Jan)	37	97	102	271	15	54
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	0	0

	AM	PM	AM	PM	AM	PM
2023 (Typical)	2	19	346	264	1	16
2023 (Dec/Jan)	1	18	245	243	2	14
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	0	0

	AM	PM	AM	PM	AM	PM
2023 (Typical)	9	20	1	8	35	41
2023 (Dec/Jan)	6	18	1	7	27	38
Construction	0	0	0	0	2	2
Refined TTS	0	0	0	0	15	15

95%ile Observed Queue	N	S	E	W
AM Peak (m)	14	7	3	0
PM Peak (m)	17	7	48	140



	AM	PM	AM	PM	AM	PM
2023 (Typical)	12	9	6	3	17	12
2023 (Dec/Jan)	7	8	4	3	12	11
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	0	0

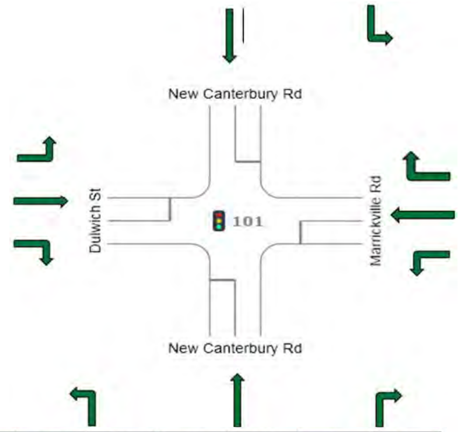
	AM	PM	AM	PM	AM	PM
2023 (Typical)	6	17	254	449	16	21
2023 (Dec/Jan)	4	16	163	408	12	20
Construction	0	0	0	0	2	2
Refined TTS	0	0	0	0	15	15

Dulwich Hill Area (Map 2)

Traffic volume diagrams for modelled intersections measured in number of vehicles

	AM	PM	AM	PM
2023 (Typical)	408	1086	82	86
2023 (Dec/Jan)	292	1000	52	78
Construction	0	0	0	0
Refined TTS	0	0	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	16	11	0	0
PM	9	8	0	0
AM	133	88	0	0
PM	78	72	0	0
AM	7	5	0	0
PM	4	4	0	0

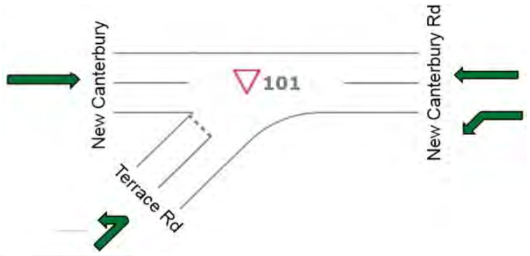


	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	63	40	0	0
PM	55	50	0	0
AM	62	44	0	0
PM	65	60	0	0
AM	198	144	0	25
PM	339	313	0	25

95%ile Observed Queue	N	S	E	W
AM Peak (m)	145	121	45	144
PM Peak (m)	140	147	93	86

	AM	PM	AM	PM	AM	PM
2023 (Typical)	6	6	1211	644	459	228
2023 (Dec/Jan)	4	5	783	587	296	208
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	25	25

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	1712	1107	0	25
PM	860	784	0	25



	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	671	482	0	25
PM	1430	1317	0	25
AM	24	17	16	0
PM	117	108	16	0

	AM	PM
2023 (Typical)	87	85
2023 (Dec/Jan)	62	78
Construction	16	16
Refined TTS	0	0

95%ile Observed Queue	S	E	W
AM Peak (m)	14	17	48
PM Peak (m)	28	14	28

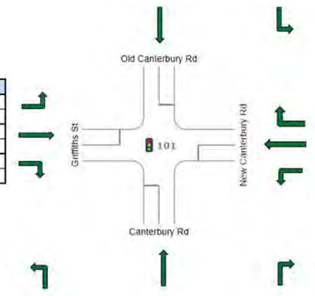
Hurlstone Park Area

Traffic volume diagrams for modelled intersections (measured in number of vehicles)

95%ile Observed Queue	N	S	E	W
AM Peak (m)	67	140	117	91
PM Peak (m)	110	105	140	65

	AM	PM	AM	PM
2023 (Typical)	466	852	31	48
2023 (Dec/Jan)	325	784	19	44
Construction	34	34	0	0
Refined TTS	0	0	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	16	10	0	0
PM	11	10	0	0
AM	333	208	0	0
PM	345	314	0	0
AM	10	7	0	0
PM	26	24	0	0

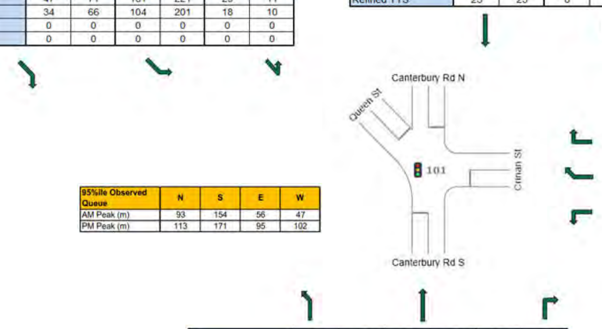


	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	26	16	0	0
PM	36	33	0	0
AM	285	197	0	0
PM	472	434	0	0
AM	393	283	0	25
PM	758	698	0	25

	AM	PM	AM	PM	AM	PM
2023 (Typical)	34	26	761	637	961	560
2023 (Dec/Jan)	24	24	479	580	623	511
Construction	0	0	34	34	0	0
Refined TTS	0	0	0	0	25	25

	AM	PM	AM	PM	AM	PM
2023 (Typical)	47	71	161	221	29	11
2023 (Dec/Jan)	34	66	104	201	18	10
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	0	0

	AM	PM	AM	PM
2023 (Typical)	861	1516	18	87
2023 (Dec/Jan)	617	1396	12	79
Construction	0	0	17	17
Refined TTS	25	25	0	0



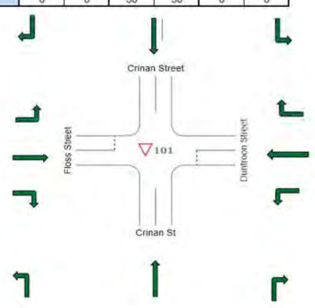
95%ile Observed Queue	N	S	E	W
AM Peak (m)	93	154	56	47
PM Peak (m)	113	171	95	102

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	34	23	17	0
PM	28	25	17	0
AM	238	171	0	0
PM	218	201	0	0
AM	71	51	0	15
PM	106	98	0	15

	AM	PM	AM	PM	AM	PM
2023 (Typical)	87	64	1679	1168	97	105
2023 (Dec/Jan)	59	59	1086	1065	63	95
Construction	0	0	0	0	0	0
Refined TTS	0	0	25	25	15	15

	AM	PM	AM	PM	AM	PM
2023 (Typical)	9	16	333	271	116	66
2023 (Dec/Jan)	7	14	214	247	75	60
Construction	8	8	8	8	0	0
Refined TTS	0	0	30	30	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	1	1	8	0
PM	13	12	8	0
AM	1	1	0	0
PM	8	7	0	0
AM	1	1	0	0
PM	9	8	0	0



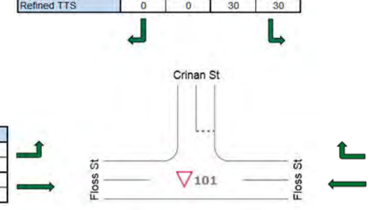
	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	51	36	0	0
PM	57	52	0	0
AM	5	3	0	0
PM	8	7	0	0
AM	25	16	0	0
PM	33	30	0	0

	AM	PM	AM	PM	AM	PM
2023 (Typical)	23	11	240	259	31	41
2023 (Dec/Jan)	16	10	172	239	20	38
Construction	0	0	8	8	0	0
Refined TTS	0	0	30	30	0	0

95%ile Observed Queue	N	S	E	W
AM Peak (m)	7	2	3	7
PM Peak (m)	7	5	7	3

	AM	PM	AM	PM
2023 (Typical)	28	48	345	258
2023 (Dec/Jan)	21	44	221	235
Construction	8	8	0	0
Refined TTS	0	0	30	30

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	53	34	8	0
PM	46	42	8	0
AM	63	40	0	0
PM	50	46	0	0

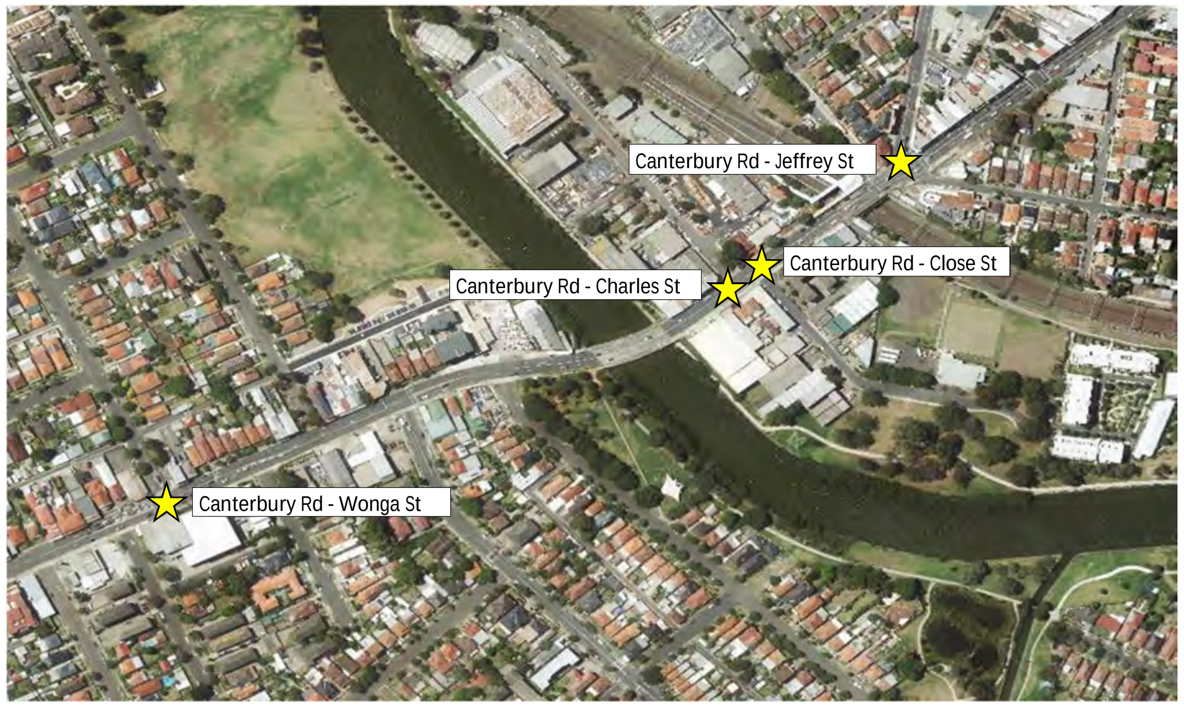


	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	255	165	0	30
PM	256	233	0	30
AM	29	21	0	0
PM	54	49	0	0

95%ile Observed Queue	N	E	W
AM Peak (m)	21	7	0
PM Peak (m)	14	7	0

Canterbury Area (Map 1)

Traffic volume diagrams for modelled intersections (measured in number of vehicles)



	AM	PM	AM	PM
2023 (Typical)	84	126	340	326
2023 (Dec/Jan)	60	116	219	297
Construction	0	0	0	0
Refined TTS	0	0	40	40

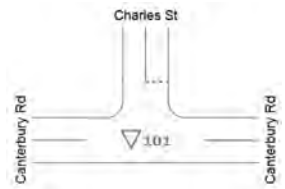
	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	17	11	0	0
PM	72	65	0	0
AM	1866	1206	13	0
PM	1346	1226	13	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	258	167	0	40
PM	463	422	0	40
AM	1160	825	19	0
PM	1761	1622	19	0

95%ile Observed Queue	N	E	W
AM Peak (m)	140	387	244
PM Peak (m)	152	593	215

	AM	PM	AM	PM
2023 (Typical)	4	4	23	23
2023 (Dec/Jan)	3	4	15	21
Construction	0	0	2	2
Refined TTS	0	0	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	22	14	2	0
PM	40	36	2	0
AM	2091	1353	11	40
PM	1618	1474	11	40

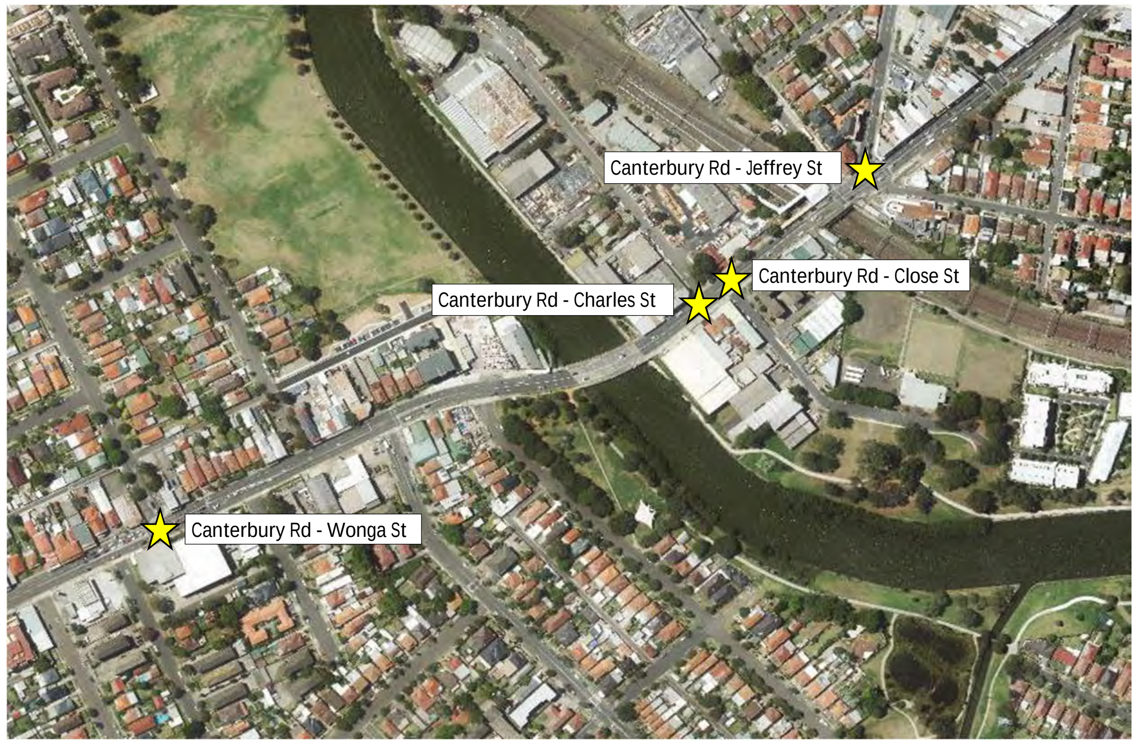


	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	12	8	0	0
PM	18	16	0	0
AM	1290	921	16	40
PM	2167	1995	16	40

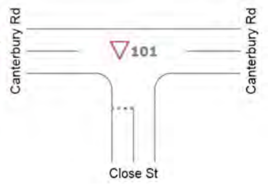
95%ile Observed Queue	N	W
AM Peak (m)	11	123
PM Peak (m)	7	89

Canterbury Area (Map 2)

Traffic volume diagrams for modelled intersections (measured in number of vehicles)



	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	2091	1353	13	40
PM	1618	1474	13	40
AM	1	1	0	0
PM	12	11	0	0



	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	1290	921	0	40
PM	2167	1995	0	40
AM	1	1	19	0
PM	15	14	19	0

95%ile Observed Queue	S	E
AM Peak (m)	7	28
PM Peak (m)	7	67

	AM	PM
2023 (Typical)	22	20
2023 (Dec/Jan)	16	18
Construction	19	19
Refined TTS	0	0

	AM	PM	AM	PM	AM	PM	AM	PM
2023 (Typical)	139	202	16	8	32	27	2	2
2023 (Dec/Jan)	99	186	11	7	25	25	1	2
Construction	0	0	0	0	11	11	0	0
Refined TTS	0	0	0	0	0	0	0	0

	AM	PM	AM	PM	AM	PM
2023 (Typical)	247	351	9	10	23	20
2023 (Dec/Jan)	177	323	6	9	15	18
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	31	20	11	0
PM	26	24	11	0
AM	294	194	2	0
PM	324	295	2	0
AM	1818	1172	0	40
PM	1302	1186	0	40

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	13	9	0	0
PM	20	19	0	0
AM	931	663	19	40
PM	1703	1568	19	40
AM	13	11	0	0
PM	23	21	0	0

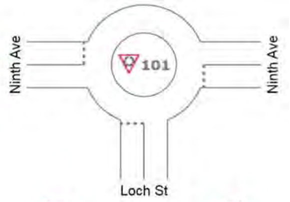
95%ile Observed Queue	N	NE	E	W
AM Peak (m)	39	70	98	112
PM Peak (m)	72	103	98	112

Campsie Area (Map 1)

Traffic volume diagrams for modelled intersections (measured in number of vehicles)

95%ile Observed Queue	S	E	W
AM Peak (m)	63	68	90
PM Peak (m)	73	85	45

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	323	207	0	15
PM	280	254	0	15
AM	400	284	0	0
PM	368	338	0	0



	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	222	158	0	15
PM	315	289	0	15
AM	472	336	0	0
PM	648	597	0	0

	AM	PM	AM	PM
2023 (Typical)	244	370	510	435
2023 (Dec/Jan)	196	384	370	447
Construction	0	0	0	0
Refined TTS	0	0	0	0

	AM	PM	AM	PM
2023 (Typical)	111	207	337	483
2023 (Dec/Jan)	79	191	245	446
Construction	0	0	0	0
Refined TTS	0	0	0	0

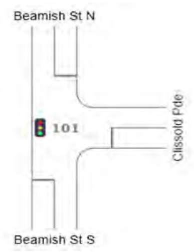
	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	324	208	0	0
PM	207	189	0	0
AM	351	250	0	15
PM	372	342	0	15

95%ile Observed Queue	N	S	W
AM Peak (m)	56	90	86
PM Peak (m)	87	96	72

	AM	PM	AM	PM
2023 (Typical)	421	412	400	383
2023 (Dec/Jan)	300	379	266	350
Construction	0	0	15	15
Refined TTS	15	15	0	0

	AM	PM	AM	PM
2023 (Typical)	683	726	50	72
2023 (Dec/Jan)	490	669	32	66
Construction	0	0	0	0
Refined TTS	40	40	0	0

95%ile Observed Queue	N	S	E
AM Peak (m)	168	191	32
PM Peak (m)	184	186	44



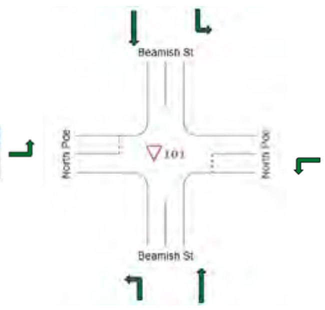
	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	43	28	0	0
PM	113	103	0	0
AM	53	38	0	0
PM	72	66	0	0

	AM	PM	AM	PM
2023 (Typical)	740	660	71	121
2023 (Dec/Jan)	484	302	46	110
Construction	15	15	0	0
Refined TTS	40	40	0	0

Campsie Area (Map 2)

Traffic volume diagrams for modelled intersections (measured in number of vehicles)

	AM	PM	AM	PM
2023 (Typical)	710	703	38	33
2023 (Dec/Jan)	512	661	24	30
Construction	0	0	0	0
Refined TTS	40	40	0	0



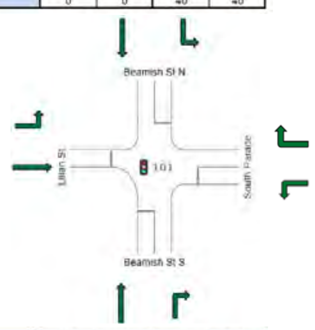
	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	61	43	8	0
PM	48	44	8	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	38	27	0	0
PM	38	36	0	0

95%ile Observed Queue	N	S	E	W
AM Peak (m)	16	7	9	16
PM Peak (m)	44	9	20	14

	AM	PM	AM	PM
2023 (Typical)	53	64	687	727
2023 (Dec/Jan)	38	60	449	676
Construction	8	8	8	8
Refined TTS	25	25	15	15

	AM	PM	AM	PM
2023 (Typical)	513	618	207	193
2023 (Dec/Jan)	369	570	133	176
Construction	0	0	0	0
Refined TTS	0	0	40	40



	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	40	26	8	0
PM	43	39	8	0
AM	52	33	0	0
PM	39	35	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	134	87	0	40
PM	122	114	0	40
AM	52	41	2	0
PM	35	34	2	0

95%ile Observed Queue	N	S	E	W
AM Peak (m)	159	147	54	32
PM Peak (m)	196	158	49	26

	AM	PM	AM	PM
2023 (Typical)	620	631	13	11
2023 (Dec/Jan)	403	575	13	11
Construction	8	8	0	0
Refined TTS	0	0	0	0

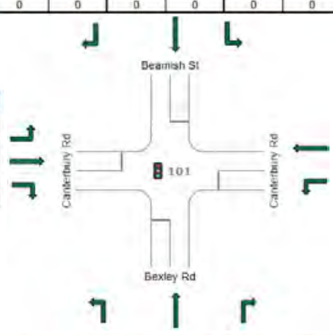
	AM	PM	AM	PM
2023 (Typical)	4	2	580	651
2023 (Dec/Jan)	3	2	422	601
Construction	0	0	2	2
Refined TTS	0	0	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	40	26	0	0
PM	88	80	0	0

95%ile Observed Queue	N	S	W
AM Peak (m)	70	83	17
PM Peak (m)	66	112	38

	AM	PM	AM	PM
2023 (Typical)	82	113	550	545
2023 (Dec/Jan)	58	104	364	498
Construction	0	0	8	8
Refined TTS	0	0	0	0

	AM	PM	AM	PM	AM	PM
2023 (Typical)	76	130	420	434	55	51
2023 (Dec/Jan)	37	120	304	400	56	47
Construction	2	2	0	0	0	0
Refined TTS	0	0	0	0	0	0



	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	81	55	8	0
PM	100	92	8	0
AM	1487	961	0	0
PM	1044	951	0	0
AM	302	215	0	0
PM	191	175	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	784	560	0	0
PM	1154	1063	0	0
AM	291	207	0	0
PM	195	179	0	0

95%ile Observed Queue	N	S	E	W
AM Peak (m)	90	104	104	126
PM Peak (m)	105	112	112	128

	AM	PM	AM	PM	AM	PM
2023 (Typical)	96	99	658	462	392	392
2023 (Dec/Jan)	69	91	426	422	252	357
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	0	0

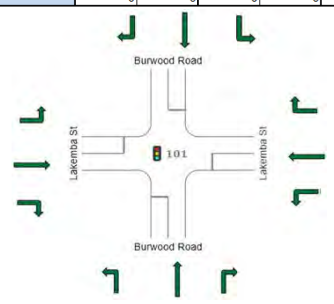
Belmore Area

Traffic volume diagrams for modelled intersections (measured in number of vehicles)

	AM	PM	AM	PM	AM	PM
2023 (Typical)	42	54	513	654	57	51
2023 (Dec/Jan)	30	50	364	602	36	46
Construction	9	9	0	0	0	0
Refined TTS	0	0	0	0	0	0

95%ile Observed Queue	N	S	E	W
AM Peak (m)	89	116	48	143
PM Peak (m)	56	96	56	103

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	63	40	0	0
PM	61	56	0	0
AM	443	284	0	0
PM	350	319	0	0
AM	129	92	10	0
PM	124	114	10	0

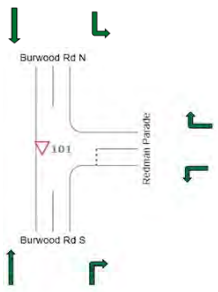


	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	53	34	0	0
PM	65	59	0	0
AM	274	195	0	0
PM	394	362	0	0
AM	95	67	0	15
PM	98	90	0	15

	AM	PM	AM	PM	AM	PM
2023 (Typical)	82	99	504	539	45	68
2023 (Dec/Jan)	58	91	323	490	29	62
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	15	15

	AM	PM	AM	PM
2023 (Typical)	723	782	62	58
2023 (Dec/Jan)	513	719	40	53
Construction	10	10	0	0
Refined TTS	15	15	0	0

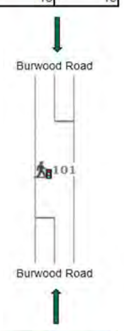
95%ile Observed Queue	N	S	E
AM Peak (m)	229	215	65
PM Peak (m)	249	215	75



	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	17	11	0	0
PM	22	20	0	0
AM	151	107	0	0
PM	182	167	0	0

	AM	PM	AM	PM
2023 (Typical)	628	628	183	123
2023 (Dec/Jan)	402	571	117	112
Construction	10	10	0	0
Refined TTS	15	15	0	0

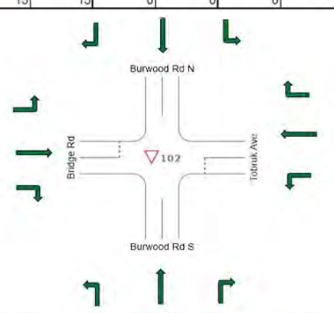
	AM	PM
2023 (Typical)	802	1005
2023 (Dec/Jan)	569	915
Construction	10	10
Refined TTS	15	15



	AM	PM
2023 (Typical)	939	784
2023 (Dec/Jan)	667	713
Construction	10	10
Refined TTS	15	15

	AM	PM	AM	PM	AM	PM
2023 (Typical)	132	137	628	653	101	105
2023 (Dec/Jan)	94	126	446	601	65	97
Construction	0	0	10	10	0	0
Refined TTS	15	15	0	0	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	181	116	0	15
PM	143	130	0	15
AM	7	4	0	0
PM	6	5	0	0
AM	31	22	2	0
PM	38	35	2	0



	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	3	2	0	0
PM	9	8	0	0
AM	1	1	0	0
PM	7	6	0	0
AM	10	7	0	0
PM	8	7	0	0

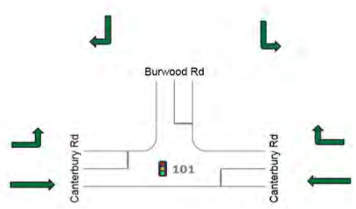
95%ile Observed Queue	N	S	E	W
AM Peak (m)	163	268	5	44
PM Peak (m)	284	203	11	40

	AM	PM	AM	PM	AM	PM
2023 (Typical)	58	77	656	549	54	53
2023 (Dec/Jan)	41	71	420	500	35	48
Construction	2	2	10	10	0	0
Refined TTS	0	0	0	0	0	0

	AM	PM	AM	PM
2023 (Typical)	115	188	103	124
2023 (Dec/Jan)	82	173	66	113
Construction	0	0	0	0
Refined TTS	0	0	0	0

95%ile Observed Queue	N	E	W
AM Peak (m)	74	61	98
PM Peak (m)	61	61	112

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	78	50	0	0
PM	56	51	0	0
AM	1586	1015	0	0
PM	1104	1005	0	0



	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	198	127	0	0
PM	242	220	0	0
AM	694	493	0	0
PM	1392	1281	0	0

Lakemba Area

Traffic volume diagrams for modelled intersections (measured in number of vehicles)

Wangee Rd

Lakemba St

	AM	PM	AM	PM
2023 (Typical)	382	464	75	100
2023 (Dec/Jan)	272	427	46	91
Construction	0	0	0	0
Refined TTS	0	0	0	0

95%ile Observed Queue	N	E	W
AM Peak (m)	82	48	37
PM Peak (m)	121	49	11

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	407	262	0	0
PM	337	307	0	0
AM	515	331	0	0
PM	409	372	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	51	32	0	0
PM	69	63	0	0
AM	299	214	0	0
PM	521	480	0	0

Lakemba St

Haldon St

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	570	365	0	0
PM	491	447	0	0
AM	216	154	0	0
PM	195	179	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	282	201	0	0
PM	539	496	0	0
AM	381	272	0	0
PM	418	385	0	0

95%ile Observed Queue	S	E	W
AM Peak (m)	63	3	63
PM Peak (m)	63	39	49

	AM	PM	AM	PM
2023 (Typical)	147	200	333	262
2023 (Dec/Jan)	105	185	215	239
Construction	0	0	0	0
Refined TTS	0	0	0	0

Haldon St

Railway Pde

	AM	PM	AM	PM	AM	PM
2023 (Typical)	44	29	548	523	29	46
2023 (Dec/Jan)	31	27	391	482	18	42
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	0	0

95%ile Observed Queue	N	S	E	W
AM Peak (m)	60	56	21	32
PM Peak (m)	63	53	28	35

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	51	33	0	0
PM	36	33	0	0
AM	16	10	0	0
PM	11	10	0	0
AM	68	49	3	0
PM	93	86	3	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	5	3	0	0
PM	4	4	0	0
AM	11	8	0	0
PM	18	16	0	0
AM	76	54	5	0
PM	119	110	5	0

	AM	PM	AM	PM	AM	PM
2023 (Typical)	129	186	449	406	66	55
2023 (Dec/Jan)	92	171	290	370	55	50
Construction	3	3	0	0	5	5
Refined TTS	0	0	0	0	0	0

The Blvd

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	640	411	0	15
PM	529	481	0	15

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	470	334	0	15
PM	638	587	0	15

Haldon St N

Haldon St S

The Boulevarde W

The Boulevarde E

	AM	PM	AM	PM	AM	PM
2023 (Typical)	238	253	358	349	145	162
2023 (Dec/Jan)	169	253	256	349	94	162
Construction	0	0	8	8	0	0
Refined TTS	0	0	0	0	0	0

95%ile Observed Queue	N	S	E	W
AM Peak (m)	135	96	65	107
PM Peak (m)	138	81	95	103

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	297	191	0	0
PM	277	252	0	0
AM	261	167	0	15
PM	186	169	0	15
AM	65	46	5	0
PM	52	48	5	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	87	57	0	0
PM	138	126	0	0
AM	157	111	0	15
PM	258	237	0	15
AM	38	27	9	0
PM	49	45	9	0

New right turn

	AM	PM	AM	PM
2023 (Typical)	64	109	391	306
2023 (Dec/Jan)	46	100	252	278
Construction	7	7	8	8
Refined TTS	0	0	0	0

Haldon St

Canterbury Rd

	AM	PM	AM	PM
2023 (Typical)	261	311	61	74
2023 (Dec/Jan)	186	286	40	68
Construction	11	11	11	11
Refined TTS	0	0	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	181	118	7	0
PM	189	172	7	0
AM	1655	1061	0	0
PM	1230	1120	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	84	55	8	0
PM	109	99	8	0
AM	810	576	0	0
PM	1457	1342	0	0

95%ile Observed Queue	N	E	W
AM Peak (m)	53	70	105
PM Peak (m)	62	83	95

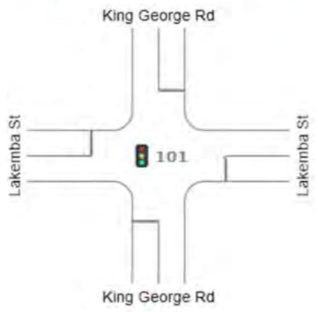
Wiley Park Area

Traffic volume diagrams for modelled intersections (measured in number of vehicles)

	AM	PM	AM	PM
2023 (Typical)	2304	2472	128	108
2023 (Dec/Jan)	1682	2400	83	101
Construction	0	0	0	0
Refined TTS	0	0	0	0

95%ile Observed Queue	N	S	E	W
AM Peak (m)	206	83	56	69
PM Peak (m)	349	21	195	49

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	17	12	8	0
PM	10	10	8	0
AM	248	158	0	0
PM	137	127	0	0
AM	101	72	0	0
PM	64	60	0	0



	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	66	42	0	0
PM	154	154	0	0
AM	106	74	0	0
PM	148	148	0	0
AM	136	101	0	0
PM	267	267	0	0

	AM	PM	AM	PM	AM	PM
2023 (Typical)	35	56	2820	2213	142	178
2023 (Dec/Jan)	27	56	2008	2268	105	181
Construction	8	8	8	8	0	0
Refined TTS	0	0	0	0	0	0

	AM	PM	AM	PM	AM	PM
2023 (Typical)	139	311	2250	2737	171	109
2023 (Dec/Jan)	119	256	1711	2425	25	85
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	179	115	8	0
PM	166	158	8	0
AM	281	182	0	15
PM	236	224	0	15

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	143	91	0	0
PM	156	147	0	0
AM	218	152	0	15
PM	395	377	0	15
AM	20	15	2	0
PM	18	18	2	0

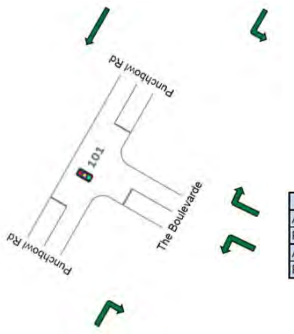
95%ile Observed Queue	N	S	E	W
AM Peak (m)	256	288	133	147
PM Peak (m)	323	231	175	168

	AM	PM	AM	PM
2023 (Typical)	20	52	2863	2153
2023 (Dec/Jan)	19	50	1934	2200
Construction	8	8	8	8
Refined TTS	0	0	0	0

Punchbowl Area

Traffic volume diagrams for modelled intersections (measured in number of vehicles)

	AM	PM	AM	PM
2023 (Typical)	684	785	98	141
2023 (Dec/Jan)	530	756	77	135
Construction	3	3	3	3
Refined TTS	0	0	0	0



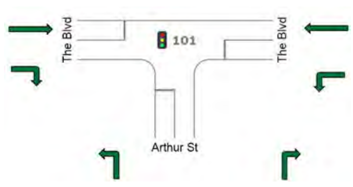
95%ile Observed Queue	S	E	W
AM Peak (m)	89	104	175
PM Peak (m)	120	136	136

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	310	237	3	0
PM	259	246	3	0
AM	350	289	0	15
PM	595	564	0	15

	AM	PM	AM	PM
2023 (Typical)	1132	690	329	427
2023 (Dec/Jan)	741	647	238	387
Construction	3	3	0	0
Refined TTS	0	0	15	15

95%ile Observed Queue	N	S	E	W
AM Peak (m)	0	42	42	77
PM Peak (m)	0	35	56	77

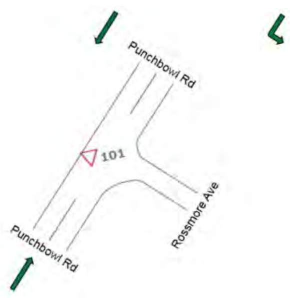
	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	430	282	3	15
PM	474	449	3	15
AM	46	33	0	0
PM	79	73	0	0



	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	558	377	3	15
PM	679	628	3	15
AM	66	46	0	0
PM	76	69	0	0

	AM	PM	AM	PM
2023 (Typical)	234	189	79	63
2023 (Dec/Jan)	148	172	48	56
Construction	0	0	0	0
Refined TTS	0	0	0	0

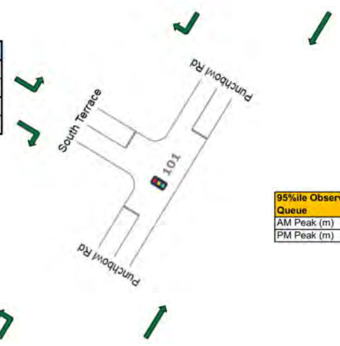
	AM	PM	AM	PM
2023 (Typical)	1009	1332	161	147
2023 (Dec/Jan)	712	1183	107	127
Construction	3	3	0	0
Refined TTS	15	15	0	0



	AM	PM
2023 (Typical)	1420	1129
2023 (Dec/Jan)	979	1034
Construction	3	3
Refined TTS	15	15

	AM	PM	AM	PM
2023 (Typical)	365	562	515	697
2023 (Dec/Jan)	282	519	430	664
Construction	3	3	0	0
Refined TTS	15	15	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	599	374	3	15
PM	585	532	3	15
AM	111	76	0	0
PM	171	157	0	0



95%ile Observed Queue	N	E	W
AM Peak (m)	228	163	226
PM Peak (m)	208	159	152

	AM	PM	AM	PM
2023 (Typical)	13	33	899	522
2023 (Dec/Jan)	9	31	605	502
Construction	0	0	3	3
Refined TTS	0	0	0	0

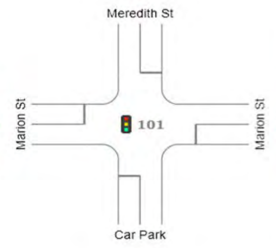
Bankstown Area (Map 1)

Traffic volume diagrams for modelled intersections (measured in number of vehicles)

	AM	PM	AM	PM	AM	PM
2023 (Typical)	468	1018	47	20	37	42
2023 (Dec/Jan)	333	937	33	18	23	39
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	0	0

95%ile Observed Queue	N	S	E	W
AM Peak (m)	84	18	56	153
PM Peak (m)	155	28	79	120

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	970	621	0	0
PM	555	505	0	0
AM	750	482	0	0
PM	509	464	0	0
AM	102	72	0	0
PM	40	37	0	0



	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	79	50	0	0
PM	57	52	0	0
AM	373	266	0	0
PM	624	575	0	0
AM	47	33	0	0
PM	18	16	0	0

	AM	PM	AM	PM	AM	PM
2023 (Typical)	21	90	8	54	4	27
2023 (Dec/Jan)	15	83	5	49	3	24
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	0	0

	AM	PM	AM	PM	AM	PM
2023 (Typical)	482	836	282	652	97	113
2023 (Dec/Jan)	343	770	200	600	63	103
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	1334	856	0	0
PM	719	655	0	0
AM	504	324	0	0
PM	380	346	0	0

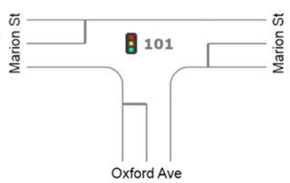
	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	409	291	0	0
PM	635	584	0	0
AM	44	31	0	0
PM	64	59	0	0

95%ile Observed Queue	N	S	E	W
AM Peak (m)	101	175	74	336
PM Peak (m)	128	70	126	63

	AM	PM	AM	PM
2023 (Typical)	25	73	564	451
2023 (Dec/Jan)	18	68	361	411
Construction	0	0	0	0
Refined TTS	0	0	0	0

95%ile Observed Queue	S	E	W
AM Peak (m)	84	81	49
PM Peak (m)	84	112	49

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	1425	912	0	0
PM	672	612	0	0
AM	264	189	0	0
PM	352	324	0	0



	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	719	513	0	0
PM	1228	1130	0	0
AM	126	90	0	0
PM	212	195	0	0

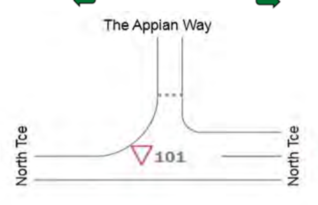
	AM	PM	AM	PM
2023 (Typical)	79	209	323	219
2023 (Dec/Jan)	56	192	207	199
Construction	0	0	0	0
Refined TTS	0	0	0	0

Bankstown Area (Map 2)

Traffic volume diagrams for modelled intersections (measured in number of vehicles)

	AM	PM	AM	PM
2023 (Typical)	145	231	620	773
2023 (Dec/Jan)	122	218	397	703
Construction	0	0	0	0
Refined TTS	20	20	0	0

95%ile Observed Queue	N	E
AM Peak (m)	36	48
PM Peak (m)	71	42



	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	622	442	0	0
PM	486	447	0	0

	AM	PM	AM	PM
2023 (Typical)	21	23	1	5
2023 (Dec/Jan)	21	23	1	4
Construction	0	0	8	8
Refined TTS	20	20	15	15

95%ile Observed Queue	N	S	E
AM Peak (m)	14	150	30
PM Peak (m)	25	125	26

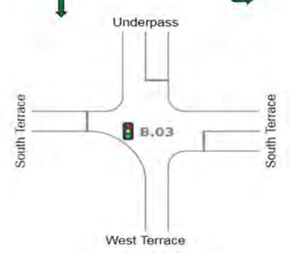
	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	24	24	0	20
PM	28	27	0	20
AM	40	40	0	0
PM	39	39	0	0

	AM	PM	AM	PM
2023 (Typical)	160	152	1052	894
2023 (Dec/Jan)	126	144	675	814
Construction	0	0	8	8
Refined TTS	0	0	15	15

	AM	PM	AM	PM
2023 (Typical)	424	490	312	484
2023 (Dec/Jan)	301	451	200	441
Construction	0	0	0	0
Refined TTS	0	0	0	0

95%ile Observed Queue	N	E	W
AM Peak (m)	99	97	130
PM Peak (m)	120	90	114

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	623	399	0	0
PM	427	389	0	0
AM	273	175	8	15
PM	309	281	8	15
AM	133	96	0	0
PM	138	128	0	0

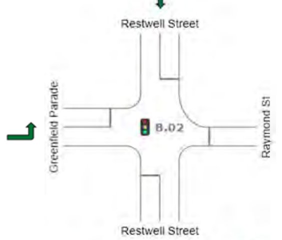


	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	559	358	0	0
PM	416	379	0	0
AM	225	160	0	15
PM	265	243	0	15

	AM	PM
2023 (Typical)	41	44
2023 (Dec/Jan)	41	44
Construction	0	0
Refined TTS	0	0

95%ile Observed Queue	N	S	E	W
AM Peak (m)	18	140	180	0
PM Peak (m)	25	105	210	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	190	122	0	0
PM	1	1	0	0



	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	526	338	0	15
PM	596	543	0	15
AM	1	1	0	0
PM	11	10	0	0
AM	282	201	0	0
PM	363	335	0	0

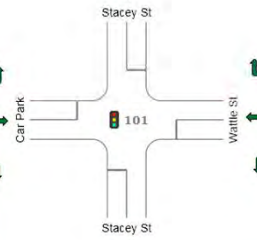
	AM	PM	AM	PM
2023 (Typical)	1	1	547	439
2023 (Dec/Jan)	1	1	367	403
Construction	0	0	0	0
Refined TTS	0	0	0	0

Bankstown Area (Map 3)

Traffic volume diagrams for modelled intersections (measured in number of vehicles)

	AM	PM	AM	PM	AM	PM
2023 (Typical)	18	71	1897	2724	202	168
2023 (Dec/Jan)	13	66	1348	2506	129	153
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	24	15	0	0
PM	107	98	0	0
AM	11	7	0	0
PM	35	32	0	0
AM	13	10	0	0
PM	164	151	0	0



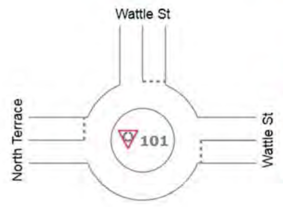
	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	142	91	0	0
PM	97	88	0	0
AM	22	16	0	0
PM	55	50	0	0
AM	308	219	8	0
PM	648	597	8	0

95%ile Observed Queue	N	S	E	W
AM Peak (m)	137	263	56	7
PM Peak (m)	377	287	210	46

	AM	PM	AM	PM	AM	PM
2023 (Typical)	57	150	1926	1476	169	266
2023 (Dec/Jan)	45	145	1382	1412	122	254
Construction	0	0	0	0	8	8
Refined TTS	0	0	0	0	0	0

	AM	PM	AM	PM	AM	PM
2023 (Typical)	10	12	55	103	456	350
2023 (Dec/Jan)	7	11	39	94	292	319
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	281	180	8	0
PM	93	84	8	0
AM	717	461	0	0
PM	757	689	0	0
AM	15	11	0	0
PM	8	7	0	0



	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	3	2	0	0
PM	10	9	0	0
AM	582	373	0	0
PM	359	327	0	0
AM	865	616	0	0
PM	972	895	0	0

95%ile Observed Queue	N	E	W
AM Peak (m)	53	21	53
PM Peak (m)	67	63	67

	AM	PM	AM	PM	AM	PM
2023 (Typical)	80	86	2069	3061	28	86
2023 (Dec/Jan)	56	79	1471	2816	18	78
Construction	0	0	8	8	0	0
Refined TTS	0	0	0	0	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	130	84	0	0
PM	59	54	0	0
AM	52	33	0	0
PM	48	44	0	0
AM	118	84	13	0
PM	161	148	13	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	213	136	0	0
PM	139	126	0	0
AM	41	30	0	0
PM	64	59	0	0
AM	1	1	0	0
PM	1	1	0	0

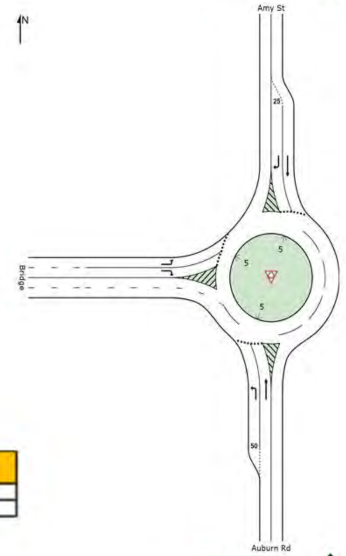
95%ile Observed Queue	N	S	E	W
AM Peak (m)	419	252	49	83
PM Peak (m)	226	200	77	145

	AM	PM	AM	PM
2023 (Typical)	30	52	2123	1876
2023 (Dec/Jan)	21	48	1361	1707
Construction	8	8	13	13
Refined TTS	0	0	0	0

Regents Park Area

Traffic volume diagrams for modelled intersections (measured in number of vehicles)

	AM	PM	AM	PM
2023 (Typical)	404	457	327	522
2023 (Dec/Jan)	288	421	234	480
Construction	0	0	0	0
Refined TTS	0	0	6	6



	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	385	247	0	0
PM	372	339	0	0
AM	296	210	0	0
PM	366	336	0	0

95%ile Observed Queue	N	S	W
AM Peak (m)	38	59	45
PM Peak (m)	38	31	45

reg

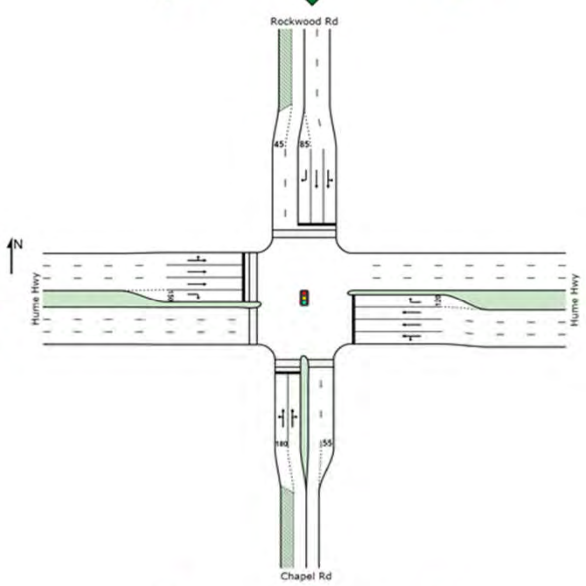
	AM	PM	AM	PM
2023 (Typical)	478	235	543	241
2023 (Dec/Jan)	340	217	351	219
Construction	0	0	0	0
Refined TTS	6	6	0	0

Yagoona Area

Traffic volume diagrams for modelled intersections (measured in number of vehicles)

	AM	PM	AM	PM	AM	PM
2023 (Typical)	158	314	282	886	36	32
2023 (Dec/Jan)	113	289	202	816	23	34
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	230	148	0	0
PM	158	144	0	0
AM	1797	1156	0	0
PM	1425	1297	0	0
AM	178	130	0	20
PM	262	242	0	20



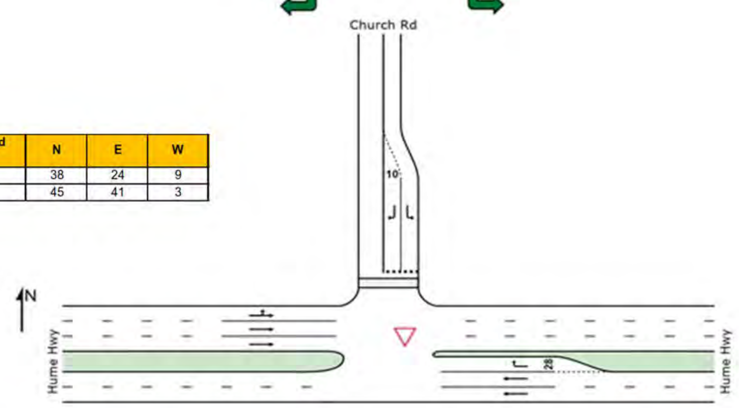
	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	49	31	0	0
PM	100	91	0	0
AM	1193	848	0	0
PM	1643	1511	0	0
AM	111	82	0	0
PM	67	62	0	0

95%ile Observed Queue	N	S	E	W
AM Peak (m)	97	118	160	196
PM Peak (m)	133	70	147	104

	AM	PM	AM	PM	AM	PM
2023 (Typical)	197	333	426	361	9	5
2023 (Dec/Jan)	142	306	276	330	9	5
Construction	0	0	0	0	0	0
Refined TTS	20	20	0	0	0	0

	AM	PM	AM	PM
2023 (Typical)	14	16	103	136
2023 (Dec/Jan)	10	14	68	125
Construction	0	0	0	0
Refined TTS	0	0	20	20

95%ile Observed Queue	N	E	W
AM Peak (m)	38	24	9
PM Peak (m)	45	41	3



	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	48	30	0	0
PM	63	57	0	0
AM	2577	1655	0	0
PM	2034	1851	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	6	5	0	20
PM	33	31	0	20
AM	1679	1194	0	0
PM	2333	2147	0	0

Birrong Area

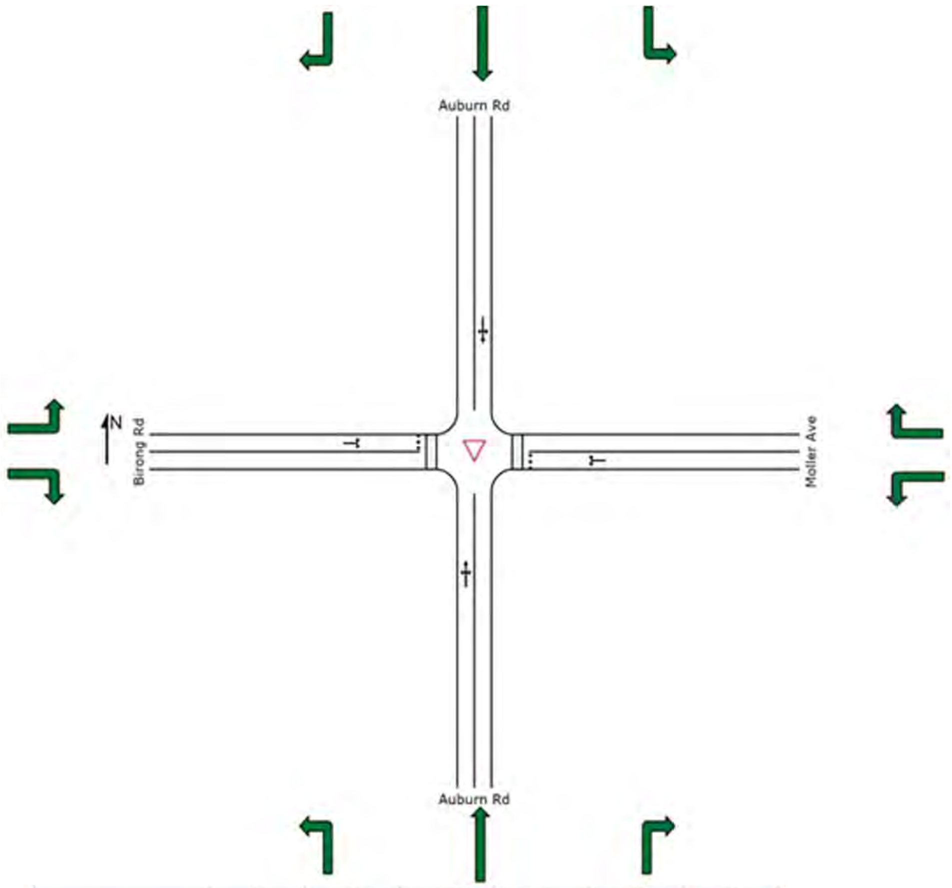
Traffic volume diagrams for modelled intersections (measured in number of vehicles)

Bi

	AM	PM	AM	PM	AM	PM
2023 (Typical)	3	3	650	749	1	2
2023 (Dec/Jan)	2	3	463	689	1	2
Construction	0	0	0	0	0	0
Refined TTS	0	0	20	20	0	0

95%ile Observed Queue	N	S	E	W
AM Peak (m)	1	2	2	6
PM Peak (m)	0	1	2	2

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	8	6	0	0
PM	4	4	0	0
AM	8	7	0	0
PM	2	2	0	0



	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	1	1	0	0
PM	1	1	0	0
AM	11	8	0	0
PM	3	3	0	0

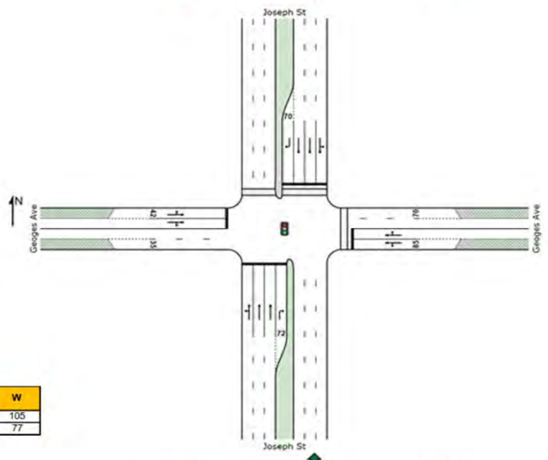
	AM	PM	AM	PM	AM	PM
2023 (Typical)	4	5	698	668	9	2
2023 (Dec/Jan)	3	5	448	608	6	2
Construction	0	0	0	0	0	0
Refined TTS	0	0	20	20	0	0

Lidcombe Area (Map 1)

Traffic volume diagrams for modelled intersections (measured in number of vehicles)

	AM	PM	AM	PM	AM	PM
2023 (Typical)	90	228	1553	2495	79	24
2023 (Dec/Jan)	64	210	1106	2296	56	25
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	205	131	0	14
PM	95	86	0	14
AM	276	177	0	0
PM	211	192	0	0
AM	99	70	0	0
PM	29	27	0	0



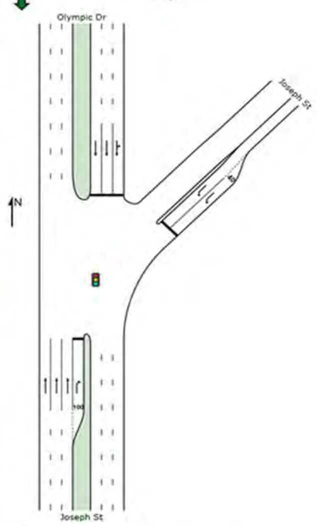
	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	12	8	0	0
PM	37	34	0	0
AM	179	127	0	0
PM	441	406	0	0
AM	106	76	0	0
PM	343	316	0	0

95%ile Observed Queue	N	S	E	W
AM Peak (m)	133	112	49	105
PM Peak (m)	134	105	126	77

	AM	PM	AM	PM	AM	PM
2023 (Typical)	49	65	2867	1785	390	100
2023 (Dec/Jan)	35	60	1838	1625	251	92
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	0	0

	AM	PM	AM	PM
2023 (Typical)	1698	2577	125	90
2023 (Dec/Jan)	1208	2371	80	82
Construction	0	0	0	0
Refined TTS	0	0	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	201	143	0	0
PM	420	386	0	0



95%ile Observed Queue	N	NE	S
AM Peak (m)	60	46	140
PM Peak (m)	28	99	29

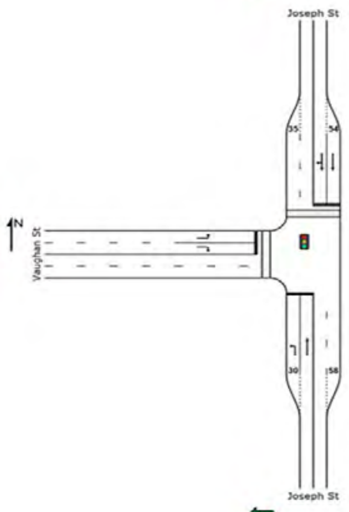
	AM	PM	AM	PM
2023 (Typical)	2419	1532	674	347
2023 (Dec/Jan)	1551	1395	432	316
Construction	0	0	0	0
Refined TTS	0	0	14	14

Lidcombe Area (Map 2)

Traffic volume diagrams for modelled intersections (measured in number of vehicles)

	AM	PM	AM	PM
2023 (Typical)	139	144	119	194
2023 (Dec/Jan)	98	133	85	179
Construction	0	0	0	0
Refined TTS	0	0	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	149	136	0	0
PM	149	136	0	0
AM	242	199	0	0
PM	261	272	0	0

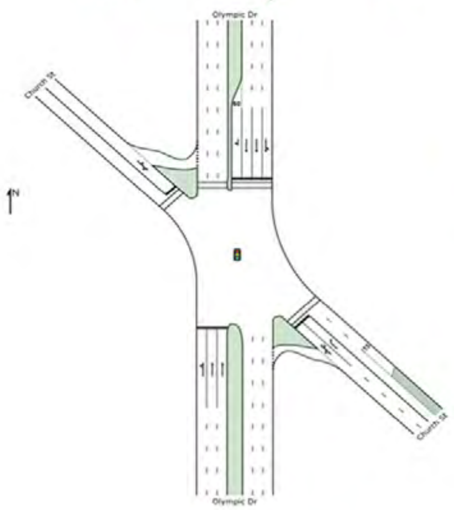


95%ile Observed Queue	N	S	W
AM Peak (m)	21	48	73
PM Peak (m)	42	70	77

	AM	PM	AM	PM
2023 (Typical)	406	555	297	221
2023 (Dec/Jan)	288	510	191	201
Construction	0	0	0	0
Refined TTS	0	0	14	14

	AM	PM	AM	PM	AM	PM
2023 (Typical)	17	16	1419	2020	153	138
2023 (Dec/Jan)	13	16	1107	2074	108	16
Construction	0	0	0	0	0	0
Refined TTS	0	0	0	0	0	0

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	12	8	0	0
PM	28	25	0	0
AM	74	47	0	0
PM	64	58	0	0
AM	8	5	0	0
PM	70	65	0	0



95%ile Observed Queue	N	S	E	W
AM Peak (m)	95	49	56	24
PM Peak (m)	126	56	84	60

	2023 (Typical)	2023 (Dec/Jan)	Construction	Refined TTS
AM	152	97	0	0
PM	317	288	0	0
AM	12	9	0	0
PM	10	9	0	0
AM	267	190	0	14
PM	544	498	0	14

	AM	PM	AM	PM
2023 (Typical)	145	94	2954	1756
2023 (Dec/Jan)	103	86	1892	1598
Construction	0	0	0	0
Refined TTS	0	0	14	14

Appendix B

Detailed Intersection Assessment Tables

1.0 Sydenham Station

1.1 Sydenham Station: Future

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.19 Gleeson Ave / Burrows Road - AM Peak	Gleeson Ave	South	T1	603	31%	15.01	LOS B	9.1
B.19 Gleeson Ave / Burrows Road - AM Peak	Burrows Ave	East	L2	24	8%	48.83	LOS D	1.1
B.19 Gleeson Ave / Burrows Road - AM Peak	Burrows Ave	East	R2	241	51%	51.14	LOS D	8.4
B.19 Gleeson Ave / Burrows Road - AM Peak	Gleeson Ave	North	T1	895	67%	6.61	LOS A	12.8
B.19 Gleeson Ave / Burrows Road - AM Peak	Gleeson Ave	North	L2	374	67%	10.16	LOS A	11.9
B.19 Gleeson Ave / Burrows Road - AM Peak	Burrows Ave	West	R2	5	2%	51.60	LOS D	0.2
B.19 Gleeson Ave / Burrows Road - AM Peak	Burrows Ave	West	T1	2	6%	54.03	LOS D	0.4
B.19 Gleeson Ave / Burrows Road - AM Peak	Burrows Ave	West	L2	10	6%	58.65	LOS E	0.4
B.19 Gleeson Ave / Burrows Road - PM Peak	Gleeson Ave	South	T1	942	57%	18.92	LOS B	15.2
B.19 Gleeson Ave / Burrows Road - PM Peak	Burrows Ave	East	L2	40	8%	41.44	LOS C	1.8
B.19 Gleeson Ave / Burrows Road - PM Peak	Burrows Ave	East	R2	528	66%	46.25	LOS D	17.4
B.19 Gleeson Ave / Burrows Road - PM Peak	Gleeson Ave	North	T1	744	65%	27.31	LOS B	24.5
B.19 Gleeson Ave / Burrows Road - PM Peak	Gleeson Ave	North	L2	301	65%	32.15	LOS C	22.9
B.19 Gleeson Ave / Burrows Road - PM Peak	Burrows Ave	West	R2	10	5%	52.93	LOS D	0.5
B.19 Gleeson Ave / Burrows Road - PM Peak	Burrows Ave	West	T1	3	15%	55.42	LOS D	1.2
B.19 Gleeson Ave / Burrows Road - PM Peak	Burrows Ave	West	L2	36	15%	59.62	LOS E	1.2
H.23 Gleeson Ave / Railway Pde - AM Peak	Gleeson Ave	South	L2	827	29%	2.91	LOS A	0.0
H.23 Gleeson Ave / Railway Pde - AM Peak	Railway Pde	East	L2	1487	54%	6.83	LOS A	14.0
H.23 Gleeson Ave / Railway Pde - AM Peak	Railway Pde	East	T1	336	21%	2.66	LOS A	4.2
H.23 Gleeson Ave / Railway Pde - PM Peak	Gleeson Ave	South	L2	1463	50%	2.90	LOS A	0.0
H.23 Gleeson Ave / Railway Pde - PM Peak	Railway Pde	East	L2	1136	40%	6.62	LOS A	9.8
H.23 Gleeson Ave / Railway Pde - PM Peak	Railway Pde	East	T1	342	22%	3.31	LOS A	4.9
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Railway Rd	South	R2	52	41%	39.16	LOS C	5.5
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Railway Rd	South	T1	401	41%	16.98	LOS B	11.0
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Railway Rd	South	L2	30	41%	16.93	LOS B	11.0
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	East	L2	52	18%	37.99	LOS C	4.1
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	East	R2	27	91%	69.57	LOS E	22.4
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	East	T1	348	91%	61.00	LOS E	22.4
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Gleeson Ave	North	T1	642	72%	18.46	LOS B	30.8
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Gleeson Ave	North	L2	109	72%	21.88	LOS B	30.8
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Gleeson Ave	North	R2	264	92%	76.60	LOS F	20.1
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	West	R2	39	50%	62.82	LOS E	4.1
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	West	T1	321	50%	38.52	LOS C	13.9
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	West	L2	1	50%	40.99	LOS C	13.9

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Railway Rd	South	R2	46	79%	50.89	LOS D	18.6
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Railway Rd	South	T1	745	79%	34.86	LOS C	27.9
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Railway Rd	South	L2	171	79%	30.23	LOS C	27.9
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	East	L2	67	70%	26.97	LOS B	24.0
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	East	R2	75	64%	52.46	LOS D	10.5
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	East	T1	673	70%	27.13	LOS B	24.0
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Gleeson Ave	North	T1	546	75%	30.30	LOS C	29.3
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Gleeson Ave	North	L2	69	75%	33.30	LOS C	29.3
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Gleeson Ave	North	R2	92	75%	63.17	LOS E	6.2
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	West	R2	32	43%	50.37	LOS D	6.6
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	West	T1	171	43%	33.78	LOS C	6.6
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	West	L2	1	9%	23.45	LOS B	2.5
H.39 Edinburgh Rd / Murray St AM peak	Murray St	South	R2	3	3%	12.96	LOS A	0.1
H.39 Edinburgh Rd / Murray St AM peak	Murray St	South	T1	4	3%	9.94	LOS A	0.1
H.39 Edinburgh Rd / Murray St AM peak	Murray St	South	L2	3	3%	10.21	LOS A	0.1
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	East	L2	16	55%	5.94	LOS A	4.4
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	East	R2	92	55%	8.15	LOS A	4.4
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	East	T1	298	55%	5.27	LOS A	4.4
H.39 Edinburgh Rd / Murray St AM peak	Murray St	North	T1	6	27%	9.57	LOS A	1.2
H.39 Edinburgh Rd / Murray St AM peak	Murray St	North	L2	63	27%	9.87	LOS A	1.2
H.39 Edinburgh Rd / Murray St AM peak	Murray St	North	R2	40	27%	12.69	LOS A	1.2
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	West	R2	19	60%	9.19	LOS A	4.2
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	West	T1	325	60%	6.18	LOS A	4.2
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	West	L2	18	60%	6.54	LOS A	4.2
H.39 Edinburgh Rd / Murray St PM peak	Murray St	South	R2	15	17%	20.09	LOS B	0.7
H.39 Edinburgh Rd / Murray St PM peak	Murray St	South	T1	3	17%	16.99	LOS B	0.7
H.39 Edinburgh Rd / Murray St PM peak	Murray St	South	L2	20	17%	17.42	LOS B	0.7
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	East	L2	3	67%	6.09	LOS A	6.8
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	East	R2	159	67%	8.12	LOS A	6.8
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	East	T1	485	67%	5.13	LOS A	6.8
H.39 Edinburgh Rd / Murray St PM peak	Murray St	North	T1	6	57%	10.88	LOS A	3.9
H.39 Edinburgh Rd / Murray St PM peak	Murray St	North	L2	186	57%	11.11	LOS A	3.9
H.39 Edinburgh Rd / Murray St PM peak	Murray St	North	R2	76	57%	13.87	LOS A	3.9
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	West	R2	8	49%	10.67	LOS A	2.9
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	West	T1	231	49%	7.40	LOS A	2.9
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	West	L2	24	49%	7.64	LOS A	2.9
H.40 Edinburgh Rd / Bedwin Rd AM	Bedwin Rd	South	R1	668	53%	11.20	LOS A	16.3

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.40 Edinburgh Rd / Bedwin Rd AM	Bedwin Rd	South	L2	280	17%	4.47	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd AM	Edgeware Rd	Southeast	L3	214	47%	21.03	LOS B	6.9
H.40 Edinburgh Rd / Bedwin Rd AM	Edgeware Rd	Northeast	L1	631	59%	9.56	LOS A	14.8
H.40 Edinburgh Rd / Bedwin Rd AM	Edgeware Rd	Northeast	L2	48	9%	3.54	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd AM	Edgeware Rd	Northeast	L3	86	9%	4.11	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd AM	Edinburgh Rd	West	R2	170	57%	49.24	LOS D	8.5
H.40 Edinburgh Rd / Bedwin Rd AM	Edinburgh Rd	West	L1	72	10%	6.96	LOS A	1.0
H.40 Edinburgh Rd / Bedwin Rd PM	Bedwin Rd	South	R1	822	58%	9.55	LOS A	18.9
H.40 Edinburgh Rd / Bedwin Rd PM	Bedwin Rd	South	L2	385	21%	4.41	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd PM	Edgeware Rd	Southeast	L3	288	56%	18.29	LOS B	9.0
H.40 Edinburgh Rd / Bedwin Rd PM	Edgeware Rd	Northeast	L1	676	54%	7.47	LOS A	13.6
H.40 Edinburgh Rd / Bedwin Rd PM	Edgeware Rd	Northeast	L2	41	6%	3.51	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd PM	Edgeware Rd	Northeast	L3	56	6%	4.11	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd PM	Edinburgh Rd	West	R2	138	57%	53.44	LOS D	7.2
H.40 Edinburgh Rd / Bedwin Rd PM	Edinburgh Rd	West	L1	69	13%	8.67	LOS A	0.4
H.41 Bedwin Rd / May St AM Peak	Campbell St	South	T1	154	50%	51.71	LOS D	5.1
H.41 Bedwin Rd / May St AM Peak	Campbell St	South	L2	34	50%	56.44	LOS D	4.9
H.41 Bedwin Rd / May St AM Peak	May St	East	L2	27	30%	27.09	LOS B	7.8
H.41 Bedwin Rd / May St AM Peak	May St	East	R2	146	108%	162.05	LOS F	15.0
H.41 Bedwin Rd / May St AM Peak	May St	East	T1	207	30%	22.49	LOS B	7.8
H.41 Bedwin Rd / May St AM Peak	Bedwin Rd	North	T1	348	85%	33.48	LOS C	36.5
H.41 Bedwin Rd / May St AM Peak	Bedwin Rd	North	L2	351	85%	38.12	LOS C	36.5
H.41 Bedwin Rd / May St AM Peak	Bedwin Rd	North	R2	335	52%	34.96	LOS C	12.9
H.41 Bedwin Rd / May St AM Peak	Unwins Bridge Rd	West	R2	108	82%	41.18	LOS C	26.9
H.41 Bedwin Rd / May St AM Peak	Unwins Bridge Rd	West	T1	573	82%	27.43	LOS B	26.9
H.41 Bedwin Rd / May St AM Peak	Unwins Bridge Rd	West	L2	625	74%	9.46	LOS A	13.6
H.41 Bedwin Rd / May St PM Peak	Campbell St	South	T1	250	100%	106.27	LOS F	13.6
H.41 Bedwin Rd / May St PM Peak	Campbell St	South	L2	84	100%	108.06	LOS F	11.9
H.41 Bedwin Rd / May St PM Peak	May St	East	L2	36	92%	51.41	LOS D	32.2
H.41 Bedwin Rd / May St PM Peak	May St	East	R2	297	101%	134.35	LOS F	27.2
H.41 Bedwin Rd / May St PM Peak	May St	East	T1	558	92%	46.89	LOS D	32.2
H.41 Bedwin Rd / May St PM Peak	Bedwin Rd	North	T1	306	100%	61.63	LOS E	45.8
H.41 Bedwin Rd / May St PM Peak	Bedwin Rd	North	L2	305	100%	66.20	LOS E	45.8
H.41 Bedwin Rd / May St PM Peak	Bedwin Rd	North	R2	546	100%	62.71	LOS E	45.8
H.41 Bedwin Rd / May St PM Peak	Unwins Bridge Rd	West	R2	16	77%	30.58	LOS C	13.0
H.41 Bedwin Rd / May St PM Peak	Unwins Bridge Rd	West	T1	318	77%	25.89	LOS B	13.0
H.41 Bedwin Rd / May St PM Peak	Unwins Bridge Rd	West	L2	662	96%	65.20	LOS E	36.0

1.2 Sydenham Station: Future + Refined Baseline TTP

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.19 Gleeson Ave / Burrows Road - AM Peak	Gleeson Ave	South	T1	603	30%	13.31	LOS A	8.5
B.19 Gleeson Ave / Burrows Road - AM Peak	Burrows Ave	East	L2	24	10%	51.97	LOS D	1.2
B.19 Gleeson Ave / Burrows Road - AM Peak	Burrows Ave	East	R2	298	90%	66.64	LOS E	13.3
B.19 Gleeson Ave / Burrows Road - AM Peak	Gleeson Ave	North	T1	895	69%	7.50	LOS A	14.2
B.19 Gleeson Ave / Burrows Road - AM Peak	Gleeson Ave	North	L2	431	69%	11.23	LOS A	13.6
B.19 Gleeson Ave / Burrows Road - AM Peak	Burrows Ave	West	R2	5	2%	51.60	LOS D	0.2
B.19 Gleeson Ave / Burrows Road - AM Peak	Burrows Ave	West	T1	2	6%	54.03	LOS D	0.4
B.19 Gleeson Ave / Burrows Road - AM Peak	Burrows Ave	West	L2	10	6%	58.65	LOS E	0.4
B.19 Gleeson Ave / Burrows Road - PM Peak	Gleeson Ave	South	T1	942	61%	19.83	LOS B	15.8
B.19 Gleeson Ave / Burrows Road - PM Peak	Burrows Ave	East	L2	40	8%	38.93	LOS C	1.7
B.19 Gleeson Ave / Burrows Road - PM Peak	Burrows Ave	East	R2	584	77%	46.37	LOS D	19.3
B.19 Gleeson Ave / Burrows Road - PM Peak	Gleeson Ave	North	T1	744	75%	30.92	LOS C	29.2
B.19 Gleeson Ave / Burrows Road - PM Peak	Gleeson Ave	North	L2	357	75%	35.81	LOS C	25.2
B.19 Gleeson Ave / Burrows Road - PM Peak	Burrows Ave	West	R2	10	5%	52.93	LOS D	0.5
B.19 Gleeson Ave / Burrows Road - PM Peak	Burrows Ave	West	T1	3	15%	55.42	LOS D	1.2
B.19 Gleeson Ave / Burrows Road - PM Peak	Burrows Ave	West	L2	36	15%	59.62	LOS E	1.2
H.23 Gleeson Ave / Railway Pde - AM Peak	Gleeson Ave	South	L2	883	33%	2.94	LOS A	0.0
H.23 Gleeson Ave / Railway Pde - AM Peak	Railway Pde	East	L2	1543	74%	8.33	LOS A	24.4
H.23 Gleeson Ave / Railway Pde - AM Peak	Railway Pde	East	T1	336	21%	2.66	LOS A	4.2
H.23 Gleeson Ave / Railway Pde - PM Peak	Gleeson Ave	South	L2	1519	54%	2.91	LOS A	0.0
H.23 Gleeson Ave / Railway Pde - PM Peak	Railway Pde	East	L2	1192	44%	6.83	LOS A	10.8
H.23 Gleeson Ave / Railway Pde - PM Peak	Railway Pde	East	T1	342	22%	3.31	LOS A	4.9
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Railway Rd	South	R2	52	41%	39.16	LOS C	5.5
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Railway Rd	South	T1	401	41%	16.98	LOS B	11.0
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Railway Rd	South	L2	30	41%	16.93	LOS B	11.0
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	East	L2	52	18%	37.99	LOS C	4.1
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	East	R2	27	91%	69.83	LOS E	22.4
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	East	T1	348	91%	61.20	LOS E	22.4
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Gleeson Ave	North	T1	642	72%	18.46	LOS B	30.8
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Gleeson Ave	North	L2	109	72%	21.88	LOS B	30.8
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Gleeson Ave	North	R2	264	92%	76.60	LOS F	20.1
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	West	R2	39	50%	63.84	LOS E	3.9
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	West	T1	321	50%	38.45	LOS C	14.1
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	West	L2	1	50%	41.07	LOS C	14.1
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Railway Rd	South	R2	46	79%	50.89	LOS D	18.6
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Railway Rd	South	T1	745	79%	34.86	LOS C	27.9
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Railway Rd	South	L2	171	79%	30.23	LOS C	27.9

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	East	L2	67	70%	26.97	LOS B	24.0
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	East	R2	75	64%	52.46	LOS D	10.5
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	East	T1	673	70%	27.13	LOS B	24.0
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Gleeson Ave	North	T1	546	75%	30.30	LOS C	29.3
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Gleeson Ave	North	L2	69	75%	33.30	LOS C	29.3
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Gleeson Ave	North	R2	92	75%	63.17	LOS E	6.2
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	West	R2	32	43%	50.37	LOS D	6.6
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	West	T1	171	43%	33.78	LOS C	6.6
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	West	L2	1	9%	23.45	LOS B	2.5
H.39 Edinburgh Rd / Murray St AM peak	Murray St	South	R2	3	3%	12.96	LOS A	0.1
H.39 Edinburgh Rd / Murray St AM peak	Murray St	South	T1	4	3%	9.94	LOS A	0.1
H.39 Edinburgh Rd / Murray St AM peak	Murray St	South	L2	3	3%	10.21	LOS A	0.1
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	East	L2	16	55%	5.94	LOS A	4.4
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	East	R2	92	55%	8.15	LOS A	4.4
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	East	T1	298	55%	5.27	LOS A	4.4
H.39 Edinburgh Rd / Murray St AM peak	Murray St	North	T1	6	27%	9.57	LOS A	1.2
H.39 Edinburgh Rd / Murray St AM peak	Murray St	North	L2	63	27%	9.87	LOS A	1.2
H.39 Edinburgh Rd / Murray St AM peak	Murray St	North	R2	40	27%	12.69	LOS A	1.2
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	West	R2	19	60%	9.19	LOS A	4.2
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	West	T1	325	60%	6.18	LOS A	4.2
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	West	L2	18	60%	6.54	LOS A	4.2
H.39 Edinburgh Rd / Murray St PM peak	Murray St	South	R2	15	17%	20.09	LOS B	0.7
H.39 Edinburgh Rd / Murray St PM peak	Murray St	South	T1	3	17%	16.99	LOS B	0.7
H.39 Edinburgh Rd / Murray St PM peak	Murray St	South	L2	20	17%	17.42	LOS B	0.7
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	East	L2	3	67%	6.09	LOS A	6.8
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	East	R2	159	67%	8.12	LOS A	6.8
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	East	T1	485	67%	5.13	LOS A	6.8
H.39 Edinburgh Rd / Murray St PM peak	Murray St	North	T1	6	57%	10.88	LOS A	3.9
H.39 Edinburgh Rd / Murray St PM peak	Murray St	North	L2	186	57%	11.11	LOS A	3.9
H.39 Edinburgh Rd / Murray St PM peak	Murray St	North	R2	76	57%	13.87	LOS A	3.9
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	West	R2	8	49%	10.67	LOS A	2.9
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	West	T1	231	49%	7.40	LOS A	2.9
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	West	L2	24	49%	7.64	LOS A	2.9
H.40 Edinburgh Rd / Bedwin Rd AM	Bedwin Rd	South	R1	668	53%	11.20	LOS A	16.3
H.40 Edinburgh Rd / Bedwin Rd AM	Bedwin Rd	South	L2	280	17%	4.47	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd AM	Edgeware Rd	Southeast	L3	214	47%	21.03	LOS B	6.9
H.40 Edinburgh Rd / Bedwin Rd AM	Edgeware Rd	Northeast	L1	631	59%	9.56	LOS A	14.8

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.40 Edinburgh Rd / Bedwin Rd AM	Edgeware Rd	Northeast	L2	48	9%	3.54	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd AM	Edgeware Rd	Northeast	L3	86	9%	4.11	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd AM	Edinburgh Rd	West	R2	170	57%	49.24	LOS D	8.5
H.40 Edinburgh Rd / Bedwin Rd AM	Edinburgh Rd	West	L1	72	10%	6.96	LOS A	1.0
H.40 Edinburgh Rd / Bedwin Rd PM	Bedwin Rd	South	R1	822	58%	9.55	LOS A	18.9
H.40 Edinburgh Rd / Bedwin Rd PM	Bedwin Rd	South	L2	385	21%	4.41	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd PM	Edgeware Rd	Southeast	L3	288	56%	18.29	LOS B	9.0
H.40 Edinburgh Rd / Bedwin Rd PM	Edgeware Rd	Northeast	L1	676	54%	7.47	LOS A	13.6
H.40 Edinburgh Rd / Bedwin Rd PM	Edgeware Rd	Northeast	L2	41	6%	3.51	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd PM	Edgeware Rd	Northeast	L3	56	6%	4.11	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd PM	Edinburgh Rd	West	R2	138	57%	53.44	LOS D	7.2
H.40 Edinburgh Rd / Bedwin Rd PM	Edinburgh Rd	West	L1	69	13%	8.67	LOS A	0.4
H.41 Bedwin Rd / May St AM Peak	Campbell St	South	T1	154	50%	51.71	LOS D	5.1
H.41 Bedwin Rd / May St AM Peak	Campbell St	South	L2	34	50%	56.44	LOS D	4.9
H.41 Bedwin Rd / May St AM Peak	May St	East	L2	27	30%	27.09	LOS B	7.8
H.41 Bedwin Rd / May St AM Peak	May St	East	R2	146	108%	162.05	LOS F	15.0
H.41 Bedwin Rd / May St AM Peak	May St	East	T1	207	30%	22.49	LOS B	7.8
H.41 Bedwin Rd / May St AM Peak	Bedwin Rd	North	T1	348	85%	33.48	LOS C	36.5
H.41 Bedwin Rd / May St AM Peak	Bedwin Rd	North	L2	351	85%	38.12	LOS C	36.5
H.41 Bedwin Rd / May St AM Peak	Bedwin Rd	North	R2	335	52%	34.96	LOS C	12.9
H.41 Bedwin Rd / May St AM Peak	Unwins Bridge Rd	West	R2	108	82%	41.18	LOS C	26.9
H.41 Bedwin Rd / May St AM Peak	Unwins Bridge Rd	West	T1	573	82%	27.43	LOS B	26.9
H.41 Bedwin Rd / May St AM Peak	Unwins Bridge Rd	West	L2	625	74%	9.46	LOS A	13.6
H.41 Bedwin Rd / May St PM Peak	Campbell St	South	T1	250	100%	106.27	LOS F	13.6
H.41 Bedwin Rd / May St PM Peak	Campbell St	South	L2	84	100%	108.06	LOS F	11.9
H.41 Bedwin Rd / May St PM Peak	May St	East	L2	36	92%	51.41	LOS D	32.2
H.41 Bedwin Rd / May St PM Peak	May St	East	R2	297	101%	134.35	LOS F	27.2
H.41 Bedwin Rd / May St PM Peak	May St	East	T1	558	92%	46.89	LOS D	32.2
H.41 Bedwin Rd / May St PM Peak	Bedwin Rd	North	T1	306	100%	61.63	LOS E	45.8
H.41 Bedwin Rd / May St PM Peak	Bedwin Rd	North	L2	305	100%	66.20	LOS E	45.8
H.41 Bedwin Rd / May St PM Peak	Bedwin Rd	North	R2	546	100%	62.71	LOS E	45.8
H.41 Bedwin Rd / May St PM Peak	Unwins Bridge Rd	West	R2	16	77%	30.58	LOS C	13.0
H.41 Bedwin Rd / May St PM Peak	Unwins Bridge Rd	West	T1	318	77%	25.89	LOS B	13.0
H.41 Bedwin Rd / May St PM Peak	Unwins Bridge Rd	West	L2	662	96%	65.20	LOS E	36.0

1.3 Sydenham Station: Future (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.19 Gleeson Ave / Burrows Road - AM Peak	Gleeson Ave	South	T1	389	20%	13.97	LOS A	5.4
B.19 Gleeson Ave / Burrows Road - AM Peak	Burrows Ave	East	L2	17	6%	48.53	LOS D	0.8
B.19 Gleeson Ave / Burrows Road - AM Peak	Burrows Ave	East	R2	154	33%	49.64	LOS D	5.1
B.19 Gleeson Ave / Burrows Road - AM Peak	Gleeson Ave	North	T1	639	47%	5.64	LOS A	6.3
B.19 Gleeson Ave / Burrows Road - AM Peak	Gleeson Ave	North	L2	239	47%	9.25	LOS A	5.8
B.19 Gleeson Ave / Burrows Road - AM Peak	Burrows Ave	West	R2	3	1%	51.45	LOS D	0.2
B.19 Gleeson Ave / Burrows Road - AM Peak	Burrows Ave	West	T1	1	5%	54.24	LOS D	0.3
B.19 Gleeson Ave / Burrows Road - AM Peak	Burrows Ave	West	L2	9	5%	58.84	LOS E	0.3
B.19 Gleeson Ave / Burrows Road - PM Peak	Gleeson Ave	South	T1	858	52%	18.34	LOS B	13.2
B.19 Gleeson Ave / Burrows Road - PM Peak	Burrows Ave	East	L2	37	8%	42.22	LOS C	1.7
B.19 Gleeson Ave / Burrows Road - PM Peak	Burrows Ave	East	R2	481	61%	46.58	LOS D	15.7
B.19 Gleeson Ave / Burrows Road - PM Peak	Gleeson Ave	North	T1	686	60%	26.59	LOS B	21.8
B.19 Gleeson Ave / Burrows Road - PM Peak	Gleeson Ave	North	L2	274	60%	31.90	LOS C	20.6
B.19 Gleeson Ave / Burrows Road - PM Peak	Burrows Ave	West	R2	9	4%	51.85	LOS D	0.5
B.19 Gleeson Ave / Burrows Road - PM Peak	Burrows Ave	West	T1	3	14%	55.39	LOS D	1.1
B.19 Gleeson Ave / Burrows Road - PM Peak	Burrows Ave	West	L2	34	14%	59.61	LOS E	1.1
H.23 Gleeson Ave / Railway Pde - AM Peak	Gleeson Ave	South	L2	591	21%	2.92	LOS A	0.0
H.23 Gleeson Ave / Railway Pde - AM Peak	Railway Pde	East	L2	1058	38%	6.12	LOS A	8.2
H.23 Gleeson Ave / Railway Pde - AM Peak	Railway Pde	East	T1	239	15%	2.51	LOS A	2.8
H.23 Gleeson Ave / Railway Pde - PM Peak	Gleeson Ave	South	L2	1347	46%	2.90	LOS A	0.0
H.23 Gleeson Ave / Railway Pde - PM Peak	Railway Pde	East	L2	1046	37%	6.48	LOS A	8.7
H.23 Gleeson Ave / Railway Pde - PM Peak	Railway Pde	East	T1	314	20%	3.25	LOS A	4.4
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Railway Rd	South	R2	33	20%	23.12	LOS B	4.0
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Railway Rd	South	T1	261	20%	15.12	LOS B	5.4
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Railway Rd	South	L2	21	20%	16.42	LOS B	5.4
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	East	L2	37	9%	35.43	LOS C	1.9
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	East	R2	17	45%	39.71	LOS C	11.8
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	East	T1	248	45%	34.93	LOS C	11.8
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Gleeson Ave	North	T1	458	46%	16.76	LOS B	15.5
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Gleeson Ave	North	L2	70	46%	19.03	LOS B	15.5
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Gleeson Ave	North	R2	187	46%	27.50	LOS B	10.1
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	West	R2	28	23%	41.87	LOS C	4.3
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	West	T1	206	23%	33.33	LOS C	6.0
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	West	L2	1	23%	36.10	LOS C	6.0
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Railway Rd	South	R2	41	64%	40.72	LOS C	15.1
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Railway Rd	South	T1	679	64%	27.55	LOS B	19.7
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Railway Rd	South	L2	157	64%	23.98	LOS B	19.7
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	East	L2	62	59%	29.35	LOS C	17.5
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	East	R2	68	53%	39.30	LOS C	12.4
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	East	T1	620	59%	28.26	LOS B	17.5
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Gleeson Ave	North	T1	503	60%	25.66	LOS B	22.3
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Gleeson Ave	North	L2	63	60%	27.48	LOS B	22.3

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Gleeson Ave	North	R2	85	60%	51.42	LOS D	6.5
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	West	R2	29	30%	39.09	LOS C	6.1
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	West	T1	155	30%	30.51	LOS C	6.1
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	West	L2	1	6%	26.19	LOS B	1.7
H.39 Edinburgh Rd / Murray St AM peak	Murray St	South	R2	2	2%	10.60	LOS A	0.1
H.39 Edinburgh Rd / Murray St AM peak	Murray St	South	T1	3	2%	7.58	LOS A	0.1
H.39 Edinburgh Rd / Murray St AM peak	Murray St	South	L2	2	2%	7.84	LOS A	0.1
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	East	L2	13	38%	5.28	LOS A	2.3
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	East	R2	59	38%	7.51	LOS A	2.3
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	East	T1	212	38%	4.59	LOS A	2.3
H.39 Edinburgh Rd / Murray St AM peak	Murray St	North	T1	4	15%	6.92	LOS A	0.6
H.39 Edinburgh Rd / Murray St AM peak	Murray St	North	L2	42	15%	7.24	LOS A	0.6
H.39 Edinburgh Rd / Murray St AM peak	Murray St	North	R2	29	15%	10.05	LOS A	0.6
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	West	R2	14	36%	7.86	LOS A	1.8
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	West	T1	208	36%	4.86	LOS A	1.8
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	West	L2	11	36%	5.21	LOS A	1.8
H.39 Edinburgh Rd / Murray St PM peak	Murray St	South	R2	14	14%	18.48	LOS B	0.6
H.39 Edinburgh Rd / Murray St PM peak	Murray St	South	T1	3	14%	15.38	LOS B	0.6
H.39 Edinburgh Rd / Murray St PM peak	Murray St	South	L2	18	14%	15.80	LOS B	0.6
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	East	L2	3	61%	5.76	LOS A	5.6
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	East	R2	145	61%	7.87	LOS A	5.6
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	East	T1	447	61%	4.88	LOS A	5.6
H.39 Edinburgh Rd / Murray St PM peak	Murray St	North	T1	5	50%	9.12	LOS A	3.0
H.39 Edinburgh Rd / Murray St PM peak	Murray St	North	L2	170	50%	9.35	LOS A	3.0
H.39 Edinburgh Rd / Murray St PM peak	Murray St	North	R2	70	50%	12.11	LOS A	3.0
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	West	R2	7	44%	9.98	LOS A	2.4
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	West	T1	211	44%	6.71	LOS A	2.4
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	West	L2	22	44%	6.95	LOS A	2.4
H.40 Edinburgh Rd / Bedwin Rd AM_superseded	Bedwin Rd	South	R1	412	23%	3.36	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd AM_superseded	Bedwin Rd	South	L2	191	11%	4.47	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd AM_superseded	Edgeware Rd	SouthEast	L3	146	34%	28.48	LOS B	3.0
H.40 Edinburgh Rd / Bedwin Rd AM_superseded	Edgeware Rd	NorthEast	L1	431	35%	2.90	LOS A	1.8
H.40 Edinburgh Rd / Bedwin Rd AM_superseded	Edgeware Rd	NorthEast	L2	35	6%	3.56	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd AM_superseded	Edgeware Rd	NorthEast	L3	53	6%	4.11	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd AM_superseded	Edinburgh Rd	West	R2	116	40%	18.32	LOS B	1.6
H.40 Edinburgh Rd / Bedwin Rd AM_superseded	Edinburgh Rd	West	L1	46	6%	5.46	LOS A	0.2
H.40 Edinburgh Rd / Bedwin Rd PM_superseded	Bedwin Rd	South	R1	708	38%	3.33	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd PM_superseded	Bedwin Rd	South	L2	335	18%	4.40	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd PM_superseded	Edgeware Rd	SouthEast	L3	251	55%	27.19	LOS B	5.1
H.40 Edinburgh Rd / Bedwin Rd PM_superseded	Edgeware Rd	NorthEast	L1	588	51%	4.33	LOS A	4.0
H.40 Edinburgh Rd / Bedwin Rd PM_superseded	Edgeware Rd	NorthEast	L2	36	5%	3.51	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd PM_superseded	Edgeware Rd	NorthEast	L3	48	5%	4.11	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd PM_superseded	Edinburgh Rd	West	R2	120	80%	56.19	LOS D	3.8
H.40 Edinburgh Rd / Bedwin Rd PM_superseded	Edinburgh Rd	West	L1	64	11%	7.89	LOS A	0.4

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.41 Bedwin Rd / May St AM Peak	Campbell St	South	T1	99	43%	54.40	LOS D	3.4
H.41 Bedwin Rd / May St AM Peak	Campbell St	South	L2	24	43%	59.19	LOS E	3.2
H.41 Bedwin Rd / May St AM Peak	May St	East	L2	19	19%	21.03	LOS B	4.5
H.41 Bedwin Rd / May St AM Peak	May St	East	R2	93	57%	54.36	LOS D	5.3
H.41 Bedwin Rd / May St AM Peak	May St	East	T1	147	57%	17.65	LOS B	5.3
H.41 Bedwin Rd / May St AM Peak	Bedwin Rd	North	T1	247	63%	27.02	LOS B	20.0
H.41 Bedwin Rd / May St AM Peak	Bedwin Rd	North	L2	225	63%	31.66	LOS C	20.0
H.41 Bedwin Rd / May St AM Peak	Bedwin Rd	North	R2	238	39%	34.69	LOS C	9.4
H.41 Bedwin Rd / May St AM Peak	Unwins Bridge Rd	West	R2	76	68%	53.83	LOS D	10.2
H.41 Bedwin Rd / May St AM Peak	Unwins Bridge Rd	West	T1	367	68%	21.91	LOS B	16.7
H.41 Bedwin Rd / May St AM Peak	Unwins Bridge Rd	West	L2	400	61%	14.12	LOS A	16.7
H.41 Bedwin Rd / May St PM Peak	Campbell St	South	T1	228	84%	58.00	LOS E	9.2
H.41 Bedwin Rd / May St PM Peak	Campbell St	South	L2	77	84%	63.83	LOS E	8.3
H.41 Bedwin Rd / May St PM Peak	May St	East	L2	33	84%	34.88	LOS C	23.7
H.41 Bedwin Rd / May St PM Peak	May St	East	R2	270	89%	57.08	LOS E	15.6
H.41 Bedwin Rd / May St PM Peak	May St	East	T1	514	84%	30.35	LOS C	23.7
H.41 Bedwin Rd / May St PM Peak	Bedwin Rd	North	T1	281	90%	50.02	LOS D	31.0
H.41 Bedwin Rd / May St PM Peak	Bedwin Rd	North	L2	277	90%	54.59	LOS D	31.0
H.41 Bedwin Rd / May St PM Peak	Bedwin Rd	North	R2	502	90%	61.62	LOS E	31.0
H.41 Bedwin Rd / May St PM Peak	Unwins Bridge Rd	West	R2	14	38%	25.79	LOS B	10.4
H.41 Bedwin Rd / May St PM Peak	Unwins Bridge Rd	West	T1	290	38%	21.10	LOS B	10.4
H.41 Bedwin Rd / May St PM Peak	Unwins Bridge Rd	West	L2	602	63%	11.49	LOS A	12.4

1.4 Sydenham Station: Future + Refined TTP (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.19 Gleeson Ave / Burrows Road - AM Peak	Gleeson Ave	South	T1	401	19%	10.52	LOS A	4.9
B.19 Gleeson Ave / Burrows Road - AM Peak	Burrows Ave	East	L2	17	10%	56.17	LOS D	0.9
B.19 Gleeson Ave / Burrows Road - AM Peak	Burrows Ave	East	R2	211	88%	67.84	LOS E	9.2
B.19 Gleeson Ave / Burrows Road - AM Peak	Gleeson Ave	North	T1	647	47%	6.14	LOS A	7.2
B.19 Gleeson Ave / Burrows Road - AM Peak	Gleeson Ave	North	L2	296	47%	10.65	LOS A	7.1
B.19 Gleeson Ave / Burrows Road - AM Peak	Burrows Ave	West	R2	5	3%	52.77	LOS D	0.3
B.19 Gleeson Ave / Burrows Road - AM Peak	Burrows Ave	West	T1	1	5%	54.24	LOS D	0.3
B.19 Gleeson Ave / Burrows Road - AM Peak	Burrows Ave	West	L2	9	5%	58.84	LOS E	0.3
B.19 Gleeson Ave / Burrows Road - PM Peak	Gleeson Ave	South	T1	871	56%	19.20	LOS B	13.9
B.19 Gleeson Ave / Burrows Road - PM Peak	Burrows Ave	East	L2	37	7%	39.68	LOS C	1.6
B.19 Gleeson Ave / Burrows Road - PM Peak	Burrows Ave	East	R2	537	71%	45.62	LOS D	17.4
B.19 Gleeson Ave / Burrows Road - PM Peak	Gleeson Ave	North	T1	699	70%	29.24	LOS C	26.2
B.19 Gleeson Ave / Burrows Road - PM Peak	Gleeson Ave	North	L2	330	70%	33.87	LOS C	22.6
B.19 Gleeson Ave / Burrows Road - PM Peak	Burrows Ave	West	R2	11	6%	53.52	LOS D	0.6
B.19 Gleeson Ave / Burrows Road - PM Peak	Burrows Ave	West	T1	3	14%	55.39	LOS D	1.1
B.19 Gleeson Ave / Burrows Road - PM Peak	Burrows Ave	West	L2	34	14%	59.61	LOS E	1.1
H.23 Gleeson Ave / Railway Pde - AM Peak	Gleeson Ave	South	L2	660	26%	2.95	LOS A	0.0
H.23 Gleeson Ave / Railway Pde - AM Peak	Railway Pde	East	L2	1127	54%	6.91	LOS A	13.5
H.23 Gleeson Ave / Railway Pde - AM Peak	Railway Pde	East	T1	239	15%	2.51	LOS A	2.8
H.23 Gleeson Ave / Railway Pde - PM Peak	Gleeson Ave	South	L2	1416	51%	2.92	LOS A	0.0
H.23 Gleeson Ave / Railway Pde - PM Peak	Railway Pde	East	L2	1115	42%	6.73	LOS A	9.8
H.23 Gleeson Ave / Railway Pde - PM Peak	Railway Pde	East	T1	314	20%	3.25	LOS A	4.4
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Railway Rd	South	R2	33	20%	21.90	LOS B	3.9
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Railway Rd	South	T1	261	20%	14.04	LOS A	5.2
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Railway Rd	South	L2	21	20%	15.41	LOS B	5.2
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	East	L2	37	9%	37.01	LOS C	2.0
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	East	R2	17	47%	41.55	LOS C	12.1
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	East	T1	248	47%	36.75	LOS C	12.1
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Gleeson Ave	North	T1	458	46%	15.39	LOS B	15.7
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Gleeson Ave	North	L2	70	46%	18.04	LOS B	15.7
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Gleeson Ave	North	R2	202	46%	26.44	LOS B	9.7
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	West	R2	28	26%	43.86	LOS D	5.0
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	West	T1	206	26%	35.66	LOS C	6.2
H.24 Gleeson Ave / Unwins Bridge Rd AM Peak	Unwins Bridge Rd	West	L2	13	26%	38.95	LOS C	6.2
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Railway Rd	South	R2	41	53%	25.84	LOS B	13.0
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Railway Rd	South	T1	679	53%	18.43	LOS B	13.9
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Railway Rd	South	L2	157	53%	18.09	LOS B	13.9
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	East	L2	62	72%	36.60	LOS C	22.8
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	East	R2	68	65%	50.15	LOS D	12.8
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	East	T1	620	72%	35.95	LOS C	22.8
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Gleeson Ave	North	T1	503	55%	20.51	LOS B	20.7
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Gleeson Ave	North	L2	63	55%	23.17	LOS B	20.7

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Gleeson Ave	North	R2	100	55%	41.13	LOS C	6.1
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	West	R2	29	45%	49.50	LOS D	7.7
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	West	T1	155	45%	40.64	LOS C	7.7
H.24 Gleeson Ave / Unwins Bridge Rd PM Peak	Unwins Bridge Rd	West	L2	14	9%	31.46	LOS C	1.8
H.39 Edinburgh Rd / Murray St AM peak	Murray St	South	R2	2	2%	10.60	LOS A	0.1
H.39 Edinburgh Rd / Murray St AM peak	Murray St	South	T1	3	2%	7.58	LOS A	0.1
H.39 Edinburgh Rd / Murray St AM peak	Murray St	South	L2	2	2%	7.84	LOS A	0.1
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	East	L2	13	38%	5.28	LOS A	2.3
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	East	R2	59	38%	7.51	LOS A	2.3
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	East	T1	212	38%	4.59	LOS A	2.3
H.39 Edinburgh Rd / Murray St AM peak	Murray St	North	T1	4	15%	6.92	LOS A	0.6
H.39 Edinburgh Rd / Murray St AM peak	Murray St	North	L2	42	15%	7.24	LOS A	0.6
H.39 Edinburgh Rd / Murray St AM peak	Murray St	North	R2	29	15%	10.05	LOS A	0.6
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	West	R2	14	36%	7.86	LOS A	1.8
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	West	T1	208	36%	4.86	LOS A	1.8
H.39 Edinburgh Rd / Murray St AM peak	Edinburgh Rd	West	L2	11	36%	5.21	LOS A	1.8
H.39 Edinburgh Rd / Murray St PM peak	Murray St	South	R2	14	14%	18.48	LOS B	0.6
H.39 Edinburgh Rd / Murray St PM peak	Murray St	South	T1	3	14%	15.38	LOS B	0.6
H.39 Edinburgh Rd / Murray St PM peak	Murray St	South	L2	18	14%	15.80	LOS B	0.6
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	East	L2	3	61%	5.76	LOS A	5.6
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	East	R2	145	61%	7.87	LOS A	5.6
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	East	T1	447	61%	4.88	LOS A	5.6
H.39 Edinburgh Rd / Murray St PM peak	Murray St	North	T1	5	50%	9.12	LOS A	3.0
H.39 Edinburgh Rd / Murray St PM peak	Murray St	North	L2	170	50%	9.35	LOS A	3.0
H.39 Edinburgh Rd / Murray St PM peak	Murray St	North	R2	70	50%	12.11	LOS A	3.0
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	West	R2	7	44%	9.98	LOS A	2.4
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	West	T1	211	44%	6.71	LOS A	2.4
H.39 Edinburgh Rd / Murray St PM peak	Edinburgh Rd	West	L2	22	44%	6.95	LOS A	2.4
H.40 Edinburgh Rd / Bedwin Rd AM_superseded	Bedwin Rd	South	R1	412	23%	3.36	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd AM_superseded	Bedwin Rd	South	L2	191	11%	4.47	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd AM_superseded	Edgeware Rd	SouthEast	L3	146	34%	28.48	LOS B	3.0
H.40 Edinburgh Rd / Bedwin Rd AM_superseded	Edgeware Rd	NorthEast	L1	431	35%	2.90	LOS A	1.8
H.40 Edinburgh Rd / Bedwin Rd AM_superseded	Edgeware Rd	NorthEast	L2	35	6%	3.56	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd AM_superseded	Edgeware Rd	NorthEast	L3	53	6%	4.11	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd AM_superseded	Edinburgh Rd	West	R2	116	40%	18.32	LOS B	1.6
H.40 Edinburgh Rd / Bedwin Rd AM_superseded	Edinburgh Rd	West	L1	46	6%	5.46	LOS A	0.2
H.40 Edinburgh Rd / Bedwin Rd PM_superseded	Bedwin Rd	South	R1	708	38%	3.33	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd PM_superseded	Bedwin Rd	South	L2	335	18%	4.40	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd PM_superseded	Edgeware Rd	SouthEast	L3	251	55%	27.19	LOS B	5.1
H.40 Edinburgh Rd / Bedwin Rd PM_superseded	Edgeware Rd	NorthEast	L1	588	51%	4.33	LOS A	4.0
H.40 Edinburgh Rd / Bedwin Rd PM_superseded	Edgeware Rd	NorthEast	L2	36	5%	3.51	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd PM_superseded	Edgeware Rd	NorthEast	L3	48	5%	4.11	LOS A	0.0
H.40 Edinburgh Rd / Bedwin Rd PM_superseded	Edinburgh Rd	West	R2	120	80%	56.19	LOS D	3.8
H.40 Edinburgh Rd / Bedwin Rd PM_superseded	Edinburgh Rd	West	L1	64	11%	7.89	LOS A	0.4

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.41 Bedwin Rd / May St AM Peak	Campbell St	South	T1	99	43%	54.40	LOS D	3.4
H.41 Bedwin Rd / May St AM Peak	Campbell St	South	L2	24	43%	59.19	LOS E	3.2
H.41 Bedwin Rd / May St AM Peak	May St	East	L2	19	19%	21.03	LOS B	4.5
H.41 Bedwin Rd / May St AM Peak	May St	East	R2	93	57%	54.36	LOS D	5.3
H.41 Bedwin Rd / May St AM Peak	May St	East	T1	147	57%	17.65	LOS B	5.3
H.41 Bedwin Rd / May St AM Peak	Bedwin Rd	North	T1	247	63%	27.02	LOS B	20.0
H.41 Bedwin Rd / May St AM Peak	Bedwin Rd	North	L2	225	63%	31.66	LOS C	20.0
H.41 Bedwin Rd / May St AM Peak	Bedwin Rd	North	R2	238	39%	34.69	LOS C	9.4
H.41 Bedwin Rd / May St AM Peak	Unwins Bridge Rd	West	R2	76	68%	53.83	LOS D	10.2
H.41 Bedwin Rd / May St AM Peak	Unwins Bridge Rd	West	T1	367	68%	21.91	LOS B	16.7
H.41 Bedwin Rd / May St AM Peak	Unwins Bridge Rd	West	L2	400	61%	14.12	LOS A	16.7
H.41 Bedwin Rd / May St PM Peak	Campbell St	South	T1	228	84%	58.00	LOS E	9.2
H.41 Bedwin Rd / May St PM Peak	Campbell St	South	L2	77	84%	63.83	LOS E	8.3
H.41 Bedwin Rd / May St PM Peak	May St	East	L2	33	84%	34.88	LOS C	23.7
H.41 Bedwin Rd / May St PM Peak	May St	East	R2	270	89%	57.08	LOS E	15.6
H.41 Bedwin Rd / May St PM Peak	May St	East	T1	514	84%	30.35	LOS C	23.7
H.41 Bedwin Rd / May St PM Peak	Bedwin Rd	North	T1	281	90%	50.02	LOS D	31.0
H.41 Bedwin Rd / May St PM Peak	Bedwin Rd	North	L2	277	90%	54.59	LOS D	31.0
H.41 Bedwin Rd / May St PM Peak	Bedwin Rd	North	R2	502	90%	61.62	LOS E	31.0
H.41 Bedwin Rd / May St PM Peak	Unwins Bridge Rd	West	R2	14	38%	25.79	LOS B	10.4
H.41 Bedwin Rd / May St PM Peak	Unwins Bridge Rd	West	T1	290	38%	21.10	LOS B	10.4
H.41 Bedwin Rd / May St PM Peak	Unwins Bridge Rd	West	L2	602	63%	11.49	LOS A	12.4

2.0 Marrickville Station

2.1 Marrickville Station: Future

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd S	South	T1	660	59%	13.66	LOS A	20.1
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd S	South	L2	22	59%	18.31	LOS B	20.1
B.16 Illawarra Road / Warren Road - AM	Warren Rd S	East	L2	12	48%	37.70	LOS C	8.3
B.16 Illawarra Road / Warren Road - AM	Warren Rd S	East	R2	75	48%	37.72	LOS C	8.3
B.16 Illawarra Road / Warren Road - AM	Warren Rd S	East	T1	119	48%	33.14	LOS C	8.3
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd N	North	T1	284	60%	20.76	LOS B	11.6
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd N	North	L2	15	3%	20.02	LOS B	0.5
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd N	North	R2	18	60%	25.32	LOS B	11.6
B.16 Illawarra Road / Warren Road - AM	Warren Rd N	West	R2	171	81%	45.04	LOS D	16.4
B.16 Illawarra Road / Warren Road - AM	Warren Rd N	West	T1	137	81%	40.45	LOS C	16.4
B.16 Illawarra Road / Warren Road - AM	Warren Rd N	West	L2	33	81%	45.04	LOS D	16.4
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd S	South	T1	379	35%	11.50	LOS A	9.9
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd S	South	L2	24	35%	16.07	LOS B	9.9
B.16 Illawarra Road / Warren Road - PM	Warren Rd S	East	L2	28	65%	38.99	LOS C	13.4
B.16 Illawarra Road / Warren Road - PM	Warren Rd S	East	R2	98	65%	38.99	LOS C	13.4
B.16 Illawarra Road / Warren Road - PM	Warren Rd S	East	T1	188	65%	34.42	LOS C	13.4
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd N	North	T1	735	69%	7.95	LOS A	13.7
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd N	North	L2	18	14%	9.82	LOS A	1.5
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd N	North	R2	53	69%	13.04	LOS A	13.7
B.16 Illawarra Road / Warren Road - PM	Warren Rd N	West	R2	171	89%	58.25	LOS E	18.4
B.16 Illawarra Road / Warren Road - PM	Warren Rd N	West	T1	113	89%	53.66	LOS D	18.4
B.16 Illawarra Road / Warren Road - PM	Warren Rd N	West	L2	39	89%	58.22	LOS E	18.4
B.17 Marrickville Road / Illawarra Road - AM	Illawarra Rd S	South	R2	207	82%	48.64	LOS D	9.4
B.17 Marrickville Road / Illawarra Road - AM	Illawarra Rd S	South	T1	280	83%	40.74	LOS C	13.6
B.17 Marrickville Road / Illawarra Road - AM	Illawarra Rd S	South	L2	28	83%	45.48	LOS D	13.6
B.17 Marrickville Road / Illawarra Road - AM	Marrickville Rd S	East	L2	93	10%	14.53	LOS B	1.9
B.17 Marrickville Road / Illawarra Road - AM	Marrickville Rd S	East	R2	9	37%	15.77	LOS B	8.4
B.17 Marrickville Road / Illawarra Road - AM	Marrickville Rd S	East	T1	351	37%	11.21	LOS A	8.4
B.17 Marrickville Road / Illawarra Road - AM	Illawarra Rd N	North	T1	89	28%	23.10	LOS B	3.5
B.17 Marrickville Road / Illawarra Road - AM	Illawarra Rd N	North	L2	16	28%	27.66	LOS B	3.5
B.17 Marrickville Road / Illawarra Road - AM	Illawarra Rd N	North	R2	17	28%	27.73	LOS B	3.5
B.17 Marrickville Road / Illawarra Road - AM	Marrickville Rd N	West	R2	55	82%	18.42	LOS B	18.2
B.17 Marrickville Road / Illawarra Road - AM	Marrickville Rd N	West	T1	716	82%	13.16	LOS A	18.2
B.17 Marrickville Road / Illawarra Road - AM	Marrickville Rd N	West	L2	75	16%	12.70	LOS A	2.2
B.17 Marrickville Road / Illawarra Road - PM	Illawarra Rd S	South	R2	128	60%	53.61	LOS D	6.3

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.17 Marrickville Road / Illawarra Road - PM	Illawarra Rd S	South	T1	145	53%	42.79	LOS D	8.6
B.17 Marrickville Road / Illawarra Road - PM	Illawarra Rd S	South	L2	40	53%	47.35	LOS D	8.6
B.17 Marrickville Road / Illawarra Road - PM	Marrickville Rd S	East	L2	172	18%	11.58	LOS A	2.3
B.17 Marrickville Road / Illawarra Road - PM	Marrickville Rd S	East	R2	11	59%	10.81	LOS A	10.9
B.17 Marrickville Road / Illawarra Road - PM	Marrickville Rd S	East	T1	672	59%	6.24	LOS A	10.9
B.17 Marrickville Road / Illawarra Road - PM	Illawarra Rd N	North	T1	257	73%	31.27	LOS C	13.4
B.17 Marrickville Road / Illawarra Road - PM	Illawarra Rd N	North	L2	22	73%	35.84	LOS C	13.4
B.17 Marrickville Road / Illawarra Road - PM	Illawarra Rd N	North	R2	40	73%	35.84	LOS C	13.4
B.17 Marrickville Road / Illawarra Road - PM	Marrickville Rd N	West	R2	102	66%	19.97	LOS B	12.7
B.17 Marrickville Road / Illawarra Road - PM	Marrickville Rd N	West	T1	379	66%	14.57	LOS B	12.7
B.17 Marrickville Road / Illawarra Road - PM	Marrickville Rd N	West	L2	47	13%	15.96	LOS B	2.9
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd S	South	R2	283	93%	65.65	LOS E	20.5
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd S	South	T1	397	103%	100.72	LOS F	32.0
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd S	South	L2	53	103%	111.87	LOS F	32.0
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd S	East	L2	73	19%	18.44	LOS B	4.4
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd S	East	R2	45	38%	28.12	LOS B	7.8
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd S	East	T1	278	38%	20.01	LOS B	7.8
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd N	North	T1	167	102%	71.35	LOS F	14.5
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd N	North	L2	59	61%	42.10	LOS C	5.0
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd N	North	R2	101	102%	103.87	LOS F	14.5
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd N	West	R2	33	78%	23.32	LOS B	18.5
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd N	West	T1	538	78%	18.73	LOS B	18.5
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd N	West	L2	205	20%	8.45	LOS A	2.7
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd S	South	R2	174	87%	57.72	LOS E	16.0
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd S	South	T1	210	87%	47.68	LOS D	16.0
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd S	South	L2	60	48%	45.69	LOS D	7.1
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd S	East	L2	336	107%	136.45	LOS F	70.0
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd S	East	R2	48	64%	45.93	LOS D	10.1
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd S	East	T1	557	107%	104.43	LOS F	70.0
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd N	North	T1	473	80%	36.57	LOS C	16.3
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd N	North	L2	35	80%	42.57	LOS D	16.3
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd N	North	R2	190	80%	38.22	LOS C	15.6
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd N	West	R2	89	72%	54.40	LOS D	5.6
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd N	West	T1	273	72%	23.79	LOS B	14.5
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd N	West	L2	154	58%	26.60	LOS B	14.5
H.19 Petersham Road / Illawarra Road - AM	Illawarra Road	South	T1	538	50%	8.98	LOS A	12.5
H.19 Petersham Road / Illawarra Road - AM	Illawarra Road	South	L1	208	13%	5.17	LOS A	1.1

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.19 Petersham Road / Illawarra Road - AM	Illawarra Road	North	T1	207	26%	9.87	LOS A	5.3
H.19 Petersham Road / Illawarra Road - AM	Illawarra Road	North	R3	31	26%	15.10	LOS B	5.3
H.19 Petersham Road / Illawarra Road - AM	Petersham Road	Northwest	R1	214	48%	43.44	LOS D	12.3
H.19 Petersham Road / Illawarra Road - AM	Petersham Road	Northwest	L3	74	48%	44.93	LOS D	12.3
H.19 Petersham Road / Illawarra Road - PM	Illawarra Road	South	T1	343	25%	4.05	LOS A	4.8
H.19 Petersham Road / Illawarra Road - PM	Illawarra Road	South	L1	127	8%	5.30	LOS A	0.7
H.19 Petersham Road / Illawarra Road - PM	Illawarra Road	North	T1	600	53%	5.49	LOS A	12.9
H.19 Petersham Road / Illawarra Road - PM	Illawarra Road	North	R3	74	53%	10.69	LOS A	12.9
H.19 Petersham Road / Illawarra Road - PM	Petersham Road	Northwest	R1	202	53%	45.37	LOS D	10.1
H.19 Petersham Road / Illawarra Road - PM	Petersham Road	Northwest	L3	35	53%	46.88	LOS D	10.1
H.38 Marrickville Station Overbridge AM	Illawarra Road	South	T1	726	49%	4.24	LOS A	12.3
H.38 Marrickville Station Overbridge AM	Illawarra Road	North	T1	415	28%	3.36	LOS A	5.6
H.38 Marrickville Station Overbridge PM	Illawarra Road	South	T1	463	31%	3.64	LOS A	6.4
H.38 Marrickville Station Overbridge PM	Illawarra Road	North	T1	794	54%	4.73	LOS A	14.2

2.2 Marrickville Station: Future + Construction + Refined Baseline TTP

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd S	South	T1	673	60%	13.23	LOS A	20.3
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd S	South	L2	22	60%	17.88	LOS B	20.3
B.16 Illawarra Road / Warren Road - AM	Warren Rd S	East	L2	12	54%	40.64	LOS C	8.6
B.16 Illawarra Road / Warren Road - AM	Warren Rd S	East	R2	75	54%	40.65	LOS C	8.6
B.16 Illawarra Road / Warren Road - AM	Warren Rd S	East	T1	119	54%	36.07	LOS C	8.6
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd N	North	T1	297	73%	25.85	LOS B	14.2
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd N	North	L2	15	4%	19.05	LOS B	0.5
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd N	North	R2	33	73%	30.90	LOS C	14.2
B.16 Illawarra Road / Warren Road - AM	Warren Rd N	West	R2	171	89%	55.41	LOS D	19.7
B.16 Illawarra Road / Warren Road - AM	Warren Rd N	West	T1	137	89%	50.82	LOS D	19.7
B.16 Illawarra Road / Warren Road - AM	Warren Rd N	West	L2	48	89%	55.68	LOS D	19.7
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd S	South	T1	392	38%	12.88	LOS A	11.0
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd S	South	L2	24	38%	17.44	LOS B	11.0
B.16 Illawarra Road / Warren Road - PM	Warren Rd S	East	L2	28	63%	38.01	LOS C	13.2
B.16 Illawarra Road / Warren Road - PM	Warren Rd S	East	R2	98	63%	38.02	LOS C	13.2
B.16 Illawarra Road / Warren Road - PM	Warren Rd S	East	T1	188	63%	33.45	LOS C	13.2
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd N	North	T1	748	83%	10.54	LOS A	18.6
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd N	North	L2	18	17%	10.14	LOS A	1.8
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd N	North	R2	68	83%	16.46	LOS B	18.6
B.16 Illawarra Road / Warren Road - PM	Warren Rd N	West	R2	171	88%	55.18	LOS D	18.8
B.16 Illawarra Road / Warren Road - PM	Warren Rd N	West	T1	113	88%	50.59	LOS D	18.8
B.16 Illawarra Road / Warren Road - PM	Warren Rd N	West	L2	55	88%	55.40	LOS D	18.8
B.17 Marrickville Road / Illawarra Road - AM	Illawarra Rd S	South	R2	235	95%	65.11	LOS E	12.9
B.17 Marrickville Road / Illawarra Road - AM	Illawarra Rd S	South	T1	280	82%	38.77	LOS C	13.4
B.17 Marrickville Road / Illawarra Road - AM	Illawarra Rd S	South	L2	28	82%	43.50	LOS D	13.4
B.17 Marrickville Road / Illawarra Road - AM	Marrickville Rd S	East	L2	121	16%	16.21	LOS B	2.6
B.17 Marrickville Road / Illawarra Road - AM	Marrickville Rd S	East	R2	9	47%	18.40	LOS B	10.7
B.17 Marrickville Road / Illawarra Road - AM	Marrickville Rd S	East	T1	392	47%	13.83	LOS A	10.7
B.17 Marrickville Road / Illawarra Road - AM	Illawarra Rd N	North	T1	89	25%	20.89	LOS B	3.3
B.17 Marrickville Road / Illawarra Road - AM	Illawarra Rd N	North	L2	16	25%	25.45	LOS B	3.3
B.17 Marrickville Road / Illawarra Road - AM	Illawarra Rd N	North	R2	17	25%	25.52	LOS B	3.3
B.17 Marrickville Road / Illawarra Road - AM	Marrickville Rd N	West	R2	55	98%	56.23	LOS D	38.0
B.17 Marrickville Road / Illawarra Road - AM	Marrickville Rd N	West	T1	757	98%	46.16	LOS D	38.0
B.17 Marrickville Road / Illawarra Road - AM	Marrickville Rd N	West	L2	75	20%	13.59	LOS A	2.6
B.17 Marrickville Road / Illawarra Road - PM	Illawarra Rd S	South	R2	156	77%	54.39	LOS D	7.8
B.17 Marrickville Road / Illawarra Road - PM	Illawarra Rd S	South	T1	145	49%	40.40	LOS C	8.4

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.17 Marrickville Road / Illawarra Road - PM	Illawarra Rd S	South	L2	40	49%	44.97	LOS D	8.4
B.17 Marrickville Road / Illawarra Road - PM	Marrickville Rd S	East	L2	200	24%	14.49	LOS A	3.5
B.17 Marrickville Road / Illawarra Road - PM	Marrickville Rd S	East	R2	11	81%	17.22	LOS B	19.0
B.17 Marrickville Road / Illawarra Road - PM	Marrickville Rd S	East	T1	712	81%	12.95	LOS A	19.0
B.17 Marrickville Road / Illawarra Road - PM	Illawarra Rd N	North	T1	257	65%	26.89	LOS B	12.1
B.17 Marrickville Road / Illawarra Road - PM	Illawarra Rd N	North	L2	22	65%	31.45	LOS C	12.1
B.17 Marrickville Road / Illawarra Road - PM	Illawarra Rd N	North	R2	40	65%	31.45	LOS C	12.1
B.17 Marrickville Road / Illawarra Road - PM	Marrickville Rd N	West	R2	102	90%	50.24	LOS D	22.6
B.17 Marrickville Road / Illawarra Road - PM	Marrickville Rd N	West	T1	420	90%	37.62	LOS C	22.6
B.17 Marrickville Road / Illawarra Road - PM	Marrickville Rd N	West	L2	47	18%	17.46	LOS B	3.8
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd S	South	R2	283	116%	216.18	LOS F	39.6
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd S	South	T1	397	129%	307.99	LOS F	58.6
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd S	South	L2	53	129%	328.74	LOS F	58.6
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd S	East	L2	73	41%	16.64	LOS B	9.8
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd S	East	R2	45	82%	62.90	LOS E	4.2
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd S	East	T1	334	82%	16.36	LOS B	9.8
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd N	North	T1	167	138%	239.11	LOS F	31.8
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd N	North	L2	59	83%	61.72	LOS E	6.7
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd N	North	R2	101	138%	405.54	LOS F	31.8
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd N	West	R2	33	127%	278.90	LOS F	72.9
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd N	West	T1	593	127%	242.42	LOS F	72.9
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd N	West	L2	205	27%	9.07	LOS A	3.5
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd S	South	R2	174	104%	122.39	LOS F	24.5
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd S	South	T1	210	104%	84.85	LOS F	24.5
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd S	South	L2	60	57%	49.15	LOS D	7.3
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd S	East	L2	336	105%	120.80	LOS F	70.1
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd S	East	R2	48	63%	41.98	LOS C	10.7
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd S	East	T1	614	105%	91.63	LOS F	70.1
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd N	North	T1	473	91%	47.69	LOS D	19.3
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd N	North	L2	35	91%	53.94	LOS D	19.3
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd N	North	R2	190	91%	48.81	LOS D	18.3
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd N	West	R2	89	82%	58.92	LOS E	7.6
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd N	West	T1	330	82%	23.96	LOS B	14.8
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd N	West	L2	154	66%	23.65	LOS B	14.8
H.19 Petersham Road / Illawarra Road - AM	Illawarra Road	South	T1	566	54%	8.31	LOS A	12.9
H.19 Petersham Road / Illawarra Road - AM	Illawarra Road	South	L1	208	13%	5.17	LOS A	1.1
H.19 Petersham Road / Illawarra Road - AM	Illawarra Road	North	T1	235	30%	9.23	LOS A	5.8

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.19 Petersham Road / Illawarra Road - AM	Illawarra Road	North	R3	31	30%	14.46	LOS A	5.8
H.19 Petersham Road / Illawarra Road - AM	Petersham Road	Northwest	R1	214	51%	44.55	LOS D	12.5
H.19 Petersham Road / Illawarra Road - AM	Petersham Road	Northwest	L3	74	51%	46.04	LOS D	12.5
H.19 Petersham Road / Illawarra Road - PM	Illawarra Road	South	T1	371	29%	4.21	LOS A	5.4
H.19 Petersham Road / Illawarra Road - PM	Illawarra Road	South	L1	127	8%	5.30	LOS A	0.7
H.19 Petersham Road / Illawarra Road - PM	Illawarra Road	North	T1	628	58%	6.24	LOS A	14.6
H.19 Petersham Road / Illawarra Road - PM	Illawarra Road	North	R3	74	58%	11.43	LOS A	14.6
H.19 Petersham Road / Illawarra Road - PM	Petersham Road	Northwest	R1	202	53%	45.37	LOS D	10.1
H.19 Petersham Road / Illawarra Road - PM	Petersham Road	Northwest	L3	35	53%	46.88	LOS D	10.1
H.38 Marrickville Station Overbridge AM	Illawarra Road	South	T1	754	53%	4.45	LOS A	13.4
H.38 Marrickville Station Overbridge AM	Illawarra Road	North	T1	443	32%	3.49	LOS A	6.2
H.38 Marrickville Station Overbridge PM	Illawarra Road	South	T1	491	35%	3.79	LOS A	7.1
H.38 Marrickville Station Overbridge PM	Illawarra Road	North	T1	822	58%	4.97	LOS A	15.5

2.3 Marrickville Station: Future (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd S	South	T1	424	38%	11.51	LOS A	10.9
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd S	South	L2	16	38%	16.16	LOS B	10.9
B.16 Illawarra Road / Warren Road - AM	Warren Rd S	East	L2	9	30%	33.50	LOS C	5.2
B.16 Illawarra Road / Warren Road - AM	Warren Rd S	East	R2	48	30%	33.52	LOS C	5.2
B.16 Illawarra Road / Warren Road - AM	Warren Rd S	East	T1	85	30%	28.94	LOS C	5.2
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd N	North	T1	204	41%	16.88	LOS B	7.5
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd N	North	L2	10	2%	19.87	LOS B	0.3
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd N	North	R2	12	41%	21.44	LOS B	7.5
B.16 Illawarra Road / Warren Road - AM	Warren Rd N	West	R2	122	54%	36.12	LOS C	9.2
B.16 Illawarra Road / Warren Road - AM	Warren Rd N	West	T1	87	54%	31.53	LOS C	9.2
B.16 Illawarra Road / Warren Road - AM	Warren Rd N	West	L2	21	54%	36.12	LOS C	9.2
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd S	South	T1	345	30%	9.65	LOS A	8.2
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd S	South	L2	22	30%	14.21	LOS A	8.2
B.16 Illawarra Road / Warren Road - PM	Warren Rd S	East	L2	26	67%	40.86	LOS C	12.6
B.16 Illawarra Road / Warren Road - PM	Warren Rd S	East	R2	89	67%	40.86	LOS C	12.6
B.16 Illawarra Road / Warren Road - PM	Warren Rd S	East	T1	173	67%	36.29	LOS C	12.6
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd N	North	T1	677	58%	7.08	LOS A	10.9
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd N	North	L2	16	12%	10.15	LOS A	1.3
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd N	North	R2	49	58%	11.92	LOS A	10.9
B.16 Illawarra Road / Warren Road - PM	Warren Rd N	West	R2	158	91%	63.28	LOS E	17.5
B.16 Illawarra Road / Warren Road - PM	Warren Rd N	West	T1	103	91%	58.69	LOS E	17.5
B.16 Illawarra Road / Warren Road - PM	Warren Rd N	West	L2	36	91%	63.26	LOS E	17.5
B.17 Marrickville Road / Illwarra Road - AM	Illwarra Rd S	South	R2	137	44%	43.13	LOS D	5.8
B.17 Marrickville Road / Illwarra Road - AM	Illwarra Rd S	South	T1	180	46%	35.00	LOS C	8.1
B.17 Marrickville Road / Illwarra Road - AM	Illwarra Rd S	South	L2	20	46%	39.73	LOS C	8.1
B.17 Marrickville Road / Illwarra Road - AM	Marrickville Rd S	East	L2	67	7%	13.86	LOS A	1.3
B.17 Marrickville Road / Illwarra Road - AM	Marrickville Rd S	East	R2	6	25%	13.89	LOS A	5.3
B.17 Marrickville Road / Illwarra Road - AM	Marrickville Rd S	East	T1	252	25%	9.32	LOS A	5.3
B.17 Marrickville Road / Illwarra Road - AM	Illwarra Rd N	North	T1	63	18%	21.43	LOS B	2.3
B.17 Marrickville Road / Illwarra Road - AM	Illwarra Rd N	North	L2	10	18%	26.00	LOS B	2.3
B.17 Marrickville Road / Illwarra Road - AM	Illwarra Rd N	North	R2	12	18%	26.06	LOS B	2.3
B.17 Marrickville Road / Illwarra Road - AM	Marrickville Rd N	West	R2	39	46%	11.28	LOS A	6.7
B.17 Marrickville Road / Illwarra Road - AM	Marrickville Rd N	West	T1	463	46%	6.69	LOS A	6.7
B.17 Marrickville Road / Illwarra Road - AM	Marrickville Rd N	West	L2	48	9%	11.77	LOS A	1.1
B.17 Marrickville Road / Illwarra Road - PM	Illwarra Rd S	South	R2	117	51%	52.08	LOS D	5.6
B.17 Marrickville Road / Illwarra Road - PM	Illwarra Rd S	South	T1	132	46%	42.36	LOS C	7.8
B.17 Marrickville Road / Illwarra Road - PM	Illwarra Rd S	South	L2	37	46%	46.92	LOS D	7.8
B.17 Marrickville Road / Illwarra Road - PM	Marrickville Rd S	East	L2	159	16%	11.53	LOS A	2.1
B.17 Marrickville Road / Illwarra Road - PM	Marrickville Rd S	East	R2	10	54%	10.54	LOS A	9.3
B.17 Marrickville Road / Illwarra Road - PM	Marrickville Rd S	East	T1	619	54%	5.97	LOS A	9.3
B.17 Marrickville Road / Illwarra Road - PM	Illwarra Rd N	North	T1	236	67%	30.24	LOS C	11.8
B.17 Marrickville Road / Illwarra Road - PM	Illwarra Rd N	North	L2	20	67%	34.80	LOS C	11.8

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.17 Marrickville Road / Illwarra Road - PM	Illwarra Rd N	North	R2	37	67%	34.81	LOS C	11.8
B.17 Marrickville Road / Illwarra Road - PM	Marrickville Rd N	West	R2	93	56%	17.92	LOS B	10.7
B.17 Marrickville Road / Illwarra Road - PM	Marrickville Rd N	West	T1	346	56%	13.06	LOS A	10.7
B.17 Marrickville Road / Illwarra Road - PM	Marrickville Rd N	West	L2	43	11%	16.33	LOS B	2.5
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd S	South	R2	181	80%	53.46	LOS D	11.2
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd S	South	T1	254	89%	54.96	LOS D	14.1
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd S	South	L2	38	89%	60.64	LOS E	14.1
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd S	East	L2	52	11%	14.71	LOS B	2.3
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd S	East	R2	30	21%	17.27	LOS B	4.3
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd S	East	T1	199	21%	11.83	LOS A	4.3
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd N	North	T1	119	80%	41.43	LOS C	7.2
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd N	North	L2	39	48%	33.18	LOS C	3.3
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd N	North	R2	74	80%	57.96	LOS E	7.2
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd N	West	R2	24	38%	16.30	LOS B	8.1
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd N	West	T1	347	38%	11.71	LOS A	8.1
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd N	West	L2	135	12%	7.37	LOS A	1.8
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd S	South	R2	159	89%	61.78	LOS E	15.1
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd S	South	T1	191	89%	50.83	LOS D	15.1
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd S	South	L2	56	49%	47.57	LOS D	6.5
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd S	East	L2	309	90%	44.16	LOS D	35.8
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd S	East	R2	44	54%	43.23	LOS D	8.7
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd S	East	T1	513	90%	39.28	LOS C	35.8
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd N	North	T1	435	85%	42.05	LOS C	16.2
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd N	North	L2	33	85%	48.25	LOS D	16.2
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd N	North	R2	176	85%	43.26	LOS D	15.4
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd N	West	R2	82	60%	51.80	LOS D	4.3
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd N	West	T1	249	60%	18.22	LOS B	12.0
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd N	West	L2	141	48%	22.30	LOS B	12.0
H.19 Petersham Road / Illawarra Road - AM	Illawarra Road	South	T1	349	30%	8.31	LOS A	7.3
H.19 Petersham Road / Illawarra Road - AM	Illawarra Road	South	L1	148	10%	5.13	LOS A	0.8
H.19 Petersham Road / Illawarra Road - AM	Illawarra Road	North	T1	148	16%	8.30	LOS A	3.3
H.19 Petersham Road / Illawarra Road - AM	Illawarra Road	North	R3	20	16%	13.53	LOS A	3.3
H.19 Petersham Road / Illawarra Road - AM	Petersham Road	NorthWest	R1	152	31%	41.24	LOS C	8.2
H.19 Petersham Road / Illawarra Road - AM	Petersham Road	NorthWest	L3	47	31%	42.74	LOS D	8.2
H.19 Petersham Road / Illawarra Road - PM	Illawarra Road	South	T1	313	23%	3.98	LOS A	4.3
H.19 Petersham Road / Illawarra Road - PM	Illawarra Road	South	L1	117	8%	5.29	LOS A	0.7
H.19 Petersham Road / Illawarra Road - PM	Illawarra Road	North	T1	552	48%	5.19	LOS A	11.2
H.19 Petersham Road / Illawarra Road - PM	Illawarra Road	North	R3	68	48%	10.38	LOS A	11.2
H.19 Petersham Road / Illawarra Road - PM	Petersham Road	NorthWest	R1	186	48%	45.11	LOS D	9.2
H.19 Petersham Road / Illawarra Road - PM	Petersham Road	NorthWest	L3	32	48%	46.62	LOS D	9.2
H.38 Marrickville Station Overbridge AM	Illawarra Road	South	T1	465	31%	3.47	LOS A	6.4
H.38 Marrickville Station Overbridge AM	Illawarra Road	North	T1	294	20%	3.11	LOS A	3.7
H.38 Marrickville Station Overbridge PM	Illawarra Road	South	T1	422	28%	3.54	LOS A	5.7
H.38 Marrickville Station Overbridge PM	Illawarra Road	North	T1	564	38%	3.93	LOS A	8.4

2.4 Marrickville Station: Future + Construction (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd S	South	T1	437	41%	11.70	LOS A	11.4
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd S	South	L2	16	41%	16.35	LOS B	11.4
B.16 Illawarra Road / Warren Road - AM	Warren Rd S	East	L2	9	30%	33.50	LOS C	5.2
B.16 Illawarra Road / Warren Road - AM	Warren Rd S	East	R2	48	30%	33.52	LOS C	5.2
B.16 Illawarra Road / Warren Road - AM	Warren Rd S	East	T1	85	30%	28.94	LOS C	5.2
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd N	North	T1	217	46%	17.26	LOS B	8.0
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd N	North	L2	10	2%	19.39	LOS B	0.3
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd N	North	R2	12	46%	21.82	LOS B	8.0
B.16 Illawarra Road / Warren Road - AM	Warren Rd N	West	R2	122	54%	36.12	LOS C	9.2
B.16 Illawarra Road / Warren Road - AM	Warren Rd N	West	T1	87	54%	31.53	LOS C	9.2
B.16 Illawarra Road / Warren Road - AM	Warren Rd N	West	L2	21	54%	36.12	LOS C	9.2
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd S	South	T1	358	32%	9.81	LOS A	8.6
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd S	South	L2	22	32%	14.37	LOS A	8.6
B.16 Illawarra Road / Warren Road - PM	Warren Rd S	East	L2	26	67%	40.88	LOS C	12.6
B.16 Illawarra Road / Warren Road - PM	Warren Rd S	East	R2	89	67%	40.88	LOS C	12.6
B.16 Illawarra Road / Warren Road - PM	Warren Rd S	East	T1	173	67%	36.31	LOS C	12.6
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd N	North	T1	690	61%	7.31	LOS A	11.6
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd N	North	L2	16	12%	10.26	LOS A	1.3
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd N	North	R2	49	61%	12.17	LOS A	11.6
B.16 Illawarra Road / Warren Road - PM	Warren Rd N	West	R2	158	92%	63.74	LOS E	17.7
B.16 Illawarra Road / Warren Road - PM	Warren Rd N	West	T1	104	92%	59.15	LOS E	17.7
B.16 Illawarra Road / Warren Road - PM	Warren Rd N	West	L2	36	92%	63.71	LOS E	17.7
B.17 Marrickville Road / Illwarra Road - AM	Illwarra Rd S	South	R2	150	48%	41.67	LOS C	6.2
B.17 Marrickville Road / Illwarra Road - AM	Illwarra Rd S	South	T1	180	43%	33.49	LOS C	8.0
B.17 Marrickville Road / Illwarra Road - AM	Illwarra Rd S	South	L2	20	43%	38.22	LOS C	8.0
B.17 Marrickville Road / Illwarra Road - AM	Marrickville Rd S	East	L2	79	10%	15.19	LOS B	1.6
B.17 Marrickville Road / Illwarra Road - AM	Marrickville Rd S	East	R2	6	26%	14.97	LOS B	5.6
B.17 Marrickville Road / Illwarra Road - AM	Marrickville Rd S	East	T1	252	26%	10.40	LOS A	5.6
B.17 Marrickville Road / Illwarra Road - AM	Illwarra Rd N	North	T1	63	17%	19.33	LOS B	2.1
B.17 Marrickville Road / Illwarra Road - AM	Illwarra Rd N	North	L2	10	17%	23.90	LOS B	2.1
B.17 Marrickville Road / Illwarra Road - AM	Illwarra Rd N	North	R2	12	17%	23.96	LOS B	2.1
B.17 Marrickville Road / Illwarra Road - AM	Marrickville Rd N	West	R2	39	50%	12.64	LOS A	7.6
B.17 Marrickville Road / Illwarra Road - AM	Marrickville Rd N	West	T1	463	50%	8.05	LOS A	7.6
B.17 Marrickville Road / Illwarra Road - AM	Marrickville Rd N	West	L2	48	10%	12.98	LOS A	1.3
B.17 Marrickville Road / Illwarra Road - PM	Illwarra Rd S	South	R2	130	34%	40.35	LOS C	5.7
B.17 Marrickville Road / Illwarra Road - PM	Illwarra Rd S	South	T1	132	27%	32.10	LOS C	7.2
B.17 Marrickville Road / Illwarra Road - PM	Illwarra Rd S	South	L2	37	27%	36.67	LOS C	7.2
B.17 Marrickville Road / Illwarra Road - PM	Marrickville Rd S	East	L2	172	25%	21.85	LOS B	4.2
B.17 Marrickville Road / Illwarra Road - PM	Marrickville Rd S	East	R2	10	84%	27.87	LOS B	23.0
B.17 Marrickville Road / Illwarra Road - PM	Marrickville Rd S	East	T1	619	84%	23.30	LOS B	23.0
B.17 Marrickville Road / Illwarra Road - PM	Illwarra Rd N	North	T1	236	41%	14.77	LOS B	7.1
B.17 Marrickville Road / Illwarra Road - PM	Illwarra Rd N	North	L2	20	41%	19.33	LOS B	7.1
B.17 Marrickville Road / Illwarra Road - PM	Illwarra Rd N	North	R2	37	41%	19.34	LOS B	7.1
B.17 Marrickville Road / Illwarra Road - PM	Marrickville Rd N	West	R2	93	95%	71.88	LOS F	22.5

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.17 Marrickville Road / Illwarra Road - PM	Marrickville Rd N	West	T1	346	95%	54.57	LOS D	22.5
B.17 Marrickville Road / Illwarra Road - PM	Marrickville Rd N	West	L2	43	19%	24.66	LOS B	4.1
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd S	South	R2	181	80%	53.46	LOS D	11.2
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd S	South	T1	254	89%	54.96	LOS D	14.1
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd S	South	L2	38	89%	60.64	LOS E	14.1
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd S	East	L2	52	11%	14.71	LOS B	2.3
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd S	East	R2	30	21%	17.27	LOS B	4.3
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd S	East	T1	199	21%	11.83	LOS A	4.3
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd N	North	T1	119	80%	41.43	LOS C	7.2
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd N	North	L2	39	48%	33.18	LOS C	3.3
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd N	North	R2	74	80%	57.96	LOS E	7.2
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd N	West	R2	24	38%	16.30	LOS B	8.1
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd N	West	T1	347	38%	11.71	LOS A	8.1
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd N	West	L2	135	12%	7.37	LOS A	1.8
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd S	South	R2	159	89%	61.78	LOS E	15.1
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd S	South	T1	191	89%	50.83	LOS D	15.1
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd S	South	L2	56	49%	47.57	LOS D	6.5
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd S	East	L2	309	90%	44.16	LOS D	35.8
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd S	East	R2	44	54%	43.23	LOS D	8.7
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd S	East	T1	513	90%	39.28	LOS C	35.8
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd N	North	T1	435	85%	42.05	LOS C	16.2
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd N	North	L2	33	85%	48.25	LOS D	16.2
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd N	North	R2	176	85%	43.26	LOS D	15.4
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd N	West	R2	82	60%	51.80	LOS D	4.3
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd N	West	T1	249	60%	18.22	LOS B	12.0
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd N	West	L2	141	48%	22.30	LOS B	12.0
H.19 Petersham Road / Illawarra Road - AM	Illawarra Road	South	T1	361	32%	8.45	LOS A	7.7
H.19 Petersham Road / Illawarra Road - AM	Illawarra Road	South	L1	133	9%	5.13	LOS A	0.7
H.19 Petersham Road / Illawarra Road - AM	Illawarra Road	North	T1	161	18%	8.43	LOS A	3.6
H.19 Petersham Road / Illawarra Road - AM	Illawarra Road	North	R3	20	18%	13.67	LOS A	3.6
H.19 Petersham Road / Illawarra Road - AM	Petersham Road	NorthWest	R1	152	31%	41.24	LOS C	8.2
H.19 Petersham Road / Illawarra Road - AM	Petersham Road	NorthWest	L3	47	31%	42.74	LOS D	8.2
H.19 Petersham Road / Illawarra Road - PM	Illawarra Road	South	T1	325	24%	4.04	LOS A	4.6
H.19 Petersham Road / Illawarra Road - PM	Illawarra Road	South	L1	117	8%	5.29	LOS A	0.7
H.19 Petersham Road / Illawarra Road - PM	Illawarra Road	North	T1	565	50%	5.30	LOS A	11.7
H.19 Petersham Road / Illawarra Road - PM	Illawarra Road	North	R3	68	50%	10.50	LOS A	11.7
H.19 Petersham Road / Illawarra Road - PM	Petersham Road	NorthWest	R1	186	48%	45.11	LOS D	9.2
H.19 Petersham Road / Illawarra Road - PM	Petersham Road	NorthWest	L3	32	48%	46.62	LOS D	9.2
H.38 Marrickville Station Overbridge AM	Illawarra Road	South	T1	477	33%	3.53	LOS A	6.7
H.38 Marrickville Station Overbridge AM	Illawarra Road	North	T1	307	22%	3.16	LOS A	3.9
H.38 Marrickville Station Overbridge PM	Illawarra Road	South	T1	434	30%	3.60	LOS A	5.9
H.38 Marrickville Station Overbridge PM	Illawarra Road	North	T1	743	51%	4.57	LOS A	12.9

2.5 Marrickville Station: Future + Construction + Refined TTS (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd S	South	T1	437	35%	7.00	LOS A	8.8
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd S	South	L2	16	35%	11.65	LOS A	8.8
B.16 Illawarra Road / Warren Road - AM	Warren Rd S	East	L2	9	47%	43.41	LOS D	6.0
B.16 Illawarra Road / Warren Road - AM	Warren Rd S	East	R2	48	47%	43.43	LOS D	6.0
B.16 Illawarra Road / Warren Road - AM	Warren Rd S	East	T1	85	47%	38.85	LOS C	6.0
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd N	North	T1	217	44%	12.21	LOS A	7.6
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd N	North	L2	10	2%	15.22	LOS B	0.3
B.16 Illawarra Road / Warren Road - AM	Illawarra Rd N	North	R2	27	44%	17.29	LOS B	7.6
B.16 Illawarra Road / Warren Road - AM	Warren Rd N	West	R2	122	88%	58.70	LOS E	13.5
B.16 Illawarra Road / Warren Road - AM	Warren Rd N	West	T1	87	88%	54.11	LOS D	13.5
B.16 Illawarra Road / Warren Road - AM	Warren Rd N	West	L2	36	88%	59.06	LOS E	13.5
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd S	South	T1	358	33%	10.88	LOS A	9.1
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd S	South	L2	22	33%	15.44	LOS B	9.1
B.16 Illawarra Road / Warren Road - PM	Warren Rd S	East	L2	26	64%	39.59	LOS C	12.3
B.16 Illawarra Road / Warren Road - PM	Warren Rd S	East	R2	89	64%	39.59	LOS C	12.3
B.16 Illawarra Road / Warren Road - PM	Warren Rd S	East	T1	173	64%	35.03	LOS C	12.3
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd N	North	T1	690	68%	8.14	LOS A	13.1
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd N	North	L2	16	14%	10.45	LOS A	1.5
B.16 Illawarra Road / Warren Road - PM	Illawarra Rd N	North	R2	64	68%	13.41	LOS A	13.1
B.16 Illawarra Road / Warren Road - PM	Warren Rd N	West	R2	158	90%	58.85	LOS E	17.8
B.16 Illawarra Road / Warren Road - PM	Warren Rd N	West	T1	103	90%	54.26	LOS D	17.8
B.16 Illawarra Road / Warren Road - PM	Warren Rd N	West	L2	51	90%	59.08	LOS E	17.8
B.17 Marrickville Road / Illwarra Road - AM	Illwarra Rd S	South	R2	166	60%	42.05	LOS C	6.9
B.17 Marrickville Road / Illwarra Road - AM	Illwarra Rd S	South	T1	180	44%	33.49	LOS C	8.0
B.17 Marrickville Road / Illwarra Road - AM	Illwarra Rd S	South	L2	20	44%	38.22	LOS C	8.0
B.17 Marrickville Road / Illwarra Road - AM	Marrickville Rd S	East	L2	95	13%	15.53	LOS B	2.0
B.17 Marrickville Road / Illwarra Road - AM	Marrickville Rd S	East	R2	6	34%	15.57	LOS B	6.8
B.17 Marrickville Road / Illwarra Road - AM	Marrickville Rd S	East	T1	293	34%	11.00	LOS A	6.8
B.17 Marrickville Road / Illwarra Road - AM	Illwarra Rd N	North	T1	63	17%	19.33	LOS B	2.1
B.17 Marrickville Road / Illwarra Road - AM	Illwarra Rd N	North	L2	10	17%	23.90	LOS B	2.1
B.17 Marrickville Road / Illwarra Road - AM	Illwarra Rd N	North	R2	12	17%	23.96	LOS B	2.1
B.17 Marrickville Road / Illwarra Road - AM	Marrickville Rd N	West	R2	39	59%	14.12	LOS A	9.5
B.17 Marrickville Road / Illwarra Road - AM	Marrickville Rd N	West	T1	504	59%	9.32	LOS A	9.5
B.17 Marrickville Road / Illwarra Road - AM	Marrickville Rd N	West	L2	48	12%	12.62	LOS A	1.5
B.17 Marrickville Road / Illwarra Road - PM	Illwarra Rd S	South	R2	145	50%	44.55	LOS D	6.6
B.17 Marrickville Road / Illwarra Road - PM	Illwarra Rd S	South	T1	132	33%	35.57	LOS C	7.4
B.17 Marrickville Road / Illwarra Road - PM	Illwarra Rd S	South	L2	37	33%	40.13	LOS C	7.4
B.17 Marrickville Road / Illwarra Road - PM	Marrickville Rd S	East	L2	187	26%	18.59	LOS B	4.1
B.17 Marrickville Road / Illwarra Road - PM	Marrickville Rd S	East	R2	10	87%	27.86	LOS B	24.7
B.17 Marrickville Road / Illwarra Road - PM	Marrickville Rd S	East	T1	659	87%	23.60	LOS B	24.7
B.17 Marrickville Road / Illwarra Road - PM	Illwarra Rd N	North	T1	236	48%	19.69	LOS B	8.8
B.17 Marrickville Road / Illwarra Road - PM	Illwarra Rd N	North	L2	20	48%	24.25	LOS B	8.8

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.17 Marrickville Road / Illwarra Road - PM	Illwarra Rd N	North	R2	37	48%	24.26	LOS B	8.8
B.17 Marrickville Road / Illwarra Road - PM	Marrickville Rd N	West	R2	93	97%	81.07	LOS F	26.2
B.17 Marrickville Road / Illwarra Road - PM	Marrickville Rd N	West	T1	387	97%	60.53	LOS E	26.2
B.17 Marrickville Road / Illwarra Road - PM	Marrickville Rd N	West	L2	43	19%	21.02	LOS B	4.1
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd S	South	R2	181	75%	50.49	LOS D	10.8
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd S	South	T1	254	83%	49.32	LOS D	13.2
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd S	South	L2	38	83%	54.51	LOS D	13.2
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd S	East	L2	52	15%	15.52	LOS B	3.0
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd S	East	R2	30	30%	19.73	LOS B	5.7
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd S	East	T1	254	30%	13.68	LOS A	5.7
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd N	North	T1	119	80%	42.14	LOS C	7.2
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd N	North	L2	39	48%	34.67	LOS C	3.3
B.18 Marrickville Road / Victoria Road - AM	Victoria Rd N	North	R2	74	80%	57.96	LOS E	7.2
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd N	West	R2	24	50%	18.15	LOS B	10.8
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd N	West	T1	402	50%	13.55	LOS A	10.8
B.18 Marrickville Road / Victoria Road - AM	Marrickville Rd N	West	L2	135	12%	7.22	LOS A	1.8
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd S	South	R2	159	95%	74.85	LOS F	17.0
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd S	South	T1	191	95%	58.59	LOS E	17.0
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd S	South	L2	56	52%	48.74	LOS D	6.6
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd S	East	L2	309	99%	78.33	LOS F	54.0
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd S	East	R2	44	59%	44.77	LOS D	8.6
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd S	East	T1	570	99%	65.29	LOS E	54.0
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd N	North	T1	435	89%	46.50	LOS D	17.1
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd N	North	L2	33	89%	53.00	LOS D	17.1
B.18 Marrickville Road / Victoria Road - PM	Victoria Rd N	North	R2	176	89%	47.04	LOS D	16.3
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd N	West	R2	82	76%	61.72	LOS E	4.5
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd N	West	T1	306	59%	18.83	LOS B	15.0
B.18 Marrickville Road / Victoria Road - PM	Marrickville Rd N	West	L2	141	59%	23.38	LOS B	15.0
H.19 Petersham Road / Illawarra Road - AM	Illawarra Road	South	T1	377	34%	7.67	LOS A	7.7
H.19 Petersham Road / Illawarra Road - AM	Illawarra Road	South	L1	133	9%	5.13	LOS A	0.7
H.19 Petersham Road / Illawarra Road - AM	Illawarra Road	North	T1	176	20%	7.69	LOS A	3.8
H.19 Petersham Road / Illawarra Road - AM	Illawarra Road	North	R3	20	20%	12.93	LOS A	3.8
H.19 Petersham Road / Illawarra Road - AM	Petersham Road	NorthWest	R1	152	33%	42.28	LOS C	8.3
H.19 Petersham Road / Illawarra Road - AM	Petersham Road	NorthWest	L3	47	33%	43.77	LOS D	8.3
H.19 Petersham Road / Illawarra Road - PM	Illawarra Road	South	T1	341	27%	4.13	LOS A	4.9
H.19 Petersham Road / Illawarra Road - PM	Illawarra Road	South	L1	116	8%	5.29	LOS A	0.6
H.19 Petersham Road / Illawarra Road - PM	Illawarra Road	North	T1	581	53%	5.46	LOS A	12.3
H.19 Petersham Road / Illawarra Road - PM	Illawarra Road	North	R3	68	53%	10.65	LOS A	12.3
H.19 Petersham Road / Illawarra Road - PM	Petersham Road	NorthWest	R1	186	48%	45.11	LOS D	9.2
H.19 Petersham Road / Illawarra Road - PM	Petersham Road	NorthWest	L3	32	48%	46.62	LOS D	9.2
H.38 Marrickville Station Overbridge AM	Illawarra Road	South	T1	493	35%	3.61	LOS A	7.1
H.38 Marrickville Station Overbridge AM	Illawarra Road	North	T1	322	24%	3.22	LOS A	4.2
H.38 Marrickville Station Overbridge PM	Illawarra Road	South	T1	450	32%	3.68	LOS A	6.3
H.38 Marrickville Station Overbridge PM	Illawarra Road	North	T1	758	53%	4.69	LOS A	13.5

3.0 Dulwich Hill Station

3.1 Dulwich Hill Station: Future

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	South	R2	24	42%	38.01	LOS C	7.2
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	South	T1	158	42%	33.31	LOS C	7.2
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	South	L2	52	8%	27.08	LOS B	1.7
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	East	L2	32	22%	18.63	LOS B	2.2
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	East	R2	54	110%	157.81	LOS F	34.8
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	East	T1	345	110%	130.67	LOS F	34.8
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	North	T1	278	106%	119.49	LOS F	28.4
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	North	L2	147	21%	13.90	LOS A	3.6
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	North	R2	76	106%	138.31	LOS F	28.4
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	West	T1	638	107%	122.61	LOS F	49.9
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	West	L2	25	24%	33.28	LOS C	4.8
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	South	R2	59	94%	70.54	LOS F	9.4
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	South	T1	298	94%	44.61	LOS D	12.6
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	South	L2	105	75%	38.27	LOS C	12.6
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	East	L2	46	20%	15.33	LOS B	3.8
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	East	R2	116	101%	74.14	LOS F	49.3
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	East	T1	798	101%	58.73	LOS E	49.3
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	North	T1	227	90%	30.67	LOS C	10.9
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	North	L2	99	54%	32.30	LOS C	10.9
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	North	R2	97	90%	64.60	LOS E	6.5
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	West	T1	379	99%	74.50	LOS F	21.8
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	West	L2	17	22%	41.60	LOS C	3.0
H.16 Wardell Road / Dudley Street AM Peak	Dudley St	East	R3	25	45%	64.81	LOS E	1.5
H.16 Wardell Road / Dudley Street AM Peak	Dudley St	East	L1	57	45%	14.72	LOS B	1.5
H.16 Wardell Road / Dudley Street AM Peak	Wardell Rd	Northeast	L3	35	54%	11.59	LOS A	5.4
H.16 Wardell Road / Dudley Street AM Peak	Wardell Rd	Northeast	T1	425	54%	6.20	LOS A	5.4
H.16 Wardell Road / Dudley Street AM Peak	Wardell Rd	Southwest	R1	21	91%	29.76	LOS C	28.8
H.16 Wardell Road / Dudley Street AM Peak	Wardell Rd	Southwest	T1	758	91%	23.21	LOS B	28.8
H.16 Wardell Road / Dudley Street PM Peak	Dudley St	East	R3	27	51%	57.55	LOS E	1.8
H.16 Wardell Road / Dudley Street PM Peak	Dudley St	East	L1	78	51%	18.49	LOS B	1.8
H.16 Wardell Road / Dudley Street PM Peak	Wardell Rd	Northeast	L3	38	82%	16.08	LOS B	22.4
H.16 Wardell Road / Dudley Street PM Peak	Wardell Rd	Northeast	T1	827	82%	10.64	LOS A	22.4
H.16 Wardell Road / Dudley Street PM Peak	Wardell Rd	Southwest	R1	28	57%	19.81	LOS B	6.5
H.16 Wardell Road / Dudley Street PM Peak	Wardell Rd	Southwest	T1	529	57%	4.33	LOS A	6.5

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	South	R2	459	65%	12.31	LOS A	11.4
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	South	T1	1211	65%	2.20	LOS A	11.4
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	South	L2	6	65%	5.21	LOS A	3.0
B.28 New Canterbury Road / Marrickville Road - AM Peak	Marrickville Rd	East	L2	198	17%	9.32	LOS A	3.7
B.28 New Canterbury Road / Marrickville Road - AM Peak	Marrickville Rd	East	R2	63	95%	85.37	LOS F	9.0
B.28 New Canterbury Road / Marrickville Road - AM Peak	Marrickville Rd	East	T1	62	95%	81.89	LOS F	9.0
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	North	T1	408	73%	58.08	LOS E	14.5
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	North	L2	82	73%	62.77	LOS E	14.1
B.28 New Canterbury Road / Marrickville Road - AM Peak	Dulwich St	West	R2	7	66%	60.88	LOS E	8.1
B.28 New Canterbury Road / Marrickville Road - AM Peak	Dulwich St	West	T1	133	66%	57.47	LOS E	8.1
B.28 New Canterbury Road / Marrickville Road - AM Peak	Dulwich St	West	L2	16	10%	57.97	LOS E	0.8
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	South	R2	228	46%	31.51	LOS C	10.9
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	South	T1	644	45%	5.59	LOS A	13.6
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	South	L2	6	45%	10.31	LOS A	13.6
B.28 New Canterbury Road / Marrickville Road - PM Peak	Marrickville Rd	East	L2	339	61%	33.91	LOS C	15.2
B.28 New Canterbury Road / Marrickville Road - PM Peak	Marrickville Rd	East	R2	55	59%	59.00	LOS E	6.9
B.28 New Canterbury Road / Marrickville Road - PM Peak	Marrickville Rd	East	T1	65	59%	55.53	LOS D	6.9
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	North	T1	1086	60%	21.56	LOS B	23.8
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	North	L2	86	60%	26.12	LOS B	23.5
B.28 New Canterbury Road / Marrickville Road - PM Peak	Dulwich St	West	R2	4	35%	56.04	LOS D	4.5
B.28 New Canterbury Road / Marrickville Road - PM Peak	Dulwich St	West	T1	78	35%	52.78	LOS D	4.5
B.28 New Canterbury Road / Marrickville Road - PM Peak	Dulwich St	West	L2	9	4%	56.84	LOS E	0.5
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	Southeast	R2	16	24%	7.98	LOS A	1.3

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	Southeast	T1	254	24%	0.11	LOS A	1.3
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	Southeast	L2	6	0%	4.61	LOS A	0.0
H.25 Ewart Street / Bayley Street AM Peak	Bayley St	Northeast	L2	35	8%	7.03	LOS A	0.3
H.25 Ewart Street / Bayley Street AM Peak	Bayley St	Northeast	R2	9	8%	14.58	LOS B	0.3
H.25 Ewart Street / Bayley Street AM Peak	Bayley St	Northeast	T1	1	8%	10.94	LOS A	0.3
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	Northwest	T1	346	30%	0.19	LOS A	1.8
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	Northwest	L2	1	0%	4.79	LOS A	0.0
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	Northwest	R2	2	30%	6.30	LOS A	1.8
H.25 Ewart Street / Bayley Street AM Peak	Dibble Ave	Southwest	R2	17	7%	13.49	LOS A	0.3
H.25 Ewart Street / Bayley Street AM Peak	Dibble Ave	Southwest	T1	6	7%	9.92	LOS A	0.3
H.25 Ewart Street / Bayley Street AM Peak	Dibble Ave	Southwest	L2	12	7%	5.62	LOS A	0.3
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	Southeast	R2	21	40%	7.26	LOS A	2.8
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	Southeast	T1	449	40%	0.02	LOS A	2.8
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	Southeast	L2	17	1%	4.59	LOS A	0.0
H.25 Ewart Street / Bayley Street PM Peak	Bayley St	Northeast	L2	41	14%	5.94	LOS A	0.5
H.25 Ewart Street / Bayley Street PM Peak	Bayley St	Northeast	R2	20	14%	18.01	LOS B	0.5
H.25 Ewart Street / Bayley Street PM Peak	Bayley St	Northeast	T1	8	14%	13.60	LOS A	0.5
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	Northwest	T1	264	25%	0.14	LOS A	1.4
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	Northwest	L2	16	1%	4.62	LOS A	0.0
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	Northwest	R2	19	25%	7.83	LOS A	1.4
H.25 Ewart Street / Bayley Street PM Peak	Dibble Ave	Southwest	R2	12	7%	18.59	LOS B	0.2
H.25 Ewart Street / Bayley Street PM Peak	Dibble Ave	Southwest	T1	3	7%	13.06	LOS A	0.2
H.25 Ewart Street / Bayley Street PM Peak	Dibble Ave	Southwest	L2	9	7%	6.76	LOS A	0.2
H.36 New Canterbury Rd / Terrace Rd AM	New Canterbury Rd	East	T1	671	43%	0.23	LOS A	2.7
H.36 New Canterbury Rd / Terrace Rd AM	New Canterbury Rd	East	L1	24	9%	5.20	LOS A	0.4
H.36 New Canterbury Rd / Terrace Rd AM	New Canterbury Rd	West	T1	1712	64%	0.54	LOS A	7.4
H.36 New Canterbury Rd / Terrace Rd AM	Terrace Rd	Southwest	L3	87	15%	10.22	LOS A	0.5
H.36 New Canterbury Rd / Terrace Rd PM	New Canterbury Rd	East	T1	1430	55%	0.11	LOS A	4.3
H.36 New Canterbury Rd / Terrace Rd PM	New Canterbury Rd	East	L1	117	55%	5.32	LOS A	4.3
H.36 New Canterbury Rd / Terrace Rd PM	New Canterbury Rd	West	T1	860	61%	0.13	LOS A	5.4
H.36 New Canterbury Rd / Terrace Rd PM	Terrace Rd	Southwest	L3	85	33%	22.49	LOS B	1.2
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	South	R2	24	41%	28.62	LOS C	9.3
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	South	T1	337	41%	19.90	LOS B	9.3

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	South	L2	111	21%	16.99	LOS B	4.7
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	East	L2	55	20%	44.15	LOS D	2.4
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	East	T1	223	67%	41.81	LOS C	10.2
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	North	T1	665	83%	25.83	LOS B	25.1
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	North	L2	42	18%	18.39	LOS B	3.9
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	North	R2	37	83%	34.24	LOS C	25.1
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	West	R2	177	110%	140.78	LOS F	44.2
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	West	T1	429	110%	99.36	LOS F	44.2
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	West	L2	21	44%	27.90	LOS B	5.3
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	South	R2	43	90%	60.76	LOS E	15.8
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	South	T1	556	90%	36.44	LOS C	22.7
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	South	L2	291	72%	27.51	LOS B	22.7
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	East	L2	38	36%	32.18	LOS C	7.8
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	East	T1	602	90%	41.35	LOS C	22.4
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	North	T1	296	92%	26.10	LOS B	9.2
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	North	L2	48	37%	24.35	LOS B	9.2
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	North	R2	63	92%	70.26	LOS E	6.4
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	West	R2	115	80%	45.59	LOS D	14.2
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	West	T1	295	80%	32.31	LOS C	14.2
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	West	L2	46	19%	22.19	LOS B	4.4

3.2 Dulwich Hill Station: Future + Construction + Refined Baseline TTP

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	South	R2	24	57%	45.02	LOS D	7.7
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	South	T1	158	57%	39.71	LOS C	7.7
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	South	L2	52	11%	31.88	LOS C	2.1
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	East	L2	32	23%	15.58	LOS B	2.3
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	East	R2	100	115%	197.75	LOS F	41.6
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	East	T1	345	115%	155.44	LOS F	41.6
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	North	T1	278	121%	232.16	LOS F	41.8
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	North	L2	177	24%	13.29	LOS A	3.7
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	North	R2	76	121%	266.08	LOS F	41.8
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	West	T1	638	128%	267.61	LOS F	77.8
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	West	L2	25	29%	37.70	LOS C	5.1
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	South	R2	59	99%	86.86	LOS F	10.0
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	South	T1	298	99%	50.79	LOS D	13.6
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	South	L2	105	79%	41.24	LOS C	13.6
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	East	L2	46	22%	14.95	LOS B	4.1
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	East	R2	162	108%	123.01	LOS F	65.4
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	East	T1	798	108%	96.90	LOS F	65.4
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	North	T1	227	108%	32.69	LOS C	12.1
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	North	L2	130	65%	31.31	LOS C	12.1
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	North	R2	97	108%	147.51	LOS F	9.7
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	West	T1	379	111%	146.62	LOS F	31.8
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	West	L2	17	25%	43.69	LOS D	3.1
H.16 Wardell Road / Dudley Street AM Peak	Dudley St	East	R3	25	58%	85.38	LOS F	2.2
H.16 Wardell Road / Dudley Street AM Peak	Dudley St	East	L1	73	58%	22.42	LOS B	2.2
H.16 Wardell Road / Dudley Street AM Peak	Wardell Rd	Northeast	L3	35	57%	12.13	LOS A	6.1
H.16 Wardell Road / Dudley Street AM Peak	Wardell Rd	Northeast	T1	441	57%	6.91	LOS A	6.1
H.16 Wardell Road / Dudley Street AM Peak	Wardell Rd	Southwest	R1	36	99%	55.41	LOS D	44.1
H.16 Wardell Road / Dudley Street AM Peak	Wardell Rd	Southwest	T1	774	99%	43.34	LOS D	44.1
H.16 Wardell Road / Dudley Street PM Peak	Dudley St	East	R3	27	65%	73.28	LOS F	2.6
H.16 Wardell Road / Dudley Street PM Peak	Dudley St	East	L1	93	65%	27.84	LOS B	2.6
H.16 Wardell Road / Dudley Street PM Peak	Wardell Rd	Northeast	L3	38	85%	17.55	LOS B	25.4
H.16 Wardell Road / Dudley Street PM Peak	Wardell Rd	Northeast	T1	842	85%	12.32	LOS A	25.4
H.16 Wardell Road / Dudley Street PM Peak	Wardell Rd	Southwest	R1	43	68%	33.04	LOS C	10.3
H.16 Wardell Road / Dudley Street PM Peak	Wardell Rd	Southwest	T1	544	68%	7.42	LOS A	10.3
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	South	R2	485	68%	13.61	LOS A	13.2

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	South	T1	1211	68%	2.28	LOS A	13.2
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	South	L2	6	68%	5.23	LOS A	3.3
B.28 New Canterbury Road / Marrickville Road - AM Peak	Marrickville Rd	East	L2	224	21%	9.60	LOS A	4.3
B.28 New Canterbury Road / Marrickville Road - AM Peak	Marrickville Rd	East	R2	63	95%	85.31	LOS F	9.0
B.28 New Canterbury Road / Marrickville Road - AM Peak	Marrickville Rd	East	T1	62	95%	81.83	LOS F	9.0
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	North	T1	408	73%	58.08	LOS E	14.5
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	North	L2	82	73%	62.77	LOS E	14.1
B.28 New Canterbury Road / Marrickville Road - AM Peak	Dulwich St	West	R2	7	66%	60.89	LOS E	8.1
B.28 New Canterbury Road / Marrickville Road - AM Peak	Dulwich St	West	T1	133	66%	57.48	LOS E	8.1
B.28 New Canterbury Road / Marrickville Road - AM Peak	Dulwich St	West	L2	16	10%	57.97	LOS E	0.8
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	South	R2	253	49%	34.74	LOS C	11.6
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	South	T1	644	44%	5.21	LOS A	13.2
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	South	L2	6	44%	9.93	LOS A	13.2
B.28 New Canterbury Road / Marrickville Road - PM Peak	Marrickville Rd	East	L2	365	64%	30.96	LOS C	15.8
B.28 New Canterbury Road / Marrickville Road - PM Peak	Marrickville Rd	East	R2	55	64%	60.93	LOS E	7.0
B.28 New Canterbury Road / Marrickville Road - PM Peak	Marrickville Rd	East	T1	65	64%	57.46	LOS E	7.0
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	North	T1	1086	65%	25.50	LOS B	26.0
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	North	L2	86	65%	30.07	LOS C	25.6
B.28 New Canterbury Road / Marrickville Road - PM Peak	Dulwich St	West	R2	4	38%	57.22	LOS E	4.5
B.28 New Canterbury Road / Marrickville Road - PM Peak	Dulwich St	West	T1	78	38%	53.95	LOS D	4.5
B.28 New Canterbury Road / Marrickville Road - PM Peak	Dulwich St	West	L2	9	4%	56.84	LOS E	0.5
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	Southeast	R2	34	27%	10.08	LOS A	1.5
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	Southeast	T1	254	27%	0.11	LOS A	1.5

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	Southeast	L2	6	0%	4.61	LOS A	0.0
H.25 Ewart Street / Bayley Street AM Peak	Bayley St	Northeast	L2	53	12%	8.11	LOS A	0.4
H.25 Ewart Street / Bayley Street AM Peak	Bayley St	Northeast	R2	9	12%	15.58	LOS B	0.4
H.25 Ewart Street / Bayley Street AM Peak	Bayley St	Northeast	T1	1	12%	11.69	LOS A	0.4
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	Northwest	T1	346	30%	0.19	LOS A	1.8
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	Northwest	L2	1	0%	4.79	LOS A	0.0
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	Northwest	R2	2	30%	6.30	LOS A	1.8
H.25 Ewart Street / Bayley Street AM Peak	Dibble Ave	Southwest	R2	17	8%	14.68	LOS B	0.3
H.25 Ewart Street / Bayley Street AM Peak	Dibble Ave	Southwest	T1	6	8%	10.35	LOS A	0.3
H.25 Ewart Street / Bayley Street AM Peak	Dibble Ave	Southwest	L2	12	8%	5.62	LOS A	0.3
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	Southeast	R2	39	43%	8.67	LOS A	3.0
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	Southeast	T1	449	43%	0.03	LOS A	3.0
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	Southeast	L2	17	1%	4.59	LOS A	0.0
H.25 Ewart Street / Bayley Street PM Peak	Bayley St	Northeast	L2	58	18%	6.61	LOS A	0.6
H.25 Ewart Street / Bayley Street PM Peak	Bayley St	Northeast	R2	20	18%	19.43	LOS B	0.6
H.25 Ewart Street / Bayley Street PM Peak	Bayley St	Northeast	T1	8	18%	14.65	LOS B	0.6
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	Northwest	T1	264	25%	0.14	LOS A	1.4
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	Northwest	L2	16	1%	4.62	LOS A	0.0
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	Northwest	R2	19	25%	7.83	LOS A	1.4
H.25 Ewart Street / Bayley Street PM Peak	Dibble Ave	Southwest	R2	12	8%	20.44	LOS B	0.3
H.25 Ewart Street / Bayley Street PM Peak	Dibble Ave	Southwest	T1	3	8%	13.75	LOS A	0.3
H.25 Ewart Street / Bayley Street PM Peak	Dibble Ave	Southwest	L2	9	8%	6.76	LOS A	0.3
H.36 New Canterbury Rd / Terrace Rd AM	New Canterbury Rd	East	T1	697	47%	0.26	LOS A	3.1
H.36 New Canterbury Rd / Terrace Rd AM	New Canterbury Rd	East	L1	40	9%	5.77	LOS A	0.4
H.36 New Canterbury Rd / Terrace Rd AM	New Canterbury Rd	West	T1	1737	65%	0.57	LOS A	7.8
H.36 New Canterbury Rd / Terrace Rd AM	Terrace Rd	Southwest	L3	104	23%	12.58	LOS A	0.8
H.36 New Canterbury Rd / Terrace Rd PM	New Canterbury Rd	East	T1	1456	58%	0.12	LOS A	4.7
H.36 New Canterbury Rd / Terrace Rd PM	New Canterbury Rd	East	L1	134	58%	5.54	LOS A	4.7
H.36 New Canterbury Rd / Terrace Rd PM	New Canterbury Rd	West	T1	886	64%	0.14	LOS A	6.0
H.36 New Canterbury Rd / Terrace Rd PM	Terrace Rd	Southwest	L3	102	55%	36.30	LOS C	2.2
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	South	R2	24	67%	43.62	LOS D	11.2
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	South	T1	362	67%	29.35	LOS C	11.2
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	South	L2	135	33%	20.48	LOS B	7.4

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	East	L2	55	18%	42.03	LOS C	2.3
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	East	T1	223	60%	38.96	LOS C	9.8
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	North	T1	691	120%	194.92	LOS F	73.1
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	North	L2	42	26%	21.34	LOS B	5.8
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	North	R2	37	120%	258.26	LOS F	73.1
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	West	R2	201	84%	48.36	LOS D	18.4
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	West	T1	429	84%	31.84	LOS C	18.4
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	West	L2	21	34%	26.12	LOS B	8.2
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	South	R2	43	102%	103.59	LOS F	20.1
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	South	T1	582	102%	53.59	LOS D	28.9
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	South	L2	316	81%	31.57	LOS C	28.9
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	East	L2	38	40%	34.90	LOS C	8.2
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	East	T1	602	100%	80.54	LOS F	32.3
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	North	T1	322	125%	60.85	LOS E	15.7
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	North	L2	48	50%	23.48	LOS B	9.7
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	North	R2	63	125%	290.96	LOS F	15.7
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	West	R2	140	109%	130.87	LOS F	25.4
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	West	T1	295	109%	69.45	LOS E	25.4
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	West	L2	46	25%	24.09	LOS B	6.2

3.3 Dulwich Hill Station: Future (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	South	R2	15	26%	35.68	LOS C	4.4
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	South	T1	102	26%	31.12	LOS C	4.4
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	South	L2	37	7%	32.25	LOS C	1.3
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	East	L2	23	12%	14.36	LOS A	1.1
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	East	R2	34	59%	20.24	LOS B	7.9
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	East	T1	246	59%	14.00	LOS A	7.9
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	North	T1	197	53%	30.96	LOS C	9.5
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	North	L2	94	11%	12.82	LOS A	1.9
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	North	R2	54	53%	38.30	LOS C	9.5
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	West	T1	412	54%	25.59	LOS B	12.9
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	West	L2	16	12%	27.71	LOS B	2.6
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	South	R2	54	85%	56.30	LOS D	7.7
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	South	T1	271	85%	38.97	LOS C	10.8
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	South	L2	97	68%	36.52	LOS C	10.8
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	East	L2	42	18%	14.72	LOS B	3.4
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	East	R2	106	90%	44.94	LOS D	30.1
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	East	T1	734	90%	34.41	LOS C	30.1
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	North	T1	208	85%	27.54	LOS B	9.3
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	North	L2	90	51%	29.35	LOS C	9.3
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	North	R2	89	85%	60.30	LOS E	5.7
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	West	T1	346	89%	49.69	LOS D	15.5
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	West	L2	15	20%	41.41	LOS C	2.7
H.16 Wardell Road / Dudley Street AM Peak	Dudley St	East	R3	16	13%	22.66	LOS B	0.4
H.16 Wardell Road / Dudley Street AM Peak	Dudley St	East	L1	42	13%	6.73	LOS A	0.4
H.16 Wardell Road / Dudley Street AM Peak	Wardell Rd	NorthEast	L3	23	38%	9.65	LOS A	2.7
H.16 Wardell Road / Dudley Street AM Peak	Wardell Rd	NorthEast	T1	302	38%	4.27	LOS A	2.7
H.16 Wardell Road / Dudley Street AM Peak	Wardell Rd	SouthWest	R1	15	59%	11.04	LOS A	6.5
H.16 Wardell Road / Dudley Street AM Peak	Wardell Rd	SouthWest	T1	487	59%	6.92	LOS A	6.5
H.16 Wardell Road / Dudley Street PM Peak	Dudley St	East	R3	24	36%	41.17	LOS C	1.3
H.16 Wardell Road / Dudley Street PM Peak	Dudley St	East	L1	72	36%	13.23	LOS A	1.3
H.16 Wardell Road / Dudley Street PM Peak	Wardell Rd	NorthEast	L3	35	76%	13.42	LOS A	16.1
H.16 Wardell Road / Dudley Street PM Peak	Wardell Rd	NorthEast	T1	761	76%	7.98	LOS A	16.1
H.16 Wardell Road / Dudley Street PM Peak	Wardell Rd	SouthWest	R1	26	51%	16.20	LOS B	5.0
H.16 Wardell Road / Dudley Street PM Peak	Wardell Rd	SouthWest	T1	481	51%	3.55	LOS A	5.0
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	South	R2	296	40%	5.69	LOS A	1.9
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	South	T1	783	40%	0.55	LOS A	1.9
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	South	L2	4	40%	4.94	LOS A	1.1
B.28 New Canterbury Road / Marrickville Road - AM Peak	Marrickville Rd	East	L2	144	13%	9.81	LOS A	2.7
B.28 New Canterbury Road / Marrickville Road - AM Peak	Marrickville Rd	East	R2	40	86%	73.37	LOS F	5.5
B.28 New Canterbury Road / Marrickville Road - AM Peak	Marrickville Rd	East	T1	44	86%	69.89	LOS E	5.5
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	North	T1	292	47%	52.94	LOS D	9.8
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	North	L2	52	47%	57.58	LOS E	9.6

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.28 New Canterbury Road / Marrickville Road - AM Peak	Dulwich St	West	R2	5	66%	65.17	LOS E	5.6
B.28 New Canterbury Road / Marrickville Road - AM Peak	Dulwich St	West	T1	88	66%	61.73	LOS E	5.6
B.28 New Canterbury Road / Marrickville Road - AM Peak	Dulwich St	West	L2	11	12%	64.77	LOS E	0.6
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	South	R2	208	43%	26.30	LOS B	9.4
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	South	T1	587	42%	5.73	LOS A	12.3
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	South	L2	5	42%	10.45	LOS A	12.3
B.28 New Canterbury Road / Marrickville Road - PM Peak	Marrickville Rd	East	L2	313	54%	35.02	LOS C	14.2
B.28 New Canterbury Road / Marrickville Road - PM Peak	Marrickville Rd	East	R2	50	51%	57.29	LOS E	6.2
B.28 New Canterbury Road / Marrickville Road - PM Peak	Marrickville Rd	East	T1	60	51%	53.82	LOS D	6.2
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	North	T1	1000	53%	19.38	LOS B	20.4
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	North	L2	78	53%	23.95	LOS B	20.2
B.28 New Canterbury Road / Marrickville Road - PM Peak	Dulwich St	West	R2	4	31%	54.67	LOS D	4.1
B.28 New Canterbury Road / Marrickville Road - PM Peak	Dulwich St	West	T1	72	31%	51.41	LOS D	4.1
B.28 New Canterbury Road / Marrickville Road - PM Peak	Dulwich St	West	L2	8	4%	55.65	LOS D	0.4
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	SouthEast	R2	12	15%	6.96	LOS A	0.8
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	SouthEast	T1	163	15%	0.10	LOS A	0.8
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	SouthEast	L2	4	0%	4.61	LOS A	0.0
H.25 Ewart Street / Bayley Street AM Peak	Bayley St	NorthEast	L2	27	5%	6.40	LOS A	0.2
H.25 Ewart Street / Bayley Street AM Peak	Bayley St	NorthEast	R2	6	5%	10.09	LOS A	0.2
H.25 Ewart Street / Bayley Street AM Peak	Bayley St	NorthEast	T1	1	5%	7.69	LOS A	0.2
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	NorthWest	T1	245	21%	0.17	LOS A	1.2
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	NorthWest	L2	1	0%	4.79	LOS A	0.0
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	NorthWest	R2	2	21%	5.52	LOS A	1.2
H.25 Ewart Street / Bayley Street AM Peak	Dibble Ave	SouthWest	R2	12	4%	9.40	LOS A	0.1
H.25 Ewart Street / Bayley Street AM Peak	Dibble Ave	SouthWest	T1	4	4%	7.00	LOS A	0.1
H.25 Ewart Street / Bayley Street AM Peak	Dibble Ave	SouthWest	L2	7	4%	5.18	LOS A	0.1
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	SouthEast	R2	20	36%	6.93	LOS A	2.4
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	SouthEast	T1	408	36%	0.02	LOS A	2.4
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	SouthEast	L2	16	1%	4.59	LOS A	0.0
H.25 Ewart Street / Bayley Street PM Peak	Bayley St	NorthEast	L2	38	12%	5.81	LOS A	0.4
H.25 Ewart Street / Bayley Street PM Peak	Bayley St	NorthEast	R2	18	12%	15.73	LOS B	0.4
H.25 Ewart Street / Bayley Street PM Peak	Bayley St	NorthEast	T1	7	12%	11.96	LOS A	0.4
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	NorthWest	T1	243	23%	0.13	LOS A	1.2
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	NorthWest	L2	14	1%	4.62	LOS A	0.0
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	NorthWest	R2	18	23%	7.36	LOS A	1.2
H.25 Ewart Street / Bayley Street PM Peak	Dibble Ave	SouthWest	R2	11	6%	16.21	LOS B	0.2
H.25 Ewart Street / Bayley Street PM Peak	Dibble Ave	SouthWest	T1	3	6%	11.54	LOS A	0.2
H.25 Ewart Street / Bayley Street PM Peak	Dibble Ave	SouthWest	L2	8	6%	6.48	LOS A	0.2
H.36 New Canterbury Rd / Terrace Rd AM	New Canterbury Rd	East	T1	482	31%	0.20	LOS A	1.7
H.36 New Canterbury Rd / Terrace Rd AM	New Canterbury Rd	East	L1	17	6%	5.21	LOS A	0.3
H.36 New Canterbury Rd / Terrace Rd AM	New Canterbury Rd	West	T1	1107	41%	0.35	LOS A	3.3
H.36 New Canterbury Rd / Terrace Rd AM	Terrace Rd	SouthWest	L3	62	8%	8.25	LOS A	0.3
H.36 New Canterbury Rd / Terrace Rd PM	New Canterbury Rd	East	T1	1317	51%	0.10	LOS A	3.7
H.36 New Canterbury Rd / Terrace Rd PM	New Canterbury Rd	East	L1	108	51%	5.28	LOS A	3.6

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.36 New Canterbury Rd / Terrace Rd PM	New Canterbury Rd	West	T1	784	56%	0.11	LOS A	4.4
H.36 New Canterbury Rd / Terrace Rd PM	Terrace Rd	SouthWest	L3	78	25%	18.18	LOS B	0.9
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	South	R2	16	25%	22.38	LOS B	5.5
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	South	T1	218	25%	15.80	LOS B	5.5
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	South	L2	79	12%	16.89	LOS B	2.7
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	East	L2	39	17%	45.87	LOS D	1.7
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	East	T1	158	52%	41.84	LOS C	7.1
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	North	T1	477	53%	16.97	LOS B	13.6
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	North	L2	27	11%	18.97	LOS B	2.4
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	North	R2	26	53%	23.16	LOS B	13.6
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	West	R2	126	53%	35.41	LOS C	10.5
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	West	T1	276	53%	26.29	LOS B	10.5
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	West	L2	13	21%	26.23	LOS B	4.7
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	South	R2	39	73%	41.79	LOS C	15.5
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	South	T1	507	73%	30.39	LOS C	16.3
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	South	L2	268	58%	26.86	LOS B	16.3
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	East	L2	35	29%	29.30	LOS C	6.5
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	East	T1	554	73%	28.04	LOS B	15.9
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	North	T1	273	69%	29.28	LOS C	8.0
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	North	L2	44	28%	25.37	LOS B	6.4
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	North	R2	58	69%	48.86	LOS D	8.0
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	West	R2	106	66%	34.39	LOS C	11.3
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	West	T1	268	66%	24.79	LOS B	11.3
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	West	L2	42	15%	20.07	LOS B	3.6

3.4 Dulwich Hill Station: Future + Construction (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	South	R2	15	26%	35.68	LOS C	4.4
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	South	T1	102	26%	31.11	LOS C	4.4
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	South	L2	37	7%	32.25	LOS C	1.3
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	East	L2	23	13%	14.46	LOS A	1.2
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	East	R2	50	67%	24.03	LOS B	9.3
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	East	T1	246	67%	16.76	LOS B	9.3
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	North	T1	197	60%	30.83	LOS C	9.8
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	North	L2	94	12%	15.55	LOS B	2.5
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	North	R2	69	60%	40.01	LOS C	9.8
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	West	T1	412	70%	31.10	LOS C	15.3
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	West	L2	31	16%	32.44	LOS C	2.6
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	South	R2	54	81%	51.18	LOS D	8.9
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	South	T1	271	81%	39.36	LOS C	9.6
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	South	L2	97	65%	37.44	LOS C	9.6
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	East	L2	42	18%	13.82	LOS A	3.4
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	East	R2	121	91%	47.76	LOS D	32.2
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	East	T1	734	91%	36.12	LOS C	32.2
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	North	T1	208	88%	31.12	LOS C	8.7
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	North	L2	90	53%	29.86	LOS C	8.7
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	North	R2	104	88%	61.41	LOS E	7.8
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	West	T1	346	92%	55.92	LOS D	17.9
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	West	L2	30	21%	41.52	LOS C	2.3
H.16 Wardell Road / Dudley Street AM Peak	Dudley St	East	R3	16	13%	22.66	LOS B	0.4
H.16 Wardell Road / Dudley Street AM Peak	Dudley St	East	L1	42	13%	6.73	LOS A	0.4
H.16 Wardell Road / Dudley Street AM Peak	Wardell Rd	NorthEast	L3	23	38%	9.65	LOS A	2.7
H.16 Wardell Road / Dudley Street AM Peak	Wardell Rd	NorthEast	T1	302	38%	4.27	LOS A	2.7
H.16 Wardell Road / Dudley Street AM Peak	Wardell Rd	SouthWest	R1	15	59%	11.04	LOS A	6.5
H.16 Wardell Road / Dudley Street AM Peak	Wardell Rd	SouthWest	T1	487	59%	6.92	LOS A	6.5
H.16 Wardell Road / Dudley Street PM Peak	Dudley St	East	R3	24	36%	41.17	LOS C	1.3
H.16 Wardell Road / Dudley Street PM Peak	Dudley St	East	L1	72	36%	13.23	LOS A	1.3
H.16 Wardell Road / Dudley Street PM Peak	Wardell Rd	NorthEast	L3	35	76%	13.42	LOS A	16.1
H.16 Wardell Road / Dudley Street PM Peak	Wardell Rd	NorthEast	T1	761	76%	7.98	LOS A	16.1
H.16 Wardell Road / Dudley Street PM Peak	Wardell Rd	SouthWest	R1	26	51%	16.20	LOS B	5.0
H.16 Wardell Road / Dudley Street PM Peak	Wardell Rd	SouthWest	T1	481	51%	3.55	LOS A	5.0
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	South	R2	296	40%	5.69	LOS A	1.9
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	South	T1	783	40%	0.55	LOS A	1.9
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	South	L2	4	40%	4.94	LOS A	1.1
B.28 New Canterbury Road / Marrickville Road - AM Peak	Marrickville Rd	East	L2	144	13%	9.81	LOS A	2.7
B.28 New Canterbury Road / Marrickville Road - AM Peak	Marrickville Rd	East	R2	40	86%	73.37	LOS F	5.5
B.28 New Canterbury Road / Marrickville Road - AM Peak	Marrickville Rd	East	T1	44	86%	69.89	LOS E	5.5
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	North	T1	292	47%	52.94	LOS D	9.8
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	North	L2	52	47%	57.58	LOS E	9.6

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.28 New Canterbury Road / Marrickville Road - AM Peak	Dulwich St	West	R2	5	66%	65.17	LOS E	5.6
B.28 New Canterbury Road / Marrickville Road - AM Peak	Dulwich St	West	T1	88	66%	61.73	LOS E	5.6
B.28 New Canterbury Road / Marrickville Road - AM Peak	Dulwich St	West	L2	11	12%	64.77	LOS E	0.6
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	South	R2	208	43%	26.30	LOS B	9.4
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	South	T1	587	42%	5.73	LOS A	12.3
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	South	L2	5	42%	10.45	LOS A	12.3
B.28 New Canterbury Road / Marrickville Road - PM Peak	Marrickville Rd	East	L2	313	54%	35.02	LOS C	14.2
B.28 New Canterbury Road / Marrickville Road - PM Peak	Marrickville Rd	East	R2	50	51%	57.29	LOS E	6.2
B.28 New Canterbury Road / Marrickville Road - PM Peak	Marrickville Rd	East	T1	60	51%	53.82	LOS D	6.2
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	North	T1	1000	53%	19.38	LOS B	20.4
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	North	L2	78	53%	23.95	LOS B	20.2
B.28 New Canterbury Road / Marrickville Road - PM Peak	Dulwich St	West	R2	4	31%	54.67	LOS D	4.1
B.28 New Canterbury Road / Marrickville Road - PM Peak	Dulwich St	West	T1	72	31%	51.41	LOS D	4.1
B.28 New Canterbury Road / Marrickville Road - PM Peak	Dulwich St	West	L2	8	4%	55.65	LOS D	0.4
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	SouthEast	R2	14	16%	7.30	LOS A	0.8
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	SouthEast	T1	163	16%	0.10	LOS A	0.8
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	SouthEast	L2	4	0%	4.61	LOS A	0.0
H.25 Ewart Street / Bayley Street AM Peak	Bayley St	NorthEast	L2	29	5%	6.54	LOS A	0.2
H.25 Ewart Street / Bayley Street AM Peak	Bayley St	NorthEast	R2	6	5%	10.17	LOS A	0.2
H.25 Ewart Street / Bayley Street AM Peak	Bayley St	NorthEast	T1	1	5%	7.75	LOS A	0.2
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	NorthWest	T1	245	21%	0.17	LOS A	1.2
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	NorthWest	L2	1	0%	4.79	LOS A	0.0
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	NorthWest	R2	2	21%	5.52	LOS A	1.2
H.25 Ewart Street / Bayley Street AM Peak	Dibble Ave	SouthWest	R2	12	4%	9.49	LOS A	0.1
H.25 Ewart Street / Bayley Street AM Peak	Dibble Ave	SouthWest	T1	4	4%	7.04	LOS A	0.1
H.25 Ewart Street / Bayley Street AM Peak	Dibble Ave	SouthWest	L2	7	4%	5.18	LOS A	0.1
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	SouthEast	R2	22	37%	7.16	LOS A	2.4
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	SouthEast	T1	408	37%	0.02	LOS A	2.4
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	SouthEast	L2	16	1%	4.59	LOS A	0.0
H.25 Ewart Street / Bayley Street PM Peak	Bayley St	NorthEast	L2	40	12%	5.91	LOS A	0.4
H.25 Ewart Street / Bayley Street PM Peak	Bayley St	NorthEast	R2	18	12%	15.87	LOS B	0.4
H.25 Ewart Street / Bayley Street PM Peak	Bayley St	NorthEast	T1	7	12%	12.06	LOS A	0.4
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	NorthWest	T1	243	23%	0.13	LOS A	1.2
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	NorthWest	L2	14	1%	4.62	LOS A	0.0
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	NorthWest	R2	18	23%	7.36	LOS A	1.2
H.25 Ewart Street / Bayley Street PM Peak	Dibble Ave	SouthWest	R2	11	6%	16.38	LOS B	0.2
H.25 Ewart Street / Bayley Street PM Peak	Dibble Ave	SouthWest	T1	3	6%	11.61	LOS A	0.2
H.25 Ewart Street / Bayley Street PM Peak	Dibble Ave	SouthWest	L2	8	6%	6.48	LOS A	0.2
H.36 New Canterbury Rd / Terrace Rd AM	New Canterbury Rd	East	T1	482	33%	0.20	LOS A	1.8
H.36 New Canterbury Rd / Terrace Rd AM	New Canterbury Rd	East	L1	33	7%	5.88	LOS A	0.3
H.36 New Canterbury Rd / Terrace Rd AM	New Canterbury Rd	West	T1	1107	41%	0.35	LOS A	3.3
H.36 New Canterbury Rd / Terrace Rd AM	Terrace Rd	SouthWest	L3	78	13%	9.43	LOS A	0.4
H.36 New Canterbury Rd / Terrace Rd PM	New Canterbury Rd	East	T1	1317	52%	0.10	LOS A	3.8
H.36 New Canterbury Rd / Terrace Rd PM	New Canterbury Rd	East	L1	125	52%	5.49	LOS A	3.8

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.36 New Canterbury Rd / Terrace Rd PM	New Canterbury Rd	West	T1	784	56%	0.11	LOS A	4.4
H.36 New Canterbury Rd / Terrace Rd PM	Terrace Rd	SouthWest	L3	95	39%	25.05	LOS B	1.5
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	South	R2	16	26%	23.13	LOS B	5.9
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	South	T1	218	26%	16.57	LOS B	5.9
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	South	L2	87	13%	16.58	LOS B	2.7
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	East	L2	39	17%	45.87	LOS D	1.7
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	East	T1	158	52%	41.84	LOS C	7.1
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	North	T1	477	54%	17.69	LOS B	13.9
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	North	L2	27	12%	19.54	LOS B	2.5
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	North	R2	26	54%	23.92	LOS B	13.9
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	West	R2	135	53%	34.98	LOS C	10.5
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	West	T1	276	53%	25.53	LOS B	10.5
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	West	L2	13	21%	25.57	LOS B	4.8
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	South	R2	39	74%	43.02	LOS D	15.6
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	South	T1	507	74%	30.86	LOS C	16.6
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	South	L2	277	59%	26.41	LOS B	16.6
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	East	L2	35	30%	30.12	LOS C	6.7
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	East	T1	554	76%	29.62	LOS C	16.4
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	North	T1	273	71%	28.54	LOS C	7.6
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	North	L2	44	28%	24.79	LOS B	6.6
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	North	R2	58	71%	50.33	LOS D	7.6
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	West	R2	115	71%	37.45	LOS C	12.1
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	West	T1	268	71%	26.48	LOS B	12.1
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	West	L2	42	16%	20.77	LOS B	3.9

3.5 Dulwich Hill Station: Future + Construction + Refined TTS (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	South	R2	15	28%	37.60	LOS C	4.6
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	South	T1	102	28%	33.04	LOS C	4.6
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	South	L2	37	8%	33.93	LOS C	1.3
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	East	L2	23	15%	13.69	LOS A	1.4
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	East	R2	80	77%	32.87	LOS C	11.2
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	East	T1	246	77%	23.02	LOS B	11.2
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	North	T1	197	74%	36.13	LOS C	11.3
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	North	L2	125	15%	11.13	LOS A	1.8
B.15 Wardell Road / Ewart Street - AM Peak	Ewart St	North	R2	69	74%	44.14	LOS D	11.3
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	West	T1	412	75%	34.47	LOS C	16.3
B.15 Wardell Road / Ewart Street - AM Peak	Wardell Rd	West	L2	31	17%	34.12	LOS C	2.6
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	South	R2	54	76%	51.44	LOS D	8.2
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	South	T1	271	76%	37.12	LOS C	9.6
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	South	L2	97	61%	34.51	LOS C	9.6
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	East	L2	42	21%	15.38	LOS B	4.0
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	East	R2	151	105%	99.55	LOS F	54.2
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	East	T1	734	105%	77.18	LOS F	54.2
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	North	T1	208	94%	26.99	LOS B	9.1
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	North	L2	121	57%	25.85	LOS B	9.1
B.15 Wardell Road / Ewart Street - PM Peak	Ewart St	North	R2	104	94%	73.67	LOS F	7.9
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	West	T1	346	98%	73.02	LOS F	20.8
B.15 Wardell Road / Ewart Street - PM Peak	Wardell Rd	West	L2	30	22%	42.56	LOS D	2.4
H.16 Wardell Road / Dudley Street AM Peak	Dudley St	East	R3	16	17%	26.30	LOS B	0.6
H.16 Wardell Road / Dudley Street AM Peak	Dudley St	East	L1	58	17%	7.89	LOS A	0.6
H.16 Wardell Road / Dudley Street AM Peak	Wardell Rd	NorthEast	L3	23	42%	10.03	LOS A	3.1
H.16 Wardell Road / Dudley Street AM Peak	Wardell Rd	NorthEast	T1	318	42%	4.85	LOS A	3.1
H.16 Wardell Road / Dudley Street AM Peak	Wardell Rd	SouthWest	R1	30	65%	15.19	LOS B	8.2
H.16 Wardell Road / Dudley Street AM Peak	Wardell Rd	SouthWest	T1	503	65%	8.36	LOS A	8.2
H.16 Wardell Road / Dudley Street PM Peak	Dudley St	East	R3	24	47%	49.76	LOS D	1.8
H.16 Wardell Road / Dudley Street PM Peak	Dudley St	East	L1	87	47%	17.90	LOS B	1.8
H.16 Wardell Road / Dudley Street PM Peak	Wardell Rd	NorthEast	L3	35	78%	14.31	LOS A	18.1
H.16 Wardell Road / Dudley Street PM Peak	Wardell Rd	NorthEast	T1	776	78%	9.09	LOS A	18.1
H.16 Wardell Road / Dudley Street PM Peak	Wardell Rd	SouthWest	R1	41	61%	26.12	LOS B	7.5
H.16 Wardell Road / Dudley Street PM Peak	Wardell Rd	SouthWest	T1	497	61%	5.65	LOS A	7.5
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	South	R2	322	41%	6.47	LOS A	2.7
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	South	T1	783	41%	0.67	LOS A	2.7
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	South	L2	4	41%	4.95	LOS A	1.2
B.28 New Canterbury Road / Marrickville Road - AM Peak	Marrickville Rd	East	L2	169	17%	9.76	LOS A	3.2
B.28 New Canterbury Road / Marrickville Road - AM Peak	Marrickville Rd	East	R2	40	86%	73.36	LOS F	5.5
B.28 New Canterbury Road / Marrickville Road - AM Peak	Marrickville Rd	East	T1	44	86%	69.88	LOS E	5.5
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	North	T1	292	49%	53.76	LOS D	9.8
B.28 New Canterbury Road / Marrickville Road - AM Peak	New Canterbury Rd	North	L2	52	49%	58.41	LOS E	9.6
B.28 New Canterbury Road / Marrickville Road - AM Peak	Dulwich St	West	R2	5	66%	65.18	LOS E	5.6
B.28 New Canterbury Road / Marrickville Road - AM Peak	Dulwich St	West	T1	88	66%	61.74	LOS E	5.6

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.28 New Canterbury Road / Marrickville Road - AM Peak	Dulwich St	West	L2	11	12%	64.77	LOS E	0.6
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	South	R2	233	44%	29.96	LOS C	10.5
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	South	T1	587	41%	4.99	LOS A	11.5
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	South	L2	5	41%	9.71	LOS A	11.5
B.28 New Canterbury Road / Marrickville Road - PM Peak	Marrickville Rd	East	L2	338	60%	30.43	LOS C	14.4
B.28 New Canterbury Road / Marrickville Road - PM Peak	Marrickville Rd	East	R2	50	58%	59.77	LOS E	6.3
B.28 New Canterbury Road / Marrickville Road - PM Peak	Marrickville Rd	East	T1	60	58%	56.30	LOS D	6.3
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	North	T1	1000	60%	24.62	LOS B	23.1
B.28 New Canterbury Road / Marrickville Road - PM Peak	New Canterbury Rd	North	L2	78	60%	29.19	LOS C	22.8
B.28 New Canterbury Road / Marrickville Road - PM Peak	Dulwich St	West	R2	4	35%	56.97	LOS E	4.2
B.28 New Canterbury Road / Marrickville Road - PM Peak	Dulwich St	West	T1	72	35%	53.71	LOS D	4.2
B.28 New Canterbury Road / Marrickville Road - PM Peak	Dulwich St	West	L2	8	4%	56.78	LOS E	0.4
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	SouthEast	R2	29	18%	8.45	LOS A	0.9
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	SouthEast	T1	163	18%	0.10	LOS A	0.9
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	SouthEast	L2	4	0%	4.61	LOS A	0.0
H.25 Ewart Street / Bayley Street AM Peak	Bayley St	NorthEast	L2	45	8%	7.27	LOS A	0.3
H.25 Ewart Street / Bayley Street AM Peak	Bayley St	NorthEast	R2	6	8%	10.73	LOS A	0.3
H.25 Ewart Street / Bayley Street AM Peak	Bayley St	NorthEast	T1	1	8%	8.19	LOS A	0.3
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	NorthWest	T1	245	21%	0.17	LOS A	1.2
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	NorthWest	L2	1	0%	4.79	LOS A	0.0
H.25 Ewart Street / Bayley Street AM Peak	Ewart St	NorthWest	R2	2	21%	5.52	LOS A	1.2
H.25 Ewart Street / Bayley Street AM Peak	Dibble Ave	SouthWest	R2	12	4%	10.19	LOS A	0.1
H.25 Ewart Street / Bayley Street AM Peak	Dibble Ave	SouthWest	T1	4	4%	7.31	LOS A	0.1
H.25 Ewart Street / Bayley Street AM Peak	Dibble Ave	SouthWest	L2	7	4%	5.18	LOS A	0.1
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	SouthEast	R2	37	39%	8.21	LOS A	2.6
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	SouthEast	T1	408	39%	0.02	LOS A	2.6
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	SouthEast	L2	16	1%	4.59	LOS A	0.0
H.25 Ewart Street / Bayley Street PM Peak	Bayley St	NorthEast	L2	55	15%	6.47	LOS A	0.6
H.25 Ewart Street / Bayley Street PM Peak	Bayley St	NorthEast	R2	18	15%	16.93	LOS B	0.6
H.25 Ewart Street / Bayley Street PM Peak	Bayley St	NorthEast	T1	7	15%	12.86	LOS A	0.6
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	NorthWest	T1	243	23%	0.13	LOS A	1.2
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	NorthWest	L2	14	1%	4.62	LOS A	0.0
H.25 Ewart Street / Bayley Street PM Peak	Ewart St	NorthWest	R2	18	23%	7.36	LOS A	1.2
H.25 Ewart Street / Bayley Street PM Peak	Dibble Ave	SouthWest	R2	11	6%	17.77	LOS B	0.2
H.25 Ewart Street / Bayley Street PM Peak	Dibble Ave	SouthWest	T1	3	6%	12.12	LOS A	0.2
H.25 Ewart Street / Bayley Street PM Peak	Dibble Ave	SouthWest	L2	8	6%	6.48	LOS A	0.2
H.36 New Canterbury Rd / Terrace Rd AM	New Canterbury Rd	East	T1	508	35%	0.22	LOS A	2.0
H.36 New Canterbury Rd / Terrace Rd AM	New Canterbury Rd	East	L1	33	7%	5.88	LOS A	0.3
H.36 New Canterbury Rd / Terrace Rd AM	New Canterbury Rd	West	T1	1132	43%	0.36	LOS A	3.4
H.36 New Canterbury Rd / Terrace Rd AM	Terrace Rd	SouthWest	L3	78	13%	9.85	LOS A	0.5
H.36 New Canterbury Rd / Terrace Rd PM	New Canterbury Rd	East	T1	1343	53%	0.11	LOS A	4.0
H.36 New Canterbury Rd / Terrace Rd PM	New Canterbury Rd	East	L1	125	53%	5.50	LOS A	4.0
H.36 New Canterbury Rd / Terrace Rd PM	New Canterbury Rd	West	T1	810	59%	0.12	LOS A	4.9
H.36 New Canterbury Rd / Terrace Rd PM	Terrace Rd	SouthWest	L3	95	42%	27.12	LOS B	1.6
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	South	R2	16	31%	23.05	LOS B	6.7

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	South	T1	243	31%	16.48	LOS B	6.7
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	South	L2	102	16%	15.49	LOS B	2.9
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	East	L2	39	18%	47.02	LOS D	1.7
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	East	T1	158	56%	43.01	LOS D	7.2
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	North	T1	503	59%	17.46	LOS B	14.7
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	North	L2	27	13%	19.08	LOS B	2.6
H.37 Wardell Rd / Marrickville Rd AM	Marrickville Rd	North	R2	26	59%	23.77	LOS B	14.7
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	West	R2	150	59%	37.22	LOS C	10.7
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	West	T1	276	59%	26.60	LOS B	10.7
H.37 Wardell Rd / Marrickville Rd AM	Wardell Rd	West	L2	13	24%	26.46	LOS B	5.3
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	South	R2	39	79%	46.26	LOS D	16.1
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	South	T1	533	79%	31.11	LOS C	18.0
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	South	L2	292	63%	24.50	LOS B	18.0
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	East	L2	35	35%	33.60	LOS C	7.2
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	East	T1	554	87%	39.83	LOS C	19.9
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	North	T1	299	79%	27.23	LOS B	7.8
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	North	L2	44	32%	22.63	LOS B	7.3
H.37 Wardell Rd / Marrickville Rd PM	Marrickville Rd	North	R2	58	79%	55.43	LOS D	7.8
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	West	R2	130	87%	54.31	LOS D	14.4
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	West	T1	268	87%	36.04	LOS C	14.4
H.37 Wardell Rd / Marrickville Rd PM	Wardell Rd	West	L2	42	20%	23.60	LOS B	4.8

4.0 Hurlstone Park Station

4.1 Hurlstone Park Station: Future

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd S	South	R2	97	67%	22.02	LOS B	30.0
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd S	South	T1	1679	67%	12.23	LOS B	31.1
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd S	South	L1	87	67%	14.09	LOS B	31.1
B.14 Canterbury Road / Crinan Street - AM	Crinan St	East	L2	71	39%	46.61	LOS A	6.5
B.14 Canterbury Road / Crinan Street - AM	Crinan St	East	R2	34	64%	51.76	LOS B	10.8
B.14 Canterbury Road / Crinan Street - AM	Crinan St	East	R1	238	64%	48.87	LOS B	10.8
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd N	North	T1	861	62%	29.27	LOS B	19.3
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd N	North	L2	18	62%	35.02	LOS B	19.1
B.14 Canterbury Road / Crinan Street - AM	Queen St	Northwest	R1	47	50%	50.04	LOS A	8.0
B.14 Canterbury Road / Crinan Street - AM	Queen St	Northwest	L1	161	50%	48.89	LOS A	8.0
B.14 Canterbury Road / Crinan Street - AM	Queen St	Northwest	L3	29	25%	48.68	LOS A	3.7
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd S	South	R2	105	74%	33.08	LOS C	18.5
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd S	South	T1	1168	74%	14.29	LOS C	36.3
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd S	South	L1	64	74%	15.92	LOS C	36.3
B.14 Canterbury Road / Crinan Street - PM	Crinan St	East	L2	106	21%	40.92	LOS A	4.9
B.14 Canterbury Road / Crinan Street - PM	Crinan St	East	R2	28	78%	59.91	LOS C	14.9
B.14 Canterbury Road / Crinan Street - PM	Crinan St	East	R1	218	78%	58.36	LOS C	14.9
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd N	North	T1	1516	68%	8.56	LOS B	19.0
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd N	North	L2	87	68%	14.13	LOS B	18.9
B.14 Canterbury Road / Crinan Street - PM	Queen St	Northwest	R1	71	77%	58.59	LOS C	15.2
B.14 Canterbury Road / Crinan Street - PM	Queen St	Northwest	L1	221	77%	56.74	LOS C	15.2
B.14 Canterbury Road / Crinan Street - PM	Queen St	Northwest	L3	11	16%	51.44	LOS A	2.7
B.27 Old Canterbury Road / New Canterbury Road - AM	Canterbury Rd	South	R2	961	96%	26.2	LOS B	39.2
B.27 Old Canterbury Road / New Canterbury Road - AM	Canterbury Rd	South	T1	742	56%	1.72	LOS A	1.9
B.27 Old Canterbury Road / New Canterbury Road - AM	Canterbury Rd	South	L2	34	56%	6.10	LOS A	1.9
B.27 Old Canterbury Road / New Canterbury Road - AM	New Canterbury Rd	East	L2	393	31%	9.30	LOS A	6.9
B.27 Old Canterbury Road / New Canterbury Road - AM	New Canterbury Rd	East	R2	25	34%	68.52	LOS E	1.5
B.27 Old Canterbury Road / New Canterbury Road - AM	New Canterbury Rd	East	T1	278	94%	72.30	LOS F	19.3
B.27 Old Canterbury Road / New Canterbury Road - AM	Old Canterbury Rd	North	T1	454	93%	74.60	LOS F	16.6
B.27 Old Canterbury Road / New Canterbury Road - AM	Old Canterbury Rd	North	L2	30	93%	81.90	LOS F	16.6
B.27 Old Canterbury Road / New Canterbury Road - AM	Griffiths St	West	R2	10	94%	79.00	LOS F	16.3
B.27 Old Canterbury Road / New Canterbury Road - AM	Griffiths St	West	T1	324	94%	66.00	LOS E	16.3
B.27 Old Canterbury Road / New Canterbury Road - AM	Griffiths St	West	L2	15	38%	61.50	LOS E	5.9
B.27 Old Canterbury Road / New Canterbury Road - PM	Canterbury Rd	South	R2	560	81%	38.96	LOS C	22.0
B.27 Old Canterbury Road / New Canterbury Road - PM	Canterbury Rd	South	T1	637	54%	6.50	LOS A	9.3
B.27 Old Canterbury Road / New Canterbury Road - PM	Canterbury Rd	South	L2	26	54%	10.84	LOS A	9.3
B.27 Old Canterbury Road / New Canterbury Road - PM	New Canterbury Rd	East	L2	758	66%	16.67	LOS B	23.5
B.27 Old Canterbury Road / New Canterbury Road - PM	New Canterbury Rd	East	R2	36	33%	57.72	LOS E	1.9
B.27 Old Canterbury Road / New Canterbury Road - PM	New Canterbury Rd	East	T1	472	91%	53.95	LOS D	27.5
B.27 Old Canterbury Road / New Canterbury Road - PM	Old Canterbury Rd	North	T1	852	90%	56.43	LOS D	26.2
B.27 Old Canterbury Road / New Canterbury Road - PM	Old Canterbury Rd	North	L2	48	90%	63.81	LOS E	26.1
B.27 Old Canterbury Road / New Canterbury Road - PM	Griffiths St	West	R2	26	80%	55.82	LOS D	12.4
B.27 Old Canterbury Road / New Canterbury Road - PM	Griffiths St	West	T1	345	80%	44.58	LOS D	12.4
B.27 Old Canterbury Road / New Canterbury Road - PM	Griffiths St	West	L2	11	32%	39.54	LOS C	6.4
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Floss St	East	R2	255	18%	5.02	LOS A	0.9
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Floss St	East	T1	29	18%	0.08	LOS A	0.9
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Crinan St	North	L2	345	28%	12.01	LOS A	2.9
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Crinan St	North	R2	28	28%	8.61	LOS A	2.9
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Floss St	West	T1	63	6%	0.00	LOS A	0.0
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Floss St	West	L2	53	6%	4.62	LOS A	0.0
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Floss St	East	R2	256	18%	4.93	LOS A	1.0
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Floss St	East	T1	54	18%	0.34	LOS A	1.0
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Crinan St	North	L2	258	24%	13.20	LOS A	2.5

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Crinan St	North	R2	48	24%	8.25	LOS A	2.5
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Floss St	West	T1	50	5%	0.00	LOS A	0.0
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Floss St	West	L2	46	5%	4.60	LOS A	0.0
H.18 Floss / Crinan / Duntroon - AM	Crinan St	South	R2	31	16%	5.75	LOS A	0.5
H.18 Floss / Crinan / Duntroon - AM	Crinan St	South	T1	240	16%	0.37	LOS A	0.5
H.18 Floss / Crinan / Duntroon - AM	Crinan St	South	L2	23	16%	3.64	LOS A	0.5
H.18 Floss / Crinan / Duntroon - AM	Duntroon Street	East	L2	25	17%	5.90	LOS A	0.6
H.18 Floss / Crinan / Duntroon - AM	Duntroon Street	East	R2	51	17%	13.31	LOS A	0.6
H.18 Floss / Crinan / Duntroon - AM	Duntroon Street	East	T1	5	17%	7.74	LOS A	0.6
H.18 Floss / Crinan / Duntroon - AM	Crinan Street	North	T1	333	25%	0.04	LOS A	0.9
H.18 Floss / Crinan / Duntroon - AM	Crinan Street	North	L2	116	25%	4.59	LOS A	0.9
H.18 Floss / Crinan / Duntroon - AM	Crinan Street	North	R2	9	25%	6.02	LOS A	0.9
H.18 Floss / Crinan / Duntroon - AM	Floss Street	West	R2	1	1%	11.00	LOS A	0.0
H.18 Floss / Crinan / Duntroon - AM	Floss Street	West	T1	1	1%	7.56	LOS A	0.0
H.18 Floss / Crinan / Duntroon - AM	Floss Street	West	L2	1	1%	6.06	LOS A	0.0
H.18 Floss / Crinan / Duntroon - PM	Crinan St	South	R2	41	17%	5.26	LOS A	0.5
H.18 Floss / Crinan / Duntroon - PM	Crinan St	South	T1	259	17%	0.40	LOS A	0.5
H.18 Floss / Crinan / Duntroon - PM	Crinan St	South	L2	11	17%	4.24	LOS A	0.5
H.18 Floss / Crinan / Duntroon - PM	Duntroon Street	East	L2	33	16%	6.38	LOS A	0.6
H.18 Floss / Crinan / Duntroon - PM	Duntroon Street	East	R2	57	16%	10.10	LOS A	0.6
H.18 Floss / Crinan / Duntroon - PM	Duntroon Street	East	T1	8	16%	8.99	LOS A	0.6
H.18 Floss / Crinan / Duntroon - PM	Crinan Street	North	T1	271	19%	0.20	LOS A	0.7
H.18 Floss / Crinan / Duntroon - PM	Crinan Street	North	L2	66	19%	4.82	LOS A	0.7
H.18 Floss / Crinan / Duntroon - PM	Crinan Street	North	R2	16	19%	6.45	LOS A	0.7
H.18 Floss / Crinan / Duntroon - PM	Floss Street	West	R2	9	6%	14.13	LOS A	0.2
H.18 Floss / Crinan / Duntroon - PM	Floss Street	West	T1	8	6%	8.76	LOS A	0.2
H.18 Floss / Crinan / Duntroon - PM	Floss Street	West	L2	13	6%	6.00	LOS A	0.2

4.2 Hurlstone Park Station: Future + Construction + Refined Baseline TTP

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd S	South	R2	112	73%	27.29	LOS C	29.2
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd S	South	T1	1704	73%	14.82	LOS C	36.4
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd S	South	L1	87	73%	15.37	LOS C	36.4
B.14 Canterbury Road / Crinan Street - AM	Crinan St	East	L2	86	43%	45.76	LOS A	7.1
B.14 Canterbury Road / Crinan Street - AM	Crinan St	East	R2	51	72%	53.54	LOS C	12.2
B.14 Canterbury Road / Crinan Street - AM	Crinan St	East	R1	238	72%	49.76	LOS C	12.2
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd N	North	T1	886	71%	32.05	LOS C	21.8
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd N	North	L2	35	71%	38.27	LOS C	21.0
B.14 Canterbury Road / Crinan Street - AM	Queen St	Northwest	R1	47	48%	48.95	LOS A	7.9
B.14 Canterbury Road / Crinan Street - AM	Queen St	Northwest	L1	161	48%	47.82	LOS A	7.9
B.14 Canterbury Road / Crinan Street - AM	Queen St	Northwest	L3	29	24%	47.65	LOS A	3.7
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd S	South	R2	120	82%	57.35	LOS C	20.0
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd S	South	T1	1193	82%	20.65	LOS C	44.1
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd S	South	L1	64	82%	18.92	LOS C	44.1
B.14 Canterbury Road / Crinan Street - PM	Crinan St	East	L2	121	21%	33.79	LOS A	5.0
B.14 Canterbury Road / Crinan Street - PM	Crinan St	East	R2	45	83%	61.76	LOS C	16.5
B.14 Canterbury Road / Crinan Street - PM	Crinan St	East	R1	218	83%	59.90	LOS C	16.5
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd N	North	T1	1541	83%	18.52	LOS C	35.1
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd N	North	L2	104	83%	24.40	LOS C	34.4
B.14 Canterbury Road / Crinan Street - PM	Queen St	Northwest	R1	71	67%	52.71	LOS B	14.2
B.14 Canterbury Road / Crinan Street - PM	Queen St	Northwest	L1	221	67%	51.42	LOS B	14.2
B.14 Canterbury Road / Crinan Street - PM	Queen St	Northwest	L3	11	14%	48.53	LOS A	2.6
B.27 Old Canterbury Road / New Canterbury Road - AM	Canterbury Rd	South	R2	986	97%	31.74	LOS C	40.4
B.27 Old Canterbury Road / New Canterbury Road - AM	Canterbury Rd	South	T1	759	58%	1.76	LOS A	2.0
B.27 Old Canterbury Road / New Canterbury Road - AM	Canterbury Rd	South	L2	34	58%	6.13	LOS A	2.0
B.27 Old Canterbury Road / New Canterbury Road - AM	New Canterbury Rd	East	L2	419	35%	9.23	LOS A	7.4
B.27 Old Canterbury Road / New Canterbury Road - AM	New Canterbury Rd	East	R2	25	39%	69.93	LOS E	1.5
B.27 Old Canterbury Road / New Canterbury Road - AM	New Canterbury Rd	East	T1	278	98%	87.37	LOS F	21.3
B.27 Old Canterbury Road / New Canterbury Road - AM	Old Canterbury Rd	North	T1	472	106%	121.02	LOS F	23.3
B.27 Old Canterbury Road / New Canterbury Road - AM	Old Canterbury Rd	North	L2	30	106%	111.51	LOS F	18.6
B.27 Old Canterbury Road / New Canterbury Road - AM	Griffiths St	West	R2	10	99%	96.44	LOS F	18.2
B.27 Old Canterbury Road / New Canterbury Road - AM	Griffiths St	West	T1	324	99%	78.45	LOS F	18.2
B.27 Old Canterbury Road / New Canterbury Road - AM	Griffiths St	West	L2	15	39%	62.59	LOS E	6.0
B.27 Old Canterbury Road / New Canterbury Road - PM	Canterbury Rd	South	R2	586	86%	42.53	LOS D	25.7
B.27 Old Canterbury Road / New Canterbury Road - PM	Canterbury Rd	South	T1	654	55%	5.48	LOS A	8.3
B.27 Old Canterbury Road / New Canterbury Road - PM	Canterbury Rd	South	L2	26	55%	9.82	LOS A	8.3
B.27 Old Canterbury Road / New Canterbury Road - PM	New Canterbury Rd	East	L2	783	71%	18.06	LOS B	26.4

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.27 Old Canterbury Road / New Canterbury Road - PM	New Canterbury Rd	East	R2	36	41%	61.39	LOS E	2.0
B.27 Old Canterbury Road / New Canterbury Road - PM	New Canterbury Rd	East	T1	472	96%	69.90	LOS E	31.6
B.27 Old Canterbury Road / New Canterbury Road - PM	Old Canterbury Rd	North	T1	870	89%	55.64	LOS D	26.4
B.27 Old Canterbury Road / New Canterbury Road - PM	Old Canterbury Rd	North	L2	48	89%	63.70	LOS E	26.4
B.27 Old Canterbury Road / New Canterbury Road - PM	Griffiths St	West	R2	26	89%	64.20	LOS E	13.4
B.27 Old Canterbury Road / New Canterbury Road - PM	Griffiths St	West	T1	345	89%	50.13	LOS D	13.4
B.27 Old Canterbury Road / New Canterbury Road - PM	Griffiths St	West	L2	11	35%	41.52	LOS C	6.8
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Floss St	East	R2	287	22%	5.24	LOS A	1.1
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Floss St	East	T1	29	22%	0.08	LOS A	1.1
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Crinan St	North	L2	345	37%	12.55	LOS A	3.5
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Crinan St	North	R2	68	37%	12.05	LOS A	3.5
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Floss St	West	T1	63	7%	0.00	LOS A	0.0
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Floss St	West	L2	61	7%	4.73	LOS A	0.0
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Floss St	East	R2	286	22%	5.13	LOS A	1.2
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Floss St	East	T1	54	22%	0.44	LOS A	1.2
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Crinan St	North	L2	288	29%	13.81	LOS A	3.0
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Crinan St	North	R2	56	29%	9.31	LOS A	3.0
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Floss St	West	T1	50	5%	0.00	LOS A	0.0
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Floss St	West	L2	53	5%	4.72	LOS A	0.0
H.18 Floss / Crinan / Duntroon - AM	Crinan St	South	R2	47	22%	7.41	LOS A	0.9
H.18 Floss / Crinan / Duntroon - AM	Crinan St	South	T1	264	22%	0.98	LOS A	0.9
H.18 Floss / Crinan / Duntroon - AM	Crinan St	South	L2	23	22%	3.64	LOS A	0.9
H.18 Floss / Crinan / Duntroon - AM	Duntroon Street	East	L2	25	21%	6.40	LOS A	0.7
H.18 Floss / Crinan / Duntroon - AM	Duntroon Street	East	R2	51	21%	16.50	LOS B	0.7
H.18 Floss / Crinan / Duntroon - AM	Duntroon Street	East	T1	5	21%	9.36	LOS A	0.7
H.18 Floss / Crinan / Duntroon - AM	Crinan Street	North	T1	372	30%	0.13	LOS A	1.1
H.18 Floss / Crinan / Duntroon - AM	Crinan Street	North	L2	116	30%	4.60	LOS A	1.1
H.18 Floss / Crinan / Duntroon - AM	Crinan Street	North	R2	17	30%	7.49	LOS A	1.1
H.18 Floss / Crinan / Duntroon - AM	Floss Street	West	R2	1	2%	13.34	LOS A	0.1
H.18 Floss / Crinan / Duntroon - AM	Floss Street	West	T1	1	2%	9.10	LOS A	0.1
H.18 Floss / Crinan / Duntroon - AM	Floss Street	West	L2	9	2%	8.69	LOS A	0.1
H.18 Floss / Crinan / Duntroon - PM	Crinan St	South	R2	56	22%	6.40	LOS A	0.8
H.18 Floss / Crinan / Duntroon - PM	Crinan St	South	T1	282	22%	0.85	LOS A	0.8
H.18 Floss / Crinan / Duntroon - PM	Crinan St	South	L2	11	22%	4.28	LOS A	0.8
H.18 Floss / Crinan / Duntroon - PM	Duntroon Street	East	L2	33	19%	6.71	LOS A	0.7
H.18 Floss / Crinan / Duntroon - PM	Duntroon Street	East	R2	57	19%	12.01	LOS A	0.7
H.18 Floss / Crinan / Duntroon - PM	Duntroon Street	East	T1	8	19%	10.63	LOS A	0.7

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.18 Floss / Crinan / Duntroon - PM	Crinan Street	North	T1	309	24%	0.36	LOS A	0.8
H.18 Floss / Crinan / Duntroon - PM	Crinan Street	North	L2	66	24%	4.84	LOS A	0.8
H.18 Floss / Crinan / Duntroon - PM	Crinan Street	North	R2	23	24%	8.01	LOS A	0.8
H.18 Floss / Crinan / Duntroon - PM	Floss Street	West	R2	9	8%	17.10	LOS B	0.3
H.18 Floss / Crinan / Duntroon - PM	Floss Street	West	T1	8	8%	10.45	LOS A	0.3
H.18 Floss / Crinan / Duntroon - PM	Floss Street	West	L2	21	8%	6.97	LOS A	0.3

4.3 Hurlstone Park Station: Future (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd S	South	R2	63	44%	15.49	LOS A	14.2
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd S	South	T1	1086	44%	8.71	LOS A	15.6
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd S	South	L1	62	44%	12.66	LOS A	15.6
B.14 Canterbury Road / Crinan Street - AM	Crinan St	East	L2	51	25%	43.53	LOS A	4.4
B.14 Canterbury Road / Crinan Street - AM	Crinan St	East	R2	23	42%	47.78	LOS A	7.2
B.14 Canterbury Road / Crinan Street - AM	Crinan St	East	R1	171	42%	45.15	LOS A	7.2
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd N	North	T1	617	36%	19.39	LOS A	10.7
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd N	North	L2	12	36%	25.19	LOS A	10.6
B.14 Canterbury Road / Crinan Street - AM	Queen St	NorthWest	R1	34	30%	46.41	LOS A	5.0
B.14 Canterbury Road / Crinan Street - AM	Queen St	NorthWest	L1	104	30%	45.50	LOS A	5.0
B.14 Canterbury Road / Crinan Street - AM	Queen St	NorthWest	L3	18	15%	45.88	LOS A	2.4
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd S	South	R2	95	61%	17.25	LOS B	12.3
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd S	South	T1	1065	61%	8.19	LOS B	23.2
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd S	South	L1	59	61%	11.83	LOS B	23.2
B.14 Canterbury Road / Crinan Street - PM	Crinan St	East	L2	98	22%	45.11	LOS A	4.7
B.14 Canterbury Road / Crinan Street - PM	Crinan St	East	R2	25	90%	74.65	LOS C	15.7
B.14 Canterbury Road / Crinan Street - PM	Crinan St	East	R1	201	90%	73.11	LOS C	15.7
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd N	North	T1	1396	59%	4.96	LOS A	10.9
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd N	North	L2	79	59%	10.54	LOS A	10.8
B.14 Canterbury Road / Crinan Street - PM	Queen St	NorthWest	R1	66	90%	73.35	LOS C	15.9
B.14 Canterbury Road / Crinan Street - PM	Queen St	NorthWest	L1	201	90%	69.71	LOS C	15.9
B.14 Canterbury Road / Crinan Street - PM	Queen St	NorthWest	L3	10	19%	56.45	LOS A	2.6
B.27 Old Canterbury Road / New Canterbury Road - AM	Canterbury Rd	South	R2	623	61%	6.47	LOS A	1.4
B.27 Old Canterbury Road / New Canterbury Road - AM	Canterbury Rd	South	T1	479	37%	1.65	LOS A	0.9
B.27 Old Canterbury Road / New Canterbury Road - AM	Canterbury Rd	South	L2	24	37%	6.02	LOS A	0.9
B.27 Old Canterbury Road / New Canterbury Road - AM	New Canterbury Rd	East	L2	283	23%	8.97	LOS A	4.6
B.27 Old Canterbury Road / New Canterbury Road - AM	New Canterbury Rd	East	R2	16	12%	59.50	LOS E	0.9
B.27 Old Canterbury Road / New Canterbury Road - AM	New Canterbury Rd	East	T1	197	66%	50.15	LOS D	10.7
B.27 Old Canterbury Road / New Canterbury Road - AM	Old Canterbury Rd	North	T1	325	67%	51.11	LOS D	9.6
B.27 Old Canterbury Road / New Canterbury Road - AM	Old Canterbury Rd	North	L2	19	67%	53.07	LOS D	9.1
B.27 Old Canterbury Road / New Canterbury Road - AM	Griffiths St	West	R2	7	56%	54.68	LOS D	8.4
B.27 Old Canterbury Road / New Canterbury Road - AM	Griffiths St	West	T1	208	56%	48.87	LOS D	8.4
B.27 Old Canterbury Road / New Canterbury Road - AM	Griffiths St	West	L2	10	22%	60.13	LOS E	3.4
B.27 Old Canterbury Road / New Canterbury Road - PM	Canterbury Rd	South	R2	511	68%	30.18	LOS C	15.3
B.27 Old Canterbury Road / New Canterbury Road - PM	Canterbury Rd	South	T1	580	48%	5.17	LOS A	6.5
B.27 Old Canterbury Road / New Canterbury Road - PM	Canterbury Rd	South	L2	24	48%	9.52	LOS A	6.5
B.27 Old Canterbury Road / New Canterbury Road - PM	New Canterbury Rd	East	L2	698	59%	14.81	LOS B	19.4
B.27 Old Canterbury Road / New Canterbury Road - PM	New Canterbury Rd	East	R2	33	29%	57.30	LOS E	1.7
B.27 Old Canterbury Road / New Canterbury Road - PM	New Canterbury Rd	East	T1	434	90%	53.67	LOS D	25.0
B.27 Old Canterbury Road / New Canterbury Road - PM	Old Canterbury Rd	North	T1	784	89%	56.04	LOS D	24.0
B.27 Old Canterbury Road / New Canterbury Road - PM	Old Canterbury Rd	North	L2	44	89%	62.58	LOS E	24.0
B.27 Old Canterbury Road / New Canterbury Road - PM	Griffiths St	West	R2	24	76%	54.17	LOS D	11.3

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.27 Old Canterbury Road / New Canterbury Road - PM	Griffiths St	West	T1	314	76%	44.42	LOS D	11.3
B.27 Old Canterbury Road / New Canterbury Road - PM	Griffiths St	West	L2	10	31%	41.03	LOS C	5.8
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Floss St	East	R2	165	12%	4.86	LOS A	0.6
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Floss St	East	T1	21	12%	0.07	LOS A	0.6
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Crinan St	North	L2	221	17%	14.55	LOS B	2.2
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Crinan St	North	R2	21	17%	7.88	LOS A	2.2
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Floss St	West	T1	40	4%	0.00	LOS A	0.0
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Floss St	West	L2	34	4%	4.63	LOS A	0.0
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Floss St	East	R2	233	17%	4.89	LOS A	0.9
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Floss St	East	T1	49	17%	0.30	LOS A	0.9
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Crinan St	North	L2	235	21%	13.77	LOS A	2.3
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Crinan St	North	R2	44	21%	8.04	LOS A	2.3
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Floss St	West	T1	46	4%	0.00	LOS A	0.0
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Floss St	West	L2	42	4%	4.60	LOS A	0.0
H.18 Floss / Crinan / Duntroon - AM	Crinan St	South	R2	20	11%	4.78	LOS A	0.3
H.18 Floss / Crinan / Duntroon - AM	Crinan St	South	T1	172	11%	0.18	LOS A	0.3
H.18 Floss / Crinan / Duntroon - AM	Crinan St	South	L2	16	11%	3.64	LOS A	0.3
H.18 Floss / Crinan / Duntroon - AM	Duntroon Street	East	L2	16	9%	5.36	LOS A	0.3
H.18 Floss / Crinan / Duntroon - AM	Duntroon Street	East	R2	36	9%	9.59	LOS A	0.3
H.18 Floss / Crinan / Duntroon - AM	Duntroon Street	East	T1	3	9%	5.81	LOS A	0.3
H.18 Floss / Crinan / Duntroon - AM	Crinan Street	North	T1	214	16%	0.03	LOS A	0.6
H.18 Floss / Crinan / Duntroon - AM	Crinan Street	North	L2	75	16%	4.60	LOS A	0.6
H.18 Floss / Crinan / Duntroon - AM	Crinan Street	North	R2	7	16%	5.48	LOS A	0.6
H.18 Floss / Crinan / Duntroon - AM	Floss Street	West	R2	1	0%	7.94	LOS A	0.0
H.18 Floss / Crinan / Duntroon - AM	Floss Street	West	T1	1	0%	5.65	LOS A	0.0
H.18 Floss / Crinan / Duntroon - AM	Floss Street	West	L2	1	0%	5.74	LOS A	0.0
H.18 Floss / Crinan / Duntroon - PM	Crinan St	South	R2	38	15%	5.08	LOS A	0.4
H.18 Floss / Crinan / Duntroon - PM	Crinan St	South	T1	239	15%	0.35	LOS A	0.4
H.18 Floss / Crinan / Duntroon - PM	Crinan St	South	L2	10	15%	4.23	LOS A	0.4
H.18 Floss / Crinan / Duntroon - PM	Duntroon Street	East	L2	30	14%	6.23	LOS A	0.5
H.18 Floss / Crinan / Duntroon - PM	Duntroon Street	East	R2	52	14%	9.38	LOS A	0.5
H.18 Floss / Crinan / Duntroon - PM	Duntroon Street	East	T1	7	14%	8.35	LOS A	0.5
H.18 Floss / Crinan / Duntroon - PM	Crinan Street	North	T1	247	18%	0.19	LOS A	0.6
H.18 Floss / Crinan / Duntroon - PM	Crinan Street	North	L2	60	18%	4.82	LOS A	0.6
H.18 Floss / Crinan / Duntroon - PM	Crinan Street	North	R2	14	18%	6.28	LOS A	0.6
H.18 Floss / Crinan / Duntroon - PM	Floss Street	West	R2	8	5%	12.94	LOS A	0.2
H.18 Floss / Crinan / Duntroon - PM	Floss Street	West	T1	7	5%	8.13	LOS A	0.2
H.18 Floss / Crinan / Duntroon - PM	Floss Street	West	L2	12	5%	5.89	LOS A	0.2

4.4 Hurlstone Park Station: Future+ Construction (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd S	South	R2	63	45%	17.07	LOS A	15.1
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd S	South	T1	1086	45%	9.94	LOS A	16.7
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd S	South	L1	62	45%	13.64	LOS A	16.7
B.14 Canterbury Road / Crinan Street - AM	Crinan St	East	L2	51	27%	42.79	LOS A	4.9
B.14 Canterbury Road / Crinan Street - AM	Crinan St	East	R2	40	44%	46.84	LOS A	7.4
B.14 Canterbury Road / Crinan Street - AM	Crinan St	East	R1	171	44%	43.76	LOS A	7.4
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd N	North	T1	617	39%	20.32	LOS A	11.6
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd N	North	L2	29	39%	26.64	LOS A	11.0
B.14 Canterbury Road / Crinan Street - AM	Queen St	NorthWest	R1	34	28%	44.40	LOS A	4.9
B.14 Canterbury Road / Crinan Street - AM	Queen St	NorthWest	L1	104	28%	43.52	LOS A	4.9
B.14 Canterbury Road / Crinan Street - AM	Queen St	NorthWest	L3	18	14%	43.96	LOS A	2.3
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd S	South	R2	95	64%	21.77	LOS B	13.9
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd S	South	T1	1065	64%	10.40	LOS B	26.2
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd S	South	L1	59	64%	13.44	LOS B	26.2
B.14 Canterbury Road / Crinan Street - PM	Crinan St	East	L2	98	20%	42.44	LOS A	4.6
B.14 Canterbury Road / Crinan Street - PM	Crinan St	East	R2	43	92%	77.25	LOS D	17.4
B.14 Canterbury Road / Crinan Street - PM	Crinan St	East	R1	201	92%	75.38	LOS D	17.4
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd N	North	T1	1396	63%	6.88	LOS B	14.5
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd N	North	L2	96	63%	12.65	LOS B	14.1
B.14 Canterbury Road / Crinan Street - PM	Queen St	NorthWest	R1	66	76%	60.01	LOS C	14.0
B.14 Canterbury Road / Crinan Street - PM	Queen St	NorthWest	L1	201	76%	58.27	LOS C	14.0
B.14 Canterbury Road / Crinan Street - PM	Queen St	NorthWest	L3	10	16%	53.29	LOS A	2.5
B.27 Old Canterbury Road / New Canterbury Road - AM	Canterbury Rd	South	R2	623	62%	6.59	LOS A	1.6
B.27 Old Canterbury Road / New Canterbury Road - AM	Canterbury Rd	South	T1	496	39%	1.67	LOS A	0.9
B.27 Old Canterbury Road / New Canterbury Road - AM	Canterbury Rd	South	L2	24	39%	6.04	LOS A	0.9
B.27 Old Canterbury Road / New Canterbury Road - AM	New Canterbury Rd	East	L2	283	23%	8.97	LOS A	4.6
B.27 Old Canterbury Road / New Canterbury Road - AM	New Canterbury Rd	East	R2	16	12%	59.50	LOS E	0.9
B.27 Old Canterbury Road / New Canterbury Road - AM	New Canterbury Rd	East	T1	197	66%	50.15	LOS D	10.7
B.27 Old Canterbury Road / New Canterbury Road - AM	Old Canterbury Rd	North	T1	342	73%	53.19	LOS D	10.2
B.27 Old Canterbury Road / New Canterbury Road - AM	Old Canterbury Rd	North	L2	19	73%	55.58	LOS D	10.0
B.27 Old Canterbury Road / New Canterbury Road - AM	Griffiths St	West	R2	7	56%	54.68	LOS D	8.4
B.27 Old Canterbury Road / New Canterbury Road - AM	Griffiths St	West	T1	208	56%	48.87	LOS D	8.4
B.27 Old Canterbury Road / New Canterbury Road - AM	Griffiths St	West	L2	10	22%	60.13	LOS E	3.4
B.27 Old Canterbury Road / New Canterbury Road - PM	Canterbury Rd	South	R2	511	69%	31.25	LOS C	15.7
B.27 Old Canterbury Road / New Canterbury Road - PM	Canterbury Rd	South	T1	598	51%	5.29	LOS A	7.0
B.27 Old Canterbury Road / New Canterbury Road - PM	Canterbury Rd	South	L2	24	51%	9.63	LOS A	7.0
B.27 Old Canterbury Road / New Canterbury Road - PM	New Canterbury Rd	East	L2	698	60%	15.40	LOS B	19.9
B.27 Old Canterbury Road / New Canterbury Road - PM	New Canterbury Rd	East	R2	33	29%	57.30	LOS E	1.7
B.27 Old Canterbury Road / New Canterbury Road - PM	New Canterbury Rd	East	T1	434	90%	53.67	LOS D	25.0
B.27 Old Canterbury Road / New Canterbury Road - PM	Old Canterbury Rd	North	T1	802	89%	54.99	LOS D	24.3
B.27 Old Canterbury Road / New Canterbury Road - PM	Old Canterbury Rd	North	L2	44	89%	61.22	LOS E	24.3
B.27 Old Canterbury Road / New Canterbury Road - PM	Griffiths St	West	R2	24	76%	54.17	LOS D	11.3

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.27 Old Canterbury Road / New Canterbury Road - PM	Griffiths St	West	T1	314	76%	44.42	LOS D	11.3
B.27 Old Canterbury Road / New Canterbury Road - PM	Griffiths St	West	L2	10	31%	41.03	LOS C	5.8
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Floss St	East	R2	165	12%	4.90	LOS A	0.6
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Floss St	East	T1	21	12%	0.07	LOS A	0.6
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Crinan St	North	L2	221	19%	14.68	LOS B	2.3
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Crinan St	North	R2	29	19%	8.57	LOS A	2.3
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Floss St	West	T1	40	5%	0.00	LOS A	0.0
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Floss St	West	L2	42	5%	4.79	LOS A	0.0
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Floss St	East	R2	233	17%	4.94	LOS A	0.9
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Floss St	East	T1	49	17%	0.34	LOS A	0.9
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Crinan St	North	L2	235	23%	13.88	LOS A	2.4
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Crinan St	North	R2	52	23%	8.57	LOS A	2.4
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Floss St	West	T1	46	5%	0.00	LOS A	0.0
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Floss St	West	L2	49	5%	4.73	LOS A	0.0
H.18 Floss / Crinan / Duntroon - AM	Crinan St	South	R2	20	12%	4.85	LOS A	0.3
H.18 Floss / Crinan / Duntroon - AM	Crinan St	South	T1	180	12%	0.18	LOS A	0.3
H.18 Floss / Crinan / Duntroon - AM	Crinan St	South	L2	16	12%	3.64	LOS A	0.3
H.18 Floss / Crinan / Duntroon - AM	Duntroon Street	East	L2	16	9%	5.40	LOS A	0.3
H.18 Floss / Crinan / Duntroon - AM	Duntroon Street	East	R2	36	9%	10.15	LOS A	0.3
H.18 Floss / Crinan / Duntroon - AM	Duntroon Street	East	T1	3	9%	6.05	LOS A	0.3
H.18 Floss / Crinan / Duntroon - AM	Crinan Street	North	T1	222	18%	0.10	LOS A	0.7
H.18 Floss / Crinan / Duntroon - AM	Crinan Street	North	L2	75	18%	4.60	LOS A	0.7
H.18 Floss / Crinan / Duntroon - AM	Crinan Street	North	R2	14	18%	6.46	LOS A	0.7
H.18 Floss / Crinan / Duntroon - AM	Floss Street	West	R2	1	2%	8.41	LOS A	0.1
H.18 Floss / Crinan / Duntroon - AM	Floss Street	West	T1	1	2%	5.97	LOS A	0.1
H.18 Floss / Crinan / Duntroon - AM	Floss Street	West	L2	9	2%	7.60	LOS A	0.1
H.18 Floss / Crinan / Duntroon - PM	Crinan St	South	R2	38	16%	5.15	LOS A	0.4
H.18 Floss / Crinan / Duntroon - PM	Crinan St	South	T1	246	16%	0.35	LOS A	0.4
H.18 Floss / Crinan / Duntroon - PM	Crinan St	South	L2	10	16%	4.24	LOS A	0.4
H.18 Floss / Crinan / Duntroon - PM	Duntroon Street	East	L2	30	15%	6.29	LOS A	0.5
H.18 Floss / Crinan / Duntroon - PM	Duntroon Street	East	R2	52	15%	9.91	LOS A	0.5
H.18 Floss / Crinan / Duntroon - PM	Duntroon Street	East	T1	7	15%	8.73	LOS A	0.5
H.18 Floss / Crinan / Duntroon - PM	Crinan Street	North	T1	255	20%	0.35	LOS A	0.7
H.18 Floss / Crinan / Duntroon - PM	Crinan Street	North	L2	60	20%	4.83	LOS A	0.7
H.18 Floss / Crinan / Duntroon - PM	Crinan Street	North	R2	22	20%	7.48	LOS A	0.7
H.18 Floss / Crinan / Duntroon - PM	Floss Street	West	R2	8	6%	13.70	LOS A	0.2
H.18 Floss / Crinan / Duntroon - PM	Floss Street	West	T1	7	6%	8.58	LOS A	0.2
H.18 Floss / Crinan / Duntroon - PM	Floss Street	West	L2	20	6%	6.67	LOS A	0.2

4.5 Hurlstone Park Station: Future+ Construction + Refined TTS (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd S	South	R2	78	49%	19.04	LOS A	16.4
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd S	South	T1	1111	49%	10.80	LOS A	18.7
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd S	South	L1	62	49%	14.02	LOS A	18.7
B.14 Canterbury Road / Crinan Street - AM	Crinan St	East	L2	66	29%	41.77	LOS A	4.9
B.14 Canterbury Road / Crinan Street - AM	Crinan St	East	R2	40	48%	47.21	LOS A	8.2
B.14 Canterbury Road / Crinan Street - AM	Crinan St	East	R1	171	48%	44.04	LOS A	8.2
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd N	North	T1	642	44%	22.87	LOS A	12.9
B.14 Canterbury Road / Crinan Street - AM	Canterbury Rd N	North	L2	29	44%	29.20	LOS A	12.3
B.14 Canterbury Road / Crinan Street - AM	Queen St	NorthWest	R1	34	28%	44.40	LOS A	4.9
B.14 Canterbury Road / Crinan Street - AM	Queen St	NorthWest	L1	104	28%	43.52	LOS A	4.9
B.14 Canterbury Road / Crinan Street - AM	Queen St	NorthWest	L3	18	14%	43.96	LOS A	2.3
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd S	South	R2	111	74%	43.47	LOS C	17.7
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd S	South	T1	1090	74%	17.21	LOS C	35.6
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd S	South	L1	59	74%	17.39	LOS C	35.6
B.14 Canterbury Road / Crinan Street - PM	Crinan St	East	L2	113	21%	35.17	LOS A	4.8
B.14 Canterbury Road / Crinan Street - PM	Crinan St	East	R2	43	75%	56.65	LOS C	14.3
B.14 Canterbury Road / Crinan Street - PM	Crinan St	East	R1	201	75%	54.77	LOS C	14.3
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd N	North	T1	1421	74%	14.79	LOS C	26.4
B.14 Canterbury Road / Crinan Street - PM	Canterbury Rd N	North	L2	96	74%	20.56	LOS C	25.7
B.14 Canterbury Road / Crinan Street - PM	Queen St	NorthWest	R1	66	61%	51.94	LOS B	12.8
B.14 Canterbury Road / Crinan Street - PM	Queen St	NorthWest	L1	201	61%	50.79	LOS B	12.8
B.14 Canterbury Road / Crinan Street - PM	Queen St	NorthWest	L3	10	13%	48.39	LOS A	2.3
B.27 Old Canterbury Road / New Canterbury Road - AM	Canterbury Rd	South	R2	648	65%	6.53	LOS A	1.7
B.27 Old Canterbury Road / New Canterbury Road - AM	Canterbury Rd	South	T1	496	39%	1.65	LOS A	0.9
B.27 Old Canterbury Road / New Canterbury Road - AM	Canterbury Rd	South	L2	24	39%	6.02	LOS A	0.9
B.27 Old Canterbury Road / New Canterbury Road - AM	New Canterbury Rd	East	L2	308	26%	8.88	LOS A	5.0
B.27 Old Canterbury Road / New Canterbury Road - AM	New Canterbury Rd	East	R2	16	13%	60.77	LOS E	0.9
B.27 Old Canterbury Road / New Canterbury Road - AM	New Canterbury Rd	East	T1	197	70%	51.94	LOS D	11.0
B.27 Old Canterbury Road / New Canterbury Road - AM	Old Canterbury Rd	North	T1	342	77%	55.67	LOS D	10.5
B.27 Old Canterbury Road / New Canterbury Road - AM	Old Canterbury Rd	North	L2	19	77%	58.13	LOS E	10.4
B.27 Old Canterbury Road / New Canterbury Road - AM	Griffiths St	West	R2	7	59%	55.85	LOS D	8.5
B.27 Old Canterbury Road / New Canterbury Road - AM	Griffiths St	West	T1	208	59%	50.00	LOS D	8.5
B.27 Old Canterbury Road / New Canterbury Road - AM	Griffiths St	West	L2	10	24%	61.19	LOS E	3.4
B.27 Old Canterbury Road / New Canterbury Road - PM	Canterbury Rd	South	R2	537	76%	33.11	LOS C	18.3
B.27 Old Canterbury Road / New Canterbury Road - PM	Canterbury Rd	South	T1	598	51%	5.29	LOS A	7.0
B.27 Old Canterbury Road / New Canterbury Road - PM	Canterbury Rd	South	L2	24	51%	9.63	LOS A	7.0
B.27 Old Canterbury Road / New Canterbury Road - PM	New Canterbury Rd	East	L2	724	64%	15.99	LOS B	21.7
B.27 Old Canterbury Road / New Canterbury Road - PM	New Canterbury Rd	East	R2	33	29%	57.29	LOS E	1.7
B.27 Old Canterbury Road / New Canterbury Road - PM	New Canterbury Rd	East	T1	434	90%	53.65	LOS D	25.0
B.27 Old Canterbury Road / New Canterbury Road - PM	Old Canterbury Rd	North	T1	802	89%	55.36	LOS D	24.3
B.27 Old Canterbury Road / New Canterbury Road - PM	Old Canterbury Rd	North	L2	44	89%	61.99	LOS E	24.3
B.27 Old Canterbury Road / New Canterbury Road - PM	Griffiths St	West	R2	24	76%	54.19	LOS D	11.3
B.27 Old Canterbury Road / New Canterbury Road - PM	Griffiths St	West	T1	314	76%	44.43	LOS D	11.3
B.27 Old Canterbury Road / New Canterbury Road - PM	Griffiths St	West	L2	10	31%	41.03	LOS C	5.8

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Floss St	East	R2	197	15%	5.10	LOS A	0.7
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Floss St	East	T1	21	15%	0.07	LOS A	0.7
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Crinan St	North	L2	221	25%	15.23	LOS B	2.6
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Crinan St	North	R2	60	25%	10.15	LOS A	2.6
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Floss St	West	T1	40	5%	0.00	LOS A	0.0
H.17 Crinan St / Floss St (Sth of Railway) - AM peak	Floss St	West	L2	42	5%	4.79	LOS A	0.0
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Floss St	East	R2	263	20%	5.09	LOS A	1.1
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Floss St	East	T1	49	20%	0.40	LOS A	1.1
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Crinan St	North	L2	265	26%	14.41	LOS A	2.8
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Crinan St	North	R2	52	26%	9.01	LOS A	2.8
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Floss St	West	T1	46	5%	0.00	LOS A	0.0
H.17 Crinan St / Floss St (Sth of Railway) - PM peak	Floss St	West	L2	49	5%	4.73	LOS A	0.0
H.18 Floss / Crinan / Duntroon - AM	Crinan St	South	R2	20	15%	5.15	LOS A	0.3
H.18 Floss / Crinan / Duntroon - AM	Crinan St	South	T1	212	15%	0.18	LOS A	0.3
H.18 Floss / Crinan / Duntroon - AM	Crinan St	South	L2	16	15%	3.64	LOS A	0.3
H.18 Floss / Crinan / Duntroon - AM	Duntroon Street	East	L2	16	11%	5.59	LOS A	0.3
H.18 Floss / Crinan / Duntroon - AM	Duntroon Street	East	R2	36	11%	11.46	LOS A	0.3
H.18 Floss / Crinan / Duntroon - AM	Duntroon Street	East	T1	3	11%	6.74	LOS A	0.3
H.18 Floss / Crinan / Duntroon - AM	Crinan Street	North	T1	254	21%	0.12	LOS A	0.7
H.18 Floss / Crinan / Duntroon - AM	Crinan Street	North	L2	75	21%	4.60	LOS A	0.7
H.18 Floss / Crinan / Duntroon - AM	Crinan Street	North	R2	14	21%	6.92	LOS A	0.7
H.18 Floss / Crinan / Duntroon - AM	Floss Street	West	R2	1	2%	9.39	LOS A	0.1
H.18 Floss / Crinan / Duntroon - AM	Floss Street	West	T1	1	2%	6.65	LOS A	0.1
H.18 Floss / Crinan / Duntroon - AM	Floss Street	West	L2	9	2%	8.18	LOS A	0.1
H.18 Floss / Crinan / Duntroon - PM	Crinan St	South	R2	38	19%	5.47	LOS A	0.4
H.18 Floss / Crinan / Duntroon - PM	Crinan St	South	T1	277	19%	0.37	LOS A	0.4
H.18 Floss / Crinan / Duntroon - PM	Crinan St	South	L2	10	19%	4.26	LOS A	0.4
H.18 Floss / Crinan / Duntroon - PM	Duntroon Street	East	L2	30	16%	6.55	LOS A	0.6
H.18 Floss / Crinan / Duntroon - PM	Duntroon Street	East	R2	52	16%	11.11	LOS A	0.6
H.18 Floss / Crinan / Duntroon - PM	Duntroon Street	East	T1	7	16%	9.82	LOS A	0.6
H.18 Floss / Crinan / Duntroon - PM	Crinan Street	North	T1	285	22%	0.36	LOS A	0.8
H.18 Floss / Crinan / Duntroon - PM	Crinan Street	North	L2	60	22%	4.84	LOS A	0.8
H.18 Floss / Crinan / Duntroon - PM	Crinan Street	North	R2	22	22%	8.03	LOS A	0.8
H.18 Floss / Crinan / Duntroon - PM	Floss Street	West	R2	8	7%	15.56	LOS B	0.2
H.18 Floss / Crinan / Duntroon - PM	Floss Street	West	T1	7	7%	9.66	LOS A	0.2
H.18 Floss / Crinan / Duntroon - PM	Floss Street	West	L2	20	7%	7.02	LOS A	0.2

5.0 Canterbury Station

5.1 Canterbury Station: Future

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.13 Canterbury Road / Wonga Street AM Peak	Canterbury Rd E	East	R2	258	66%	73.98	LOS F	15.9
B.13 Canterbury Road / Wonga Street AM Peak	Canterbury Rd E	East	T1	1160	55%	6.58	LOS A	25.6
B.13 Canterbury Road / Wonga Street AM Peak	Wonga St	North	L2	340	82%	55.47	LOS D	26.7
B.13 Canterbury Road / Wonga Street AM Peak	Wonga St	North	R2	84	82%	55.56	LOS D	26.7
B.13 Canterbury Road / Wonga Street AM Peak	Canterbury Rd W	West	T1	1866	80%	14.36	LOS A	36.2
B.13 Canterbury Road / Wonga Street AM Peak	Canterbury Rd W	West	L2	17	80%	19.90	LOS B	36.2
B.13 Canterbury Road / Wonga Street PM Peak	Canterbury Rd E	East	R2	463	66%	59.60	LOS E	23.1
B.13 Canterbury Road / Wonga Street PM Peak	Canterbury Rd E	East	T1	1761	83%	8.06	LOS A	45.7
B.13 Canterbury Road / Wonga Street PM Peak	Wonga St	North	L2	326	64%	39.01	LOS C	23.1
B.13 Canterbury Road / Wonga Street PM Peak	Wonga St	North	R2	126	64%	39.05	LOS C	23.1
B.13 Canterbury Road / Wonga Street PM Peak	Canterbury Rd W	West	T1	1346	77%	23.39	LOS B	31.4
B.13 Canterbury Road / Wonga Street PM Peak	Canterbury Rd W	West	L2	72	77%	29.06	LOS C	31.2
H.14 Canterbury Road / Charles Street AM Peak	Canterbury Rd	East	R2	12	45%	90.2	LOS F	19.7
H.14 Canterbury Road / Charles Street AM Peak	Canterbury Rd	East	T1	1290	45%	10.1	LOS A	19.7
H.14 Canterbury Road / Charles Street AM Peak	Charles St	North	L2	23	6%	13.1	LOS A	0.2
H.14 Canterbury Road / Charles Street AM Peak	Charles St	North	R2	4	44%	460.3	LOS F	1.1
H.14 Canterbury Road / Charles Street AM Peak	Canterbury Rd	West	T1	2091	57%	0.10	LOS A	0.6
H.14 Canterbury Road / Charles Street AM Peak	Canterbury Rd	West	L2	22	57%	8.65	LOS A	0.6
H.14 Canterbury Road / Charles Street PM Peak	Canterbury Rd	East	R2	18	60%	38.7	LOS C	2.9
H.14 Canterbury Road / Charles Street PM Peak	Canterbury Rd	East	T1	2167	60%	1.5	LOS A	2.9
H.14 Canterbury Road / Charles Street PM Peak	Charles St	North	L2	23	2%	4.8	LOS A	0.0
H.14 Canterbury Road / Charles Street PM Peak	Charles St	North	R2	4	53%	574.2	LOS F	1.2
H.14 Canterbury Road / Charles Street PM Peak	Canterbury Rd	West	T1	1618	44%	0.04	LOS A	0.4
H.14 Canterbury Road / Charles Street PM Peak	Canterbury Rd	West	L2	40	44%	6.31	LOS A	0.4
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	East	L3	13	38%	19.10	LOS B	15.4
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	East	R2	13	54%	22.71	LOS B	16.0
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	East	T1	931	54%	14.33	LOS A	16.0
H.15 Canterbury Road / Jeffrey Road AM Peak	Jeffrey Rd	Northeast	L2	9	88%	77.54	LOS F	9.4
H.15 Canterbury Road / Jeffrey Road AM Peak	Jeffrey Rd	Northeast	L3	23	88%	78.54	LOS F	9.4
H.15 Canterbury Road / Jeffrey Road AM Peak	Jeffrey Rd	Northeast	R1	247	88%	76.07	LOS F	9.9
H.15 Canterbury Road / Jeffrey Road AM Peak	Broughton St	North	L1	16	29%	58.18	LOS E	2.9
H.15 Canterbury Road / Jeffrey Road AM Peak	Broughton St	North	L2	32	29%	60.06	LOS E	2.9
H.15 Canterbury Road / Jeffrey Road AM Peak	Broughton St	North	L3	2	29%	60.59	LOS E	2.9
H.15 Canterbury Road / Jeffrey Road AM Peak	Broughton St	North	R2	139	88%	77.35	LOS F	9.6
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	West	T1	1818	78%	5.61	LOS A	21.8
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	West	L1	294	78%	10.09	LOS A	21.3
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	West	L2	31	78%	11.15	LOS A	21.3
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	East	L3	23	67%	14.84	LOS B	22.3
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	East	R2	20	67%	20.09	LOS B	25.1
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	East	T1	1703	67%	11.01	LOS A	25.1
H.15 Canterbury Road / Jeffrey Road PM Peak	Jeffrey Rd	Northeast	L2	10	87%	74.96	LOS F	13.1
H.15 Canterbury Road / Jeffrey Road PM Peak	Jeffrey Rd	Northeast	L3	20	87%	75.80	LOS F	13.1
H.15 Canterbury Road / Jeffrey Road PM Peak	Jeffrey Rd	Northeast	R1	351	87%	73.67	LOS F	13.3
H.15 Canterbury Road / Jeffrey Road PM Peak	Broughton St	North	L1	8	17%	55.22	LOS D	2.1
H.15 Canterbury Road / Jeffrey Road PM Peak	Broughton St	North	L2	27	17%	56.95	LOS E	2.1
H.15 Canterbury Road / Jeffrey Road PM Peak	Broughton St	North	L3	2	17%	57.63	LOS E	2.1
H.15 Canterbury Road / Jeffrey Road PM Peak	Broughton St	North	R2	202	93%	82.84	LOS F	14.8
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	West	T1	1302	79%	25.40	LOS B	38.2
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	West	L1	324	79%	29.84	LOS C	37.5
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	West	L2	26	79%	30.95	LOS C	37.5
H.14 Canterbury Road / Close Street AM Peak	Close St	South	L2	22	3%	8.10	LOS A	0.1
H.14 Canterbury Road / Close Street AM Peak	Canterbury Rd	East	L2	1	35%	6.07	LOS A	0.0
H.14 Canterbury Road / Close Street AM Peak	Canterbury Rd	East	T1	1290	35%	0.01	LOS A	0.0

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.14 Canterbury Road / Close Street AM Peak	Canterbury Rd	West	R2	1	56%	21.31	LOS B	0.1
H.14 Canterbury Road / Close Street AM Peak	Canterbury Rd	West	T1	2091	56%	0.06	LOS A	0.1
H.14 Canterbury Road / Close Street PM Peak	Close St	South	L2	20	5%	12.10	LOS A	0.2
H.14 Canterbury Road / Close Street PM Peak	Canterbury Rd	East	L2	15	57%	5.96	LOS A	0.2
H.14 Canterbury Road / Close Street PM Peak	Canterbury Rd	East	T1	2167	57%	0.02	LOS A	0.2
H.14 Canterbury Road / Close Street PM Peak	Canterbury Rd	West	R2	12	46%	45.0	LOS D	2.8
H.14 Canterbury Road / Close Street PM Peak	Canterbury Rd	West	T1	1618	46%	2.1	LOS A	2.8

5.2 Canterbury Station: Future + Construction + Refined Baseline TTP

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.13 Canterbury Road / Wonga Street AM Peak	Canterbury Rd E	East	T1	1216	61%	6.54	LOS A	27.5
B.13 Canterbury Road / Wonga Street AM Peak	Wonga St	North	L2	340	84%	58.48	LOS E	27.6
B.13 Canterbury Road / Wonga Street AM Peak	Wonga St	North	R2	84	84%	58.57	LOS E	27.6
B.13 Canterbury Road / Wonga Street AM Peak	Canterbury Rd W	West	T1	1919	83%	14.87	LOS B	39.6
B.13 Canterbury Road / Wonga Street AM Peak	Canterbury Rd W	West	L2	17	83%	20.41	LOS B	39.6
B.13 Canterbury Road / Wonga Street PM Peak	Canterbury Rd E	East	R2	463	69%	63.37	LOS E	23.8
B.13 Canterbury Road / Wonga Street PM Peak	Canterbury Rd E	East	T1	1816	86%	9.32	LOS A	49.4
B.13 Canterbury Road / Wonga Street PM Peak	Wonga St	North	L2	326	66%	39.89	LOS C	23.4
B.13 Canterbury Road / Wonga Street PM Peak	Wonga St	North	R2	126	66%	39.93	LOS C	23.4
B.13 Canterbury Road / Wonga Street PM Peak	Canterbury Rd W	West	T1	1399	80%	22.34	LOS B	33.0
B.13 Canterbury Road / Wonga Street PM Peak	Canterbury Rd W	West	L2	72	80%	28.00	LOS B	32.9
H.14 Canterbury Road / Charles Street AM Peak	Canterbury Rd	East	R2	12	49%	106.88	LOS F	23.0
H.14 Canterbury Road / Charles Street AM Peak	Canterbury Rd	East	T1	1345	49%	12.62	LOS A	23.0
H.14 Canterbury Road / Charles Street AM Peak	Charles St	North	L2	25	7%	14.40	LOS A	0.2
H.14 Canterbury Road / Charles Street AM Peak	Charles St	North	R2	4	54%	608.21	LOS F	1.3
H.14 Canterbury Road / Charles Street AM Peak	Canterbury Rd	West	T1	2141	60%	0.12	LOS A	0.7
H.14 Canterbury Road / Charles Street AM Peak	Canterbury Rd	West	L2	23	60%	9.06	LOS A	0.7
H.14 Canterbury Road / Charles Street PM Peak	Canterbury Rd	East	R2	18	64%	45.32	LOS D	3.5
H.14 Canterbury Road / Charles Street PM Peak	Canterbury Rd	East	T1	2222	64%	1.78	LOS A	3.5
H.14 Canterbury Road / Charles Street PM Peak	Charles St	North	L2	25	3%	4.96	LOS A	0.0
H.14 Canterbury Road / Charles Street PM Peak	Charles St	North	R2	4	53%	570.38	LOS F	1.2
H.14 Canterbury Road / Charles Street PM Peak	Canterbury Rd	West	T1	1668	46%	0.05	LOS A	0.5
H.14 Canterbury Road / Charles Street PM Peak	Canterbury Rd	West	L2	41	46%	6.42	LOS A	0.5
H.14 Canterbury Road / Close Street AM Peak	Close St	South	L2	37	7%	10.07	LOS A	0.3
H.14 Canterbury Road / Close Street AM Peak	Canterbury Rd	East	L2	16	38%	7.82	LOS A	0.3
H.14 Canterbury Road / Close Street AM Peak	Canterbury Rd	East	T1	1330	38%	0.03	LOS A	0.3
H.14 Canterbury Road / Close Street AM Peak	Canterbury Rd	West	R2	1	59%	25.10	LOS B	0.1
H.14 Canterbury Road / Close Street AM Peak	Canterbury Rd	West	T1	2143	59%	0.04	LOS A	0.1
H.14 Canterbury Road / Close Street PM Peak	Close St	South	L2	35	12%	17.58	LOS B	0.4
H.14 Canterbury Road / Close Street PM Peak	Canterbury Rd	East	L2	31	61%	6.80	LOS A	0.6
H.14 Canterbury Road / Close Street PM Peak	Canterbury Rd	East	T1	2207	61%	0.03	LOS A	0.6
H.14 Canterbury Road / Close Street PM Peak	Canterbury Rd	West	R2	12	49%	53.14	LOS D	15.6
H.14 Canterbury Road / Close Street PM Peak	Canterbury Rd	West	T1	1670	49%	2.69	LOS A	15.6
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	East	L3	13	41%	19.39	LOS B	16.1
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	East	R2	13	58%	23.82	LOS B	18.4
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	East	T1	986	58%	15.08	LOS B	18.4
H.15 Canterbury Road / Jeffrey Road AM Peak	Jeffrey Rd	Northeast	L2	9	88%	77.54	LOS F	9.4

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.15 Canterbury Road / Jeffrey Road AM Peak	Jeffrey Rd	Northeast	L3	23	88%	78.54	LOS F	9.4
H.15 Canterbury Road / Jeffrey Road AM Peak	Jeffrey Rd	Northeast	R1	247	88%	76.07	LOS F	9.9
H.15 Canterbury Road / Jeffrey Road AM Peak	Broughton St	North	L1	16	39%	59.31	LOS E	3.5
H.15 Canterbury Road / Jeffrey Road AM Peak	Broughton St	North	L2	43	39%	61.34	LOS E	3.5
H.15 Canterbury Road / Jeffrey Road AM Peak	Broughton St	North	L3	2	39%	61.73	LOS E	3.5
H.15 Canterbury Road / Jeffrey Road AM Peak	Broughton St	North	R2	139	88%	77.35	LOS F	9.6
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	West	T1	1860	82%	5.89	LOS A	25.3
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	West	L1	294	82%	10.40	LOS A	24.6
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	West	L2	42	82%	11.74	LOS A	24.6
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	East	L3	23	72%	15.29	LOS B	25.4
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	East	R2	20	72%	20.71	LOS B	27.6
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	East	T1	1759	72%	11.51	LOS A	27.6
H.15 Canterbury Road / Jeffrey Road PM Peak	Jeffrey Rd	Northeast	L2	10	87%	74.96	LOS F	13.1
H.15 Canterbury Road / Jeffrey Road PM Peak	Jeffrey Rd	Northeast	L3	20	87%	75.80	LOS F	13.1
H.15 Canterbury Road / Jeffrey Road PM Peak	Jeffrey Rd	Northeast	R1	351	87%	73.67	LOS F	13.3
H.15 Canterbury Road / Jeffrey Road PM Peak	Broughton St	North	L1	8	25%	56.41	LOS D	2.7
H.15 Canterbury Road / Jeffrey Road PM Peak	Broughton St	North	L2	38	25%	58.35	LOS E	2.7
H.15 Canterbury Road / Jeffrey Road PM Peak	Broughton St	North	L3	2	25%	58.82	LOS E	2.7
H.15 Canterbury Road / Jeffrey Road PM Peak	Broughton St	North	R2	202	93%	82.84	LOS F	14.8
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	West	T1	1345	80%	23.16	LOS B	38.5
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	West	L1	324	80%	27.60	LOS B	37.8
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	West	L2	37	80%	29.03	LOS C	37.8

5.3 Canterbury Station: Future (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.13 Canterbury Road / Wonga Street AM Peak	Canterbury Rd E	East	R2	167	33%	17.98	LOS B	6.9
B.13 Canterbury Road / Wonga Street AM Peak	Canterbury Rd E	East	T1	825	31%	7.28	LOS A	17.7
B.13 Canterbury Road / Wonga Street AM Peak	Wonga St	North	L2	219	54%	46.37	LOS D	14.8
B.13 Canterbury Road / Wonga Street AM Peak	Wonga St	North	R2	60	54%	46.45	LOS D	14.8
B.13 Canterbury Road / Wonga Street AM Peak	Canterbury Rd W	West	T1	1206	52%	10.49	LOS A	15.4
B.13 Canterbury Road / Wonga Street AM Peak	Canterbury Rd W	West	L2	11	52%	16.03	LOS B	15.4
B.13 Canterbury Road / Wonga Street PM Peak	Canterbury Rd E	East	R2	422	58%	53.06	LOS D	22.6
B.13 Canterbury Road / Wonga Street PM Peak	Canterbury Rd E	East	T1	1622	78%	7.02	LOS A	40.1
B.13 Canterbury Road / Wonga Street PM Peak	Wonga St	North	L2	297	59%	38.06	LOS C	20.5
B.13 Canterbury Road / Wonga Street PM Peak	Wonga St	North	R2	116	59%	38.10	LOS C	20.5
B.13 Canterbury Road / Wonga Street PM Peak	Canterbury Rd W	West	T1	1226	70%	22.22	LOS B	26.3
B.13 Canterbury Road / Wonga Street PM Peak	Canterbury Rd W	West	L2	65	70%	27.88	LOS B	26.1
H.14 Canterbury Road / Charles Street AM Peak	Canterbury Rd	East	R2	8	27%	26.02	LOS B	0.8
H.14 Canterbury Road / Charles Street AM Peak	Canterbury Rd	East	T1	921	27%	1.00	LOS A	0.8
H.14 Canterbury Road / Charles Street AM Peak	Charles St	North	L2	15	2%	8.56	LOS A	0.1
H.14 Canterbury Road / Charles Street AM Peak	Charles St	North	R2	3	6%	63.08	LOS E	0.1
H.14 Canterbury Road / Charles Street AM Peak	Canterbury Rd	West	T1	1353	37%	0.05	LOS A	0.2
H.14 Canterbury Road / Charles Street AM Peak	Canterbury Rd	West	L2	14	37%	7.69	LOS A	0.2
H.14 Canterbury Road / Charles Street PM Peak	Canterbury Rd	East	R2	16	55%	29.51	LOS C	1.8
H.14 Canterbury Road / Charles Street PM Peak	Canterbury Rd	East	T1	1995	55%	0.94	LOS A	1.8
H.14 Canterbury Road / Charles Street PM Peak	Charles St	North	L2	21	2%	4.73	LOS A	0.0
H.14 Canterbury Road / Charles Street PM Peak	Charles St	North	R2	4	35%	357.33	LOS F	0.8
H.14 Canterbury Road / Charles Street PM Peak	Canterbury Rd	West	T1	1474	40%	0.04	LOS A	0.4
H.14 Canterbury Road / Charles Street PM Peak	Canterbury Rd	West	L2	36	40%	6.25	LOS A	0.4
H.14 Canterbury Road / Close Street AM Peak	Close St	South	L2	16	2%	6.84	LOS A	0.1
H.14 Canterbury Road / Close Street AM Peak	Canterbury Rd	East	L2	1	25%	6.00	LOS A	0.0
H.14 Canterbury Road / Close Street AM Peak	Canterbury Rd	East	T1	921	25%	0.00	LOS A	0.0
H.14 Canterbury Road / Close Street AM Peak	Canterbury Rd	West	R2	1	37%	9.92	LOS A	0.0
H.14 Canterbury Road / Close Street AM Peak	Canterbury Rd	West	T1	1353	37%	0.01	LOS A	0.0
H.14 Canterbury Road / Close Street PM Peak	Close St	South	L2	18	4%	10.86	LOS A	0.1
H.14 Canterbury Road / Close Street PM Peak	Canterbury Rd	East	L2	14	53%	5.92	LOS A	0.2
H.14 Canterbury Road / Close Street PM Peak	Canterbury Rd	East	T1	1995	53%	0.02	LOS A	0.2
H.14 Canterbury Road / Close Street PM Peak	Canterbury Rd	West	R2	11	41%	34.03	LOS C	1.7
H.14 Canterbury Road / Close Street PM Peak	Canterbury Rd	West	T1	1474	41%	1.34	LOS A	1.7
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	East	L3	9	25%	16.58	LOS B	9.0
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	East	R2	11	36%	17.57	LOS B	9.2
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	East	T1	663	36%	10.61	LOS A	9.2
H.15 Canterbury Road / Jeffrey Road AM Peak	Jeffrey Rd	NorthEast	L2	6	86%	77.40	LOS F	6.6
H.15 Canterbury Road / Jeffrey Road AM Peak	Jeffrey Rd	NorthEast	L3	15	86%	78.40	LOS F	6.6
H.15 Canterbury Road / Jeffrey Road AM Peak	Jeffrey Rd	NorthEast	R1	177	86%	76.00	LOS F	6.9
H.15 Canterbury Road / Jeffrey Road AM Peak	Broughton St	North	L1	11	24%	57.84	LOS E	2.2
H.15 Canterbury Road / Jeffrey Road AM Peak	Broughton St	North	L2	25	24%	59.81	LOS E	2.2

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.15 Canterbury Road / Jeffrey Road AM Peak	Broughton St	North	L3	1	24%	60.26	LOS E	2.2
H.15 Canterbury Road / Jeffrey Road AM Peak	Broughton St	North	R2	99	64%	67.36	LOS E	6.2
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	West	T1	1172	49%	3.97	LOS A	7.5
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	West	L1	194	49%	8.47	LOS A	7.3
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	West	L2	20	49%	9.51	LOS A	7.3
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	East	L3	21	58%	11.84	LOS A	13.4
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	East	R2	19	58%	16.99	LOS B	18.8
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	East	T1	1568	58%	8.02	LOS A	18.8
H.15 Canterbury Road / Jeffrey Road PM Peak	Jeffrey Rd	NorthEast	L2	9	93%	83.93	LOS F	12.9
H.15 Canterbury Road / Jeffrey Road PM Peak	Jeffrey Rd	NorthEast	L3	18	93%	84.77	LOS F	12.9
H.15 Canterbury Road / Jeffrey Road PM Peak	Jeffrey Rd	NorthEast	R1	323	93%	82.63	LOS F	13.1
H.15 Canterbury Road / Jeffrey Road PM Peak	Broughton St	North	L1	7	17%	57.34	LOS E	2.0
H.15 Canterbury Road / Jeffrey Road PM Peak	Broughton St	North	L2	25	17%	59.08	LOS E	2.0
H.15 Canterbury Road / Jeffrey Road PM Peak	Broughton St	North	L3	2	17%	59.75	LOS E	2.0
H.15 Canterbury Road / Jeffrey Road PM Peak	Broughton St	North	R2	186	93%	83.57	LOS F	13.7
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	West	T1	1186	86%	38.90	LOS C	43.3
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	West	L1	295	86%	43.46	LOS D	42.6
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	West	L2	24	86%	44.56	LOS D	42.6

5.4 Canterbury Station: Future + Construction (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.13 Canterbury Road / Wonga Street AM Peak	Canterbury Rd E	East	R2	167	34%	18.69	LOS B	7.2
B.13 Canterbury Road / Wonga Street AM Peak	Canterbury Rd E	East	T1	841	33%	7.12	LOS A	17.7
B.13 Canterbury Road / Wonga Street AM Peak	Wonga St	North	L2	219	56%	47.36	LOS D	15.0
B.13 Canterbury Road / Wonga Street AM Peak	Wonga St	North	R2	60	56%	47.45	LOS D	15.0
B.13 Canterbury Road / Wonga Street AM Peak	Canterbury Rd W	West	T1	1218	52%	10.35	LOS A	15.6
B.13 Canterbury Road / Wonga Street AM Peak	Canterbury Rd W	West	L2	11	52%	15.89	LOS B	15.6
B.13 Canterbury Road / Wonga Street PM Peak	Canterbury Rd E	East	R2	422	59%	54.61	LOS D	22.7
B.13 Canterbury Road / Wonga Street PM Peak	Canterbury Rd E	East	T1	1637	79%	7.21	LOS A	40.8
B.13 Canterbury Road / Wonga Street PM Peak	Wonga St	North	L2	297	61%	39.05	LOS C	20.8
B.13 Canterbury Road / Wonga Street PM Peak	Wonga St	North	R2	116	61%	39.09	LOS C	20.8
B.13 Canterbury Road / Wonga Street PM Peak	Canterbury Rd W	West	T1	1238	70%	21.45	LOS B	26.2
B.13 Canterbury Road / Wonga Street PM Peak	Canterbury Rd W	West	L2	65	70%	27.11	LOS B	26.0
H.14 Canterbury Road / Charles Street AM Peak	Canterbury Rd	East	R2	8	27%	26.97	LOS B	0.8
H.14 Canterbury Road / Charles Street AM Peak	Canterbury Rd	East	T1	936	27%	1.04	LOS A	0.8
H.14 Canterbury Road / Charles Street AM Peak	Charles St	North	L2	17	3%	9.00	LOS A	0.1
H.14 Canterbury Road / Charles Street AM Peak	Charles St	North	R2	3	6%	66.56	LOS E	0.2
H.14 Canterbury Road / Charles Street AM Peak	Canterbury Rd	West	T1	1363	38%	0.06	LOS A	0.2
H.14 Canterbury Road / Charles Street AM Peak	Canterbury Rd	West	L2	16	38%	7.94	LOS A	0.2
H.14 Canterbury Road / Charles Street PM Peak	Canterbury Rd	East	R2	16	56%	30.64	LOS C	1.9
H.14 Canterbury Road / Charles Street PM Peak	Canterbury Rd	East	T1	2011	56%	0.98	LOS A	1.9
H.14 Canterbury Road / Charles Street PM Peak	Charles St	North	L2	23	2%	4.81	LOS A	0.0
H.14 Canterbury Road / Charles Street PM Peak	Charles St	North	R2	4	37%	386.08	LOS F	0.9
H.14 Canterbury Road / Charles Street PM Peak	Canterbury Rd	West	T1	1484	41%	0.04	LOS A	0.4
H.14 Canterbury Road / Charles Street PM Peak	Canterbury Rd	West	L2	38	41%	6.33	LOS A	0.4
H.14 Canterbury Road / Close Street AM Peak	Close St	South	L2	31	5%	8.10	LOS A	0.2
H.14 Canterbury Road / Close Street AM Peak	Canterbury Rd	East	L2	16	26%	7.64	LOS A	0.2
H.14 Canterbury Road / Close Street AM Peak	Canterbury Rd	East	T1	921	26%	0.04	LOS A	0.2
H.14 Canterbury Road / Close Street AM Peak	Canterbury Rd	West	R2	1	37%	10.34	LOS A	0.0
H.14 Canterbury Road / Close Street AM Peak	Canterbury Rd	West	T1	1365	37%	0.01	LOS A	0.0
H.14 Canterbury Road / Close Street PM Peak	Close St	South	L2	33	10%	14.95	LOS B	0.3
H.14 Canterbury Road / Close Street PM Peak	Canterbury Rd	East	L2	29	54%	6.72	LOS A	0.5
H.14 Canterbury Road / Close Street PM Peak	Canterbury Rd	East	T1	1995	54%	0.03	LOS A	0.5
H.14 Canterbury Road / Close Street PM Peak	Canterbury Rd	West	R2	11	42%	35.78	LOS C	1.8
H.14 Canterbury Road / Close Street PM Peak	Canterbury Rd	West	T1	1486	42%	1.44	LOS A	1.8
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	East	L3	9	26%	16.66	LOS B	9.3
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	East	R2	11	37%	17.72	LOS B	9.6
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	East	T1	679	37%	10.72	LOS A	9.6
H.15 Canterbury Road / Jeffrey Road AM Peak	Jeffrey Rd	NorthEast	L2	6	86%	77.58	LOS F	6.6
H.15 Canterbury Road / Jeffrey Road AM Peak	Jeffrey Rd	NorthEast	L3	15	86%	78.58	LOS F	6.6
H.15 Canterbury Road / Jeffrey Road AM Peak	Jeffrey Rd	NorthEast	R1	177	86%	76.18	LOS F	6.9
H.15 Canterbury Road / Jeffrey Road AM Peak	Broughton St	North	L1	11	33%	59.01	LOS E	2.8
H.15 Canterbury Road / Jeffrey Road AM Peak	Broughton St	North	L2	36	33%	61.13	LOS E	2.8

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.15 Canterbury Road / Jeffrey Road AM Peak	Broughton St	North	L3	1	33%	61.42	LOS E	2.8
H.15 Canterbury Road / Jeffrey Road AM Peak	Broughton St	North	R2	99	64%	67.36	LOS E	6.2
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	West	T1	1173	50%	4.03	LOS A	7.8
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	West	L1	194	50%	8.58	LOS A	7.4
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	West	L2	30	50%	9.98	LOS A	7.4
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	East	L3	21	59%	11.90	LOS A	13.8
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	East	R2	19	59%	17.10	LOS B	19.3
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	East	T1	1583	59%	8.10	LOS A	19.3
H.15 Canterbury Road / Jeffrey Road PM Peak	Jeffrey Rd	NorthEast	L2	9	93%	83.93	LOS F	12.9
H.15 Canterbury Road / Jeffrey Road PM Peak	Jeffrey Rd	NorthEast	L3	18	93%	84.77	LOS F	12.9
H.15 Canterbury Road / Jeffrey Road PM Peak	Jeffrey Rd	NorthEast	R1	323	93%	82.63	LOS F	13.1
H.15 Canterbury Road / Jeffrey Road PM Peak	Broughton St	North	L1	7	26%	58.63	LOS E	2.6
H.15 Canterbury Road / Jeffrey Road PM Peak	Broughton St	North	L2	36	26%	60.59	LOS E	2.6
H.15 Canterbury Road / Jeffrey Road PM Peak	Broughton St	North	L3	2	26%	61.05	LOS E	2.6
H.15 Canterbury Road / Jeffrey Road PM Peak	Broughton St	North	R2	186	93%	83.57	LOS F	13.7
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	West	T1	1188	86%	37.70	LOS C	43.4
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	West	L1	295	86%	42.36	LOS C	42.2
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	West	L2	34	86%	43.81	LOS D	42.2

5.5 Canterbury Station Station: Future + Construction + Refined TTS (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.13 Canterbury Road / Wonga Street AM Peak	Canterbury Rd E	East	R2	207	42%	25.99	LOS B	14.2
B.13 Canterbury Road / Wonga Street AM Peak	Canterbury Rd E	East	T1	841	34%	6.95	LOS A	18.1
B.13 Canterbury Road / Wonga Street AM Peak	Wonga St	North	L2	259	60%	42.63	LOS D	16.7
B.13 Canterbury Road / Wonga Street AM Peak	Wonga St	North	R2	60	60%	42.59	LOS D	16.7
B.13 Canterbury Road / Wonga Street AM Peak	Canterbury Rd W	West	T1	1218	58%	12.22	LOS A	16.8
B.13 Canterbury Road / Wonga Street AM Peak	Canterbury Rd W	West	L2	11	58%	17.76	LOS B	16.8
B.13 Canterbury Road / Wonga Street PM Peak	Canterbury Rd E	East	R2	462	66%	56.69	LOS E	22.9
B.13 Canterbury Road / Wonga Street PM Peak	Canterbury Rd E	East	T1	1637	79%	7.21	LOS A	40.8
B.13 Canterbury Road / Wonga Street PM Peak	Wonga St	North	L2	337	64%	34.61	LOS C	22.1
B.13 Canterbury Road / Wonga Street PM Peak	Wonga St	North	R2	116	64%	34.55	LOS C	22.1
B.13 Canterbury Road / Wonga Street PM Peak	Canterbury Rd W	West	T1	1238	76%	26.55	LOS B	30.1
B.13 Canterbury Road / Wonga Street PM Peak	Canterbury Rd W	West	L2	65	76%	32.22	LOS C	29.9
H.14 Canterbury Road / Charles Street AM Peak	Canterbury Rd	East	R2	8	30%	30.09	LOS C	1.0
H.14 Canterbury Road / Charles Street AM Peak	Canterbury Rd	East	T1	976	30%	1.17	LOS A	1.0
H.14 Canterbury Road / Charles Street AM Peak	Charles St	North	L2	16	3%	9.20	LOS A	0.1
H.14 Canterbury Road / Charles Street AM Peak	Charles St	North	R2	3	7%	78.29	LOS F	0.2
H.14 Canterbury Road / Charles Street AM Peak	Canterbury Rd	West	T1	1403	40%	0.06	LOS A	0.2
H.14 Canterbury Road / Charles Street AM Peak	Canterbury Rd	West	L2	16	40%	8.03	LOS A	0.2
H.14 Canterbury Road / Charles Street PM Peak	Canterbury Rd	East	R2	16	58%	34.36	LOS C	2.2
H.14 Canterbury Road / Charles Street PM Peak	Canterbury Rd	East	T1	2051	58%	1.13	LOS A	2.2
H.14 Canterbury Road / Charles Street PM Peak	Charles St	North	L2	23	2%	4.85	LOS A	0.0
H.14 Canterbury Road / Charles Street PM Peak	Charles St	North	R2	4	44%	486.21	LOS F	1.0
H.14 Canterbury Road / Charles Street PM Peak	Canterbury Rd	West	T1	1524	43%	0.04	LOS A	0.4
H.14 Canterbury Road / Charles Street PM Peak	Canterbury Rd	West	L2	38	43%	6.36	LOS A	0.4
H.14 Canterbury Road / Close Street AM Peak	Close St	South	L2	31	5%	8.38	LOS A	0.2
H.14 Canterbury Road / Close Street AM Peak	Canterbury Rd	East	L2	16	28%	7.68	LOS A	0.2
H.14 Canterbury Road / Close Street AM Peak	Canterbury Rd	East	T1	961	28%	0.04	LOS A	0.2
H.14 Canterbury Road / Close Street AM Peak	Canterbury Rd	West	R2	1	39%	11.39	LOS A	0.0
H.14 Canterbury Road / Close Street AM Peak	Canterbury Rd	West	T1	1405	39%	0.01	LOS A	0.0
H.14 Canterbury Road / Close Street PM Peak	Close St	South	L2	32	10%	15.38	LOS B	0.3
H.14 Canterbury Road / Close Street PM Peak	Canterbury Rd	East	L2	29	56%	6.76	LOS A	0.5
H.14 Canterbury Road / Close Street PM Peak	Canterbury Rd	East	T1	2035	56%	0.03	LOS A	0.5
H.14 Canterbury Road / Close Street PM Peak	Canterbury Rd	West	R2	11	44%	39.90	LOS C	2.1
H.14 Canterbury Road / Close Street PM Peak	Canterbury Rd	West	T1	1526	44%	1.65	LOS A	2.1
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	East	L3	9	29%	16.90	LOS B	10.0
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	East	R2	11	41%	18.14	LOS B	10.5
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	East	T1	719	41%	11.04	LOS A	10.5
H.15 Canterbury Road / Jeffrey Road AM Peak	Jeffrey Rd	NorthEast	L2	6	86%	77.58	LOS F	6.6
H.15 Canterbury Road / Jeffrey Road AM Peak	Jeffrey Rd	NorthEast	L3	15	86%	78.58	LOS F	6.6
H.15 Canterbury Road / Jeffrey Road AM Peak	Jeffrey Rd	NorthEast	R1	177	86%	76.18	LOS F	6.9
H.15 Canterbury Road / Jeffrey Road AM Peak	Broughton St	North	L1	11	33%	59.01	LOS E	2.8
H.15 Canterbury Road / Jeffrey Road AM Peak	Broughton St	North	L2	36	33%	61.13	LOS E	2.8
H.15 Canterbury Road / Jeffrey Road AM Peak	Broughton St	North	L3	1	33%	61.42	LOS E	2.8
H.15 Canterbury Road / Jeffrey Road AM Peak	Broughton St	North	R2	99	64%	67.36	LOS E	6.2

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	West	T1	1214	53%	4.14	LOS A	8.3
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	West	L1	194	53%	8.69	LOS A	8.0
H.15 Canterbury Road / Jeffrey Road AM Peak	Canterbury Rd	West	L2	30	53%	10.10	LOS A	8.0
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	East	L3	21	63%	12.13	LOS A	15.4
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	East	R2	19	63%	15.60	LOS B	18.5
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	East	T1	1624	63%	7.50	LOS A	18.5
H.15 Canterbury Road / Jeffrey Road PM Peak	Jeffrey Rd	NorthEast	L2	9	93%	83.93	LOS F	12.9
H.15 Canterbury Road / Jeffrey Road PM Peak	Jeffrey Rd	NorthEast	L3	18	93%	84.77	LOS F	12.9
H.15 Canterbury Road / Jeffrey Road PM Peak	Jeffrey Rd	NorthEast	R1	323	93%	82.63	LOS F	13.1
H.15 Canterbury Road / Jeffrey Road PM Peak	Broughton St	North	L1	7	26%	58.63	LOS E	2.6
H.15 Canterbury Road / Jeffrey Road PM Peak	Broughton St	North	L2	36	26%	60.59	LOS E	2.6
H.15 Canterbury Road / Jeffrey Road PM Peak	Broughton St	North	L3	2	26%	61.05	LOS E	2.6
H.15 Canterbury Road / Jeffrey Road PM Peak	Broughton St	North	R2	186	93%	83.57	LOS F	13.7
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	West	T1	1228	73%	22.00	LOS B	32.3
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	West	L1	295	73%	26.45	LOS B	31.7
H.15 Canterbury Road / Jeffrey Road PM Peak	Canterbury Rd	West	L2	34	73%	27.90	LOS B	31.7

6.0 Campsie Station

6.1 Campsie Station: Future

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.10 Beamish Street / Ninth Avenue AM Peak	Beamish St S	South	T1	400	69%	18.80	LOS B	14.8
B.10 Beamish Street / Ninth Avenue AM Peak	Beamish St S	South	L2	421	44%	4.14	LOS A	3.1
B.10 Beamish Street / Ninth Avenue AM Peak	Beamish St N	North	T1	337	51%	12.34	LOS A	9.6
B.10 Beamish Street / Ninth Avenue AM Peak	Beamish St N	North	R2	111	52%	33.15	LOS C	4.5
B.10 Beamish Street / Ninth Avenue AM Peak	Ninth Ave	West	R2	351	53%	20.26	LOS B	9.7
B.10 Beamish Street / Ninth Avenue AM Peak	Ninth Ave	West	L2	324	43%	16.63	LOS B	7.1
B.10 Beamish Street / Ninth Avenue PM Peak	Beamish St S	South	T1	383	58%	14.45	LOS A	12.3
B.10 Beamish Street / Ninth Avenue PM Peak	Beamish St S	South	L2	412	43%	4.59	LOS A	3.8
B.10 Beamish Street / Ninth Avenue PM Peak	Beamish St N	North	T1	483	56%	9.99	LOS A	13.1
B.10 Beamish Street / Ninth Avenue PM Peak	Beamish St N	North	R2	207	70%	30.78	LOS C	9.0
B.10 Beamish Street / Ninth Avenue PM Peak	Ninth Ave	West	R2	372	71%	30.80	LOS C	15.2
B.10 Beamish Street / Ninth Avenue PM Peak	Ninth Ave	West	L2	207	32%	21.35	LOS B	5.3
B.11 Beamish Street / Clissold Parade AM Peak	Beamish St S	South	R2	71	75%	21.99	LOS B	28.0
B.11 Beamish Street / Clissold Parade AM Peak	Beamish St S	South	T1	740	75%	17.95	LOS B	28.0
B.11 Beamish Street / Clissold Parade AM Peak	Clissold Pde	East	L2	53	6%	16.84	LOS B	1.3
B.11 Beamish Street / Clissold Parade AM Peak	Clissold Pde	East	R2	43	23%	48.81	LOS D	2.0
B.11 Beamish Street / Clissold Parade AM Peak	Beamish St N	North	T1	683	81%	38.39	LOS C	18.4
B.11 Beamish Street / Clissold Parade AM Peak	Beamish St N	North	L2	50	81%	41.31	LOS C	18.1
B.11 Beamish Street / Clissold Parade PM Peak	Beamish St S	South	R2	121	105%	104.37	LOS F	66.6
B.11 Beamish Street / Clissold Parade PM Peak	Beamish St S	South	T1	660	105%	98.49	LOS F	66.6
B.11 Beamish Street / Clissold Parade PM Peak	Clissold Pde	East	L2	72	22%	41.96	LOS C	3.1
B.11 Beamish Street / Clissold Parade PM Peak	Clissold Pde	East	R2	113	84%	61.19	LOS E	6.3
B.11 Beamish Street / Clissold Parade PM Peak	Beamish St N	North	T1	726	87%	23.79	LOS B	32.2
B.11 Beamish Street / Clissold Parade PM Peak	Beamish St N	North	L2	72	6%	4.06	LOS A	0.4
B.12 Beamish Street / South Parade AM Peak	Beamish St S	South	R2	13	64%	19.23	LOS B	23.1
B.12 Beamish Street / South Parade AM Peak	Beamish St S	South	T1	620	64%	15.48	LOS B	23.1
B.12 Beamish Street / South Parade AM Peak	South Parade	East	L2	52	48%	53.29	LOS D	2.6
B.12 Beamish Street / South Parade AM Peak	South Parade	East	R2	134	90%	64.83	LOS E	7.6
B.12 Beamish Street / South Parade AM Peak	Beamish St N	North	T1	513	72%	12.93	LOS A	17.7
B.12 Beamish Street / South Parade AM Peak	Beamish St N	North	L2	207	24%	13.95	LOS A	6.1
B.12 Beamish Street / South Parade AM Peak	Lilian St	West	T1	52	39%	42.88	LOS D	4.1
B.12 Beamish Street / South Parade AM Peak	Lilian St	West	L2	40	39%	46.30	LOS D	4.1
B.12 Beamish Street / South Parade PM Peak	Beamish St S	South	R2	11	72%	20.47	LOS B	25.5
B.12 Beamish Street / South Parade PM Peak	Beamish St S	South	T1	631	72%	16.74	LOS B	25.5

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.12 Beamish Street / South Parade PM Peak	South Parade	East	L2	35	48%	58.66	LOS E	1.9
B.12 Beamish Street / South Parade PM Peak	South Parade	East	R2	122	96%	76.03	LOS F	7.6
B.12 Beamish Street / South Parade PM Peak	Beamish St N	North	T1	618	84%	22.28	LOS B	27.7
B.12 Beamish Street / South Parade PM Peak	Beamish St N	North	L2	193	23%	12.88	LOS A	5.6
B.12 Beamish Street / South Parade PM Peak	Lilian St	West	T1	39	45%	48.51	LOS D	4.0
B.12 Beamish Street / South Parade PM Peak	Lilian St	West	L2	43	45%	51.92	LOS D	4.0
H.11 Beamish Street / North Parade AM Peak	Beamish St	South	T1	690	71%	0.00	LOS A	9.5
H.11 Beamish Street / North Parade AM Peak	Beamish St	South	L2	54	5%	3.40	LOS A	0.0
H.11 Beamish Street / North Parade AM Peak	North Pde	East	L2	38	29%	31.40	LOS C	0.9
H.11 Beamish Street / North Parade AM Peak	Beamish St	North	T1	712	41%	0.00	LOS A	0.0
H.11 Beamish Street / North Parade AM Peak	Beamish St	North	L2	38	41%	3.40	LOS A	0.0
H.11 Beamish Street / North Parade AM Peak	North Pde	West	L2	61	39%	30.10	LOS C	1.4
H.11 Beamish Street / North Parade PM Peak	Beamish St	South	T1	741	72%	0.10	LOS A	19.4
H.11 Beamish Street / North Parade PM Peak	Beamish St	South	L2	65	5%	3.40	LOS A	0.0
H.11 Beamish Street / North Parade PM Peak	North Pde	East	L2	39	25%	29.40	LOS C	0.9
H.11 Beamish Street / North Parade PM Peak	Beamish St	North	T1	716	47%	0.00	LOS A	0.0
H.11 Beamish Street / North Parade PM Peak	Beamish St	North	L2	33	47%	3.40	LOS A	0.0
H.11 Beamish Street / North Parade PM Peak	North Pde	West	L2	48	29%	28.60	LOS C	1.1
H.12 Beamish Street / Amy Street AM Peak	Beamish St	South	T1	550	51%	8.77	LOS A	16.9
H.12 Beamish Street / Amy Street AM Peak	Beamish St	South	L2	82	51%	12.18	LOS A	16.9
H.12 Beamish Street / Amy Street AM Peak	Beamish St	North	T1	580	41%	3.42	LOS A	9.6
H.12 Beamish Street / Amy Street AM Peak	Beamish St	North	R2	4	41%	6.96	LOS A	9.6
H.12 Beamish Street / Amy Street AM Peak	Amy St	West	L2	40	44%	67.93	LOS E	2.5
H.12 Beamish Street / Amy Street PM Peak	Beamish St	South	T1	545	94%	23.59	LOS B	34.3
H.12 Beamish Street / Amy Street PM Peak	Beamish St	South	L2	113	94%	27.00	LOS B	34.3
H.12 Beamish Street / Amy Street PM Peak	Beamish St	North	T1	651	40%	1.38	LOS A	8.4
H.12 Beamish Street / Amy Street PM Peak	Beamish St	North	R2	2	40%	4.92	LOS A	8.4
H.12 Beamish Street / Amy Street PM Peak	Amy St	West	L2	88	90%	83.49	LOS F	6.5
H.13 Canterbury Road / Beamish Street AM Peak	Bexley Rd	South	R2	392	95%	61.08	LOS E	23.1
H.13 Canterbury Road / Beamish Street AM Peak	Bexley Rd	South	T1	658	81%	49.18	LOS D	23.1
H.13 Canterbury Road / Beamish Street AM Peak	Bexley Rd	South	L2	96	61%	56.09	LOS D	23.1
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	East	L2	291	50%	34.28	LOS C	22.3
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	East	T1	784	50%	28.66	LOS C	22.7
H.13 Canterbury Road / Beamish Street AM Peak	Beamish St	North	T1	420	88%	64.20	LOS E	15.8
H.13 Canterbury Road / Beamish Street AM Peak	Beamish St	North	L2	55	79%	65.01	LOS E	15.8
H.13 Canterbury Road / Beamish Street AM Peak	Beamish St	North	R2	76	37%	65.80	LOS E	4.6
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	West	R2	302	92%	73.79	LOS F	20.3

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	West	T1	1487	53%	14.47	LOS A	20.7
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	West	L2	81	42%	19.93	LOS B	20.7
H.13 Canterbury Road / Beamish Street PM Peak	Bexley Rd	South	R2	392	94%	55.74	LOS D	21.5
H.13 Canterbury Road / Beamish Street PM Peak	Bexley Rd	South	T1	462	64%	42.93	LOS D	14.1
H.13 Canterbury Road / Beamish Street PM Peak	Bexley Rd	South	L2	99	41%	51.38	LOS D	14.1
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	East	L2	195	46%	22.48	LOS B	19.9
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	East	T1	1154	46%	16.91	LOS B	20.1
H.13 Canterbury Road / Beamish Street PM Peak	Beamish St	North	T1	434	88%	62.31	LOS E	16.5
H.13 Canterbury Road / Beamish Street PM Peak	Beamish St	North	L2	51	80%	63.71	LOS E	16.5
H.13 Canterbury Road / Beamish Street PM Peak	Beamish St	North	R2	130	92%	81.75	LOS F	9.2
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	West	R2	191	84%	73.72	LOS F	12.4
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	West	T1	1044	38%	18.86	LOS B	20.1
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	West	L2	100	30%	24.28	LOS B	20.1
H.34 Ninth Ave / Loch St AM	Loch St	South	R2	577	75%	8.73	LOS A	10.2
H.34 Ninth Ave / Loch St AM	Loch St	South	L2	276	75%	6.84	LOS A	10.2
H.34 Ninth Ave / Loch St AM	Ninth Ave	East	L2	472	75%	9.90	LOS A	10.3
H.34 Ninth Ave / Loch St AM	Ninth Ave	East	T1	222	75%	9.26	LOS A	10.3
H.34 Ninth Ave / Loch St AM	Ninth Ave	West	R2	400	97%	43.84	LOS D	29.9
H.34 Ninth Ave / Loch St AM	Ninth Ave	West	T1	323	97%	41.25	LOS C	29.9
H.34 Ninth Ave / Loch St PM	Loch St	South	R2	490	88%	17.49	LOS B	19.5
H.34 Ninth Ave / Loch St PM	Loch St	South	L2	417	88%	15.41	LOS B	19.5
H.34 Ninth Ave / Loch St PM	Ninth Ave	East	L2	648	97%	28.71	LOS C	33.8
H.34 Ninth Ave / Loch St PM	Ninth Ave	East	T1	315	97%	28.31	LOS B	33.8
H.34 Ninth Ave / Loch St PM	Ninth Ave	West	R2	368	80%	17.81	LOS B	12.3
H.34 Ninth Ave / Loch St PM	Ninth Ave	West	T1	280	80%	15.15	LOS B	12.3

6.2 Campsie Station: Future + Construction + Refined Baseline TTP

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.10 Beamish Street / Ninth Avenue AM Peak	Beamish St S	South	T1	416	71%	18.36	LOS B	15.5
B.10 Beamish Street / Ninth Avenue AM Peak	Beamish St S	South	L2	436	47%	4.20	LOS A	3.3
B.10 Beamish Street / Ninth Avenue AM Peak	Beamish St N	North	T1	337	50%	11.13	LOS A	9.1
B.10 Beamish Street / Ninth Avenue AM Peak	Beamish St N	North	R2	111	53%	33.40	LOS C	4.5
B.10 Beamish Street / Ninth Avenue AM Peak	Ninth Ave	West	R2	366	61%	23.00	LOS B	11.8
B.10 Beamish Street / Ninth Avenue AM Peak	Ninth Ave	West	L2	324	46%	18.76	LOS B	8.1
B.10 Beamish Street / Ninth Avenue PM Peak	Beamish St S	South	T1	399	63%	15.78	LOS B	13.6
B.10 Beamish Street / Ninth Avenue PM Peak	Beamish St S	South	L2	427	46%	4.67	LOS A	4.2
B.10 Beamish Street / Ninth Avenue PM Peak	Beamish St N	North	T1	483	57%	10.57	LOS A	13.5
B.10 Beamish Street / Ninth Avenue PM Peak	Beamish St N	North	R2	207	79%	40.53	LOS C	10.6
B.10 Beamish Street / Ninth Avenue PM Peak	Ninth Ave	West	R2	387	74%	30.14	LOS C	16.0
B.10 Beamish Street / Ninth Avenue PM Peak	Ninth Ave	West	L2	207	31%	20.27	LOS B	5.1
B.11 Beamish Street / Clissold Parade AM Peak	Beamish St S	South	R2	71	81%	26.61	LOS B	27.8
B.11 Beamish Street / Clissold Parade AM Peak	Beamish St S	South	T1	797	81%	21.52	LOS B	27.8
B.11 Beamish Street / Clissold Parade AM Peak	Clissold Pde	East	L2	53	6%	16.29	LOS B	1.3
B.11 Beamish Street / Clissold Parade AM Peak	Clissold Pde	East	R2	43	23%	48.81	LOS D	2.0
B.11 Beamish Street / Clissold Parade AM Peak	Beamish St N	North	T1	724	92%	55.74	LOS D	23.6
B.11 Beamish Street / Clissold Parade AM Peak	Beamish St N	North	L2	50	92%	58.08	LOS E	23.2
B.11 Beamish Street / Clissold Parade PM Peak	Beamish St S	South	R2	121	135%	365.25	LOS F	127.0
B.11 Beamish Street / Clissold Parade PM Peak	Beamish St S	South	T1	716	135%	333.20	LOS F	127.0
B.11 Beamish Street / Clissold Parade PM Peak	Clissold Pde	East	L2	72	22%	41.96	LOS C	3.1
B.11 Beamish Street / Clissold Parade PM Peak	Clissold Pde	East	R2	113	84%	61.19	LOS E	6.3
B.11 Beamish Street / Clissold Parade PM Peak	Beamish St N	North	T1	766	96%	54.37	LOS D	50.8
B.11 Beamish Street / Clissold Parade PM Peak	Beamish St N	North	L2	72	6%	4.06	LOS A	0.4
B.12 Beamish Street / South Parade AM Peak	Beamish St S	South	R2	13	71%	23.70	LOS B	25.3
B.12 Beamish Street / South Parade AM Peak	Beamish St S	South	T1	628	71%	19.94	LOS B	25.3
B.12 Beamish Street / South Parade AM Peak	South Parade	East	L2	54	31%	46.66	LOS D	2.4
B.12 Beamish Street / South Parade AM Peak	South Parade	East	R2	175	91%	66.56	LOS E	10.4
B.12 Beamish Street / South Parade AM Peak	Beamish St N	North	T1	513	86%	27.55	LOS B	23.4
B.12 Beamish Street / South Parade AM Peak	Beamish St N	North	L2	248	55%	17.67	LOS B	8.2
B.12 Beamish Street / South Parade AM Peak	Lilian St	West	T1	52	32%	38.62	LOS C	4.2
B.12 Beamish Street / South Parade AM Peak	Lilian St	West	L2	48	32%	42.13	LOS C	4.2
B.12 Beamish Street / South Parade PM Peak	Beamish St S	South	R2	11	73%	20.11	LOS B	25.8
B.12 Beamish Street / South Parade PM Peak	Beamish St S	South	T1	639	73%	16.36	LOS B	25.8
B.12 Beamish Street / South Parade PM Peak	South Parade	East	L2	37	62%	61.70	LOS E	2.1
B.12 Beamish Street / South Parade PM Peak	South Parade	East	R2	162	179%	777.73	LOS F	38.2
B.12 Beamish Street / South Parade PM Peak	Beamish St N	North	T1	618	90%	31.76	LOS C	31.5

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.12 Beamish Street / South Parade PM Peak	Beamish St N	North	L2	233	43%	13.43	LOS A	7.1
B.12 Beamish Street / South Parade PM Peak	Lilian St	West	T1	39	61%	51.21	LOS D	4.6
B.12 Beamish Street / South Parade PM Peak	Lilian St	West	L2	51	61%	54.71	LOS D	4.6
H.11 Beamish Street / North Parade AM Peak	Beamish St	South	T1	713	72%	0.10	LOS A	10.9
H.11 Beamish Street / North Parade AM Peak	Beamish St	South	L2	87	11%	3.60	LOS A	0.0
H.11 Beamish Street / North Parade AM Peak	North Pde	East	L2	38	33%	37.50	LOS C	1.1
H.11 Beamish Street / North Parade AM Peak	Beamish St	North	T1	754	45%	0.00	LOS A	0.0
H.11 Beamish Street / North Parade AM Peak	Beamish St	North	L2	38	45%	3.40	LOS A	0.0
H.11 Beamish Street / North Parade AM Peak	North Pde	West	L2	69	49%	37.20	LOS C	1.9
H.11 Beamish Street / North Parade PM Peak	Beamish St	South	T1	765	67%	0.0	LOS A	19.2
H.11 Beamish Street / North Parade PM Peak	Beamish St	South	L2	99	10%	3.60	LOS A	0.0
H.11 Beamish Street / North Parade PM Peak	North Pde	East	L2	39	29%	42.80	LOS D	1.2
H.11 Beamish Street / North Parade PM Peak	Beamish St	North	T1	758	63%	0.00	LOS A	0.0
H.11 Beamish Street / North Parade PM Peak	Beamish St	North	L2	33	63%	3.40	LOS A	0.0
H.11 Beamish Street / North Parade PM Peak	North Pde	West	L2	56	38%	34.8	LOS C	1.5
H.12 Beamish Street / Amy Street AM Peak	Beamish St	South	T1	558	52%	8.87	LOS A	17.3
H.12 Beamish Street / Amy Street AM Peak	Beamish St	South	L2	82	52%	12.28	LOS A	17.3
H.12 Beamish Street / Amy Street AM Peak	Beamish St	North	T1	582	41%	3.44	LOS A	9.6
H.12 Beamish Street / Amy Street AM Peak	Beamish St	North	R2	4	41%	6.97	LOS A	9.6
H.12 Beamish Street / Amy Street AM Peak	Amy St	West	L2	40	44%	67.93	LOS E	2.5
H.12 Beamish Street / Amy Street PM Peak	Beamish St	South	T1	552	95%	28.13	LOS B	38.1
H.12 Beamish Street / Amy Street PM Peak	Beamish St	South	L2	113	95%	31.54	LOS C	38.1
H.12 Beamish Street / Amy Street PM Peak	Beamish St	North	T1	653	40%	1.38	LOS A	8.4
H.12 Beamish Street / Amy Street PM Peak	Beamish St	North	R2	2	40%	4.92	LOS A	8.4
H.12 Beamish Street / Amy Street PM Peak	Amy St	West	L2	88	90%	83.49	LOS F	6.5
H.13 Canterbury Road / Beamish Street AM Peak	Bexley Rd	South	R2	392	90%	49.22	LOS D	20.3
H.13 Canterbury Road / Beamish Street AM Peak	Bexley Rd	South	T1	658	81%	48.81	LOS D	23.1
H.13 Canterbury Road / Beamish Street AM Peak	Bexley Rd	South	L2	96	61%	55.36	LOS D	23.1
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	East	L2	291	54%	37.52	LOS C	24.0
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	East	T1	784	54%	31.90	LOS C	24.5
H.13 Canterbury Road / Beamish Street AM Peak	Beamish St	North	T1	420	88%	64.57	LOS E	15.9
H.13 Canterbury Road / Beamish Street AM Peak	Beamish St	North	L2	55	80%	65.29	LOS E	15.9
H.13 Canterbury Road / Beamish Street AM Peak	Beamish St	North	R2	78	37%	63.62	LOS E	4.6
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	West	R2	302	90%	69.62	LOS E	19.6
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	West	T1	1487	55%	16.00	LOS B	22.4
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	West	L2	90	44%	21.52	LOS B	22.1
H.13 Canterbury Road / Beamish Street PM Peak	Bexley Rd	South	R2	392	94%	55.74	LOS D	21.5

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.13 Canterbury Road / Beamish Street PM Peak	Bexley Rd	South	T1	462	64%	42.93	LOS D	14.1
H.13 Canterbury Road / Beamish Street PM Peak	Bexley Rd	South	L2	99	41%	51.38	LOS D	14.1
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	East	L2	195	46%	22.48	LOS B	19.9
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	East	T1	1154	46%	16.91	LOS B	20.1
H.13 Canterbury Road / Beamish Street PM Peak	Beamish St	North	T1	434	89%	62.67	LOS E	16.6
H.13 Canterbury Road / Beamish Street PM Peak	Beamish St	North	L2	51	80%	63.95	LOS E	16.6
H.13 Canterbury Road / Beamish Street PM Peak	Beamish St	North	R2	132	95%	89.13	LOS F	9.8
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	West	R2	191	84%	73.72	LOS F	12.4
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	West	T1	1044	39%	18.92	LOS B	20.1
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	West	L2	109	31%	24.41	LOS B	20.1
H.34 Ninth Ave / Loch St AM	Loch St	South	R2	577	77%	9.72	LOS A	11.4
H.34 Ninth Ave / Loch St AM	Loch St	South	L2	276	77%	7.83	LOS A	11.4
H.34 Ninth Ave / Loch St AM	Ninth Ave	East	L2	472	77%	10.48	LOS A	11.1
H.34 Ninth Ave / Loch St AM	Ninth Ave	East	T1	237	77%	10.04	LOS A	11.1
H.34 Ninth Ave / Loch St AM	Ninth Ave	West	R2	400	101%	63.01	LOS E	40.2
H.34 Ninth Ave / Loch St AM	Ninth Ave	West	T1	338	101%	60.66	LOS E	40.2
H.34 Ninth Ave / Loch St PM	Loch St	South	R2	490	91%	20.50	LOS B	22.3
H.34 Ninth Ave / Loch St PM	Loch St	South	L2	417	91%	18.42	LOS B	22.3
H.34 Ninth Ave / Loch St PM	Ninth Ave	East	L2	648	99%	37.00	LOS C	40.7
H.34 Ninth Ave / Loch St PM	Ninth Ave	East	T1	330	99%	36.79	LOS C	40.7
H.34 Ninth Ave / Loch St PM	Ninth Ave	West	R2	368	83%	19.50	LOS B	13.9
H.34 Ninth Ave / Loch St PM	Ninth Ave	West	T1	295	83%	17.09	LOS B	13.9

6.3 Campsie Station: Future (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.10 Beamish Street / Ninth Avenue AM Peak	Beamish St S	South	T1	266	47%	15.80	LOS B	8.3
B.10 Beamish Street / Ninth Avenue AM Peak	Beamish St S	South	L2	300	31%	4.03	LOS A	1.8
B.10 Beamish Street / Ninth Avenue AM Peak	Beamish St N	North	T1	245	38%	11.03	LOS A	6.3
B.10 Beamish Street / Ninth Avenue AM Peak	Beamish St N	North	R2	79	22%	22.27	LOS B	2.4
B.10 Beamish Street / Ninth Avenue AM Peak	Ninth Ave	West	R2	250	38%	19.33	LOS B	6.1
B.10 Beamish Street / Ninth Avenue AM Peak	Ninth Ave	West	L2	208	28%	15.83	LOS B	4.0
B.10 Beamish Street / Ninth Avenue PM Peak	Beamish St S	South	T1	350	53%	13.85	LOS A	10.7
B.10 Beamish Street / Ninth Avenue PM Peak	Beamish St S	South	L2	379	39%	4.54	LOS A	3.4
B.10 Beamish Street / Ninth Avenue PM Peak	Beamish St N	North	T1	446	52%	9.57	LOS A	11.6
B.10 Beamish Street / Ninth Avenue PM Peak	Beamish St N	North	R2	191	59%	25.31	LOS B	7.1
B.10 Beamish Street / Ninth Avenue PM Peak	Ninth Ave	West	R2	342	65%	30.29	LOS C	13.4
B.10 Beamish Street / Ninth Avenue PM Peak	Ninth Ave	West	L2	189	29%	21.17	LOS B	4.8
B.11 Beamish Street / Clissold Parade AM Peak	Beamish St S	South	R2	46	45%	11.72	LOS A	14.6
B.11 Beamish Street / Clissold Parade AM Peak	Beamish St S	South	T1	484	45%	8.02	LOS A	14.6
B.11 Beamish Street / Clissold Parade AM Peak	Clissold Pde	East	L2	38	13%	41.05	LOS C	1.6
B.11 Beamish Street / Clissold Parade AM Peak	Clissold Pde	East	R2	28	15%	48.21	LOS D	1.2
B.11 Beamish Street / Clissold Parade AM Peak	Beamish St N	North	T1	490	31%	9.74	LOS A	7.7
B.11 Beamish Street / Clissold Parade AM Peak	Beamish St N	North	L2	32	31%	13.04	LOS A	7.6
B.11 Beamish Street / Clissold Parade PM Peak	Beamish St S	South	R2	110	85%	23.84	LOS B	28.1
B.11 Beamish Street / Clissold Parade PM Peak	Beamish St S	South	T1	602	85%	19.84	LOS B	28.1
B.11 Beamish Street / Clissold Parade PM Peak	Clissold Pde	East	L2	66	19%	41.80	LOS C	2.8
B.11 Beamish Street / Clissold Parade PM Peak	Clissold Pde	East	R2	103	75%	57.00	LOS E	5.5
B.11 Beamish Street / Clissold Parade PM Peak	Beamish St N	North	T1	669	80%	13.80	LOS A	23.1
B.11 Beamish Street / Clissold Parade PM Peak	Beamish St N	North	L2	66	6%	4.06	LOS A	0.4
B.12 Beamish Street / South Parade AM Peak	Beamish St S	South	R2	13	41%	14.02	LOS A	12.7
B.12 Beamish Street / South Parade AM Peak	Beamish St S	South	T1	403	41%	10.27	LOS A	12.7
B.12 Beamish Street / South Parade AM Peak	South Parade	East	L2	41	64%	59.32	LOS E	2.2
B.12 Beamish Street / South Parade AM Peak	South Parade	East	R2	87	66%	55.04	LOS D	4.4
B.12 Beamish Street / South Parade AM Peak	Beamish St N	North	T1	369	46%	9.38	LOS A	11.1
B.12 Beamish Street / South Parade AM Peak	Beamish St N	North	L2	133	15%	11.97	LOS A	3.6
B.12 Beamish Street / South Parade AM Peak	Lilian St	West	T1	33	33%	45.63	LOS D	2.7
B.12 Beamish Street / South Parade AM Peak	Lilian St	West	L2	26	33%	49.05	LOS D	2.7
B.12 Beamish Street / South Parade PM Peak	Beamish St S	South	R2	11	65%	18.38	LOS B	22.0
B.12 Beamish Street / South Parade PM Peak	Beamish St S	South	T1	575	65%	14.64	LOS B	22.0
B.12 Beamish Street / South Parade PM Peak	South Parade	East	L2	34	56%	60.97	LOS E	1.8
B.12 Beamish Street / South Parade PM Peak	South Parade	East	R2	111	93%	71.24	LOS F	6.7
B.12 Beamish Street / South Parade PM Peak	Beamish St N	North	T1	570	76%	13.47	LOS A	21.2
B.12 Beamish Street / South Parade PM Peak	Beamish St N	North	L2	176	21%	12.29	LOS A	5.0
B.12 Beamish Street / South Parade PM Peak	Lilian St	West	T1	35	46%	49.65	LOS D	3.7
B.12 Beamish Street / South Parade PM Peak	Lilian St	West	L2	39	46%	53.06	LOS D	3.7
H.11 Beamish Street / North Parade AM Peak	Beamish St	South	T1	449	23%	0.00	LOS A	0.0
H.11 Beamish Street / North Parade AM Peak	Beamish St	South	L2	38	4%	3.40	LOS A	0.0

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.11 Beamish Street / North Parade AM Peak	North Pde	East	L2	27	14%	18.40	LOS B	0.4
H.11 Beamish Street / North Parade AM Peak	Beamish St	North	T1	512	30%	0.00	LOS A	0.0
H.11 Beamish Street / North Parade AM Peak	Beamish St	North	L2	24	30%	3.40	LOS A	0.0
H.11 Beamish Street / North Parade AM Peak	North Pde	West	L2	43	28%	26.60	LOS B	0.9
H.11 Beamish Street / North Parade PM Peak	Beamish St	South	T1	676	68%	0.00	LOS A	4.3
H.11 Beamish Street / North Parade PM Peak	Beamish St	South	L2	60	5%	3.40	LOS A	0.0
H.11 Beamish Street / North Parade PM Peak	North Pde	East	L2	36	22%	25.50	LOS B	0.7
H.11 Beamish Street / North Parade PM Peak	Beamish St	North	T1	661	39%	0.00	LOS A	0.0
H.11 Beamish Street / North Parade PM Peak	Beamish St	North	L2	30	39%	3.40	LOS A	0.0
H.11 Beamish Street / North Parade PM Peak	North Pde	West	L2	44	31%	32.50	LOS C	1.1
H.12 Beamish Street / Amy Street AM Peak	Beamish St	South	T1	364	35%	8.29	LOS A	10.1
H.12 Beamish Street / Amy Street AM Peak	Beamish St	South	L2	58	35%	11.70	LOS A	10.1
H.12 Beamish Street / Amy Street AM Peak	Beamish St	North	T1	422	30%	3.30	LOS A	6.4
H.12 Beamish Street / Amy Street AM Peak	Beamish St	North	R2	3	30%	6.84	LOS A	6.4
H.12 Beamish Street / Amy Street AM Peak	Amy St	West	L2	26	28%	67.04	LOS E	1.6
H.12 Beamish Street / Amy Street PM Peak	Beamish St	South	T1	498	86%	10.75	LOS A	18.9
H.12 Beamish Street / Amy Street PM Peak	Beamish St	South	L2	104	86%	14.16	LOS A	18.9
H.12 Beamish Street / Amy Street PM Peak	Beamish St	North	T1	601	37%	1.43	LOS A	8.0
H.12 Beamish Street / Amy Street PM Peak	Beamish St	North	R2	2	37%	4.97	LOS A	8.0
H.12 Beamish Street / Amy Street PM Peak	Amy St	West	L2	80	81%	78.35	LOS F	5.7
H.13 Canterbury Road / Beamish Street AM Peak	Bexley Rd	South	R2	252	96%	70.53	LOS F	16.2
H.13 Canterbury Road / Beamish Street AM Peak	Bexley Rd	South	T1	426	73%	56.72	LOS E	14.7
H.13 Canterbury Road / Beamish Street AM Peak	Bexley Rd	South	L2	69	55%	67.35	LOS E	14.7
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	East	L2	207	22%	12.85	LOS A	5.3
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	East	T1	560	22%	7.24	LOS A	5.4
H.13 Canterbury Road / Beamish Street AM Peak	Beamish St	North	T1	304	85%	63.66	LOS E	11.1
H.13 Canterbury Road / Beamish Street AM Peak	Beamish St	North	L2	37	77%	62.96	LOS E	11.1
H.13 Canterbury Road / Beamish Street AM Peak	Beamish St	North	R2	56	39%	70.45	LOS E	3.6
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	West	R2	215	92%	78.29	LOS F	14.8
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	West	T1	961	25%	5.47	LOS A	7.4
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	West	L2	55	20%	10.85	LOS A	5.1
H.13 Canterbury Road / Beamish Street PM Peak	Bexley Rd	South	R2	357	92%	52.90	LOS D	18.9
H.13 Canterbury Road / Beamish Street PM Peak	Bexley Rd	South	T1	422	64%	45.38	LOS D	13.0
H.13 Canterbury Road / Beamish Street PM Peak	Bexley Rd	South	L2	91	41%	53.95	LOS D	13.0
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	East	L2	179	40%	19.69	LOS B	15.7
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	East	T1	1063	40%	14.12	LOS A	15.8
H.13 Canterbury Road / Beamish Street PM Peak	Beamish St	North	T1	400	86%	60.25	LOS E	14.8
H.13 Canterbury Road / Beamish Street PM Peak	Beamish St	North	L2	47	77%	62.15	LOS E	14.8
H.13 Canterbury Road / Beamish Street PM Peak	Beamish St	North	R2	120	74%	66.19	LOS E	7.4
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	West	R2	175	88%	76.70	LOS F	11.7
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	West	T1	951	34%	17.39	LOS B	17.5
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	West	L2	92	27%	22.81	LOS B	17.5
H.34 Ninth Ave / Loch St AM	Loch St	South	R2	370	46%	6.40	LOS A	3.7
H.34 Ninth Ave / Loch St AM	Loch St	South	L2	196	46%	4.51	LOS A	3.7

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.34 Ninth Ave / Loch St AM	Ninth Ave	East	L2	336	46%	4.89	LOS A	3.6
H.34 Ninth Ave / Loch St AM	Ninth Ave	East	T1	158	46%	4.25	LOS A	3.6
H.34 Ninth Ave / Loch St AM	Ninth Ave	West	R2	284	51%	8.25	LOS A	3.9
H.34 Ninth Ave / Loch St AM	Ninth Ave	West	T1	207	51%	5.67	LOS A	3.9
H.34 Ninth Ave / Loch St PM	Loch St	South	R2	447	79%	12.44	LOS A	12.4
H.34 Ninth Ave / Loch St PM	Loch St	South	L2	384	79%	10.36	LOS A	12.4
H.34 Ninth Ave / Loch St PM	Ninth Ave	East	L2	597	86%	12.67	LOS A	16.9
H.34 Ninth Ave / Loch St PM	Ninth Ave	East	T1	289	86%	12.28	LOS A	16.9
H.34 Ninth Ave / Loch St PM	Ninth Ave	West	R2	338	70%	13.36	LOS A	8.3
H.34 Ninth Ave / Loch St PM	Ninth Ave	West	T1	254	70%	10.71	LOS A	8.3

6.4 Campsie Station: Future + Construction (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.10 Beamish Street / Ninth Avenue AM Peak	Beamish St S	South	T1	281	48%	13.68	LOS A	8.3
B.10 Beamish Street / Ninth Avenue AM Peak	Beamish St S	South	L2	300	31%	4.03	LOS A	1.8
B.10 Beamish Street / Ninth Avenue AM Peak	Beamish St N	North	T1	245	36%	8.91	LOS A	5.6
B.10 Beamish Street / Ninth Avenue AM Peak	Beamish St N	North	R2	79	21%	19.76	LOS B	2.2
B.10 Beamish Street / Ninth Avenue AM Peak	Ninth Ave	West	R2	250	43%	23.87	LOS B	7.4
B.10 Beamish Street / Ninth Avenue AM Peak	Ninth Ave	West	L2	208	31%	19.92	LOS B	5.0
B.10 Beamish Street / Ninth Avenue PM Peak	Beamish St S	South	T1	366	56%	13.73	LOS A	11.4
B.10 Beamish Street / Ninth Avenue PM Peak	Beamish St S	South	L2	379	39%	4.54	LOS A	3.4
B.10 Beamish Street / Ninth Avenue PM Peak	Beamish St N	North	T1	446	51%	9.03	LOS A	11.3
B.10 Beamish Street / Ninth Avenue PM Peak	Beamish St N	North	R2	191	60%	25.44	LOS B	7.2
B.10 Beamish Street / Ninth Avenue PM Peak	Ninth Ave	West	R2	342	68%	31.66	LOS C	13.9
B.10 Beamish Street / Ninth Avenue PM Peak	Ninth Ave	West	L2	189	30%	22.27	LOS B	5.0
B.11 Beamish Street / Clissold Parade AM Peak	Beamish St S	South	R2	46	47%	11.95	LOS A	15.3
B.11 Beamish Street / Clissold Parade AM Peak	Beamish St S	South	T1	500	47%	8.24	LOS A	15.3
B.11 Beamish Street / Clissold Parade AM Peak	Clissold Pde	East	L2	38	13%	41.05	LOS C	1.6
B.11 Beamish Street / Clissold Parade AM Peak	Clissold Pde	East	R2	28	15%	48.21	LOS D	1.2
B.11 Beamish Street / Clissold Parade AM Peak	Beamish St N	North	T1	490	31%	9.74	LOS A	7.7
B.11 Beamish Street / Clissold Parade AM Peak	Beamish St N	North	L2	32	31%	13.04	LOS A	7.6
B.11 Beamish Street / Clissold Parade PM Peak	Beamish St S	South	R2	110	87%	26.77	LOS B	31.1
B.11 Beamish Street / Clissold Parade PM Peak	Beamish St S	South	T1	617	87%	22.70	LOS B	31.1
B.11 Beamish Street / Clissold Parade PM Peak	Clissold Pde	East	L2	66	19%	41.80	LOS C	2.8
B.11 Beamish Street / Clissold Parade PM Peak	Clissold Pde	East	R2	103	75%	57.00	LOS E	5.5
B.11 Beamish Street / Clissold Parade PM Peak	Beamish St N	North	T1	669	80%	13.80	LOS A	23.1
B.11 Beamish Street / Clissold Parade PM Peak	Beamish St N	North	L2	66	6%	4.06	LOS A	0.4
B.12 Beamish Street / South Parade AM Peak	Beamish St S	South	R2	13	42%	14.15	LOS A	13.1
B.12 Beamish Street / South Parade AM Peak	Beamish St S	South	T1	411	42%	10.40	LOS A	13.1
B.12 Beamish Street / South Parade AM Peak	South Parade	East	L2	43	69%	60.04	LOS E	2.3
B.12 Beamish Street / South Parade AM Peak	South Parade	East	R2	87	69%	55.58	LOS D	4.4
B.12 Beamish Street / South Parade AM Peak	Beamish St N	North	T1	369	46%	9.38	LOS A	11.1
B.12 Beamish Street / South Parade AM Peak	Beamish St N	North	L2	133	15%	11.97	LOS A	3.6
B.12 Beamish Street / South Parade AM Peak	Lilian St	West	T1	33	43%	47.42	LOS D	3.2
B.12 Beamish Street / South Parade AM Peak	Lilian St	West	L2	33	43%	50.97	LOS D	3.2
B.12 Beamish Street / South Parade PM Peak	Beamish St S	South	R2	11	67%	19.38	LOS B	22.8
B.12 Beamish Street / South Parade PM Peak	Beamish St S	South	T1	583	67%	15.64	LOS B	22.8
B.12 Beamish Street / South Parade PM Peak	South Parade	East	L2	36	50%	59.01	LOS E	1.9
B.12 Beamish Street / South Parade PM Peak	South Parade	East	R2	111	92%	68.89	LOS E	6.6
B.12 Beamish Street / South Parade PM Peak	Beamish St N	North	T1	570	77%	14.86	LOS B	21.8
B.12 Beamish Street / South Parade PM Peak	Beamish St N	North	L2	176	21%	12.71	LOS A	5.1
B.12 Beamish Street / South Parade PM Peak	Lilian St	West	T1	35	50%	49.11	LOS D	4.1
B.12 Beamish Street / South Parade PM Peak	Lilian St	West	L2	47	50%	52.62	LOS D	4.1
H.11 Beamish Street / North Parade AM Peak	Beamish St	South	T1	457	24%	0.00	LOS A	0.0
H.11 Beamish Street / North Parade AM Peak	Beamish St	South	L2	46	5%	3.50	LOS A	0.0

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.11 Beamish Street / North Parade AM Peak	North Pde	East	L2	27	14%	18.40	LOS B	0.4
H.11 Beamish Street / North Parade AM Peak	Beamish St	North	T1	512	30%	0.00	LOS A	0.0
H.11 Beamish Street / North Parade AM Peak	Beamish St	North	L2	24	30%	3.40	LOS A	0.4
H.11 Beamish Street / North Parade AM Peak	North Pde	West	L2	51	37%	32.60	LOS C	1.3
H.11 Beamish Street / North Parade PM Peak	Beamish St	South	T1	684	70%	0.00	LOS A	6.6
H.11 Beamish Street / North Parade PM Peak	Beamish St	South	L2	68	6%	3.50	LOS A	0.0
H.11 Beamish Street / North Parade PM Peak	North Pde	East	L2	36	22%	25.50	LOS B	0.7
H.11 Beamish Street / North Parade PM Peak	Beamish St	North	T1	661	39%	0.00	LOS A	0.0
H.11 Beamish Street / North Parade PM Peak	Beamish St	North	L2	30	39%	3.40	LOS A	0.0
H.11 Beamish Street / North Parade PM Peak	North Pde	West	L2	52	43%	41.80	LOS C	1.6
H.12 Beamish Street / Amy Street AM Peak	Beamish St	South	T1	372	36%	7.97	LOS A	10.1
H.12 Beamish Street / Amy Street AM Peak	Beamish St	South	L2	58	36%	11.38	LOS A	10.1
H.12 Beamish Street / Amy Street AM Peak	Beamish St	North	T1	424	31%	3.31	LOS A	6.5
H.12 Beamish Street / Amy Street AM Peak	Beamish St	North	R2	3	31%	6.85	LOS A	6.5
H.12 Beamish Street / Amy Street AM Peak	Amy St	West	L2	26	28%	67.04	LOS E	1.6
H.12 Beamish Street / Amy Street PM Peak	Beamish St	South	T1	506	88%	11.87	LOS A	19.6
H.12 Beamish Street / Amy Street PM Peak	Beamish St	South	L2	104	88%	15.28	LOS B	19.6
H.12 Beamish Street / Amy Street PM Peak	Beamish St	North	T1	603	37%	1.43	LOS A	8.0
H.12 Beamish Street / Amy Street PM Peak	Beamish St	North	R2	2	37%	4.97	LOS A	8.0
H.12 Beamish Street / Amy Street PM Peak	Amy St	West	L2	80	81%	78.35	LOS F	5.7
H.13 Canterbury Road / Beamish Street AM Peak	Bexley Rd	South	R2	252	96%	70.53	LOS F	16.2
H.13 Canterbury Road / Beamish Street AM Peak	Bexley Rd	South	T1	426	73%	56.72	LOS E	14.7
H.13 Canterbury Road / Beamish Street AM Peak	Bexley Rd	South	L2	69	55%	67.35	LOS E	14.7
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	East	L2	207	22%	12.85	LOS A	5.3
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	East	T1	560	22%	7.24	LOS A	5.4
H.13 Canterbury Road / Beamish Street AM Peak	Beamish St	North	T1	304	86%	63.98	LOS E	11.2
H.13 Canterbury Road / Beamish Street AM Peak	Beamish St	North	L2	37	77%	63.27	LOS E	11.2
H.13 Canterbury Road / Beamish Street AM Peak	Beamish St	North	R2	58	42%	70.75	LOS F	3.7
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	West	R2	215	92%	78.65	LOS F	14.8
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	West	T1	961	25%	5.49	LOS A	7.5
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	West	L2	64	20%	10.98	LOS A	5.1
H.13 Canterbury Road / Beamish Street PM Peak	Bexley Rd	South	R2	357	93%	55.72	LOS D	19.6
H.13 Canterbury Road / Beamish Street PM Peak	Bexley Rd	South	T1	422	61%	44.44	LOS D	12.7
H.13 Canterbury Road / Beamish Street PM Peak	Bexley Rd	South	L2	91	40%	53.01	LOS D	12.6
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	East	L2	179	39%	18.90	LOS B	15.0
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	East	T1	1063	39%	13.33	LOS A	15.1
H.13 Canterbury Road / Beamish Street PM Peak	Beamish St	North	T1	400	86%	60.58	LOS E	15.0
H.13 Canterbury Road / Beamish Street PM Peak	Beamish St	North	L2	47	77%	62.41	LOS E	15.0
H.13 Canterbury Road / Beamish Street PM Peak	Beamish St	North	R2	122	91%	80.84	LOS F	8.5
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	West	R2	175	88%	76.70	LOS F	11.7
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	West	T1	951	34%	16.86	LOS B	17.2
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	West	L2	100	27%	22.37	LOS B	17.2
H.34 Ninth Ave / Loch St AM	Loch St	South	R2	370	46%	6.40	LOS A	3.7
H.34 Ninth Ave / Loch St AM	Loch St	South	L2	196	46%	4.51	LOS A	3.7

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.34 Ninth Ave / Loch St AM	Ninth Ave	East	L2	336	46%	4.89	LOS A	3.6
H.34 Ninth Ave / Loch St AM	Ninth Ave	East	T1	158	46%	4.25	LOS A	3.6
H.34 Ninth Ave / Loch St AM	Ninth Ave	West	R2	284	51%	8.25	LOS A	3.9
H.34 Ninth Ave / Loch St AM	Ninth Ave	West	T1	207	51%	5.67	LOS A	3.9
H.34 Ninth Ave / Loch St PM	Loch St	South	R2	447	79%	12.44	LOS A	12.4
H.34 Ninth Ave / Loch St PM	Loch St	South	L2	384	79%	10.36	LOS A	12.4
H.34 Ninth Ave / Loch St PM	Ninth Ave	East	L2	597	86%	12.67	LOS A	16.9
H.34 Ninth Ave / Loch St PM	Ninth Ave	East	T1	289	86%	12.28	LOS A	16.9
H.34 Ninth Ave / Loch St PM	Ninth Ave	West	R2	338	70%	13.36	LOS A	8.3
H.34 Ninth Ave / Loch St PM	Ninth Ave	West	T1	254	70%	10.71	LOS A	8.3

6.5 Campsie Station: Future + Construction + Refined TTS (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.10 Beamish Street / Ninth Avenue AM Peak	Beamish St S	South	T1	281	50%	15.00	LOS B	8.7
B.10 Beamish Street / Ninth Avenue AM Peak	Beamish St S	South	L2	316	34%	4.08	LOS A	2.0
B.10 Beamish Street / Ninth Avenue AM Peak	Beamish St N	North	T1	245	37%	9.94	LOS A	5.9
B.10 Beamish Street / Ninth Avenue AM Peak	Beamish St N	North	R2	79	23%	21.75	LOS B	2.4
B.10 Beamish Street / Ninth Avenue AM Peak	Ninth Ave	West	R2	265	45%	21.92	LOS B	7.4
B.10 Beamish Street / Ninth Avenue AM Peak	Ninth Ave	West	L2	208	29%	17.82	LOS B	4.5
B.10 Beamish Street / Ninth Avenue PM Peak	Beamish St S	South	T1	366	58%	15.09	LOS B	11.9
B.10 Beamish Street / Ninth Avenue PM Peak	Beamish St S	South	L2	395	42%	4.62	LOS A	3.7
B.10 Beamish Street / Ninth Avenue PM Peak	Beamish St N	North	T1	446	53%	10.13	LOS A	11.9
B.10 Beamish Street / Ninth Avenue PM Peak	Beamish St N	North	R2	191	65%	28.79	LOS C	7.8
B.10 Beamish Street / Ninth Avenue PM Peak	Ninth Ave	West	R2	358	68%	29.48	LOS C	14.1
B.10 Beamish Street / Ninth Avenue PM Peak	Ninth Ave	West	L2	189	28%	20.10	LOS B	4.5
B.11 Beamish Street / Clissold Parade AM Peak	Beamish St S	South	R2	46	50%	12.70	LOS A	16.1
B.11 Beamish Street / Clissold Parade AM Peak	Beamish St S	South	T1	541	50%	8.75	LOS A	16.1
B.11 Beamish Street / Clissold Parade AM Peak	Clissold Pde	East	L2	38	13%	41.05	LOS C	1.6
B.11 Beamish Street / Clissold Parade AM Peak	Clissold Pde	East	R2	28	15%	48.21	LOS D	1.2
B.11 Beamish Street / Clissold Parade AM Peak	Beamish St N	North	T1	532	36%	10.08	LOS A	8.5
B.11 Beamish Street / Clissold Parade AM Peak	Beamish St N	North	L2	32	36%	13.26	LOS A	8.4
B.11 Beamish Street / Clissold Parade PM Peak	Beamish St S	South	R2	110	106%	111.01	LOS F	62.8
B.11 Beamish Street / Clissold Parade PM Peak	Beamish St S	South	T1	658	106%	98.31	LOS F	62.8
B.11 Beamish Street / Clissold Parade PM Peak	Clissold Pde	East	L2	66	19%	41.80	LOS C	2.8
B.11 Beamish Street / Clissold Parade PM Peak	Clissold Pde	East	R2	103	75%	57.00	LOS E	5.5
B.11 Beamish Street / Clissold Parade PM Peak	Beamish St N	North	T1	710	89%	29.43	LOS C	35.0
B.11 Beamish Street / Clissold Parade PM Peak	Beamish St N	North	L2	66	6%	4.06	LOS A	0.4
B.12 Beamish Street / South Parade AM Peak	Beamish St S	South	R2	13	43%	15.23	LOS B	13.4
B.12 Beamish Street / South Parade AM Peak	Beamish St S	South	T1	411	43%	11.48	LOS A	13.4
B.12 Beamish Street / South Parade AM Peak	South Parade	East	L2	43	49%	54.98	LOS D	2.2
B.12 Beamish Street / South Parade AM Peak	South Parade	East	R2	127	95%	74.49	LOS F	7.9
B.12 Beamish Street / South Parade AM Peak	Beamish St N	North	T1	369	51%	10.39	LOS A	11.4
B.12 Beamish Street / South Parade AM Peak	Beamish St N	North	L2	174	25%	13.77	LOS A	5.1
B.12 Beamish Street / South Parade AM Peak	Lilian St	West	T1	33	35%	44.75	LOS D	3.0
B.12 Beamish Street / South Parade AM Peak	Lilian St	West	L2	33	35%	48.30	LOS D	3.0
B.12 Beamish Street / South Parade PM Peak	Beamish St S	South	R2	11	73%	23.16	LOS B	24.4
B.12 Beamish Street / South Parade PM Peak	Beamish St S	South	T1	583	73%	19.41	LOS B	24.4
B.12 Beamish Street / South Parade PM Peak	South Parade	East	L2	36	27%	51.07	LOS D	1.7
B.12 Beamish Street / South Parade PM Peak	South Parade	East	R2	151	90%	67.42	LOS E	9.0
B.12 Beamish Street / South Parade PM Peak	Beamish St N	North	T1	570	91%	37.87	LOS C	30.9
B.12 Beamish Street / South Parade PM Peak	Beamish St N	North	L2	216	43%	16.20	LOS B	7.1
B.12 Beamish Street / South Parade PM Peak	Lilian St	West	T1	35	33%	42.80	LOS D	3.7
B.12 Beamish Street / South Parade PM Peak	Lilian St	West	L2	47	33%	46.30	LOS D	3.7
H.11 Beamish Street / North Parade AM Peak	Beamish St	South	T1	472	25%	0.00	LOS A	0.0
H.11 Beamish Street / North Parade AM Peak	Beamish St	South	L2	72	10%	3.60	LOS A	0.0

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.11 Beamish Street / North Parade AM Peak	North Pde	East	L2	27	16%	21.40	LOS B	0.5
H.11 Beamish Street / North Parade AM Peak	Beamish St	North	T1	554	34%	0.00	LOS A	0.0
H.11 Beamish Street / North Parade AM Peak	Beamish St	North	L2	24	34%	3.40	LOS A	0.0
H.11 Beamish Street / North Parade AM Peak	North Pde	West	L2	51	39%	34.60	LOS A	1.4
H.11 Beamish Street / North Parade PM Peak	Beamish St	South	T1	661	10%	0.00	LOS A	19.2
H.11 Beamish Street / North Parade PM Peak	Beamish St	South	L2	88	10%	3.60	LOS A	4.7
H.11 Beamish Street / North Parade PM Peak	North Pde	East	L2	36	30%	44.60	LOS D	1.2
H.11 Beamish Street / North Parade PM Peak	Beamish St	North	T1	677	64%	0.00	LOS A	0.0
H.11 Beamish Street / North Parade PM Peak	Beamish St	North	L2	29	64%	3.40	LOS A	0.0
H.11 Beamish Street / North Parade PM Peak	North Pde	West	L2	52	38%	37.00	LOS C	1.4
H.12 Beamish Street / Amy Street AM Peak	Beamish St	South	T1	372	36%	7.97	LOS A	10.1
H.12 Beamish Street / Amy Street AM Peak	Beamish St	South	L2	58	36%	11.38	LOS A	10.1
H.12 Beamish Street / Amy Street AM Peak	Beamish St	North	T1	424	31%	3.31	LOS A	6.5
H.12 Beamish Street / Amy Street AM Peak	Beamish St	North	R2	3	31%	6.85	LOS A	6.5
H.12 Beamish Street / Amy Street AM Peak	Amy St	West	L2	26	28%	67.04	LOS E	1.6
H.12 Beamish Street / Amy Street PM Peak	Beamish St	South	T1	506	88%	11.87	LOS A	19.6
H.12 Beamish Street / Amy Street PM Peak	Beamish St	South	L2	104	88%	15.28	LOS B	19.6
H.12 Beamish Street / Amy Street PM Peak	Beamish St	North	T1	603	37%	1.43	LOS A	8.0
H.12 Beamish Street / Amy Street PM Peak	Beamish St	North	R2	2	37%	4.97	LOS A	8.0
H.12 Beamish Street / Amy Street PM Peak	Amy St	West	L2	80	81%	78.35	LOS F	5.7
H.13 Canterbury Road / Beamish Street AM Peak	Bexley Rd	South	R2	252	96%	70.53	LOS F	16.2
H.13 Canterbury Road / Beamish Street AM Peak	Bexley Rd	South	T1	426	73%	56.72	LOS E	14.7
H.13 Canterbury Road / Beamish Street AM Peak	Bexley Rd	South	L2	69	55%	67.35	LOS E	14.7
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	East	L2	207	22%	12.85	LOS A	5.3
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	East	T1	560	22%	7.24	LOS A	5.4
H.13 Canterbury Road / Beamish Street AM Peak	Beamish St	North	T1	304	86%	63.98	LOS E	11.2
H.13 Canterbury Road / Beamish Street AM Peak	Beamish St	North	L2	37	77%	63.27	LOS E	11.2
H.13 Canterbury Road / Beamish Street AM Peak	Beamish St	North	R2	58	42%	70.75	LOS F	3.7
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	West	R2	215	92%	78.65	LOS F	14.8
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	West	T1	961	25%	5.49	LOS A	7.5
H.13 Canterbury Road / Beamish Street AM Peak	Canterbury Rd	West	L2	64	20%	10.98	LOS A	5.1
H.13 Canterbury Road / Beamish Street PM Peak	Bexley Rd	South	R2	357	93%	55.72	LOS D	19.6
H.13 Canterbury Road / Beamish Street PM Peak	Bexley Rd	South	T1	422	61%	44.44	LOS D	12.7
H.13 Canterbury Road / Beamish Street PM Peak	Bexley Rd	South	L2	91	40%	53.01	LOS D	12.6
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	East	L2	179	39%	18.90	LOS B	15.0
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	East	T1	1063	39%	13.33	LOS A	15.1
H.13 Canterbury Road / Beamish Street PM Peak	Beamish St	North	T1	400	86%	60.58	LOS E	15.0
H.13 Canterbury Road / Beamish Street PM Peak	Beamish St	North	L2	47	77%	62.41	LOS E	15.0
H.13 Canterbury Road / Beamish Street PM Peak	Beamish St	North	R2	122	91%	80.84	LOS F	8.5
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	West	R2	175	88%	76.70	LOS F	11.7
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	West	T1	951	34%	16.86	LOS B	17.2
H.13 Canterbury Road / Beamish Street PM Peak	Canterbury Rd	West	L2	100	27%	22.37	LOS B	17.2
H.34 Ninth Ave / Loch St AM	Loch St	South	R2	370	47%	6.58	LOS A	3.8
H.34 Ninth Ave / Loch St AM	Loch St	South	L2	196	47%	4.70	LOS A	3.8

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.34 Ninth Ave / Loch St AM	Ninth Ave	East	L2	336	48%	4.92	LOS A	3.8
H.34 Ninth Ave / Loch St AM	Ninth Ave	East	T1	173	48%	4.44	LOS A	3.8
H.34 Ninth Ave / Loch St AM	Ninth Ave	West	R2	284	53%	8.55	LOS A	4.3
H.34 Ninth Ave / Loch St AM	Ninth Ave	West	T1	222	53%	6.17	LOS A	4.3
H.34 Ninth Ave / Loch St PM	Loch St	South	R2	447	81%	13.66	LOS A	13.5
H.34 Ninth Ave / Loch St PM	Loch St	South	L2	384	81%	11.59	LOS A	13.5
H.34 Ninth Ave / Loch St PM	Ninth Ave	East	L2	597	88%	14.35	LOS A	19.2
H.34 Ninth Ave / Loch St PM	Ninth Ave	East	T1	305	88%	14.12	LOS A	19.2
H.34 Ninth Ave / Loch St PM	Ninth Ave	West	R2	338	73%	14.17	LOS A	9.3
H.34 Ninth Ave / Loch St PM	Ninth Ave	West	T1	270	73%	11.76	LOS A	9.3

7.0 Belmore Station

7.1 Belmore Station: Future

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd S	South	R2	54	73%	27.37	LOS B	14.4
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd S	South	T1	656	73%	4.24	LOS A	14.4
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd S	South	L2	58	4%	4.93	LOS A	0.2
B.08 Burwood Road / Bridge Road AM Peak	Tobruk Ave	East	L2	10	24%	18.13	LOS B	0.6
B.08 Burwood Road / Bridge Road AM Peak	Tobruk Ave	East	R2	3	24%	204.48	LOS F	0.6
B.08 Burwood Road / Bridge Road AM Peak	Tobruk Ave	East	T1	1	24%	111.84	LOS F	0.6
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd N	North	T1	565	60%	0.96	LOS A	5.3
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd N	North	L2	82	60%	5.21	LOS A	5.3
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd N	North	R2	112	20%	8.57	LOS A	0.8
B.08 Burwood Road / Bridge Road AM Peak	Bridge Rd	West	R2	31	103%	312.64	LOS F	5.5
B.08 Burwood Road / Bridge Road AM Peak	Bridge Rd	West	T1	7	103%	322.04	LOS F	5.5
B.08 Burwood Road / Bridge Road AM Peak	Bridge Rd	West	L2	181	33%	10.76	LOS A	1.4
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd S	South	R2	53	64%	21.13	LOS B	8.9
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd S	South	T1	549	64%	3.48	LOS A	8.9
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd S	South	L2	77	6%	5.08	LOS A	0.2
B.08 Burwood Road / Bridge Road PM Peak	Tobruk Ave	East	L2	8	49%	44.13	LOS D	1.5
B.08 Burwood Road / Bridge Road PM Peak	Tobruk Ave	East	R2	9	49%	157.66	LOS F	1.5
B.08 Burwood Road / Bridge Road PM Peak	Tobruk Ave	East	T1	7	49%	113.47	LOS F	1.5
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd N	North	T1	653	73%	3.82	LOS A	13.0
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd N	North	L2	105	73%	6.02	LOS A	13.0
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd N	North	R2	137	22%	7.56	LOS A	0.8
B.08 Burwood Road / Bridge Road PM Peak	Bridge Rd	West	R2	38	105%	297.16	LOS F	6.2
B.08 Burwood Road / Bridge Road PM Peak	Bridge Rd	West	T1	6	105%	293.99	LOS F	6.2
B.08 Burwood Road / Bridge Road PM Peak	Bridge Rd	West	L2	143	22%	8.55	LOS A	0.8
B.09 Burwood Road / Redman Parade AM Peak	Burwood Rd S	South	R2	183	42%	14.23	LOS A	1.9
B.09 Burwood Road / Redman Parade AM Peak	Burwood Rd S	South	T1	678	60%	0.46	LOS A	5.9
B.09 Burwood Road / Redman Parade AM Peak	Redman Parade	East	L2	151	33%	13.22	LOS A	1.3
B.09 Burwood Road / Redman Parade AM Peak	Redman Parade	East	R2	17	34%	93.31	LOS F	1.0
B.09 Burwood Road / Redman Parade AM Peak	Burwood Rd N	North	T1	723	69%	0.58	LOS A	8.2
B.09 Burwood Road / Redman Parade AM Peak	Burwood Rd N	North	L2	62	69%	7.65	LOS A	8.2
B.09 Burwood Road / Redman Parade PM Peak	Burwood Rd S	South	R2	123	31%	13.70	LOS A	1.2
B.09 Burwood Road / Redman Parade PM Peak	Burwood Rd S	South	T1	628	54%	0.07	LOS A	4.9
B.09 Burwood Road / Redman Parade PM Peak	Redman Parade	East	L2	182	43%	15.11	LOS B	1.8
B.09 Burwood Road / Redman Parade PM Peak	Redman Parade	East	R2	22	45%	103.16	LOS F	1.3

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.09 Burwood Road / Redman Parade PM Peak	Burwood Rd N	North	T1	782	72%	0.11	LOS A	9.7
B.09 Burwood Road / Redman Parade PM Peak	Burwood Rd N	North	L2	58	72%	7.77	LOS A	9.7
Burwood Road / Belmore Station AM Peak	Burwood Road	South	T1	939	81%	12.63	LOS A	21.4
Burwood Road / Belmore Station AM Peak	Burwood Road	North	T1	902	77%	10.29	LOS A	18.4
Burwood Road / Belmore Station PM Peak	Burwood Road	South	T1	784	67%	7.32	LOS A	13.0
Burwood Road / Belmore Station PM Peak	Burwood Road	North	T1	1005	85%	15.93	LOS B	25.9
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	South	R2	45	96%	63.30	LOS E	26.7
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	South	T1	504	96%	54.17	LOS D	26.7
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	South	L2	82	21%	23.31	LOS B	3.6
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	East	L2	95	9%	16.59	LOS B	2.0
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	East	R2	53	42%	25.61	LOS B	9.5
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	East	T1	274	42%	21.03	LOS B	9.5
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	North	T1	513	93%	43.84	LOS D	24.0
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	North	L2	57	19%	23.85	LOS B	3.1
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	North	R2	42	93%	51.70	LOS D	24.0
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	West	R2	129	79%	32.26	LOS C	15.7
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	West	T1	443	79%	23.13	LOS B	15.7
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	West	L2	63	18%	17.18	LOS B	4.2
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	South	R2	68	90%	44.18	LOS D	22.6
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	South	T1	539	90%	35.70	LOS C	22.6
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	South	L2	99	22%	22.00	LOS B	5.1
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	East	L2	98	10%	18.52	LOS B	2.2
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	East	R2	65	51%	25.20	LOS B	13.9
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	East	T1	394	51%	20.63	LOS B	13.9
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	North	T1	654	81%	26.07	LOS B	17.7
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	North	L2	51	32%	22.83	LOS B	7.8
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	North	R2	54	81%	35.02	LOS C	17.7
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	West	R2	124	67%	27.98	LOS B	12.1
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	West	T1	350	67%	20.64	LOS B	12.1
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	West	L2	61	15%	18.23	LOS B	3.7
H.33 Canterbury Rd / Burwood Rd - AM Peak	Canterbury Rd	East	R2	198	54%	28.12	LOS B	7.1
H.33 Canterbury Rd / Burwood Rd - AM Peak	Canterbury Rd	East	T1	694	46%	0.45	LOS A	1.6
H.33 Canterbury Rd / Burwood Rd - AM Peak	Burwood Rd	North	L2	103	23%	42.98	LOS D	5.0
H.33 Canterbury Rd / Burwood Rd - AM Peak	Burwood Rd	North	R2	115	91%	85.21	LOS F	8.6
H.33 Canterbury Rd / Burwood Rd - AM Peak	Canterbury Rd	West	T1	1586	73%	9.22	LOS A	22.2
H.33 Canterbury Rd / Burwood Rd - AM Peak	Canterbury Rd	West	L2	78	73%	14.82	LOS B	22.1
H.33 Canterbury Rd / Burwood Rd - PM Peak	Canterbury Rd	East	R2	242	74%	26.05	LOS B	19.4

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.33 Canterbury Rd / Burwood Rd - PM Peak	Canterbury Rd	East	T1	1392	74%	5.68	LOS A	19.4
H.33 Canterbury Rd / Burwood Rd - PM Peak	Burwood Rd	North	L2	124	14%	21.90	LOS B	4.0
H.33 Canterbury Rd / Burwood Rd - PM Peak	Burwood Rd	North	R2	188	97%	98.16	LOS F	15.4
H.33 Canterbury Rd / Burwood Rd - PM Peak	Canterbury Rd	West	T1	1104	76%	32.78	LOS C	29.1
H.33 Canterbury Rd / Burwood Rd - PM Peak	Canterbury Rd	West	L2	56	76%	38.32	LOS C	29.0

7.2 Belmore Station: Future + Construction + Refined Baseline TTP

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd S	South	R2	54	76%	30.60	LOS C	16.9
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd S	South	T1	672	76%	5.17	LOS A	16.9
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd S	South	L2	60	5%	4.97	LOS A	0.2
B.08 Burwood Road / Bridge Road AM Peak	Tobruk Ave	East	L2	10	30%	28.11	LOS B	0.8
B.08 Burwood Road / Bridge Road AM Peak	Tobruk Ave	East	R2	3	30%	273.42	LOS F	0.8
B.08 Burwood Road / Bridge Road AM Peak	Tobruk Ave	East	T1	1	30%	141.82	LOS F	0.8
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd N	North	T1	581	62%	1.02	LOS A	5.8
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd N	North	L2	82	62%	5.32	LOS A	5.8
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd N	North	R2	127	27%	10.62	LOS A	1.1
B.08 Burwood Road / Bridge Road AM Peak	Bridge Rd	West	R2	33	146%	678.64	LOS F	12.5
B.08 Burwood Road / Bridge Road AM Peak	Bridge Rd	West	T1	7	146%	674.06	LOS F	12.5
B.08 Burwood Road / Bridge Road AM Peak	Bridge Rd	West	L2	196	40%	12.52	LOS A	1.8
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd S	South	R2	53	67%	23.21	LOS B	10.3
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd S	South	T1	565	67%	4.09	LOS A	10.3
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd S	South	L2	79	6%	5.12	LOS A	0.3
B.08 Burwood Road / Bridge Road PM Peak	Tobruk Ave	East	L2	8	62%	76.53	LOS F	1.9
B.08 Burwood Road / Bridge Road PM Peak	Tobruk Ave	East	R2	9	62%	223.56	LOS F	1.9
B.08 Burwood Road / Bridge Road PM Peak	Tobruk Ave	East	T1	7	62%	160.12	LOS F	1.9
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd N	North	T1	669	77%	4.88	LOS A	16.0
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd N	North	L2	105	77%	7.00	LOS A	16.0
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd N	North	R2	152	27%	9.02	LOS A	1.1
B.08 Burwood Road / Bridge Road PM Peak	Bridge Rd	West	R2	41	146%	644.19	LOS F	13.8
B.08 Burwood Road / Bridge Road PM Peak	Bridge Rd	West	T1	6	146%	628.12	LOS F	13.8
B.08 Burwood Road / Bridge Road PM Peak	Bridge Rd	West	L2	158	27%	9.87	LOS A	1.1
B.09 Burwood Road / Redman Parade AM Peak	Burwood Rd S	South	R2	183	47%	16.31	LOS B	2.1
B.09 Burwood Road / Redman Parade AM Peak	Burwood Rd S	South	T1	709	64%	0.53	LOS A	6.9
B.09 Burwood Road / Redman Parade AM Peak	Redman Parade	East	L2	151	36%	14.63	LOS B	1.4
B.09 Burwood Road / Redman Parade AM Peak	Redman Parade	East	R2	17	44%	129.89	LOS F	1.3
B.09 Burwood Road / Redman Parade AM Peak	Burwood Rd N	North	T1	754	74%	0.68	LOS A	9.7
B.09 Burwood Road / Redman Parade AM Peak	Burwood Rd N	North	L2	62	74%	8.05	LOS A	9.7
B.09 Burwood Road / Redman Parade PM Peak	Burwood Rd S	South	R2	123	34%	15.55	LOS B	1.4
B.09 Burwood Road / Redman Parade PM Peak	Burwood Rd S	South	T1	658	58%	0.08	LOS A	5.7
B.09 Burwood Road / Redman Parade PM Peak	Redman Parade	East	L2	182	47%	17.00	LOS B	2.0
B.09 Burwood Road / Redman Parade PM Peak	Redman Parade	East	R2	22	59%	151.56	LOS F	1.7
B.09 Burwood Road / Redman Parade PM Peak	Burwood Rd N	North	T1	813	76%	0.13	LOS A	11.6
B.09 Burwood Road / Redman Parade PM Peak	Burwood Rd N	North	L2	58	76%	8.25	LOS A	11.6
Burwood Road / Belmore Station AM Peak	Burwood Road	South	T1	970	86%	17.62	LOS B	26.4

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
Burwood Road / Belmore Station AM Peak	Burwood Road	North	T1	934	83%	13.68	LOS A	22.2
Burwood Road / Belmore Station PM Peak	Burwood Road	South	T1	816	65%	6.37	LOS A	14.1
Burwood Road / Belmore Station PM Peak	Burwood Road	North	T1	1037	81%	11.28	LOS A	25.3
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	South	R2	61	73%	24.47	LOS B	16.2
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	South	T1	504	73%	18.96	LOS B	16.2
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	South	L2	92	16%	16.60	LOS B	2.8
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	East	L2	110	17%	23.86	LOS B	2.9
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	East	R2	53	68%	36.47	LOS C	11.9
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	East	T1	274	68%	31.89	LOS C	11.9
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	North	T1	513	66%	17.57	LOS B	14.9
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	North	L2	57	13%	16.87	LOS B	2.4
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	North	R2	51	66%	23.04	LOS B	14.9
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	West	R2	139	151%	528.74	LOS F	78.9
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	West	T1	443	151%	351.22	LOS F	78.9
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	West	L2	63	35%	24.43	LOS B	5.9
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	South	R2	83	73%	25.83	LOS B	17.1
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	South	T1	539	73%	19.59	LOS B	17.1
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	South	L2	109	18%	16.25	LOS B	4.1
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	East	L2	113	22%	24.99	LOS B	4.2
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	East	R2	65	112%	165.69	LOS F	38.9
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	East	T1	394	112%	148.09	LOS F	38.9
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	North	T1	654	61%	16.66	LOS B	14.3
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	North	L2	51	24%	16.60	LOS B	6.1
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	North	R2	63	61%	23.82	LOS B	14.3
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	West	R2	134	193%	889.54	LOS F	74.1
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	West	T1	350	193%	445.25	LOS F	74.1
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	West	L2	61	45%	25.37	LOS B	6.9
H.33 Canterbury Rd / Burwood Rd - AM Peak	Canterbury Rd	East	R2	204	56%	32.54	LOS C	8.0
H.33 Canterbury Rd / Burwood Rd - AM Peak	Canterbury Rd	East	T1	694	47%	0.47	LOS A	1.6
H.33 Canterbury Rd / Burwood Rd - AM Peak	Burwood Rd	North	L2	109	24%	41.64	LOS C	5.2
H.33 Canterbury Rd / Burwood Rd - AM Peak	Burwood Rd	North	R2	121	90%	84.00	LOS F	9.0
H.33 Canterbury Rd / Burwood Rd - AM Peak	Canterbury Rd	West	T1	1586	75%	10.83	LOS A	25.3
H.33 Canterbury Rd / Burwood Rd - AM Peak	Canterbury Rd	West	L2	84	75%	16.51	LOS B	25.0
H.33 Canterbury Rd / Burwood Rd - PM Peak	Canterbury Rd	East	R2	248	76%	29.36	LOS C	21.8
H.33 Canterbury Rd / Burwood Rd - PM Peak	Canterbury Rd	East	T1	1392	76%	6.35	LOS A	21.8
H.33 Canterbury Rd / Burwood Rd - PM Peak	Burwood Rd	North	L2	131	15%	20.99	LOS B	4.1
H.33 Canterbury Rd / Burwood Rd - PM Peak	Burwood Rd	North	R2	194	96%	92.57	LOS F	15.5

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.33 Canterbury Rd / Burwood Rd - PM Peak	Canterbury Rd	West	T1	1104	80%	36.52	LOS C	31.6
H.33 Canterbury Rd / Burwood Rd - PM Peak	Canterbury Rd	West	L2	63	80%	42.23	LOS C	31.2

7.3 Belmore Station: Future (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd S	South	R2	34	45%	12.27	LOS A	3.1
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd S	South	T1	426	45%	0.71	LOS A	3.1
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd S	South	L2	41	3%	4.93	LOS A	0.1
B.08 Burwood Road / Bridge Road AM Peak	Tobruk Ave	East	L2	7	4%	9.08	LOS A	0.1
B.08 Burwood Road / Bridge Road AM Peak	Tobruk Ave	East	R2	2	4%	48.41	LOS D	0.1
B.08 Burwood Road / Bridge Road AM Peak	Tobruk Ave	East	T1	1	4%	32.68	LOS C	0.1
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd N	North	T1	404	42%	0.70	LOS A	2.9
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd N	North	L2	52	42%	4.62	LOS A	2.9
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd N	North	R2	79	10%	5.71	LOS A	0.4
B.08 Burwood Road / Bridge Road AM Peak	Bridge Rd	West	R2	22	21%	33.85	LOS C	0.7
B.08 Burwood Road / Bridge Road AM Peak	Bridge Rd	West	T1	5	21%	35.60	LOS C	0.7
B.08 Burwood Road / Bridge Road AM Peak	Bridge Rd	West	L2	116	15%	7.19	LOS A	0.5
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd S	South	R2	48	57%	16.99	LOS B	6.3
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd S	South	T1	501	57%	2.41	LOS A	6.3
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd S	South	L2	71	6%	5.08	LOS A	0.2
B.08 Burwood Road / Bridge Road PM Peak	Tobruk Ave	East	L2	8	31%	20.04	LOS B	1.0
B.08 Burwood Road / Bridge Road PM Peak	Tobruk Ave	East	R2	9	31%	96.83	LOS F	1.0
B.08 Burwood Road / Bridge Road PM Peak	Tobruk Ave	East	T1	7	31%	68.76	LOS E	1.0
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd N	North	T1	602	65%	2.48	LOS A	8.5
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd N	North	L2	96	65%	4.78	LOS A	8.5
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd N	North	R2	126	18%	6.88	LOS A	0.7
B.08 Burwood Road / Bridge Road PM Peak	Bridge Rd	West	R2	35	70%	117.93	LOS F	2.5
B.08 Burwood Road / Bridge Road PM Peak	Bridge Rd	West	T1	6	70%	114.05	LOS F	2.5
B.08 Burwood Road / Bridge Road PM Peak	Bridge Rd	West	L2	130	18%	7.97	LOS A	0.7
B.09 Burwood Road / Redman Parade AM Peak	Burwood Rd S	South	R2	117	17%	7.78	LOS A	0.7
B.09 Burwood Road / Redman Parade AM Peak	Burwood Rd S	South	T1	437	39%	0.31	LOS A	2.7
B.09 Burwood Road / Redman Parade AM Peak	Redman Parade	East	L2	108	16%	8.86	LOS A	0.6
B.09 Burwood Road / Redman Parade AM Peak	Redman Parade	East	R2	11	7%	26.58	LOS B	0.2
B.09 Burwood Road / Redman Parade AM Peak	Burwood Rd N	North	T1	516	49%	0.36	LOS A	3.9
B.09 Burwood Road / Redman Parade AM Peak	Burwood Rd N	North	L2	39	49%	6.51	LOS A	3.9
B.09 Burwood Road / Redman Parade PM Peak	Burwood Rd S	South	R2	112	24%	11.33	LOS A	0.9
B.09 Burwood Road / Redman Parade PM Peak	Burwood Rd S	South	T1	573	49%	0.06	LOS A	4.1
B.09 Burwood Road / Redman Parade PM Peak	Redman Parade	East	L2	168	35%	12.86	LOS A	1.4
B.09 Burwood Road / Redman Parade PM Peak	Redman Parade	East	R2	20	29%	64.78	LOS E	0.9
B.09 Burwood Road / Redman Parade PM Peak	Burwood Rd N	North	T1	721	66%	0.09	LOS A	7.6
B.09 Burwood Road / Redman Parade PM Peak	Burwood Rd N	North	L2	53	66%	7.26	LOS A	7.6
Burwod Road / Belmore Station AM Peak	Burwood Road	South	T1	608	64%	8.15	LOS A	9.0
Burwod Road / Belmore Station AM Peak	Burwood Road	North	T1	644	67%	8.59	LOS A	9.9
Burwod Road / Belmore Station PM Peak	Burwood Road	South	T1	715	61%	6.91	LOS A	11.2
Burwod Road / Belmore Station PM Peak	Burwood Road	North	T1	926	79%	10.90	LOS A	19.5
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	South	R2	30	42%	21.62	LOS B	9.1
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	South	T1	324	42%	16.77	LOS B	9.1

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	South	L2	58	9%	19.04	LOS B	1.6
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	East	L2	68	8%	19.54	LOS B	1.6
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	East	R2	34	25%	21.38	LOS B	5.8
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	East	T1	194	25%	16.80	LOS B	5.8
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	North	T1	367	43%	16.94	LOS B	9.9
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	North	L2	37	9%	19.64	LOS B	1.5
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	North	R2	30	43%	21.77	LOS B	9.9
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	West	R2	92	42%	22.65	LOS B	8.9
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	West	T1	284	42%	17.54	LOS B	8.9
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	West	L2	40	10%	19.66	LOS B	2.1
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	South	R2	62	71%	28.45	LOS B	16.2
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	South	T1	491	71%	23.00	LOS B	16.2
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	South	L2	91	18%	21.63	LOS B	3.9
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	East	L2	91	9%	18.46	LOS B	2.0
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	East	R2	59	44%	23.10	LOS B	12.0
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	East	T1	363	44%	18.54	LOS B	12.0
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	North	T1	602	64%	21.31	LOS B	14.9
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	North	L2	47	26%	22.27	LOS B	6.0
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	North	R2	49	64%	27.42	LOS B	14.9
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	West	R2	114	54%	24.98	LOS B	10.7
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	West	T1	319	54%	18.78	LOS B	10.7
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	West	L2	56	13%	18.02	LOS B	2.9
H.33 Canterbury Rd / Burwood Rd - AM Peak	Canterbury Rd	East	R2	129	28%	6.59	LOS A	0.6
H.33 Canterbury Rd / Burwood Rd - AM Peak	Canterbury Rd	East	T1	494	28%	0.39	LOS A	0.7
H.33 Canterbury Rd / Burwood Rd - AM Peak	Burwood Rd	North	L2	69	14%	38.86	LOS C	3.1
H.33 Canterbury Rd / Burwood Rd - AM Peak	Burwood Rd	North	R2	82	92%	88.61	LOS F	6.2
H.33 Canterbury Rd / Burwood Rd - AM Peak	Canterbury Rd	West	T1	1016	49%	9.54	LOS A	11.4
H.33 Canterbury Rd / Burwood Rd - AM Peak	Canterbury Rd	West	L2	50	49%	15.15	LOS B	11.4
H.33 Canterbury Rd / Burwood Rd - PM Peak	Canterbury Rd	East	R2	220	66%	16.17	LOS B	13.0
H.33 Canterbury Rd / Burwood Rd - PM Peak	Canterbury Rd	East	T1	1281	66%	3.22	LOS A	13.0
H.33 Canterbury Rd / Burwood Rd - PM Peak	Burwood Rd	North	L2	114	14%	24.65	LOS B	4.0
H.33 Canterbury Rd / Burwood Rd - PM Peak	Burwood Rd	North	R2	173	97%	99.90	LOS F	14.3
H.33 Canterbury Rd / Burwood Rd - PM Peak	Canterbury Rd	West	T1	1005	63%	26.27	LOS B	22.2
H.33 Canterbury Rd / Burwood Rd - PM Peak	Canterbury Rd	West	L2	51	63%	31.81	LOS C	22.1

7.4 Belmore Station: Future + Construction (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd S	South	R2	34	48%	13.04	LOS A	3.3
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd S	South	T1	442	48%	0.76	LOS A	3.3
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd S	South	L2	43	3%	4.98	LOS A	0.1
B.08 Burwood Road / Bridge Road AM Peak	Tobruk Ave	East	L2	7	5%	9.37	LOS A	0.1
B.08 Burwood Road / Bridge Road AM Peak	Tobruk Ave	East	R2	2	5%	53.91	LOS D	0.1
B.08 Burwood Road / Bridge Road AM Peak	Tobruk Ave	East	T1	1	5%	36.30	LOS C	0.1
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd N	North	T1	420	45%	0.75	LOS A	3.1
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd N	North	L2	52	45%	4.67	LOS A	3.1
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd N	North	R2	79	10%	5.93	LOS A	0.4
B.08 Burwood Road / Bridge Road AM Peak	Bridge Rd	West	R2	24	27%	44.38	LOS D	0.9
B.08 Burwood Road / Bridge Road AM Peak	Bridge Rd	West	T1	5	27%	42.18	LOS C	0.9
B.08 Burwood Road / Bridge Road AM Peak	Bridge Rd	West	L2	116	15%	7.39	LOS A	0.5
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd S	South	R2	48	60%	18.49	LOS B	7.2
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd S	South	T1	516	60%	2.84	LOS A	7.2
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd S	South	L2	73	6%	5.12	LOS A	0.2
B.08 Burwood Road / Bridge Road PM Peak	Tobruk Ave	East	L2	8	36%	24.98	LOS B	1.1
B.08 Burwood Road / Bridge Road PM Peak	Tobruk Ave	East	R2	9	36%	112.69	LOS F	1.1
B.08 Burwood Road / Bridge Road PM Peak	Tobruk Ave	East	T1	7	36%	80.75	LOS F	1.1
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd N	North	T1	617	68%	3.03	LOS A	10.2
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd N	North	L2	96	68%	5.25	LOS A	10.2
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd N	North	R2	126	19%	7.16	LOS A	0.7
B.08 Burwood Road / Bridge Road PM Peak	Bridge Rd	West	R2	37	92%	214.24	LOS F	4.1
B.08 Burwood Road / Bridge Road PM Peak	Bridge Rd	West	T1	6	92%	201.27	LOS F	4.1
B.08 Burwood Road / Bridge Road PM Peak	Bridge Rd	West	L2	130	19%	8.20	LOS A	0.7
B.09 Burwood Road / Redman Parade AM Peak	Burwood Rd S	South	R2	117	18%	8.07	LOS A	0.7
B.09 Burwood Road / Redman Parade AM Peak	Burwood Rd S	South	T1	453	41%	0.33	LOS A	2.9
B.09 Burwood Road / Redman Parade AM Peak	Redman Parade	East	L2	108	17%	9.13	LOS A	0.6
B.09 Burwood Road / Redman Parade AM Peak	Redman Parade	East	R2	11	7%	28.91	LOS C	0.2
B.09 Burwood Road / Redman Parade AM Peak	Burwood Rd N	North	T1	531	51%	0.39	LOS A	4.2
B.09 Burwood Road / Redman Parade AM Peak	Burwood Rd N	North	L2	39	51%	6.59	LOS A	4.2
B.09 Burwood Road / Redman Parade PM Peak	Burwood Rd S	South	R2	112	25%	11.97	LOS A	1.0
B.09 Burwood Road / Redman Parade PM Peak	Burwood Rd S	South	T1	588	51%	0.07	LOS A	4.4
B.09 Burwood Road / Redman Parade PM Peak	Redman Parade	East	L2	168	36%	13.51	LOS A	1.5
B.09 Burwood Road / Redman Parade PM Peak	Redman Parade	East	R2	20	33%	74.59	LOS F	1.0
B.09 Burwood Road / Redman Parade PM Peak	Burwood Rd N	North	T1	736	68%	0.10	LOS A	8.3
B.09 Burwood Road / Redman Parade PM Peak	Burwood Rd N	North	L2	53	68%	7.42	LOS A	8.3
Burwod Road / Belmore Station AM Peak	Burwood Road	South	T1	624	67%	8.73	LOS A	9.7
Burwod Road / Belmore Station AM Peak	Burwood Road	North	T1	660	70%	9.29	LOS A	10.7
Burwod Road / Belmore Station PM Peak	Burwood Road	South	T1	725	63%	7.03	LOS A	11.6
Burwod Road / Belmore Station PM Peak	Burwood Road	North	T1	937	80%	11.95	LOS A	20.7
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	South	R2	30	44%	16.40	LOS B	6.0
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	South	T1	324	44%	11.64	LOS A	6.0
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	South	L2	68	11%	15.37	LOS B	1.0
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	East	L2	68	9%	16.54	LOS B	1.1

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	East	R2	34	29%	17.50	LOS B	3.9
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	East	T1	194	29%	12.92	LOS A	3.9
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	North	T1	367	48%	11.82	LOS A	6.5
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	North	L2	37	10%	15.09	LOS B	1.0
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	North	R2	39	48%	16.80	LOS B	6.5
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	West	R2	102	49%	18.82	LOS B	6.4
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	West	T1	284	49%	13.80	LOS A	6.4
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	West	L2	40	11%	16.62	LOS B	1.4
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	South	R2	62	65%	20.63	LOS B	11.5
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	South	T1	491	65%	15.80	LOS B	11.5
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	South	L2	101	16%	16.60	LOS B	2.2
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	East	L2	91	11%	16.88	LOS B	1.6
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	East	R2	59	51%	20.81	LOS B	9.1
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	East	T1	363	51%	16.24	LOS B	9.1
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	North	T1	602	57%	14.86	LOS B	10.8
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	North	L2	47	23%	16.87	LOS B	3.7
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	North	R2	58	57%	20.48	LOS B	10.8
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	West	R2	124	65%	23.25	LOS B	8.6
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	West	T1	319	65%	17.15	LOS B	8.6
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	West	L2	56	15%	17.07	LOS B	2.3
H.33 Canterbury Rd / Burwood Rd - AM Peak	Canterbury Rd	East	R2	135	30%	7.35	LOS A	1.0
H.33 Canterbury Rd / Burwood Rd - AM Peak	Canterbury Rd	East	T1	494	30%	0.45	LOS A	1.0
H.33 Canterbury Rd / Burwood Rd - AM Peak	Burwood Rd	North	L2	75	16%	38.44	LOS C	3.4
H.33 Canterbury Rd / Burwood Rd - AM Peak	Burwood Rd	North	R2	88	91%	86.86	LOS F	6.6
H.33 Canterbury Rd / Burwood Rd - AM Peak	Canterbury Rd	West	T1	1016	50%	10.25	LOS A	12.2
H.33 Canterbury Rd / Burwood Rd - AM Peak	Canterbury Rd	West	L2	56	50%	15.97	LOS B	12.0
H.33 Canterbury Rd / Burwood Rd - PM Peak	Canterbury Rd	East	R2	227	68%	18.99	LOS B	13.1
H.33 Canterbury Rd / Burwood Rd - PM Peak	Canterbury Rd	East	T1	1281	68%	3.86	LOS A	13.1
H.33 Canterbury Rd / Burwood Rd - PM Peak	Burwood Rd	North	L2	120	15%	23.68	LOS B	4.1
H.33 Canterbury Rd / Burwood Rd - PM Peak	Burwood Rd	North	R2	179	96%	93.61	LOS F	14.3
H.33 Canterbury Rd / Burwood Rd - PM Peak	Canterbury Rd	West	T1	1005	67%	28.45	LOS B	23.8
H.33 Canterbury Rd / Burwood Rd - PM Peak	Canterbury Rd	West	L2	58	67%	34.13	LOS C	23.4

7.5 Belmore Station: Future + Construction + Refined TTS (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd S	South	R2	34	48%	13.04	LOS A	3.3
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd S	South	T1	442	48%	0.76	LOS A	3.3
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd S	South	L2	43	3%	4.98	LOS A	0.1
B.08 Burwood Road / Bridge Road AM Peak	Tobruk Ave	East	L2	7	5%	9.37	LOS A	0.2
B.08 Burwood Road / Bridge Road AM Peak	Tobruk Ave	East	R2	2	5%	59.06	LOS E	0.2
B.08 Burwood Road / Bridge Road AM Peak	Tobruk Ave	East	T1	1	5%	37.63	LOS C	0.2
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd N	North	T1	420	45%	0.75	LOS A	3.1
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd N	North	L2	52	45%	4.67	LOS A	3.1
B.08 Burwood Road / Bridge Road AM Peak	Burwood Rd N	North	R2	95	14%	6.59	LOS A	0.5
B.08 Burwood Road / Bridge Road AM Peak	Bridge Rd	West	R2	24	29%	46.77	LOS D	0.9
B.08 Burwood Road / Bridge Road AM Peak	Bridge Rd	West	T1	5	29%	44.26	LOS D	0.9
B.08 Burwood Road / Bridge Road AM Peak	Bridge Rd	West	L2	131	19%	7.97	LOS A	0.7
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd S	South	R2	48	60%	18.49	LOS B	7.2
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd S	South	T1	516	60%	2.84	LOS A	7.2
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd S	South	L2	73	6%	5.12	LOS A	0.2
B.08 Burwood Road / Bridge Road PM Peak	Tobruk Ave	East	L2	8	39%	29.11	LOS C	1.2
B.08 Burwood Road / Bridge Road PM Peak	Tobruk Ave	East	R2	9	39%	127.46	LOS F	1.2
B.08 Burwood Road / Bridge Road PM Peak	Tobruk Ave	East	T1	7	39%	87.54	LOS F	1.2
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd N	North	T1	617	69%	3.04	LOS A	10.2
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd N	North	L2	96	69%	5.27	LOS A	10.2
B.08 Burwood Road / Bridge Road PM Peak	Burwood Rd N	North	R2	142	23%	7.96	LOS A	0.9
B.08 Burwood Road / Bridge Road PM Peak	Bridge Rd	West	R2	37	96%	241.86	LOS F	4.7
B.08 Burwood Road / Bridge Road PM Peak	Bridge Rd	West	T1	6	96%	228.07	LOS F	4.7
B.08 Burwood Road / Bridge Road PM Peak	Bridge Rd	West	L2	145	23%	8.97	LOS A	0.9
B.09 Burwood Road / Redman Parade AM Peak	Burwood Rd S	South	R2	117	18%	8.36	LOS A	0.7
B.09 Burwood Road / Redman Parade AM Peak	Burwood Rd S	South	T1	468	43%	0.35	LOS A	3.1
B.09 Burwood Road / Redman Parade AM Peak	Redman Parade	East	L2	108	17%	9.40	LOS A	0.6
B.09 Burwood Road / Redman Parade AM Peak	Redman Parade	East	R2	11	8%	31.46	LOS C	0.2
B.09 Burwood Road / Redman Parade AM Peak	Burwood Rd N	North	T1	547	53%	0.42	LOS A	4.5
B.09 Burwood Road / Redman Parade AM Peak	Burwood Rd N	North	L2	39	53%	6.67	LOS A	4.5
B.09 Burwood Road / Redman Parade PM Peak	Burwood Rd S	South	R2	112	26%	12.65	LOS A	1.0
B.09 Burwood Road / Redman Parade PM Peak	Burwood Rd S	South	T1	603	53%	0.07	LOS A	4.7
B.09 Burwood Road / Redman Parade PM Peak	Redman Parade	East	L2	168	38%	14.20	LOS A	1.6
B.09 Burwood Road / Redman Parade PM Peak	Redman Parade	East	R2	20	37%	86.50	LOS F	1.1
B.09 Burwood Road / Redman Parade PM Peak	Burwood Rd N	North	T1	751	70%	0.11	LOS A	9.0
B.09 Burwood Road / Redman Parade PM Peak	Burwood Rd N	North	L2	53	70%	7.60	LOS A	9.0
Burwod Road / Belmore Station AM Peak	Burwood Road	South	T1	640	70%	9.49	LOS A	10.5
Burwod Road / Belmore Station AM Peak	Burwood Road	North	T1	675	73%	10.20	LOS A	11.6
Burwod Road / Belmore Station PM Peak	Burwood Road	South	T1	746	67%	7.28	LOS A	12.3
Burwod Road / Belmore Station PM Peak	Burwood Road	North	T1	958	84%	14.70	LOS B	23.6
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	South	R2	45	51%	17.98	LOS B	6.6
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	South	T1	324	51%	12.98	LOS A	6.6
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	South	L2	68	12%	15.63	LOS B	1.0
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	East	L2	83	13%	16.49	LOS B	1.3

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	East	R2	34	28%	16.94	LOS B	3.8
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	East	T1	194	28%	12.36	LOS A	3.8
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	North	T1	367	50%	12.09	LOS A	6.6
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	North	L2	37	10%	15.34	LOS B	1.0
H.20 Burwood Road / Lakemba Street AM Peak	Burwood Road	North	R2	39	50%	17.06	LOS B	6.6
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	West	R2	102	48%	18.23	LOS B	6.2
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	West	T1	284	48%	13.22	LOS A	6.2
H.20 Burwood Road / Lakemba Street AM Peak	Lakemba St	West	L2	40	11%	16.10	LOS B	1.3
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	South	R2	77	75%	25.53	LOS B	14.3
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	South	T1	491	75%	20.02	LOS B	14.3
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	South	L2	101	19%	18.91	LOS B	3.3
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	East	L2	106	14%	18.64	LOS B	2.2
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	East	R2	59	53%	25.74	LOS B	11.5
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	East	T1	363	53%	21.18	LOS B	11.5
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	North	T1	602	62%	18.24	LOS B	12.8
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	North	L2	47	25%	19.23	LOS B	5.0
H.20 Burwood Road / Lakemba Street PM Peak	Burwood Road	North	R2	58	62%	24.51	LOS B	12.8
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	West	R2	124	74%	29.37	LOS C	10.1
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	West	T1	319	74%	21.16	LOS B	10.1
H.20 Burwood Road / Lakemba Street PM Peak	Lakemba St	West	L2	56	17%	18.64	LOS B	3.4
H.33 Canterbury Rd / Burwood Rd - AM Peak	Canterbury Rd	East	R2	135	30%	7.35	LOS A	1.0
H.33 Canterbury Rd / Burwood Rd - AM Peak	Canterbury Rd	East	T1	494	30%	0.45	LOS A	1.0
H.33 Canterbury Rd / Burwood Rd - AM Peak	Burwood Rd	North	L2	75	16%	38.44	LOS C	3.4
H.33 Canterbury Rd / Burwood Rd - AM Peak	Burwood Rd	North	R2	88	91%	86.86	LOS F	6.6
H.33 Canterbury Rd / Burwood Rd - AM Peak	Canterbury Rd	West	T1	1016	50%	10.25	LOS A	12.2
H.33 Canterbury Rd / Burwood Rd - AM Peak	Canterbury Rd	West	L2	56	50%	15.97	LOS B	12.0
H.33 Canterbury Rd / Burwood Rd - PM Peak	Canterbury Rd	East	R2	227	68%	18.99	LOS B	13.1
H.33 Canterbury Rd / Burwood Rd - PM Peak	Canterbury Rd	East	T1	1281	68%	3.86	LOS A	13.1
H.33 Canterbury Rd / Burwood Rd - PM Peak	Burwood Rd	North	L2	120	15%	23.68	LOS B	4.1
H.33 Canterbury Rd / Burwood Rd - PM Peak	Burwood Rd	North	R2	179	96%	93.61	LOS F	14.3
H.33 Canterbury Rd / Burwood Rd - PM Peak	Canterbury Rd	West	T1	1005	67%	28.45	LOS B	23.8
H.33 Canterbury Rd / Burwood Rd - PM Peak	Canterbury Rd	West	L2	58	67%	34.13	LOS C	23.4

8.0 Lakemba Station

8.1 Lakemba Station: Future

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St S	South	T1	391	103%	92.22	LOS F	22.3
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St S	South	L2	64	36%	31.43	LOS C	3.5
B.07 The Boulevarde / Haldon Street AM Peak	The Boulevarde E	East	L2	38	22%	19.69	LOS B	3.2
B.07 The Boulevarde / Haldon Street AM Peak	The Boulevarde E	East	R2	87	102%	89.72	LOS F	8.0
B.07 The Boulevarde / Haldon Street AM Peak	The Boulevarde E	East	T1	157	102%	36.60	LOS C	8.0
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St N	North	T1	358	103%	58.43	LOS E	29.3
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St N	North	L2	145	31%	14.29	LOS A	5.4
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St N	North	R2	238	103%	96.04	LOS F	29.3
B.07 The Boulevarde / Haldon Street AM Peak	The Boulevarde W	West	R2	65	105%	109.10	LOS F	22.5
B.07 The Boulevarde / Haldon Street AM Peak	The Boulevarde W	West	T1	261	105%	104.49	LOS F	22.5
B.07 The Boulevarde / Haldon Street AM Peak	The Boulevarde W	West	L2	297	27%	11.46	LOS A	4.7
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St S	South	T1	306	110%	142.48	LOS F	23.9
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St S	South	L2	109	62%	36.69	LOS C	3.5
B.07 The Boulevarde / Haldon Street PM Peak	The Boulevarde E	East	L2	49	31%	19.24	LOS B	3.4
B.07 The Boulevarde / Haldon Street PM Peak	The Boulevarde E	East	R2	138	103%	93.43	LOS F	15.8
B.07 The Boulevarde / Haldon Street PM Peak	The Boulevarde E	East	T1	258	103%	49.93	LOS D	15.8
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St N	North	T1	349	102%	61.11	LOS E	29.8
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St N	North	L2	162	32%	15.19	LOS B	5.0
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St N	North	R2	253	102%	88.23	LOS F	29.8
B.07 The Boulevarde / Haldon Street PM Peak	The Boulevarde W	West	R2	52	64%	29.61	LOS C	6.9
B.07 The Boulevarde / Haldon Street PM Peak	The Boulevarde W	West	T1	186	64%	25.03	LOS B	6.9
B.07 The Boulevarde / Haldon Street PM Peak	The Boulevarde W	West	L2	277	24%	9.99	LOS A	3.7
H.07 Lakemba Street / Wangee Road AM Peak	Lakemba St	East	R2	51	21%	14.27	LOS A	2.2
H.07 Lakemba Street / Wangee Road AM Peak	Lakemba St	East	T1	299	21%	8.60	LOS A	4.9
H.07 Lakemba Street / Wangee Road AM Peak	Wangee Rd	North	L2	75	18%	36.76	LOS C	2.8
H.07 Lakemba Street / Wangee Road AM Peak	Wangee Rd	North	R2	382	92%	58.64	LOS E	21.4
H.07 Lakemba Street / Wangee Road AM Peak	Lakemba St	West	T1	515	44%	0.52	LOS A	0.8
H.07 Lakemba Street / Wangee Road AM Peak	Lakemba St	West	L2	407	26%	4.42	LOS A	2.0
H.07 Lakemba Street / Wangee Road PM Peak	Lakemba St	East	R2	69	35%	17.77	LOS B	6.0
H.07 Lakemba Street / Wangee Road PM Peak	Lakemba St	East	T1	521	35%	12.69	LOS A	9.0
H.07 Lakemba Street / Wangee Road PM Peak	Wangee Rd	North	L2	100	19%	32.15	LOS C	3.5
H.07 Lakemba Street / Wangee Road PM Peak	Wangee Rd	North	R2	464	90%	51.84	LOS D	24.6
H.07 Lakemba Street / Wangee Road PM Peak	Lakemba St	West	T1	409	40%	2.86	LOS A	2.9
H.07 Lakemba Street / Wangee Road PM Peak	Lakemba St	West	L2	337	22%	4.39	LOS A	1.6

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	South	R2	86	55%	9.15	LOS A	5.6
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	South	T1	449	55%	3.32	LOS A	5.6
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	South	L2	129	10%	4.50	LOS A	0.4
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	East	L2	76	21%	6.71	LOS A	0.7
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	East	R2	5	21%	45.24	LOS D	0.7
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	East	T1	11	21%	33.86	LOS C	0.7
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	North	T1	548	67%	5.10	LOS A	9.5
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	North	L2	29	67%	8.59	LOS A	9.5
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	North	R2	44	67%	17.79	LOS B	9.5
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	West	R2	68	103%	185.58	LOS F	10.8
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	West	T1	16	103%	160.86	LOS F	10.8
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	West	L2	51	103%	129.50	LOS F	10.8
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	South	R2	55	53%	8.56	LOS A	4.9
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	South	T1	406	53%	4.59	LOS A	4.9
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	South	L2	186	16%	4.97	LOS A	0.7
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	East	L2	119	26%	6.98	LOS A	1.0
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	East	R2	4	26%	37.57	LOS C	1.0
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	East	T1	18	26%	30.24	LOS C	1.0
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	North	T1	523	72%	8.16	LOS A	10.7
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	North	L2	46	72%	10.92	LOS A	10.7
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	North	R2	29	72%	24.32	LOS B	10.7
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	West	R2	93	106%	176.76	LOS F	12.1
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	West	T1	11	106%	159.41	LOS F	12.1
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	West	L2	36	106%	138.46	LOS F	12.1
H.09 Lakemba Street / Haldon Street AM Peak	Haldon St	South	R2	333	58%	33.68	LOS C	12.9
H.09 Lakemba Street / Haldon Street AM Peak	Haldon St	South	L2	147	31%	34.59	LOS C	5.4
H.09 Lakemba Street / Haldon Street AM Peak	Lakemba St	East	L2	381	25%	3.77	LOS A	0.2
H.09 Lakemba Street / Haldon Street AM Peak	Lakemba St	East	T1	282	27%	0.52	LOS A	0.3
H.09 Lakemba Street / Haldon Street AM Peak	Lakemba St	West	R2	216	59%	19.81	LOS B	10.7
H.09 Lakemba Street / Haldon Street AM Peak	Lakemba St	West	T1	570	59%	13.49	LOS A	11.6
H.09 Lakemba Street / Haldon Street PM Peak	Haldon St	South	R2	262	57%	37.43	LOS C	10.5
H.09 Lakemba Street / Haldon Street PM Peak	Haldon St	South	L2	200	51%	40.01	LOS C	8.2
H.09 Lakemba Street / Haldon Street PM Peak	Lakemba St	East	L2	418	27%	3.79	LOS A	0.3
H.09 Lakemba Street / Haldon Street PM Peak	Lakemba St	East	T1	539	46%	0.53	LOS A	0.9
H.09 Lakemba Street / Haldon Street PM Peak	Lakemba St	West	R2	195	50%	15.50	LOS B	7.8
H.09 Lakemba Street / Haldon Street PM Peak	Lakemba St	West	T1	491	50%	9.61	LOS A	8.2
H.10 Ped Crossing on The Boulevarde AM Peak	The Blvd	East	T1	470	28%	3.10	LOS A	4.3

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.10 Ped Crossing on The Boulevarde AM Peak	The Blvd	West	T1	640	46%	3.84	LOS A	8.4
H.10 Ped Crossing on The Boulevarde PM Peak	The Blvd	East	T1	638	38%	3.32	LOS A	6.1
H.10 Ped Crossing on The Boulevarde PM Peak	The Blvd	West	T1	529	38%	3.45	LOS A	6.0
H.21 Canterbury Rd / Haldon St - AM Peak	Canterbury Rd	East	R2	84	43%	16.23	LOS B	4.3
H.21 Canterbury Rd / Haldon St - AM Peak	Canterbury Rd	East	T1	810	43%	3.84	LOS A	11.4
H.21 Canterbury Rd / Haldon St - AM Peak	Haldon St	North	L2	61	86%	76.78	LOS F	11.7
H.21 Canterbury Rd / Haldon St - AM Peak	Haldon St	North	R2	261	86%	77.05	LOS F	11.7
H.21 Canterbury Rd / Haldon St - AM Peak	Canterbury Rd	West	T1	1655	58%	3.00	LOS A	9.2
H.21 Canterbury Rd / Haldon St - AM Peak	Canterbury Rd	West	L2	181	58%	8.58	LOS A	9.2
H.21 Canterbury Rd / Haldon St - PM Peak	Canterbury Rd	East	R2	109	54%	11.79	LOS A	12.3
H.21 Canterbury Rd / Haldon St - PM Peak	Canterbury Rd	East	T1	1457	54%	4.14	LOS A	12.3
H.21 Canterbury Rd / Haldon St - PM Peak	Haldon St	North	L2	74	90%	78.65	LOS F	14.5
H.21 Canterbury Rd / Haldon St - PM Peak	Haldon St	North	R2	311	90%	79.03	LOS F	14.5
H.21 Canterbury Rd / Haldon St - PM Peak	Canterbury Rd	West	T1	1230	66%	7.96	LOS A	15.1
H.21 Canterbury Rd / Haldon St - PM Peak	Canterbury Rd	West	L2	189	66%	13.54	LOS A	14.9

8.2 Lakemba Station: Future + Construction + Refined Baseline TTP

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St S	South	T1	399	110%	138.98	LOS F	30.0
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St S	South	L2	71	38%	31.78	LOS C	3.5
B.07 The Boulevarde / Haldon Street AM Peak	The Boulevarde E	East	L2	48	24%	18.36	LOS B	3.3
B.07 The Boulevarde / Haldon Street AM Peak	The Boulevarde E	East	R2	87	112%	159.79	LOS F	12.9
B.07 The Boulevarde / Haldon Street AM Peak	The Boulevarde E	East	T1	172	112%	66.56	LOS E	12.9
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St N	North	T1	366	109%	81.97	LOS F	36.2
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St N	North	L2	145	32%	14.97	LOS B	5.7
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St N	North	R2	238	109%	135.85	LOS F	36.2
B.07 The Boulevarde / Haldon Street AM Peak	The Boulevarde W	West	R2	70	121%	244.45	LOS F	39.7
B.07 The Boulevarde / Haldon Street AM Peak	The Boulevarde W	West	T1	277	121%	239.78	LOS F	39.7
B.07 The Boulevarde / Haldon Street AM Peak	The Boulevarde W	West	L2	297	33%	11.82	LOS A	4.9
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St S	South	T1	314	116%	197.59	LOS F	30.3
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St S	South	L2	116	70%	37.87	LOS C	3.8
B.07 The Boulevarde / Haldon Street PM Peak	The Boulevarde E	East	L2	58	35%	19.31	LOS B	4.0
B.07 The Boulevarde / Haldon Street PM Peak	The Boulevarde E	East	R2	138	118%	212.58	LOS F	25.2
B.07 The Boulevarde / Haldon Street PM Peak	The Boulevarde E	East	T1	274	118%	91.87	LOS F	25.2
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St N	North	T1	357	113%	113.30	LOS F	43.7
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St N	North	L2	162	35%	16.65	LOS B	5.5
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St N	North	R2	253	113%	164.77	LOS F	43.7
B.07 The Boulevarde / Haldon Street PM Peak	The Boulevarde W	West	R2	57	78%	34.67	LOS C	8.5
B.07 The Boulevarde / Haldon Street PM Peak	The Boulevarde W	West	T1	201	78%	30.01	LOS C	8.5
B.07 The Boulevarde / Haldon Street PM Peak	The Boulevarde W	West	L2	277	26%	10.07	LOS A	3.7
H.07 Lakemba Street / Wangee Road AM Peak	Lakemba St	East	R2	51	21%	14.27	LOS A	2.2
H.07 Lakemba Street / Wangee Road AM Peak	Lakemba St	East	T1	299	21%	8.60	LOS A	4.9
H.07 Lakemba Street / Wangee Road AM Peak	Wangee Rd	North	L2	75	18%	36.76	LOS C	2.8
H.07 Lakemba Street / Wangee Road AM Peak	Wangee Rd	North	R2	382	92%	58.64	LOS E	21.4
H.07 Lakemba Street / Wangee Road AM Peak	Lakemba St	West	T1	515	44%	0.52	LOS A	0.8
H.07 Lakemba Street / Wangee Road AM Peak	Lakemba St	West	L2	407	26%	4.42	LOS A	2.0
H.07 Lakemba Street / Wangee Road PM Peak	Lakemba St	East	R2	69	35%	17.77	LOS B	6.0
H.07 Lakemba Street / Wangee Road PM Peak	Lakemba St	East	T1	521	35%	12.69	LOS A	9.0
H.07 Lakemba Street / Wangee Road PM Peak	Wangee Rd	North	L2	100	19%	32.15	LOS C	3.5
H.07 Lakemba Street / Wangee Road PM Peak	Wangee Rd	North	R2	464	90%	51.84	LOS D	24.6
H.07 Lakemba Street / Wangee Road PM Peak	Lakemba St	West	T1	409	40%	2.86	LOS A	2.9
H.07 Lakemba Street / Wangee Road PM Peak	Lakemba St	West	L2	337	22%	4.39	LOS A	1.6
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	South	R2	91	56%	9.54	LOS A	5.8
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	South	T1	449	56%	3.43	LOS A	5.8
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	South	L2	132	11%	4.52	LOS A	0.4

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	East	L2	81	22%	7.03	LOS A	0.8
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	East	R2	5	22%	47.39	LOS D	0.8
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	East	T1	11	22%	35.46	LOS C	0.8
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	North	T1	548	67%	5.10	LOS A	9.6
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	North	L2	29	67%	8.60	LOS A	9.6
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	North	R2	44	67%	17.87	LOS B	9.6
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	West	R2	71	122%	326.19	LOS F	21.2
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	West	T1	16	122%	294.18	LOS F	21.2
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	West	L2	51	122%	261.63	LOS F	21.2
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	South	R2	60	53%	8.97	LOS A	5.0
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	South	T1	406	53%	4.69	LOS A	5.0
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	South	L2	189	17%	5.00	LOS A	0.7
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	East	L2	124	27%	7.22	LOS A	1.1
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	East	R2	4	27%	38.55	LOS C	1.1
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	East	T1	18	27%	31.10	LOS C	1.1
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	North	T1	523	72%	8.16	LOS A	10.7
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	North	L2	46	72%	10.93	LOS A	10.7
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	North	R2	29	72%	24.40	LOS B	10.7
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	West	R2	96	118%	270.87	LOS F	19.7
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	West	T1	11	118%	249.97	LOS F	19.7
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	West	L2	36	118%	228.60	LOS F	19.7
H.09 Lakemba Street / Haldon Street AM Peak	Haldon St	South	R2	333	58%	33.68	LOS C	12.9
H.09 Lakemba Street / Haldon Street AM Peak	Haldon St	South	L2	147	31%	34.59	LOS C	5.4
H.09 Lakemba Street / Haldon Street AM Peak	Lakemba St	East	L2	381	25%	3.77	LOS A	0.2
H.09 Lakemba Street / Haldon Street AM Peak	Lakemba St	East	T1	282	27%	0.52	LOS A	0.3
H.09 Lakemba Street / Haldon Street AM Peak	Lakemba St	West	R2	216	59%	19.81	LOS B	10.7
H.09 Lakemba Street / Haldon Street AM Peak	Lakemba St	West	T1	570	59%	13.49	LOS A	11.6
H.09 Lakemba Street / Haldon Street PM Peak	Haldon St	South	R2	262	57%	37.43	LOS C	10.5
H.09 Lakemba Street / Haldon Street PM Peak	Haldon St	South	L2	200	51%	40.01	LOS C	8.2
H.09 Lakemba Street / Haldon Street PM Peak	Lakemba St	East	L2	418	27%	3.79	LOS A	0.3
H.09 Lakemba Street / Haldon Street PM Peak	Lakemba St	East	T1	539	46%	0.53	LOS A	0.9
H.09 Lakemba Street / Haldon Street PM Peak	Lakemba St	West	R2	195	50%	15.50	LOS B	7.8
H.09 Lakemba Street / Haldon Street PM Peak	Lakemba St	West	T1	491	50%	9.61	LOS A	8.2
H.10 Ped Crossing on The Boulevarde AM Peak	The Blvd	East	T1	493	31%	3.19	LOS A	4.7
H.10 Ped Crossing on The Boulevarde AM Peak	The Blvd	West	T1	661	49%	3.97	LOS A	9.0
H.10 Ped Crossing on The Boulevarde PM Peak	The Blvd	East	T1	661	42%	3.47	LOS A	6.8
H.10 Ped Crossing on The Boulevarde PM Peak	The Blvd	West	T1	549	41%	3.56	LOS A	6.5

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.21 Canterbury Rd / Haldon St - AM Peak	Canterbury Rd	East	R2	92	45%	22.66	LOS B	5.5
H.21 Canterbury Rd / Haldon St - AM Peak	Canterbury Rd	East	T1	810	45%	3.83	LOS A	12.1
H.21 Canterbury Rd / Haldon St - AM Peak	Haldon St	North	L2	72	90%	81.40	LOS F	13.0
H.21 Canterbury Rd / Haldon St - AM Peak	Haldon St	North	R2	272	90%	81.25	LOS F	13.0
H.21 Canterbury Rd / Haldon St - AM Peak	Canterbury Rd	West	T1	1655	59%	3.52	LOS A	10.6
H.21 Canterbury Rd / Haldon St - AM Peak	Canterbury Rd	West	L2	188	59%	9.14	LOS A	10.5
H.21 Canterbury Rd / Haldon St - PM Peak	Canterbury Rd	East	R2	117	56%	13.35	LOS A	13.5
H.21 Canterbury Rd / Haldon St - PM Peak	Canterbury Rd	East	T1	1457	56%	4.75	LOS A	13.5
H.21 Canterbury Rd / Haldon St - PM Peak	Haldon St	North	L2	86	88%	75.46	LOS F	14.9
H.21 Canterbury Rd / Haldon St - PM Peak	Haldon St	North	R2	322	88%	75.78	LOS F	14.9
H.21 Canterbury Rd / Haldon St - PM Peak	Canterbury Rd	West	T1	1230	69%	8.23	LOS A	16.2
H.21 Canterbury Rd / Haldon St - PM Peak	Canterbury Rd	West	L2	196	69%	13.86	LOS A	15.8

8.3 Lakemba Station: Future (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St S	South	T1	252	57%	24.16	LOS B	6.6
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St S	South	L2	46	20%	28.59	LOS C	2.0
B.07 The Boulevarde / Haldon Street AM Peak	The Boulevard E	East	L2	27	11%	15.08	LOS B	1.0
B.07 The Boulevarde / Haldon Street AM Peak	The Boulevard E	East	R2	57	50%	32.57	LOS C	4.4
B.07 The Boulevarde / Haldon Street AM Peak	The Boulevard E	East	T1	111	50%	23.52	LOS B	4.4
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St N	North	T1	256	56%	15.32	LOS B	9.3
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St N	North	L2	94	17%	10.08	LOS A	2.5
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St N	North	R2	169	56%	25.44	LOS B	9.3
B.07 The Boulevarde / Haldon Street AM Peak	The Bouldevard W	West	R2	46	58%	31.24	LOS C	6.6
B.07 The Boulevarde / Haldon Street AM Peak	The Bouldevard W	West	T1	167	58%	26.63	LOS B	6.6
B.07 The Boulevarde / Haldon Street AM Peak	The Bouldevard W	West	L2	191	18%	12.00	LOS A	3.0
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St S	South	T1	278	93%	43.30	LOS D	11.1
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St S	South	L2	100	49%	34.54	LOS C	3.1
B.07 The Boulevarde / Haldon Street PM Peak	The Boulevard E	East	L2	45	28%	17.86	LOS B	2.9
B.07 The Boulevarde / Haldon Street PM Peak	The Boulevard E	East	R2	126	93%	49.45	LOS D	10.3
B.07 The Boulevarde / Haldon Street PM Peak	The Boulevard E	East	T1	237	93%	29.74	LOS C	10.3
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St N	North	T1	321	91%	28.87	LOS C	17.8
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St N	North	L2	148	28%	14.36	LOS A	4.4
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St N	North	R2	233	91%	41.90	LOS C	17.8
B.07 The Boulevarde / Haldon Street PM Peak	The Bouldevard W	West	R2	48	57%	28.58	LOS C	6.1
B.07 The Boulevarde / Haldon Street PM Peak	The Bouldevard W	West	T1	169	57%	24.00	LOS B	6.1
B.07 The Boulevarde / Haldon Street PM Peak	The Bouldevard W	West	L2	252	23%	10.38	LOS A	3.4
H.07 Lakemba Street / Wangee Road AM Peak	Lakemba St	East	R2	32	12%	10.21	LOS A	1.5
H.07 Lakemba Street / Wangee Road AM Peak	Lakemba St	East	T1	214	12%	5.24	LOS A	2.3
H.07 Lakemba Street / Wangee Road AM Peak	Wangee Rd	North	L2	48	18%	43.18	LOS D	2.0
H.07 Lakemba Street / Wangee Road AM Peak	Wangee Rd	North	R2	272	89%	57.13	LOS E	14.5
H.07 Lakemba Street / Wangee Road AM Peak	Lakemba St	West	T1	331	25%	0.37	LOS A	0.4
H.07 Lakemba Street / Wangee Road AM Peak	Lakemba St	West	L2	262	17%	4.35	LOS A	1.2
H.07 Lakemba Street / Wangee Road PM Peak	Lakemba St	East	R2	63	30%	16.26	LOS B	5.2
H.07 Lakemba Street / Wangee Road PM Peak	Lakemba St	East	T1	480	30%	11.24	LOS A	7.5
H.07 Lakemba Street / Wangee Road PM Peak	Wangee Rd	North	L2	91	19%	33.74	LOS C	3.2
H.07 Lakemba Street / Wangee Road PM Peak	Wangee Rd	North	R2	427	89%	49.82	LOS D	21.9
H.07 Lakemba Street / Wangee Road PM Peak	Lakemba St	West	T1	372	35%	2.66	LOS A	2.4
H.07 Lakemba Street / Wangee Road PM Peak	Lakemba St	West	L2	307	20%	4.37	LOS A	1.4
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	South	R2	55	35%	5.98	LOS A	2.0
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	South	T1	290	35%	1.69	LOS A	2.0
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	South	L2	92	7%	4.48	LOS A	0.3
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	East	L2	54	9%	5.96	LOS A	0.3
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	East	R2	3	9%	21.88	LOS B	0.3
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	East	T1	8	9%	17.33	LOS B	0.3
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	North	T1	391	46%	2.46	LOS A	3.6
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	North	L2	18	46%	6.19	LOS A	3.6

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	North	R2	31	46%	10.70	LOS A	3.6
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	West	R2	49	33%	27.60	LOS B	1.3
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	West	T1	10	33%	19.76	LOS B	1.3
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	West	L2	33	33%	9.35	LOS A	1.3
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	South	R2	50	48%	7.68	LOS A	3.9
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	South	T1	370	48%	4.06	LOS A	3.9
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	South	L2	171	15%	4.96	LOS A	0.6
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	East	L2	110	22%	6.42	LOS A	0.8
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	East	R2	4	22%	31.75	LOS C	0.8
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	East	T1	16	22%	25.71	LOS B	0.8
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	North	T1	482	66%	6.75	LOS A	8.3
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	North	L2	42	66%	9.64	LOS A	8.3
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	North	R2	27	66%	20.99	LOS B	8.3
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	West	R2	86	82%	71.95	LOS F	4.3
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	West	T1	10	82%	58.74	LOS E	4.3
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	West	L2	33	82%	43.05	LOS D	4.3
H.09 Lakemba Street / Haldon Street AM Peak	Haldon St	South	R2	215	37%	30.59	LOS C	7.5
H.09 Lakemba Street / Haldon Street AM Peak	Haldon St	South	L2	105	21%	32.93	LOS C	3.7
H.09 Lakemba Street / Haldon Street AM Peak	Lakemba St	East	L2	272	18%	3.76	LOS A	0.2
H.09 Lakemba Street / Haldon Street AM Peak	Lakemba St	East	T1	201	19%	0.51	LOS A	0.2
H.09 Lakemba Street / Haldon Street AM Peak	Lakemba St	West	R2	154	37%	17.89	LOS B	6.6
H.09 Lakemba Street / Haldon Street AM Peak	Lakemba St	West	T1	365	37%	12.47	LOS A	6.6
H.09 Lakemba Street / Haldon Street PM Peak	Haldon St	South	R2	239	50%	35.95	LOS C	9.3
H.09 Lakemba Street / Haldon Street PM Peak	Haldon St	South	L2	185	45%	38.62	LOS C	7.4
H.09 Lakemba Street / Haldon Street PM Peak	Lakemba St	East	L2	385	25%	3.79	LOS A	0.2
H.09 Lakemba Street / Haldon Street PM Peak	Lakemba St	East	T1	496	43%	0.53	LOS A	0.8
H.09 Lakemba Street / Haldon Street PM Peak	Lakemba St	West	R2	179	44%	15.49	LOS B	7.3
H.09 Lakemba Street / Haldon Street PM Peak	Lakemba St	West	T1	447	44%	9.83	LOS A	7.3
H.10 Ped Crossing on The Boulevard AM Peak	The Blvd	East	T1	334	20%	2.90	LOS A	2.8
H.10 Ped Crossing on The Boulevard AM Peak	The Blvd	West	T1	411	29%	3.24	LOS A	4.6
H.10 Ped Crossing on The Boulevard PM Peak	The Blvd	East	T1	587	35%	3.23	LOS A	5.4
H.10 Ped Crossing on The Boulevard PM Peak	The Blvd	West	T1	481	35%	3.34	LOS A	5.3
H.21 Canterbury Rd / Haldon St - AM Peak	Canterbury Rd	East	R2	55	24%	8.12	LOS A	2.2
H.21 Canterbury Rd / Haldon St - AM Peak	Canterbury Rd	East	T1	576	24%	2.21	LOS A	5.3
H.21 Canterbury Rd / Haldon St - AM Peak	Haldon St	North	L2	40	87%	80.47	LOS F	8.5
H.21 Canterbury Rd / Haldon St - AM Peak	Haldon St	North	R2	186	87%	80.57	LOS F	8.5
H.21 Canterbury Rd / Haldon St - AM Peak	Canterbury Rd	West	T1	1061	36%	1.31	LOS A	2.4
H.21 Canterbury Rd / Haldon St - AM Peak	Canterbury Rd	West	L2	118	36%	6.91	LOS A	2.4
H.21 Canterbury Rd / Haldon St - PM Peak	Canterbury Rd	East	R2	99	49%	10.21	LOS A	9.3
H.21 Canterbury Rd / Haldon St - PM Peak	Canterbury Rd	East	T1	1342	49%	3.43	LOS A	9.6
H.21 Canterbury Rd / Haldon St - PM Peak	Haldon St	North	L2	68	88%	77.22	LOS F	13.2
H.21 Canterbury Rd / Haldon St - PM Peak	Haldon St	North	R2	286	88%	77.66	LOS F	13.2
H.21 Canterbury Rd / Haldon St - PM Peak	Canterbury Rd	West	T1	1120	57%	7.32	LOS A	11.8
H.21 Canterbury Rd / Haldon St - PM Peak	Canterbury Rd	West	L2	172	57%	12.91	LOS A	11.6

8.4 Lakemba Station: Future + Construction (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St S	South	T1	260	59%	23.58	LOS B	7.0
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St S	South	L2	53	21%	28.80	LOS C	2.0
B.07 The Boulevarde / Haldon Street AM Peak	The Boulevard E	East	L2	37	11%	15.22	LOS B	1.1
B.07 The Boulevarde / Haldon Street AM Peak	The Boulevard E	East	R2	57	51%	32.63	LOS C	4.6
B.07 The Boulevarde / Haldon Street AM Peak	The Boulevard E	East	T1	111	51%	24.45	LOS B	4.6
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St N	North	T1	264	59%	15.64	LOS B	9.5
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St N	North	L2	94	18%	10.13	LOS A	2.7
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St N	North	R2	169	59%	26.47	LOS B	9.5
B.07 The Boulevarde / Haldon Street AM Peak	The Bouldevard W	West	R2	51	61%	31.79	LOS C	6.9
B.07 The Boulevarde / Haldon Street AM Peak	The Bouldevard W	West	T1	167	61%	27.10	LOS B	6.9
B.07 The Boulevarde / Haldon Street AM Peak	The Bouldevard W	West	L2	191	19%	12.53	LOS A	3.1
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St S	South	T1	286	99%	63.74	LOS E	14.2
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St S	South	L2	107	56%	35.17	LOS C	3.4
B.07 The Boulevarde / Haldon Street PM Peak	The Boulevard E	East	L2	54	28%	16.58	LOS B	3.1
B.07 The Boulevarde / Haldon Street PM Peak	The Boulevard E	East	R2	126	94%	52.36	LOS D	10.7
B.07 The Boulevarde / Haldon Street PM Peak	The Boulevard E	East	T1	237	94%	30.64	LOS C	10.7
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St N	North	T1	329	98%	43.32	LOS D	22.7
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St N	North	L2	148	30%	15.11	LOS B	4.7
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St N	North	R2	233	98%	64.21	LOS E	22.7
B.07 The Boulevarde / Haldon Street PM Peak	The Bouldevard W	West	R2	53	62%	30.12	LOS C	6.5
B.07 The Boulevarde / Haldon Street PM Peak	The Bouldevard W	West	T1	169	62%	25.46	LOS B	6.5
B.07 The Boulevarde / Haldon Street PM Peak	The Bouldevard W	West	L2	252	23%	10.38	LOS A	3.4
H.07 Lakemba Street / Wangee Road AM Peak	Lakemba St	East	R2	32	12%	10.21	LOS A	1.5
H.07 Lakemba Street / Wangee Road AM Peak	Lakemba St	East	T1	214	12%	5.24	LOS A	2.3
H.07 Lakemba Street / Wangee Road AM Peak	Wangee Rd	North	L2	48	18%	43.18	LOS D	2.0
H.07 Lakemba Street / Wangee Road AM Peak	Wangee Rd	North	R2	272	89%	57.13	LOS E	14.5
H.07 Lakemba Street / Wangee Road AM Peak	Lakemba St	West	T1	331	25%	0.37	LOS A	0.4
H.07 Lakemba Street / Wangee Road AM Peak	Lakemba St	West	L2	262	17%	4.35	LOS A	1.2
H.07 Lakemba Street / Wangee Road PM Peak	Lakemba St	East	R2	63	30%	16.26	LOS B	5.2
H.07 Lakemba Street / Wangee Road PM Peak	Lakemba St	East	T1	480	30%	11.24	LOS A	7.5
H.07 Lakemba Street / Wangee Road PM Peak	Wangee Rd	North	L2	91	19%	33.74	LOS C	3.2
H.07 Lakemba Street / Wangee Road PM Peak	Wangee Rd	North	R2	427	89%	49.82	LOS D	21.9
H.07 Lakemba Street / Wangee Road PM Peak	Lakemba St	West	T1	372	35%	2.66	LOS A	2.4
H.07 Lakemba Street / Wangee Road PM Peak	Lakemba St	West	L2	307	20%	4.37	LOS A	1.4
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	South	R2	60	36%	6.19	LOS A	2.0
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	South	T1	290	36%	1.70	LOS A	2.0
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	South	L2	95	8%	4.50	LOS A	0.3
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	East	L2	59	10%	6.18	LOS A	0.4
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	East	R2	3	10%	22.51	LOS B	0.4
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	East	T1	8	10%	17.88	LOS B	0.4
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	North	T1	391	46%	2.46	LOS A	3.7
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	North	L2	18	46%	6.19	LOS A	3.7

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	North	R2	31	46%	10.74	LOS A	3.7
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	West	R2	52	39%	32.29	LOS C	1.5
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	West	T1	10	39%	21.64	LOS B	1.5
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	West	L2	33	39%	10.80	LOS A	1.5
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	South	R2	55	48%	8.04	LOS A	4.1
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	South	T1	370	48%	4.14	LOS A	4.1
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	South	L2	174	15%	4.98	LOS A	0.7
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	East	L2	114	23%	6.55	LOS A	0.8
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	East	R2	4	23%	32.49	LOS C	0.8
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	East	T1	16	23%	26.36	LOS B	0.8
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	North	T1	482	66%	6.76	LOS A	8.3
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	North	L2	42	66%	9.64	LOS A	8.3
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	North	R2	27	66%	21.05	LOS B	8.3
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	West	R2	89	91%	99.86	LOS F	6.0
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	West	T1	10	91%	83.88	LOS F	6.0
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	West	L2	33	91%	67.64	LOS E	6.0
H.09 Lakemba Street / Haldon Street AM Peak	Haldon St	South	R2	215	37%	30.59	LOS C	7.5
H.09 Lakemba Street / Haldon Street AM Peak	Haldon St	South	L2	105	21%	32.93	LOS C	3.7
H.09 Lakemba Street / Haldon Street AM Peak	Lakemba St	East	L2	272	18%	3.76	LOS A	0.2
H.09 Lakemba Street / Haldon Street AM Peak	Lakemba St	East	T1	201	19%	0.51	LOS A	0.2
H.09 Lakemba Street / Haldon Street AM Peak	Lakemba St	West	R2	154	37%	17.89	LOS B	6.6
H.09 Lakemba Street / Haldon Street AM Peak	Lakemba St	West	T1	365	37%	12.47	LOS A	6.6
H.09 Lakemba Street / Haldon Street PM Peak	Haldon St	South	R2	239	50%	35.95	LOS C	9.3
H.09 Lakemba Street / Haldon Street PM Peak	Haldon St	South	L2	185	45%	38.62	LOS C	7.4
H.09 Lakemba Street / Haldon Street PM Peak	Lakemba St	East	L2	385	25%	3.79	LOS A	0.2
H.09 Lakemba Street / Haldon Street PM Peak	Lakemba St	East	T1	496	43%	0.53	LOS A	0.8
H.09 Lakemba Street / Haldon Street PM Peak	Lakemba St	West	R2	179	44%	15.49	LOS B	7.3
H.09 Lakemba Street / Haldon Street PM Peak	Lakemba St	West	T1	447	44%	9.83	LOS A	7.3
H.10 Ped Crossing on The Boulevard AM Peak	The Blvd	East	T1	341	20%	2.92	LOS A	2.9
H.10 Ped Crossing on The Boulevard AM Peak	The Blvd	West	T1	415	30%	3.26	LOS A	4.6
H.10 Ped Crossing on The Boulevard PM Peak	The Blvd	East	T1	594	36%	3.25	LOS A	5.5
H.10 Ped Crossing on The Boulevard PM Peak	The Blvd	West	T1	486	35%	3.36	LOS A	5.4
H.21 Canterbury Rd / Haldon St - AM Peak	Canterbury Rd	East	R2	63	26%	8.59	LOS A	2.0
H.21 Canterbury Rd / Haldon St - AM Peak	Canterbury Rd	East	T1	576	26%	2.37	LOS A	5.8
H.21 Canterbury Rd / Haldon St - AM Peak	Haldon St	North	L2	51	92%	86.55	LOS F	9.7
H.21 Canterbury Rd / Haldon St - AM Peak	Haldon St	North	R2	197	92%	86.06	LOS F	9.7
H.21 Canterbury Rd / Haldon St - AM Peak	Canterbury Rd	West	T1	1061	37%	1.67	LOS A	3.1
H.21 Canterbury Rd / Haldon St - AM Peak	Canterbury Rd	West	L2	125	37%	7.33	LOS A	3.0
H.21 Canterbury Rd / Haldon St - PM Peak	Canterbury Rd	East	R2	107	50%	11.17	LOS A	10.2
H.21 Canterbury Rd / Haldon St - PM Peak	Canterbury Rd	East	T1	1342	50%	3.78	LOS A	10.2
H.21 Canterbury Rd / Haldon St - PM Peak	Haldon St	North	L2	79	92%	83.19	LOS F	14.6
H.21 Canterbury Rd / Haldon St - PM Peak	Haldon St	North	R2	298	92%	83.21	LOS F	14.6
H.21 Canterbury Rd / Haldon St - PM Peak	Canterbury Rd	West	T1	1120	58%	7.47	LOS A	12.2
H.21 Canterbury Rd / Haldon St - PM Peak	Canterbury Rd	West	L2	180	58%	13.10	LOS A	11.9

8.5 Lakemba Station: Future + Construction + Refined (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St S	South	T1	260	63%	24.91	LOS B	7.2
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St S	South	L2	53	22%	29.80	LOS C	2.1
B.07 The Boulevarde / Haldon Street AM Peak	The Boulevard E	East	L2	37	12%	14.64	LOS B	1.2
B.07 The Boulevarde / Haldon Street AM Peak	The Boulevard E	East	R2	57	54%	32.11	LOS C	4.9
B.07 The Boulevarde / Haldon Street AM Peak	The Boulevard E	East	T1	127	54%	23.50	LOS B	4.9
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St N	North	T1	264	64%	17.27	LOS B	9.9
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St N	North	L2	94	19%	11.57	LOS A	3.0
B.07 The Boulevarde / Haldon Street AM Peak	Haldon St N	North	R2	169	64%	28.61	LOS C	9.9
B.07 The Boulevarde / Haldon Street AM Peak	The Bouldevard W	West	R2	51	65%	32.44	LOS C	7.5
B.07 The Boulevarde / Haldon Street AM Peak	The Bouldevard W	West	T1	183	65%	27.75	LOS B	7.5
B.07 The Boulevarde / Haldon Street AM Peak	The Bouldevard W	West	L2	191	22%	12.25	LOS A	3.1
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St S	South	T1	286	99%	63.74	LOS E	14.2
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St S	South	L2	107	56%	35.17	LOS C	3.4
B.07 The Boulevarde / Haldon Street PM Peak	The Boulevard E	East	L2	54	29%	17.29	LOS B	3.1
B.07 The Boulevarde / Haldon Street PM Peak	The Boulevard E	East	R2	126	98%	66.86	LOS E	13.0
B.07 The Boulevarde / Haldon Street PM Peak	The Boulevard E	East	T1	253	98%	38.89	LOS C	13.0
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St N	North	T1	329	103%	59.35	LOS E	27.1
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St N	North	L2	148	32%	15.81	LOS B	5.0
B.07 The Boulevarde / Haldon Street PM Peak	Haldon St N	North	R2	233	103%	88.85	LOS F	27.1
B.07 The Boulevarde / Haldon Street PM Peak	The Bouldevard W	West	R2	53	63%	28.80	LOS C	6.8
B.07 The Boulevarde / Haldon Street PM Peak	The Bouldevard W	West	T1	185	63%	24.14	LOS B	6.8
B.07 The Boulevarde / Haldon Street PM Peak	The Bouldevard W	West	L2	252	24%	10.46	LOS A	3.5
H.07 Lakemba Street / Wangee Road AM Peak	Lakemba St	East	R2	32	12%	10.21	LOS A	1.5
H.07 Lakemba Street / Wangee Road AM Peak	Lakemba St	East	T1	214	12%	5.24	LOS A	2.3
H.07 Lakemba Street / Wangee Road AM Peak	Wangee Rd	North	L2	48	18%	43.18	LOS D	2.0
H.07 Lakemba Street / Wangee Road AM Peak	Wangee Rd	North	R2	272	89%	57.13	LOS E	14.5
H.07 Lakemba Street / Wangee Road AM Peak	Lakemba St	West	T1	331	25%	0.37	LOS A	0.4
H.07 Lakemba Street / Wangee Road AM Peak	Lakemba St	West	L2	262	17%	4.35	LOS A	1.2
H.07 Lakemba Street / Wangee Road PM Peak	Lakemba St	East	R2	63	30%	16.26	LOS B	5.2
H.07 Lakemba Street / Wangee Road PM Peak	Lakemba St	East	T1	480	30%	11.24	LOS A	7.5
H.07 Lakemba Street / Wangee Road PM Peak	Wangee Rd	North	L2	91	19%	33.74	LOS C	3.2
H.07 Lakemba Street / Wangee Road PM Peak	Wangee Rd	North	R2	427	89%	49.82	LOS D	21.9
H.07 Lakemba Street / Wangee Road PM Peak	Lakemba St	West	T1	372	35%	2.66	LOS A	2.4
H.07 Lakemba Street / Wangee Road PM Peak	Lakemba St	West	L2	307	20%	4.37	LOS A	1.4
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	South	R2	60	36%	6.19	LOS A	2.0
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	South	T1	290	36%	1.70	LOS A	2.0
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	South	L2	95	8%	4.50	LOS A	0.3
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	East	L2	59	10%	6.18	LOS A	0.4
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	East	R2	3	10%	22.51	LOS B	0.4
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	East	T1	8	10%	17.88	LOS B	0.4
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	North	T1	391	46%	2.46	LOS A	3.7
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	North	L2	18	46%	6.19	LOS A	3.7

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.08 Haldon Street / Railway Parade AM Peak	Haldon St	North	R2	31	46%	10.74	LOS A	3.7
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	West	R2	52	39%	32.29	LOS C	1.5
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	West	T1	10	39%	21.64	LOS B	1.5
H.08 Haldon Street / Railway Parade AM Peak	Railway Pde	West	L2	33	39%	10.80	LOS A	1.5
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	South	R2	55	48%	8.04	LOS A	4.1
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	South	T1	370	48%	4.14	LOS A	4.1
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	South	L2	174	15%	4.98	LOS A	0.7
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	East	L2	114	23%	6.55	LOS A	0.8
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	East	R2	4	23%	32.49	LOS C	0.8
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	East	T1	16	23%	26.36	LOS B	0.8
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	North	T1	482	66%	6.76	LOS A	8.3
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	North	L2	42	66%	9.64	LOS A	8.3
H.08 Haldon Street / Railway Parade PM Peak	Haldon St	North	R2	27	66%	21.05	LOS B	8.3
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	West	R2	89	91%	99.86	LOS F	6.0
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	West	T1	10	91%	83.88	LOS F	6.0
H.08 Haldon Street / Railway Parade PM Peak	Railway Pde	West	L2	33	91%	67.64	LOS E	6.0
H.09 Lakemba Street / Haldon Street AM Peak	Haldon St	South	R2	215	37%	30.59	LOS C	7.5
H.09 Lakemba Street / Haldon Street AM Peak	Haldon St	South	L2	105	21%	32.93	LOS C	3.7
H.09 Lakemba Street / Haldon Street AM Peak	Lakemba St	East	L2	272	18%	3.76	LOS A	0.2
H.09 Lakemba Street / Haldon Street AM Peak	Lakemba St	East	T1	201	19%	0.51	LOS A	0.2
H.09 Lakemba Street / Haldon Street AM Peak	Lakemba St	West	R2	154	37%	17.89	LOS B	6.6
H.09 Lakemba Street / Haldon Street AM Peak	Lakemba St	West	T1	365	37%	12.47	LOS A	6.6
H.09 Lakemba Street / Haldon Street PM Peak	Haldon St	South	R2	239	50%	35.95	LOS C	9.3
H.09 Lakemba Street / Haldon Street PM Peak	Haldon St	South	L2	185	45%	38.62	LOS C	7.4
H.09 Lakemba Street / Haldon Street PM Peak	Lakemba St	East	L2	385	25%	3.79	LOS A	0.2
H.09 Lakemba Street / Haldon Street PM Peak	Lakemba St	East	T1	496	43%	0.53	LOS A	0.8
H.09 Lakemba Street / Haldon Street PM Peak	Lakemba St	West	R2	179	44%	15.49	LOS B	7.3
H.09 Lakemba Street / Haldon Street PM Peak	Lakemba St	West	T1	447	44%	9.83	LOS A	7.3
H.10 Ped Crossing on The Boulevard AM Peak	The Blvd	East	T1	357	23%	2.98	LOS A	3.1
H.10 Ped Crossing on The Boulevard AM Peak	The Blvd	West	T1	431	32%	3.34	LOS A	4.9
H.10 Ped Crossing on The Boulevard PM Peak	The Blvd	East	T1	477	31%	3.13	LOS A	4.4
H.10 Ped Crossing on The Boulevard PM Peak	The Blvd	West	T1	360	27%	3.12	LOS A	3.7
H.21 Canterbury Rd / Haldon St - AM Peak	Canterbury Rd	East	R2	63	26%	8.59	LOS A	2.0
H.21 Canterbury Rd / Haldon St - AM Peak	Canterbury Rd	East	T1	576	26%	2.37	LOS A	5.8
H.21 Canterbury Rd / Haldon St - AM Peak	Haldon St	North	L2	51	92%	86.55	LOS F	9.7
H.21 Canterbury Rd / Haldon St - AM Peak	Haldon St	North	R2	197	92%	86.06	LOS F	9.7
H.21 Canterbury Rd / Haldon St - AM Peak	Canterbury Rd	West	T1	1061	37%	1.67	LOS A	3.1
H.21 Canterbury Rd / Haldon St - AM Peak	Canterbury Rd	West	L2	125	37%	7.33	LOS A	3.0
H.21 Canterbury Rd / Haldon St - PM Peak	Canterbury Rd	East	R2	107	50%	11.17	LOS A	10.2
H.21 Canterbury Rd / Haldon St - PM Peak	Canterbury Rd	East	T1	1342	50%	3.78	LOS A	10.2
H.21 Canterbury Rd / Haldon St - PM Peak	Haldon St	North	L2	79	92%	83.19	LOS F	14.6
H.21 Canterbury Rd / Haldon St - PM Peak	Haldon St	North	R2	298	92%	83.21	LOS F	14.6
H.21 Canterbury Rd / Haldon St - PM Peak	Canterbury Rd	West	T1	1120	58%	7.47	LOS A	12.2
H.21 Canterbury Rd / Haldon St - PM Peak	Canterbury Rd	West	L2	180	58%	13.10	LOS A	11.9

9.0 Wiley Park Station

9.1 Wiley Park Station: Future

Note: Wiley Park Station was modelled in LinSig

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn.	Average Delay (sec)	Level of Service	Mean Maximum Queue (Veh)
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Road	North	Left Ahead	1173	95%	46.3	LOS D	51.4
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Road	North	Ahead	1159	93%	43.1	LOS D	49.3
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Road	North	Ahead	151	12%	12.2	LOS A	2.5
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Road	South	Ahead Left	1114	73%	5.5	LOS A	3.2
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Road	South	Ahead	1127	74%	5.6	LOS A	3.1
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Road	South	Ahead Right	1082	79%	14.7	LOS B	25.5
H.06 King Georges Road / Lakemba Street AM Peak	Lakemba Street	West	Left Ahead Right	366	89%	97.9	LOS F	15.2
H.06 King Georges Road / Lakemba Street AM Peak	Lakemba Street	East	Right Ahead Left	311	74%	68.1	LOS E	8
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Road	South	Ahead Left	1013	90%	42.6	LOS C	41.1
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Road	South	Ahead	1011	90%	42.3	LOS C	40.9
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Road	South	Ahead	1002	89%	41.1	LOS C	40
B.06 King Georges Road / The Boulevarde AM Peak	The Boulevarde	East	Right Left Ahead	384	72%	111.9	LOS F	11.5
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Road	North	Ahead Left	1193	88%	14.6	LOS B	12.2
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Road	North	Ahead	1238	91%	16.8	LOS B	9.5
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Road	North	Ahead Right	165	95%	157.5	LOS F	11.1
B.06 King Georges Road / The Boulevarde AM Peak	The Boulevarde	West	Left Ahead	462	98%	124.7	LOS F	21.5
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Road	North	Left Ahead	1091	94%	48.4	LOS D	47.9
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Road	North	Ahead	1077	93%	45.3	LOS D	45.6
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Road	North	Ahead	551	47%	19.7	LOS B	13.2
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Road	South	Ahead Left	1039	72%	5.1	LOS A	2.7
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Road	South	Ahead	1052	73%	5.1	LOS A	4.6
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Road	South	Ahead Right	661	96%	56.9	LOS D	15.4
H.06 King Georges Road / Lakemba Street PM Peak	Lakemba Street	West	Left Ahead Right	214	67%	71.6	LOS F	4.9
H.06 King Georges Road / Lakemba Street PM Peak	Lakemba Street	East	Right Ahead Left	592	92%	81.4	LOS F	18
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Road	South	Ahead Left	916	96%	68	LOS E	44.4
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Road	South	Ahead	916	96%	68	LOS E	44.4
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Road	South	Ahead	638	67%	34.3	LOS C	21
B.06 King Georges Road / The Boulevarde PM Peak	The Boulevarde	East	Right Left Ahead	592	93%	97.5	LOS F	22.7
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Road	North	Ahead Left	1168	88%	16.9	LOS B	17.7
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Road	North	Ahead	1198	91%	17.1	LOS B	10.2
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Road	North	Ahead Right	584	95%	67	LOS E	18.1
B.06 King Georges Road / The Boulevarde PM Peak	The Boulevarde	West	Left Ahead	420	91%	88	LOS F	14.2

9.2 Wiley Park Station: Future + Construction + Refined Baseline TTP

Note: Wiley Park Station was modelled in LinSig

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn.	Average Delay (sec)	Level of Service	Mean Maximum Queue (Veh)
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Road	North	Left Ahead	1178	94%	43.9	LOS D	50.4
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Road	North	Ahead	1160	93%	40.3	LOS C	47.7
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Road	North	Ahead	145	12%	11.8	LOS A	2.4
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Road	South	Ahead Left	1131	74%	5.7	LOS A	3.5
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Road	South	Ahead	1131	75%	5.6	LOS A	3
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Road	South	Ahead Right	1091	82%	15.3	LOS B	27.6
H.06 King Georges Road / Lakemba Street AM Peak	Lakemba Street	West	Left Ahead Right	381	95%	116	LOS F	18.3
H.06 King Georges Road / Lakemba Street AM Peak	Lakemba Street	East	Right Ahead Left	311	79%	74	LOS F	8.5
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Road	South	Ahead Left	1019	96%	63.1	LOS E	49.1
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Road	South	Ahead	1019	96%	63.1	LOS E	49.1
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Road	South	Ahead	1018	96%	62.6	LOS E	49
B.06 King Georges Road / The Boulevarde AM Peak	The Boulevarde	East	Right Left Ahead	418	70%	102.9	LOS F	11.3
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Road	North	Ahead Left	1213	94%	26.9	LOS B	41.5
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Road	North	Ahead	1224	95%	24.3	LOS B	24
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Road	North	Ahead Right	159	95%	162.5	LOS F	11
B.06 King Georges Road / The Boulevarde AM Peak	The Boulevarde	West	Left Ahead	507	95%	99.6	LOS F	21.1
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Road	North	Left Ahead	1106	94%	48.4	LOS D	48.7
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Road	North	Ahead	1092	93%	45.2	LOS D	46.3
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Road	North	Ahead	521	44%	18.6	LOS B	12
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Road	South	Ahead Left	1002	68%	4.7	LOS A	2.5
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Road	South	Ahead	990	68%	4.3	LOS A	1.9
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Road	South	Ahead Right	790	96%	48.2	LOS D	23.7
H.06 King Georges Road / Lakemba Street PM Peak	Lakemba Street	West	Left Ahead Right	229	64%	69.2	LOS E	5
H.06 King Georges Road / Lakemba Street PM Peak	Lakemba Street	East	Right Ahead Left	592	98%	111.7	LOS F	23
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Road	South	Ahead Left	867	93%	60.5	LOS E	39.7
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Road	South	Ahead	866	93%	60.2	LOS E	39.3
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Road	South	Ahead	767	82%	44.2	LOS D	29.8
B.06 King Georges Road / The Boulevarde PM Peak	The Boulevarde	East	Right Left Ahead	626	95%	100.5	LOS F	25.2
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Road	North	Ahead Left	1188	92%	22.2	LOS B	32.7
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Road	North	Ahead	1201	93%	20.9	LOS B	11.7
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Road	North	Ahead Right	561	95%	69.2	LOS E	17.9
B.06 King Georges Road / The Boulevarde PM Peak	The Boulevarde	West	Left Ahead	465	97%	108.6	LOS F	19.5

9.3 Wiley Park Station: Future (Christmas Possession Period)

Note: Wiley Park Station was modelled in LinSig

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level Of Service	Mean Max Queue (Veh)
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Rd	South	Ahead Left	694	63.1%	26.4	LOS C	20.3
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Rd	South	Ahead	700	63.7%	26.5	LOS C	20.5
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Rd	South	Ahead	559	50.8%	23.1	LOS C	14.6
B.06 King Georges Road / The Boulevarde AM Peak	The boulevarde	East	Right Left Ahead	263	49.6%	71.2	LOS E	6.5
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Rd	North	Ahead Left	671	49.4%	7	LOS A	5.2
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Rd	North	Ahead	695	51.2%	6.3	LOS A	4.2
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Rd	North	Ahead Right	489	61.3%	21.9	LOS C	5.5
B.06 King Georges Road / The Boulevarde AM Peak	The boulevarde	West	Left Ahead	297	63.4%	61.6	LOS E	7.9
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Rd	North	Left Ahead	666	52.5%	16.7	LOS B	15.2
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Rd	North	Ahead	635	50.1%	16.2	LOS B	14.1
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Rd	North	Ahead	464	36.6%	14.1	LOS B	9.1
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Rd	South	Ahead Left	794	51.9%	3	LOS A	1.4
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Rd	South	Ahead	762	50.1%	2.7	LOS A	1
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Rd	South	Ahead Right	584	57.9%	15.2	LOS B	4.9
H.06 King Georges Road / Lakemba Street AM Peak	Lakemba St	West	Left Ahead Right	242	60.6%	71.1	LOS E	6.1
H.06 King Georges Road / Lakemba Street AM Peak	Lakemba St	East	Right Ahead Left	217	41.2%	56.9	LOS E	4.7
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Rd	South	Ahead Left	828	87.7%	49.1	LOS D	34.2
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Rd	South	Ahead	829	87.8%	49.3	LOS D	34.3
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Rd	South	Ahead	593	62.8%	33.6	LOS C	19
B.06 King Georges Road / The Boulevarde PM Peak	The boulevarde	East	Right Left Ahead	542	85.5%	77	LOS E	18.1
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Rd	North	Ahead Left	1029	77.9%	11.1	LOS B	9.4
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Rd	North	Ahead	1073	81.3%	10.8	LOS B	7.6
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Rd	North	Ahead Right	614	86.5%	39.8	LOS D	13.4
B.06 King Georges Road / The Boulevarde PM Peak	The boulevarde	West	Left Ahead	382	82.9%	72.5	LOS E	11.3
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Rd	North	Left Ahead	972	83.5%	33.2	LOS C	34.9
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Rd	North	Ahead	953	81.9%	31.9	LOS C	33.2
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Rd	North	Ahead	576	49.5%	20.1	LOS C	14.1
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Rd	South	Ahead Left	947	65.2%	4.1	LOS A	2.2
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Rd	South	Ahead	932	64.2%	3.9	LOS A	1.7
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Rd	South	Ahead Right	626	82.3%	30	LOS C	9.8
H.06 King Georges Road / Lakemba Street PM Peak	Lakemba St	West	Left Ahead Right	197	62.2%	70.6	LOS E	4.4
H.06 King Georges Road / Lakemba Street PM Peak	Lakemba St	East	Right Ahead Left	543	86.2%	69.7	LOS E	14.5

9.4 Wiley Park Station: Future + Construction (Christmas Possession Period)

Note: Wiley Park Station was modelled in LinSig

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay	Level Of Service	Mean Max Queue (Veh)
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Rd	South	Ahead Left	683	62.9%	26.9	LOS C	20
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Rd	South	Ahead	684	63.0%	26.9	LOS C	20
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Rd	South	Ahead	616	56.7%	25.1	LOS C	17.1
B.06 King Georges Road / The Boulevarde AM Peak	The boulevarde	East	Right Left Ahead	267	49.2%	70	LOS E	6.6
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Rd	North	Ahead Left	636	47.2%	6	LOS A	4
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Rd	North	Ahead	693	51.5%	5.5	LOS A	3.8
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Rd	North	Ahead Right	526	61.3%	18.9	LOS B	5.5
B.06 King Georges Road / The Boulevarde AM Peak	The boulevarde	West	Left Ahead	312	62.2%	59.3	LOS E	7.7
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Rd	North	Left Ahead	639	51.5%	17.5	LOS B	14.7
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Rd	North	Ahead	622	50.1%	17.2	LOS B	14.2
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Rd	North	Ahead	504	40.6%	15.6	LOS B	10.4
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Rd	South	Ahead Left	762	50.2%	3.5	LOS A	1.9
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Rd	South	Ahead	755	50.1%	3.3	LOS A	1.7
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Rd	South	Ahead Right	653	61.8%	15.3	LOS B	5.4
H.06 King Georges Road / Lakemba Street AM Peak	Lakemba St	West	Left Ahead Right	257	62.5%	70.5	LOS E	6.8
H.06 King Georges Road / Lakemba Street AM Peak	Lakemba St	East	Right Ahead Left	217	41.4%	55.9	LOS E	4.7
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Rd	South	Ahead Left	875	89.0%	48.8	LOS D	36.4
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Rd	South	Ahead	875	89.0%	48.8	LOS D	36.4
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Rd	South	Ahead	530	53.9%	29.1	LOS C	15.5
B.06 King Georges Road / The Boulevarde PM Peak	The boulevarde	East	Right Left Ahead	546	89.8%	88.9	LOS F	19.7
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Rd	North	Ahead Left	1027	77.0%	10.9	LOS B	8.9
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Rd	North	Ahead	1073	80.5%	10.1	LOS B	7.5
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Rd	North	Ahead Right	616	90.0%	46	LOS D	14.6
B.06 King Georges Road / The Boulevarde PM Peak	The boulevarde	West	Left Ahead	397	83.1%	72.2	LOS E	11.3
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Rd	North	Left Ahead	972	84.4%	34.6	LOS C	35.6
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Rd	North	Ahead	943	81.9%	32.6	LOS C	33.1
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Rd	North	Ahead	586	50.9%	21	LOS C	14.7
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Rd	South	Ahead Left	975	66.6%	4.5	LOS A	2.3
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Rd	South	Ahead	994	68.2%	4.5	LOS A	2
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Rd	South	Ahead Right	566	84.0%	35.2	LOS D	10.5
H.06 King Georges Road / Lakemba Street PM Peak	Lakemba St	West	Left Ahead Right	212	61.7%	69	LOS E	4.6
H.06 King Georges Road / Lakemba Street PM Peak	Lakemba St	East	Right Ahead Left	543	86.2%	69.5	LOS E	14.5

9.5 Wiley Park Station: Future + Construction + Refined TTS (Christmas Possession Period)

Note: Wiley Park Station was modelled in LinSig

Scenario	Approach Name	Approach Direction	OD Movement	Demand	Deg. Satn	Average Delay (sec)	Level Of Service	Mean Max Queue (Veh)
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Rd	South	Ahead Left	682	65.1%	29.4	LOS C	21
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Rd	South	Ahead	681	65.0%	29.3	LOS C	21
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Rd	South	Ahead	620	59.2%	27.5	LOS C	18.1
B.06 King Georges Road / The Boulevarde AM Peak	The boulevarde	East	Right Left Ahead	297	49.9%	66.6	LOS E	7.5
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Rd	North	Ahead Left	709	54.8%	7.7	LOS A	5.3
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Rd	North	Ahead	723	55.9%	7	LOS A	4.6
B.06 King Georges Road / The Boulevarde AM Peak	King Georges Rd	North	Ahead Right	423	65.7%	26.2	LOS C	5.7
B.06 King Georges Road / The Boulevarde AM Peak	The boulevarde	West	Left Ahead	342	64.7%	57.7	LOS E	8.9
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Rd	North	Left Ahead	708	57.0%	18.7	LOS B	17.4
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Rd	North	Ahead	656	52.8%	17.8	LOS B	15.3
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Rd	North	Ahead	401	32.3%	14.4	LOS B	7.8
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Rd	South	Ahead Left	745	48.6%	2.7	LOS A	1
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Rd	South	Ahead	737	48.5%	2.6	LOS A	0.9
H.06 King Georges Road / Lakemba Street AM Peak	King Georges Rd	South	Ahead Right	688	57.9%	13.1	LOS B	5.2
H.06 King Georges Road / Lakemba Street AM Peak	Lakemba St	West	Left Ahead Right	257	64.8%	72.6	LOS E	7
H.06 King Georges Road / Lakemba Street AM Peak	Lakemba St	East	Right Ahead Left	217	43.5%	57	LOS E	4.7
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Rd	South	Ahead Left	890	91.8%	54.7	LOS D	39.1
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Rd	South	Ahead	890	91.8%	54.7	LOS D	39.1
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Rd	South	Ahead	500	51.5%	29.1	LOS C	14.6
B.06 King Georges Road / The Boulevarde PM Peak	The boulevarde	East	Right Left Ahead	576	92.8%	95.2	LOS F	22.3
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Rd	North	Ahead Left	1030	78.0%	11.4	LOS B	10
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Rd	North	Ahead	1079	81.8%	10.7	LOS B	7.9
B.06 King Georges Road / The Boulevarde PM Peak	King Georges Rd	North	Ahead Right	607	90.0%	46.6	LOS D	14.5
B.06 King Georges Road / The Boulevarde PM Peak	The boulevarde	West	Left Ahead	427	91.3%	88.1	LOS F	14.6
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Rd	North	Left Ahead	976	84.8%	34.9	LOS C	35.8
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Rd	North	Ahead	948	82.4%	32.9	LOS C	33.6
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Rd	North	Ahead	577	50.1%	20.8	LOS C	14.3
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Rd	South	Ahead Left	993	67.8%	4.6	LOS A	2.3
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Rd	South	Ahead	1006	69.0%	4.6	LOS A	2.1
H.06 King Georges Road / Lakemba Street PM Peak	King Georges Rd	South	Ahead Right	536	84.0%	37.1	LOS D	10.5
H.06 King Georges Road / Lakemba Street PM Peak	Lakemba St	West	Left Ahead Right	212	61.7%	69	LOS E	4.6
H.06 King Georges Road / Lakemba Street PM Peak	Lakemba St	East	Right Ahead Left	543	86.2%	69.5	LOS E	14.5

10.0 Punchbowl Station

10.1 Punchbowl Station: Future

Note: Punchbowl Station was modelled in LinSig

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	Mean Maximum Queue (Veh)
B.04 Punchbowl Road / South Terrace AM Peak	Punchbowl Rd	East	Ahead	603	47%	8.3	LOS A	6.6
B.04 Punchbowl Road / South Terrace AM Peak	Punchbowl Rd	East	Right	396	102%	154.8	LOS F	25.2
B.04 Punchbowl Road / South Terrace AM Peak	South Terrace	North	Left Right	690	87%	48.2	LOS D	22.6
B.04 Punchbowl Road / South Terrace AM Peak	Punchbowl Rd	West	Ahead Left	948	101%	102.3	LOS F	49
B.05 Punchbowl Road / The Boulevarde AM Peak	The Boulevarde	South	Left	407	54%	30.2	LOS C	9.4
B.05 Punchbowl Road / The Boulevarde AM Peak	The Boulevarde	South	Right	367	99%	126.2	LOS F	20
B.05 Punchbowl Road / The Boulevarde AM Peak	Punchbowl Rd	East	Ahead Left	611	69%	29.2	LOS C	16.2
B.05 Punchbowl Road / The Boulevarde AM Peak	Punchbowl Rd	East	Ahead	249	28%	20.3	LOS B	4.9
B.05 Punchbowl Road / The Boulevarde AM Peak	Punchbowl Rd	West	Ahead	1157	90%	26	LOS B	36.7
B.05 Punchbowl Road / The Boulevarde AM Peak	Punchbowl Rd	West	Ahead Right	362	72%	43	LOS D	11.5
H.05 Punchbowl Road / Rossmore Ave AM Peak	Punchbowl Rd	Northeast	Left Ahead	757	42%	1.7	LOS A	0.4
H.05 Punchbowl Road / Rossmore Ave AM Peak	Punchbowl Rd	Northeast	Ahead	396	22%	1.3	LOS A	0.1
H.22 The Blvd / Arthur Street AM Peak	Arthur St	South	Left Right	296	63%	48.7	LOS D	7.6
H.22 The Blvd / Arthur Street AM Peak	The Blvd	East	Ahead Left	616	45%	9.5	LOS A	4.9
H.22 The Blvd / Arthur Street AM Peak	The Blvd	West	Right Ahead	296	63%	48.7	LOS D	7.6
B.04 Punchbowl Road / South Terrace PM Peak	Punchbowl Rd	East	Ahead	722	58%	11.5	LOS A	9.8
B.04 Punchbowl Road / South Terrace PM Peak	Punchbowl Rd	East	Right	563	86%	49.2	LOS D	19.4
B.04 Punchbowl Road / South Terrace PM Peak	South Terrace	North	Left Right	754	87%	42.3	LOS C	23.9
B.04 Punchbowl Road / South Terrace PM Peak	Punchbowl Rd	West	Ahead Left	581	70%	33.2	LOS C	13.5
B.05 Punchbowl Road / The Boulevarde PM Peak	The Boulevarde	South	Left	601	67%	28.6	LOS B	15.3
B.05 Punchbowl Road / The Boulevarde PM Peak	The Boulevarde	South	Right	268	65%	54.6	LOS D	8.2
B.05 Punchbowl Road / The Boulevarde PM Peak	Punchbowl Rd	East	Ahead Left	649	87%	48.7	LOS D	22.4
B.05 Punchbowl Road / The Boulevarde PM Peak	Punchbowl Rd	East	Ahead	320	43%	28.7	LOS B	7.8
B.05 Punchbowl Road / The Boulevarde PM Peak	Punchbowl Rd	West	Ahead	708	57%	12.7	LOS A	15.9
B.05 Punchbowl Road / The Boulevarde PM Peak	Punchbowl Rd	West	Ahead Right	423	81%	54.2	LOS D	14.4
H.05 Punchbowl Road / Rossmore Ave PM Peak	Punchbowl Rd	Northeast	Left Ahead	860	48%	1.9	LOS A	0.5
H.05 Punchbowl Road / Rossmore Ave PM Peak	Punchbowl Rd	Northeast	Ahead	563	31%	1.5	LOS A	0.2
H.22 The Blvd / Arthur Street PM Peak	Arthur St	South	Left Right	249	58%	50.1	LOS D	6.3
H.22 The Blvd / Arthur Street PM Peak	The Blvd	East	Ahead Left	755	56%	10.2	LOS A	9
H.22 The Blvd / Arthur Street PM Peak	The Blvd	West	Right Ahead	570	71%	10.7	LOS A	12

10.2 Punchbowl Station: Future + Construction + Refined Baseline TTP

Note: Punchbowl Station was modelled in LinSig

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	Mean Maximum Queue (Veh)
B.04 Punchbowl Road / South Terrace AM Peak	Punchbowl Rd	East	Ahead	603	47%	7.7	LOS A	6.1
B.04 Punchbowl Road / South Terrace AM Peak	Punchbowl Rd	East	Right	432	103%	160.8	LOS F	28.5
B.04 Punchbowl Road / South Terrace AM Peak	South Terrace	North	Left Right	726	90%	52.3	LOS D	25
B.04 Punchbowl Road / South Terrace AM Peak	Punchbowl Rd	West	Ahead Left	948	103%	124.7	LOS F	55.2
B.05 Punchbowl Road / The Boulevarde AM Peak	The Boulevarde	South	Left	437	56%	22.4	LOS B	8.4
B.05 Punchbowl Road / The Boulevarde AM Peak	The Boulevarde	South	Right	373	105%	185.1	LOS F	27
B.05 Punchbowl Road / The Boulevarde AM Peak	Punchbowl Rd	East	Ahead Left	617	71%	30.7	LOS C	16.8
B.05 Punchbowl Road / The Boulevarde AM Peak	Punchbowl Rd	East	Ahead	255	29%	21	LOS B	5.1
B.05 Punchbowl Road / The Boulevarde AM Peak	Punchbowl Rd	West	Ahead	1163	89%	23.5	LOS B	35.5
B.05 Punchbowl Road / The Boulevarde AM Peak	Punchbowl Rd	West	Ahead Right	392	74%	45	LOS D	12.2
H.05 Punchbowl Road / Rossmore Ave AM Peak	Punchbowl Rd	Northeast	Left Ahead	757	42%	1.7	LOS A	0.4
H.05 Punchbowl Road / Rossmore Ave AM Peak	Punchbowl Rd	Northeast	Ahead	432	24%	1.3	LOS A	0.2
H.22 The Blvd / Arthur Street AM Peak	Arthur St	South	Left Right	296	72%	57.7	LOS E	8.4
H.22 The Blvd / Arthur Street AM Peak	The Blvd	East	Ahead Left	652	46%	8.1	LOS A	4.8
H.22 The Blvd / Arthur Street AM Peak	The Blvd	West	Right Ahead	296	72%	57.7	LOS E	8.4
B.04 Punchbowl Road / South Terrace PM Peak	Punchbowl Rd	East	Ahead	722	57%	11	LOS A	9.2
B.04 Punchbowl Road / South Terrace PM Peak	Punchbowl Rd	East	Right	599	86%	44.1	LOS D	19.8
B.04 Punchbowl Road / South Terrace PM Peak	South Terrace	North	Left Right	790	91%	48.1	LOS D	27.5
B.04 Punchbowl Road / South Terrace PM Peak	Punchbowl Rd	West	Ahead Left	581	74%	37.2	LOS C	14.6
B.05 Punchbowl Road / The Boulevarde PM Peak	The Boulevarde	South	Left	631	67%	28.8	LOS B	15.8
B.05 Punchbowl Road / The Boulevarde PM Peak	The Boulevarde	South	Right	274	72%	62.4	LOS E	8.9
B.05 Punchbowl Road / The Boulevarde PM Peak	Punchbowl Rd	East	Ahead Left	655	93%	65.6	LOS E	26.2
B.05 Punchbowl Road / The Boulevarde PM Peak	Punchbowl Rd	East	Ahead	326	47%	31.6	LOS C	8.3
B.05 Punchbowl Road / The Boulevarde PM Peak	Punchbowl Rd	West	Ahead	714	56%	10.3	LOS A	14.2
B.05 Punchbowl Road / The Boulevarde PM Peak	Punchbowl Rd	West	Ahead Right	453	78%	46.6	LOS D	14.5
H.05 Punchbowl Road / Rossmore Ave PM Peak	Punchbowl Rd	Northeast	Left Ahead	860	48%	1.9	LOS A	0.5
H.05 Punchbowl Road / Rossmore Ave PM Peak	Punchbowl Rd	Northeast	Ahead	599	33%	1.5	LOS A	0.2
H.22 The Blvd / Arthur Street PM Peak	Arthur St	South	Left Right	249	77%	69.7	LOS E	7.7
H.22 The Blvd / Arthur Street PM Peak	The Blvd	East	Ahead Left	791	55%	7.3	LOS A	7.4
H.22 The Blvd / Arthur Street PM Peak	The Blvd	West	Right Ahead	606	66%	8.5	LOS A	13.1

10.3 Punchbowl Station: Future (Christmas Possession Period)

Note: Punchbowl Station was modelled in LinSig

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	Mean Maximum Queue (Veh)
Punchbowl Road / Rossmore Ave - AM Peak	Punchbowl Rd	North	Left Ahead	537	29.8%	1.4	LOS A	0.2
Punchbowl Road / Rossmore Ave - AM Peak	Punchbowl Rd	North	Ahead	282	15.7%	1.2	LOS A	0.1
Punchbowl Road / The Boulevarde - AM Peak	Punchbowl Rd	South	Ahead	740	56.1%	5.6	LOS A	4.2
Punchbowl Road / The Boulevarde - AM Peak	Punchbowl Rd	South	Ahead Right	239	33.9%	12	LOS B	5
Punchbowl Road / The Boulevarde - AM Peak	Punchbowl Rd	North	Ahead Left	430	50.4%	25.3	LOS C	10.1
Punchbowl Road / The Boulevarde - AM Peak	Punchbowl Rd	North	Ahead	177	20.7%	20.5	LOS B	3.4
Punchbowl Road / The Boulevarde - AM Peak	The Boulevarde	East	Left	289	36.5%	25.2	LOS C	5.9
Punchbowl Road / The Boulevarde - AM Peak	The Boulevarde	East	Right	237	72.7%	62.1	LOS D	7.4
Punchbowl Road / South Terrace - AM Peak	South Terrace	West	Left Right	450	54.6%	30.9	LOS C	10.1
Punchbowl Road / South Terrace - AM Peak	Punchbowl Rd	South	Ahead Left	614	67.8%	28.2	LOS C	14.3
Punchbowl Road / South Terrace - AM Peak	Punchbowl Rd	North	Ahead	430	32.6%	6.7	LOS A	4
Punchbowl Road / South Terrace - AM Peak	Punchbowl Rd	North	Right	282	43.2%	20.4	LOS C	6.9
Punchbowl Road / Arthur Street - AM Peak	The Boulevarde	West	Right Ahead	315	28.3%	4	LOS A	1.3
Punchbowl Road / Arthur Street - AM Peak	Arthur St	South	Left Right	197	48.4%	48.6	LOS D	4.6
Punchbowl Road / Arthur Street - AM Peak	The Boulevarde	East	Ahead Left	423	29.8%	7.2	LOS A	2.9
Punchbowl Road / Rossmore Ave - PM Peak	Punchbowl Rd	North	Left Ahead	791	43.9%	1.8	LOS A	0.4
Punchbowl Road / Rossmore Ave - PM Peak	Punchbowl Rd	North	Ahead	519	28.8%	1.4	LOS A	0.2
Punchbowl Road / The Boulevarde - PM Peak	Punchbowl Rd	South	Ahead	647	50.5%	7.9	LOS B	10.1
Punchbowl Road / The Boulevarde - PM Peak	Punchbowl Rd	South	Ahead Right	387	63.4%	34.4	LOS D	10
Punchbowl Road / The Boulevarde - PM Peak	Punchbowl Rd	North	Ahead Left	596	83.1%	46.3	LOS D	19.9
Punchbowl Road / The Boulevarde - PM Peak	Punchbowl Rd	North	Ahead	295	41.1%	29.8	LOS C	7.2
Punchbowl Road / The Boulevarde - PM Peak	The Boulevarde	East	Left	554	59.5%	25.3	LOS C	13.1
Punchbowl Road / The Boulevarde - PM Peak	The Boulevarde	East	Right	246	67.2%	59.1	LOS D	7.8
Punchbowl Road / South Terrace - PM Peak	South Terrace	West	Left Right	689	84.2%	38.6	LOS D	17.9
Punchbowl Road / South Terrace - PM Peak	Punchbowl Rd	South	Ahead Left	533	66.5%	33.4	LOS C	12.1
Punchbowl Road / South Terrace - PM Peak	Punchbowl Rd	North	Ahead	664	51.8%	10.2	LOS B	8.1
Punchbowl Road / South Terrace - PM Peak	Punchbowl Rd	North	Right	519	69.6%	27.6	LOS D	13.3
Punchbowl Road / Arthur Street - PM Peak	The Boulevarde	West	Right Ahead	522	59.8%	7.1	LOS A	7.3
Punchbowl Road / Arthur Street - PM Peak	Arthur St	South	Left Right	228	54.8%	50.2	LOS D	5.5
Punchbowl Road / Arthur Street - PM Peak	The Boulevarde	East	Ahead Left	697	51.4%	9.2	LOS A	7.4

10.4 Punchbowl Station: Future + Construction (Christmas Possession Period)

Note: Punchbowl Station was modelled in LinSig

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	Mean Maximum Queue (Veh)
Punchbowl Road / Rossmore Ave - AM Peak	Punchbowl Rd	North	Left Ahead	537	29.8%	1.4	LOS A	0.2
Punchbowl Road / Rossmore Ave - AM Peak	Punchbowl Rd	North	Ahead	288	16.0%	1.2	LOS A	0.1
Punchbowl Road / The Boulevarde - AM Peak	Punchbowl Rd	South	Ahead	746	57.2%	5.9	LOS A	4.7
Punchbowl Road / The Boulevarde - AM Peak	Punchbowl Rd	South	Ahead Right	239	34.6%	12.9	LOS B	5.1
Punchbowl Road / The Boulevarde - AM Peak	Punchbowl Rd	North	Ahead Left	436	52.0%	26.3	LOS C	10.4
Punchbowl Road / The Boulevarde - AM Peak	Punchbowl Rd	North	Ahead	183	21.8%	21.2	LOS B	3.6
Punchbowl Road / The Boulevarde - AM Peak	The Boulevarde	East	Left	289	35.8%	24.8	LOS C	5.7
Punchbowl Road / The Boulevarde - AM Peak	The Boulevarde	East	Right	243	71.2%	59.9	LOS E	7.5
Punchbowl Road / South Terrace - AM Peak	South Terrace	West	Left Right	456	54.5%	30.1	LOS C	10.1
Punchbowl Road / South Terrace - AM Peak	Punchbowl Rd	South	Ahead Left	614	69.0%	29.3	LOS C	14.5
Punchbowl Road / South Terrace - AM Peak	Punchbowl Rd	North	Ahead	430	33.0%	6.9	LOS A	4
Punchbowl Road / South Terrace - AM Peak	Punchbowl Rd	North	Right	288	44.7%	21.8	LOS C	7.3
Punchbowl Road / Arthur Street - AM Peak	The Boulevarde	West	Right Ahead	321	27.4%	3.5	LOS A	0.7
Punchbowl Road / Arthur Street - AM Peak	Arthur St	South	Left Right	197	57.1%	55.7	LOS D	5
Punchbowl Road / Arthur Street - AM Peak	The Boulevarde	East	Ahead Left	429	28.9%	5.8	LOS A	2.5
Punchbowl Road / Rossmore Ave - PM Peak	Punchbowl Rd	North	Left Ahead	791	43.9%	1.8	LOS A	0.4
Punchbowl Road / Rossmore Ave - PM Peak	Punchbowl Rd	North	Ahead	525	29.2%	1.4	LOS A	0.2
Punchbowl Road / The Boulevarde - PM Peak	Punchbowl Rd	South	Ahead	653	50.4%	8	LOS B	10.6
Punchbowl Road / The Boulevarde - PM Peak	Punchbowl Rd	South	Ahead Right	387	63.2%	34.8	LOS D	10
Punchbowl Road / The Boulevarde - PM Peak	Punchbowl Rd	North	Ahead Left	602	82.2%	44.6	LOS D	19.8
Punchbowl Road / The Boulevarde - PM Peak	Punchbowl Rd	North	Ahead	301	41.1%	29.1	LOS C	7.4
Punchbowl Road / The Boulevarde - PM Peak	The Boulevarde	East	Left	554	60.5%	27.2	LOS C	13.1
Punchbowl Road / The Boulevarde - PM Peak	The Boulevarde	East	Right	252	71.8%	63.9	LOS D	8.4
Punchbowl Road / South Terrace - PM Peak	South Terrace	West	Left Right	695	86.0%	41.3	LOS D	18.8
Punchbowl Road / South Terrace - PM Peak	Punchbowl Rd	South	Ahead Left	533	65.3%	32.3	LOS C	11.8
Punchbowl Road / South Terrace - PM Peak	Punchbowl Rd	North	Ahead	664	51.2%	9.7	LOS B	7.9
Punchbowl Road / South Terrace - PM Peak	Punchbowl Rd	North	Right	525	69.7%	27.7	LOS D	13.5
Punchbowl Road / Arthur Street - PM Peak	The Boulevarde	West	Right Ahead	528	54.5%	6	LOS A	7.1
Punchbowl Road / Arthur Street - PM Peak	Arthur St	South	Left Right	228	67.2%	61.1	LOS E	6.3
Punchbowl Road / Arthur Street - PM Peak	The Boulevarde	East	Ahead Left	703	49.0%	7.1	LOS A	6.1

10.5 Punchbowl Station: Future + Construction + Refined TTS (Christmas Possession Period)

Note: Punchbowl Station was modelled in LinSig

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	Mean Maximum Queue (Veh)
Punchbowl Road / Rossmore Ave - AM Peak	Punchbowl Rd	North	Left Ahead	537	29.8%	1.4	LOS A	0.2
Punchbowl Road / Rossmore Ave - AM Peak	Punchbowl Rd	North	Ahead	318	17.7%	1.2	LOS A	0.1
Punchbowl Road / The Boulevarde - AM Peak	Punchbowl Rd	South	Ahead	747	56.6%	6	LOS A	5.7
Punchbowl Road / The Boulevarde - AM Peak	Punchbowl Rd	South	Ahead Right	268	38.0%	14.6	LOS B	5.6
Punchbowl Road / The Boulevarde - AM Peak	Punchbowl Rd	North	Ahead Left	436	52.0%	26.3	LOS C	10.4
Punchbowl Road / The Boulevarde - AM Peak	Punchbowl Rd	North	Ahead	183	21.8%	21.2	LOS B	3.6
Punchbowl Road / The Boulevarde - AM Peak	The Boulevarde	East	Left	319	39.5%	18.9	LOS C	4.9
Punchbowl Road / The Boulevarde - AM Peak	The Boulevarde	East	Right	243	74.6%	55.9	LOS D	8.7
Punchbowl Road / South Terrace - AM Peak	South Terrace	West	Left Right	486	58.1%	31	LOS C	11.4
Punchbowl Road / South Terrace - AM Peak	Punchbowl Rd	South	Ahead Left	614	69.0%	29.3	LOS C	14.5
Punchbowl Road / South Terrace - AM Peak	Punchbowl Rd	North	Ahead	430	32.6%	6.4	LOS A	3.8
Punchbowl Road / South Terrace - AM Peak	Punchbowl Rd	North	Right	318	48.2%	22.7	LOS C	7.8
Punchbowl Road / Arthur Street - AM Peak	The Boulevarde	West	Right Ahead	351	32.3%	7.7	LOS A	3.4
Punchbowl Road / Arthur Street - AM Peak	Arthur St	South	Left Right	197	46.6%	47.2	LOS D	4.6
Punchbowl Road / Arthur Street - AM Peak	The Boulevarde	East	Ahead Left	459	32.9%	7.7	LOS A	3.4
Punchbowl Road / Rossmore Ave - PM Peak	Punchbowl Rd	North	Left Ahead	791	43.9%	1.8	LOS A	0.4
Punchbowl Road / Rossmore Ave - PM Peak	Punchbowl Rd	North	Ahead	555	30.8%	1.4	LOS A	0.2
Punchbowl Road / The Boulevarde - PM Peak	Punchbowl Rd	South	Ahead	653	50.4%	8.1	LOS A	10.7
Punchbowl Road / The Boulevarde - PM Peak	Punchbowl Rd	South	Ahead Right	417	67.0%	36.2	LOS D	11
Punchbowl Road / The Boulevarde - PM Peak	Punchbowl Rd	North	Ahead Left	602	84.0%	47.1	LOS D	20.2
Punchbowl Road / The Boulevarde - PM Peak	Punchbowl Rd	North	Ahead	301	42.0%	30	LOS C	7.5
Punchbowl Road / The Boulevarde - PM Peak	The Boulevarde	East	Left	584	62.8%	27.4	LOS C	14.1
Punchbowl Road / The Boulevarde - PM Peak	The Boulevarde	East	Right	252	71.8%	63.9	LOS E	8.4
Punchbowl Road / South Terrace - PM Peak	South Terrace	West	Left Right	725	87.0%	41.6	LOS D	20.1
Punchbowl Road / South Terrace - PM Peak	Punchbowl Rd	South	Ahead Left	533	66.5%	33.4	LOS C	12.1
Punchbowl Road / South Terrace - PM Peak	Punchbowl Rd	North	Ahead	664	51.2%	9.6	LOS B	7.8
Punchbowl Road / South Terrace - PM Peak	Punchbowl Rd	North	Right	555	72.9%	28.8	LOS C	14.3
Punchbowl Road / Arthur Street - PM Peak	The Boulevarde	West	Right Ahead	558	58.6%	6.8	LOS A	8.7
Punchbowl Road / Arthur Street - PM Peak	Arthur St	South	Left Right	228	67.2%	61.1	LOS E	6.3
Punchbowl Road / Arthur Street - PM Peak	The Boulevarde	East	Ahead Left	733	51.3%	7.4	LOS A	6.6

11.0 Bankstown Station

11.1 Bankstown Station: Future

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.01 South Terrace / Restwell Street AM Peak	Restwell Street	South	R2	1052	64%	22.80	LOS B	23.4
B.01 South Terrace / Restwell Street AM Peak	Restwell Street	South	L2	160	64%	22.19	LOS B	21.8
B.01 South Terrace / Restwell Street AM Peak	Local Access Road	North	L2	1	45%	65.07	LOS E	1.3
B.01 South Terrace / Restwell Street AM Peak	Local Access Road	North	R2	21	45%	65.84	LOS E	1.3
B.01 South Terrace / Restwell Street AM Peak	Bankstown City Plaza	West	R2	40	63%	59.98	LOS E	3.6
B.01 South Terrace / Restwell Street AM Peak	Bankstown City Plaza	West	T1	24	63%	56.25	LOS D	3.6
B.01 South Terrace / Restwell Street PM Peak	Restwell Street	South	R2	894	61%	24.65	LOS B	20.2
B.01 South Terrace / Restwell Street PM Peak	Restwell Street	South	L2	152	61%	23.68	LOS B	18.3
B.01 South Terrace / Restwell Street PM Peak	Local Access Road	North	L2	5	49%	61.47	LOS E	1.5
B.01 South Terrace / Restwell Street PM Peak	Local Access Road	North	R2	23	49%	62.24	LOS E	1.5
B.01 South Terrace / Restwell Street PM Peak	Bankstown City Plaza	West	R2	39	57%	54.10	LOS D	3.5
B.01 South Terrace / Restwell Street PM Peak	Bankstown City Plaza	West	T1	28	57%	50.37	LOS D	3.5
B.02 Restwell Street / Raymond Street AM Peak	Restwell Street	South	T1	547	83%	31.03	LOS C	22.4
B.02 Restwell Street / Raymond Street AM Peak	Restwell Street	South	L2	1	1%	41.93	LOS C	0.0
B.02 Restwell Street / Raymond Street AM Peak	Raymond St	East	L2	282	32%	17.27	LOS B	6.8
B.02 Restwell Street / Raymond Street AM Peak	Raymond St	East	R2	526	81%	33.48	LOS C	20.8
B.02 Restwell Street / Raymond Street AM Peak	Raymond St	East	T1	1	0%	17.50	LOS B	0.0
B.02 Restwell Street / Raymond Street AM Peak	Restwell Street	North	T1	41	11%	18.48	LOS B	1.1
B.02 Restwell Street / Raymond Street AM Peak	Greenfield Parade	West	L2	190	10%	2.89	LOS A	0.0
B.02 Restwell Street / Raymond Street PM Peak	Restwell Street	South	T1	439	81%	31.12	LOS C	16.8
B.02 Restwell Street / Raymond Street PM Peak	Restwell Street	South	L2	1	1%	38.61	LOS C	0.0
B.02 Restwell Street / Raymond Street PM Peak	Raymond St	East	L2	363	37%	14.36	LOS A	7.7
B.02 Restwell Street / Raymond Street PM Peak	Raymond St	East	R2	596	82%	31.02	LOS C	22.3
B.02 Restwell Street / Raymond Street PM Peak	Raymond St	East	T1	11	1%	14.39	LOS A	0.2
B.02 Restwell Street / Raymond Street PM Peak	Restwell Street	North	T1	44	15%	21.11	LOS B	1.2
B.02 Restwell Street / Raymond Street PM Peak	Greenfield Parade	West	L2	1	0%	2.88	LOS A	0.0
B.03 South Terrace / West Terrace AM Peak	South Terrace	East	L2	225	50%	44.97	LOS D	11.3
B.03 South Terrace / West Terrace AM Peak	South Terrace	East	R2	559	61%	46.36	LOS D	14.4
B.03 South Terrace / West Terrace AM Peak	Underpass	North	T1	424	63%	34.45	LOS C	20.3
B.03 South Terrace / West Terrace AM Peak	Underpass	North	L2	312	26%	12.33	LOS A	7.5
B.03 South Terrace / West Terrace AM Peak	South Terrace	West	R2	133	8%	3.93	LOS A	0.0
B.03 South Terrace / West Terrace AM Peak	South Terrace	West	T1	273	61%	41.49	LOS C	13.8
B.03 South Terrace / West Terrace AM Peak	South Terrace	West	L2	623	51%	14.73	LOS B	18.4
B.03 South Terrace / West Terrace PM Peak	South Terrace	East	L2	265	69%	51.74	LOS D	14.6
B.03 South Terrace / West Terrace PM Peak	South Terrace	East	R2	416	54%	49.61	LOS D	11.0
B.03 South Terrace / West Terrace PM Peak	Underpass	North	T1	490	69%	34.44	LOS C	24.2
B.03 South Terrace / West Terrace PM Peak	Underpass	North	L2	484	42%	14.91	LOS B	14.1
B.03 South Terrace / West Terrace PM Peak	South Terrace	West	R2	138	8%	3.91	LOS A	0.0

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.03 South Terrace / West Terrace PM Peak	South Terrace	West	T1	309	68%	40.56	LOS C	15.7
B.03 South Terrace / West Terrace PM Peak	South Terrace	West	L2	427	33%	11.21	LOS A	9.8
H.01 Meredith St / Marion St AM Peak	Car Park	South	R2	4	4%	55.41	LOS D	0.2
H.01 Meredith St / Marion St AM Peak	Car Park	South	T1	8	17%	30.93	LOS C	1.1
H.01 Meredith St / Marion St AM Peak	Car Park	South	L2	21	17%	30.93	LOS C	1.1
H.01 Meredith St / Marion St AM Peak	Marion St	East	L2	47	22%	23.02	LOS B	6.2
H.01 Meredith St / Marion St AM Peak	Marion St	East	R2	79	67%	62.39	LOS E	4.5
H.01 Meredith St / Marion St AM Peak	Marion St	East	T1	373	22%	16.15	LOS B	6.2
H.01 Meredith St / Marion St AM Peak	Road Name	North	T1	47	90%	72.42	LOS F	17.7
H.01 Meredith St / Marion St AM Peak	Road Name	North	L2	37	90%	67.64	LOS E	17.7
H.01 Meredith St / Marion St AM Peak	Road Name	North	R2	468	90%	67.77	LOS E	17.7
H.01 Meredith St / Marion St AM Peak	Marion St	West	R2	102	86%	73.02	LOS F	6.2
H.01 Meredith St / Marion St AM Peak	Marion St	West	T1	750	85%	31.37	LOS C	36.5
H.01 Meredith St / Marion St AM Peak	Marion St	West	L2	970	80%	12.67	LOS A	21.2
H.01 Meredith St / Marion St PM Peak	Car Park	South	R2	27	17%	48.81	LOS D	1.3
H.01 Meredith St / Marion St PM Peak	Car Park	South	T1	54	70%	35.21	LOS C	5.0
H.01 Meredith St / Marion St PM Peak	Car Park	South	L2	90	70%	35.21	LOS C	5.0
H.01 Meredith St / Marion St PM Peak	Marion St	East	L2	18	59%	39.66	LOS C	14.6
H.01 Meredith St / Marion St PM Peak	Marion St	East	R2	57	54%	58.39	LOS E	3.0
H.01 Meredith St / Marion St PM Peak	Marion St	East	T1	624	59%	32.40	LOS C	14.6
H.01 Meredith St / Marion St PM Peak	Road Name	North	T1	20	91%	62.10	LOS E	32.8
H.01 Meredith St / Marion St PM Peak	Road Name	North	L2	42	91%	57.33	LOS E	32.8
H.01 Meredith St / Marion St PM Peak	Road Name	North	R2	1018	91%	57.46	LOS E	32.8
H.01 Meredith St / Marion St PM Peak	Marion St	West	R2	40	37%	62.04	LOS E	2.1
H.01 Meredith St / Marion St PM Peak	Marion St	West	T1	509	92%	55.62	LOS D	30.6
H.01 Meredith St / Marion St PM Peak	Marion St	West	L2	555	49%	10.37	LOS A	8.2
H.02 Stacey St / Wattle St AM Peak	Stacey St	South	R2	189	85%	87.21	LOS F	15.3
H.02 Stacey St / Wattle St AM Peak	Stacey St	South	T1	2158	86%	11.42	LOS A	44.1
H.02 Stacey St / Wattle St AM Peak	Stacey St	South	L2	64	4%	7.02	LOS A	0.3
H.02 Stacey St / Wattle St AM Peak	Wattle St	East	L2	308	36%	8.12	LOS A	6.5
H.02 Stacey St / Wattle St AM Peak	Wattle St	East	R2	142	89%	99.63	LOS F	6.2
H.02 Stacey St / Wattle St AM Peak	Wattle St	East	T1	22	36%	3.72	LOS A	6.5
H.02 Stacey St / Wattle St AM Peak	Stacey St	North	T1	1897	61%	7.88	LOS A	17.0
H.02 Stacey St / Wattle St AM Peak	Stacey St	North	L2	202	61%	9.80	LOS A	9.1
H.02 Stacey St / Wattle St AM Peak	Stacey St	North	R2	18	9%	75.04	LOS F	1.2
H.02 Stacey St / Wattle St AM Peak	Car Park	West	R2	13	8%	85.90	LOS F	0.5
H.02 Stacey St / Wattle St AM Peak	Car Park	West	T1	11	20%	72.13	LOS F	2.5
H.02 Stacey St / Wattle St AM Peak	Car Park	West	L2	24	20%	76.43	LOS F	2.5
H.02 Stacey St / Wattle St PM Peak	Stacey St	South	R2	280	90%	82.59	LOS F	22.0
H.02 Stacey St / Wattle St PM Peak	Stacey St	South	T1	1551	88%	27.22	LOS B	39.8
H.02 Stacey St / Wattle St PM Peak	Stacey St	South	L2	158	13%	13.51	LOS A	2.5
H.02 Stacey St / Wattle St PM Peak	Wattle St	East	L2	648	84%	47.69	LOS D	36.7
H.02 Stacey St / Wattle St PM Peak	Wattle St	East	R2	97	61%	85.98	LOS F	3.7
H.02 Stacey St / Wattle St PM Peak	Wattle St	East	T1	55	84%	43.29	LOS D	36.7
H.02 Stacey St / Wattle St PM Peak	Stacey St	North	T1	2724	90%	28.38	LOS B	59.6

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.02 Stacey St / Wattle St PM Peak	Stacey St	North	L2	168	90%	31.57	LOS C	57.4
H.02 Stacey St / Wattle St PM Peak	Stacey St	North	R2	71	23%	65.15	LOS E	4.3
H.02 Stacey St / Wattle St PM Peak	Car Park	West	R2	164	110%	188.57	LOS F	10.0
H.02 Stacey St / Wattle St PM Peak	Car Park	West	T1	35	46%	60.68	LOS E	9.4
H.02 Stacey St / Wattle St PM Peak	Car Park	West	L2	107	46%	64.98	LOS E	9.4
H.03 North Terrace / Wattle St AM Peak	Wattle St	East	U	3	35%	8.88	LOS A	3.1
H.03 North Terrace / Wattle St AM Peak	Wattle St	East	R2	582	35%	7.36	LOS A	3.1
H.03 North Terrace / Wattle St AM Peak	Wattle St	East	T1	865	38%	3.65	LOS A	3.6
H.03 North Terrace / Wattle St AM Peak	Wattle St	North	L2	456	77%	21.95	LOS B	11.1
H.03 North Terrace / Wattle St AM Peak	Wattle St	North	U	10	20%	17.84	LOS B	1.2
H.03 North Terrace / Wattle St AM Peak	Wattle St	North	R2	55	20%	16.28	LOS B	1.2
H.03 North Terrace / Wattle St AM Peak	North Terrace	West	T1	717	76%	14.27	LOS A	11.5
H.03 North Terrace / Wattle St AM Peak	North Terrace	West	L2	281	29%	6.73	LOS A	2.0
H.03 North Terrace / Wattle St AM Peak	North Terrace	West	U	15	76%	19.30	LOS B	11.5
H.03 North Terrace / Wattle St PM Peak	Wattle St	East	U	10	40%	9.99	LOS A	3.3
H.03 North Terrace / Wattle St PM Peak	Wattle St	East	R2	359	40%	8.53	LOS A	3.3
H.03 North Terrace / Wattle St PM Peak	Wattle St	East	T1	972	73%	4.96	LOS A	10.5
H.03 North Terrace / Wattle St PM Peak	Wattle St	North	L2	350	99%	81.34	LOS F	22.6
H.03 North Terrace / Wattle St PM Peak	Wattle St	North	U	12	57%	35.22	LOS C	3.9
H.03 North Terrace / Wattle St PM Peak	Wattle St	North	R2	103	57%	34.00	LOS C	3.9
H.03 North Terrace / Wattle St PM Peak	North Terrace	West	T1	757	85%	16.47	LOS B	16.2
H.03 North Terrace / Wattle St PM Peak	North Terrace	West	L2	93	11%	5.65	LOS A	0.6
H.03 North Terrace / Wattle St PM Peak	North Terrace	West	U	8	85%	21.51	LOS B	16.2
H.04 Stanley St / Stacey St AM Peak	Stacey St	South	T1	2123	80%	13.43	LOS A	45.4
H.04 Stanley St / Stacey St AM Peak	Stacey St	South	L2	30	2%	12.63	LOS A	0.5
H.04 Stanley St / Stacey St AM Peak	Salvia Ave	East	L2	1	95%	104.13	LOS F	11.6
H.04 Stanley St / Stacey St AM Peak	Salvia Ave	East	R2	213	95%	104.18	LOS F	11.6
H.04 Stanley St / Stacey St AM Peak	Salvia Ave	East	T1	41	95%	99.56	LOS F	11.6
H.04 Stanley St / Stacey St AM Peak	Stacey St	North	T1	2069	71%	19.01	LOS B	59.3
H.04 Stanley St / Stacey St AM Peak	Stacey St	North	L2	28	2%	16.06	LOS B	1.1
H.04 Stanley St / Stacey St AM Peak	Stacey St	North	R2	80	32%	87.77	LOS F	6.1
H.04 Stanley St / Stacey St AM Peak	Stanley St	West	R2	118	92%	99.85	LOS F	15.3
H.04 Stanley St / Stacey St AM Peak	Stanley St	West	T1	52	92%	95.28	LOS F	15.3
H.04 Stanley St / Stacey St AM Peak	Stanley St	West	L2	130	48%	71.34	LOS F	9.4
H.04 Stanley St / Stacey St PM Peak	Stacey St	South	T1	1876	68%	9.05	LOS A	25.0
H.04 Stanley St / Stacey St PM Peak	Stacey St	South	L2	52	4%	11.69	LOS A	0.6
H.04 Stanley St / Stacey St PM Peak	Salvia Ave	East	L2	1	105%	152.10	LOS F	11.1
H.04 Stanley St / Stacey St PM Peak	Salvia Ave	East	R2	139	105%	152.18	LOS F	11.1
H.04 Stanley St / Stacey St PM Peak	Salvia Ave	East	T1	64	105%	147.53	LOS F	11.1
H.04 Stanley St / Stacey St PM Peak	Stacey St	North	T1	3061	90%	1.21	LOS A	19.2
H.04 Stanley St / Stacey St PM Peak	Stacey St	North	L2	86	5%	6.80	LOS A	0.1
H.04 Stanley St / Stacey St PM Peak	Stacey St	North	R2	86	70%	80.33	LOS F	6.3
H.04 Stanley St / Stacey St PM Peak	Stanley St	West	R2	161	110%	193.88	LOS F	26.1
H.04 Stanley St / Stacey St PM Peak	Stanley St	West	T1	48	110%	189.32	LOS F	26.1
H.04 Stanley St / Stacey St PM Peak	Stanley St	West	L2	59	17%	58.30	LOS E	3.6

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.30 The Appian Way / Nth Tce AM	North Tce	East	T1	622	68%	5.93	LOS A	10.6
H.30 The Appian Way / Nth Tce AM	The Appian Way	North	L2	620	47%	6.96	LOS A	3.9
H.30 The Appian Way / Nth Tce AM	The Appian Way	North	R2	145	61%	25.74	LOS B	2.5
H.30 The Appian Way / Nth Tce PM	North Tce	East	T1	486	63%	7.51	LOS A	7.4
H.30 The Appian Way / Nth Tce PM	The Appian Way	North	L2	773	63%	10.15	LOS A	11.0
H.30 The Appian Way / Nth Tce PM	The Appian Way	North	R2	231	107%	121.48	LOS F	17.0
H.31 Marion St / Oxford Ave AM	Oxford Ave	South	R2	323	74%	55.19	LOS D	11.3
H.31 Marion St / Oxford Ave AM	Oxford Ave	South	L2	79	74%	54.40	LOS D	11.3
H.31 Marion St / Oxford Ave AM	Marion St	East	L2	126	75%	44.94	LOS D	21.9
H.31 Marion St / Oxford Ave AM	Marion St	East	T1	719	75%	40.31	LOS C	22.1
H.31 Marion St / Oxford Ave AM	Marion St	West	R2	265	74%	18.69	LOS B	15.7
H.31 Marion St / Oxford Ave AM	Marion St	West	T1	1425	74%	4.47	LOS A	15.7
H.31 Marion St / Oxford Ave PM	Oxford Ave	South	R2	219	90%	65.79	LOS E	13.2
H.31 Marion St / Oxford Ave PM	Oxford Ave	South	L2	209	35%	34.58	LOS C	8.4
H.31 Marion St / Oxford Ave PM	Marion St	East	L2	212	67%	15.98	LOS B	18.5
H.31 Marion St / Oxford Ave PM	Marion St	East	T1	1228	67%	11.40	LOS A	18.7
H.31 Marion St / Oxford Ave PM	Marion St	West	R2	352	49%	27.81	LOS B	15.9
H.31 Marion St / Oxford Ave PM	Marion St	West	T1	672	48%	0.49	LOS A	1.3
H.32 Marion St / Greenwood Ave AM	Greenwood Ave	South	T1	564	87%	60.28	LOS E	18.8
H.32 Marion St / Greenwood Ave AM	Greenwood Ave	South	L2	25	87%	65.15	LOS E	18.4
H.32 Marion St / Greenwood Ave AM	Olympic Parade	East	L2	44	25%	22.98	LOS B	7.1
H.32 Marion St / Greenwood Ave AM	Olympic Parade	East	T1	409	25%	18.88	LOS B	7.5
H.32 Marion St / Greenwood Ave AM	Marion St	North	T1	282	49%	26.58	LOS B	15.7
H.32 Marion St / Greenwood Ave AM	Marion St	North	L2	97	49%	31.16	LOS C	15.7
H.32 Marion St / Greenwood Ave AM	Marion St	North	R2	482	85%	42.96	LOS D	11.0
H.32 Marion St / Greenwood Ave AM	Marion St	West	T1	504	89%	40.60	LOS C	26.7
H.32 Marion St / Greenwood Ave AM	Marion St	West	L2	1334	58%	20.11	LOS B	33.5
H.32 Marion St / Greenwood Ave PM	Greenwood Ave	South	T1	451	88%	59.06	LOS E	16.0
H.32 Marion St / Greenwood Ave PM	Greenwood Ave	South	L2	73	88%	63.89	LOS E	15.4
H.32 Marion St / Greenwood Ave PM	Olympic Parade	East	L2	64	54%	37.47	LOS C	14.3
H.32 Marion St / Greenwood Ave PM	Olympic Parade	East	T1	635	54%	31.40	LOS C	14.7
H.32 Marion St / Greenwood Ave PM	Marion St	North	T1	652	75%	20.70	LOS B	31.0
H.32 Marion St / Greenwood Ave PM	Marion St	North	L2	113	75%	25.30	LOS B	31.0
H.32 Marion St / Greenwood Ave PM	Marion St	North	R2	836	90%	40.70	LOS C	18.2
H.32 Marion St / Greenwood Ave PM	Marion St	West	T1	380	57%	13.95	LOS A	9.9
H.32 Marion St / Greenwood Ave PM	Marion St	West	L2	719	25%	8.35	LOS A	5.3

11.2 Bankstown Station: Future + Construction + Refined Baseline TTP

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.01 South Terrace / Restwell Street AM Peak	Restwell Street	South	R2	1075	79%	31.90	LOS C	30.4
B.01 South Terrace / Restwell Street AM Peak	Restwell Street	South	L2	160	79%	31.54	LOS C	27.3
B.01 South Terrace / Restwell Street AM Peak	Local Access Road	North	L2	24	79%	66.86	LOS E	4.1
B.01 South Terrace / Restwell Street AM Peak	Local Access Road	North	R2	42	79%	67.15	LOS E	4.1
B.01 South Terrace / Restwell Street AM Peak	Bankstown City Plaza	West	R2	40	76%	63.00	LOS E	5.0
B.01 South Terrace / Restwell Street AM Peak	Bankstown City Plaza	West	T1	44	76%	59.26	LOS E	5.0
B.01 South Terrace / Restwell Street PM Peak	Restwell Street	South	R2	918	79%	34.51	LOS C	27.8
B.01 South Terrace / Restwell Street PM Peak	Restwell Street	South	L2	152	79%	34.90	LOS C	22.3
B.01 South Terrace / Restwell Street PM Peak	Local Access Road	North	L2	33	78%	62.66	LOS E	4.2
B.01 South Terrace / Restwell Street PM Peak	Local Access Road	North	R2	39	78%	63.00	LOS E	4.2
B.01 South Terrace / Restwell Street PM Peak	Bankstown City Plaza	West	R2	39	74%	58.38	LOS E	4.9
B.01 South Terrace / Restwell Street PM Peak	Bankstown City Plaza	West	T1	48	74%	54.63	LOS D	4.9
B.02 Restwell Street / Raymond Street AM Peak	Restwell Street	South	T1	547	86%	34.66	LOS C	23.8
B.02 Restwell Street / Raymond Street AM Peak	Restwell Street	South	L2	1	1%	41.93	LOS C	0.0
B.02 Restwell Street / Raymond Street AM Peak	Raymond St	East	L2	282	31%	16.60	LOS B	6.6
B.02 Restwell Street / Raymond Street AM Peak	Raymond St	East	R2	550	85%	37.08	LOS C	23.5
B.02 Restwell Street / Raymond Street AM Peak	Raymond St	East	T1	1	0%	16.82	LOS B	0.0
B.02 Restwell Street / Raymond Street AM Peak	Restwell Street	North	T1	41	12%	19.24	LOS B	1.1
B.02 Restwell Street / Raymond Street AM Peak	Greenfield Parade	West	L2	190	10%	2.89	LOS A	0.0
B.02 Restwell Street / Raymond Street PM Peak	Restwell Street	South	T1	439	85%	34.75	LOS C	17.9
B.02 Restwell Street / Raymond Street PM Peak	Restwell Street	South	L2	1	1%	38.61	LOS C	0.0
B.02 Restwell Street / Raymond Street PM Peak	Raymond St	East	L2	363	36%	13.73	LOS A	7.5
B.02 Restwell Street / Raymond Street PM Peak	Raymond St	East	R2	619	86%	34.40	LOS C	25.0
B.02 Restwell Street / Raymond Street PM Peak	Raymond St	East	T1	11	1%	13.74	LOS A	0.2
B.02 Restwell Street / Raymond Street PM Peak	Restwell Street	North	T1	44	16%	21.98	LOS B	1.3
B.02 Restwell Street / Raymond Street PM Peak	Greenfield Parade	West	L2	1	0%	2.88	LOS A	0.0
B.03 South Terrace / West Terrace AM Peak	South Terrace	East	L2	241	62%	48.06	LOS D	12.6
B.03 South Terrace / West Terrace AM Peak	South Terrace	East	R2	559	66%	48.44	LOS D	14.8
B.03 South Terrace / West Terrace AM Peak	Underpass	North	T1	424	66%	36.33	LOS C	20.9
B.03 South Terrace / West Terrace AM Peak	Underpass	North	L2	312	28%	14.24	LOS A	8.3
B.03 South Terrace / West Terrace AM Peak	South Terrace	West	R2	133	8%	3.93	LOS A	0.0
B.03 South Terrace / West Terrace AM Peak	South Terrace	West	T1	296	67%	38.83	LOS C	14.6
B.03 South Terrace / West Terrace AM Peak	South Terrace	West	L2	623	50%	13.65	LOS A	17.5
B.03 South Terrace / West Terrace PM Peak	South Terrace	East	L2	280	74%	53.09	LOS D	15.9
B.03 South Terrace / West Terrace PM Peak	South Terrace	East	R2	416	52%	48.57	LOS D	10.9
B.03 South Terrace / West Terrace PM Peak	Underpass	North	T1	490	74%	37.30	LOS C	25.2
B.03 South Terrace / West Terrace PM Peak	Underpass	North	L2	484	43%	16.02	LOS B	14.8
B.03 South Terrace / West Terrace PM Peak	South Terrace	West	R2	138	8%	3.91	LOS A	0.0
B.03 South Terrace / West Terrace PM Peak	South Terrace	West	T1	332	74%	41.24	LOS C	17.4
B.03 South Terrace / West Terrace PM Peak	South Terrace	West	L2	427	34%	11.64	LOS A	10.1
H.01 Meredith St / Marion St AM Peak	Car Park	South	R2	4	4%	55.41	LOS D	0.2
H.01 Meredith St / Marion St AM Peak	Car Park	South	T1	8	17%	30.93	LOS C	1.1
H.01 Meredith St / Marion St AM Peak	Car Park	South	L2	21	17%	30.93	LOS C	1.1
H.01 Meredith St / Marion St AM Peak	Marion St	East	L2	47	22%	23.02	LOS B	6.2

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.01 Meredith St / Marion St AM Peak	Marion St	East	R2	79	67%	62.39	LOS E	4.5
H.01 Meredith St / Marion St AM Peak	Marion St	East	T1	373	22%	16.15	LOS B	6.2
H.01 Meredith St / Marion St AM Peak	Road Name	North	T1	47	90%	72.42	LOS F	17.7
H.01 Meredith St / Marion St AM Peak	Road Name	North	L2	37	90%	67.64	LOS E	17.7
H.01 Meredith St / Marion St AM Peak	Road Name	North	R2	468	90%	67.77	LOS E	17.7
H.01 Meredith St / Marion St AM Peak	Marion St	West	R2	102	86%	73.02	LOS F	6.2
H.01 Meredith St / Marion St AM Peak	Marion St	West	T1	750	85%	31.37	LOS C	36.5
H.01 Meredith St / Marion St AM Peak	Marion St	West	L2	970	80%	12.67	LOS A	21.2
H.01 Meredith St / Marion St PM Peak	Car Park	South	R2	27	17%	48.81	LOS D	1.3
H.01 Meredith St / Marion St PM Peak	Car Park	South	T1	54	70%	35.21	LOS C	5.0
H.01 Meredith St / Marion St PM Peak	Car Park	South	L2	90	70%	35.21	LOS C	5.0
H.01 Meredith St / Marion St PM Peak	Marion St	East	L2	18	59%	39.66	LOS C	14.6
H.01 Meredith St / Marion St PM Peak	Marion St	East	R2	57	54%	58.39	LOS E	3.0
H.01 Meredith St / Marion St PM Peak	Marion St	East	T1	624	59%	32.40	LOS C	14.6
H.01 Meredith St / Marion St PM Peak	Road Name	North	T1	20	91%	62.10	LOS E	32.8
H.01 Meredith St / Marion St PM Peak	Road Name	North	L2	42	91%	57.33	LOS E	32.8
H.01 Meredith St / Marion St PM Peak	Road Name	North	R2	1018	91%	57.46	LOS E	32.8
H.01 Meredith St / Marion St PM Peak	Marion St	West	R2	40	37%	62.04	LOS E	2.1
H.01 Meredith St / Marion St PM Peak	Marion St	West	T1	509	92%	55.62	LOS D	30.6
H.01 Meredith St / Marion St PM Peak	Marion St	West	L2	555	49%	10.37	LOS A	8.2
H.02 Stacey St / Wattle St AM Peak	Stacey St	South	R2	197	86%	87.75	LOS F	16.1
H.02 Stacey St / Wattle St AM Peak	Stacey St	South	T1	2158	87%	12.23	LOS A	47.1
H.02 Stacey St / Wattle St AM Peak	Stacey St	South	L2	64	4%	7.30	LOS A	0.3
H.02 Stacey St / Wattle St AM Peak	Wattle St	East	L2	316	37%	8.44	LOS A	7.0
H.02 Stacey St / Wattle St AM Peak	Wattle St	East	R2	142	89%	99.63	LOS F	6.2
H.02 Stacey St / Wattle St AM Peak	Wattle St	East	T1	22	37%	4.05	LOS A	7.0
H.02 Stacey St / Wattle St AM Peak	Stacey St	North	T1	1897	61%	8.50	LOS A	17.9
H.02 Stacey St / Wattle St AM Peak	Stacey St	North	L2	202	61%	10.35	LOS A	10.1
H.02 Stacey St / Wattle St AM Peak	Stacey St	North	R2	18	9%	73.91	LOS F	1.2
H.02 Stacey St / Wattle St AM Peak	Car Park	West	R2	13	8%	85.90	LOS F	0.5
H.02 Stacey St / Wattle St AM Peak	Car Park	West	T1	11	20%	72.13	LOS F	2.5
H.02 Stacey St / Wattle St AM Peak	Car Park	West	L2	24	20%	76.42	LOS F	2.5
H.02 Stacey St / Wattle St PM Peak	Stacey St	South	R2	287	91%	83.59	LOS F	22.9
H.02 Stacey St / Wattle St PM Peak	Stacey St	South	T1	1551	88%	27.85	LOS B	40.6
H.02 Stacey St / Wattle St PM Peak	Stacey St	South	L2	158	13%	13.51	LOS A	2.5
H.02 Stacey St / Wattle St PM Peak	Wattle St	East	L2	656	86%	50.70	LOS D	38.5
H.02 Stacey St / Wattle St PM Peak	Wattle St	East	R2	97	61%	85.98	LOS F	3.7
H.02 Stacey St / Wattle St PM Peak	Wattle St	East	T1	55	86%	46.30	LOS D	38.5
H.02 Stacey St / Wattle St PM Peak	Stacey St	North	T1	2724	90%	28.41	LOS B	59.6
H.02 Stacey St / Wattle St PM Peak	Stacey St	North	L2	168	90%	31.65	LOS C	57.4
H.02 Stacey St / Wattle St PM Peak	Stacey St	North	R2	71	22%	64.12	LOS E	4.3
H.02 Stacey St / Wattle St PM Peak	Car Park	West	R2	164	110%	188.57	LOS F	10.0
H.02 Stacey St / Wattle St PM Peak	Car Park	West	T1	35	47%	61.76	LOS E	9.5
H.02 Stacey St / Wattle St PM Peak	Car Park	West	L2	107	47%	66.06	LOS E	9.5
H.03 North Terrace / Wattle St AM Peak	Wattle St	East	U	3	36%	8.94	LOS A	3.2

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.03 North Terrace / Wattle St AM Peak	Wattle St	East	R2	582	36%	7.42	LOS A	3.2
H.03 North Terrace / Wattle St AM Peak	Wattle St	East	T1	865	38%	3.68	LOS A	3.6
H.03 North Terrace / Wattle St AM Peak	Wattle St	North	L2	456	77%	22.07	LOS B	11.1
H.03 North Terrace / Wattle St AM Peak	Wattle St	North	U	10	24%	18.00	LOS B	1.4
H.03 North Terrace / Wattle St AM Peak	Wattle St	North	R2	63	24%	17.55	LOS B	1.4
H.03 North Terrace / Wattle St AM Peak	North Terrace	West	T1	717	77%	14.43	LOS A	11.7
H.03 North Terrace / Wattle St AM Peak	North Terrace	West	L2	289	31%	6.84	LOS A	2.1
H.03 North Terrace / Wattle St AM Peak	North Terrace	West	U	15	77%	19.46	LOS B	11.7
H.03 North Terrace / Wattle St PM Peak	Wattle St	East	U	10	41%	10.15	LOS A	3.4
H.03 North Terrace / Wattle St PM Peak	Wattle St	East	R2	359	41%	8.70	LOS A	3.4
H.03 North Terrace / Wattle St PM Peak	Wattle St	East	T1	972	74%	5.14	LOS A	10.8
H.03 North Terrace / Wattle St PM Peak	Wattle St	North	L2	350	99%	81.34	LOS F	22.6
H.03 North Terrace / Wattle St PM Peak	Wattle St	North	U	12	60%	36.27	LOS C	4.3
H.03 North Terrace / Wattle St PM Peak	Wattle St	North	R2	110	60%	36.02	LOS C	4.3
H.03 North Terrace / Wattle St PM Peak	North Terrace	West	T1	757	85%	16.63	LOS B	16.4
H.03 North Terrace / Wattle St PM Peak	North Terrace	West	L2	100	12%	5.86	LOS A	0.7
H.03 North Terrace / Wattle St PM Peak	North Terrace	West	U	8	85%	21.66	LOS B	16.4
H.04 Stanley St / Stacey St AM Peak	Stacey St	South	T1	2136	83%	14.40	LOS A	50.0
H.04 Stanley St / Stacey St AM Peak	Stacey St	South	L2	38	3%	13.37	LOS A	0.6
H.04 Stanley St / Stacey St AM Peak	Salvia Ave	East	L2	1	95%	104.13	LOS F	11.6
H.04 Stanley St / Stacey St AM Peak	Salvia Ave	East	R2	213	95%	104.18	LOS F	11.6
H.04 Stanley St / Stacey St AM Peak	Salvia Ave	East	T1	41	95%	99.56	LOS F	11.6
H.04 Stanley St / Stacey St AM Peak	Stacey St	North	T1	2077	73%	22.00	LOS B	62.5
H.04 Stanley St / Stacey St AM Peak	Stacey St	North	L2	28	2%	17.05	LOS B	1.1
H.04 Stanley St / Stacey St AM Peak	Stacey St	North	R2	80	32%	87.77	LOS F	6.1
H.04 Stanley St / Stacey St AM Peak	Stanley St	West	R2	131	91%	98.15	LOS F	16.5
H.04 Stanley St / Stacey St AM Peak	Stanley St	West	T1	52	91%	93.49	LOS F	16.5
H.04 Stanley St / Stacey St AM Peak	Stanley St	West	L2	130	43%	68.13	LOS E	9.1
H.04 Stanley St / Stacey St PM Peak	Stacey St	South	T1	1889	68%	8.46	LOS A	24.5
H.04 Stanley St / Stacey St PM Peak	Stacey St	South	L2	60	5%	11.54	LOS A	0.7
H.04 Stanley St / Stacey St PM Peak	Salvia Ave	East	L2	1	120%	276.14	LOS F	15.4
H.04 Stanley St / Stacey St PM Peak	Salvia Ave	East	R2	139	120%	276.20	LOS F	15.4
H.04 Stanley St / Stacey St PM Peak	Salvia Ave	East	T1	64	120%	271.58	LOS F	15.4
H.04 Stanley St / Stacey St PM Peak	Stacey St	North	T1	3068	90%	1.19	LOS A	18.5
H.04 Stanley St / Stacey St PM Peak	Stacey St	North	L2	86	5%	6.79	LOS A	0.1
H.04 Stanley St / Stacey St PM Peak	Stacey St	North	R2	86	70%	80.33	LOS F	6.3
H.04 Stanley St / Stacey St PM Peak	Stanley St	West	R2	173	124%	307.48	LOS F	35.7
H.04 Stanley St / Stacey St PM Peak	Stanley St	West	T1	48	124%	302.86	LOS F	35.7
H.04 Stanley St / Stacey St PM Peak	Stanley St	West	L2	59	17%	58.30	LOS E	3.6
H.30 The Appian Way / Nth Tce AM	North Tce	East	T1	622	68%	5.93	LOS A	10.6
H.30 The Appian Way / Nth Tce AM	The Appian Way	North	L2	620	47%	6.96	LOS A	3.9
H.30 The Appian Way / Nth Tce AM	The Appian Way	North	R2	167	76%	34.37	LOS C	3.6
H.30 The Appian Way / Nth Tce PM	North Tce	East	T1	486	63%	7.51	LOS A	7.4
H.30 The Appian Way / Nth Tce PM	The Appian Way	North	L2	773	63%	10.15	LOS A	11.0
H.30 The Appian Way / Nth Tce PM	The Appian Way	North	R2	252	125%	267.48	LOS F	37.3

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.31 Marion St / Oxford Ave AM	Oxford Ave	South	R2	323	74%	55.19	LOS D	11.3
H.31 Marion St / Oxford Ave AM	Oxford Ave	South	L2	79	74%	54.40	LOS D	11.3
H.31 Marion St / Oxford Ave AM	Marion St	East	L2	126	75%	44.94	LOS D	21.9
H.31 Marion St / Oxford Ave AM	Marion St	East	T1	719	75%	40.31	LOS C	22.1
H.31 Marion St / Oxford Ave AM	Marion St	West	R2	265	74%	18.69	LOS B	15.7
H.31 Marion St / Oxford Ave AM	Marion St	West	T1	1425	74%	4.47	LOS A	15.7
H.31 Marion St / Oxford Ave PM	Oxford Ave	South	R2	219	90%	65.79	LOS E	13.2
H.31 Marion St / Oxford Ave PM	Oxford Ave	South	L2	209	35%	34.58	LOS C	8.4
H.31 Marion St / Oxford Ave PM	Marion St	East	L2	212	67%	15.98	LOS B	18.5
H.31 Marion St / Oxford Ave PM	Marion St	East	T1	1228	67%	11.40	LOS A	18.7
H.31 Marion St / Oxford Ave PM	Marion St	West	R2	352	49%	27.81	LOS B	15.9
H.31 Marion St / Oxford Ave PM	Marion St	West	T1	672	48%	0.49	LOS A	1.3
H.32 Marion St / Greenwood Ave AM	Greenwood Ave	South	T1	564	87%	60.28	LOS E	18.8
H.32 Marion St / Greenwood Ave AM	Greenwood Ave	South	L2	25	87%	65.15	LOS E	18.4
H.32 Marion St / Greenwood Ave AM	Olympic Parade	East	L2	44	25%	22.98	LOS B	7.1
H.32 Marion St / Greenwood Ave AM	Olympic Parade	East	T1	409	25%	18.88	LOS B	7.5
H.32 Marion St / Greenwood Ave AM	Marion St	North	T1	282	49%	26.58	LOS B	15.7
H.32 Marion St / Greenwood Ave AM	Marion St	North	L2	97	49%	31.16	LOS C	15.7
H.32 Marion St / Greenwood Ave AM	Marion St	North	R2	482	85%	42.96	LOS D	11.0
H.32 Marion St / Greenwood Ave AM	Marion St	West	T1	504	89%	40.60	LOS C	26.7
H.32 Marion St / Greenwood Ave AM	Marion St	West	L2	1334	58%	20.11	LOS B	33.5
H.32 Marion St / Greenwood Ave PM	Greenwood Ave	South	T1	451	88%	59.06	LOS E	16.0
H.32 Marion St / Greenwood Ave PM	Greenwood Ave	South	L2	73	88%	63.89	LOS E	15.4
H.32 Marion St / Greenwood Ave PM	Olympic Parade	East	L2	64	52%	36.87	LOS C	14.1
H.32 Marion St / Greenwood Ave PM	Olympic Parade	East	T1	635	52%	30.64	LOS C	14.4
H.32 Marion St / Greenwood Ave PM	Marion St	North	T1	652	77%	21.55	LOS B	31.6
H.32 Marion St / Greenwood Ave PM	Marion St	North	L2	113	77%	26.15	LOS B	31.6
H.32 Marion St / Greenwood Ave PM	Marion St	North	R2	836	91%	44.55	LOS D	19.2
H.32 Marion St / Greenwood Ave PM	Marion St	West	T1	380	55%	12.88	LOS A	9.3
H.32 Marion St / Greenwood Ave PM	Marion St	West	L2	719	25%	8.35	LOS A	5.3

11.3 Bankstown Station: Future (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.01 South Terrace / Restwell Street AM Peak	Restwell Street	South	R2	675	47%	23.16	LOS B	14.7
B.01 South Terrace / Restwell Street AM Peak	Restwell Street	South	L2	126	47%	22.21	LOS B	13.1
B.01 South Terrace / Restwell Street AM Peak	Local Access Road	North	L2	1	44%	65.09	LOS E	1.3
B.01 South Terrace / Restwell Street AM Peak	Local Access Road	North	R2	21	44%	65.86	LOS E	1.3
B.01 South Terrace / Restwell Street AM Peak	Bankstown City Plaza	West	R2	40	45%	52.16	LOS D	3.3
B.01 South Terrace / Restwell Street AM Peak	Bankstown City Plaza	West	T1	24	45%	48.43	LOS D	3.3
B.01 South Terrace / Restwell Street PM Peak	Restwell Street	South	R2	814	56%	23.96	LOS B	17.9
B.01 South Terrace / Restwell Street PM Peak	Restwell Street	South	L2	144	56%	22.99	LOS B	16.1
B.01 South Terrace / Restwell Street PM Peak	Local Access Road	North	L2	4	49%	61.47	LOS E	1.5
B.01 South Terrace / Restwell Street PM Peak	Local Access Road	North	R2	23	49%	62.25	LOS E	1.5
B.01 South Terrace / Restwell Street PM Peak	Bankstown City Plaza	West	R2	39	57%	54.10	LOS D	3.5
B.01 South Terrace / Restwell Street PM Peak	Bankstown City Plaza	West	T1	27	57%	50.37	LOS D	3.5
B.02 Restwell Street / Raymond Street AM Peak	Restwell Street	South	T1	367	54%	20.50	LOS B	11.3
B.02 Restwell Street / Raymond Street AM Peak	Restwell Street	South	L2	1	1%	41.80	LOS C	0.0
B.02 Restwell Street / Raymond Street AM Peak	Raymond St	East	L2	201	24%	17.87	LOS B	4.8
B.02 Restwell Street / Raymond Street AM Peak	Raymond St	East	R2	338	56%	28.05	LOS B	11.1
B.02 Restwell Street / Raymond Street AM Peak	Raymond St	East	T1	1	0%	18.87	LOS B	0.0
B.02 Restwell Street / Raymond Street AM Peak	Restwell Street	North	T1	41	11%	17.01	LOS B	1.0
B.02 Restwell Street / Raymond Street AM Peak	Greenfield Parade	West	L2	122	7%	2.88	LOS A	0.0
B.02 Restwell Street / Raymond Street PM Peak	Restwell Street	South	T1	403	75%	27.96	LOS B	14.4
B.02 Restwell Street / Raymond Street PM Peak	Restwell Street	South	L2	1	1%	38.58	LOS C	0.0
B.02 Restwell Street / Raymond Street PM Peak	Raymond St	East	L2	335	34%	14.14	LOS A	7.0
B.02 Restwell Street / Raymond Street PM Peak	Raymond St	East	R2	543	75%	26.45	LOS B	18.0
B.02 Restwell Street / Raymond Street PM Peak	Raymond St	East	T1	10	1%	14.37	LOS A	0.2
B.02 Restwell Street / Raymond Street PM Peak	Restwell Street	North	T1	44	15%	21.11	LOS B	1.2
B.02 Restwell Street / Raymond Street PM Peak	Greenfield Parade	West	L2	1	0%	2.88	LOS A	0.0
B.03 South Terrace / West Terrace AM Peak	South Terrace	East	L2	160	37%	44.20	LOS D	7.8
B.03 South Terrace / West Terrace AM Peak	South Terrace	East	R2	358	41%	44.62	LOS D	8.8
B.03 South Terrace / West Terrace AM Peak	Underpass	North	T1	301	41%	28.50	LOS C	12.6
B.03 South Terrace / West Terrace AM Peak	Underpass	North	L2	200	16%	10.45	LOS A	4.2
B.03 South Terrace / West Terrace AM Peak	South Terrace	West	R2	96	6%	3.94	LOS A	0.0
B.03 South Terrace / West Terrace AM Peak	South Terrace	West	T1	175	40%	41.89	LOS C	8.6
B.03 South Terrace / West Terrace AM Peak	South Terrace	West	L2	398	32%	12.51	LOS A	9.7
B.03 South Terrace / West Terrace PM Peak	South Terrace	East	L2	243	61%	49.63	LOS D	13.0
B.03 South Terrace / West Terrace PM Peak	South Terrace	East	R2	379	47%	48.03	LOS D	9.8
B.03 South Terrace / West Terrace PM Peak	Underpass	North	T1	451	62%	32.62	LOS C	21.3
B.03 South Terrace / West Terrace PM Peak	Underpass	North	L2	441	37%	13.51	LOS A	11.9
B.03 South Terrace / West Terrace PM Peak	South Terrace	West	R2	128	7%	3.91	LOS A	0.0
B.03 South Terrace / West Terrace PM Peak	South Terrace	West	T1	281	62%	41.80	LOS C	14.4
B.03 South Terrace / West Terrace PM Peak	South Terrace	West	L2	389	31%	11.42	LOS A	8.9
H.01 Meredith St / Marion St AM Peak	Car Park	South	R2	3	3%	55.09	LOS D	0.2
H.01 Meredith St / Marion St AM Peak	Car Park	South	T1	5	11%	28.44	LOS B	0.7
H.01 Meredith St / Marion St AM Peak	Car Park	South	L2	15	11%	28.44	LOS B	0.7
H.01 Meredith St / Marion St AM Peak	Marion St	East	L2	33	17%	25.44	LOS B	4.6

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.01 Meredith St / Marion St AM Peak	Marion St	East	R2	50	37%	58.75	LOS E	2.7
H.01 Meredith St / Marion St AM Peak	Marion St	East	T1	266	17%	18.60	LOS B	4.7
H.01 Meredith St / Marion St AM Peak	RoadName	North	T1	33	52%	51.64	LOS D	9.5
H.01 Meredith St / Marion St AM Peak	RoadName	North	L2	23	52%	46.86	LOS D	9.5
H.01 Meredith St / Marion St AM Peak	RoadName	North	R2	333	52%	47.31	LOS D	9.5
H.01 Meredith St / Marion St AM Peak	Marion St	West	R2	72	54%	64.35	LOS E	4.0
H.01 Meredith St / Marion St AM Peak	Marion St	West	T1	482	61%	24.61	LOS B	18.7
H.01 Meredith St / Marion St AM Peak	Marion St	West	L2	621	52%	10.00	LOS A	9.1
H.01 Meredith St / Marion St PM Peak	Car Park	South	R2	24	15%	48.69	LOS D	1.2
H.01 Meredith St / Marion St PM Peak	Car Park	South	T1	49	64%	32.19	LOS C	4.2
H.01 Meredith St / Marion St PM Peak	Car Park	South	L2	83	64%	32.19	LOS C	4.2
H.01 Meredith St / Marion St PM Peak	Marion St	East	L2	16	55%	39.07	LOS C	13.2
H.01 Meredith St / Marion St PM Peak	Marion St	East	R2	52	49%	58.05	LOS E	2.7
H.01 Meredith St / Marion St PM Peak	Marion St	East	T1	575	55%	31.86	LOS C	13.2
H.01 Meredith St / Marion St PM Peak	RoadName	North	T1	18	84%	50.37	LOS D	26.0
H.01 Meredith St / Marion St PM Peak	RoadName	North	L2	39	84%	45.59	LOS D	26.0
H.01 Meredith St / Marion St PM Peak	RoadName	North	R2	937	84%	45.85	LOS D	26.0
H.01 Meredith St / Marion St PM Peak	Marion St	West	R2	37	34%	61.88	LOS E	1.9
H.01 Meredith St / Marion St PM Peak	Marion St	West	T1	464	84%	43.31	LOS D	23.9
H.01 Meredith St / Marion St PM Peak	Marion St	West	L2	505	44%	10.15	LOS A	7.2
H.02 Stacey St / Wattle St AM Peak	Stacey St	South	R2	122	50%	77.19	LOS F	8.8
H.02 Stacey St / Wattle St AM Peak	Stacey St	South	T1	1382	49%	6.20	LOS A	11.9
H.02 Stacey St / Wattle St AM Peak	Stacey St	South	L2	45	3%	6.26	LOS A	0.1
H.02 Stacey St / Wattle St AM Peak	Wattle St	East	L2	219	23%	5.84	LOS A	2.2
H.02 Stacey St / Wattle St AM Peak	Wattle St	East	R2	91	66%	92.79	LOS F	3.8
H.02 Stacey St / Wattle St AM Peak	Wattle St	East	T1	16	23%	1.44	LOS A	2.2
H.02 Stacey St / Wattle St AM Peak	Stacey St	North	T1	1348	41%	4.71	LOS A	7.3
H.02 Stacey St / Wattle St AM Peak	Stacey St	North	L2	129	41%	7.56	LOS A	2.8
H.02 Stacey St / Wattle St AM Peak	Stacey St	North	R2	13	6%	72.45	LOS F	0.8
H.02 Stacey St / Wattle St AM Peak	Car Park	West	R2	10	7%	87.28	LOS F	0.4
H.02 Stacey St / Wattle St AM Peak	Car Park	West	T1	7	20%	78.05	LOS F	1.7
H.02 Stacey St / Wattle St AM Peak	Car Park	West	L2	15	20%	82.34	LOS F	1.7
H.02 Stacey St / Wattle St PM Peak	Stacey St	South	R2	254	90%	83.46	LOS F	20.0
H.02 Stacey St / Wattle St PM Peak	Stacey St	South	T1	1412	87%	30.64	LOS C	37.7
H.02 Stacey St / Wattle St PM Peak	Stacey St	South	L2	145	13%	16.00	LOS B	2.8
H.02 Stacey St / Wattle St PM Peak	Wattle St	East	L2	597	71%	37.98	LOS C	30.3
H.02 Stacey St / Wattle St PM Peak	Wattle St	East	R2	88	48%	83.38	LOS F	3.3
H.02 Stacey St / Wattle St PM Peak	Wattle St	East	T1	50	71%	33.58	LOS C	30.3
H.02 Stacey St / Wattle St PM Peak	Stacey St	North	T1	2506	89%	33.54	LOS C	56.9
H.02 Stacey St / Wattle St PM Peak	Stacey St	North	L2	153	89%	36.71	LOS C	55.6
H.02 Stacey St / Wattle St PM Peak	Stacey St	North	R2	66	23%	67.05	LOS E	4.1
H.02 Stacey St / Wattle St PM Peak	Car Park	West	R2	151	86%	91.44	LOS F	6.1
H.02 Stacey St / Wattle St PM Peak	Car Park	West	T1	32	32%	53.09	LOS D	7.9
H.02 Stacey St / Wattle St PM Peak	Car Park	West	L2	98	32%	57.39	LOS E	7.9
H.03 North Terrace / Wattle St AM Peak	Wattle St	East	U	2	22%	8.71	LOS A	1.6

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.03 North Terrace / Wattle St AM Peak	Wattle St	East	R2	373	22%	7.19	LOS A	1.6
H.03 North Terrace / Wattle St AM Peak	Wattle St	East	T1	616	26%	3.55	LOS A	2.2
H.03 North Terrace / Wattle St AM Peak	Wattle St	North	L2	292	33%	7.06	LOS A	2.4
H.03 North Terrace / Wattle St AM Peak	Wattle St	North	U	7	9%	14.01	LOS A	0.5
H.03 North Terrace / Wattle St AM Peak	Wattle St	North	R2	39	9%	12.44	LOS A	0.5
H.03 North Terrace / Wattle St AM Peak	North Terrace	West	T1	461	41%	5.75	LOS A	2.9
H.03 North Terrace / Wattle St AM Peak	North Terrace	West	L2	180	16%	5.09	LOS A	0.9
H.03 North Terrace / Wattle St AM Peak	North Terrace	West	U	11	41%	10.79	LOS A	2.9
H.03 North Terrace / Wattle St PM Peak	Wattle St	East	U	9	36%	9.82	LOS A	2.8
H.03 North Terrace / Wattle St PM Peak	Wattle St	East	R2	327	36%	8.36	LOS A	2.8
H.03 North Terrace / Wattle St PM Peak	Wattle St	East	T1	895	66%	4.67	LOS A	8.6
H.03 North Terrace / Wattle St PM Peak	Wattle St	North	L2	319	78%	29.35	LOS C	9.5
H.03 North Terrace / Wattle St PM Peak	Wattle St	North	U	11	44%	26.65	LOS B	2.7
H.03 North Terrace / Wattle St PM Peak	Wattle St	North	R2	94	44%	25.08	LOS B	2.7
H.03 North Terrace / Wattle St PM Peak	North Terrace	West	T1	689	75%	10.91	LOS A	10.3
H.03 North Terrace / Wattle St PM Peak	North Terrace	West	L2	84	9%	5.40	LOS A	0.5
H.03 North Terrace / Wattle St PM Peak	North Terrace	West	U	7	75%	15.96	LOS B	10.3
H.04 Stanley St / Stacey St AM Peak	Stacey St	South	T1	1361	50%	8.96	LOS A	17.4
H.04 Stanley St / Stacey St AM Peak	Stacey St	South	L2	21	2%	12.24	LOS A	0.3
H.04 Stanley St / Stacey St AM Peak	Salvia Ave	East	L2	1	82%	94.69	LOS F	7.0
H.04 Stanley St / Stacey St AM Peak	Salvia Ave	East	R2	136	82%	94.71	LOS F	7.0
H.04 Stanley St / Stacey St AM Peak	Salvia Ave	East	T1	30	82%	90.13	LOS F	7.0
H.04 Stanley St / Stacey St AM Peak	Stacey St	North	T1	1471	49%	13.99	LOS A	36.8
H.04 Stanley St / Stacey St AM Peak	Stacey St	North	L2	18	1%	15.05	LOS B	0.7
H.04 Stanley St / Stacey St AM Peak	Stacey St	North	R2	56	23%	87.30	LOS F	4.3
H.04 Stanley St / Stacey St AM Peak	Stanley St	West	R2	84	67%	83.00	LOS F	9.2
H.04 Stanley St / Stacey St AM Peak	Stanley St	West	T1	33	67%	78.43	LOS F	9.2
H.04 Stanley St / Stacey St AM Peak	Stanley St	West	L2	84	32%	70.28	LOS E	5.9
H.04 Stanley St / Stacey St PM Peak	Stacey St	South	T1	1707	64%	10.48	LOS A	23.8
H.04 Stanley St / Stacey St PM Peak	Stacey St	South	L2	48	4%	12.92	LOS A	0.6
H.04 Stanley St / Stacey St PM Peak	Salvia Ave	East	L2	1	85%	89.41	LOS F	7.5
H.04 Stanley St / Stacey St PM Peak	Salvia Ave	East	R2	126	85%	89.45	LOS F	7.5
H.04 Stanley St / Stacey St PM Peak	Salvia Ave	East	T1	59	85%	84.85	LOS F	7.5
H.04 Stanley St / Stacey St PM Peak	Stacey St	North	T1	2816	84%	1.13	LOS A	11.4
H.04 Stanley St / Stacey St PM Peak	Stacey St	North	L2	78	5%	6.83	LOS A	0.1
H.04 Stanley St / Stacey St PM Peak	Stacey St	North	R2	79	64%	79.91	LOS F	5.8
H.04 Stanley St / Stacey St PM Peak	Stanley St	West	R2	148	90%	89.16	LOS F	15.8
H.04 Stanley St / Stacey St PM Peak	Stanley St	West	T1	44	90%	84.60	LOS F	15.8
H.04 Stanley St / Stacey St PM Peak	Stanley St	West	L2	54	15%	56.21	LOS D	3.2
H.30 The Appian Way / Nth Tce AM	North Tce	East	T1	442	48%	3.02	LOS A	4.1
H.30 The Appian Way / Nth Tce AM	The Appian Way	North	L2	397	30%	6.17	LOS A	1.9
H.30 The Appian Way / Nth Tce AM	The Appian Way	North	R2	122	36%	15.76	LOS B	1.4
H.30 The Appian Way / Nth Tce PM	North Tce	East	T1	447	58%	6.59	LOS A	6.0
H.30 The Appian Way / Nth Tce PM	The Appian Way	North	L2	703	58%	9.02	LOS A	8.2
H.30 The Appian Way / Nth Tce PM	The Appian Way	North	R2	218	93%	53.51	LOS D	7.0

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.31 Marion St / Oxford Ave AM	Oxford Ave	South	R2	207	45%	52.87	LOS D	7.0
H.31 Marion St / Oxford Ave AM	Oxford Ave	South	L2	56	45%	51.91	LOS D	7.0
H.31 Marion St / Oxford Ave AM	Marion St	East	L2	90	42%	32.28	LOS C	12.3
H.31 Marion St / Oxford Ave AM	Marion St	East	T1	513	42%	27.69	LOS B	12.4
H.31 Marion St / Oxford Ave AM	Marion St	West	R2	189	46%	10.06	LOS A	6.5
H.31 Marion St / Oxford Ave AM	Marion St	West	T1	915	46%	1.89	LOS A	6.5
H.31 Marion St / Oxford Ave PM	Oxford Ave	South	R2	199	87%	62.75	LOS E	11.6
H.31 Marion St / Oxford Ave PM	Oxford Ave	South	L2	192	36%	36.85	LOS C	8.0
H.31 Marion St / Oxford Ave PM	Marion St	East	L2	195	59%	13.22	LOS A	13.4
H.31 Marion St / Oxford Ave PM	Marion St	East	T1	1130	59%	8.64	LOS A	13.6
H.31 Marion St / Oxford Ave PM	Marion St	West	R2	324	43%	19.60	LOS B	11.2
H.31 Marion St / Oxford Ave PM	Marion St	West	T1	612	43%	0.43	LOS A	1.1
H.32 Marion St / Greenwood Ave AM	Greenwood Ave	South	T1	361	49%	44.81	LOS D	9.8
H.32 Marion St / Greenwood Ave AM	Greenwood Ave	South	L2	18	49%	49.60	LOS D	9.6
H.32 Marion St / Greenwood Ave AM	Olympic Parade	East	L2	31	20%	24.48	LOS B	5.3
H.32 Marion St / Greenwood Ave AM	Olympic Parade	East	T1	291	20%	21.26	LOS B	5.7
H.32 Marion St / Greenwood Ave AM	Marion St	North	T1	200	30%	20.35	LOS B	9.2
H.32 Marion St / Greenwood Ave AM	Marion St	North	L2	63	30%	24.93	LOS B	9.2
H.32 Marion St / Greenwood Ave AM	Marion St	North	R2	343	49%	30.44	LOS C	5.9
H.32 Marion St / Greenwood Ave AM	Marion St	West	T1	324	48%	24.59	LOS B	12.6
H.32 Marion St / Greenwood Ave AM	Marion St	West	L2	856	36%	21.36	LOS B	22.4
H.32 Marion St / Greenwood Ave PM	Greenwood Ave	South	T1	411	85%	56.87	LOS E	14.1
H.32 Marion St / Greenwood Ave PM	Greenwood Ave	South	L2	68	85%	61.68	LOS E	13.7
H.32 Marion St / Greenwood Ave PM	Olympic Parade	East	L2	59	45%	33.07	LOS C	12.1
H.32 Marion St / Greenwood Ave PM	Olympic Parade	East	T1	584	45%	27.25	LOS B	12.4
H.32 Marion St / Greenwood Ave PM	Marion St	North	T1	600	74%	22.93	LOS B	29.2
H.32 Marion St / Greenwood Ave PM	Marion St	North	L2	103	74%	27.52	LOS B	29.2
H.32 Marion St / Greenwood Ave PM	Marion St	North	R2	770	91%	44.81	LOS D	17.9
H.32 Marion St / Greenwood Ave PM	Marion St	West	T1	346	47%	9.61	LOS A	6.4
H.32 Marion St / Greenwood Ave PM	Marion St	West	L2	655	23%	7.98	LOS A	4.6

11.4 Bankstown Station: Future + Construction (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.01 South Terrace / Restwell Street AM Peak	Restwell Street	South	R2	683	49%	24.00	LOS B	15.2
B.01 South Terrace / Restwell Street AM Peak	Restwell Street	South	L2	126	49%	23.04	LOS B	13.6
B.01 South Terrace / Restwell Street AM Peak	Local Access Road	North	L2	8	45%	62.46	LOS E	1.7
B.01 South Terrace / Restwell Street AM Peak	Local Access Road	North	R2	21	45%	62.79	LOS E	1.7
B.01 South Terrace / Restwell Street AM Peak	Bankstown City Plaza	West	R2	40	48%	53.41	LOS D	3.4
B.01 South Terrace / Restwell Street AM Peak	Bankstown City Plaza	West	T1	24	48%	49.68	LOS D	3.4
B.01 South Terrace / Restwell Street PM Peak	Restwell Street	South	R2	822	58%	24.87	LOS B	18.5
B.01 South Terrace / Restwell Street PM Peak	Restwell Street	South	L2	144	58%	23.89	LOS B	16.8
B.01 South Terrace / Restwell Street PM Peak	Local Access Road	North	L2	12	54%	60.86	LOS E	1.9
B.01 South Terrace / Restwell Street PM Peak	Local Access Road	North	R2	23	54%	61.32	LOS E	1.9
B.01 South Terrace / Restwell Street PM Peak	Bankstown City Plaza	West	R2	39	57%	54.10	LOS D	3.5
B.01 South Terrace / Restwell Street PM Peak	Bankstown City Plaza	West	T1	27	57%	50.37	LOS D	3.5
B.02 Restwell Street / Raymond Street AM Peak	Restwell Street	South	T1	367	56%	21.38	LOS B	11.5
B.02 Restwell Street / Raymond Street AM Peak	Restwell Street	South	L2	1	1%	41.80	LOS C	0.0
B.02 Restwell Street / Raymond Street AM Peak	Raymond St	East	L2	201	24%	17.20	LOS B	4.7
B.02 Restwell Street / Raymond Street AM Peak	Raymond St	East	R2	347	56%	27.42	LOS B	11.3
B.02 Restwell Street / Raymond Street AM Peak	Raymond St	East	T1	1	0%	18.17	LOS B	0.0
B.02 Restwell Street / Raymond Street AM Peak	Restwell Street	North	T1	41	11%	17.73	LOS B	1.1
B.02 Restwell Street / Raymond Street AM Peak	Greenfield Parade	West	L2	122	7%	2.88	LOS A	0.0
B.02 Restwell Street / Raymond Street PM Peak	Restwell Street	South	T1	403	75%	27.96	LOS B	14.4
B.02 Restwell Street / Raymond Street PM Peak	Restwell Street	South	L2	1	1%	38.58	LOS C	0.0
B.02 Restwell Street / Raymond Street PM Peak	Raymond St	East	L2	335	34%	14.14	LOS A	7.0
B.02 Restwell Street / Raymond Street PM Peak	Raymond St	East	R2	550	77%	27.56	LOS B	18.8
B.02 Restwell Street / Raymond Street PM Peak	Raymond St	East	T1	10	1%	14.37	LOS A	0.2
B.02 Restwell Street / Raymond Street PM Peak	Restwell Street	North	T1	44	15%	21.11	LOS B	1.2
B.02 Restwell Street / Raymond Street PM Peak	Greenfield Parade	West	L2	1	0%	2.88	LOS A	0.0
B.03 South Terrace / West Terrace AM Peak	South Terrace	East	L2	160	39%	45.17	LOS D	7.9
B.03 South Terrace / West Terrace AM Peak	South Terrace	East	R2	358	42%	45.60	LOS D	8.9
B.03 South Terrace / West Terrace AM Peak	Underpass	North	T1	301	41%	29.31	LOS C	12.8
B.03 South Terrace / West Terrace AM Peak	Underpass	North	L2	200	17%	11.25	LOS A	4.4
B.03 South Terrace / West Terrace AM Peak	South Terrace	West	R2	96	6%	3.94	LOS A	0.0
B.03 South Terrace / West Terrace AM Peak	South Terrace	West	T1	183	41%	40.38	LOS C	8.9
B.03 South Terrace / West Terrace AM Peak	South Terrace	West	L2	398	32%	12.05	LOS A	9.5
B.03 South Terrace / West Terrace PM Peak	South Terrace	East	L2	243	63%	50.70	LOS D	13.2
B.03 South Terrace / West Terrace PM Peak	South Terrace	East	R2	379	49%	49.06	LOS D	9.9
B.03 South Terrace / West Terrace PM Peak	Underpass	North	T1	451	63%	33.52	LOS C	21.6
B.03 South Terrace / West Terrace PM Peak	Underpass	North	L2	441	38%	14.54	LOS B	12.4
B.03 South Terrace / West Terrace PM Peak	South Terrace	West	R2	128	7%	3.91	LOS A	0.0
B.03 South Terrace / West Terrace PM Peak	South Terrace	West	T1	289	62%	40.25	LOS C	14.6
B.03 South Terrace / West Terrace PM Peak	South Terrace	West	L2	389	30%	11.00	LOS A	8.7
H.01 Meredith St / Marion St AM Peak	Car Park	South	R2	3	3%	55.09	LOS D	0.2
H.01 Meredith St / Marion St AM Peak	Car Park	South	T1	5	11%	28.44	LOS B	0.7
H.01 Meredith St / Marion St AM Peak	Car Park	South	L2	15	11%	28.44	LOS B	0.7
H.01 Meredith St / Marion St AM Peak	Marion St	East	L2	33	17%	25.44	LOS B	4.6

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.01 Meredith St / Marion St AM Peak	Marion St	East	R2	50	37%	58.75	LOS E	2.7
H.01 Meredith St / Marion St AM Peak	Marion St	East	T1	266	17%	18.60	LOS B	4.7
H.01 Meredith St / Marion St AM Peak	RoadName	North	T1	33	52%	51.64	LOS D	9.5
H.01 Meredith St / Marion St AM Peak	RoadName	North	L2	23	52%	46.86	LOS D	9.5
H.01 Meredith St / Marion St AM Peak	RoadName	North	R2	333	52%	47.31	LOS D	9.5
H.01 Meredith St / Marion St AM Peak	Marion St	West	R2	72	54%	64.35	LOS E	4.0
H.01 Meredith St / Marion St AM Peak	Marion St	West	T1	482	61%	24.61	LOS B	18.7
H.01 Meredith St / Marion St AM Peak	Marion St	West	L2	621	52%	10.00	LOS A	9.1
H.01 Meredith St / Marion St PM Peak	Car Park	South	R2	24	15%	48.69	LOS D	1.2
H.01 Meredith St / Marion St PM Peak	Car Park	South	T1	49	64%	32.19	LOS C	4.2
H.01 Meredith St / Marion St PM Peak	Car Park	South	L2	83	64%	32.19	LOS C	4.2
H.01 Meredith St / Marion St PM Peak	Marion St	East	L2	16	55%	39.07	LOS C	13.2
H.01 Meredith St / Marion St PM Peak	Marion St	East	R2	52	49%	58.05	LOS E	2.7
H.01 Meredith St / Marion St PM Peak	Marion St	East	T1	575	55%	31.86	LOS C	13.2
H.01 Meredith St / Marion St PM Peak	RoadName	North	T1	18	84%	50.37	LOS D	26.0
H.01 Meredith St / Marion St PM Peak	RoadName	North	L2	39	84%	45.59	LOS D	26.0
H.01 Meredith St / Marion St PM Peak	RoadName	North	R2	937	84%	45.85	LOS D	26.0
H.01 Meredith St / Marion St PM Peak	Marion St	West	R2	37	34%	61.88	LOS E	1.9
H.01 Meredith St / Marion St PM Peak	Marion St	West	T1	464	84%	43.31	LOS D	23.9
H.01 Meredith St / Marion St PM Peak	Marion St	West	L2	505	44%	10.15	LOS A	7.2
H.02 Stacey St / Wattle St AM Peak	Stacey St	South	R2	130	50%	75.65	LOS F	9.2
H.02 Stacey St / Wattle St AM Peak	Stacey St	South	T1	1382	50%	7.27	LOS A	13.5
H.02 Stacey St / Wattle St AM Peak	Stacey St	South	L2	45	3%	6.75	LOS A	0.2
H.02 Stacey St / Wattle St AM Peak	Wattle St	East	L2	227	24%	5.91	LOS A	2.4
H.02 Stacey St / Wattle St AM Peak	Wattle St	East	R2	91	66%	92.79	LOS F	3.8
H.02 Stacey St / Wattle St AM Peak	Wattle St	East	T1	16	24%	1.51	LOS A	2.4
H.02 Stacey St / Wattle St AM Peak	Stacey St	North	T1	1348	42%	5.64	LOS A	8.2
H.02 Stacey St / Wattle St AM Peak	Stacey St	North	L2	129	42%	8.30	LOS A	3.8
H.02 Stacey St / Wattle St AM Peak	Stacey St	North	R2	13	5%	70.32	LOS E	0.8
H.02 Stacey St / Wattle St AM Peak	Car Park	West	R2	10	7%	87.28	LOS F	0.4
H.02 Stacey St / Wattle St AM Peak	Car Park	West	T1	7	20%	78.04	LOS F	1.7
H.02 Stacey St / Wattle St AM Peak	Car Park	West	L2	15	20%	82.34	LOS F	1.7
H.02 Stacey St / Wattle St PM Peak	Stacey St	South	R2	262	91%	84.52	LOS F	20.9
H.02 Stacey St / Wattle St PM Peak	Stacey St	South	T1	1412	87%	31.16	LOS C	38.3
H.02 Stacey St / Wattle St PM Peak	Stacey St	South	L2	145	13%	16.00	LOS B	2.8
H.02 Stacey St / Wattle St PM Peak	Wattle St	East	L2	604	73%	38.46	LOS C	30.7
H.02 Stacey St / Wattle St PM Peak	Wattle St	East	R2	88	48%	83.38	LOS F	3.3
H.02 Stacey St / Wattle St PM Peak	Wattle St	East	T1	50	73%	34.06	LOS C	30.7
H.02 Stacey St / Wattle St PM Peak	Stacey St	North	T1	2506	89%	33.56	LOS C	56.9
H.02 Stacey St / Wattle St PM Peak	Stacey St	North	L2	153	89%	36.80	LOS C	55.6
H.02 Stacey St / Wattle St PM Peak	Stacey St	North	R2	66	22%	65.99	LOS E	4.0
H.02 Stacey St / Wattle St PM Peak	Car Park	West	R2	151	86%	91.44	LOS F	6.1
H.02 Stacey St / Wattle St PM Peak	Car Park	West	T1	32	33%	54.06	LOS D	8.0
H.02 Stacey St / Wattle St PM Peak	Car Park	West	L2	98	33%	58.36	LOS E	8.0
H.03 North Terrace / Wattle St AM Peak	Wattle St	East	U	2	22%	8.76	LOS A	1.7

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.03 North Terrace / Wattle St AM Peak	Wattle St	East	R2	373	22%	7.24	LOS A	1.7
H.03 North Terrace / Wattle St AM Peak	Wattle St	East	T1	616	27%	3.58	LOS A	2.2
H.03 North Terrace / Wattle St AM Peak	Wattle St	North	L2	292	33%	7.06	LOS A	2.4
H.03 North Terrace / Wattle St AM Peak	Wattle St	North	U	7	12%	14.11	LOS A	0.7
H.03 North Terrace / Wattle St AM Peak	Wattle St	North	R2	47	12%	13.51	LOS A	0.7
H.03 North Terrace / Wattle St AM Peak	North Terrace	West	T1	461	41%	5.75	LOS A	2.9
H.03 North Terrace / Wattle St AM Peak	North Terrace	West	L2	188	17%	5.18	LOS A	1.0
H.03 North Terrace / Wattle St AM Peak	North Terrace	West	U	11	41%	10.79	LOS A	2.9
H.03 North Terrace / Wattle St PM Peak	Wattle St	East	U	9	37%	9.97	LOS A	2.9
H.03 North Terrace / Wattle St PM Peak	Wattle St	East	R2	327	37%	8.51	LOS A	2.9
H.03 North Terrace / Wattle St PM Peak	Wattle St	East	T1	895	68%	4.82	LOS A	8.8
H.03 North Terrace / Wattle St PM Peak	Wattle St	North	L2	319	78%	29.44	LOS C	9.5
H.03 North Terrace / Wattle St PM Peak	Wattle St	North	U	11	47%	26.92	LOS B	3.0
H.03 North Terrace / Wattle St PM Peak	Wattle St	North	R2	102	47%	26.16	LOS B	3.0
H.03 North Terrace / Wattle St PM Peak	North Terrace	West	T1	689	75%	10.96	LOS A	10.3
H.03 North Terrace / Wattle St PM Peak	North Terrace	West	L2	92	11%	5.61	LOS A	0.6
H.03 North Terrace / Wattle St PM Peak	North Terrace	West	U	7	75%	16.00	LOS B	10.3
H.04 Stanley St / Stacey St AM Peak	Stacey St	South	T1	1374	51%	9.04	LOS A	18.0
H.04 Stanley St / Stacey St AM Peak	Stacey St	South	L2	29	3%	12.69	LOS A	0.5
H.04 Stanley St / Stacey St AM Peak	Salvia Ave	East	L2	1	82%	94.69	LOS F	7.0
H.04 Stanley St / Stacey St AM Peak	Salvia Ave	East	R2	136	82%	94.71	LOS F	7.0
H.04 Stanley St / Stacey St AM Peak	Salvia Ave	East	T1	30	82%	90.13	LOS F	7.0
H.04 Stanley St / Stacey St AM Peak	Stacey St	North	T1	1479	50%	14.07	LOS A	37.2
H.04 Stanley St / Stacey St AM Peak	Stacey St	North	L2	18	1%	15.05	LOS B	0.7
H.04 Stanley St / Stacey St AM Peak	Stacey St	North	R2	56	23%	87.30	LOS F	4.3
H.04 Stanley St / Stacey St AM Peak	Stanley St	West	R2	96	82%	89.30	LOS F	10.8
H.04 Stanley St / Stacey St AM Peak	Stanley St	West	T1	33	82%	84.61	LOS F	10.8
H.04 Stanley St / Stacey St AM Peak	Stanley St	West	L2	84	32%	70.28	LOS E	5.9
H.04 Stanley St / Stacey St PM Peak	Stacey St	South	T1	1720	67%	12.74	LOS A	28.3
H.04 Stanley St / Stacey St PM Peak	Stacey St	South	L2	55	5%	14.55	LOS B	0.9
H.04 Stanley St / Stacey St PM Peak	Salvia Ave	East	L2	1	85%	89.41	LOS F	7.5
H.04 Stanley St / Stacey St PM Peak	Salvia Ave	East	R2	126	85%	89.45	LOS F	7.5
H.04 Stanley St / Stacey St PM Peak	Salvia Ave	East	T1	59	85%	84.85	LOS F	7.5
H.04 Stanley St / Stacey St PM Peak	Stacey St	North	T1	2823	87%	1.22	LOS A	13.7
H.04 Stanley St / Stacey St PM Peak	Stacey St	North	L2	78	5%	6.86	LOS A	0.1
H.04 Stanley St / Stacey St PM Peak	Stacey St	North	R2	79	64%	79.91	LOS F	5.8
H.04 Stanley St / Stacey St PM Peak	Stanley St	West	R2	161	88%	85.23	LOS F	16.5
H.04 Stanley St / Stacey St PM Peak	Stanley St	West	T1	44	88%	80.61	LOS F	16.5
H.04 Stanley St / Stacey St PM Peak	Stanley St	West	L2	54	13%	53.47	LOS D	3.1
H.30 The Appian Way / Nth Tce AM	North Tce	East	T1	442	48%	3.02	LOS A	4.1
H.30 The Appian Way / Nth Tce AM	The Appian Way	North	L2	397	30%	6.17	LOS A	1.9
H.30 The Appian Way / Nth Tce AM	The Appian Way	North	R2	122	36%	15.76	LOS B	1.4
H.30 The Appian Way / Nth Tce PM	North Tce	East	T1	447	58%	6.59	LOS A	6.0
H.30 The Appian Way / Nth Tce PM	The Appian Way	North	L2	703	58%	9.02	LOS A	8.2
H.30 The Appian Way / Nth Tce PM	The Appian Way	North	R2	218	93%	53.51	LOS D	7.0

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.31 Marion St / Oxford Ave AM	Oxford Ave	South	R2	207	45%	52.87	LOS D	7.0
H.31 Marion St / Oxford Ave AM	Oxford Ave	South	L2	56	45%	51.91	LOS D	7.0
H.31 Marion St / Oxford Ave AM	Marion St	East	L2	90	42%	32.28	LOS C	12.3
H.31 Marion St / Oxford Ave AM	Marion St	East	T1	513	42%	27.69	LOS B	12.4
H.31 Marion St / Oxford Ave AM	Marion St	West	R2	189	46%	10.06	LOS A	6.5
H.31 Marion St / Oxford Ave AM	Marion St	West	T1	915	46%	1.89	LOS A	6.5
H.31 Marion St / Oxford Ave PM	Oxford Ave	South	R2	199	87%	62.75	LOS E	11.6
H.31 Marion St / Oxford Ave PM	Oxford Ave	South	L2	192	36%	36.85	LOS C	8.0
H.31 Marion St / Oxford Ave PM	Marion St	East	L2	195	59%	13.22	LOS A	13.4
H.31 Marion St / Oxford Ave PM	Marion St	East	T1	1130	59%	8.64	LOS A	13.6
H.31 Marion St / Oxford Ave PM	Marion St	West	R2	324	43%	19.60	LOS B	11.2
H.31 Marion St / Oxford Ave PM	Marion St	West	T1	612	43%	0.43	LOS A	1.1
H.32 Marion St / Greenwood Ave AM	Greenwood Ave	South	T1	361	49%	44.81	LOS D	9.8
H.32 Marion St / Greenwood Ave AM	Greenwood Ave	South	L2	18	49%	49.60	LOS D	9.6
H.32 Marion St / Greenwood Ave AM	Olympic Parade	East	L2	31	20%	24.48	LOS B	5.3
H.32 Marion St / Greenwood Ave AM	Olympic Parade	East	T1	291	20%	21.26	LOS B	5.7
H.32 Marion St / Greenwood Ave AM	Marion St	North	T1	200	30%	20.35	LOS B	9.2
H.32 Marion St / Greenwood Ave AM	Marion St	North	L2	63	30%	24.93	LOS B	9.2
H.32 Marion St / Greenwood Ave AM	Marion St	North	R2	343	49%	30.44	LOS C	5.9
H.32 Marion St / Greenwood Ave AM	Marion St	West	T1	324	48%	24.59	LOS B	12.6
H.32 Marion St / Greenwood Ave AM	Marion St	West	L2	856	36%	21.36	LOS B	22.4
H.32 Marion St / Greenwood Ave PM	Greenwood Ave	South	T1	411	85%	56.87	LOS E	14.1
H.32 Marion St / Greenwood Ave PM	Greenwood Ave	South	L2	68	85%	61.68	LOS E	13.7
H.32 Marion St / Greenwood Ave PM	Olympic Parade	East	L2	59	45%	33.07	LOS C	12.1
H.32 Marion St / Greenwood Ave PM	Olympic Parade	East	T1	584	45%	27.25	LOS B	12.4
H.32 Marion St / Greenwood Ave PM	Marion St	North	T1	600	74%	22.93	LOS B	29.2
H.32 Marion St / Greenwood Ave PM	Marion St	North	L2	103	74%	27.52	LOS B	29.2
H.32 Marion St / Greenwood Ave PM	Marion St	North	R2	770	91%	44.81	LOS D	17.9
H.32 Marion St / Greenwood Ave PM	Marion St	West	T1	346	47%	9.61	LOS A	6.4
H.32 Marion St / Greenwood Ave PM	Marion St	West	L2	655	23%	7.98	LOS A	4.6

11.5 Bankstown Station: Future + Construction + Refined TTS (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
B.01 South Terrace / Restwell Street AM Peak	Restwell Street	South	R2	698	63%	31.83	LOS C	18.9
B.01 South Terrace / Restwell Street AM Peak	Restwell Street	South	L2	126	63%	30.84	LOS C	16.3
B.01 South Terrace / Restwell Street AM Peak	Local Access Road	North	L2	24	60%	55.80	LOS D	3.6
B.01 South Terrace / Restwell Street AM Peak	Local Access Road	North	R2	42	60%	56.09	LOS D	3.6
B.01 South Terrace / Restwell Street AM Peak	Bankstown City Plaza	West	R2	40	62%	55.58	LOS D	4.6
B.01 South Terrace / Restwell Street AM Peak	Bankstown City Plaza	West	T1	44	62%	51.84	LOS D	4.6
B.01 South Terrace / Restwell Street PM Peak	Restwell Street	South	R2	838	75%	32.29	LOS C	24.1
B.01 South Terrace / Restwell Street PM Peak	Restwell Street	South	L2	144	75%	32.32	LOS C	19.1
B.01 South Terrace / Restwell Street PM Peak	Local Access Road	North	L2	33	72%	58.96	LOS E	4.0
B.01 South Terrace / Restwell Street PM Peak	Local Access Road	North	R2	39	72%	59.29	LOS E	4.0
B.01 South Terrace / Restwell Street PM Peak	Bankstown City Plaza	West	R2	39	74%	58.35	LOS E	4.9
B.01 South Terrace / Restwell Street PM Peak	Bankstown City Plaza	West	T1	48	74%	54.61	LOS D	4.9
B.02 Restwell Street / Raymond Street AM Peak	Restwell Street	South	T1	367	58%	22.27	LOS B	11.8
B.02 Restwell Street / Raymond Street AM Peak	Restwell Street	South	L2	1	1%	41.80	LOS C	0.0
B.02 Restwell Street / Raymond Street AM Peak	Raymond St	East	L2	201	23%	16.56	LOS B	4.6
B.02 Restwell Street / Raymond Street AM Peak	Raymond St	East	R2	363	59%	27.11	LOS B	11.9
B.02 Restwell Street / Raymond Street AM Peak	Raymond St	East	T1	1	0%	17.47	LOS B	0.0
B.02 Restwell Street / Raymond Street AM Peak	Restwell Street	North	T1	41	11%	18.48	LOS B	1.1
B.02 Restwell Street / Raymond Street AM Peak	Greenfield Parade	West	L2	122	7%	2.88	LOS A	0.0
B.02 Restwell Street / Raymond Street PM Peak	Restwell Street	South	T1	403	79%	30.32	LOS C	15.0
B.02 Restwell Street / Raymond Street PM Peak	Restwell Street	South	L2	1	1%	38.58	LOS C	0.0
B.02 Restwell Street / Raymond Street PM Peak	Raymond St	East	L2	335	33%	13.53	LOS A	6.8
B.02 Restwell Street / Raymond Street PM Peak	Raymond St	East	R2	566	79%	28.03	LOS B	19.8
B.02 Restwell Street / Raymond Street PM Peak	Raymond St	East	T1	10	1%	13.73	LOS A	0.2
B.02 Restwell Street / Raymond Street PM Peak	Restwell Street	North	T1	44	16%	21.98	LOS B	1.3
B.02 Restwell Street / Raymond Street PM Peak	Greenfield Parade	West	L2	1	0%	2.88	LOS A	0.0
B.03 South Terrace / West Terrace AM Peak	South Terrace	East	L2	176	44%	45.24	LOS D	8.7
B.03 South Terrace / West Terrace AM Peak	South Terrace	East	R2	358	41%	44.62	LOS D	8.8
B.03 South Terrace / West Terrace AM Peak	Underpass	North	T1	301	44%	31.81	LOS C	13.3
B.03 South Terrace / West Terrace AM Peak	Underpass	North	L2	200	17%	12.09	LOS A	4.6
B.03 South Terrace / West Terrace AM Peak	South Terrace	West	R2	96	6%	3.94	LOS A	0.0
B.03 South Terrace / West Terrace AM Peak	South Terrace	West	T1	198	44%	39.32	LOS C	9.6
B.03 South Terrace / West Terrace AM Peak	South Terrace	West	L2	398	32%	12.51	LOS A	9.7
B.03 South Terrace / West Terrace PM Peak	South Terrace	East	L2	259	66%	49.68	LOS D	14.0
B.03 South Terrace / West Terrace PM Peak	South Terrace	East	R2	379	45%	47.03	LOS D	9.7
B.03 South Terrace / West Terrace PM Peak	Underpass	North	T1	451	68%	36.30	LOS C	22.5
B.03 South Terrace / West Terrace PM Peak	Underpass	North	L2	441	38%	15.07	LOS B	12.7
B.03 South Terrace / West Terrace PM Peak	South Terrace	West	R2	128	7%	3.91	LOS A	0.0
B.03 South Terrace / West Terrace PM Peak	South Terrace	West	T1	304	69%	40.12	LOS C	15.4
B.03 South Terrace / West Terrace PM Peak	South Terrace	West	L2	389	31%	11.85	LOS A	9.2
H.01 Meredith St / Marion St AM Peak	Car Park	South	R2	3	3%	55.09	LOS D	0.2
H.01 Meredith St / Marion St AM Peak	Car Park	South	T1	5	11%	28.44	LOS B	0.7
H.01 Meredith St / Marion St AM Peak	Car Park	South	L2	15	11%	28.44	LOS B	0.7
H.01 Meredith St / Marion St AM Peak	Marion St	East	L2	33	17%	25.44	LOS B	4.6

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.01 Meredith St / Marion St AM Peak	Marion St	East	R2	50	37%	58.75	LOS E	2.7
H.01 Meredith St / Marion St AM Peak	Marion St	East	T1	266	17%	18.60	LOS B	4.7
H.01 Meredith St / Marion St AM Peak	RoadName	North	T1	33	52%	51.64	LOS D	9.5
H.01 Meredith St / Marion St AM Peak	RoadName	North	L2	23	52%	46.86	LOS D	9.5
H.01 Meredith St / Marion St AM Peak	RoadName	North	R2	333	52%	47.31	LOS D	9.5
H.01 Meredith St / Marion St AM Peak	Marion St	West	R2	72	54%	64.35	LOS E	4.0
H.01 Meredith St / Marion St AM Peak	Marion St	West	T1	482	61%	24.61	LOS B	18.7
H.01 Meredith St / Marion St AM Peak	Marion St	West	L2	621	52%	10.00	LOS A	9.1
H.01 Meredith St / Marion St PM Peak	Car Park	South	R2	24	15%	48.69	LOS D	1.2
H.01 Meredith St / Marion St PM Peak	Car Park	South	T1	49	64%	32.19	LOS C	4.2
H.01 Meredith St / Marion St PM Peak	Car Park	South	L2	83	64%	32.19	LOS C	4.2
H.01 Meredith St / Marion St PM Peak	Marion St	East	L2	16	55%	39.07	LOS C	13.2
H.01 Meredith St / Marion St PM Peak	Marion St	East	R2	52	49%	58.05	LOS E	2.7
H.01 Meredith St / Marion St PM Peak	Marion St	East	T1	575	55%	31.86	LOS C	13.2
H.01 Meredith St / Marion St PM Peak	RoadName	North	T1	18	84%	50.37	LOS D	26.0
H.01 Meredith St / Marion St PM Peak	RoadName	North	L2	39	84%	45.59	LOS D	26.0
H.01 Meredith St / Marion St PM Peak	RoadName	North	R2	937	84%	45.85	LOS D	26.0
H.01 Meredith St / Marion St PM Peak	Marion St	West	R2	37	34%	61.88	LOS E	1.9
H.01 Meredith St / Marion St PM Peak	Marion St	West	T1	464	84%	43.31	LOS D	23.9
H.01 Meredith St / Marion St PM Peak	Marion St	West	L2	505	44%	10.15	LOS A	7.2
H.02 Stacey St / Wattle St AM Peak	Stacey St	South	R2	130	50%	75.65	LOS F	9.2
H.02 Stacey St / Wattle St AM Peak	Stacey St	South	T1	1382	50%	7.27	LOS A	13.5
H.02 Stacey St / Wattle St AM Peak	Stacey St	South	L2	45	3%	6.75	LOS A	0.2
H.02 Stacey St / Wattle St AM Peak	Wattle St	East	L2	227	24%	5.91	LOS A	2.4
H.02 Stacey St / Wattle St AM Peak	Wattle St	East	R2	91	66%	92.79	LOS F	3.8
H.02 Stacey St / Wattle St AM Peak	Wattle St	East	T1	16	24%	1.51	LOS A	2.4
H.02 Stacey St / Wattle St AM Peak	Stacey St	North	T1	1348	42%	5.64	LOS A	8.2
H.02 Stacey St / Wattle St AM Peak	Stacey St	North	L2	129	42%	8.30	LOS A	3.8
H.02 Stacey St / Wattle St AM Peak	Stacey St	North	R2	13	5%	70.32	LOS E	0.8
H.02 Stacey St / Wattle St AM Peak	Car Park	West	R2	10	7%	87.28	LOS F	0.4
H.02 Stacey St / Wattle St AM Peak	Car Park	West	T1	7	20%	78.04	LOS F	1.7
H.02 Stacey St / Wattle St AM Peak	Car Park	West	L2	15	20%	82.34	LOS F	1.7
H.02 Stacey St / Wattle St PM Peak	Stacey St	South	R2	262	91%	84.52	LOS F	20.9
H.02 Stacey St / Wattle St PM Peak	Stacey St	South	T1	1412	87%	31.16	LOS C	38.3
H.02 Stacey St / Wattle St PM Peak	Stacey St	South	L2	145	13%	16.00	LOS B	2.8
H.02 Stacey St / Wattle St PM Peak	Wattle St	East	L2	604	73%	38.46	LOS C	30.7
H.02 Stacey St / Wattle St PM Peak	Wattle St	East	R2	88	48%	83.38	LOS F	3.3
H.02 Stacey St / Wattle St PM Peak	Wattle St	East	T1	50	73%	34.06	LOS C	30.7
H.02 Stacey St / Wattle St PM Peak	Stacey St	North	T1	2506	89%	33.56	LOS C	56.9
H.02 Stacey St / Wattle St PM Peak	Stacey St	North	L2	153	89%	36.80	LOS C	55.6
H.02 Stacey St / Wattle St PM Peak	Stacey St	North	R2	66	22%	65.99	LOS E	4.0
H.02 Stacey St / Wattle St PM Peak	Car Park	West	R2	151	86%	91.44	LOS F	6.1
H.02 Stacey St / Wattle St PM Peak	Car Park	West	T1	32	33%	54.06	LOS D	8.0
H.02 Stacey St / Wattle St PM Peak	Car Park	West	L2	98	33%	58.36	LOS E	8.0
H.03 North Terrace / Wattle St AM Peak	Wattle St	East	U	2	22%	8.76	LOS A	1.7

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.03 North Terrace / Wattle St AM Peak	Wattle St	East	R2	373	22%	7.24	LOS A	1.7
H.03 North Terrace / Wattle St AM Peak	Wattle St	East	T1	616	27%	3.58	LOS A	2.2
H.03 North Terrace / Wattle St AM Peak	Wattle St	North	L2	292	33%	7.06	LOS A	2.4
H.03 North Terrace / Wattle St AM Peak	Wattle St	North	U	7	12%	14.11	LOS A	0.7
H.03 North Terrace / Wattle St AM Peak	Wattle St	North	R2	47	12%	13.51	LOS A	0.7
H.03 North Terrace / Wattle St AM Peak	North Terrace	West	T1	461	41%	5.75	LOS A	2.9
H.03 North Terrace / Wattle St AM Peak	North Terrace	West	L2	188	17%	5.18	LOS A	1.0
H.03 North Terrace / Wattle St AM Peak	North Terrace	West	U	11	41%	10.79	LOS A	2.9
H.03 North Terrace / Wattle St PM Peak	Wattle St	East	U	9	37%	9.97	LOS A	2.9
H.03 North Terrace / Wattle St PM Peak	Wattle St	East	R2	327	37%	8.51	LOS A	2.9
H.03 North Terrace / Wattle St PM Peak	Wattle St	East	T1	895	68%	4.82	LOS A	8.8
H.03 North Terrace / Wattle St PM Peak	Wattle St	North	L2	319	78%	29.44	LOS C	9.5
H.03 North Terrace / Wattle St PM Peak	Wattle St	North	U	11	47%	26.92	LOS B	3.0
H.03 North Terrace / Wattle St PM Peak	Wattle St	North	R2	102	47%	26.16	LOS B	3.0
H.03 North Terrace / Wattle St PM Peak	North Terrace	West	T1	689	75%	10.96	LOS A	10.3
H.03 North Terrace / Wattle St PM Peak	North Terrace	West	L2	92	11%	5.61	LOS A	0.6
H.03 North Terrace / Wattle St PM Peak	North Terrace	West	U	7	75%	16.00	LOS B	10.3
H.04 Stanley St / Stacey St AM Peak	Stacey St	South	T1	1374	51%	9.04	LOS A	18.0
H.04 Stanley St / Stacey St AM Peak	Stacey St	South	L2	29	3%	12.69	LOS A	0.5
H.04 Stanley St / Stacey St AM Peak	Salvia Ave	East	L2	1	82%	94.69	LOS F	7.0
H.04 Stanley St / Stacey St AM Peak	Salvia Ave	East	R2	136	82%	94.71	LOS F	7.0
H.04 Stanley St / Stacey St AM Peak	Salvia Ave	East	T1	30	82%	90.13	LOS F	7.0
H.04 Stanley St / Stacey St AM Peak	Stacey St	North	T1	1479	50%	14.07	LOS A	37.2
H.04 Stanley St / Stacey St AM Peak	Stacey St	North	L2	18	1%	15.05	LOS B	0.7
H.04 Stanley St / Stacey St AM Peak	Stacey St	North	R2	56	23%	87.30	LOS F	4.3
H.04 Stanley St / Stacey St AM Peak	Stanley St	West	R2	96	82%	89.30	LOS F	10.8
H.04 Stanley St / Stacey St AM Peak	Stanley St	West	T1	33	82%	84.61	LOS F	10.8
H.04 Stanley St / Stacey St AM Peak	Stanley St	West	L2	84	32%	70.28	LOS E	5.9
H.04 Stanley St / Stacey St PM Peak	Stacey St	South	T1	1720	67%	12.74	LOS A	28.3
H.04 Stanley St / Stacey St PM Peak	Stacey St	South	L2	55	5%	14.55	LOS B	0.9
H.04 Stanley St / Stacey St PM Peak	Salvia Ave	East	L2	1	85%	89.41	LOS F	7.5
H.04 Stanley St / Stacey St PM Peak	Salvia Ave	East	R2	126	85%	89.45	LOS F	7.5
H.04 Stanley St / Stacey St PM Peak	Salvia Ave	East	T1	59	85%	84.85	LOS F	7.5
H.04 Stanley St / Stacey St PM Peak	Stacey St	North	T1	2823	87%	1.22	LOS A	13.7
H.04 Stanley St / Stacey St PM Peak	Stacey St	North	L2	78	5%	6.86	LOS A	0.1
H.04 Stanley St / Stacey St PM Peak	Stacey St	North	R2	79	64%	79.91	LOS F	5.8
H.04 Stanley St / Stacey St PM Peak	Stanley St	West	R2	161	88%	85.23	LOS F	16.5
H.04 Stanley St / Stacey St PM Peak	Stanley St	West	T1	44	88%	80.61	LOS F	16.5
H.04 Stanley St / Stacey St PM Peak	Stanley St	West	L2	54	13%	53.47	LOS D	3.1
H.30 The Appian Way / Nth Tce AM	North Tce	East	T1	442	48%	3.02	LOS A	4.1
H.30 The Appian Way / Nth Tce AM	The Appian Way	North	L2	397	30%	6.17	LOS A	1.9
H.30 The Appian Way / Nth Tce AM	The Appian Way	North	R2	143	46%	17.98	LOS B	1.8
H.30 The Appian Way / Nth Tce PM	North Tce	East	T1	447	58%	6.59	LOS A	6.0
H.30 The Appian Way / Nth Tce PM	The Appian Way	North	L2	703	58%	9.02	LOS A	8.2
H.30 The Appian Way / Nth Tce PM	The Appian Way	North	R2	239	109%	136.89	LOS F	19.9

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.31 Marion St / Oxford Ave AM	Oxford Ave	South	R2	207	45%	52.87	LOS D	7.0
H.31 Marion St / Oxford Ave AM	Oxford Ave	South	L2	56	45%	51.91	LOS D	7.0
H.31 Marion St / Oxford Ave AM	Marion St	East	L2	90	42%	32.28	LOS C	12.3
H.31 Marion St / Oxford Ave AM	Marion St	East	T1	513	42%	27.69	LOS B	12.4
H.31 Marion St / Oxford Ave AM	Marion St	West	R2	189	46%	10.06	LOS A	6.5
H.31 Marion St / Oxford Ave AM	Marion St	West	T1	915	46%	1.89	LOS A	6.5
H.31 Marion St / Oxford Ave PM	Oxford Ave	South	R2	199	87%	62.75	LOS E	11.6
H.31 Marion St / Oxford Ave PM	Oxford Ave	South	L2	192	36%	36.85	LOS C	8.0
H.31 Marion St / Oxford Ave PM	Marion St	East	L2	195	59%	13.22	LOS A	13.4
H.31 Marion St / Oxford Ave PM	Marion St	East	T1	1130	59%	8.64	LOS A	13.6
H.31 Marion St / Oxford Ave PM	Marion St	West	R2	324	43%	19.60	LOS B	11.2
H.31 Marion St / Oxford Ave PM	Marion St	West	T1	612	43%	0.43	LOS A	1.1
H.32 Marion St / Greenwood Ave AM	Greenwood Ave	South	T1	361	49%	44.81	LOS D	9.8
H.32 Marion St / Greenwood Ave AM	Greenwood Ave	South	L2	18	49%	49.60	LOS D	9.6
H.32 Marion St / Greenwood Ave AM	Olympic Parade	East	L2	31	20%	24.48	LOS B	5.3
H.32 Marion St / Greenwood Ave AM	Olympic Parade	East	T1	291	20%	21.26	LOS B	5.7
H.32 Marion St / Greenwood Ave AM	Marion St	North	T1	200	30%	20.35	LOS B	9.2
H.32 Marion St / Greenwood Ave AM	Marion St	North	L2	63	30%	24.93	LOS B	9.2
H.32 Marion St / Greenwood Ave AM	Marion St	North	R2	343	49%	30.44	LOS C	5.9
H.32 Marion St / Greenwood Ave AM	Marion St	West	T1	324	48%	24.59	LOS B	12.6
H.32 Marion St / Greenwood Ave AM	Marion St	West	L2	856	36%	21.36	LOS B	22.4
H.32 Marion St / Greenwood Ave PM	Greenwood Ave	South	T1	411	85%	56.87	LOS E	14.1
H.32 Marion St / Greenwood Ave PM	Greenwood Ave	South	L2	68	85%	61.68	LOS E	13.7
H.32 Marion St / Greenwood Ave PM	Olympic Parade	East	L2	59	45%	33.07	LOS C	12.1
H.32 Marion St / Greenwood Ave PM	Olympic Parade	East	T1	584	45%	27.25	LOS B	12.4
H.32 Marion St / Greenwood Ave PM	Marion St	North	T1	600	74%	22.93	LOS B	29.2
H.32 Marion St / Greenwood Ave PM	Marion St	North	L2	103	74%	27.52	LOS B	29.2
H.32 Marion St / Greenwood Ave PM	Marion St	North	R2	770	91%	44.81	LOS D	17.9
H.32 Marion St / Greenwood Ave PM	Marion St	West	T1	346	47%	9.61	LOS A	6.4
H.32 Marion St / Greenwood Ave PM	Marion St	West	L2	655	23%	7.98	LOS A	4.6

12.0 Regents Park Station

12.1 Regents Park Station: Future

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.35 Auburn Rd / Amy St AM Peak	Auburn Rd	South	T1	543	81%	16.21	LOS B	11.7
H.35 Auburn Rd / Amy St AM Peak	Auburn Rd	South	L2	478	71%	13.52	LOS A	8.1
H.35 Auburn Rd / Amy St AM Peak	Amy St	North	T1	327	44%	5.72	LOS A	3.1
H.35 Auburn Rd / Amy St AM Peak	Amy St	North	R2	404	55%	9.74	LOS A	4.7
H.35 Auburn Rd / Amy St AM Peak	Bridge	West	R2	296	54%	14.01	LOS A	4.8
H.35 Auburn Rd / Amy St AM Peak	Bridge	West	L2	385	70%	17.65	LOS B	8.1
H.35 Auburn Rd / Amy St PM Peak	Auburn Rd	South	T1	241	47%	10.86	LOS A	3.2
H.35 Auburn Rd / Amy St PM Peak	Auburn Rd	South	L2	235	46%	11.96	LOS A	3.1
H.35 Auburn Rd / Amy St PM Peak	Amy St	North	T1	522	65%	9.74	LOS A	6.7
H.35 Auburn Rd / Amy St PM Peak	Amy St	North	R2	457	58%	11.38	LOS A	5.1
H.35 Auburn Rd / Amy St PM Peak	Bridge	West	R2	366	53%	9.37	LOS A	4.2
H.35 Auburn Rd / Amy St PM Peak	Bridge	West	L2	372	55%	8.11	LOS A	4.5

12.2 Regents Park Station: Future + Refined Baseline TTP

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.35 Auburn Rd / Amy St AM Peak	Auburn Rd	South	T1	550	82%	17.38	LOS B	12.5
H.35 Auburn Rd / Amy St AM Peak	Auburn Rd	South	L2	478	71%	13.55	LOS A	8.1
H.35 Auburn Rd / Amy St AM Peak	Amy St	North	T1	327	44%	5.83	LOS A	3.1
H.35 Auburn Rd / Amy St AM Peak	Amy St	North	R2	404	56%	10.01	LOS A	4.8
H.35 Auburn Rd / Amy St AM Peak	Bridge	West	R2	303	56%	14.85	LOS B	5.1
H.35 Auburn Rd / Amy St AM Peak	Bridge	West	L2	385	71%	18.33	LOS B	8.3
H.35 Auburn Rd / Amy St PM Peak	Auburn Rd	South	T1	241	47%	10.87	LOS A	3.2
H.35 Auburn Rd / Amy St PM Peak	Auburn Rd	South	L2	241	48%	12.50	LOS A	3.4
H.35 Auburn Rd / Amy St PM Peak	Amy St	North	T1	522	65%	10.02	LOS A	6.8
H.35 Auburn Rd / Amy St PM Peak	Amy St	North	R2	457	58%	11.60	LOS A	5.3
H.35 Auburn Rd / Amy St PM Peak	Bridge	West	R2	372	55%	9.65	LOS A	4.4
H.35 Auburn Rd / Amy St PM Peak	Bridge	West	L2	372	55%	8.11	LOS A	4.5

12.3 Regents Park Station: Future (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.35 Auburn Rd / Amy St AM Peak	Auburn Rd	South	T1	351	45%	5.79	LOS A	3.1
H.35 Auburn Rd / Amy St AM Peak	Auburn Rd	South	L2	340	44%	6.98	LOS A	2.9
H.35 Auburn Rd / Amy St AM Peak	Amy St	North	T1	234	28%	4.58	LOS A	1.7
H.35 Auburn Rd / Amy St AM Peak	Amy St	North	R2	288	35%	7.51	LOS A	2.3
H.35 Auburn Rd / Amy St AM Peak	Bridge	West	R2	210	28%	8.50	LOS A	1.8
H.35 Auburn Rd / Amy St AM Peak	Bridge	West	L2	247	34%	7.53	LOS A	2.3
H.35 Auburn Rd / Amy St PM Peak	Auburn Rd	South	T1	219	40%	9.28	LOS A	2.5
H.35 Auburn Rd / Amy St PM Peak	Auburn Rd	South	L2	217	40%	10.43	LOS A	2.5
H.35 Auburn Rd / Amy St PM Peak	Amy St	North	T1	480	58%	8.12	LOS A	5.1
H.35 Auburn Rd / Amy St PM Peak	Amy St	North	R2	421	51%	10.10	LOS A	4.0
H.35 Auburn Rd / Amy St PM Peak	Bridge	West	R2	336	48%	8.45	LOS A	3.4
H.35 Auburn Rd / Amy St PM Peak	Bridge	West	L2	339	49%	6.94	LOS A	3.5

12.4 Regents Park Station: Future + Refined TTS (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.35 Auburn Rd / Amy St AM Peak	Auburn Rd	South	T1	351	45%	5.79	LOS A	3.1
H.35 Auburn Rd / Amy St AM Peak	Auburn Rd	South	L2	346	45%	7.08	LOS A	3.0
H.35 Auburn Rd / Amy St AM Peak	Amy St	North	T1	240	29%	4.66	LOS A	1.8
H.35 Auburn Rd / Amy St AM Peak	Amy St	North	R2	288	35%	7.51	LOS A	2.3
H.35 Auburn Rd / Amy St AM Peak	Bridge	West	R2	210	28%	8.50	LOS A	1.8
H.35 Auburn Rd / Amy St AM Peak	Bridge	West	L2	247	34%	7.53	LOS A	2.3
H.35 Auburn Rd / Amy St PM Peak	Auburn Rd	South	T1	219	40%	9.28	LOS A	2.5
H.35 Auburn Rd / Amy St PM Peak	Auburn Rd	South	L2	223	42%	10.89	LOS A	2.7
H.35 Auburn Rd / Amy St PM Peak	Amy St	North	T1	486	59%	8.35	LOS A	5.3
H.35 Auburn Rd / Amy St PM Peak	Amy St	North	R2	421	51%	10.10	LOS A	4.0
H.35 Auburn Rd / Amy St PM Peak	Bridge	West	R2	336	48%	8.45	LOS A	3.4
H.35 Auburn Rd / Amy St PM Peak	Bridge	West	L2	339	49%	6.94	LOS A	3.5

13.0 Lidcombe Station

13.1 Lidcombe Station: Future

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.26 Joseph St / Georges Ave AM Peak	Joseph St	South	R2	390	96%	67.95	LOS E	24.6
H.26 Joseph St / Georges Ave AM Peak	Joseph St	South	T1	2867	75%	1.14	LOS A	5.3
H.26 Joseph St / Georges Ave AM Peak	Joseph St	South	L2	49	75%	7.60	LOS A	5.3
H.26 Joseph St / Georges Ave AM Peak	Georges Ave	East	L2	106	30%	47.78	LOS D	8.4
H.26 Joseph St / Georges Ave AM Peak	Georges Ave	East	R2	12	43%	61.39	LOS E	9.5
H.26 Joseph St / Georges Ave AM Peak	Georges Ave	East	T1	179	43%	53.46	LOS D	9.5
H.26 Joseph St / Georges Ave AM Peak	Joseph St	North	T1	1553	60%	17.47	LOS B	21.1
H.26 Joseph St / Georges Ave AM Peak	Joseph St	North	L2	88	60%	24.07	LOS B	21.1
H.26 Joseph St / Georges Ave AM Peak	Joseph St	North	R2	90	70%	85.44	LOS F	6.8
H.26 Joseph St / Georges Ave AM Peak	Georges Ave	West	R2	99	90%	80.24	LOS F	21.0
H.26 Joseph St / Georges Ave AM Peak	Georges Ave	West	T1	276	90%	66.70	LOS E	21.0
H.26 Joseph St / Georges Ave AM Peak	Georges Ave	West	L2	205	72%	56.51	LOS E	19.3
H.26 Joseph St / Georges Ave PM Peak	Joseph St	South	R2	100	41%	71.51	LOS F	6.7
H.26 Joseph St / Georges Ave PM Peak	Joseph St	South	T1	1785	53%	14.00	LOS A	17.7
H.26 Joseph St / Georges Ave PM Peak	Joseph St	South	L2	65	53%	20.39	LOS B	17.6
H.26 Joseph St / Georges Ave PM Peak	Georges Ave	East	L2	343	77%	57.81	LOS E	32.7
H.26 Joseph St / Georges Ave PM Peak	Georges Ave	East	R2	37	77%	73.48	LOS F	20.7
H.26 Joseph St / Georges Ave PM Peak	Georges Ave	East	T1	441	77%	62.51	LOS E	32.7
H.26 Joseph St / Georges Ave PM Peak	Joseph St	North	T1	2495	75%	8.56	LOS A	25.8
H.26 Joseph St / Georges Ave PM Peak	Joseph St	North	L2	27	75%	15.21	LOS B	25.8
H.26 Joseph St / Georges Ave PM Peak	Joseph St	North	R2	228	91%	89.45	LOS F	18.3
H.26 Joseph St / Georges Ave PM Peak	Georges Ave	West	R2	29	89%	87.14	LOS F	12.4
H.26 Joseph St / Georges Ave PM Peak	Georges Ave	West	T1	211	89%	69.70	LOS E	12.4
H.26 Joseph St / Georges Ave PM Peak	Georges Ave	West	L2	95	41%	55.10	LOS D	10.8
H.27 Olympic Dr / Joseph St AM Peak	Joseph St	South	R1	674	76%	11.79	LOS A	15.3
H.27 Olympic Dr / Joseph St AM Peak	Joseph St	South	T1	2419	44%	0.04	LOS A	0.0
H.27 Olympic Dr / Joseph St AM Peak	Joseph St	Northeast	L1	201	12%	26.46	LOS B	4.0
H.27 Olympic Dr / Joseph St AM Peak	Olympic Dr	North	T1	1698	76%	6.67	LOS A	14.0
H.27 Olympic Dr / Joseph St AM Peak	Olympic Dr	North	L3	125	76%	14.07	LOS A	13.6
H.27 Olympic Dr / Joseph St PM Peak	Joseph St	South	R1	347	72%	9.67	LOS A	4.7
H.27 Olympic Dr / Joseph St PM Peak	Joseph St	South	T1	1532	27%	0.02	LOS A	0.0
H.27 Olympic Dr / Joseph St PM Peak	Joseph St	Northeast	L1	420	55%	53.71	LOS D	12.8
H.27 Olympic Dr / Joseph St PM Peak	Olympic Dr	North	T1	2577	71%	1.72	LOS A	6.2
H.27 Olympic Dr / Joseph St PM Peak	Olympic Dr	North	L3	90	71%	9.15	LOS A	6.1
H.28 Vaughan St / Joseph St AM peak	Joseph St	South	T1	297	69%	13.98	LOS A	4.7

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.28 Vaughan St / Joseph St AM peak	Joseph St	South	L2	406	39%	8.53	LOS A	3.5
H.28 Vaughan St / Joseph St AM peak	Joseph St	North	T1	119	33%	4.29	LOS A	1.5
H.28 Vaughan St / Joseph St AM peak	Joseph St	North	R2	139	33%	11.99	LOS A	1.5
H.28 Vaughan St / Joseph St AM peak	Vaughan St	West	R2	280	80%	21.77	LOS B	5.0
H.28 Vaughan St / Joseph St AM peak	Vaughan St	West	L2	213	28%	11.26	LOS A	2.2
H.28 Vaughan St / Joseph St PM peak	Joseph St	South	T1	221	56%	20.01	LOS B	5.0
H.28 Vaughan St / Joseph St PM peak	Joseph St	South	L2	555	48%	9.76	LOS A	7.1
H.28 Vaughan St / Joseph St PM peak	Joseph St	North	T1	194	44%	10.16	LOS A	3.8
H.28 Vaughan St / Joseph St PM peak	Joseph St	North	R2	144	44%	18.35	LOS B	3.8
H.28 Vaughan St / Joseph St PM peak	Vaughan St	West	R2	304	54%	20.41	LOS B	6.3
H.28 Vaughan St / Joseph St PM peak	Vaughan St	West	L2	173	17%	10.47	LOS A	2.1
H.29 Olympic Dr / Church St AM peak	Olympic Dr	South	T1	2954	96%	55.47	LOS D	88.4
H.29 Olympic Dr / Church St AM peak	Olympic Dr	South	L1	145	96%	62.84	LOS E	86.9
H.29 Olympic Dr / Church St AM peak	Church St	Southeast	L3	267	49%	13.58	LOS A	10.4
H.29 Olympic Dr / Church St AM peak	Church St	Southeast	R1	152	44%	61.62	LOS E	9.9
H.29 Olympic Dr / Church St AM peak	Church St	Southeast	T1	12	49%	8.10	LOS A	10.4
H.29 Olympic Dr / Church St AM peak	Olympic Dr	North	T1	1558	48%	12.36	LOS A	20.2
H.29 Olympic Dr / Church St AM peak	Olympic Dr	North	L1	168	48%	18.50	LOS B	20.2
H.29 Olympic Dr / Church St AM peak	Olympic Dr	North	R3	19	32%	89.59	LOS F	1.4
H.29 Olympic Dr / Church St AM peak	Church St	Northwest	R1	8	82%	100.20	LOS F	7.8
H.29 Olympic Dr / Church St AM peak	Church St	Northwest	T1	74	82%	97.00	LOS F	7.8
H.29 Olympic Dr / Church St AM peak	Church St	Northwest	L3	12	82%	102.60	LOS F	7.8
H.29 Olympic Dr / Church St PM peak	Olympic Dr	South	T1	1756	88%	54.16	LOS D	45.3
H.29 Olympic Dr / Church St PM peak	Olympic Dr	South	L1	94	88%	60.65	LOS E	44.7
H.29 Olympic Dr / Church St PM peak	Church St	Southeast	L3	541	71%	35.61	LOS C	24.9
H.29 Olympic Dr / Church St PM peak	Church St	Southeast	R1	317	46%	41.01	LOS C	17.1
H.29 Olympic Dr / Church St PM peak	Church St	Southeast	T1	10	71%	30.14	LOS C	24.9
H.29 Olympic Dr / Church St PM peak	Olympic Dr	North	T1	2255	94%	60.62	LOS E	66.2
H.29 Olympic Dr / Church St PM peak	Olympic Dr	North	L1	154	94%	66.67	LOS E	66.2
H.29 Olympic Dr / Church St PM peak	Olympic Dr	North	R3	18	27%	86.18	LOS F	1.3
H.29 Olympic Dr / Church St PM peak	Church St	Northwest	R1	70	84%	90.94	LOS F	12.2
H.29 Olympic Dr / Church St PM peak	Church St	Northwest	T1	64	84%	87.73	LOS F	12.2
H.29 Olympic Dr / Church St PM peak	Church St	Northwest	L3	28	84%	93.22	LOS F	12.2

13.2 Lidcombe Station: Future + Refined Baseline TTP

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.26 Joseph St / Georges Ave AM Peak	Joseph St	South	R2	390	96%	67.37	LOS E	24.1
H.26 Joseph St / Georges Ave AM Peak	Joseph St	South	T1	2867	77%	1.18	LOS A	5.7
H.26 Joseph St / Georges Ave AM Peak	Joseph St	South	L2	49	77%	7.64	LOS A	5.7
H.26 Joseph St / Georges Ave AM Peak	Georges Ave	East	L2	106	28%	46.08	LOS D	8.2
H.26 Joseph St / Georges Ave AM Peak	Georges Ave	East	R2	12	41%	60.27	LOS E	9.4
H.26 Joseph St / Georges Ave AM Peak	Georges Ave	East	T1	179	41%	52.22	LOS D	9.4
H.26 Joseph St / Georges Ave AM Peak	Joseph St	North	T1	1553	62%	17.91	LOS B	21.5
H.26 Joseph St / Georges Ave AM Peak	Joseph St	North	L2	88	62%	24.52	LOS B	21.5
H.26 Joseph St / Georges Ave AM Peak	Joseph St	North	R2	90	70%	85.44	LOS F	6.8
H.26 Joseph St / Georges Ave AM Peak	Georges Ave	West	R2	99	89%	75.04	LOS F	21.1
H.26 Joseph St / Georges Ave AM Peak	Georges Ave	West	T1	276	89%	63.41	LOS E	21.1
H.26 Joseph St / Georges Ave AM Peak	Georges Ave	West	L2	219	71%	53.96	LOS D	19.0
H.26 Joseph St / Georges Ave PM Peak	Joseph St	South	R2	100	41%	71.51	LOS F	6.7
H.26 Joseph St / Georges Ave PM Peak	Joseph St	South	T1	1785	55%	14.65	LOS B	18.1
H.26 Joseph St / Georges Ave PM Peak	Joseph St	South	L2	65	55%	21.04	LOS B	18.1
H.26 Joseph St / Georges Ave PM Peak	Georges Ave	East	L2	343	67%	53.71	LOS D	29.9
H.26 Joseph St / Georges Ave PM Peak	Georges Ave	East	R2	37	67%	69.18	LOS E	21.5
H.26 Joseph St / Georges Ave PM Peak	Georges Ave	East	T1	441	67%	59.12	LOS E	29.9
H.26 Joseph St / Georges Ave PM Peak	Joseph St	North	T1	2495	79%	8.97	LOS A	27.9
H.26 Joseph St / Georges Ave PM Peak	Joseph St	North	L2	27	79%	15.63	LOS B	27.9
H.26 Joseph St / Georges Ave PM Peak	Joseph St	North	R2	228	91%	89.45	LOS F	18.3
H.26 Joseph St / Georges Ave PM Peak	Georges Ave	West	R2	29	94%	95.45	LOS F	14.6
H.26 Joseph St / Georges Ave PM Peak	Georges Ave	West	T1	211	94%	77.02	LOS F	14.6
H.26 Joseph St / Georges Ave PM Peak	Georges Ave	West	L2	109	43%	52.02	LOS D	10.3
H.27 Olympic Dr / Joseph St AM Peak	Joseph St	South	R1	688	78%	11.90	LOS A	16.6
H.27 Olympic Dr / Joseph St AM Peak	Joseph St	South	T1	2419	44%	0.04	LOS A	0.0
H.27 Olympic Dr / Joseph St AM Peak	Joseph St	Northeast	L1	201	11%	25.87	LOS B	3.9
H.27 Olympic Dr / Joseph St AM Peak	Olympic Dr	North	T1	1698	77%	6.75	LOS A	14.4
H.27 Olympic Dr / Joseph St AM Peak	Olympic Dr	North	L3	125	77%	14.15	LOS A	14.0
H.27 Olympic Dr / Joseph St PM Peak	Joseph St	South	R1	361	72%	9.68	LOS A	5.0
H.27 Olympic Dr / Joseph St PM Peak	Joseph St	South	T1	1532	27%	0.02	LOS A	0.0
H.27 Olympic Dr / Joseph St PM Peak	Joseph St	Northeast	L1	420	50%	50.92	LOS D	12.5
H.27 Olympic Dr / Joseph St PM Peak	Olympic Dr	North	T1	2577	73%	1.59	LOS A	6.6
H.27 Olympic Dr / Joseph St PM Peak	Olympic Dr	North	L3	90	73%	9.02	LOS A	6.5
H.28 Vaughan St / Joseph St AM peak	Joseph St	South	T1	312	76%	15.34	LOS B	5.3
H.28 Vaughan St / Joseph St AM peak	Joseph St	South	L2	406	39%	8.53	LOS A	3.5
H.28 Vaughan St / Joseph St AM peak	Joseph St	North	T1	119	12%	4.27	LOS A	1.0

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.28 Vaughan St / Joseph St AM peak	Joseph St	North	R2	139	34%	12.85	LOS A	1.5
H.28 Vaughan St / Joseph St AM peak	Vaughan St	West	R2	280	80%	21.77	LOS B	5.0
H.28 Vaughan St / Joseph St AM peak	Vaughan St	West	L2	213	28%	11.26	LOS A	2.2
H.28 Vaughan St / Joseph St PM peak	Joseph St	South	T1	236	58%	19.38	LOS B	5.3
H.28 Vaughan St / Joseph St PM peak	Joseph St	South	L2	555	48%	9.76	LOS A	7.1
H.28 Vaughan St / Joseph St PM peak	Joseph St	North	T1	194	43%	9.45	LOS A	3.7
H.28 Vaughan St / Joseph St PM peak	Joseph St	North	R2	144	43%	17.65	LOS B	3.7
H.28 Vaughan St / Joseph St PM peak	Vaughan St	West	R2	304	58%	21.42	LOS B	6.5
H.28 Vaughan St / Joseph St PM peak	Vaughan St	West	L2	173	18%	11.03	LOS A	2.2
H.29 Olympic Dr / Church St AM peak	Olympic Dr	South	T1	2954	98%	69.02	LOS E	97.1
H.29 Olympic Dr / Church St AM peak	Olympic Dr	South	L1	145	98%	76.32	LOS F	95.2
H.29 Olympic Dr / Church St AM peak	Church St	Southeast	L3	281	53%	15.43	LOS B	13.0
H.29 Olympic Dr / Church St AM peak	Church St	Southeast	R1	152	41%	59.57	LOS E	9.7
H.29 Olympic Dr / Church St AM peak	Church St	Southeast	T1	12	53%	9.91	LOS A	13.0
H.29 Olympic Dr / Church St AM peak	Olympic Dr	North	T1	1558	49%	13.39	LOS A	21.0
H.29 Olympic Dr / Church St AM peak	Olympic Dr	North	L1	168	49%	19.54	LOS B	21.0
H.29 Olympic Dr / Church St AM peak	Olympic Dr	North	R3	19	32%	89.59	LOS F	1.4
H.29 Olympic Dr / Church St AM peak	Church St	Northwest	R1	8	82%	100.53	LOS F	8.0
H.29 Olympic Dr / Church St AM peak	Church St	Northwest	T1	74	82%	97.33	LOS F	8.0
H.29 Olympic Dr / Church St AM peak	Church St	Northwest	L3	12	82%	102.93	LOS F	8.0
H.29 Olympic Dr / Church St PM peak	Olympic Dr	South	T1	1756	91%	62.98	LOS E	49.0
H.29 Olympic Dr / Church St PM peak	Olympic Dr	South	L1	94	91%	69.52	LOS E	48.4
H.29 Olympic Dr / Church St PM peak	Church St	Southeast	L3	555	73%	35.80	LOS C	25.0
H.29 Olympic Dr / Church St PM peak	Church St	Southeast	R1	317	45%	39.36	LOS C	16.7
H.29 Olympic Dr / Church St PM peak	Church St	Southeast	T1	10	73%	30.31	LOS C	25.0
H.29 Olympic Dr / Church St PM peak	Olympic Dr	North	T1	2255	97%	74.57	LOS F	72.8
H.29 Olympic Dr / Church St PM peak	Olympic Dr	North	L1	154	97%	80.61	LOS F	72.8
H.29 Olympic Dr / Church St PM peak	Olympic Dr	North	R3	18	27%	86.18	LOS F	1.3
H.29 Olympic Dr / Church St PM peak	Church St	Northwest	R1	70	84%	92.03	LOS F	12.6
H.29 Olympic Dr / Church St PM peak	Church St	Northwest	T1	64	84%	88.82	LOS F	12.6
H.29 Olympic Dr / Church St PM peak	Church St	Northwest	L3	28	84%	94.31	LOS F	12.6

13.3 Lidcombe Station: Future (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.26 Joseph St / Georges Ave AM Peak	Joseph St	South	R2	251	76%	53.95	LOS D	14.5
H.26 Joseph St / Georges Ave AM Peak	Joseph St	South	T1	1838	41%	0.61	LOS A	1.5
H.26 Joseph St / Georges Ave AM Peak	Joseph St	South	L2	35	41%	7.06	LOS A	1.5
H.26 Joseph St / Georges Ave AM Peak	Geoges Ave	East	L2	76	35%	61.45	LOS E	7.1
H.26 Joseph St / Georges Ave AM Peak	Geoges Ave	East	R2	8	50%	73.65	LOS F	7.1
H.26 Joseph St / Georges Ave AM Peak	Geoges Ave	East	T1	127	50%	65.70	LOS E	7.1
H.26 Joseph St / Georges Ave AM Peak	Joseph St	North	T1	1106	31%	13.35	LOS A	10.6
H.26 Joseph St / Georges Ave AM Peak	Joseph St	North	L2	56	31%	19.71	LOS B	10.6
H.26 Joseph St / Georges Ave AM Peak	Joseph St	North	R2	64	75%	89.97	LOS F	5.0
H.26 Joseph St / Georges Ave AM Peak	Georges Ave	West	R2	70	88%	84.84	LOS F	13.6
H.26 Joseph St / Georges Ave AM Peak	Georges Ave	West	T1	177	88%	74.03	LOS F	14.0
H.26 Joseph St / Georges Ave AM Peak	Georges Ave	West	L2	131	70%	69.61	LOS E	14.0
H.26 Joseph St / Georges Ave PM Peak	Joseph St	South	R2	92	40%	72.38	LOS F	6.1
H.26 Joseph St / Georges Ave PM Peak	Joseph St	South	T1	1625	44%	12.05	LOS A	14.5
H.26 Joseph St / Georges Ave PM Peak	Joseph St	South	L2	60	44%	18.44	LOS B	14.4
H.26 Joseph St / Georges Ave PM Peak	Geoges Ave	East	L2	316	79%	63.03	LOS E	29.7
H.26 Joseph St / Georges Ave PM Peak	Geoges Ave	East	R2	34	79%	75.72	LOS F	21.3
H.26 Joseph St / Georges Ave PM Peak	Geoges Ave	East	T1	406	79%	66.84	LOS E	29.7
H.26 Joseph St / Georges Ave PM Peak	Joseph St	North	T1	2296	60%	8.30	LOS A	16.4
H.26 Joseph St / Georges Ave PM Peak	Joseph St	North	L2	25	60%	14.66	LOS B	16.4
H.26 Joseph St / Georges Ave PM Peak	Joseph St	North	R2	210	89%	86.85	LOS F	16.5
H.26 Joseph St / Georges Ave PM Peak	Geoges Ave	West	R2	27	90%	88.93	LOS F	12.5
H.26 Joseph St / Georges Ave PM Peak	Geoges Ave	West	T1	192	90%	74.84	LOS F	12.5
H.26 Joseph St / Georges Ave PM Peak	Geoges Ave	West	L2	86	41%	60.05	LOS E	9.3
H.27 Olympic Dr / Joseph St AM Peak	Joseph St	South	R1	432	51%	10.91	LOS A	5.7
H.27 Olympic Dr / Joseph St AM Peak	Joseph St	South	T1	1551	28%	0.02	LOS A	0.0
H.27 Olympic Dr / Joseph St AM Peak	Joseph St	NorthEast	L1	143	9%	27.83	LOS B	2.9
H.27 Olympic Dr / Joseph St AM Peak	Olympic Dr	North	T1	1208	51%	5.57	LOS A	5.8
H.27 Olympic Dr / Joseph St AM Peak	Olympic Dr	North	L3	80	51%	12.97	LOS A	5.6
H.27 Olympic Dr / Joseph St PM Peak	Joseph St	South	R1	316	66%	9.58	LOS A	3.6
H.27 Olympic Dr / Joseph St PM Peak	Joseph St	South	T1	1395	25%	0.02	LOS A	0.0
H.27 Olympic Dr / Joseph St PM Peak	Joseph St	NorthEast	L1	386	47%	53.18	LOS D	11.7
H.27 Olympic Dr / Joseph St PM Peak	Olympic Dr	North	T1	2371	65%	1.61	LOS A	4.8
H.27 Olympic Dr / Joseph St PM Peak	Olympic Dr	North	L3	82	65%	9.04	LOS A	4.7
H.28 Vaughan St / Joseph St AM peak	Joseph St	South	T1	191	52%	13.28	LOS A	2.9
H.28 Vaughan St / Joseph St AM peak	Joseph St	South	L2	288	28%	8.21	LOS A	2.3
H.28 Vaughan St / Joseph St AM peak	Joseph St	North	T1	85	24%	4.87	LOS A	1.0
H.28 Vaughan St / Joseph St AM peak	Joseph St	North	R2	98	24%	11.13	LOS A	1.0
H.28 Vaughan St / Joseph St AM peak	Vaughan St	West	R2	199	49%	16.81	LOS B	2.8
H.28 Vaughan St / Joseph St AM peak	Vaughan St	West	L2	136	17%	10.21	LOS A	1.3
H.28 Vaughan St / Joseph St PM peak	Joseph St	South	T1	201	51%	19.74	LOS B	4.5
H.28 Vaughan St / Joseph St PM peak	Joseph St	South	L2	510	44%	9.58	LOS A	6.3

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.28 Vaughan St / Joseph St PM peak	Joseph St	North	T1	179	40%	9.91	LOS A	3.5
H.28 Vaughan St / Joseph St PM peak	Joseph St	North	R2	133	40%	17.45	LOS B	3.5
H.28 Vaughan St / Joseph St PM peak	Vaughan St	West	R2	279	50%	20.15	LOS B	5.7
H.28 Vaughan St / Joseph St PM peak	Vaughan St	West	L2	158	15%	10.41	LOS A	1.9
H.29 Olympic Dr / Church St AM peak	Olympic Dr	South	T1	1892	63%	22.33	LOS B	31.9
H.29 Olympic Dr / Church St AM peak	Olympic Dr	South	L1	103	63%	29.42	LOS C	31.6
H.29 Olympic Dr / Church St AM peak	Church St	SouthEast	L3	190	28%	7.70	LOS A	2.9
H.29 Olympic Dr / Church St AM peak	Church St	SouthEast	R1	97	26%	57.64	LOS E	6.0
H.29 Olympic Dr / Church St AM peak	Church St	SouthEast	T1	9	28%	2.22	LOS A	2.9
H.29 Olympic Dr / Church St AM peak	Olympic Dr	North	T1	1107	34%	11.74	LOS A	12.7
H.29 Olympic Dr / Church St AM peak	Olympic Dr	North	L1	108	34%	17.82	LOS B	12.7
H.29 Olympic Dr / Church St AM peak	Olympic Dr	North	R3	13	23%	88.90	LOS F	1.0
H.29 Olympic Dr / Church St AM peak	Church St	NorthWest	R1	5	53%	74.14	LOS F	3.6
H.29 Olympic Dr / Church St AM peak	Church St	NorthWest	T1	47	53%	70.95	LOS F	3.6
H.29 Olympic Dr / Church St AM peak	Church St	NorthWest	L3	8	53%	76.55	LOS F	3.6
H.29 Olympic Dr / Church St PM peak	Olympic Dr	South	T1	1598	80%	44.44	LOS D	36.1
H.29 Olympic Dr / Church St PM peak	Olympic Dr	South	L1	86	80%	50.87	LOS D	35.7
H.29 Olympic Dr / Church St PM peak	Church St	SouthEast	L3	498	64%	31.40	LOS C	22.9
H.29 Olympic Dr / Church St PM peak	Church St	SouthEast	R1	288	42%	40.31	LOS C	15.3
H.29 Olympic Dr / Church St PM peak	Church St	SouthEast	T1	9	64%	25.93	LOS B	22.9
H.29 Olympic Dr / Church St PM peak	Olympic Dr	North	T1	2074	86%	41.96	LOS C	49.7
H.29 Olympic Dr / Church St PM peak	Olympic Dr	North	L1	140	86%	48.04	LOS D	49.7
H.29 Olympic Dr / Church St PM peak	Olympic Dr	North	R3	16	25%	86.02	LOS F	1.2
H.29 Olympic Dr / Church St PM peak	Church St	NorthWest	R1	65	76%	84.59	LOS F	10.3
H.29 Olympic Dr / Church St PM peak	Church St	NorthWest	T1	58	76%	81.38	LOS F	10.3
H.29 Olympic Dr / Church St PM peak	Church St	NorthWest	L3	25	76%	86.87	LOS F	10.3

13.4 Lidcombe Station: Future + Refined TTS (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.26 Joseph St / Georges Ave AM Peak	Joseph St	South	R2	251	80%	55.75	LOS D	14.8
H.26 Joseph St / Georges Ave AM Peak	Joseph St	South	T1	1838	41%	0.62	LOS A	1.5
H.26 Joseph St / Georges Ave AM Peak	Joseph St	South	L2	35	41%	7.08	LOS A	1.5
H.26 Joseph St / Georges Ave AM Peak	Geoges Ave	East	L2	76	34%	60.44	LOS E	7.0
H.26 Joseph St / Georges Ave AM Peak	Geoges Ave	East	R2	8	49%	72.61	LOS F	7.0
H.26 Joseph St / Georges Ave AM Peak	Geoges Ave	East	T1	127	49%	64.67	LOS E	7.0
H.26 Joseph St / Georges Ave AM Peak	Joseph St	North	T1	1106	31%	13.35	LOS A	10.6
H.26 Joseph St / Georges Ave AM Peak	Joseph St	North	L2	56	31%	19.71	LOS B	10.6
H.26 Joseph St / Georges Ave AM Peak	Joseph St	North	R2	64	75%	89.97	LOS F	5.0
H.26 Joseph St / Georges Ave AM Peak	Georges Ave	West	R2	70	92%	90.41	LOS F	14.9
H.26 Joseph St / Georges Ave AM Peak	Georges Ave	West	T1	177	92%	78.20	LOS F	14.9
H.26 Joseph St / Georges Ave AM Peak	Georges Ave	West	L2	145	74%	69.25	LOS E	14.5
H.26 Joseph St / Georges Ave PM Peak	Joseph St	South	R2	92	40%	72.38	LOS F	6.1
H.26 Joseph St / Georges Ave PM Peak	Joseph St	South	T1	1625	46%	12.67	LOS A	14.8
H.26 Joseph St / Georges Ave PM Peak	Joseph St	South	L2	60	46%	19.06	LOS B	14.7
H.26 Joseph St / Georges Ave PM Peak	Geoges Ave	East	L2	316	70%	58.70	LOS E	28.1
H.26 Joseph St / Georges Ave PM Peak	Geoges Ave	East	R2	34	70%	72.00	LOS F	20.8
H.26 Joseph St / Georges Ave PM Peak	Geoges Ave	East	T1	406	70%	63.02	LOS E	28.1
H.26 Joseph St / Georges Ave PM Peak	Joseph St	North	T1	2296	65%	8.75	LOS A	18.4
H.26 Joseph St / Georges Ave PM Peak	Joseph St	North	L2	25	65%	15.28	LOS B	18.4
H.26 Joseph St / Georges Ave PM Peak	Joseph St	North	R2	210	89%	86.85	LOS F	16.5
H.26 Joseph St / Georges Ave PM Peak	Geoges Ave	West	R2	27	91%	90.31	LOS F	13.2
H.26 Joseph St / Georges Ave PM Peak	Geoges Ave	West	T1	192	91%	75.86	LOS F	13.2
H.26 Joseph St / Georges Ave PM Peak	Geoges Ave	West	L2	100	42%	57.37	LOS E	9.7
H.27 Olympic Dr / Joseph St AM Peak	Joseph St	South	R1	447	53%	10.92	LOS A	6.1
H.27 Olympic Dr / Joseph St AM Peak	Joseph St	South	T1	1551	28%	0.02	LOS A	0.0
H.27 Olympic Dr / Joseph St AM Peak	Joseph St	NorthEast	L1	143	8%	26.64	LOS B	2.8
H.27 Olympic Dr / Joseph St AM Peak	Olympic Dr	North	T1	1208	53%	5.71	LOS A	5.9
H.27 Olympic Dr / Joseph St AM Peak	Olympic Dr	North	L3	80	53%	13.11	LOS A	5.8
H.27 Olympic Dr / Joseph St PM Peak	Joseph St	South	R1	330	66%	9.60	LOS A	3.8
H.27 Olympic Dr / Joseph St PM Peak	Joseph St	South	T1	1395	25%	0.02	LOS A	0.0
H.27 Olympic Dr / Joseph St PM Peak	Joseph St	NorthEast	L1	386	43%	50.43	LOS D	11.3
H.27 Olympic Dr / Joseph St PM Peak	Olympic Dr	North	T1	2371	67%	1.48	LOS A	5.1
H.27 Olympic Dr / Joseph St PM Peak	Olympic Dr	North	L3	82	67%	8.91	LOS A	5.0
H.28 Vaughan St / Joseph St AM peak	Joseph St	South	T1	206	52%	12.35	LOS A	3.0
H.28 Vaughan St / Joseph St AM peak	Joseph St	South	L2	288	28%	8.21	LOS A	2.3
H.28 Vaughan St / Joseph St AM peak	Joseph St	North	T1	85	23%	4.28	LOS A	1.0
H.28 Vaughan St / Joseph St AM peak	Joseph St	North	R2	98	23%	11.06	LOS A	1.0
H.28 Vaughan St / Joseph St AM peak	Vaughan St	West	R2	199	57%	18.24	LOS B	3.0
H.28 Vaughan St / Joseph St AM peak	Vaughan St	West	L2	136	18%	10.92	LOS A	1.3
H.28 Vaughan St / Joseph St PM peak	Joseph St	South	T1	216	54%	19.06	LOS B	4.8
H.28 Vaughan St / Joseph St PM peak	Joseph St	South	L2	510	44%	9.58	LOS A	6.3

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.28 Vaughan St / Joseph St PM peak	Joseph St	North	T1	179	39%	9.36	LOS A	3.4
H.28 Vaughan St / Joseph St PM peak	Joseph St	North	R2	133	39%	17.37	LOS B	3.4
H.28 Vaughan St / Joseph St PM peak	Vaughan St	West	R2	279	53%	21.15	LOS B	5.9
H.28 Vaughan St / Joseph St PM peak	Vaughan St	West	L2	158	16%	10.97	LOS A	2.0
H.29 Olympic Dr / Church St AM peak	Olympic Dr	South	T1	1892	65%	24.51	LOS B	33.4
H.29 Olympic Dr / Church St AM peak	Olympic Dr	South	L1	103	65%	31.62	LOS C	33.1
H.29 Olympic Dr / Church St AM peak	Church St	SouthEast	L3	204	31%	8.12	LOS A	3.4
H.29 Olympic Dr / Church St AM peak	Church St	SouthEast	R1	97	24%	54.78	LOS D	5.8
H.29 Olympic Dr / Church St AM peak	Church St	SouthEast	T1	9	31%	2.59	LOS A	3.4
H.29 Olympic Dr / Church St AM peak	Olympic Dr	North	T1	1107	35%	13.18	LOS A	13.5
H.29 Olympic Dr / Church St AM peak	Olympic Dr	North	L1	108	35%	19.25	LOS B	13.5
H.29 Olympic Dr / Church St AM peak	Olympic Dr	North	R3	13	23%	88.90	LOS F	1.0
H.29 Olympic Dr / Church St AM peak	Church St	NorthWest	R1	5	53%	76.19	LOS F	3.6
H.29 Olympic Dr / Church St AM peak	Church St	NorthWest	T1	47	53%	73.00	LOS F	3.6
H.29 Olympic Dr / Church St AM peak	Church St	NorthWest	L3	8	53%	78.60	LOS F	3.6
H.29 Olympic Dr / Church St PM peak	Olympic Dr	South	T1	1598	83%	48.86	LOS D	38.1
H.29 Olympic Dr / Church St PM peak	Olympic Dr	South	L1	86	83%	55.31	LOS D	37.6
H.29 Olympic Dr / Church St PM peak	Church St	SouthEast	L3	512	66%	31.78	LOS C	23.0
H.29 Olympic Dr / Church St PM peak	Church St	SouthEast	R1	288	41%	38.69	LOS C	14.9
H.29 Olympic Dr / Church St PM peak	Church St	SouthEast	T1	9	66%	26.30	LOS B	23.0
H.29 Olympic Dr / Church St PM peak	Olympic Dr	North	T1	2074	89%	48.20	LOS D	53.4
H.29 Olympic Dr / Church St PM peak	Olympic Dr	North	L1	140	89%	54.27	LOS D	53.4
H.29 Olympic Dr / Church St PM peak	Olympic Dr	North	R3	16	25%	86.02	LOS F	1.2
H.29 Olympic Dr / Church St PM peak	Church St	NorthWest	R1	65	76%	85.60	LOS F	10.6
H.29 Olympic Dr / Church St PM peak	Church St	NorthWest	T1	58	76%	82.39	LOS F	10.6
H.29 Olympic Dr / Church St PM peak	Church St	NorthWest	L3	25	76%	87.88	LOS F	10.6

14.0 Birrong Station

14.1 Birrong Station: Future

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	South	R2	9	39%	13.27	LOS A	0.4
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	South	T1	698	39%	0.24	LOS A	0.4
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	South	L2	4	39%	6.00	LOS A	0.4
H.44 Auburn Rd / Moller Ave AM Peak	Moller Ave	East	L2	11	4%	14.02	LOS A	0.1
H.44 Auburn Rd / Moller Ave AM Peak	Moller Ave	East	R2	1	4%	28.52	LOS C	0.1
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	North	T1	650	36%	0.10	LOS A	0.1
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	North	L2	1	36%	5.76	LOS A	0.1
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	North	R2	3	36%	13.54	LOS A	0.1
H.44 Auburn Rd / Moller Ave AM Peak	Birrong Rd	West	R2	9	12%	40.58	LOS C	0.4
H.44 Auburn Rd / Moller Ave AM Peak	Birrong Rd	West	L2	9	12%	15.01	LOS B	0.4
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	South	R2	2	37%	14.53	LOS B	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	South	T1	668	37%	0.06	LOS A	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	South	L2	5	37%	5.57	LOS A	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Moller Ave	East	L2	3	2%	15.94	LOS B	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Moller Ave	East	R2	1	2%	27.80	LOS B	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	North	T1	749	40%	0.08	LOS A	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	North	L2	2	40%	5.62	LOS A	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	North	R2	3	40%	13.24	LOS A	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Birrong Rd	West	R2	2	3%	27.72	LOS B	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Birrong Rd	West	L2	5	3%	13.41	LOS A	0.1

14.2 Birrong Station: Future + Refined Baseline TTP

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	South	R2	9	41%	14.27	LOS A	0.4
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	South	T1	718	41%	0.26	LOS A	0.4
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	South	L2	4	41%	6.02	LOS A	0.4
H.44 Auburn Rd / Moller Ave AM Peak	Moller Ave	East	L2	11	5%	14.99	LOS B	0.2
H.44 Auburn Rd / Moller Ave AM Peak	Moller Ave	East	R2	1	5%	32.17	LOS C	0.2
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	North	T1	670	38%	0.11	LOS A	0.1
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	North	L2	1	38%	5.77	LOS A	0.1
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	North	R2	3	38%	14.55	LOS B	0.1
H.44 Auburn Rd / Moller Ave AM Peak	Birrong Rd	West	R2	9	14%	46.63	LOS D	0.4
H.44 Auburn Rd / Moller Ave AM Peak	Birrong Rd	West	L2	9	14%	16.08	LOS B	0.4
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	South	R2	2	39%	15.68	LOS B	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	South	T1	688	39%	0.06	LOS A	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	South	L2	5	39%	5.58	LOS A	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Moller Ave	East	L2	3	2%	17.11	LOS B	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Moller Ave	East	R2	1	2%	31.10	LOS C	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	North	T1	769	42%	0.09	LOS A	0.2
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	North	L2	2	42%	5.62	LOS A	0.2
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	North	R2	3	42%	14.24	LOS A	0.2
H.44 Auburn Rd / Moller Ave PM Peak	Birrong Rd	West	R2	2	3%	31.01	LOS C	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Birrong Rd	West	L2	5	3%	14.31	LOS A	0.1

14.3 Birrong Station: Future (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	South	R2	6	25%	9.09	LOS A	0.1
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	South	T1	448	25%	0.08	LOS A	0.1
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	South	L2	3	25%	5.94	LOS A	0.1
H.44 Auburn Rd / Moller Ave AM Peak	Moller Ave	East	L2	8	2%	9.61	LOS A	0.1
H.44 Auburn Rd / Moller Ave AM Peak	Moller Ave	East	R2	1	2%	13.34	LOS A	0.1
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	North	T1	463	25%	0.03	LOS A	0.0
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	North	L2	1	25%	5.72	LOS A	0.0
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	North	R2	2	25%	8.78	LOS A	0.0
H.44 Auburn Rd / Moller Ave AM Peak	Birong Rd	West	R2	7	4%	17.34	LOS B	0.1
H.44 Auburn Rd / Moller Ave AM Peak	Birong Rd	West	L2	6	4%	9.10	LOS A	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	South	R2	2	33%	12.76	LOS A	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	South	T1	608	33%	0.04	LOS A	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	South	L2	4	33%	5.57	LOS A	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Moller Ave	East	L2	3	2%	13.93	LOS A	0.0
H.44 Auburn Rd / Moller Ave PM Peak	Moller Ave	East	R2	1	2%	22.46	LOS B	0.0
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	North	T1	689	37%	0.06	LOS A	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	North	L2	2	37%	5.61	LOS A	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	North	R2	3	37%	11.67	LOS A	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Birong Rd	West	R2	2	2%	22.40	LOS B	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Birong Rd	West	L2	4	2%	11.83	LOS A	0.1

14.4 Birrong Station: Future + Refined TTS (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	South	R2	6	27%	9.57	LOS A	0.1
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	South	T1	469	27%	0.09	LOS A	0.1
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	South	L2	3	27%	5.95	LOS A	0.1
H.44 Auburn Rd / Moller Ave AM Peak	Moller Ave	East	L2	8	2%	10.15	LOS A	0.1
H.44 Auburn Rd / Moller Ave AM Peak	Moller Ave	East	R2	1	2%	14.57	LOS B	0.1
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	North	T1	483	27%	0.03	LOS A	0.0
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	North	L2	1	27%	5.72	LOS A	0.0
H.44 Auburn Rd / Moller Ave AM Peak	Auburn Rd	North	R2	2	27%	9.22	LOS A	0.0
H.44 Auburn Rd / Moller Ave AM Peak	Birong Rd	West	R2	7	4%	19.26	LOS B	0.1
H.44 Auburn Rd / Moller Ave AM Peak	Birong Rd	West	L2	6	4%	9.60	LOS A	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	South	R2	2	35%	13.66	LOS A	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	South	T1	628	35%	0.04	LOS A	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	South	L2	4	35%	5.57	LOS A	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Moller Ave	East	L2	3	2%	14.89	LOS B	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Moller Ave	East	R2	1	2%	24.93	LOS B	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	North	T1	710	39%	0.07	LOS A	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	North	L2	2	39%	5.61	LOS A	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Auburn Rd	North	R2	3	39%	12.47	LOS A	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Birong Rd	West	R2	2	2%	24.86	LOS B	0.1
H.44 Auburn Rd / Moller Ave PM Peak	Birong Rd	West	L2	4	2%	12.57	LOS A	0.1

15.0 Yagoona Station

15.1 Yagoona Station: Future

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.42 Chapel Rd / Hume Hwy AM peak	Chapel Rd	South	R2	9	82%	67.55	LOS E	23.1
H.42 Chapel Rd / Hume Hwy AM peak	Chapel Rd	South	T1	426	82%	64.16	LOS E	23.1
H.42 Chapel Rd / Hume Hwy AM peak	Chapel Rd	South	L2	197	82%	67.80	LOS E	22.2
H.42 Chapel Rd / Hume Hwy AM peak	Hume Hwy	East	L2	111	52%	38.30	LOS C	22.6
H.42 Chapel Rd / Hume Hwy AM peak	Hume Hwy	East	R2	49	24%	69.81	LOS E	3.3
H.42 Chapel Rd / Hume Hwy AM peak	Hume Hwy	East	T1	1193	52%	34.33	LOS C	23.6
H.42 Chapel Rd / Hume Hwy AM peak	Rockwood Rd	North	T1	282	36%	37.99	LOS C	12.3
H.42 Chapel Rd / Hume Hwy AM peak	Rockwood Rd	North	L2	36	14%	37.68	LOS C	4.3
H.42 Chapel Rd / Hume Hwy AM peak	Rockwood Rd	North	R2	158	81%	53.67	LOS D	9.4
H.42 Chapel Rd / Hume Hwy AM peak	Hume Hwy	West	R2	178	83%	79.64	LOS F	13.6
H.42 Chapel Rd / Hume Hwy AM peak	Hume Hwy	West	T1	1797	82%	20.71	LOS B	34.3
H.42 Chapel Rd / Hume Hwy AM peak	Hume Hwy	West	L2	230	82%	22.99	LOS B	32.7
H.42 Chapel Rd / Hume Hwy PM peak	Chapel Rd	South	R2	5	89%	82.51	LOS F	25.5
H.42 Chapel Rd / Hume Hwy PM peak	Chapel Rd	South	T1	361	89%	76.91	LOS F	31.5
H.42 Chapel Rd / Hume Hwy PM peak	Chapel Rd	South	L2	333	89%	77.43	LOS F	31.5
H.42 Chapel Rd / Hume Hwy PM peak	Hume Hwy	East	L2	67	77%	31.05	LOS C	28.5
H.42 Chapel Rd / Hume Hwy PM peak	Hume Hwy	East	R2	100	34%	70.12	LOS E	6.7
H.42 Chapel Rd / Hume Hwy PM peak	Hume Hwy	East	T1	1643	77%	25.32	LOS B	29.2
H.42 Chapel Rd / Hume Hwy PM peak	Rockwood Rd	North	T1	886	77%	34.94	LOS C	25.5
H.42 Chapel Rd / Hume Hwy PM peak	Rockwood Rd	North	L2	37	58%	39.21	LOS C	25.5
H.42 Chapel Rd / Hume Hwy PM peak	Rockwood Rd	North	R2	314	76%	47.08	LOS D	17.7
H.42 Chapel Rd / Hume Hwy PM peak	Hume Hwy	West	R2	262	88%	85.03	LOS F	21.0
H.42 Chapel Rd / Hume Hwy PM peak	Hume Hwy	West	T1	1425	71%	24.39	LOS B	25.0
H.42 Chapel Rd / Hume Hwy PM peak	Hume Hwy	West	L2	158	71%	29.30	LOS C	24.1
H.43 Church Rd / Hume Hwy AM	Hume Hwy	East	R2	6	91%	943.42	LOS F	2.3
H.43 Church Rd / Hume Hwy AM	Hume Hwy	East	T1	1679	70%	30.55	LOS C	137.6
H.43 Church Rd / Hume Hwy AM	Church Rd	North	L2	103	110%	211.72	LOS F	11.0
H.43 Church Rd / Hume Hwy AM	Church Rd	North	R2	14	91%	375.47	LOS F	2.0
H.43 Church Rd / Hume Hwy AM	Hume Hwy	West	T1	2577	49%	0.03	LOS A	0.6
H.43 Church Rd / Hume Hwy AM	Hume Hwy	West	L2	48	49%	6.07	LOS A	0.6
H.43 Church Rd / Hume Hwy PM	Hume Hwy	East	R2	33	58%	103.99	LOS F	1.8
H.43 Church Rd / Hume Hwy PM	Hume Hwy	East	T1	2333	42%	0.01	LOS A	0.0
H.43 Church Rd / Hume Hwy PM	Church Rd	North	L2	136	88%	69.96	LOS E	4.6
H.43 Church Rd / Hume Hwy PM	Church Rd	North	R2	16	91%	283.52	LOS F	1.9
H.43 Church Rd / Hume Hwy PM	Hume Hwy	West	T1	2034	56%	0.04	LOS A	0.8
H.43 Church Rd / Hume Hwy PM	Hume Hwy	West	L2	63	56%	5.96	LOS A	0.8

15.2 Yagoona Station: Future + Refined Baseline TTP

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.42 Chapel Rd / Hume Hwy AM peak	Chapel Rd	South	R2	9	89%	74.69	LOS F	26.1
H.42 Chapel Rd / Hume Hwy AM peak	Chapel Rd	South	T1	426	89%	71.39	LOS F	26.1
H.42 Chapel Rd / Hume Hwy AM peak	Chapel Rd	South	L2	217	89%	75.42	LOS F	24.5
H.42 Chapel Rd / Hume Hwy AM peak	Hume Hwy	East	L2	111	56%	41.61	LOS C	23.7
H.42 Chapel Rd / Hume Hwy AM peak	Hume Hwy	East	R2	49	20%	65.32	LOS E	3.2
H.42 Chapel Rd / Hume Hwy AM peak	Hume Hwy	East	T1	1193	56%	37.63	LOS C	24.7
H.42 Chapel Rd / Hume Hwy AM peak	Rockwood Rd	North	T1	282	36%	37.99	LOS C	12.3
H.42 Chapel Rd / Hume Hwy AM peak	Rockwood Rd	North	L2	36	14%	37.68	LOS C	4.3
H.42 Chapel Rd / Hume Hwy AM peak	Rockwood Rd	North	R2	158	78%	51.87	LOS D	9.2
H.42 Chapel Rd / Hume Hwy AM peak	Hume Hwy	West	R2	199	82%	76.56	LOS F	14.9
H.42 Chapel Rd / Hume Hwy AM peak	Hume Hwy	West	T1	1797	90%	31.14	LOS C	46.0
H.42 Chapel Rd / Hume Hwy AM peak	Hume Hwy	West	L2	230	90%	34.45	LOS C	46.0
H.42 Chapel Rd / Hume Hwy PM peak	Chapel Rd	South	R2	5	89%	81.58	LOS F	26.3
H.42 Chapel Rd / Hume Hwy PM peak	Chapel Rd	South	T1	361	89%	76.04	LOS F	32.3
H.42 Chapel Rd / Hume Hwy PM peak	Chapel Rd	South	L2	353	89%	75.93	LOS F	32.3
H.42 Chapel Rd / Hume Hwy PM peak	Hume Hwy	East	L2	67	86%	37.56	LOS C	35.0
H.42 Chapel Rd / Hume Hwy PM peak	Hume Hwy	East	R2	100	30%	66.88	LOS E	6.6
H.42 Chapel Rd / Hume Hwy PM peak	Hume Hwy	East	T1	1643	86%	31.60	LOS C	36.0
H.42 Chapel Rd / Hume Hwy PM peak	Rockwood Rd	North	T1	886	76%	33.92	LOS C	25.1
H.42 Chapel Rd / Hume Hwy PM peak	Rockwood Rd	North	L2	37	57%	38.37	LOS C	25.1
H.42 Chapel Rd / Hume Hwy PM peak	Rockwood Rd	North	R2	314	76%	47.21	LOS D	17.6
H.42 Chapel Rd / Hume Hwy PM peak	Hume Hwy	West	R2	283	89%	84.88	LOS F	22.9
H.42 Chapel Rd / Hume Hwy PM peak	Hume Hwy	West	T1	1425	77%	29.29	LOS C	28.8
H.42 Chapel Rd / Hume Hwy PM peak	Hume Hwy	West	L2	158	77%	34.18	LOS C	28.0
H.43 Church Rd / Hume Hwy AM	Hume Hwy	East	R2	26	100%	292.62	LOS F	3.3
H.43 Church Rd / Hume Hwy AM	Hume Hwy	East	T1	1679	72%	6.68	LOS A	28.8
H.43 Church Rd / Hume Hwy AM	Church Rd	North	L2	124	176%	777.78	LOS F	38.7
H.43 Church Rd / Hume Hwy AM	Church Rd	North	R2	14	91%	372.70	LOS F	2.0
H.43 Church Rd / Hume Hwy AM	Hume Hwy	West	T1	2577	49%	0.03	LOS A	0.6
H.43 Church Rd / Hume Hwy AM	Hume Hwy	West	L2	48	49%	6.07	LOS A	0.6
H.43 Church Rd / Hume Hwy PM	Hume Hwy	East	R2	54	179%	926.40	LOS F	19.7
H.43 Church Rd / Hume Hwy PM	Hume Hwy	East	T1	2333	61%	2.52	LOS A	4.4
H.43 Church Rd / Hume Hwy PM	Church Rd	North	L2	156	125%	297.95	LOS F	24.7
H.43 Church Rd / Hume Hwy PM	Church Rd	North	R2	16	91%	287.55	LOS F	1.9
H.43 Church Rd / Hume Hwy PM	Hume Hwy	West	T1	2034	56%	0.04	LOS A	0.8
H.43 Church Rd / Hume Hwy PM	Hume Hwy	West	L2	63	56%	5.96	LOS A	0.8

15.3 Yagoona Station: Future (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.42 Chapel Rs / Hume Hwy AM peak	Chapel Rd	South	R2	9	54%	57.81	LOS E	13.2
H.42 Chapel Rs / Hume Hwy AM peak	Chapel Rd	South	T1	276	54%	54.55	LOS D	13.2
H.42 Chapel Rs / Hume Hwy AM peak	Chapel Rd	South	L2	142	54%	58.60	LOS E	12.8
H.42 Chapel Rs / Hume Hwy AM peak	Hume Hwy	East	L2	82	39%	38.03	LOS C	15.4
H.42 Chapel Rs / Hume Hwy AM peak	Hume Hwy	East	R2	31	14%	66.64	LOS E	2.0
H.42 Chapel Rs / Hume Hwy AM peak	Hume Hwy	East	T1	848	39%	34.02	LOS C	16.2
H.42 Chapel Rs / Hume Hwy AM peak	Rockwood Rd	North	T1	202	25%	35.81	LOS C	8.3
H.42 Chapel Rs / Hume Hwy AM peak	Rockwood Rd	North	L2	23	10%	36.40	LOS C	3.0
H.42 Chapel Rs / Hume Hwy AM peak	Rockwood Rd	North	R2	113	47%	44.56	LOS D	6.0
H.42 Chapel Rs / Hume Hwy AM peak	Hume Hwy	West	R2	130	56%	70.96	LOS F	8.9
H.42 Chapel Rs / Hume Hwy AM peak	Hume Hwy	West	T1	1156	55%	20.01	LOS B	16.6
H.42 Chapel Rs / Hume Hwy AM peak	Hume Hwy	West	L2	148	55%	22.28	LOS B	15.6
H.42 Chapel Rs / Hume Hwy PM peak	Chapel Rd	South	R2	5	91%	87.52	LOS F	23.9
H.42 Chapel Rs / Hume Hwy PM peak	Chapel Rd	South	T1	330	91%	81.98	LOS F	30.0
H.42 Chapel Rs / Hume Hwy PM peak	Chapel Rd	South	L2	306	91%	83.00	LOS F	30.0
H.42 Chapel Rs / Hume Hwy PM peak	Hume Hwy	East	L2	62	62%	22.58	LOS B	17.8
H.42 Chapel Rs / Hume Hwy PM peak	Hume Hwy	East	R2	91	34%	72.04	LOS F	6.2
H.42 Chapel Rs / Hume Hwy PM peak	Hume Hwy	East	T1	1511	62%	16.84	LOS B	18.3
H.42 Chapel Rs / Hume Hwy PM peak	Rockwood Rd	North	T1	816	75%	37.99	LOS C	24.7
H.42 Chapel Rs / Hume Hwy PM peak	Rockwood Rd	North	L2	34	56%	42.17	LOS C	23.5
H.42 Chapel Rs / Hume Hwy PM peak	Rockwood Rd	North	R2	289	75%	47.02	LOS D	16.2
H.42 Chapel Rs / Hume Hwy PM peak	Hume Hwy	West	R2	242	91%	89.64	LOS F	19.9
H.42 Chapel Rs / Hume Hwy PM peak	Hume Hwy	West	T1	1297	56%	16.15	LOS B	15.5
H.42 Chapel Rs / Hume Hwy PM peak	Hume Hwy	West	L2	144	56%	21.12	LOS B	14.6
H.43 Church Rd / Hume Hwy AM	Hume Hwy	East	R2	5	16%	103.18	LOS F	0.4
H.43 Church Rd / Hume Hwy AM	Hume Hwy	East	T1	1194	33%	0.01	LOS A	0.0
H.43 Church Rd / Hume Hwy AM	Church Rd	North	L2	68	22%	16.60	LOS B	0.8
H.43 Church Rd / Hume Hwy AM	Church Rd	North	R2	10	91%	611.63	LOS F	2.4
H.43 Church Rd / Hume Hwy AM	Hume Hwy	West	T1	1655	31%	0.02	LOS A	0.3
H.43 Church Rd / Hume Hwy AM	Hume Hwy	West	L2	30	31%	5.97	LOS A	0.3
H.43 Church Rd / Hume Hwy PM	Hume Hwy	East	R2	31	37%	58.17	LOS E	1.1
H.43 Church Rd / Hume Hwy PM	Hume Hwy	East	T1	2147	38%	0.01	LOS A	0.0
H.43 Church Rd / Hume Hwy PM	Church Rd	North	L2	125	61%	31.76	LOS C	2.4
H.43 Church Rd / Hume Hwy PM	Church Rd	North	R2	14	91%	311.44	LOS F	1.9
H.43 Church Rd / Hume Hwy PM	Hume Hwy	West	T1	1851	51%	0.03	LOS A	0.7
H.43 Church Rd / Hume Hwy PM	Hume Hwy	West	L2	57	51%	5.91	LOS A	0.7

15.4 Yagoona Station: Future + Refined TTS (Christmas Possession Period)

Scenario	Approach Name	Approach Direction	OD Movement	Demand Volumes	Deg. Satn	Average Delay (sec)	Level of Service	95th Percentile Queue (Veh)
H.42 Chapel Rs / Hume Hwy AM peak	Chapel Rd	South	R2	9	58%	59.32	LOS E	14.4
H.42 Chapel Rs / Hume Hwy AM peak	Chapel Rd	South	T1	276	58%	55.75	LOS D	14.4
H.42 Chapel Rs / Hume Hwy AM peak	Chapel Rd	South	L2	162	58%	58.82	LOS E	13.4
H.42 Chapel Rs / Hume Hwy AM peak	Hume Hwy	East	L2	82	41%	40.40	LOS C	15.9
H.42 Chapel Rs / Hume Hwy AM peak	Hume Hwy	East	R2	31	11%	62.40	LOS E	2.0
H.42 Chapel Rs / Hume Hwy AM peak	Hume Hwy	East	T1	848	41%	36.38	LOS C	16.7
H.42 Chapel Rs / Hume Hwy AM peak	Rockwood Rd	North	T1	202	26%	36.57	LOS C	8.4
H.42 Chapel Rs / Hume Hwy AM peak	Rockwood Rd	North	L2	23	10%	37.11	LOS C	3.0
H.42 Chapel Rs / Hume Hwy AM peak	Rockwood Rd	North	R2	113	51%	45.84	LOS D	6.1
H.42 Chapel Rs / Hume Hwy AM peak	Hume Hwy	West	R2	150	59%	68.31	LOS E	10.1
H.42 Chapel Rs / Hume Hwy AM peak	Hume Hwy	West	T1	1156	58%	22.82	LOS B	18.3
H.42 Chapel Rs / Hume Hwy AM peak	Hume Hwy	West	L2	148	58%	25.05	LOS B	17.3
H.42 Chapel Rs / Hume Hwy PM peak	Chapel Rd	South	R2	5	90%	84.86	LOS F	24.1
H.42 Chapel Rs / Hume Hwy PM peak	Chapel Rd	South	T1	330	90%	79.31	LOS F	30.6
H.42 Chapel Rs / Hume Hwy PM peak	Chapel Rd	South	L2	327	90%	79.45	LOS F	30.6
H.42 Chapel Rs / Hume Hwy PM peak	Hume Hwy	East	L2	62	67%	26.93	LOS B	21.5
H.42 Chapel Rs / Hume Hwy PM peak	Hume Hwy	East	R2	91	29%	68.71	LOS E	6.1
H.42 Chapel Rs / Hume Hwy PM peak	Hume Hwy	East	T1	1511	67%	21.19	LOS B	22.1
H.42 Chapel Rs / Hume Hwy PM peak	Rockwood Rd	North	T1	816	74%	37.15	LOS C	24.5
H.42 Chapel Rs / Hume Hwy PM peak	Rockwood Rd	North	L2	34	55%	41.31	LOS C	23.2
H.42 Chapel Rs / Hume Hwy PM peak	Rockwood Rd	North	R2	289	75%	46.36	LOS D	16.1
H.42 Chapel Rs / Hume Hwy PM peak	Hume Hwy	West	R2	263	91%	89.64	LOS F	21.9
H.42 Chapel Rs / Hume Hwy PM peak	Hume Hwy	West	T1	1297	61%	20.37	LOS B	18.7
H.42 Chapel Rs / Hume Hwy PM peak	Hume Hwy	West	L2	144	61%	25.31	LOS B	17.9
H.43 Church Rd / Hume Hwy AM	Hume Hwy	East	R2	26	91%	288.89	LOS F	3.3
H.43 Church Rd / Hume Hwy AM	Hume Hwy	East	T1	1194	58%	4.88	LOS A	11.5
H.43 Church Rd / Hume Hwy AM	Church Rd	North	L2	89	37%	22.88	LOS B	1.4
H.43 Church Rd / Hume Hwy AM	Church Rd	North	R2	10	91%	573.73	LOS F	2.3
H.43 Church Rd / Hume Hwy AM	Hume Hwy	West	T1	1655	31%	0.02	LOS A	0.3
H.43 Church Rd / Hume Hwy AM	Hume Hwy	West	L2	30	31%	5.97	LOS A	0.3
H.43 Church Rd / Hume Hwy PM	Hume Hwy	East	R2	51	110%	308.97	LOS F	7.2
H.43 Church Rd / Hume Hwy PM	Hume Hwy	East	T1	2147	55%	1.87	LOS A	5.4
H.43 Church Rd / Hume Hwy PM	Church Rd	North	L2	145	86%	62.53	LOS E	4.7
H.43 Church Rd / Hume Hwy PM	Church Rd	North	R2	14	91%	315.43	LOS F	1.9
H.43 Church Rd / Hume Hwy PM	Hume Hwy	West	T1	1851	51%	0.03	LOS A	0.7
H.43 Church Rd / Hume Hwy PM	Hume Hwy	West	L2	57	51%	5.91	LOS A	0.7

SYDENHAM TO BANKSTOWN

SUBMISSIONS AND PREFERRED INFRASTRUCTURE REPORT

> Appendix D – Traffic, transport and access assessment

City & Southwest

SYDENHAM TO BANKSTOWN

SUBMISSIONS AND PREFERRED INFRASTRUCTURE REPORT

> Appendix E – Noise and vibration assessment

SYDNEY METRO CITY & SOUTHWEST SYDENHAM TO BANKSTOWN UPGRADE

Submissions and Preferred Infrastructure Report
Noise and Vibration Assessment

Prepared for:

Transport for NSW
Level 43, 680 George Street
SYDNEY NSW 2000

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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Transport for NSW (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
610.15897-R04-v1.4	8 June 2018	Antony Williams	Dominic Sburlati	Antony Williams
610.15897-R04-v1.3	6 June 2018	Antony Williams	Dominic Sburlati	Antony Williams
610.15897-R04-v1.2	17 May 2018	Antony Williams	Dominic Sburlati	Antony Williams
610.15897-R04-v1.1	14 May 2018	Antony Williams	Dominic Sburlati	Antony Williams
610.15897-R04-v1.0	4 May 2018	Antony Williams	Dominic Sburlati	Antony Williams

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APPENDICES

1 Introduction

Transport for NSW is developing the Sydenham to Bankstown upgrade component of Sydney Metro City & Southwest (the project).

The project involves upgrading 10 existing stations west of Sydenham (Marrickville to Bankstown inclusive), and a 13 kilometre long section of the Sydney Trains T3 Bankstown Line, between west of Sydenham Station and west of Bankstown Station, to improve accessibility for customers and meet the standards required for metro operations. The project would enable Sydney Metro to operate beyond Sydenham, to Bankstown.

The Environmental Impact Assessment for the project was exhibited in August 2017 (the exhibited project). To address a number of issues raised in submissions during the public exhibition period, Transport for NSW has developed a design solution that enables the retention of existing station entrances, heritage buildings and concourses, but enables upgrades that provide accessible stations.

Importantly, these changes to the exhibited project have enabled the development of a preferred project that not only addresses a number of the issues raised in submissions, but also significantly minimises potential impacts – especially in respect of heritage, vegetation, construction noise and traffic impacts, while delivering a world class metro (the preferred project).

This report provides an assessment of the potential construction and operational noise and vibration impacts for the preferred project.

Reference should be made the EIS Noise and Vibration Technical Paper (SLR Report *'610.15897-R02, 'Sydney Metro City & Southwest Sydney to Bankstown, Technical Paper 2 – Noise and Vibration Assessment'*, dated August 2017) for further details on the criteria and methodology used to assess the preferred project.

2 Construction Noise and Vibration Assessment

The following assessment uses the same construction assessment methodology and assumptions as used in the EIS Noise and Vibration Technical Paper. Where changes have been made to the input data, this is noted below.

2.1 Works Description

2.1.1 Construction Activities

The revised construction scenarios and corresponding works activities for the preferred project are outlined in **Table 1**, together with details on the periods that the various works would be undertaken in. The anticipated total indicative durations of activities are also summarised, noting that the works activities would be intermittent during this period and would not be expected to be undertaken on a continual basis.

Table 1 Construction Activities and Period of Operation

Scenario	Works ID	Total Indicative Duration (Weeks)[1]	Activity	Hours of Works[2]				
				Std. Day	Possession / Closedown			
					Day	Day OOH	Eve	Night
General Worksites	W.0001	4	Site Establishment	✓	✓	-	-	-
	W.0002	52	Worksite Operations	✓	✓	✓	✓	✓
Corridor Works - Ground & Track	W.0003	12 days	Trackform	✓	✓	✓	✓	✓
	W.0004	4 days	Trackform - Ballast Tamper	✓	✓	✓	✓	✓
Corridor Works - Track Support Systems	W.0005	12	Comms Works/Security Fencing	✓	✓	✓	✓	✓
	W.0006	6	Segregation Fencing	✓	✓	✓	✓	✓
Station Works	W.0007	3	Site Establishment	✓	✓	-	-	-
	W.0008	10	Excavation	✓	✓	✓	✓	-
	W.0009	10	Excavation - Excavator & Saw	✓	✓	✓	-	-
	W.0010	8	Concrete & Structural Works	✓	✓	✓	✓	✓
	W.0011	20	Station Installation & Fitout	✓	✓	✓	✓	✓
Bridge Worksites	W.0012	2	Site Establishment	✓	✓	✓	✓	✓
	W.0013	2	Impact Protection & Screens	✓	✓	✓	✓	✓
	W.0014	2	Impact Protection & Screens - Saw	✓	✓	-	-	-
Substations	W.0015	2	Site Establishment	✓	✓	✓	-	-
	W.0016	6	Construction & Installation	✓	✓	✓	✓	-

Note 1: Durations should be regarded as indicative and represent the total estimated duration of works at a typical worksite over the entire construction period. There would be sites within each category that require works to be shorter or slightly longer than shown.

Note 2: Intrusive works outside of standard construction hours would typically only be undertaken during possessions/closedowns.

Note 3: OOH = Out of hours. During the daytime, this refers to the period on Saturday between 7am – 8am, and 1pm – 10pm.

The revised construction scenarios and corresponding works activities presented in **Table 1** would be undertaken for the full extent of the project area with the exception of Bankstown Station where works would be performed in line with assumptions presented in the EIS Noise and Vibration Technical Paper.

Reference should be made to the EIS Noise and Vibration Technical Paper for all construction noise and vibration impacts on the western side of Stacey Street in Bankstown.

2.1.2 Working Hours

Construction works would typically be undertaken during the recommended standard daytime construction hours defined in the NSW *Interim Construction Noise Guideline* (ICNG) as:

- 7.00 am and 6.00 pm Monday to Friday
- 8.00 am and 1.00 pm on Saturdays.

Activities requiring the use of highly noise intensive equipment which result in impulsive or tonal noise emissions, such as concrete saws and ballast tampers, would be limited to these hours, except as permitted by an environment protection licence which would be obtained once the preferred project is approved. It is anticipated that any out of hours work permitted by an environment protection licence would implement the following order of priority:

- Day (Saturday 1 pm to 6 pm)
- Day (Sunday 8 am to 6 pm)
- Evening (6 pm to 10 pm)
- Night (10 pm to midnight)
- Night (midnight to 7 am / 8 am).

However, as the project is located within an active rail corridor, works outside of the recommended standard construction hours would also be required where works cannot safely be undertaken during standard construction hours due to their proximity to the existing rail lines or where there would be a risk that the works may adversely affect the existing operating lines (refer **Section 2.1.3**).

Other works which may be undertaken outside of recommended standard construction hours without any further approval may include:

- The delivery of materials outside of approved hours as required by the Police or other authorities (including Roads and Maritime Services) for safety reasons
- Where it is required to avoid the loss of lives, property and/or to prevent environmental harm in an emergency.

With the exception of emergency works, activities would not take place outside the recommended standard hours without prior discussion with the relevant government authorities.

2.1.3 Rail Possession Periods

Some construction works would need to be undertaken during rail possession periods when trains are not operating, to ensure that works are carried out as efficiently as possible and that worker safety is maintained. This would include possessions of both the Sydney Trains tracks, and the freight tracks located between Marrickville and west of Campsie stations. Works that may need to be undertaken during possession periods include:

- Station works and activities on stations which cannot be undertaken during operation of the network
- Track and corridor works
- Bridge works

During these periods, highly noise intensive equipment, such as ballast tampers, would not be used during the night-time period (between 10 pm and 7 am), unless constraints exist such as:

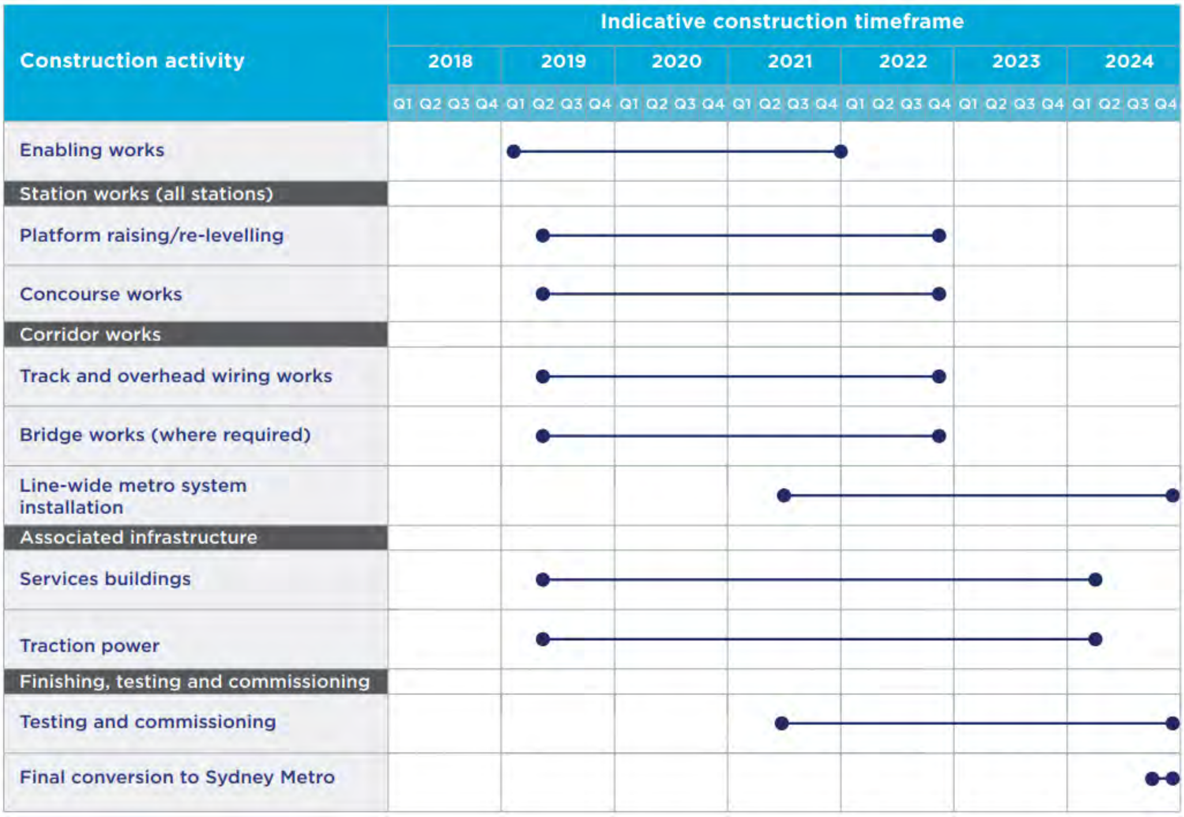
- Works requiring a weekend rail shutdowns and where those works cannot be undertaken during daytime and evening periods, due to the limited duration of the rail possession; or
- Works subject to requirements of the relevant road authorities, emergency services, or the Sydney Coordination Office.

Additional information on rail possessions is presented in Section 2.7.2 of the Submissions and Preferred Infrastructure Report.

2.1.4 Works Schedule

Subject to planning approval, construction of the project is planned to commence in 2019, with completion planned for 2024 (including commissioning). An indicative construction program is shown in **Table 2**.

Table 2 Indicative Construction Program



2.2 Changes to Construction Works

A comparison of the key changes to the proposed construction works in each NCA with reference to the EIS Noise and Vibration Technical Paper is provided below in **Table 3**. The major changes with respect to altered noise impacts are also listed in **Table 4**. The location of precinct and NCA boundaries is displayed in **Appendix A**.

Table 3 Construction Works – Comparison to Exhibited Project

Precinct	NCA	Changes to Construction Works for the Preferred Project
Marrickville	NCA01	A number of worksites along the corridor have been removed. Works at bridges/stations have been limited to the bridges/platforms themselves. Track works no longer required.
Dulwich Hill	NCA02	A number of worksites along the corridor have been removed. Works at bridges/stations have been limited to the bridges/platforms themselves. Track works no longer required.
Hurlstone Park	NCA03	A number of worksites along the corridor have been removed. Works at bridges/stations have been limited to the bridges/platforms themselves. Track works no longer required.
Canterbury	NCA04	Works at bridges/stations have been limited to the bridges/platforms themselves. Track works no longer required.
	NCA05	A number of activities along the corridor have been removed. Works at bridges have been limited to the bridges themselves.
Campsie	NCA06	A number of worksites along the corridor have been removed. Works at bridges/stations have been limited to the bridges/platforms themselves. The requirement for track works has been revised.
Belmore	NCA07	Works at bridges/stations have been limited to the bridges/platforms themselves. Track works no longer required.
Lakemba	NCA08	Works at bridges/stations have been limited to the bridges/platforms themselves. Track works no longer required. No requirement for segregation fencing between ARTC and Metro lines.
Wiley Park	NCA09	Works at bridges/stations have been limited to the bridges/platforms themselves. Track works no longer required. No requirement for segregation fencing between ARTC and Metro lines.
Punchbowl	NCA10	Works at bridges/stations have been limited to the bridges/platforms themselves. Track works no longer required. No requirement for segregation fencing between ARTC and Metro lines.
Bankstown	NCA11	Works at bridges have been limited to the bridges themselves. No requirement for segregation fencing between ARTC and Metro lines.
	NCA12	As per the exhibited project.
	NCA13	As per the exhibited project.

Table 4 Major Changes to Construction of the Preferred Project that Reduce Noise Impacts

ID	Change
1	Rockbreakers were required in the EIS Noise and Vibration Technical Paper in several construction scenarios and at major locations along the project area, with rockbreakers typically being the cause of the highest noise levels and impacts. The preferred project has resulted in rockbreakers no longer being required.
2	Station works have been limited to alterations to the platform height only, and other minor upgrade works. Previously, the majority of the stations were proposed to be demolished and rebuilt.
3	The requirement for track works has been revised. Previously re-alignment works were proposed at most stations and in between stations at several locations. Track works are now only required at isolated locations, for example at Bankstown station and at locations where cross-overs are required to be altered or installed.
4	Bridge works have been limited to provision of throw screens and protection measures. Previously, some bridges were being replaced or required more intensive strengthening works.
5	The noise modelling for bridges and station works previously assumed that works would occur at the bridge or station and at the associated construction compounds. The current noise modelling has been refined to only have the major noise generating scenarios at the location of the bridges or station platforms, with site establishment works at the compounds.

2.3 Overview of Construction Noise Modelling

2.3.1 Construction Activity Source Noise Levels

Sound power levels for the typical operation of construction equipment applied in the modelling of the construction of the preferred project are listed in **Table 5**. These noise levels have been taken from verified test data and global standards that form part of SLR's noise database.

Table 5 Construction Works and Sound Power Levels for Construction Equipment

		Plant Item	Back Hoe (7.5 tonne JCB)	Ballast Tamper	Bobcat	Compressor	Concrete Pump	Concrete Truck / Agitator	Diamond Saw[1]	Excavator	Franna Crane	Generator	Hand Tools	Mobile Crane (300 tonne)	Mobile Crane (50 tonne)	Piling Rig (Bored)	Roller (non-vibratory)[1]	Truck (12-15 tonne)	Water Tanker (8000 litre)	Welding Equipment
		Sound Power Level (L_{Aeq})	102	118	104	95	106	106	115	109	99	101	94	104	100	108	100	103	98	97
		Assumed On-time in 15 Minute Period (Minutes)	15	7.5	15	15	7.5	7.5	7.5	15	15	15	15	15	15	7.5	15	7.5	15	15
		SWL Max	111	126	110	97	109	112	123	115	107	104	100	110	106	118	108	108	103	100
Works ID	**Scenario**	**Activity**																		
W.0001	General Worksites	Site Establishment									X				X		X	X	X	
W.0002		Worksite Operations									X							X		
W.0003	Corridor Works - Ground & Track	Trackform			X									X				X		
W.0004		Trackform - Ballast Tamper		X																
W.0005	Corridor Works - Track Support Systems	Comms Works/Security Fencing	X									X	X							X
W.0006		Segregation Fencing									X		X					X		
W.0007	Station Works	Site Establishment									X				X		X	X		
W.0008		Excavation				X				X		X	X							
W.0009		Excavation - Excavator & Saw							X	X										
W.0010		Concrete & Structural Works					X	X							X	X		X		
W.0011		Station Installation & Fitout									X	X	X		X			X		

		Plant Item	Back Hoe (7.5 tonne JCB)	Ballast Tamper	Bobcat	Compressor	Concrete Pump	Concrete Truck / Agitator	Diamond Saw[1]	Excavator	Franna Crane	Generator	Hand Tools	Mobile Crane (300 tonne)	Mobile Crane (50 tonne)	Piling Rig (Bored)	Roller (non-vibratory)[1]	Truck (12-15 tonne)	Water Tanker (8000 litre)	Welding Equipment
W.0012	Bridge Worksites	Site Establishment									X				X			X		
W.0013		Impact Protection & Screens					X	X			X				X			X	X	
W.0014		Impact Protection & Screens - Saw							X											
W.0015	Substations	Site Establishment					X	X			X				X		X	X		
W.0016		Construction & Installation									X				X			X		

Note 1: The ICNG requires that activities identified as particularly annoying (such as jackhammering, rock breaking and power saw operation) have a 5 dB ‘penalty’ added to predicted noise levels when using the quantitative method.

2.4 Predicted Noise Levels – Project Overview

A summary of the predicted noise levels (without additional mitigation) in each of the NCAs for the various work activities is presented in **Table 6** for the following receiver types:

- Residential (during daytime, evening and night time periods)
- Commercial
- Other sensitive receivers, including educational and medical facilities, places of worship, and childcare centres.

The noise levels are representative of the realistic worst-case impacts where works are at their closest and are intended to give an overview of the likely realistic worst case noise levels from the construction works for the preferred project.

For most construction activities, it is expected that the construction noise levels would frequently be lower than predicted at the most-exposed receiver, as the noise levels presented in this report are based on a realistic worst-case assessment.

The predicted construction noise impacts from the exhibited project are compared against the predicted construction noise impacts from the preferred project in **Section 2.6**.

Construction noise contours showing the worst-case noise predictions for all scenarios during the daytime and night-time are presented in **Appendix A**.

Table 6 Predicted Worst case Noise Levels from the Preferred Project - All Works and All NCAs (cell colouring refers to exceedance category, refer to table note 1 and legend)

Precinct	NCA	NML	Predicted $L_{Aeq(15minute)}$ Noise Level (dBA)[1]															
			W.0001 - Site Establishment	W.0002 - Worksite Operations	W.0003 - Trackform	W.0004 - Trackform - Ballast Tamper	W.0005 - Comms Works/ Security Fencing	W.0006 - Segregation Fencing	W.0007 - Site Establishment	W.0008 - Excavation	W.0009 - Excavation - Excavator & Saw	W.0010 - Concrete & Structural Works	W.0011 - Station Installation & Fitout	W.0012 - Site Establishment	W.0013 - Impact Protection & Screens	W.0014 - Impact Protection & Screens - Saw	W.0015 - Site Establishment	W.0016 - Construction & Installation
Residential - Standard Daytime																		
Marrickville	NCA01	48	71	68	<30	<30	76	73	73	77	81	77	73	69	76	79	53	48
Dulwich Hill	NCA02	48	38	35	<30	<30	76	73	70	74	78	74	70	74	78	81	78	73
Hurlstone Park	NCA03	48	34	31	<30	<30	76	73	76	80	84	80	76	73	74	77	65	60
Canterbury	NCA04	50	54	51	40	47	74	71	72	76	80	76	72	70	73	76	69	64
	NCA05	46	59	56	68	75	71	68	44	48	52	48	44	69	71	74	38	33
Campsie	NCA06	55	72	69	74	81	75	72	63	67	71	67	63	73	73	76	67	62
Belmore	NCA07	51	70	67	56	63	72	53	61	65	69	65	61	67	70	73	48	43
Lakemba	NCA08	57	57	54	<30	<30	69	<30	66	70	74	70	66	65	69	72	71	66
Wiley Park	NCA09	54	42	39	<30	<30	73	<30	69	73	77	73	69	40	45	48	41	36
Punchbowl	NCA10	57	56	53	40	47	68	<30	59	63	67	63	59	36	37	40	56	51
Bankstown[3]	NCA11	57	59	56	74	81	73	<30	42	46	50	46	42	70	70	73	71	66

Legend

1 - 10 dB above NML	11 - 20 dB above NML	>20 dB above NML

Precinct	NCA	NML	Predicted $L_{Aeq(15minute)}$ Noise Level (dBA)[1]															
			W.0001 - Site Establishment	W.0002 - Worksite Operations	W.0003 - Trackform	W.0004 - Trackform - Ballast Tamper	W.0005 - Comms Works/ Security Fencing	W.0006 - Segregation Fencing	W.0007 - Site Establishment	W.0008 - Excavation	W.0009 - Excavation - Excavator & Saw	W.0010 - Concrete & Structural Works	W.0011 - Station Installation & Fitout	W.0012 - Site Establishment	W.0013 - Impact Protection & Screens	W.0014 - Impact Protection & Screens - Saw	W.0015 - Site Establishment	W.0016 - Construction & Installation
Residential - Evening																		
Marrickville	NCA01	43	-	68	<30	<30	76	73	-	77	-	77	73	69	76	-	-	48
Dulwich Hill	NCA02	43	-	35	<30	<30	76	73	-	74	-	74	70	74	78	-	-	73
Hurlstone Park	NCA03	43	-	31	<30	<30	76	73	-	80	-	80	76	73	74	-	-	60
Canterbury	NCA04	45	-	51	40	47	74	71	-	76	-	76	72	70	73	-	-	64
	NCA05	41	-	56	68	75	71	68	-	48	-	48	44	69	71	-	-	33
Campsie	NCA06	47	-	69	74	81	75	72	-	67	-	67	63	73	73	-	-	62
Belmore	NCA07	46	-	67	56	63	72	53	-	65	-	65	61	67	70	-	-	43
Lakemba	NCA08	52	-	54	<30	<30	69	<30	-	70	-	70	66	65	69	-	-	66
Wiley Park	NCA09	49	-	39	<30	<30	73	<30	-	73	-	73	69	40	45	-	-	36
Punchbowl	NCA10	52	-	53	40	47	68	<30	-	63	-	63	59	36	37	-	-	51
Bankstown[3]	NCA11	52	-	56	74	81	73	<30	-	46	-	46	42	70	70	-	-	66

Legend

	1 - 10 dB above NML
	11 - 20 dB above NML
	>20 dB above NML

Precinct	NCA	NML	Predicted $L_{Aeq(15minute)}$ Noise Level (dBA)[1]															
			W.0001 - Site Establishment	W.0002 - Worksite Operations	W.0003 - Trackform	W.0004 - Trackform - Ballast Tamper	W.0005 - Comms Works/ Security Fencing	W.0006 - Segregation Fencing	W.0007 - Site Establishment	W.0008 - Excavation	W.0009 - Excavation - Excavator & Saw	W.0010 - Concrete & Structural Works	W.0011 - Station Installation & Fitout	W.0012 - Site Establishment	W.0013 - Impact Protection & Screens	W.0014 - Impact Protection & Screens - Saw	W.0015 - Site Establishment	W.0016 - Construction & Installation
Residential - Night-time																		
Marrickville	NCA01	38	-	68	<30	<30	76	73	-	-	-	77	73	69	76	-	-	-
Dulwich Hill	NCA02	38	-	35	<30	<30	76	73	-	-	-	74	70	74	78	-	-	-
Hurlstone Park	NCA03	39	-	31	<30	<30	76	73	-	-	-	80	76	73	74	-	-	-
Canterbury	NCA04	40	-	51	40	47	74	71	-	-	-	76	72	70	73	-	-	-
	NCA05	37	-	56	68	75	71	68	-	-	-	48	44	69	71	-	-	-
Campsie	NCA06	40	-	69	74	81	75	72	-	-	-	67	63	73	73	-	-	-
Belmore	NCA07	40	-	67	56	63	72	53	-	-	-	65	61	67	70	-	-	-
Lakemba	NCA08	46	-	54	<30	<30	69	<30	-	-	-	70	66	65	69	-	-	-
Wiley Park	NCA09	41	-	39	<30	<30	73	<30	-	-	-	73	69	40	45	-	-	-
Punchbowl	NCA10	46	-	53	40	47	68	<30	-	-	-	63	59	36	37	-	-	-
Bankstown[3]	NCA11	44	-	56	74	81	73	<30	-	-	-	46	42	70	70	-	-	-

Legend

1 - 10 dB above NML | 11 - 20 dB above NML | >20 dB above NML

Precinct	NCA	NML	Predicted $L_{Aeq(15minute)}$ Noise Level (dBA)[1]															
			W.0001 - Site Establishment	W.0002 - Worksite Operations	W.0003 - Trackform	W.0004 - Trackform - Ballast Tamper	W.0005 - Comms Works/ Security Fencing	W.0006 - Segregation Fencing	W.0007 - Site Establishment	W.0008 - Excavation	W.0009 - Excavation - Excavator & Saw	W.0010 - Concrete & Structural Works	W.0011 - Station Installation & Fitout	W.0012 - Site Establishment	W.0013 - Impact Protection & Screens	W.0014 - Impact Protection & Screens - Saw	W.0015 - Site Establishment	W.0016 - Construction & Installation
Commercial																		
Marrickville	NCA01	70	72	69	<30	<30	68	65	66	70	74	70	66	62	69	72	41	36
Dulwich Hill	NCA02	70	<30	<30	<30	<30	63	60	63	67	71	67	63	57	62	65	46	41
Hurlstone Park	NCA03	70	<30	<30	<30	<30	74	71	67	71	75	71	67	66	77	80	36	31
Canterbury	NCA04	70	55	52	39	46	72	69	70	74	78	74	70	65	70	73	46	41
	NCA05	70	73	70	44	51	69	66	44	48	52	48	44	55	63	66	31	<30
Campsie	NCA06	70	76	73	52	59	70	67	70	74	78	74	70	51	56	59	48	43
Belmore	NCA07	70	81	78	44	51	76	39	66	70	74	70	66	48	51	54	44	39
Lakemba	NCA08	70	71	68	<30	<30	75	<30	75	79	83	79	75	72	78	81	59	54
Wiley Park	NCA09	70	35	32	<30	<30	65	<30	59	63	67	63	59	33	38	41	<30	<30
Punchbowl	NCA10	70	73	70	37	44	75	<30	75	79	83	79	75	32	<30	<30	49	44
Bankstown[3]	NCA11	70	43	40	66	73	69	<30	32	36	40	36	32	56	48	51	45	40

Legend

1 - 10 dB above NML

11 - 20 dB above NML

>20 dB above NML

Precinct	NCA	NML	Predicted $L_{Aeq(15minute)}$ Noise Level (dBA)[1]															
			W.0001 - Site Establishment	W.0002 - Worksite Operations	W.0003 - Trackform	W.0004 - Trackform - Ballast Tamper	W.0005 - Comms Works/ Security Fencing	W.0006 - Segregation Fencing	W.0007 - Site Establishment	W.0008 - Excavation	W.0009 - Excavation - Excavator & Saw	W.0010 - Concrete & Structural Works	W.0011 - Station Installation & Fitout	W.0012 - Site Establishment	W.0013 - Impact Protection & Screens	W.0014 - Impact Protection & Screens - Saw	W.0015 - Site Establishment	W.0016 - Construction & Installation
Other Sensitive																		
Marrickville	NCA01	-	53	50	<30	<30	70	67	65	69	73	69	65	68	68	71	47	42
Dulwich Hill	NCA02	-	35	32	<30	<30	63	60	59	63	67	63	59	58	62	65	60	55
Hurlstone Park	NCA03	-	<30	<30	<30	<30	74	71	48	52	56	52	48	72	74	77	38	33
Canterbury	NCA04	-	46	43	38	45	74	71	53	57	61	57	53	48	54	57	50	45
	NCA05	-	62	59	42	49	64	61	46	50	54	50	46	52	58	61	37	32
Campsie	NCA06	-	64	61	73	80	71	68	48	52	56	52	48	61	63	66	68	63
Belmore	NCA07	-	64	61	49	56	76	57	67	71	75	71	67	61	67	70	43	38
Lakemba	NCA08	-	61	58	<30	<30	67	<30	67	71	75	71	67	65	67	70	51	46
Wiley Park	NCA09	-	36	33	<30	<30	63	<30	63	67	71	67	63	34	40	43	36	31
Punchbowl	NCA10	-	71	68	39	46	71	<30	61	65	69	65	61	34	<30	<30	58	53
Bankstown[3]	NCA11	-	37	34	44	51	60	<30	33	37	41	37	33	40	39	42	54	49

Note 1: Colouring indicates the range of predicted worst case NML exceedances without any additional mitigation based on nearest receiver (red >20 dB, orange 11 - 20 dB, yellow 1-10 dB) based on the controlling time period for a given activity (refer to **Table 1**).

Note 2: Other Sensitive receiver NMLs are dependent on classification. As the above table shows the highest predicted noise level for a particular activity, the most affected 'other sensitive' receiver type may change between each activity resulting in different NMLs therefore no single NML can be provided.

Note 3: Results for NCA12 and NCA13 are as per the exhibited project EIS Noise and Vibration Technical Paper.

Legend

1 - 10 dB above NML	11 - 20 dB above NML	>20 dB above NML

Review of the predicted noise levels from the preferred project in the above table indicates the following:

- The highest noise impacts in all NCAs are generally reduced for the preferred project compared to those predicted in the EIS Noise and Vibration Technical Paper for the exhibited project. This generally results from less noise intensive equipment being used and fewer worksites.
- The highest noise levels are generally predicted during works which require noise intensive plant items, such as a diamond saw and/or ballast tamper. This includes the following scenarios:
    - W.0004 – Corridor Works - Ground & Track - Trackform - Ballast Tamper
    - W.0009 – Station Works - Excavation - Excavator & Saw
    - W.0014 – Bridge Worksites - Impact Protection & Screens - Saw
- Whilst all NCAs are predicted to be subject to impacts, the highest impacts are generally seen in NCA01 to NCA04, NCA06 and NCA11, due to the close proximity of residential receivers to the worksites in these catchments.
- Works activities that do not include high noise generating items of plant generally result in considerably lower impacts.
- Diamond saws would only be needed during excavation of the existing top concrete layer of station platforms and the potential noise impacts from the use of this highly noise intrusive item have been controlled by restricting these works to daytime periods.
- Night-time impacts are however predicted during some scenarios when work is located close to adjacent receivers or when noise generating items are in use such as excavators, concrete pumps/trucks, cranes, etc.
- Ballast tamping, as part of Track Works, is the most noise intensive item of equipment that is potentially required during the night-time. Track Works are however now only required in a small number of locations (as opposed to at the majority of stations for the exhibited project (EIS Noise and Vibration Technical Paper)) which has substantially reduced the number of receivers impacted. Furthermore, whilst high noise levels are anticipated during use of the tamper, the impacts would be expected to last for a relatively short period as the works progress quickly. It is also noted that this activity would generally be expected to be completed during the daytime, with night-time works only required to make the track safe prior to re-opening, if needed.
- It is also noted that the requirement for rockbreaking has been entirely removed from the project. This item of highly noise intensive equipment was previously driving many of the worst-case impacts for the exhibited project as presented in the EIS Noise and Vibration Technical Paper.

2.5 Predicted Noise Levels and NML Exceedances – Precincts

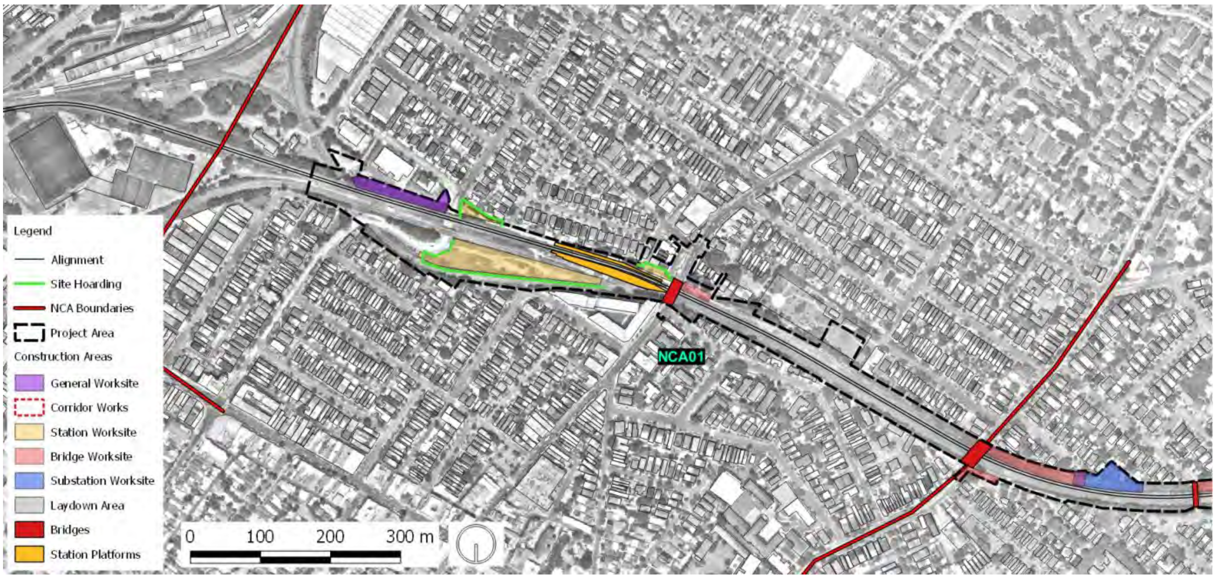
The construction works would occur in a number of distinct areas. The predicted construction noise impacts from the project are summarised in the following sections based on precinct areas which generally follow the stations along the route, consistent with the EIS Noise and Vibration Technical Paper.

Temporary acoustic hoarding of 3 m in height has been included around the station compounds, as per the Noise and Vibration Technical Paper.

2.5.1 Marrickville Precinct (NCA01)

The revised locations of the various construction worksites in the Marrickville precinct are shown below in **Figure 1**.

Figure 1 Marrickville Precinct - Construction Areas



Note: The assessment is based on categorising each construction area by the main activity that would occur within the boundary. Many construction areas would however likely have more than one usage.

Note: Refer to **Appendix A** for large format construction area figures

Note: The two activities for 'Corridor Works - Track Support Systems' are not shown on the drawing for clarity. 'W.0005 - Comms Works/Security Fencing' would generally be required at the perimeter of the corridor and 'W.0006 – Segregation Fencing' would be required in the rail corridor between Marrickville and the rail junction between Campsie/Belmore.

2.5.1.1 NML Exceedances

The predicted NML exceedances in this precinct are summarised in **Table 7**. The number of receivers predicted to experience exceedances of the NMLs are summarised for each scenario in bands of 10 dB and are separated into daytime, evening and night-time periods, as appropriate.

Table 7 Overview of NML Exceedances from the Preferred Project – Marrickville Precinct (NCA01) – All Receiver Types

Activity ID	Scenario	Activity	No. Weeks[1]	Number of Receivers																
				Total	HNA[3]	With NML Exceedance[4]														
						Standard Daytime			Possession / Closedown Works[5]											
									Daytime OOH			Evening			Night-time			Sleep Disturbance		
						1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB
W.0001	General Worksites	Site Establishment	4	1150	-	72	3	1	-	-	-	-	-	-	-	-	-	-	-	-
W.0002		Worksite Operations	52	1150	-	38	1	-	119	7	1	119	7	1	211	38	1	119	7	1
W.0003	Corridor - Ground & Track	Trackform	12 days	1150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0004		Trackform - Ballast Tamper	4 days	1150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Sec. Fencing	2	1150	4	361	68	56	500	179	78	500	179	78	440	360	124	499	179	78
W.0006		Segregation Fencing	6	1150	-	248	64	25	429	104	67	429	104	67	509	247	89	428	104	67
W.0007	Station Works	Site Establishment	3	1150	-	117	16	10	-	-	-	-	-	-	-	-	-	-	-	-
W.0008		Excavation	10	1150	5	233	40	14	440	95	22	440	95	22	-	-	-	-	-	-
W.0009		Excavation – Excav. & Saw	10	1150	13	401	81	21	528	212	44	-	-	-	-	-	-	-	-	-
W.0010		Concrete & Structural Works	8	1150	5	233	40	14	440	95	22	440	95	22	533	232	54	524	166	35
W.0011		Station Installation & Fitout	20	1150	-	117	16	10	269	48	14	269	48	14	472	116	26	166	22	13
W.0012	Bridge Worksites	Site Establishment	2	1150	-	64	20	1	181	25	12	181	25	12	313	63	21	145	22	11
W.0013		Impact Prot. & Screens	2	1150	2	145	35	5	277	71	15	277	71	15	350	144	40	215	58	8
W.0014		Impact Prot. & Screens - Saw	2	1150	4	216	59	8	-	-	-	-	-	-	-	-	-	-	-	-
W.0015	Substations	Site Establishment	2	1150	-	9	-	-	70	-	-	-	-	-	-	-	-	-	-	-
W.0016		Construction & Installation	6	1150	-	-	-	-	9	-	-	9	-	-	-	-	-	-	-	-

Note 1: Durations should be regarded as indicative and represent a typical worksite. There would be sites within each category that require works to be shorter or longer than shown. The duration of these impacts is less than the overall duration, and depends on the rate of progress in the works areas.

Note 2: Approximate percentage (rounded to the nearest 10%) of activity duration within overall preferred project program.

Note 3: Highly Noise Affected, based on ICNG definition (i.e. predicted $L_{Aeq(15minute)}$ noise at residential receiver is 75 dBA or greater).

Note 4: Based on worst case predicted noise levels.

Note 5: OOH = Out of hours. During the daytime, this refers to the period on Saturday between 7am – 8am, and 1pm – 10pm.

SLR

The above shows that during some of the works, relatively high noise impacts are predicted when higher noise generating equipment is in use. It is however noted that during most activities, it is expected that the construction noise levels would frequently be lower than the worst-case levels predicted above for significant periods of time when noise generating equipment is not in use.

2.5.1.2 Worst-case Impacts during Standard Daytime Construction Hours

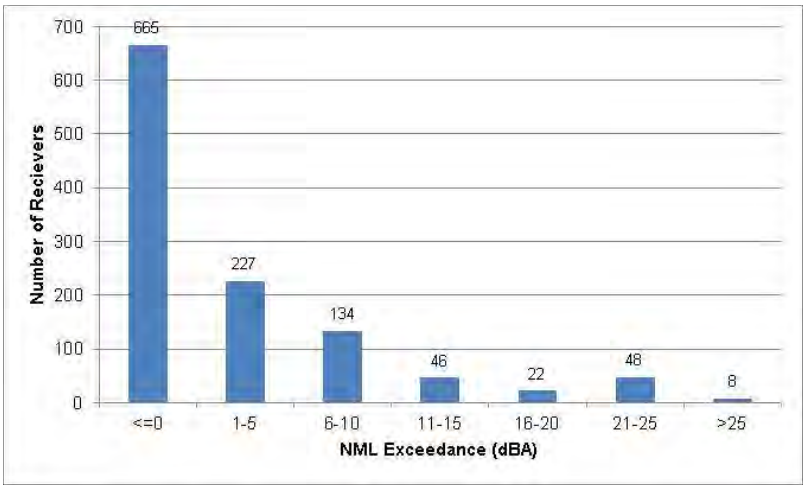
During standard daytime construction hours, **Table 7** shows that activities which use noise intrusive plant items, such as a saw, result in some of the higher impacts. The highest impacts are predicted during the following works in this precinct:

- W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing
- W.0006 – Corridor Works - Track Support Systems - Segregation Fencing
- W.0009 – Station Works - Excavation - Excavator & Saw

Relatively large numbers of receivers are predicted to be affected during the 'Corridor Works - Track Support Systems' activities W.0005 and W.0006. Whilst these works do not use high noise generating construction equipment, they would be required along the length of corridor in this precinct and are in relatively close proximity to certain receivers which adjoin the rail corridor.

The activity with potential for the highest number of NML exceedances is 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'. **Figure 2** indicates the distribution of exceedances for this activity during the daytime.

Figure 2 NML Exceedances Daytime – 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'



The above graph shows that whilst the worst-case impacts may result in a greater than 20 dB exceedance of the daytime NML, this is limited to 56 receivers, with the majority of the receivers in this precinct being subject to considerably lower, or no impacts.

2.5.1.3 Worst-case Impacts during Out-of-Hours Works

To minimise the potential impacts during out of hours periods, rockbreakers are not proposed to be used for any of the works, and other noise intensive plant items such as saws, would generally only be used during the daytime.

During out of hours construction works, **Table 7** shows that the highest numbers of night-time NML exceedances are apparent during the following works:

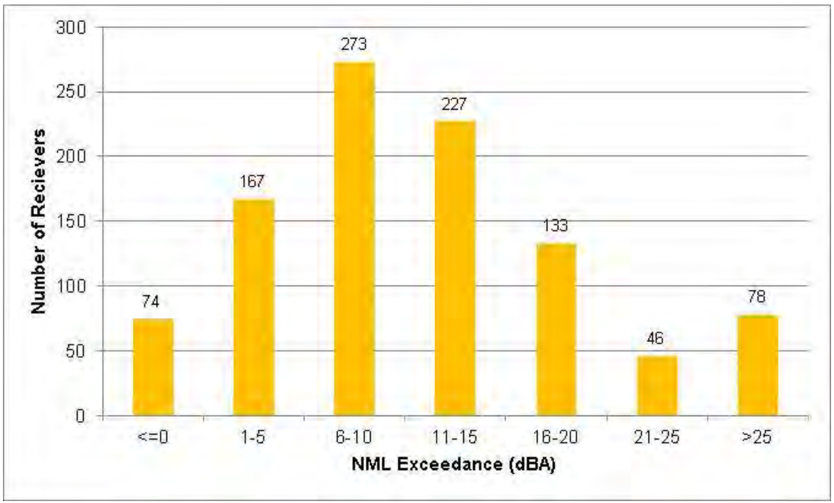
- W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing
- W.0006 – Corridor Works - Track Support Systems - Segregation Fencing
- W.0010 – Station Works - Concrete & Structural Works
- W.0013 – Bridge Worksites - Impact Prot. & Screens

Relatively large numbers of receivers are predicted to be affected during the 'Corridor Works - Track Support Systems' activities W.0005 and W.0006 as the works would be undertaken along the length of the rail corridor. As noted previously, these works activities do not use noise intensive equipment, with the loudest item being a back hoe or truck. The predicted exceedances are due to the proximity of the works to the nearest receivers and impacts from these works would be expected to be relatively short.

Activities for 'W.0010 – Station Works - Concrete & Structural Works' and 'W.0013 – Bridge Worksites - Impact Prot. & Screens' are required in discrete locations at stations and bridges, and generally only affect the immediately surrounding receivers.

The activity with potential for the highest number of NML exceedances during the night-time is 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'. **Figure 3** indicates the distribution of exceedances for this activity for receivers within this precinct during the night-time.

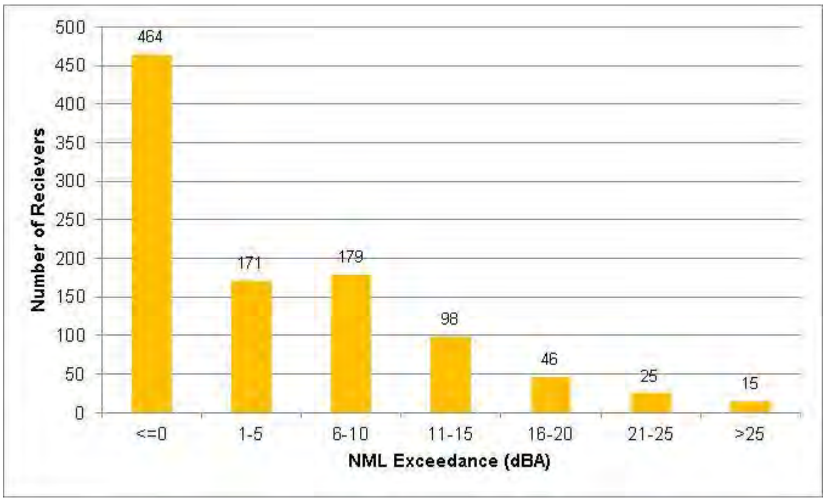
Figure 3 NML Exceedances Night-time – 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'



The above graph shows that whilst the worst-case impacts may result in a greater than 20 dB exceedance of the night-time NMLs at 124 receivers, there are many receivers in this precinct that are subject to lower impacts.

The night-time impacts from 'W.0013 – Bridge Worksites - Impact Prot. & Screens' are shown in **Figure 4**.

Figure 4 NML Exceedances Night-time – 'W. 0013 – Bridge Worksites - Impact Prot. & Screens'



The above shows that the impacts from these works are generally only apparent at receivers which are immediately adjacent to the works. It is noted that these works are not particular noise intensive and the exceedances are due to the proximity of the works to the nearest receivers when the works are at their closest.

2.5.1.4 Highly Noise Affected Residential Receivers

The ICNG considers residential receivers that are subject to predicted noise levels of 75 dBA or greater to be Highly Noise Affected. The number of Highly Noise Affected receivers in this precinct has been determined and is summarised in **Table 8**. The table shows the number of residential receivers separated by works activity and NCA.

Table 8 Predicted Number of Highly Noise Affected Residential Receivers by Works and NCA

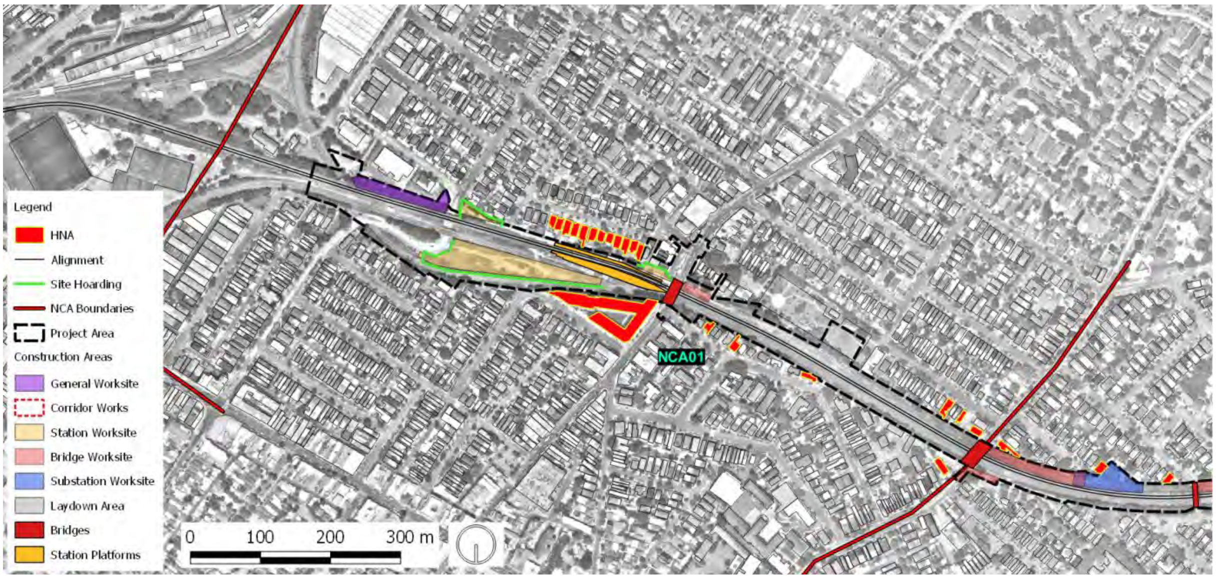
Works	Scenario	Activity	NCA01		
			Day	**Eve**	**Night**
W.0001	General Worksites	Site Establishment	-	-	-
W.0002		Worksite Operations	-	-	-
W.0003	Corridor - Ground & Track	Trackform	-	-	-
W.0004		Trackform - Ballast Tamper	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Security Fencing	4	4	4
W.0006		Segregation Fencing	-	-	-
W.0007	Station Works	Site Establishment	-	-	-
W.0008		Excavation	5	5	-
W.0009		Excavation – Excav. & Saw	13	-	-
W.0010		Concrete & Structural Works	5	5	5
W.0011		Station Installation & Fitout	-	-	-
W.0012	Bridge Worksites	Site Establishment	-	-	-
W.0013		Impact Prot. & Screens	2	2	2
W.0014		Impact Prot. & Screens - Saw	4	-	-
W.0015	Substations	Site Establishment	-	-	-
W.0016		Construction & Installation	-	-	-

The above table shows that receivers are predicted to be Highly Noise Affected in this catchment during certain works activities. The highest numbers are apparent during:

- 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing', where four receivers are predicted to be Highly Noise Affected during the all periods. The works are not noise intensive and the impacts result from the close proximity to some receivers.
- 'W.0009 – Station Works - Excavation - Excavator & Saw', where 13 receivers are predicted to be Highly Noise Affected during the daytime, which results from a saw being in this activity.
- 'W.0010 – Station Works - Concrete & Structural Works', where five receivers are predicted to be Highly Noise Affected during all periods, which results from receivers being located close to the station platforms where the works would occur.

The location of the Highly Noise Affected residential receivers in this precinct, from all works and in any time period, are shown in **Figure 5**.

Figure 5 Highly Noise Affected Residential Receivers



Note: The two activities for 'Corridor Works - Track Support Systems' are not shown on the drawing for clarity. 'W.0005 - Comms Works/Security Fencing' would generally be required at the perimeter of the corridor and 'W.0006 – Segregation Fencing' would be required in the rail corridor between Marrickville and the rail junction between Campsie/Belmore.

The most impacted receivers are typically dwellings which surround and have direct line of sight to the various works locations. Some of the first row receivers in this area are predicted to be Highly Noise Affected, however this would only be expected to be apparent when noisy works are being carried out nearby.

2.5.1.5 Other Sensitive Receivers

The predicted daytime NML exceedances for other sensitive receivers (such as educational facilities, hospitals and childcare centres) are summarised in **Table 9**.

Table 9 Overview of Sensitive Receiver NML Exceedances in Precinct – Daytime

Works	Scenario	Activity	Education			Medical			Place of Worship			Childcare			Remaining[1]		
			1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB
W.0001	General Worksites	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0002		Worksite Operations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0003	Corridor - Ground & Track	Trackform	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0004		Trackform - Ballast Tamper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Sec. Fencing	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
W.0006		Segregation Fencing	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
W.0007	Station Works	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
W.0008		Excavation	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
W.0009		Excavation – Excav. & Saw	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-
W.0010		Concrete & Structural Works	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
W.0011		Station Installation & Fitout	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
W.0012	Bridge Worksites	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
W.0013		Impact Prot. & Screens	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
W.0014		Impact Prot. & Screens - Saw	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
W.0015	Substations	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0016		Construction & Installation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note 1: The 'Remaining' category includes public buildings, libraries, café/bars, etc.

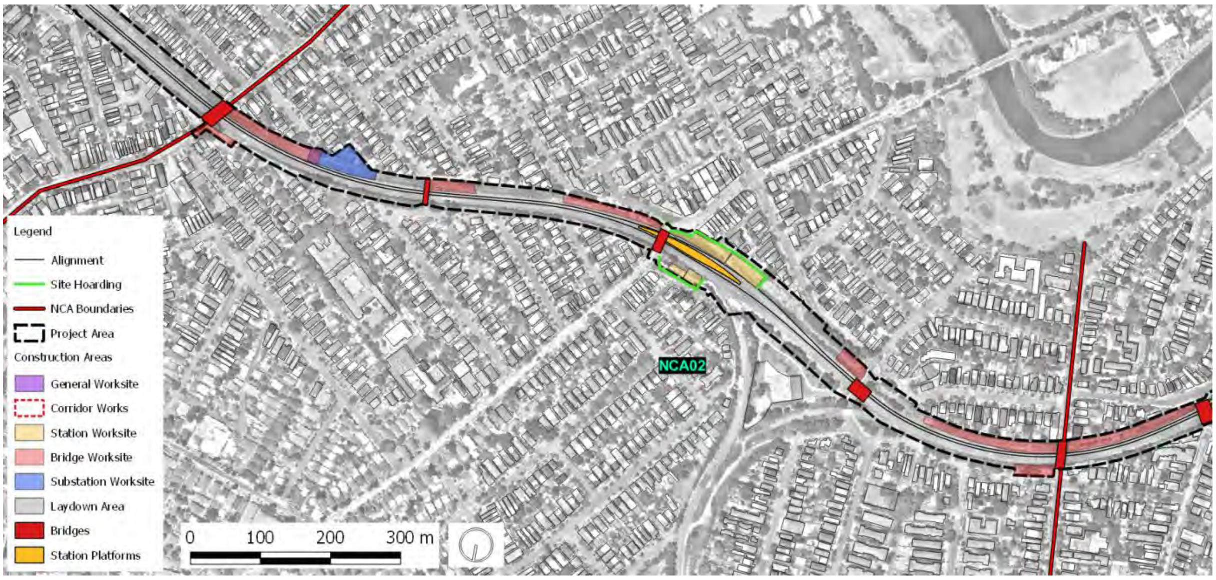
The above table shows the following:

- The other sensitive receivers in this precinct are predicted to generally be subject to relatively minor impacts, with many receiver types and works activities not resulting in any exceedances of NMLs.
- Other sensitive receivers in this area which are predicted to be subject to NMLs exceedances during the higher noise generating activities are:
    - Café/bar – 1 Warburton Street, Marrickville.

2.5.2 Dulwich Hill Precinct (NCA02)

The revised locations of the various construction worksites in the Dulwich Hill precinct are shown below in **Figure 6**.

Figure 6 Dulwich Hill Precinct – Construction Areas



Note: The assessment is based on categorising each construction area by the main activity that would occur within the boundary. Many construction areas would however likely have more than one usage.

Note: Refer to **Appendix A** for large format construction area figures

Note: The two activities for 'Corridor Works - Track Support Systems' are not shown on the drawing for clarity. 'W.0005 - Comms Works/Security Fencing' would generally be required at the perimeter of the corridor and 'W.0006 – Segregation Fencing' would be required in the rail corridor between Marrickville and the rail junction between Campsie/Belmore.

2.5.2.1 NML Exceedances

The predicted NML exceedances in this precinct are summarised in **Table 10**. The number of receivers predicted to experience exceedances of the NMLs are summarised for each scenario in bands of 10 dB and are separated into daytime, evening and night-time periods, as appropriate.

Table 10 Overview of NML Exceedances from the Preferred Project – Dulwich Hill Precinct (NCA02) – All Receiver Types

Activity ID	Scenario	Activity	No. Weeks[1]	Number of Receivers																	
				Total	HNA[3]	With NML Exceedance[4]														
						Standard Daytime			Possession / Closedown Works[5]											
									Daytime OOH			Evening			Night-time			Sleep Disturbance		
						1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB
W.0001	General Worksites	Site Establishment	4	1279	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0002		Worksite Operations	52	1279	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0003	Corridor - Ground & Track	Trackform	12 days	1279	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0004		Trackform - Ballast Tamper	4 days	1279	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Sec. Fencing	2	1279	5	268	164	31	506	187	101	505	187	101	601	265	195	503	187	101
W.0006		Segregation Fencing	6	1279	-	206	120	17	331	176	51	331	176	51	561	206	137	331	176	51
W.0007	Station Works	Site Establishment	3	1279	-	61	23	2	-	-	-	-	-	-	-	-	-	-	-	-
W.0008		Excavation	10	1279	-	165	35	3	478	51	22	478	51	22	-	-	-	-	-	-
W.0009		Excavation – Excav. & Saw	10	1279	2	409	50	16	643	135	34	-	-	-	-	-	-	-	-	-
W.0010		Concrete & Structural Works	8	1279	-	165	35	3	478	51	22	478	51	22	661	164	38	580	111	28
W.0011		Station Installation & Fitout	20	1279	-	61	23	2	221	41	4	221	41	4	518	61	25	111	26	2
W.0012	Bridge Worksites	Site Establishment	2	1279	-	187	102	15	370	130	57	370	130	57	577	186	117	321	125	43
W.0013		Impact Prot. & Screens	2	1279	2	297	79	6	573	137	33	573	137	33	638	293	85	460	102	22
W.0014		Impact Prot. & Screens - Saw	2	1279	4	464	102	22	-	-	-	-	-	-	-	-	-	-	-	-
W.0015	Substations	Site Establishment	2	1279	1	129	26	3	267	40	17	-	-	-	-	-	-	-	-	-
W.0016		Construction & Installation	6	1279	-	40	16	1	127	26	3	127	26	3	-	-	-	-	-	-

Note 1: Durations should be regarded as indicative and represent a typical worksite. There would be sites within each category that require works to be shorter or longer than shown. The duration of these impacts is less than the overall duration, and depends on the rate of progress in the works areas.

Note 2: Approximate percentage (rounded to the nearest 10%) of activity duration within overall preferred project program.

Note 3: Highly Noise Affected, based on ICNG definition (i.e. predicted $L_{Aeq(15minute)}$ noise at residential receiver is 75 dBA or greater).

Note 4: Based on worst case predicted noise levels.

Note 5: OOH = Out of hours. During the daytime, this refers to the period on Saturday between 7am – 8am, and 1pm – 10pm.

The above shows that during some of the works, relatively high noise impacts are predicted when higher noise generating equipment is in use. It is however noted that during most activities, it is expected that the construction noise levels would frequently be lower than the worst-case levels predicted above for significant periods of time when noise generating equipment is not in use.

2.5.2.2 Worst-case Impacts during Standard Daytime Construction Hours

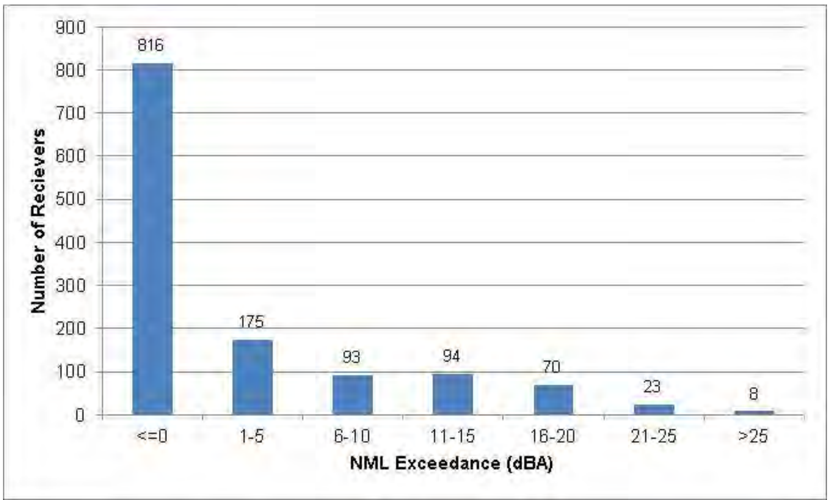
During standard daytime construction hours, **Table 10** shows that activities which use noise intrusive plant items, such as a saw, result in some of the higher impacts. The highest impacts are predicted during the following works in this precinct:

- W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing
- W.0006 – Corridor Works - Track Support Systems - Segregation Fencing
- W.0009 – Station Works - Excavation - Excavator & Saw
- W.0014 - Bridge Worksites - Impact Protection & Screens - Saw

Relatively large numbers of receivers are predicted to be affected during the 'Corridor Works - Track Support Systems' activities W.0005 and W.0006. Whilst these works do not use high noise generating construction equipment, they would be required along the length of corridor in this precinct and are in relatively close proximity to certain receivers which adjoin the rail corridor.

The activity with potential for the highest number of NML exceedances is 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'. **Figure 7** indicates the distribution of exceedances for this activity during the daytime.

Figure 7 NML Exceedances Daytime – 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'



The above graph shows that whilst the worst-case impacts may result in a greater than 20 dB exceedance of the daytime NML, this is limited to 31 receivers, with the majority of the receivers in this precinct being subject to considerably lower, or no impacts.

2.5.2.3 Worst-case Impacts during Out-of-Hours Works

To minimise the potential impacts during out of hours periods, rockbreakers are not proposed to be used for any of the works, and other noise intensive plant items such as saws, would generally only be used during the daytime.

During out of hours construction works, **Table 10** shows that the highest numbers of night-time NML exceedances are apparent during the following works:

- W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing
- W.0006 – Corridor Works - Track Support Systems - Segregation Fencing
- W.0012 – Bridge Worksites - Site Establishment
- W.0013 – Bridge Worksites - Impact Protection & Screens

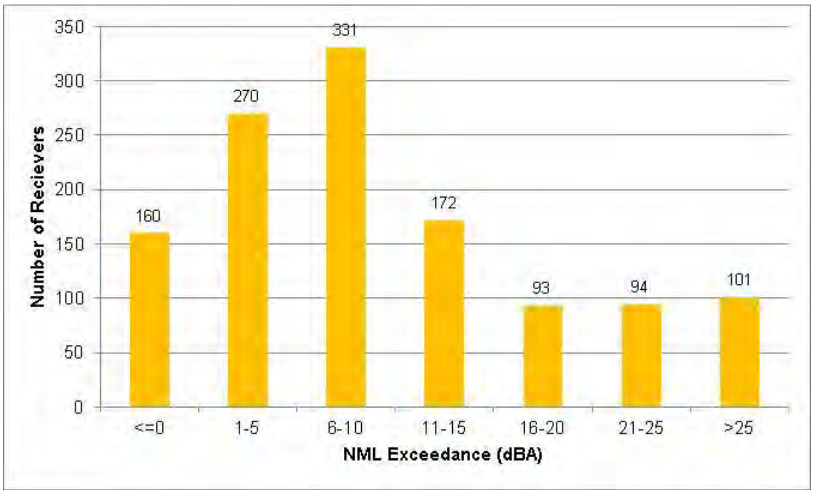
Relatively large numbers of receivers are predicted to be affected during the 'Corridor Works - Track Support Systems' activities W.0005 and W.0006 as the works would be undertaken along the length of the rail corridor. As noted previously, these works activities do not use noise intensive equipment, with the loudest item being a back hoe or truck. The predicted exceedances are due to the proximity of the works to the nearest receivers and impacts from these works would be expected to be relatively short.

Activity 'W.0012 – Bridge Worksites - Site Establishment' is required at the commencement of the works to establish the construction compounds associated with bridge works and does not use any highly noise intensive equipment.

Activity 'W.0013 – Bridge Worksites - Impact Prot. & Screens' is required in discrete locations at bridges and generally only affect the immediately surrounding receivers.

The activity with potential for the highest number of NML exceedances during the night-time is 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'. **Figure 8** indicates the distribution of exceedances for this activity for receivers within this precinct during the night-time.

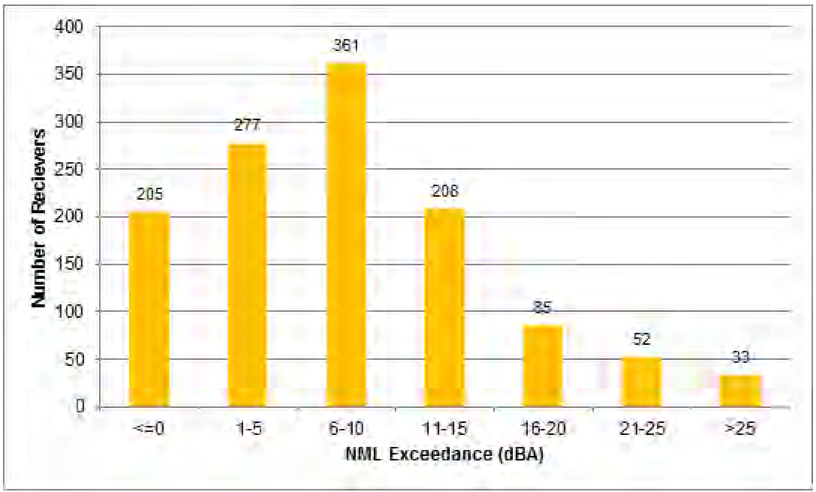
Figure 8 NML Exceedances Night-time – 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'



The above graph shows that whilst the worst-case impacts may result in a greater than 20 dB exceedance of the night-time NMLs at 195 receivers, there are many receivers in this precinct that are subject to lower impacts.

The night-time impacts from 'W.0013 – Bridge Worksites - Impact Prot. & Screens' are shown in **Figure 9**.

Figure 9 NML Exceedances Night-time – 'W. 0013 – Bridge Worksites - Impact Prot. & Screens'



The above shows that the impacts from these works are generally only apparent at receivers which are immediately adjacent to the works. It is noted that these works are not particular noise intensive and the exceedances are due to the proximity of the works to the nearest receivers when the works are at their closest.

2.5.2.4 Highly Noise Affected Residential Receivers

The ICNG considers residential receivers that are subject to predicted noise levels of 75 dBA or greater to be Highly Noise Affected. The number of Highly Noise Affected receivers in this precinct has been determined and is summarised in **Table 11**. The table shows the number of residential receivers separated by works activity and NCA.

Table 11 Predicted Number of Highly Noise Affected Residential Receivers by Works and NCA

Works	Scenario	Activity	NCA02		
			Day	**Eve**	**Night**
W.0001	General Worksites	Site Establishment	-	-	-
W.0002		Worksite Operations	-	-	-
W.0003	Corridor - Ground & Track	Trackform	-	-	-
W.0004		Trackform - Ballast Tamper	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Security Fencing	5	5	5
W.0006		Segregation Fencing	-	-	-

Works	Scenario	Activity	NCA02		
W.0007	Station Works	Site Establishment	-	-	-
W.0008		Excavation	-	-	-
W.0009		Excavation – Excav. & Saw	2	-	-
W.0010		Concrete & Structural Works	-	-	-
W.0011		Station Installation & Fitout	-	-	-
W.0012	Bridge Worksites	Site Establishment	-	-	-
W.0013		Impact Prot. & Screens	2	2	2
W.0014		Impact Prot. & Screens - Saw	4	-	-
W.0015	Substations	Site Establishment	1	-	-
W.0016		Construction & Installation	-	-	-

The above table shows that receivers are predicted to be Highly Noise Affected in this catchment during certain works activities. The highest numbers are apparent during:

- 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing', where five receivers are predicted to be Highly Noise Affected during the all periods. The works are not noise intensive and the impacts result from the close proximity to some receivers.
- 'W.0014 – Bridge Worksites - Impact Protection & Screens – Saw', where four receivers are predicted to be Highly Noise Affected during the daytime, which results from a saw being in this activity.

The location of the Highly Noise Affected residential receivers in this precinct, from all works and in any time period, are shown in **Figure 10**.

Figure 10 Highly Noise Affected Residential Receivers

Note: The two activities for 'Corridor Works - Track Support Systems' are not shown on the drawing for clarity. 'W.0005 - Comms Works/Security Fencing' would generally be required at the perimeter of the corridor and 'W.0006 – Segregation Fencing' would be required in the rail corridor between Marrickville and the rail junction between Campsie/Belmore.

The most impacted receivers are typically dwellings which surround and have direct line of sight to the various works locations. Some of the first row receivers in this area are predicted to be Highly Noise Affected, however this would only be expected to be apparent when noisy works are being carried out nearby.

2.5.2.5 Other Sensitive Receivers

The predicted daytime NML exceedances for other sensitive receivers (such as educational facilities, hospitals and childcare centres) are summarised in **Table 12**.

Table 12 Overview of Sensitive Receiver NML Exceedances in Precinct – Daytime

Works	Scenario	Activity	Education			Medical			Place of Worship			Childcare			Remaining[1]		
			1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB
W.0001	General Worksites	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0002		Worksite Operations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0003	Corridor - Ground & Track	Trackform	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0004		Trackform - Ballast Tamper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Sec. Fencing	1	-	-	-	-	-	2	-	-	-	-	-	-	-	-
W.0006		Segregation Fencing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0007	Station Works	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0008		Excavation	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
W.0009		Excavation – Excav. & Saw	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
W.0010		Concrete & Structural Works	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
W.0011		Station Installation & Fitout	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0012	Bridge Worksites	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0013		Impact Prot. & Screens	-	-	-	-	-	-	2	-	-	-	-	-	2	-	-
W.0014		Impact Prot. & Screens - Saw	-	-	-	-	-	-	2	-	-	-	-	-	2	-	-
W.0015	Substations	Site Establishment	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0016		Construction & Installation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note 1: The 'Remaining' category includes public buildings, libraries, café/bars, etc.

The above table shows the following:

- The other sensitive receivers in this precinct are predicted to generally be subject to relatively minor impacts, with many receiver types and works activities not resulting in any exceedances of NMLs.
- No other sensitive receivers in this area are predicted to be subject to worst-case exceedances of 11 to 20 dB above NML, or higher.

2.5.3 Hurlstone Park Precinct (NCA03)

The revised locations of the various construction worksites in the Hurlstone Park precinct are shown below in **Figure 11**.

Figure 11 Hurlstone Park Precinct – Construction Areas

Note: The assessment is based on categorising each construction area by the main activity that would occur within the boundary. Many construction areas would however likely have more than one usage.

Note: Refer to **Appendix A** for large format construction area figures

Note: The two activities for 'Corridor Works - Track Support Systems' are not shown on the drawing for clarity. 'W.0005 - Comms Works/Security Fencing' would generally be required at the perimeter of the corridor and 'W.0006 – Segregation Fencing' would be required in the rail corridor between Marrickville and the rail junction between Campsie/Belmore.

2.5.3.1 NML Exceedances

The predicted NML exceedances in this precinct are summarised in **Table 13**. The number of receivers predicted to experience exceedances of the NMLs are summarised for each scenario in bands of 10 dB and are separated into daytime, evening and night-time periods, as appropriate.

Table 13 Overview of NML Exceedances from the Preferred Project – Hurlstone Park Precinct (NCA03) – All Receiver Types

Activity ID	Scenario	Activity	No. Weeks[1]	Number of Receivers																
				Total	HNA[3]	With NML Exceedance[4]														
						Standard Daytime			Possession / Closedown Works[5]											
									Daytime OOH			Evening			Night-time			Sleep Disturbance		
						1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB
W.0001	General Worksites	Site Establishment	4	751	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0002		Worksite Operations	52	751	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0003	Corridor - Ground & Track	Trackform	12 days	751	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0004		Trackform - Ballast Tamper	4 days	751	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Sec. Fencing	2	751	2	243	101	41	364	152	84	363	152	83	342	229	128	351	135	72
W.0006		Segregation Fencing	6	751	-	191	86	15	303	116	55	302	116	54	368	161	92	278	107	46
W.0007	Station Works	Site Establishment	3	751	1	75	19	4	-	-	-	-	-	-	-	-	-	-	-	-
W.0008		Excavation	10	751	2	177	31	9	396	64	21	393	64	21	-	-	-	-	-	-
W.0009		Excavation – Excav. & Saw	10	751	5	340	48	19	431	155	36	-	-	-	-	-	-	-	-	-
W.0010		Concrete & Structural Works	8	751	2	177	31	9	396	64	21	393	64	21	424	155	36	435	104	25
W.0011		Station Installation & Fitout	20	751	1	75	19	4	210	33	12	210	33	12	393	64	21	104	21	4
W.0012	Bridge Worksites	Site Establishment	2	751	-	124	40	3	280	52	24	280	52	23	368	107	39	219	42	17
W.0013		Impact Prot. & Screens	2	751	-	249	59	10	398	115	29	397	115	28	413	219	49	329	75	16
W.0014		Impact Prot. & Screens - Saw	2	751	5	359	79	23	-	-	-	-	-	-	-	-	-	-	-	-
W.0015	Substations	Site Establishment	2	751	-	33	10	-	82	13	2	-	-	-	-	-	-	-	-	-
W.0016		Construction & Installation	6	751	-	13	2	-	33	10	-	33	10	-	-	-	-	-	-	-

Note 1: Durations should be regarded as indicative and represent a typical worksite. There would be sites within each category that require works to be shorter or longer than shown. The duration of these impacts is less than the overall duration, and depends on the rate of progress in the works areas.
Note 2: Approximate percentage (rounded to the nearest 10%) of activity duration within overall preferred project program.
Note 3: Highly Noise Affected, based on ICNG definition (i.e. predicted $L_{Aeq(15minute)}$ noise at residential receiver is 75 dBA or greater).
Note 4: Based on worst case predicted noise levels.
Note 5: OOH = Out of hours. During the daytime, this refers to the period on Saturday between 7am – 8am, and 1pm – 10pm.

SLR

The above shows that during some of the works, relatively high noise impacts are predicted when higher noise generating equipment is in use. It is however noted that during most activities, it is expected that the construction noise levels would frequently be lower than the worst-case levels predicted above for significant periods of time when noise generating equipment is not in use.

2.5.3.2 Worst-case Impacts during Standard Daytime Construction Hours

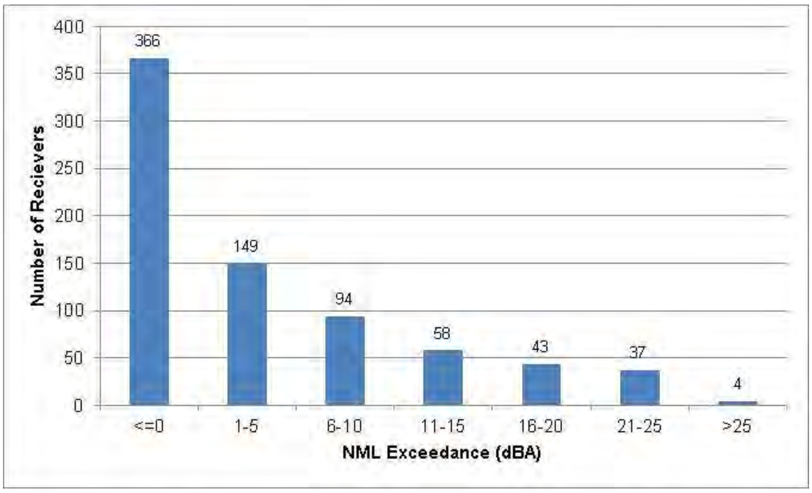
During standard daytime construction hours, **Table 13** shows that activities which use noise intrusive plant items, such as a saw, result in some of the higher impacts. The highest impacts are predicted during the following works in this precinct:

- W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing
- W.0009 – Station Works - Excavation - Excavator & Saw
- W.0014 - Bridge Worksites - Impact Protection & Screens - Saw

Relatively large numbers of receivers are predicted to be affected during the 'Corridor Works - Track Support Systems' activities W.0005 and W.0006. Whilst these works do not use high noise generating construction equipment, they would be required along the length of corridor in this precinct and are in relatively close proximity to certain receivers which adjoin the rail corridor.

The activity with potential for the highest number of NML exceedances is 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'. **Figure 12** indicates the distribution of exceedances for this activity during the daytime.

Figure 12 NML Exceedances Daytime – 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'



The above graph shows that whilst the worst-case impacts may result in a greater than 20 dB exceedance of the daytime NML, this is limited to 41 receivers, with the majority of the receivers in this precinct being subject to considerably lower, or no impacts.

2.5.3.3 Worst-case Impacts during Out-of-Hours Works

To minimise the potential impacts during out of hours periods, rockbreakers are not proposed to be used for any of the works, and other noise intensive plant items such as saws, would generally only be used during the daytime.

During out of hours construction works, **Table 13** shows that the highest numbers of night-time NML exceedances are apparent during the following works:

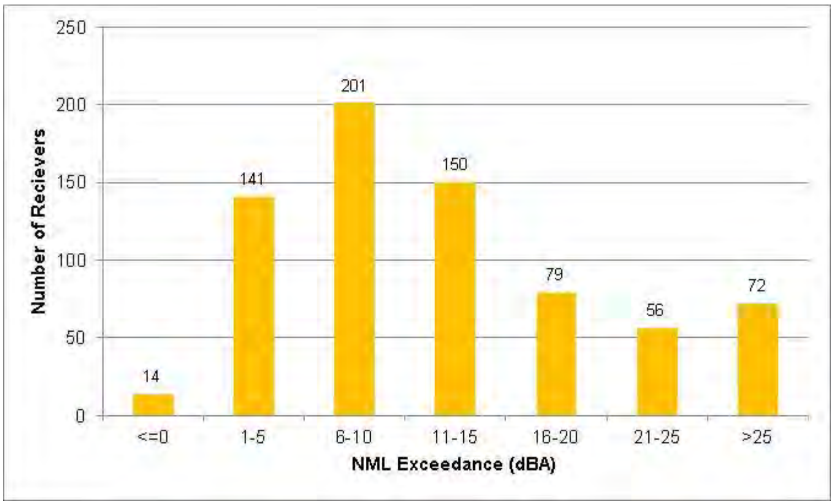
- W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing
- W.0006 – Corridor Works - Track Support Systems - Segregation Fencing
- W.0010 – Station Works - Concrete & Structural Works
- W.0013 – Bridge Worksites - Impact Prot. & Screens

Relatively large numbers of receivers are predicted to be affected during the 'Corridor Works - Track Support Systems' activities W.0005 and W.0006 as the works would be undertaken along the length of the rail corridor. As noted previously, these works activities do not use noise intensive equipment, with the loudest item being a back hoe or truck. The predicted exceedances are due to the proximity of the works to the nearest receivers and impacts from these works would be expected to be relatively short.

Activities for 'W.0010 – Station Works - Concrete & Structural Works' and 'W.0013 – Bridge Worksites - Impact Protection & Screens' are required in discrete locations at stations and bridges, and generally only affect the immediately surrounding receivers.

The activity with potential for the highest number of NML exceedances during the night-time is 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'. **Figure 13** indicates the distribution of exceedances for this activity for receivers within this precinct during the night-time.

Figure 13 NML Exceedances Night-time – 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'



The above graph shows that whilst the worst-case impacts may result in a greater than 20 dB exceedance of the night-time NMLs at 128 receivers, there are many receivers in this precinct that are subject to lower impacts.

2.5.3.4 Highly Noise Affected Residential Receivers

The ICNG considers residential receivers that are subject to predicted noise levels of 75 dBA or greater to be Highly Noise Affected. The number of Highly Noise Affected receivers in this precinct has been determined and is summarised in **Table 14**. The table shows the number of residential receivers separated by works activity and NCA.

Table 14 Predicted Number of Highly Noise Affected Residential Receivers by Works and NCA

Works	Scenario	Activity	NCA03		
			Day	**Eve**	**Night**
W.0001	General Worksites	Site Establishment	-	-	-
W.0002		Worksite Operations	-	-	-
W.0003	Corridor - Ground & Track	Trackform	-	-	-
W.0004		Trackform - Ballast Tamper	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Security Fencing	2	2	2
W.0006		Segregation Fencing	-	-	-
W.0007	Station Works	Site Establishment	1	-	-
W.0008		Excavation	2	2	-
W.0009		Excavation – Excav. & Saw	5	-	-
W.0010		Concrete & Structural Works	2	2	2
W.0011		Station Installation & Fitout	1	1	1
W.0012	Bridge Worksites	Site Establishment	-	-	-
W.0013		Impact Prot. & Screens	-	-	-
W.0014		Impact Prot. & Screens - Saw	5	-	-
W.0015	Substations	Site Establishment	-	-	-
W.0016		Construction & Installation	-	-	-

The above table shows that receivers are predicted to be Highly Noise Affected in this catchment during certain works activities. The highest numbers are apparent during:

- 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing', where two receivers are predicted to be Highly Noise Affected during the all periods. The works are not noise intensive and the impacts result from the close proximity to some receivers.
- 'W.0009 – Station Works - Excavation - Excavator & Saw', where five receivers are predicted to be Highly Noise Affected during the daytime, which results from a saw being in this activity.
- 'W.0014 – Bridge Worksites - Impact Prot. & Screens – Saw', where five receivers are predicted to be Highly Noise Affected during the daytime, which results from a saw being in this activity.

The location of the Highly Noise Affected residential receivers in this precinct, from all works and in any time period, are shown in **Figure 14**.

Figure 14 Highly Noise Affected Residential Receivers

Note: The two activities for 'Corridor Works - Track Support Systems' are not shown on the drawing for clarity. 'W.0005 - Comms Works/Security Fencing' would generally be required at the perimeter of the corridor and 'W.0006 – Segregation Fencing' would be required in the rail corridor between Marrickville and the rail junction between Campsie/Belmore.

The most impacted receivers are typically dwellings which surround and have direct line of sight to the various works locations. Some of the first row receivers in this area are predicted to be Highly Noise Affected, however this would only be expected to be apparent when noisy works are being carried out nearby.

2.5.3.5 Other Sensitive Receivers

The predicted daytime NML exceedances for other sensitive receivers (such as educational facilities, hospitals and childcare centres) are summarised in **Table 15**.

Table 15 Overview of Sensitive Receiver NML Exceedances in Precinct – Daytime

Works	Scenario	Activity	Education			Medical			Place of Worship			Childcare			Remaining[1]		
			1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB
W.0001	General Worksites	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0002		Worksite Operations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0003	Corridor - Ground & Track	Trackform	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0004		Trackform - Ballast Tamper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Sec. Fencing	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
W.0006		Segregation Fencing	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
W.0007	Station Works	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0008		Excavation	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
W.0009		Excavation – Excav. & Saw	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
W.0010		Concrete & Structural Works	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
W.0011		Station Installation & Fitout	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0012	Bridge Worksites	Site Establishment	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
W.0013		Impact Prot. & Screens	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
W.0014		Impact Prot. & Screens - Saw	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-
W.0015	Substations	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0016		Construction & Installation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note 1: The 'Remaining' category includes public buildings, libraries, café/bars, etc.

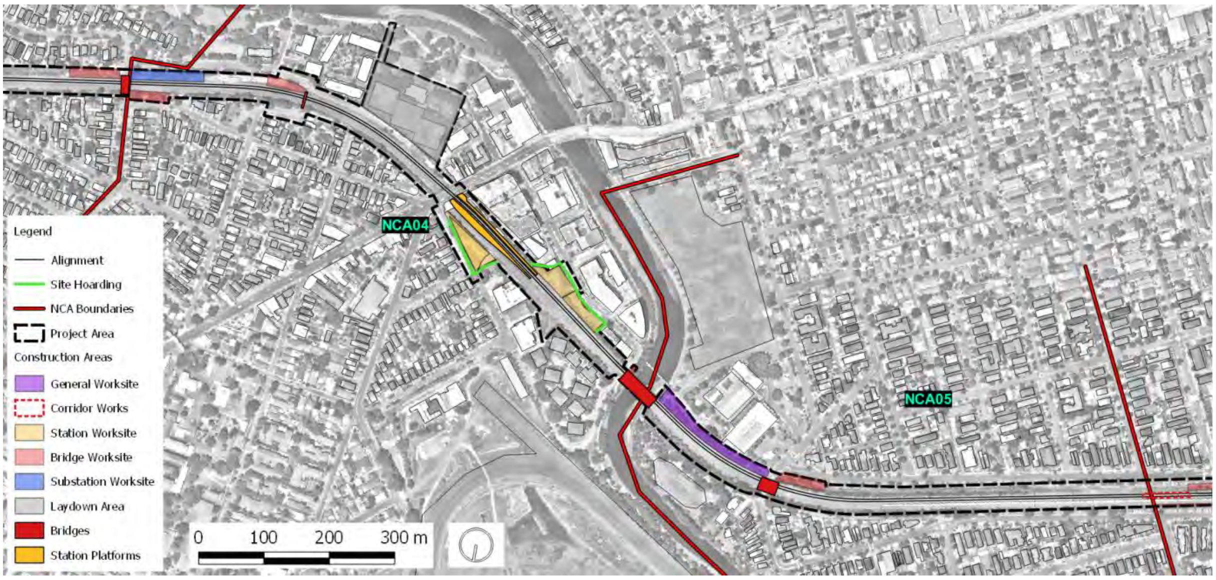
The above table shows the following:

- The other sensitive receivers in this precinct are predicted to generally be subject to relatively minor impacts, with many receiver types and works activities not resulting in any exceedances of NMLs.
- Other sensitive receivers in this area which are predicted to be subject to NMLs exceedances during the higher noise generating activities are:
    - Childcare Centre – Dulwich Hill Child Care Centre, 66 Garnet St, Hurlstone Park.
- A number of receivers are predicted to have impacts of >20 dB above NML. The construction scenarios with these higher impacts are generally not noise intensive and the exceedances result from the proximity of the works to the receivers, meaning that the worst-case impacts would generally only be apparent for a relatively short duration. High impacts are however also seen during use of a diamond saw and this noise intensive plant item would likely only be required for short durations.

2.5.4 Canterbury Precinct (NCA04 and NCA05)

The revised locations of the various construction worksites in the Canterbury precinct are shown below in **Figure 15**.

Figure 15 Canterbury Precinct – Construction Areas



Note: The assessment is based on categorising each construction area by the main activity that would occur within the boundary. Many construction areas would however likely have more than one usage.

Note: Refer to **Appendix A** for large format construction area figures

Note: The two activities for 'Corridor Works - Track Support Systems' are not shown on the drawing for clarity. 'W.0005 - Comms Works/Security Fencing' would generally be required at the perimeter of the corridor and 'W.0006 – Segregation Fencing' would be required in the rail corridor between Marrickville and the rail junction between Campsie/Belmore.

2.5.4.1 NML Exceedances

The predicted NML exceedances in this precinct are summarised in **Table 16**. The number of receivers predicted to experience exceedances of the NMLs are summarised for each scenario in bands of 10 dB and are separated into daytime, evening and night-time periods, as appropriate.

Table 16 Overview of NML Exceedances from the Preferred Project – Canterbury Precinct (NCA04 and NCA05) – All Receiver Types

Activity ID	Scenario	Activity	No. Weeks[1]	Number of Receivers																
				Total	HNA[3]	With NML Exceedance[4]														
						Standard Daytime			Possession / Closedown Works[5]											
									Daytime OOH			Evening			Night-time			Sleep Disturbance		
						1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB
W.0001	General Worksites	Site Establishment	4	708	-	57	2	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0002		Worksite Operations	52	708	-	20	-	-	92	2	-	92	2	-	168	13	-	74	2	-
W.0003	Corridor - Ground & Track	Trackform	12 days	708	-	75	14	1	165	34	4	165	34	4	248	67	11	85	17	1
W.0004		Trackform - Ballast Tamper	4 days	708	1	219	47	7	248	96	19	248	96	19	149	197	43	118	219	54
W.0005	Corridor - Track Supp. Systems	Comms Works/Sec. Fencing	2	708	-	253	127	20	319	172	84	315	172	84	268	234	138	321	155	83
W.0006		Segregation Fencing	6	708	-	198	101	7	287	129	50	287	129	50	326	180	101	275	128	38
W.0007	Station Works	Site Establishment	3	708	-	24	3	1	-	-	-	-	-	-	-	-	-	-	-	-
W.0008		Excavation	10	708	1	58	6	2	222	21	3	220	21	3	-	-	-	-	-	-
W.0009		Excavation – Excav. & Saw	10	708	2	168	19	3	425	39	8	-	-	-	-	-	-	-	-	-
W.0010		Concrete & Structural Works	8	708	1	58	6	2	222	21	3	220	21	3	439	47	8	332	29	5
W.0011		Station Installation & Fitout	20	708	-	24	3	1	68	15	2	68	15	2	225	24	4	29	4	1
W.0012	Bridge Worksites	Site Establishment	2	708	-	118	31	2	268	58	8	268	58	8	348	113	27	209	46	6
W.0013		Impact Prot. & Screens	2	708	-	211	47	7	325	115	18	325	115	18	387	195	49	256	71	10
W.0014		Impact Prot. & Screens - Saw	2	708	1	285	79	11	-	-	-	-	-	-	-	-	-	-	-	-
W.0015	Substations	Site Establishment	2	708	-	26	8	-	42	16	2	-	-	-	-	-	-	-	-	-
W.0016		Construction & Installation	6	708	-	16	2	-	26	8	-	26	8	-	-	-	-	-	-	-

Note 1: Durations should be regarded as indicative and represent a typical worksite. There would be sites within each category that require works to be shorter or longer than shown. The duration of these impacts is less than the overall duration, and depends on the rate of progress in the works areas.

Note 2: Approximate percentage (rounded to the nearest 10%) of activity duration within overall preferred project program.

Note 3: Highly Noise Affected, based on ICNG definition (i.e. predicted $L_{Aeq(15minute)}$ noise at residential receiver is 75 dBA or greater).

Note 4: Based on worst case predicted noise levels.

Note 5: OOH = Out of hours. During the daytime, this refers to the period on Saturday between 7am – 8am, and 1pm – 10pm.

The above shows that during some of the works, relatively high noise impacts are predicted when higher noise generating equipment is in use. It is however noted that during most activities, it is expected that the construction noise levels would frequently be lower than the worst-case levels predicted above for significant periods of time when noise generating equipment is not in use.

2.5.4.2 Worst-case Impacts during Standard Daytime Construction Hours

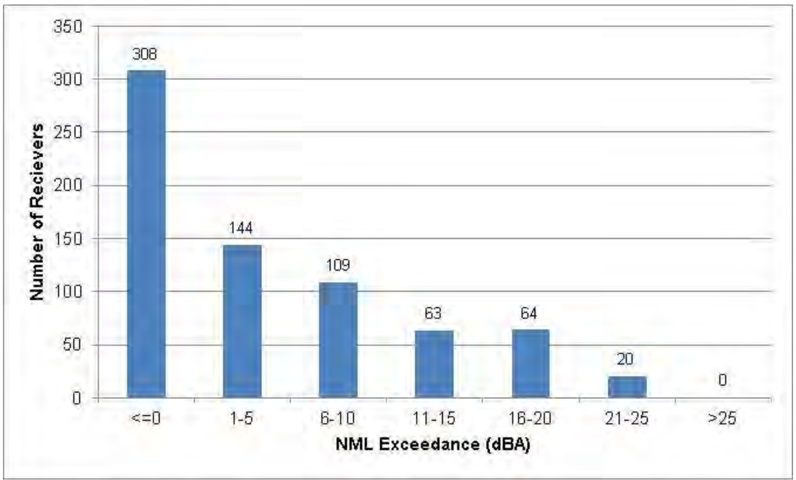
During standard daytime construction hours, **Table 16** shows that activities which use noise intrusive plant items, such as a saw, result in some of the higher impacts. The highest impacts are predicted during the following works in this precinct:

- W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing
- W.0014 - Bridge Worksites - Impact Protection & Screens - Saw

Relatively large numbers of receivers are predicted to be affected during the 'Corridor Works - Track Support Systems' activity W.0005. Whilst these works do not use high noise generating construction equipment, they would be required along the length of corridor in this precinct and are in relatively close proximity to certain receivers which adjoin the rail corridor.

The activity with potential for the highest number of NML exceedances is 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'. **Figure 16** indicates the distribution of exceedances for this activity during the daytime.

Figure 16 NML Exceedances Daytime – 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'



The above graph shows that whilst the worst-case impacts may result in a greater than 20 dB exceedance of the daytime NML, this is limited to 20 receivers, with the majority of the receivers in this precinct being subject to considerably lower, or no impacts.

2.5.4.3 Worst-case Impacts during Out-of-Hours Works

To minimise the potential impacts during out of hours periods, rockbreakers are not proposed to be used for any of the works, and other noise intensive plant items such as saws, would generally only be used during the daytime.

During out of hours construction works, **Table 16** shows that the highest numbers of night-time NML exceedances are apparent during the following works:

- W.0004 – Corridor – Ground & Track - Trackform – Ballast Tamper
- W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing
- W.0006 – Corridor Works - Track Support Systems - Segregation Fencing
- W.0013 – Bridge Worksites - Impact Protection & Screens

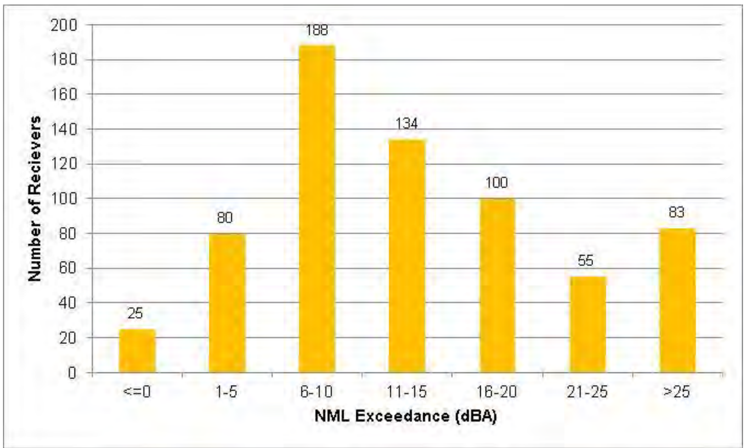
Trackform works which require a ballast tamper are required as part of 'W.0004 – Corridor – Ground & Track - Trackform – Ballast Tamper' in a small area of this precinct. Whilst high noise levels are anticipated during use of the tamper, the impacts would be expected to last for only a few days as the works progress relatively quickly.

Relatively large numbers of receivers are predicted to be affected during the 'Corridor Works - Track Support Systems' activities W.0005 and W.0006 as the works would be undertaken along the length of the rail corridor. As noted previously, these works activities do not use noise intensive equipment, with the loudest item being a back hoe or truck. The predicted exceedances are due to the proximity of the works to the nearest receivers and impacts from these works would be expected to be relatively short.

Activity 'W.0013 – Bridge Worksites - Impact Prot. & Screens' is required in discrete locations at bridges and generally only affects the immediately surrounding receivers.

The activity with potential for the highest number of NML exceedances during the night-time is 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'. **Figure 17** indicates the distribution of exceedances for this activity for receivers within this precinct during the night-time.

Figure 17 NML Exceedances Night-time – 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'



The above graph shows that whilst the worst-case impacts may result in a greater than 20 dB exceedance of the night-time NMLs at 138 receivers, there are many receivers in this precinct that are subject to lower impacts.

2.5.4.4 Highly Noise Affected Residential Receivers

The ICNG considers residential receivers that are subject to predicted noise levels of 75 dBA or greater to be Highly Noise Affected. The number of Highly Noise Affected receivers in this precinct has been determined and is summarised in **Table 17**. The table shows the number of residential receivers separated by works activity and NCA.

Table 17 Predicted Number of Highly Noise Affected Residential Receivers by Works and NCA

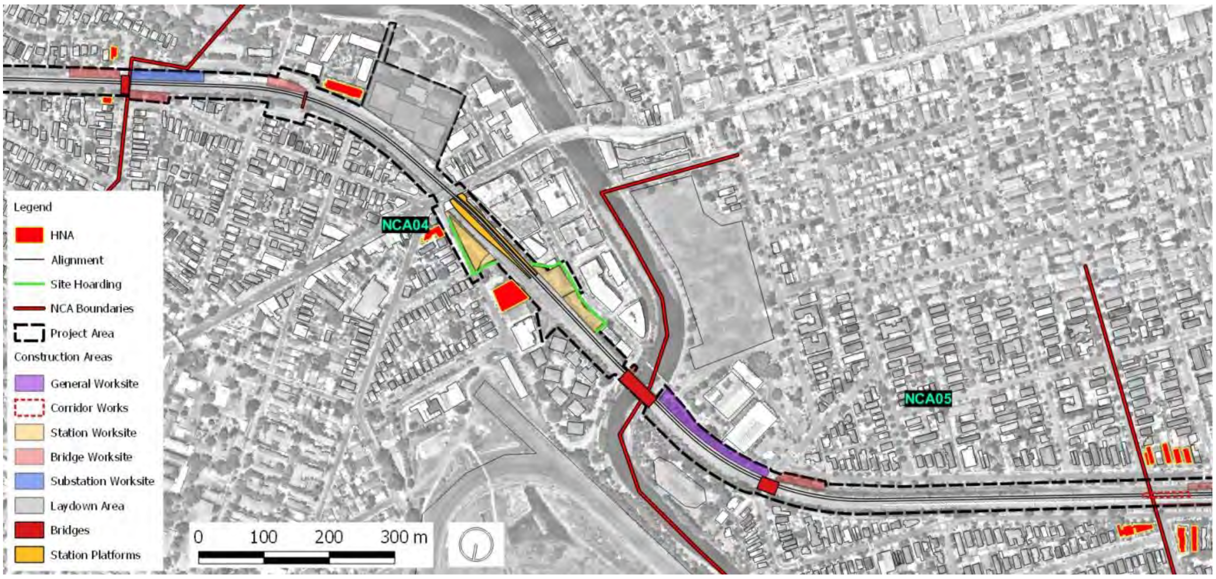
Works	Scenario	Activity	NCA04			NCA05		
			Day	**Eve**	**Night**	**Day**	**Eve**	**Night**
W.0001	General Worksites	Site Establishment	-	-	-	-	-	-
W.0002		Worksite Operations	-	-	-	-	-	-
W.0003	Corridor - Ground & Track	Trackform	-	-	-	-	-	-
W.0004		Trackform - Ballast Tamper	-	-	-	1	1	1
W.0005	Corridor - Track Supp. Systems	Comms Works/Security Fencing	-	-	-	-	-	-
W.0006		Segregation Fencing	-	-	-	-	-	-
W.0007	Station Works	Site Establishment	-	-	-	-	-	-
W.0008		Excavation	1	1	-	-	-	-
W.0009		Excavation – Excav. & Saw	2	-	-	-	-	-
W.0010		Concrete & Structural Works	1	1	1	-	-	-
W.0011		Station Installation & Fitout	-	-	-	-	-	-
W.0012	Bridge Worksites	Site Establishment	-	-	-	-	-	-
W.0013		Impact Prot. & Screens	-	-	-	-	-	-
W.0014		Impact Prot. & Screens - Saw	1	-	-	-	-	-
W.0015	Substations	Site Establishment	-	-	-	-	-	-
W.0016		Construction & Installation	-	-	-	-	-	-

The above table shows that receivers are predicted to be Highly Noise Affected in this catchment during certain works activities. The highest numbers are apparent during:

- ‘W.0009 – Station Works - Excavation - Excavator & Saw’, where two receivers are predicted to be Highly Noise Affected during the daytime, which results from a saw being in this activity.

The location of the Highly Noise Affected residential receivers in this precinct, from all works and in any time period, are shown in **Figure 18**.

Figure 18 Highly Noise Affected Residential Receivers



Note: The two activities for 'Corridor Works - Track Support Systems' are not shown on the drawing for clarity. 'W.0005 - Comms Works/Security Fencing' would generally be required at the perimeter of the corridor and 'W.0006 – Segregation Fencing' would be required in the rail corridor between Marrickville and the rail junction between Campsie/Belmore.

The most impacted receivers are typically dwellings which surround and have direct line of sight to the various works locations. Some of the first row receivers in this area are predicted to be Highly Noise Affected, however this would only be expected to be apparent when noisy works are being carried out nearby.

2.5.4.5 Other Sensitive Receivers

The predicted daytime NML exceedances for other sensitive receivers (such as educational facilities, hospitals and childcare centres) are summarised in **Table 18**.

Table 18 Overview of Sensitive Receiver NML Exceedances in Precinct – Daytime

Works	Scenario	Activity	Education			Medical			Place of Worship			Childcare			Remaining[1]		
			1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB
W.0001	General Worksites	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0002		Worksite Operations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0003	Corridor - Ground & Track	Trackform	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0004		Trackform - Ballast Tamper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Sec. Fencing	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
W.0006		Segregation Fencing	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
W.0007	Station Works	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0008		Excavation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0009		Excavation – Excav. & Saw	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
W.0010		Concrete & Structural Works	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0011		Station Installation & Fitout	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0012	Bridge Worksites	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0013		Impact Prot. & Screens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0014		Impact Prot. & Screens - Saw	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0015	Substations	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0016		Construction & Installation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note 1: The 'Remaining' category includes public buildings, libraries, café/bars, etc.

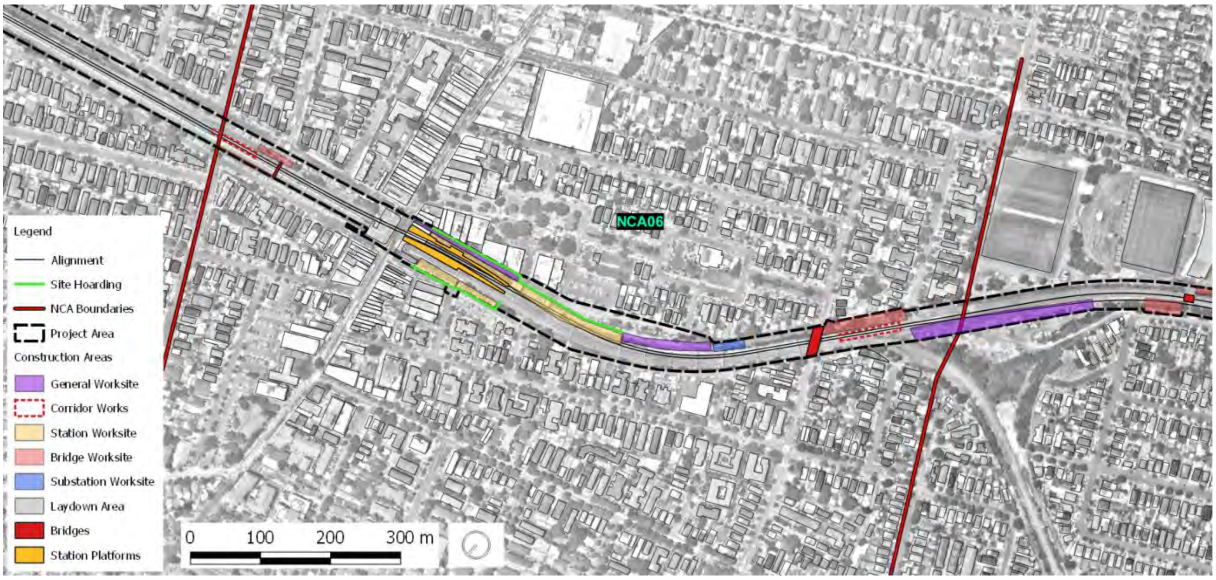
The above table shows the following:

- The other sensitive receivers in this precinct are predicted to generally be subject to relatively minor impacts, with many receiver types and works activities not resulting in any exceedances of NMLs.
- Other sensitive receivers in this area which are predicted to be subject to NMLs exceedances during the higher noise generating activities are:
    - Café/bar – 208 Canterbury Road, Canterbury.

2.5.5 Campsie Precinct (NCA06)

The revised locations of the various construction worksites in the Campsie precinct are shown below in **Figure 19**.

Figure 19 Campsie Precinct – Construction Areas



Note: The assessment is based on categorising each construction area by the main activity that would occur within the boundary. Many construction areas would however likely have more than one usage.

Note: Refer to **Appendix A** for large format construction area figures

Note: The two activities for 'Corridor Works - Track Support Systems' are not shown on the drawing for clarity. 'W.0005 - Comms Works/Security Fencing' would generally be required at the perimeter of the corridor and 'W.0006 – Segregation Fencing' would be required in the rail corridor between Marrickville and the rail junction between Campsie/Belmore.

2.5.5.1 NML Exceedances

The predicted NML exceedances in this precinct are summarised in **Table 19**. The number of receivers predicted to experience exceedances of the NMLs are summarised for each scenario in bands of 10 dB and are separated into daytime, evening and night-time periods, as appropriate.

Table 19 Overview of NML Exceedances from the Preferred Project – Campsie Precinct (NCA06) – All Receiver Types

Activity ID	Scenario	Activity	No. Weeks[1]	Number of Receivers																
				Total	HNA[3]	With NML Exceedance[4]														
						Standard Daytime			Possession / Closedown Works[5]											
									Daytime OOH			Evening			Night-time			Sleep Disturbance		
						1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB
W.0001	General Worksites	Site Establishment	4	668	-	50	3	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0002		Worksite Operations	52	668	-	25	1	-	70	4	-	93	14	1	181	65	4	106	20	1
W.0003	Corridor - Ground & Track	Trackform	12 days	668	-	51	20	-	95	32	3	127	42	13	244	94	34	116	40	4
W.0004		Trackform - Ballast Tamper	4 days	668	13	124	41	4	203	70	26	246	95	34	233	195	95	211	217	102
W.0005	Corridor - Track Supp. Systems	Comms Works/Sec. Fencing	2	668	1	99	43	-	144	71	9	172	91	17	287	139	77	216	94	40
W.0006		Segregation Fencing	6	668	-	88	14	-	111	58	1	143	68	9	262	105	59	150	82	14
W.0007	Station Works	Site Establishment	3	668	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0008		Excavation	10	668	-	25	1	-	35	7	-	48	14	-	-	-	-	-	-	-
W.0009		Excavation – Excav. & Saw	10	668	-	31	7	-	63	17	1	-	-	-	-	-	-	-	-	-
W.0010		Concrete & Structural Works	8	668	-	25	1	-	35	7	-	48	14	-	217	30	7	117	24	4
W.0011		Station Installation & Fitout	20	668	-	8	-	-	24	1	-	24	7	-	77	24	1	24	4	-
W.0012	Bridge Worksites	Site Establishment	2	668	-	33	4	-	52	14	2	57	25	3	181	51	16	65	29	3
W.0013		Impact Prot. & Screens	2	668	-	52	15	-	75	26	3	127	46	7	266	71	29	124	46	7
W.0014		Impact Prot. & Screens - Saw	2	668	2	70	20	1	-	-	-	-	-	-	-	-	-	-	-	-
W.0015	Substations	Site Establishment	2	668	-	34	2	-	39	16	-	-	-	-	-	-	-	-	-	-
W.0016		Construction & Installation	6	668	-	17	-	-	35	1	-	41	9	-	-	-	-	-	-	-

Note 1: Durations should be regarded as indicative and represent a typical worksite. There would be sites within each category that require works to be shorter or longer than shown. The duration of these impacts is less than the overall duration, and depends on the rate of progress in the works areas.

Note 2: Approximate percentage (rounded to the nearest 10%) of activity duration within overall preferred project program.

Note 3: Highly Noise Affected, based on ICNG definition (i.e. predicted $L_{Aeq(15minute)}$ noise at residential receiver is 75 dBA or greater).

Note 4: Based on worst case predicted noise levels.

Note 5: OOH = Out of hours. During the daytime, this refers to the period on Saturday between 7am – 8am, and 1pm – 10pm.

The above shows that during some of the works, relatively high noise impacts are predicted when higher noise generating equipment is in use. It is however noted that during most activities, it is expected that the construction noise levels would frequently be lower than the worst-case levels predicted above for significant periods of time when noise generating equipment is not in use.

2.5.5.2 Worst-case Impacts during Standard Daytime Construction Hours

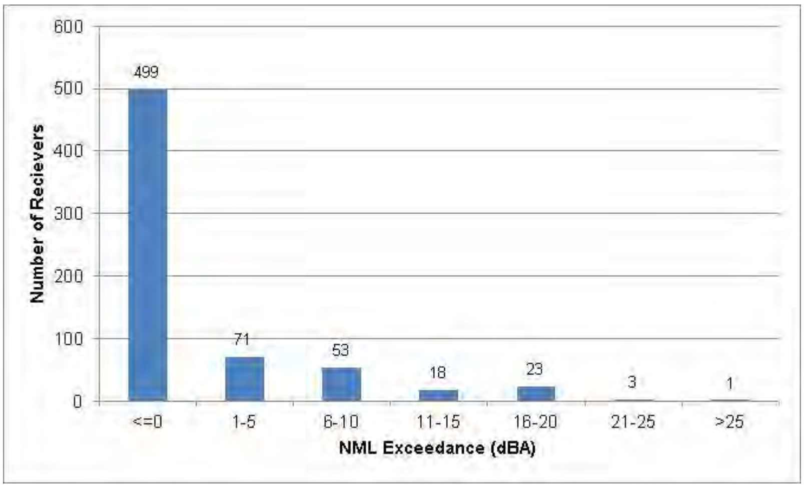
During standard daytime construction hours, **Table 19** shows that activities which use noise intrusive plant items, such as a saw, result in some of the higher impacts. The highest impacts are predicted during the following works in this precinct:

- W.0004 – Corridor – Ground & Track - Trackform – Ballast Tamper
- W.0014 - Bridge Worksites - Impact Protection & Screens - Saw

Trackform works which require a ballast tamper are required as part of 'W.0004 – Corridor – Ground & Track - Trackform – Ballast Tamper' in a small area of this precinct. Whilst high noise levels are anticipated during use of the tamper, the impacts would be expected to last for only a few days as the works progress relatively quickly.

The activity with potential for the highest number of NML exceedances is 'W.0004 – Corridor – Ground & Track - Trackform – Ballast Tamper'. **Figure 20** indicates the distribution of exceedances for this activity during the daytime.

Figure 20 NML Exceedances Daytime – W.0004 – Corridor – Ground & Track - Trackform – Ballast Tamper'



The above graph shows that whilst the worst-case impacts may result in a greater than 20 dB exceedance of the daytime NML, this is limited to four receivers, with the majority of the receivers in this precinct being subject to considerably lower, or no impacts.

2.5.5.3 Worst-case Impacts during Out-of-Hours Works

To minimise the potential impacts during out of hours periods, rockbreakers are not proposed to be used for any of the works, and other noise intensive plant items such as saws, would generally only be used during the daytime.

During out of hours construction works, **Table 19** shows that the highest numbers of night-time NML exceedances are apparent during the following works:

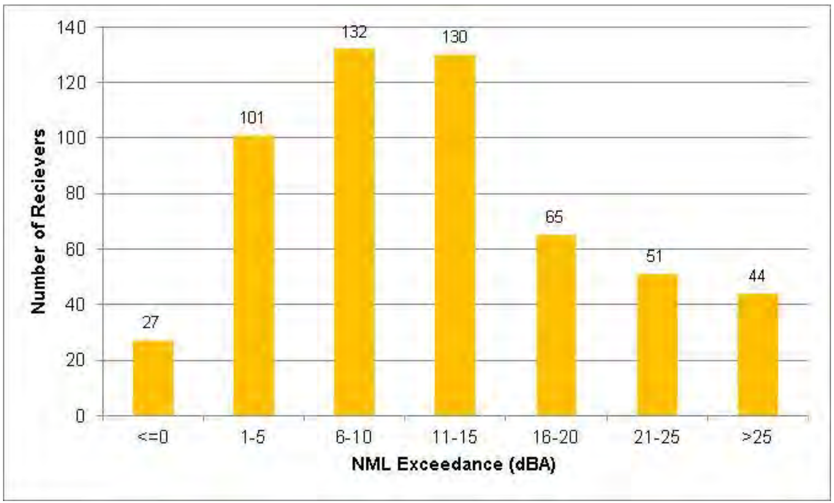
- W.0004 – Corridor – Ground & Track - Trackform – Ballast Tamper
- W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing
- W.0006 – Corridor Works - Track Support Systems - Segregation Fencing

Trackform works which require a ballast tamper are required as part of 'W.0004 – Corridor – Ground & Track - Trackform – Ballast Tamper' and whilst high noise levels are likely, the impacts would be expected to last for only a few days.

Relatively large numbers of receivers are predicted to be affected during the 'Corridor Works - Track Support Systems' activities W.0005 and W.0006 as the works would be undertaken along the length of the rail corridor. As noted previously, these works activities do not use noise intensive equipment, with the loudest item being a back hoe or truck. The predicted exceedances are due to the proximity of the works to the nearest receivers and impacts from these works would be expected to be relatively short.

The activity with potential for the highest number of NML exceedances during the night-time is 'W.0004 – Corridor – Ground & Track - Trackform – Ballast Tamper'. **Figure 21** indicates the distribution of exceedances for this activity for receivers within this precinct during the night-time.

Figure 21 NML Exceedances Night-time – 'W.0004 – Corridor – Ground & Track - Trackform – Ballast Tamper'



The above graph shows that whilst the worst-case impacts may result in a greater than 20 dB exceedance of the night-time NMLs at 95 receivers, there are many receivers in this precinct that are subject to lower impacts.

2.5.5.4 Highly Noise Affected Residential Receivers

The ICNG considers residential receivers that are subject to predicted noise levels of 75 dBA or greater to be Highly Noise Affected. The number of Highly Noise Affected receivers in this precinct has been determined and is summarised in **Table 20**. The table shows the number of residential receivers separated by works activity and NCA.

Table 20 Predicted Number of Highly Noise Affected Residential Receivers by Works and NCA

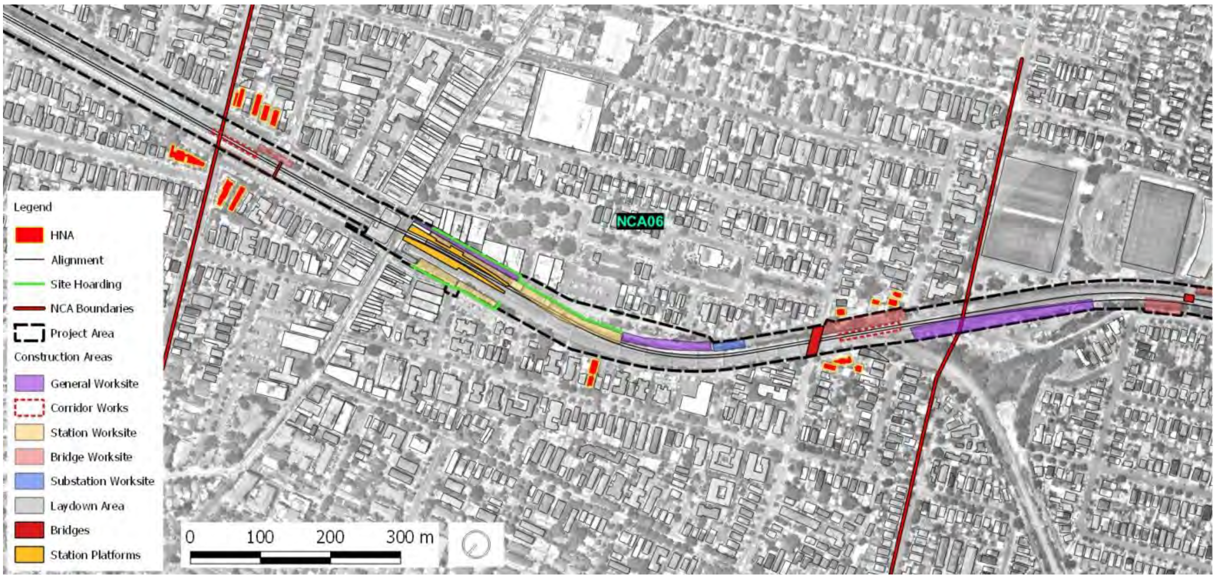
Works	Scenario	Activity	NCA06		
			Day	**Eve**	**Night**
W.0001	General Worksites	Site Establishment	-	-	-
W.0002		Worksite Operations	-	-	-
W.0003	Corridor - Ground & Track	Trackform	-	-	-
W.0004		Trackform - Ballast Tamper	13	13	13
W.0005	Corridor - Track Supp. Systems	Comms Works/Security Fencing	1	1	1
W.0006		Segregation Fencing	-	-	-
W.0007	Station Works	Site Establishment	-	-	-
W.0008		Excavation	-	-	-
W.0009		Excavation – Excav. & Saw	-	-	-
W.0010		Concrete & Structural Works	-	-	-
W.0011		Station Installation & Fitout	-	-	-
W.0012	Bridge Worksites	Site Establishment	-	-	-
W.0013		Impact Prot. & Screens	-	-	-
W.0014		Impact Prot. & Screens - Saw	2	-	-
W.0015	Substations	Site Establishment	-	-	-
W.0016		Construction & Installation	-	-	-

The above table shows that receivers are predicted to be Highly Noise Affected in this catchment during certain works activities. The highest numbers are apparent during:

- 'W.0004 – Corridor – Ground & Track - Trackform – Ballast Tamper', where 13 receivers are predicted to be Highly Noise Affected during all periods, which results from a tamper being in this activity.

The location of the Highly Noise Affected residential receivers in this precinct, from all works and in any time period, are shown in **Figure 22**.

Figure 22 Highly Noise Affected Residential Receivers



Note: The two activities for 'Corridor Works - Track Support Systems' are not shown on the drawing for clarity. 'W.0005 - Comms Works/Security Fencing' would generally be required at the perimeter of the corridor and 'W.0006 – Segregation Fencing' would be required in the rail corridor between Marrickville and the rail junction between Campsie/Belmore.

The most impacted receivers are typically dwellings which surround and have direct line of sight to the various works locations. Some of the first row receivers in this area are predicted to be Highly Noise Affected, however this would only be expected to be apparent when noisy works are being carried out nearby.

2.5.5.5 Other Sensitive Receivers

The predicted daytime NML exceedances for other sensitive receivers (such as educational facilities, hospitals and childcare centres) are summarised in **Table 21**.

Table 21 Overview of Sensitive Receiver NML Exceedances in Precinct – Daytime

Works	Scenario	Activity	Education			Medical			Place of Worship			Childcare			Remaining[1]		
			1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB
W.0001	General Worksites	Site Establishment	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-
W.0002		Worksite Operations	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
W.0003	Corridor - Ground & Track	Trackform	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
W.0004		Trackform - Ballast Tamper	4	-	-	1	-	-	1	-	-	2	-	-	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Sec. Fencing	-	-	-	1	-	-	-	1	-	2	1	-	2	-	-
W.0006		Segregation Fencing	-	-	-	-	-	-	1	-	-	2	-	-	2	-	-
W.0007	Station Works	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0008		Excavation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0009		Excavation – Excav. & Saw	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
W.0010		Concrete & Structural Works	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0011		Station Installation & Fitout	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0012	Bridge Worksites	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0013		Impact Prot. & Screens	-	-	-	1	-	-	1	-	-	1	-	-	-	-	-
W.0014		Impact Prot. & Screens - Saw	2	-	-	1	-	-	2	-	-	1	-	-	-	-	-
W.0015	Substations	Site Establishment	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-
W.0016		Construction & Installation	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-

Note 1: The ‘Remaining’ category includes public buildings, libraries, café/bars, etc.

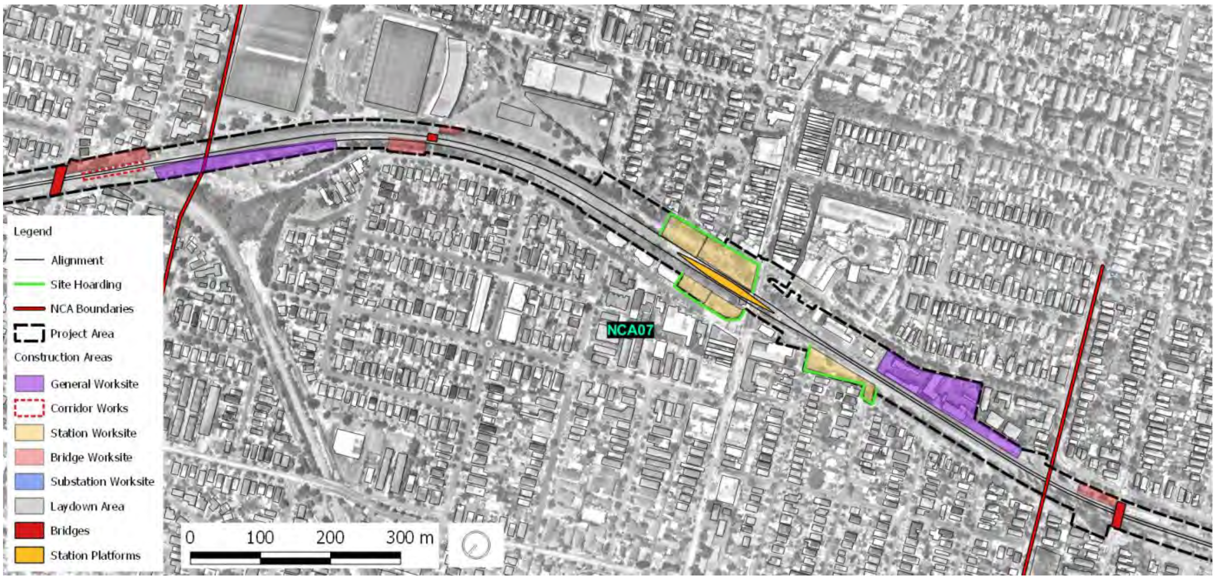
The above table shows the following:

- The other sensitive receivers in this precinct are predicted to generally be subject to relatively minor impacts, with many receiver types and works activities not resulting in any exceedances of NMLs.
- Other sensitive receivers in this area which are predicted to be subject to NMLs exceedances during the higher noise generating activities are:
    - Place or worship – St John’s Anglican Church, Campsie
    - Childcare – Carrington Occasional Child Care Centre, 2 Carrington Street, Campsie

2.5.6 Belmore Precinct (NCA07)

The revised locations of the various construction worksites in the Belmore precinct are shown below in **Figure 23**.

Figure 23 Belmore Precinct – Construction Areas



Note: The assessment is based on categorising each construction area by the main activity that would occur within the boundary. Many construction areas would however likely have more than one usage.

Note: Refer to **Appendix A** for large format construction area figures

Note: The two activities for 'Corridor Works - Track Support Systems' are not shown on the drawing for clarity. 'W.0005 - Comms Works/Security Fencing' would generally be required at the perimeter of the corridor and 'W.0006 – Segregation Fencing' would be required in the rail corridor between Marrickville and the rail junction between Campsie/Belmore.

2.5.6.1 NML Exceedances

The predicted NML exceedances in this precinct are summarised in **Table 22**. The number of receivers predicted to experience exceedances of the NMLs are summarised for each scenario in bands of 10 dB and are separated into daytime, evening and night-time periods, as appropriate.

Table 22 Overview of NML Exceedances from the Preferred Project – Belmore Precinct (NCA07) – All Receiver Types

Activity ID	Scenario	Activity	No. Weeks[1]	Number of Receivers																	
				Total	HNA[3]	With NML Exceedance[4]															
						Standard Daytime			Possession / Closedown Works[5]												
									Daytime OOH			Evening			Night-time			Sleep Disturbance			
						1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	
W.0001	General Worksites	Site Establishment	4	1068	-	63	14	-	-	-	-	-	-	-	-	-	-	-	-	-	
W.0002		Worksite Operations	52	1068	-	32	5	-	96	16	1	91	16	1	299	34	9	127	16	1	
W.0003	Corridor - Ground & Track	Trackform	12 days	1068	-	7	-	-	78	-	-	78	-	-	241	12	-	33	-	-	
W.0004		Trackform - Ballast Tamper	4 days	1068	-	119	3	-	275	24	-	275	24	-	397	151	3	410	178	4	
W.0005	Corridor - Track Supp. Systems	Comms Works/Sec. Fencing	2	1068	-	166	57	3	393	88	25	385	87	24	483	193	61	431	94	29	
W.0006		Segregation Fencing	6	1068	-	6	-	-	35	-	-	35	-	-	184	10	-	46	-	-	
W.0007	Station Works	Site Establishment	3	1068	-	15	1	-	-	-	-	-	-	-	-	-	-	-	-	-	
W.0008		Excavation	10	1068	-	31	4	1	115	12	1	113	12	-	-	-	-	-	-	-	
W.0009		Excavation – Excav. & Saw	10	1068	-	99	12	1	269	23	5	-	-	-	-	-	-	-	-	-	
W.0010		Concrete & Structural Works	8	1068	-	31	4	1	115	12	1	113	12	-	394	40	4	265	21	4	
W.0011		Station Installation & Fitout	20	1068	-	15	1	-	42	5	-	41	4	-	187	14	1	21	4	-	
W.0012	Bridge Worksites	Site Establishment	2	1068	-	29	9	-	88	10	3	87	10	3	325	29	9	87	10	3	
W.0013		Impact Prot. & Screens	2	1068	-	56	9	-	194	17	5	193	17	5	510	65	11	143	14	4	
W.0014		Impact Prot. & Screens - Saw	2	1068	-	123	13	1	-	-	-	-	-	-	-	-	-	-	-	-	
W.0015	Substations	Site Establishment	2	1068	-	-	-	-	9	-	-	-	-	-	-	-	-	-	-	-	
W.0016		Construction & Installation	6	1068	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Note 1: Durations should be regarded as indicative and represent a typical worksite. There would be sites within each category that require works to be shorter or longer than shown. The duration of these impacts is less than the overall duration, and depends on the rate of progress in the works areas.
Note 2: Approximate percentage (rounded to the nearest 10%) of activity duration within overall preferred project program.
Note 3: Highly Noise Affected, based on ICNG definition (i.e. predicted $L_{Aeq(15minute)}$ noise at residential receiver is 75 dBA or greater).
Note 4: Based on worst case predicted noise levels.
Note 5: OOH = Out of hours. During the daytime, this refers to the period on Saturday between 7am – 8am, and 1pm – 10pm.

The above shows that during some of the works, relatively high noise impacts are predicted when higher noise generating equipment is in use. It is however noted that during most activities, it is expected that the construction noise levels would frequently be lower than the worst-case levels predicted above for significant periods of time when noise generating equipment is not in use.

2.5.6.2 Worst-case Impacts during Standard Daytime Construction Hours

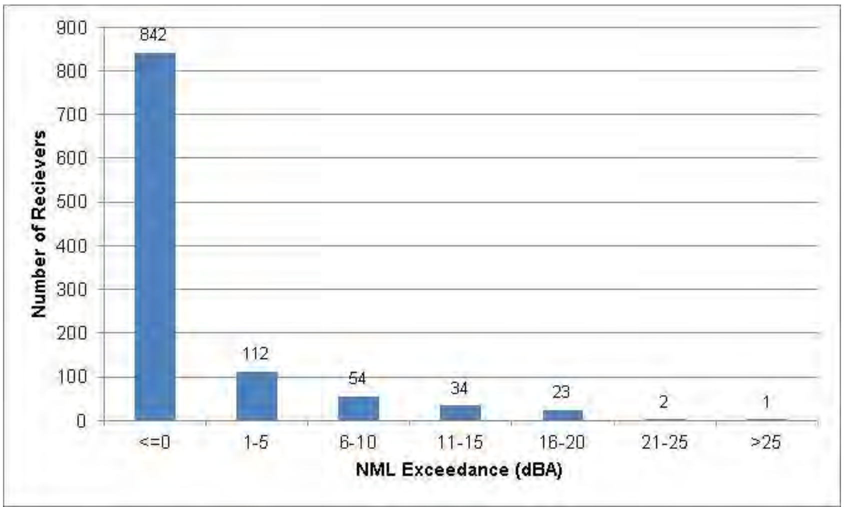
During standard daytime construction hours, **Table 22** shows that activities which use noise intrusive plant items, such as a saw, result in some of the higher impacts. The highest impacts are predicted during the following works in this precinct:

- W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing
- W.0009 – Station Works - Excavation - Excavator & Saw
- W.0014 – Bridge Worksites - Impact Protection & Screens - Saw

Relatively large numbers of receivers are predicted to be affected during the 'Corridor Works - Track Support Systems' activity W.0005. Whilst these works do not use high noise generating construction equipment, they would be required along the length of corridor in this precinct and are in relatively close proximity to certain receivers which adjoin the rail corridor.

The activity with potential for the highest number of NML exceedances is 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'. **Figure 24** indicates the distribution of exceedances for this activity during the daytime.

Figure 24 NML Exceedances Daytime – 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'



The above graph shows that whilst the worst-case impacts may result in a greater than 20 dB exceedance of the daytime NML, this is limited to three receivers, with the majority of the receivers in this precinct being subject to considerably lower, or no impacts.

2.5.6.3 Worst-case Impacts during Out-of-Hours Works

To minimise the potential impacts during out of hours periods, rockbreakers are not proposed to be used for any of the works, and other noise intensive plant items such as saws, would generally only be used during the daytime.

During out of hours construction works, **Table 22** shows that the highest numbers of night-time NML exceedances are apparent during the following works:

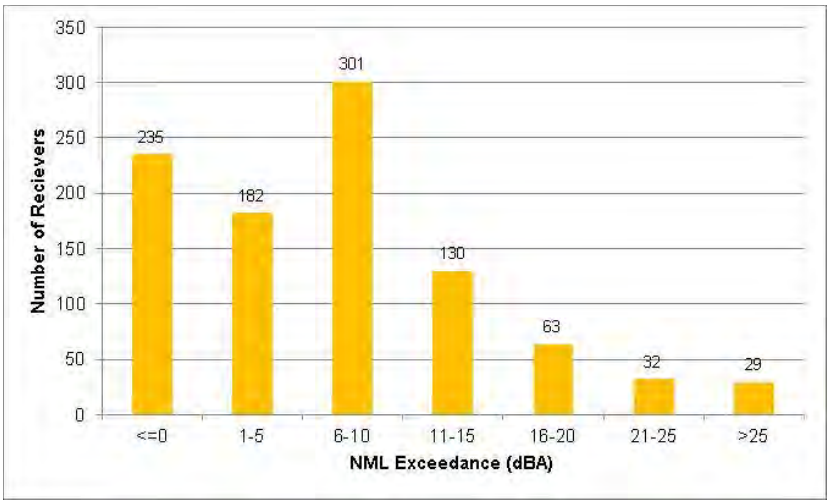
- W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing
- W.0013 – Bridge Worksites - Impact Prot. & Screens

Relatively large numbers of receivers are predicted to be affected during the 'Corridor Works - Track Support Systems' activity W.0005 as the works would be undertaken along the length of the rail corridor. As noted previously, this works activity does not use noise intensive equipment, with the loudest item being a back hoe. The predicted exceedances are due to the proximity of the works to the nearest receivers and impacts from these works would be expected to be relatively short.

Activity 'W.0013 – Bridge Worksites - Impact Protection & Screens' is required in discrete locations at bridges and generally only affect the immediately surrounding receivers.

The activity with potential for the highest number of NML exceedances during the night-time is 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'. **Figure 25** indicates the distribution of exceedances for this activity for receivers within this precinct during the night-time.

Figure 25 NML Exceedances Night-time – 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'



The above graph shows that whilst the worst-case impacts may result in a greater than 20 dB exceedance of the night-time NMLs at 61 receivers, there are many receivers in this precinct that are subject to lower impacts.

2.5.6.4 Highly Noise Affected Residential Receivers

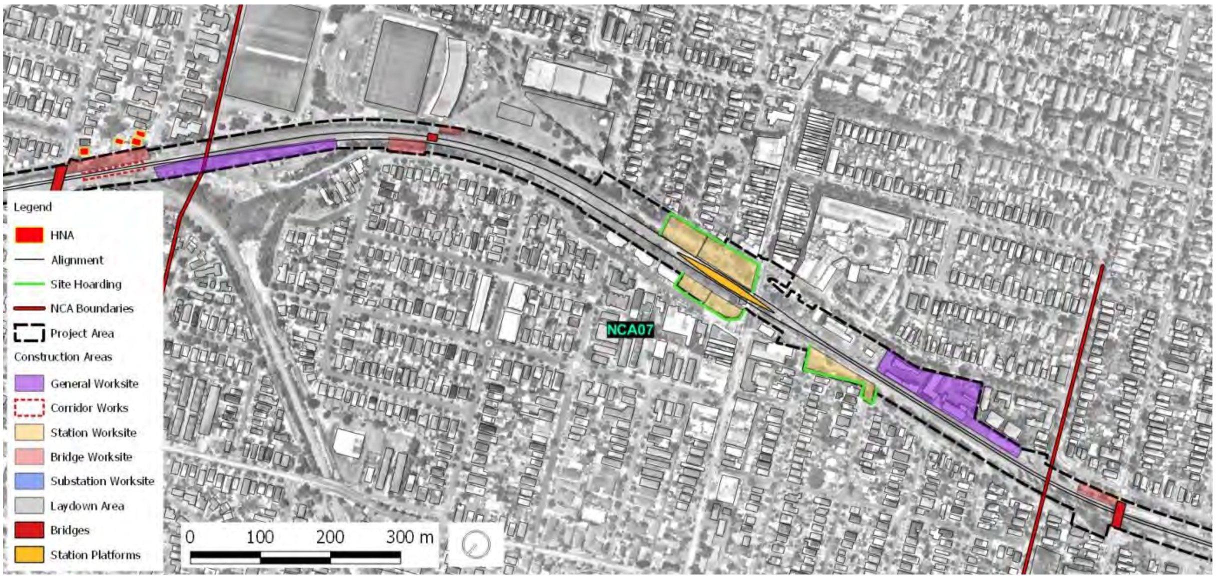
The ICNG considers residential receivers that are subject to predicted noise levels of 75 dBA or greater to be Highly Noise Affected. The number of Highly Noise Affected receivers in this precinct has been determined and is summarised in **Table 23**. The table shows the number of residential receivers separated by works activity and NCA.

Table 23 Predicted Number of Highly Noise Affected Residential Receivers by Works and NCA

Works	Scenario	Activity	NCA07		
			Day	**Eve**	**Night**
W.0001	General Worksites	Site Establishment	-	-	-
W.0002		Worksite Operations	-	-	-
W.0003	Corridor - Ground & Track	Trackform	-	-	-
W.0004		Trackform - Ballast Tamper	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Security Fencing	-	-	-
W.0006		Segregation Fencing	-	-	-
W.0007	Station Works	Site Establishment	-	-	-
W.0008		Excavation	-	-	-
W.0009		Excavation – Excav. & Saw	-	-	-
W.0010		Concrete & Structural Works	-	-	-
W.0011		Station Installation & Fitout	-	-	-
W.0012	Bridge Worksites	Site Establishment	-	-	-
W.0013		Impact Prot. & Screens	-	-	-
W.0014		Impact Prot. & Screens - Saw	-	-	-
W.0015	Substations	Site Establishment	-	-	-
W.0016		Construction & Installation	-	-	-

The above table shows that no receivers are predicted to be Highly Noise Affected in this catchment, as shown in **Figure 26**.

Figure 26 Highly Noise Affected Residential Receivers



Note: The two activities for 'Corridor Works - Track Support Systems' are not shown on the drawing for clarity. 'W.0005 - Comms Works/Security Fencing' would generally be required at the perimeter of the corridor and 'W.0006 – Segregation Fencing' would be required in the rail corridor between Marrickville and the rail junction between Campsie/Belmore.

2.5.6.5 Other Sensitive Receivers

The predicted daytime NML exceedances for other sensitive receivers (such as educational facilities, hospitals and childcare centres) are summarised in **Table 24**.

Table 24 Overview of Sensitive Receiver NML Exceedances in Precinct – Daytime

Works	Scenario	Activity	Education			Medical			Place of Worship			Childcare			Remaining[1]		
			1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB
W.0001	General Worksites	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0002		Worksite Operations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0003	Corridor - Ground & Track	Trackform	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0004		Trackform - Ballast Tamper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Sec. Fencing	-	1	-	-	-	1	-	-	-	1	-	1	-	1	-
W.0006		Segregation Fencing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0007	Station Works	Site Establishment	-	-	-	1	-	-	-	-	-	1	1	-	-	-	-
W.0008		Excavation	1	-	-	1	-	-	-	-	-	1	-	1	-	-	-
W.0009		Excavation – Excav. & Saw	1	-	-	-	1	-	-	-	-	1	1	1	1	-	-
W.0010		Concrete & Structural Works	1	-	-	1	-	-	-	-	-	1	-	1	-	-	-
W.0011		Station Installation & Fitout	-	-	-	1	-	-	-	-	-	1	1	-	-	-	-
W.0012	Bridge Worksites	Site Establishment	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0013		Impact Prot. & Screens	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0014		Impact Prot. & Screens - Saw	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0015	Substations	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0016		Construction & Installation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note 1: The ‘Remaining’ category includes public buildings, libraries, café/bars, etc.

The above table shows the following:

- The other sensitive receivers in this precinct are predicted to generally be subject to relatively minor impacts, with many receiver types and works activities not resulting in any exceedances of NMLs.
- Other sensitive receivers in this area which are predicted to be subject to NMLs exceedances during the higher noise generating activities are:
  - Educational – Montessori Preschool, 24 Redman Parade, Belmore
  - Medical – 38-40 Redman Parade, Belmore
  - Childcare – Montessori Child Care, 24 Redman Parade, Belmore
  - Childcare – 38 Redman Parade, Belmore
  - Public building – Belmore Community Centre
- A number of receivers are predicted to have impacts of >20 dB above NML. The construction scenarios with these higher impacts are generally not noise intensive and the exceedances result from the proximity of the works to the receivers, meaning that the worst-case impacts would generally only be apparent for a relatively short duration. High impacts are however also seen during use of a diamond saw and this noise intensive plant item would likely only be required for short durations during removal of the existing station platform.

2.5.7 Lakemba Precinct (NCA08)

The revised locations of the various construction worksites in the Lakemba precinct are shown below in **Figure 27**.

Figure 27 Lakemba Precinct – Construction Areas

Note: The assessment is based on categorising each construction area by the main activity that would occur within the boundary. Many construction areas would however likely have more than one usage.

Note: Refer to **Appendix A** for large format construction area figures

Note: The two activities for 'Corridor Works - Track Support Systems' are not shown on the drawing for clarity. 'W.0005 - Comms Works/Security Fencing' would generally be required at the perimeter of the corridor and 'W.0006 – Segregation Fencing' would be required in the rail corridor between Marrickville and the rail junction between Campsie/Belmore.

2.5.7.1 NML Exceedances

The predicted NML exceedances in this precinct are summarised in **Table 25**. The number of receivers predicted to experience exceedances of the NMLs are summarised for each scenario in bands of 10 dB and are separated into daytime, evening and night-time periods, as appropriate.

Table 25 Overview of NML Exceedances from the Preferred Project – Lakemba Precinct (NCA08) – All Receiver Types

Activity ID	Scenario	Activity	No. Weeks[1]	Number of Receivers																
				Total	HNA[3]	With NML Exceedance[4]														
						Standard Daytime			Possession / Closedown Works[5]											
									Daytime OOH			Evening			Night-time			Sleep Disturbance		
						1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB
W.0001	General Worksites	Site Establishment	4	667	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0002		Worksite Operations	52	667	-	2	-	-	3	-	-	1	-	-	11	-	-	3	-	-
W.0003	Corridor - Ground & Track	Trackform	12 days	667	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0004		Trackform - Ballast Tamper	4 days	667	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Sec. Fencing	2	667	-	99	4	-	126	63	-	124	61	-	298	98	6	143	69	-
W.0006		Segregation Fencing	6	667	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0007	Station Works	Site Establishment	3	667	-	16	2	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0008		Excavation	10	667	-	25	6	-	65	15	-	64	13	-	-	-	-	-	-	-
W.0009		Excavation – Excav. & Saw	10	667	-	70	17	-	157	21	2	-	-	-	-	-	-	-	-	-
W.0010		Concrete & Structural Works	8	667	-	25	6	-	65	15	-	64	13	-	185	24	4	136	16	2
W.0011		Station Installation & Fitout	20	667	-	16	2	-	27	6	-	25	5	-	87	16	-	16	2	-
W.0012	Bridge Worksites	Site Establishment	2	667	-	21	1	-	27	3	-	25	2	-	48	18	-	24	2	-
W.0013		Impact Prot. & Screens	2	667	-	39	2	-	73	9	-	71	8	-	194	41	2	57	7	-
W.0014		Impact Prot. & Screens - Saw	2	667	-	58	8	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0015	Substations	Site Establishment	2	667	-	29	5	-	66	15	-	-	-	-	-	-	-	-	-	-
W.0016		Construction & Installation	6	667	-	15	-	-	27	5	-	27	5	-	-	-	-	-	-	-

Note 1: Durations should be regarded as indicative and represent a typical worksite. There would be sites within each category that require works to be shorter or longer than shown. The duration of these impacts is less than the overall duration, and depends on the rate of progress in the works areas.

Note 2: Approximate percentage (rounded to the nearest 10%) of activity duration within overall preferred project program.

Note 3: Highly Noise Affected, based on ICNG definition (i.e. predicted $L_{Aeq(15minute)}$ noise at residential receiver is 75 dBA or greater).

Note 4: Based on worst case predicted noise levels.

Note 5: OOH = Out of hours. During the daytime, this refers to the period on Saturday between 7am – 8am, and 1pm – 10pm.

The above shows that during some of the works, relatively high noise impacts are predicted when higher noise generating equipment is in use. It is however noted that during most activities, it is expected that the construction noise levels would frequently be lower than the worst-case levels predicted above for significant periods of time when noise generating equipment is not in use.

2.5.7.2 Worst-case Impacts during Standard Daytime Construction Hours

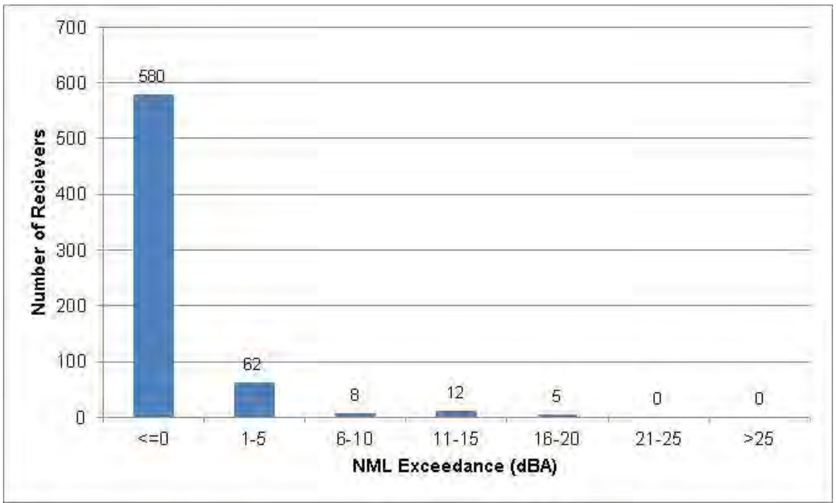
During standard daytime construction hours, **Table 25** shows that activities which use noise intrusive plant items, such as a saw, result in some of the higher impacts. The highest impacts are predicted during the following works in this precinct:

- W.0009 – Station Works - Excavation - Excavator & Saw
- W.0014 – Bridge Worksites - Impact Protection & Screens - Saw

Activities for 'W.0009 – Station Works - Excavation - Excavator & Saw' and 'W.0014 – Bridge Worksites - Impact Protection & Screens - Saw' are required in discrete locations at stations and bridges, and both make use of a saw.

The activity with potential for the highest number of NML exceedances is 'W.0009 – Station Works - Excavation - Excavator & Saw'. **Figure 28** indicates the distribution of exceedances for this activity during the daytime.

Figure 28 NML Exceedances Daytime – 'W.0009 – Station Works - Excavation - Excavator & Saw'



The above graph shows that whilst the worst-case impacts may result in exceedances of 11 to 20 dB above the daytime NML, this is limited to 17 receivers, with the majority of the receivers in this precinct being subject to considerably lower, or no impacts. No receivers are predicted to experience exceedances of the NML by more than 20 dB.

2.5.7.3 Worst-case Impacts during Out-of-Hours Works

To minimise the potential impacts during out of hours periods, rockbreakers are not proposed to be used for any of the works, and other noise intensive plant items such as saws, would generally only be used during the daytime.

During out of hours construction works, **Table 25** shows that the highest numbers of night-time NML exceedances are apparent during the following works:

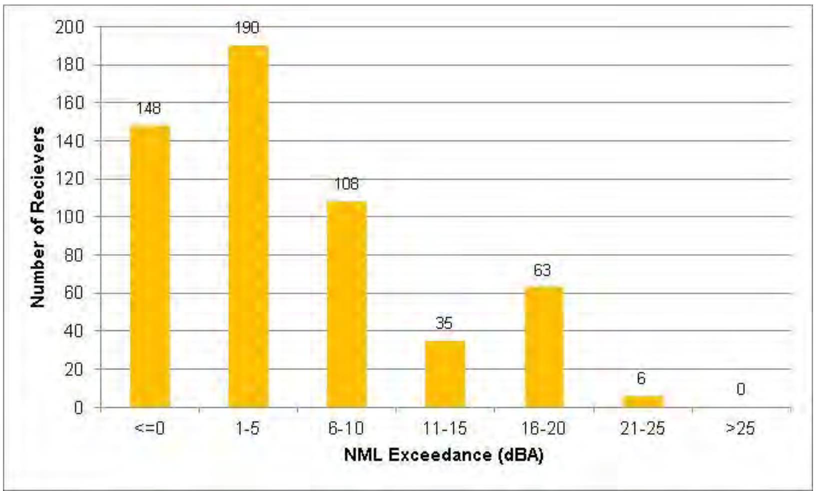
- W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing
- W.0010 – Station Works - Concrete & Structural Works

Relatively large numbers of receivers are predicted to be affected during the 'Corridor Works - Track Support Systems' activity W.0005 as the works would be undertaken along the length of the rail corridor. As noted previously, this works activity does not use noise intensive equipment, with the loudest item being a back hoe. The predicted exceedances are due to the proximity of the works to the nearest receivers and impacts from these works would be expected to be relatively short.

Activity 'W.0010 – Station Works - Concrete & Structural Works' is required in discrete locations at stations and generally only affect the immediately surrounding receivers.

The activity with potential for the highest number of NML exceedances during the night-time is 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'. **Figure 29** indicates the distribution of exceedances for this activity for receivers within this precinct during the night-time.

Figure 29 NML Exceedances Night-time – 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'



The above graph shows that whilst the worst-case impacts may result in a greater than 20 dB exceedance of the night-time NMLs at six receivers, there are many receivers in this precinct that are subject to lower impacts.

2.5.7.4 Highly Noise Affected Residential Receivers

The ICNG considers residential receivers that are subject to predicted noise levels of 75 dBA or greater to be Highly Noise Affected. The number of Highly Noise Affected receivers in this precinct has been determined and is summarised in **Table 26**. The table shows the number of residential receivers separated by works activity and NCA.

Table 26 Predicted Number of Highly Noise Affected Residential Receivers by Works and NCA

Works	Scenario	Activity	NCA08		
			Day	**Eve**	**Night**
W.0001	General Worksites	Site Establishment	-	-	-
W.0002		Worksite Operations	-	-	-
W.0003	Corridor - Ground & Track	Trackform	-	-	-
W.0004		Trackform - Ballast Tamper	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Security Fencing	-	-	-
W.0006		Segregation Fencing	-	-	-
W.0007	Station Works	Site Establishment	-	-	-
W.0008		Excavation	-	-	-
W.0009		Excavation – Excav. & Saw	-	-	-
W.0010		Concrete & Structural Works	-	-	-
W.0011		Station Installation & Fitout	-	-	-
W.0012	Bridge Worksites	Site Establishment	-	-	-
W.0013		Impact Prot. & Screens	-	-	-
W.0014		Impact Prot. & Screens - Saw	-	-	-
W.0015	Substations	Site Establishment	-	-	-
W.0016		Construction & Installation	-	-	-

The above table shows that no receivers are predicted to be Highly Noise Affected in this catchment, as shown in **Figure 30**.

Figure 30 Highly Noise Affected Residential Receivers

Note: The two activities for 'Corridor Works - Track Support Systems' are not shown on the drawing for clarity. 'W.0005 - Comms Works/Security Fencing' would generally be required at the perimeter of the corridor and 'W.0006 – Segregation Fencing' would be required in the rail corridor between Marrickville and the rail junction between Campsie/Belmore.

2.5.7.5 Other Sensitive Receivers

The predicted daytime NML exceedances for other sensitive receivers (such as educational facilities, hospitals and childcare centres) are summarised in **Table 9**.

Table 27 Overview of Sensitive Receiver NML Exceedances in Precinct – Daytime

Works	Scenario	Activity	Education			Medical			Place of Worship			Childcare			Remaining[1]		
			1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB
W.0001	General Worksites	Site Establishment	-	-	-	-	-	-	1	-	-	2	-	-	1	-	-
W.0002		Worksite Operations	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
W.0003	Corridor - Ground & Track	Trackform	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0004		Trackform - Ballast Tamper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Sec. Fencing	-	-	-	1	-	-	1	-	-	-	2	-	-	1	-
W.0006		Segregation Fencing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0007	Station Works	Site Establishment	-	-	-	-	-	-	1	-	-	1	1	-	-	1	-
W.0008		Excavation	-	-	-	1	-	-	1	-	-	-	2	-	1	1	-
W.0009		Excavation – Excav. & Saw	4	-	-	1	-	-	2	1	-	2	2	-	1	1	-
W.0010		Concrete & Structural Works	-	-	-	1	-	-	1	-	-	-	2	-	1	1	-
W.0011		Station Installation & Fitout	-	-	-	-	-	-	1	-	-	1	1	-	-	1	-
W.0012	Bridge Worksites	Site Establishment	-	-	-	-	-	-	1	-	-	1	1	-	-	-	-
W.0013		Impact Prot. & Screens	-	-	-	-	-	-	1	-	-	1	1	-	-	-	-
W.0014		Impact Prot. & Screens - Saw	-	-	-	-	-	-	1	-	-	2	2	-	2	-	-
W.0015	Substations	Site Establishment	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
W.0016		Construction & Installation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note 1: The 'Remaining' category includes public buildings, libraries, café/bars, etc.

The above table shows the following:

- The other sensitive receivers in this precinct are predicted to generally be subject to relatively minor impacts, with many receiver types and works activities not resulting in any exceedances of NMLs.
- Other sensitive receivers in this area which are predicted to be subject to NMLs exceedances during the higher noise generating activities are:
    - Place of worship – Lakemba Uniting Church, 69 Haldon Street, Lakemba
    - Childcare – 27 Railway Parade, Lakemba
    - Childcare – 44 Railway Parade, Lakemba
    - Public building – Canterbury City Community Centre, 130 Railway Parade, Lakemba

2.5.8 Wiley Park Precinct (NCA09)

The revised locations of the various construction worksites in the Wiley Park precinct are shown below in **Figure 31**.

Figure 31 Wiley Park Precinct – Construction Areas

Note: The assessment is based on categorising each construction area by the main activity that would occur within the boundary. Many construction areas would however likely have more than one usage.

Note: Refer to **Appendix A** for large format construction area figures

Note: The two activities for 'Corridor Works - Track Support Systems' are not shown on the drawing for clarity. 'W.0005 - Comms Works/Security Fencing' would generally be required at the perimeter of the corridor and 'W.0006 – Segregation Fencing' would be required in the rail corridor between Marrickville and the rail junction between Campsie/Belmore.

2.5.8.1 NML Exceedances

The predicted NML exceedances in this precinct are summarised in **Table 28**. The number of receivers predicted to experience exceedances of the NMLs are summarised for each scenario in bands of 10 dB and are separated into daytime, evening and night-time periods, as appropriate.

Table 28 Overview of NML Exceedances from the Preferred Project – Wiley Park Precinct (NCA09) – All Receiver Types

Activity ID	Scenario	Activity	No. Weeks[1]	Number of Receivers																
				Total	HNA[3]	With NML Exceedance[4]														
						Standard Daytime			Possession / Closedown Works[5]											
									Daytime OOH			Evening			Night-time			Sleep Disturbance		
						1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB
W.0001	General Worksites	Site Establishment	4	606	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0002		Worksite Operations	52	606	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0003	Corridor - Ground & Track	Trackform	12 days	606	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0004		Trackform - Ballast Tamper	4 days	606	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Sec. Fencing	2	606	-	92	60	-	154	93	4	147	93	4	312	113	88	233	99	19
W.0006		Segregation Fencing	6	606	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0007	Station Works	Site Establishment	3	606	-	17	3	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0008		Excavation	10	606	-	26	6	-	112	11	2	103	10	2	-	-	-	-	-	-
W.0009		Excavation – Excav. & Saw	10	606	2	86	12	2	319	18	5	-	-	-	-	-	-	-	-	-
W.0010		Concrete & Structural Works	8	606	-	26	6	-	112	11	2	103	10	2	409	46	9	371	28	6
W.0011		Station Installation & Fitout	20	606	-	17	3	-	34	6	-	28	6	-	302	14	5	28	6	-
W.0012	Bridge Worksites	Site Establishment	2	606	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0013		Impact Prot. & Screens	2	606	-	-	-	-	-	-	-	-	-	-	37	-	-	-	-	-
W.0014		Impact Prot. & Screens - Saw	2	606	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0015	Substations	Site Establishment	2	606	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0016		Construction & Installation	6	606	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note 1: Durations should be regarded as indicative and represent a typical worksite. There would be sites within each category that require works to be shorter or longer than shown. The duration of these impacts is less than the overall duration, and depends on the rate of progress in the works areas.

Note 2: Approximate percentage (rounded to the nearest 10%) of activity duration within overall preferred project program.

Note 3: Highly Noise Affected, based on ICNG definition (i.e. predicted $L_{Aeq(15minute)}$ noise at residential receiver is 75 dBA or greater).

Note 4: Based on worst case predicted noise levels.

Note 5: OOH = Out of hours. During the daytime, this refers to the period on Saturday between 7am – 8am, and 1pm – 10pm.

The above shows that during some of the works, relatively high noise impacts are predicted when higher noise generating equipment is in use. It is however noted that during most activities, it is expected that the construction noise levels would frequently be lower than the worst-case levels predicted above for significant periods of time when noise generating equipment is not in use.

2.5.8.2 Worst-case Impacts during Standard Daytime Construction Hours

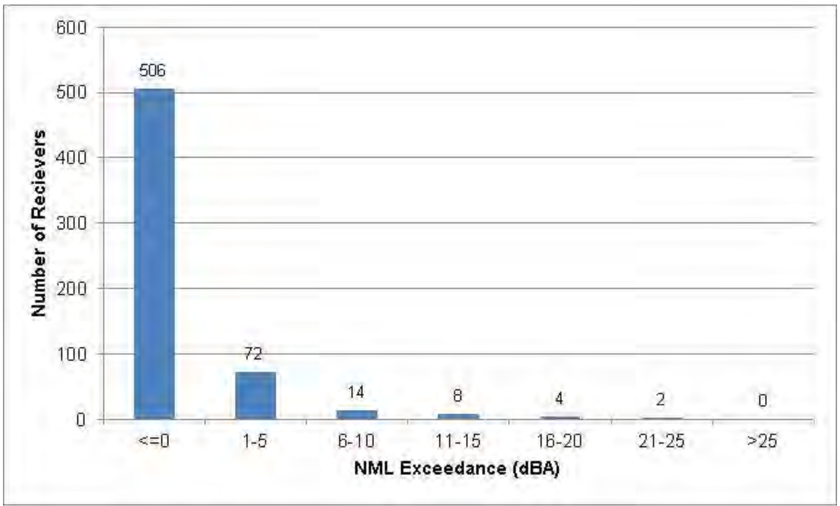
During standard daytime construction hours, **Table 28** shows that activities which use noise intrusive plant items, such as a saw, result in some of the higher impacts. The highest impacts are predicted during the following works in this precinct:

- W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing
- W.0009 – Station Works - Excavation - Excavator & Saw

Relatively large numbers of receivers are predicted to be affected during the 'Corridor Works - Track Support Systems' activity W.0005. Whilst these works do not use high noise generating construction equipment, they would be required along the length of corridor in this precinct and are in relatively close proximity to certain receivers which adjoin the rail corridor.

The activity with potential for the highest number of NML exceedances is 'W.0009 – Station Works - Excavation - Excavator & Saw'. **Figure 32** indicates the distribution of exceedances for this activity during the daytime.

Figure 32 NML Exceedances Daytime – 'W.0009 – Station Works - Excavation - Excavator & Saw'



The above graph shows that whilst the worst-case impacts may result in a greater than 20 dB exceedance of the daytime NML, this is limited to two receivers, with the majority of the receivers in this precinct being subject to considerably lower, or no impacts.

2.5.8.3 Worst-case Impacts during Out-of-Hours Works

To minimise the potential impacts during out of hours periods, rockbreakers are not proposed to be used for any of the works, and other noise intensive plant items such as saws, would generally only be used during the daytime.

During out of hours construction works, **Table 28** shows that the highest numbers of night-time NML exceedances are apparent during the following works:

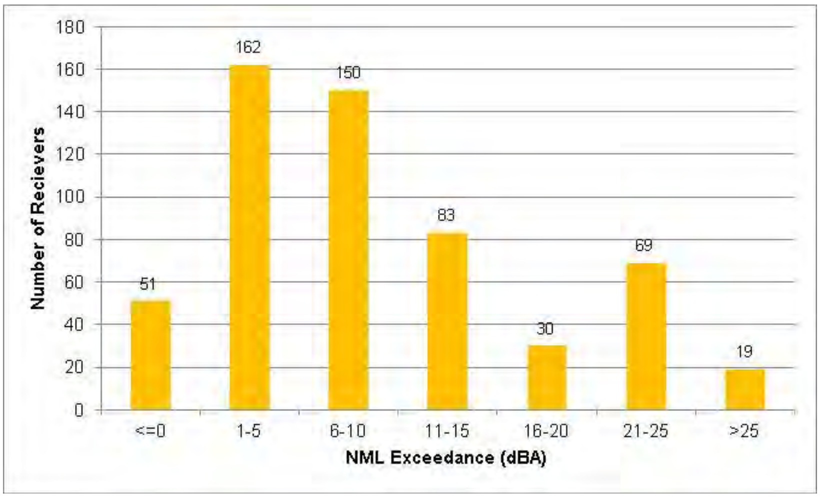
- W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing
- W.0010 – Station Works - Concrete & Structural Works

Relatively large numbers of receivers are predicted to be affected during the 'Corridor Works - Track Support Systems' activity W.0005 as the works would be undertaken along the length of the rail corridor. As noted previously, this works activity does not use noise intensive equipment, with the loudest item being a back hoe. The predicted exceedances are due to the proximity of the works to the nearest receivers and impacts from these works would be expected to be relatively short.

Activity 'W.0010 – Station Works - Concrete & Structural Works' is required a discrete location at the station and generally only affects the immediately surrounding receivers.

The activity with potential for the highest number of NML exceedances during the night-time is 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'. **Figure 33** indicates the distribution of exceedances for this activity for receivers within this precinct during the night-time.

Figure 33 NML Exceedances Night-time – 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'



The above graph shows that whilst the worst-case impacts may result in a greater than 20 dB exceedance of the night-time NMLs at 88 receivers, there are many receivers in this precinct that are subject to lower impacts.

2.5.8.4 Highly Noise Affected Residential Receivers

The ICNG considers residential receivers that are subject to predicted noise levels of 75 dBA or greater to be Highly Noise Affected. The number of Highly Noise Affected receivers in this precinct has been determined and is summarised in **Table 29**. The table shows the number of residential receivers separated by works activity and NCA.

Table 29 Predicted Number of Highly Noise Affected Residential Receivers by Works and NCA

Works	Scenario	Activity	NCA09		
			Day	**Eve**	**Night**
W.0001	General Worksites	Site Establishment	-	-	-
W.0002		Worksite Operations	-	-	-
W.0003	Corridor - Ground & Track	Trackform	-	-	-
W.0004		Trackform - Ballast Tamper	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Security Fencing	-	-	-
W.0006		Segregation Fencing	-	-	-
W.0007	Station Works	Site Establishment	-	-	-
W.0008		Excavation	-	-	-
W.0009		Excavation – Excav. & Saw	2	-	-
W.0010		Concrete & Structural Works	-	-	-
W.0011		Station Installation & Fitout	-	-	-
W.0012	Bridge Worksites	Site Establishment	-	-	-
W.0013		Impact Prot. & Screens	-	-	-
W.0014		Impact Prot. & Screens - Saw	-	-	-
W.0015	Substations	Site Establishment	-	-	-
W.0016		Construction & Installation	-	-	-

The above table shows that receivers are predicted to be Highly Noise Affected in this catchment during certain works activities. The highest numbers are apparent during:

- 'W.0009 – Station Works - Excavation - Excavator & Saw', where two receivers are predicted to be Highly Noise Affected during the daytime, which results from a saw being in this activity.

The location of the Highly Noise Affected residential receivers in this precinct, from all works and in any time period, are shown in **Figure 34**.

Figure 34 Highly Noise Affected Residential Receivers

Note: The two activities for 'Corridor Works - Track Support Systems' are not shown on the drawing for clarity. 'W.0005 - Comms Works/Security Fencing' would generally be required at the perimeter of the corridor and 'W.0006 – Segregation Fencing' would be required in the rail corridor between Marrickville and the rail junction between Campsie/Belmore.

The most impacted receivers are typically dwellings which surround and have direct line of sight to the various works locations. Some of the first row receivers in this area are predicted to be Highly Noise Affected, however this would only be expected to be apparent when noisy works are being carried out nearby.

2.5.8.5 Other Sensitive Receivers

The predicted daytime NML exceedances for other sensitive receivers (such as educational facilities, hospitals and childcare centres) are summarised in **Table 30**.

Table 30 Overview of Sensitive Receiver NML Exceedances in Precinct – Daytime

Works	Scenario	Activity	Education			Medical			Place of Worship			Childcare			Remaining[1]		
			1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB
W.0001	General Worksites	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0002		Worksite Operations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0003	Corridor - Ground & Track	Trackform	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0004		Trackform - Ballast Tamper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Sec. Fencing	7	-	-	-	-	-	1	-	-	-	-	-	-	-	-
W.0006		Segregation Fencing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0007	Station Works	Site Establishment	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0008		Excavation	9	1	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0009		Excavation – Excav. & Saw	15	4	-	-	-	-	1	-	-	1	-	-	-	-	-
W.0010		Concrete & Structural Works	9	1	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0011		Station Installation & Fitout	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0012	Bridge Worksites	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0013		Impact Prot. & Screens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0014		Impact Prot. & Screens - Saw	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0015	Substations	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0016		Construction & Installation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note 1: The 'Remaining' category includes public buildings, libraries, café/bars, etc.

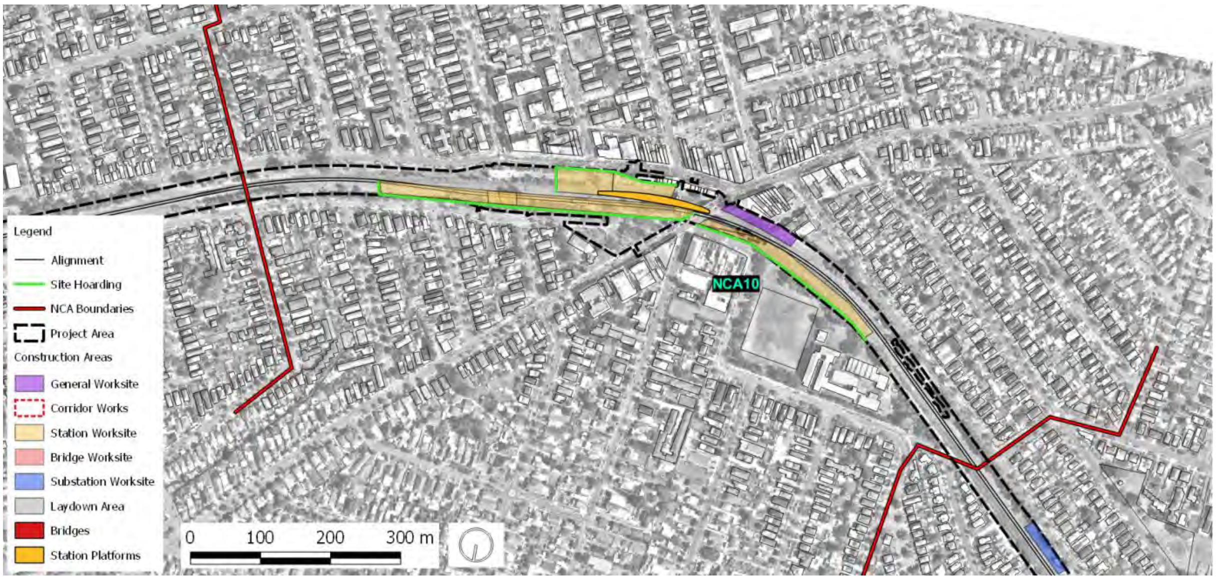
The above table shows the following:

- The other sensitive receivers in this precinct are predicted to generally be subject to relatively minor impacts, with many receiver types and works activities not resulting in any exceedances of NMLs.
- Other sensitive receivers in this area which are predicted to be subject to NMLs exceedances during the higher noise generating activities are:
  - Educational – Wiley Park Girls High School
  - Educational – Lakemba Public School

2.5.9 Punchbowl Precinct (NCA10)

The revised locations of the various construction worksites in the Punchbowl precinct are shown below in **Figure 35**.

Figure 35 Punchbowl Precinct – Construction Areas



Note: The assessment is based on categorising each construction area by the main activity that would occur within the boundary. Many construction areas would however likely have more than one usage.

Note: Refer to **Appendix A** for large format construction area figures

Note: The two activities for 'Corridor Works - Track Support Systems' are not shown on the drawing for clarity. 'W.0005 - Comms Works/Security Fencing' would generally be required at the perimeter of the corridor and 'W.0006 – Segregation Fencing' would be required in the rail corridor between Marrickville and the rail junction between Campsie/Belmore.

2.5.9.1 NML Exceedances

The predicted NML exceedances in this precinct are summarised in **Table 31**. The number of receivers predicted to experience exceedances of the NMLs are summarised for each scenario in bands of 10 dB and are separated into daytime, evening and night-time periods, as appropriate.

Table 31 Overview of NML Exceedances from the Preferred Project – Punchbowl Precinct (NCA10) – All Receiver Types

Activity ID	Scenario	Activity	No. Weeks[1]	Number of Receivers																
				Total	HNA[3]	With NML Exceedance[4]														
						Standard Daytime			Possession / Closedown Works [5]											
									Daytime OOH			Evening			Night-time			Sleep Disturbance		
						1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB
W.0001	General Worksites	Site Establishment	4	718	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0002		Worksite Operations	52	718	-	1	2	-	3	2	-	2	1	-	35	1	-	4	-	-
W.0003	Corridor - Ground & Track	Trackform	12 days	718	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0004		Trackform - Ballast Tamper	4 days	718	-	-	-	-	-	-	-	-	-	-	1	-	-	2	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Sec. Fencing	2	718	-	94	6	-	131	52	-	111	49	-	258	81	8	134	50	-
W.0006		Segregation Fencing	6	718	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0007	Station Works	Site Establishment	3	718	-	15	1	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0008		Excavation	10	718	-	24	2	-	56	3	-	41	1	-	-	-	-	-	-	-
W.0009		Excavation – Excav. & Saw	10	718	-	51	10	-	92	14	-	-	-	-	-	-	-	-	-	-
W.0010		Concrete & Structural Works	8	718	-	24	2	-	56	3	-	41	1	-	125	13	-	75	4	-
W.0011		Station Installation & Fitout	20	718	-	15	1	-	26	1	-	13	-	-	54	2	-	4	-	-
W.0012	Bridge Worksites	Site Establishment	2	718	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0013		Impact Prot. & Screens	2	718	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0014		Impact Prot. & Screens - Saw	2	718	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0015	Substations	Site Establishment	2	718	-	1	-	-	12	-	-	-	-	-	-	-	-	-	-	-
W.0016		Construction & Installation	6	718	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-

Note 1: Durations should be regarded as indicative and represent a typical worksite. There would be sites within each category that require works to be shorter or longer than shown. The duration of these impacts is less than the overall duration, and depends on the rate of progress in the works areas.

Note 2: Approximate percentage (rounded to the nearest 10%) of activity duration within overall preferred project program.

Note 3: Highly Noise Affected, based on ICNG definition (i.e. predicted $L_{Aeq(15minute)}$ noise at residential receiver is 75 dBA or greater).

Note 4: Based on worst case predicted noise levels.

Note 5: OOH = Out of hours. During the daytime, this refers to the period on Saturday between 7am – 8am, and 1pm – 10pm.

The above shows that during some of the works, relatively high noise impacts are predicted when higher noise generating equipment is in use. It is however noted that during most activities, it is expected that the construction noise levels would frequently be lower than the worst-case levels predicted above for significant periods of time when noise generating equipment is not in use.

2.5.9.2 Worst-case Impacts during Standard Daytime Construction Hours

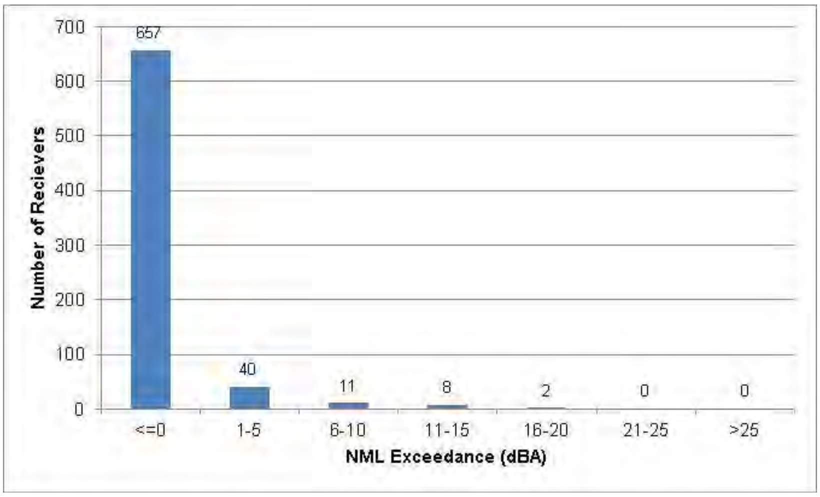
During standard daytime construction hours, **Table 31** shows that activities which use noise intrusive plant items, such as a saw, result in some of the higher impacts. The highest impacts are predicted during the following works in this precinct:

- W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing
- W.0009 – Station Works - Excavation - Excavator & Saw

Relatively large numbers of receivers are predicted to be affected during the 'Corridor Works - Track Support Systems' activity W.0005. Whilst these works do not use high noise generating construction equipment, they would be required along the length of corridor in this precinct and are in relatively close proximity to certain receivers which adjoin the rail corridor.

The activity with potential for the highest number of NML exceedances is 'W.0009 – Station Works - Excavation - Excavator & Saw'. **Figure 36** indicates the distribution of exceedances for this activity during the daytime.

Figure 36 NML Exceedances Daytime – 'W.0009 – Station Works - Excavation - Excavator & Saw'



The above graph shows that whilst the worst-case impacts may result in exceedances of 11 to 20 dB above the daytime NML, this is limited to 10 receivers, with the majority of the receivers in this precinct being subject to considerably lower, or no impacts. No receivers are predicted to experience exceedances of the NML by more than 20 dB.

2.5.9.3 Worst-case Impacts during Out-of-Hours Works

To minimise the potential impacts during out of hours periods, rockbreakers are not proposed to be used for any of the works, and other noise intensive plant items such as saws, would generally only be used during the daytime.

During out of hours construction works, **Table 31** shows that the highest numbers of night-time NML exceedances are apparent during the following works:

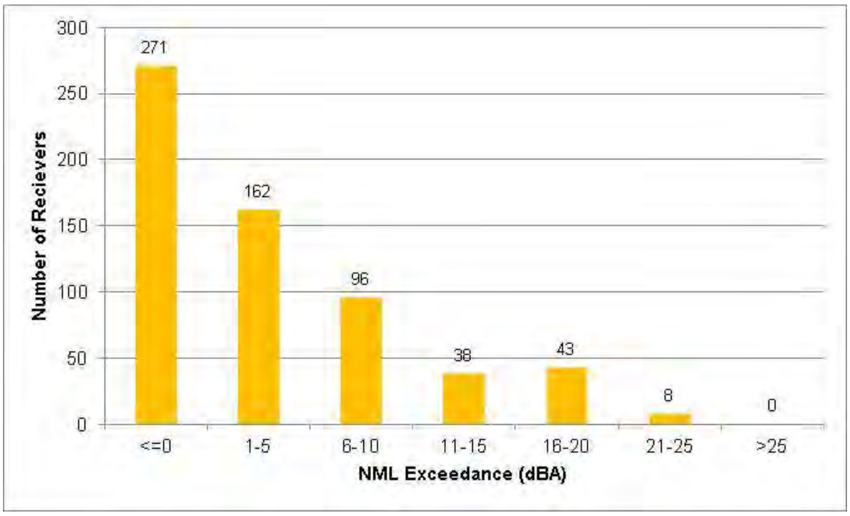
- W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing
- W.0010 – Station Works - Concrete & Structural Works

Relatively large numbers of receivers are predicted to be affected during the 'Corridor Works - Track Support Systems' activity W.0005 as the works would be undertaken along the length of the rail corridor. As noted previously, this works activity does not use noise intensive equipment, with the loudest item being a back hoe. The predicted exceedances are due to the proximity of the works to the nearest receivers and impacts from these works would be expected to be relatively short.

Activity 'W.0010 – Station Works - Concrete & Structural Works' is required in a discrete location at the station and generally only affects the immediately surrounding receivers.

The activity with potential for the highest number of NML exceedances during the night-time is 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'. **Figure 37** indicates the distribution of exceedances for this activity for receivers within this precinct during the night-time

Figure 37 NML Exceedances Night-time – 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'



The above graph shows that whilst the worst-case impacts may result in a greater than 20 dB exceedance of the night-time NMLs at eight receivers, there are many receivers in this precinct that are subject to lower impacts.

2.5.9.4 Highly Noise Affected Residential Receivers

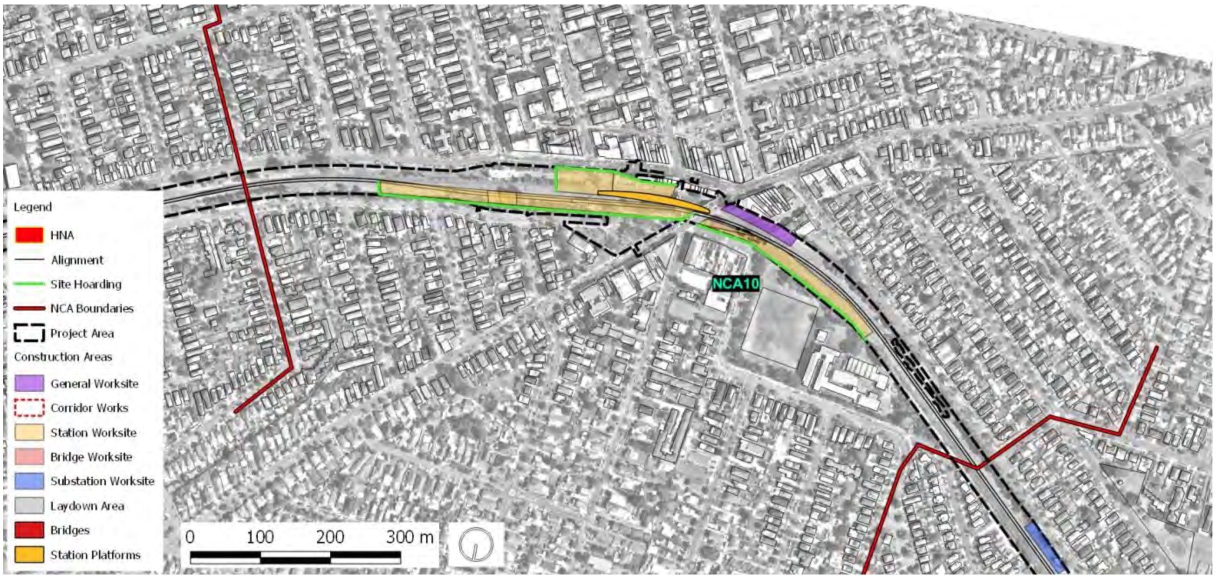
The ICNG considers residential receivers that are subject to predicted noise levels of 75 dBA or greater to be Highly Noise Affected. The number of Highly Noise Affected receivers in this precinct has been determined and is summarised in **Table 32**. The table shows the number of residential receivers separated by works activity and NCA.

Table 32 Predicted Number of Highly Noise Affected Residential Receivers by Works and NCA

Works	Scenario	Activity	NCA10		
			Day	**Eve**	**Night**
W.0001	General Worksites	Site Establishment	-	-	-
W.0002		Worksite Operations	-	-	-
W.0003	Corridor - Ground & Track	Trackform	-	-	-
W.0004		Trackform - Ballast Tamper	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Security Fencing	-	-	-
W.0006		Segregation Fencing	-	-	-
W.0007	Station Works	Site Establishment	-	-	-
W.0008		Excavation	-	-	-
W.0009		Excavation – Excav. & Saw	-	-	-
W.0010		Concrete & Structural Works	-	-	-
W.0011		Station Installation & Fitout	-	-	-
W.0012	Bridge Worksites	Site Establishment	-	-	-
W.0013		Impact Prot. & Screens	-	-	-
W.0014		Impact Prot. & Screens - Saw	-	-	-
W.0015	Substations	Site Establishment	-	-	-
W.0016		Construction & Installation	-	-	-

The above table shows that no receivers are predicted to be Highly Noise Affected in this catchment, as shown in **Figure 38**.

Figure 38 Highly Noise Affected Residential Receivers



Note: The two activities for 'Corridor Works - Track Support Systems' are not shown on the drawing for clarity. 'W.0005 - Comms Works/Security Fencing' would generally be required at the perimeter of the corridor and 'W.0006 – Segregation Fencing' would be required in the rail corridor between Marrickville and the rail junction between Campsie/Belmore.

2.5.9.5 Other Sensitive Receivers

The predicted daytime NML exceedances for other sensitive receivers (such as educational facilities, hospitals and childcare centres) are summarised in **Table 33**.

Table 33 Overview of Sensitive Receiver NML Exceedances in Precinct – Daytime

Works	Scenario	Activity	Education			Medical			Place of Worship			Childcare			Remaining[1]		
			1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB
W.0001	General Worksites	Site Establishment	1	-	-	-	1	-	-	-	-	-	1	-	-	-	-
W.0002		Worksite Operations	1	-	-	-	1	-	-	-	-	-	1	-	-	-	-
W.0003	Corridor - Ground & Track	Trackform	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0004		Trackform - Ballast Tamper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Sec. Fencing	3	1	-	-	1	-	-	-	-	3	2	-	-	-	-
W.0006		Segregation Fencing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0007	Station Works	Site Establishment	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-
W.0008		Excavation	1	-	-	-	-	-	-	-	-	-	2	-	-	-	-
W.0009		Excavation – Excav. & Saw	1	-	-	1	-	-	-	-	-	3	2	-	-	-	-
W.0010		Concrete & Structural Works	1	-	-	-	-	-	-	-	-	-	2	-	-	-	-
W.0011		Station Installation & Fitout	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-
W.0012	Bridge Worksites	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0013		Impact Prot. & Screens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0014		Impact Prot. & Screens - Saw	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0015	Substations	Site Establishment	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
W.0016		Construction & Installation	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-

Note 1: The 'Remaining' category includes public buildings, libraries, café/bars, etc.

The above table shows the following:

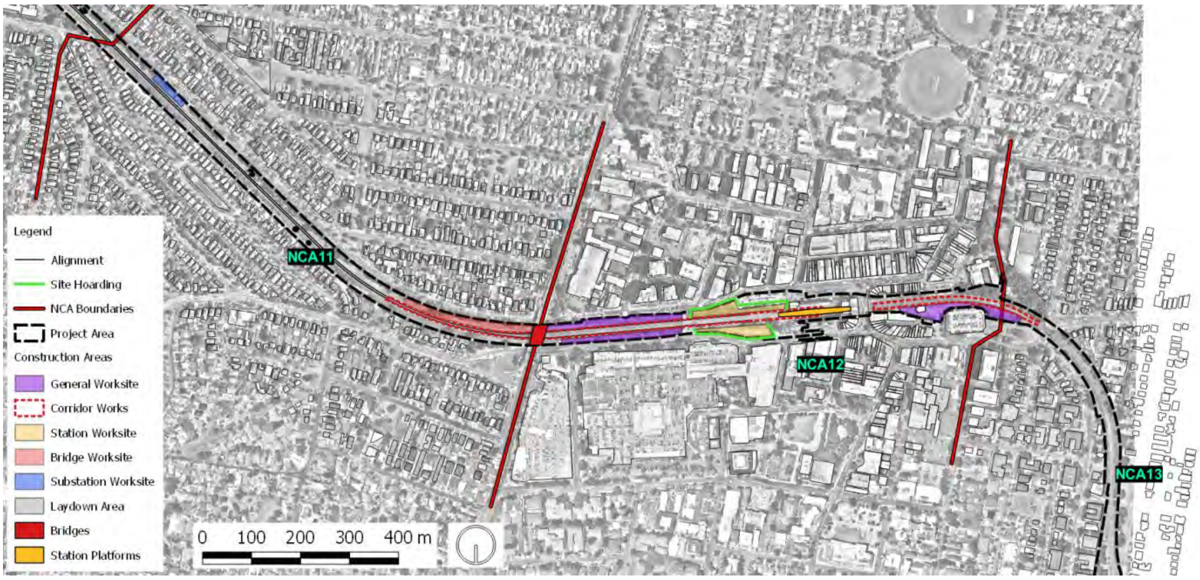
- The other sensitive receivers in this precinct are predicted to generally be subject to relatively minor impacts, with many receiver types and works activities not resulting in any exceedances of NMLs.
- Other sensitive receivers in this area which are predicted to be subject to NMLs exceedances during the higher noise generating activities are:
    - Educational – Punchbowl Boys High School
    - Medical – 15 South Terrace, Punchbowl
    - Childcare – Long Day Pre-School, 21 Dudley Street, Punchbowl

2.5.10 Bankstown Precinct (NCA11)

The revised locations of the various construction worksites in the Bankstown precinct are shown below in **Figure 39**.

Changes as a result of the preferred project have only occurred within NCA11 in this precinct. Construction works in Bankstown NCA12 and NCA13 would be completed as per the EIS Noise and Vibration Technical Paper. Reference should be made to the EIS Noise and Vibration Technical Paper for all construction noise and vibration impacts on the western side of Stacey Street in Bankstown.

Figure 39 Bankstown Precinct – Construction Areas



Note: The assessment is based on categorising each construction area by the main activity that would occur within the boundary. Many construction areas would however likely have more than one usage.

Note: Refer to **Appendix A** for large format construction area figures

Note: The two activities for 'Corridor Works - Track Support Systems' are not shown on the drawing for clarity. 'W.0005 - Comms Works/Security Fencing' would generally be required at the perimeter of the corridor and 'W.0006 – Segregation Fencing' would be required in the rail corridor between Marrickville and the rail junction between Campsie/Belmore.

2.5.10.1 NML Exceedances

The predicted NML exceedances in NCA11 within this precinct are summarised in **Table 34**. The number of receivers predicted to experience exceedances of the NMLs are summarised for each scenario in bands of 10 dB and are separated into daytime, evening and night-time periods, as appropriate.

Table 34 Overview of NML Exceedances from the Preferred Project – Bankstown Precinct (NCA11) – All Receiver Types

Activity ID	Scenario	Activity	No. Weeks[1]	Number of Receivers																
				Total	HNA[3]	With NML Exceedance[4]														
						Standard Daytime			Possession / Closedown Works[5]											
									Daytime OOH			Evening			Night-time			Sleep Disturbance		
						1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB
W.0001	General Worksites	Site Establishment	4	687	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0002		Worksite Operations	52	687	-	-	-	-	3	-	-	3	-	-	29	1	-	8	-	-
W.0003	Corridor - Ground & Track	Trackform	12 days	687	-	45	19	-	75	30	1	75	30	1	238	56	29	75	30	1
W.0004		Trackform - Ballast Tamper	4 days	687	19	103	31	2	213	49	29	211	49	29	372	159	64	370	185	71
W.0005	Corridor - Track Supp. Systems	Comms Works/Sec. Fencing	2	687	-	101	36	-	125	118	1	125	118	1	342	83	111	210	117	11
W.0006		Segregation Fencing	6	687	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0007	Station Works	Site Establishment	3	687	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0008		Excavation	10	687	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0009		Excavation – Excav. & Saw	10	687	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0010		Concrete & Structural Works	8	687	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-
W.0011		Station Installation & Fitout	20	687	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0012	Bridge Worksites	Site Establishment	2	687	-	29	1	-	39	22	-	39	22	-	130	26	9	48	26	-
W.0013		Impact Prot. & Screens	2	687	-	9	2	-	37	4	-	37	4	-	141	25	3	39	5	-
W.0014		Impact Prot. & Screens - Saw	2	687	-	25	3	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0015	Substations	Site Establishment	2	687	-	29	17	-	51	33	-	-	-	-	-	-	-	-	-	-
W.0016		Construction & Installation	6	687	-	33	-	-	29	17	-	29	17	-	-	-	-	-	-	-

Note 1: Durations should be regarded as indicative and represent a typical worksite. There would be sites within each category that require works to be shorter or longer than shown. The duration of these impacts is less than the overall duration, and depends on the rate of progress in the works areas.

Note 2: Approximate percentage (rounded to the nearest 10%) of activity duration within overall preferred project program.

Note 3: Highly Noise Affected, based on ICNG definition (i.e. predicted $L_{Aeq(15minute)}$ noise at residential receiver is 75 dBA or greater).

Note 4: Based on worst case predicted noise levels.

Note 5: OOH = Out of hours. During the daytime, this refers to the period on Saturday between 7am – 8am, and 1pm – 10pm.

The above shows that during some of the works, relatively high noise impacts are predicted when higher noise generating equipment is in use. It is however noted that during most activities, it is expected that the construction noise levels would frequently be lower than the worst-case levels predicted above for significant periods of time when noise generating equipment is not in use.

2.5.10.2 Worst-case Impacts during Standard Daytime Construction Hours

During standard daytime construction hours, **Table 34** shows that activities which use noise intrusive plant items, such as a ballast tamper, result in some of the higher impacts. The highest impacts are predicted during the following works in this precinct:

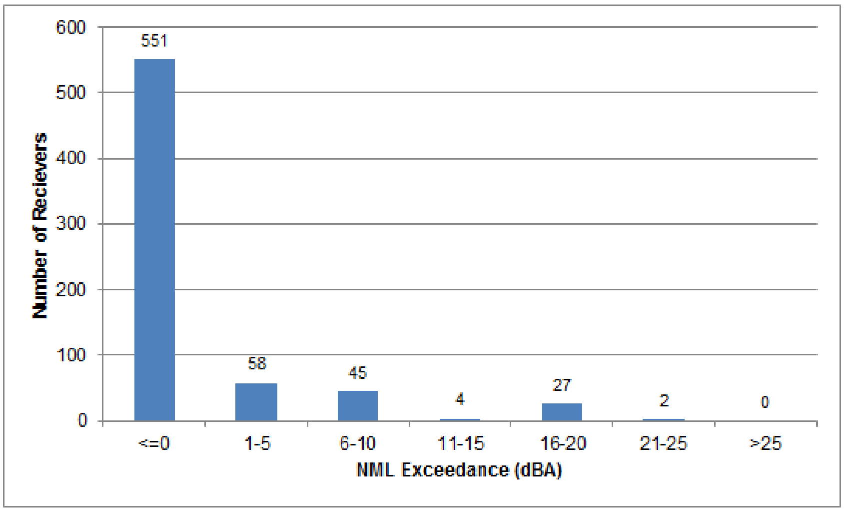
- W.0004 – Corridor – Ground & Track - Trackform – Ballast Tamper
- W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing

Trackform works which require a ballast tamper are required as part of 'W.0004 – Corridor – Ground & Track - Trackform – Ballast Tamper' in a small area of this precinct. Whilst high noise levels are anticipated during use of the tamper, the impacts would be expected to last for only a few days as the works progress relatively quickly.

Relatively large numbers of receivers are predicted to be affected during the 'Corridor Works - Track Support Systems' activity W.0005. Whilst these works do not use high noise generating construction equipment, they would be required along the length of corridor in this precinct and are in relatively close proximity to certain receivers which adjoin the rail corridor.

The activity with potential for the highest number of NML exceedances is 'W.0004 – Corridor – Ground & Track - Trackform – Ballast Tamper'. **Figure 40** indicates the distribution of exceedances for this activity during the daytime

Figure 40 NML Exceedances Daytime – 'W.0004 – Corridor – Ground & Track - Trackform – Ballast Tamper'



The above graph shows that whilst the worst-case impacts may result in a greater than 20 dB exceedance of the daytime NML, this is limited to two receivers, with the majority of the receivers in this precinct being subject to considerably lower, or no impacts.

2.5.10.3 Worst-case Impacts during Out-of-Hours Works

To minimise the potential impacts during out of hours periods, rockbreakers are not proposed to be used for any of the works, and other noise intensive plant items such as saws, would generally only be used during the daytime.

During out of hours construction works, **Table 34** shows that the highest numbers of night-time NML exceedances are apparent during the following works:

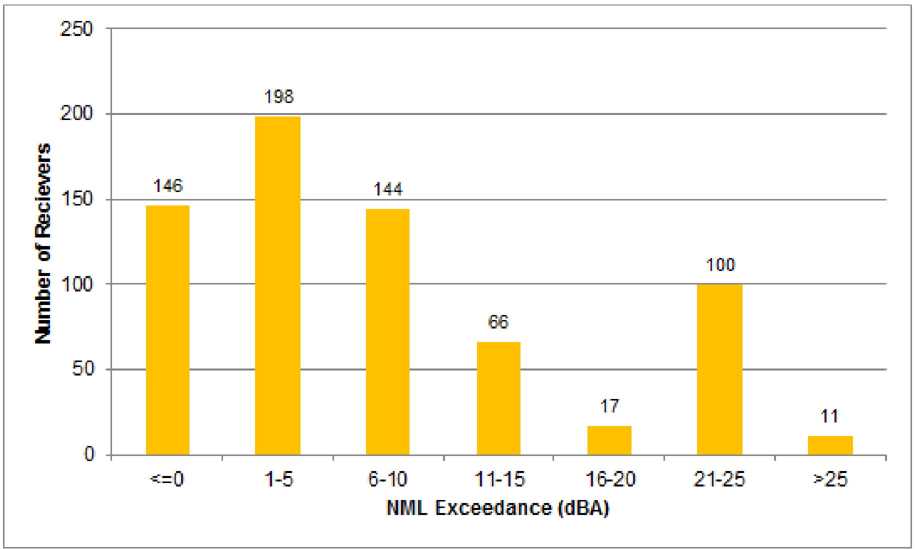
- W.0003 – Corridor – Ground & Track - Trackform
- W.0004 – Corridor – Ground & Track - Trackform – Ballast Tamper
- W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing

Trackform works which require a ballast tamper are required as part of 'W.0004 – Corridor – Ground & Track - Trackform – Ballast Tamper' in this precinct. Whilst high noise levels are anticipated during use of the tamper, the impacts would be expected to last for only a few days as the works progress relatively quickly.

Relatively large numbers of receivers are predicted to be affected during the 'Corridor Works - Track Support Systems' activity W.0005 as the works would be undertaken along the length of the rail corridor. As noted previously, this works activity does not use noise intensive equipment, with the loudest item being a back hoe. The predicted exceedances are due to the proximity of the works to the nearest receivers and impacts from these works would be expected to be relatively short.

The activity with potential for the highest number of NML exceedances during the night-time is 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'. **Figure 41** indicates the distribution of exceedances for this activity for receivers within this precinct during the night-time.

Figure 41 NML Exceedances Night-time – 'W.0005 – Corridor Works - Track Support Systems - Comms Works/Security Fencing'



The above graph shows that whilst the worst-case impacts may result in a greater than 20 dB exceedance of the night-time NMLs at 111 receivers, there are many receivers in this precinct that are subject to lower impacts.

2.5.10.4 Highly Noise Affected Residential Receivers

The ICNG considers residential receivers that are subject to predicted noise levels of 75 dBA or greater to be Highly Noise Affected. The number of Highly Noise Affected receivers in this precinct has been determined and is summarised in **Table 35**. The table shows the number of residential receivers separated by works activity and NCA.

Table 35 Predicted Number of Highly Noise Affected Residential Receivers by Works and NCA

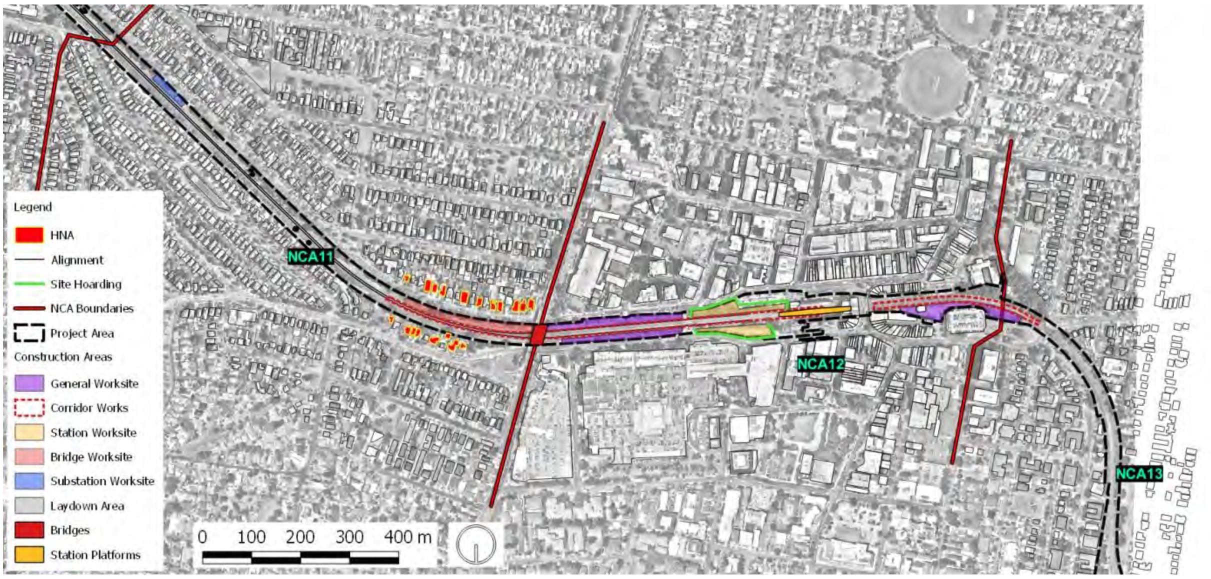
Works	Scenario	Activity	NCA11		
			Day	**Eve**	**Night**
W.0001	General Worksites	Site Establishment	-	-	-
W.0002		Worksite Operations	-	-	-
W.0003	Corridor - Ground & Track	Trackform	-	-	-
W.0004		Trackform - Ballast Tamper	19	19	19
W.0005	Corridor - Track Supp. Systems	Comms Works/Security Fencing	-	-	-
W.0006		Segregation Fencing	-	-	-
W.0007	Station Works	Site Establishment	-	-	-
W.0008		Excavation	-	-	-
W.0009		Excavation – Excav. & Saw	-	-	-
W.0010		Concrete & Structural Works	-	-	-
W.0011		Station Installation & Fitout	-	-	-
W.0012	Bridge Worksites	Site Establishment	-	-	-
W.0013		Impact Prot. & Screens	-	-	-
W.0014		Impact Prot. & Screens - Saw	-	-	-
W.0015	Substations	Site Establishment	-	-	-
W.0016		Construction & Installation	-	-	-

The above table shows that receivers are predicted to be Highly Noise Affected in this catchment during certain works activities. The highest numbers are apparent during:

- 'W.0004 – Corridor – Ground & Track - Trackform – Ballast Tamper', where 24 receivers are predicted to be Highly Noise Affected during all periods in NCA11, NCA12 and NCA13 combined, which results from a tamper being in this activity.

The location of the Highly Noise Affected residential receivers in this precinct, from all works and in any time period, are shown in **Figure 42**.

Figure 42 Highly Noise Affected Residential Receivers



Note: The two activities for 'Corridor Works - Track Support Systems' are not shown on the drawing for clarity. 'W.0005 - Comms Works/Security Fencing' would generally be required at the perimeter of the corridor and 'W.0006 – Segregation Fencing' would be required in the rail corridor between Marrickville and the rail junction between Campsie/Belmore.

The most impacted receivers are typically dwellings which surround and have direct line of sight to the various works locations. Some of the first row receivers in this area are predicted to be Highly Noise Affected, however this would only be expected to be apparent when noisy works are being carried out nearby.

2.5.10.5 Other Sensitive Receivers

The predicted daytime NML exceedances for other sensitive receivers (such as educational facilities, hospitals and childcare centres) are summarised in **Table 36**.

Table 36 Overview of Sensitive Receiver NML Exceedances in Precinct – Daytime

Works	Scenario	Activity	Education			Medical			Place of Worship			Childcare			Remaining[1]		
			1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB	1-10 dB	11-20 dB	>20 dB
W.0001	General Worksites	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0002		Worksite Operations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0003	Corridor - Ground & Track	Trackform	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0004		Trackform - Ballast Tamper	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
W.0005	Corridor - Track Supp. Systems	Comms Works/Sec. Fencing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0006		Segregation Fencing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0007	Station Works	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0008		Excavation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0009		Excavation – Excav. & Saw	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0010		Concrete & Structural Works	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0011		Station Installation & Fitout	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0012	Bridge Worksites	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0013		Impact Prot. & Screens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0014		Impact Prot. & Screens - Saw	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0015	Substations	Site Establishment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.0016		Construction & Installation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note 1: The ‘Remaining’ category includes public buildings, libraries, café/bars, etc.

The above table shows the following:

- The other sensitive receivers in this precinct are predicted to generally be subject to relatively minor impacts, with many receiver types and works activities not resulting in any exceedances of NMLs.
- Other sensitive receivers in this area which are predicted to be subject to NMLs exceedances during the higher noise generating activities are:
    - Childcare – Roly Poly Education Child Care, 9 East Terrace, Bankstown

2.6 Mitigation and Comparison to Exhibited Project

Noise mitigation for the exhibited project was discussed in detail in the EIS Noise and Vibration Technical Paper and reference should be made to that document for further information on the assessment methodology for the preferred project, including descriptions of standard mitigation measures that have been recommended.

2.6.1 Additional Mitigation Measures Review

A review based on the preferred project has been undertaken of where, after application of standard mitigation measures, the $L_{Aeq(15minute)}$ construction noise and vibration levels are predicted to exceed the noise or vibration objectives. This review has been undertaken against the Additional Mitigation Measures Matrix (AMMM) from the TfNSW Construction Noise Strategy (CNS), shown in **Table 37**, to determine the additional measures to be implemented.

Table 37 Additional Mitigation Measures Matrix – Airborne Construction Noise

Time Period		Mitigation Measure $L_{Aeq(15minute)}$ Noise Level above Background (RBL) 0 to 10 dBA Noticeable	10 to 20 dBA Clearly Audible	20 to 30 dBA Moderately Intrusive	>30 dBA Highly Intrusive
Standard	Mon-Fri (7am - 6pm)	-	-	LB, M	LB, M
	Sat (8am - 1pm)				
	Sun/Pub Hol. (Nil)				
OOHW Period 1	Mon-Fri (6pm - 10pm)	-	LB	M, LB	M, IB, LB, RO, PC, SN
	Sat (7am - 8am) & (1pm - 10pm)				
	Sun/Pub Hol. (8am - 6pm)				
OOHW Period 2	Mon-Fri (10pm - 7am)	LB	M, LB	M, IB, LB, PC, SN	AA, M, IB, LB, PC, SN
	Sat (10pm - 8am)				
	Sun/Pub Hol. (6pm - 7am)				

Note: The following abbreviations are used: Alternative accommodation (AA), Monitoring (M), Individual briefings (IB), Letter box drops (LB), Project specific respite offer (RO), Phone calls (PC), Specific notifications (SN).

A summary of receiver types that are predicted to be subject to noise impacts greater than 25 dBA above the NML (ie corresponds to the '>30 dBA Highly Intrusive' category above) for the preferred project is shown in **Table 38**. A comparison is provided between the assessment completed for the exhibited project and the preferred project.

As previously discussed, the use of noise intensive equipment plant items such diamond saws would be restricted to daytime periods and the need for rockbreaking has been entirely removed.

Ballast tamping may be required during all periods and impacts during the night-time have been provided both with and without the ballast tamper to illustrate the effect that this item of equipment has on the impacts, consistent with the approach in the EIS Noise and Vibration Technical Paper for the exhibited project.

Table 38 Number of Receivers Predicted to be Subject to >25 dBA above NML Noise Levels

NCA	Residential					Commercial					Other Sensitive					HNA[2]		
	Standard Day	Day OOH[1]	Evening	Night-time (with Ballast Tamper)	Night-time (without Ballast Tamper)	Standard Day	Day OOH	Evening	Night-time (with Ballast Tamper)	Night-time (without Ballast Tamper)	Standard Day	Day OOH[1]	Evening	Night-time (with Ballast Tamper)	Night-time (without Ballast Tamper)	Night-time (with Ballast Tamper)	Night-time (without Ballast Tamper)	Sleep Disturbance (>20 dB Impacts)
Exhibited Project (EIS)																		
NCA01	64	139	139	152	99	-	-	-	-	-	-	-	-	-	-	20	8	306
NCA02	147	224	223	191	164	-	-	-	-	-	-	-	-	-	-	31	23	307
NCA03	76	138	138	140	94	-	-	-	-	-	1	1	-	-	-	34	9	237
NCA04	21	42	42	38	32	-	-	-	-	-	-	-	-	-	-	6	5	54
NCA05	50	56	56	73	65	-	-	-	-	-	-	-	-	-	-	1	-	95
NCA06	13	45	66	101	65	-	-	-	-	-	-	-	-	-	-	25	9	184
NCA07	33	45	45	79	50	-	-	-	-	-	3	3	2	1	-	12	1	183
NCA08	-	7	7	19	1	-	-	-	-	-	2	2	-	-	-	4	-	52
NCA09	6	34	34	46	40	-	-	-	-	-	-	-	-	-	-	16	5	89
NCA10	-	7	7	15	-	-	-	-	-	-	3	3	1	-	-	7	-	50
NCA11	1	26	26	43	29	-	-	-	-	-	-	-	-	-	-	19	1	85
Preferred Project (this report)																		
NCA01	24	60	59	78	78	-	-	-	-	-	-	-	-	-	-	10	10	87
NCA02	12	50	36	126	126	-	-	-	-	-	-	-	-	-	-	5	5	123
NCA03	18	53	46	83	83	-	-	-	-	-	1	-	-	-	-	3	3	83
NCA04	2	13	12	26	26	-	-	-	-	-	-	-	-	-	-	1	1	25
NCA05	4	20	20	70	62	-	-	-	-	-	-	-	-	-	-	1	-	93
NCA06	1	4	22	63	47	-	-	-	-	-	-	-	-	-	-	14	1	119
NCA07	-	1	1	34	34	-	-	-	-	-	1	1	-	-	-	-	-	41
NCA08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
NCA09	-	2	-	20	20	-	-	-	-	-	-	-	-	-	-	-	-	22
NCA10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NCA11	-	2	2	41	16	-	-	-	-	-	-	-	-	-	-	19	-	80

Note 1: OOH = Out of hours. During the daytime, this refers to the period on Saturday between 7am – 8am, and 1pm – 10pm.

Note 2: Highly Noise Affected, based on ICNG definition (i.e. predicted $L_{Aeq(15minute)}$ noise at residential receiver is 75 dBA or greater).

The above shows that substantial reductions in the predicted impacts are apparent for the majority of NCAs for the preferred project. Similar reductions are seen in impacts to receivers across the daytime, evening and night-time periods.

Impacts for the preferred project are generally lower than the exhibited project (EIS Noise and Vibration Technical Paper) due to the number of worksites being revised and less noise intensive equipment being used to complete the work. The requirement for track works has also been reduced to a small number of isolated locations, whereas previously they were required at most stations. Further changes are also apparent at station sites where only platform modification works are now required as opposed to previously being demolished and re-built, and the bridge works being revised to providing throw screens and protection measures whereas previously some bridges were being replaced or required significant strengthening works.

As discussed previously, rockbreakers are also no longer required and this item of highly noise intensive equipment was previously driving many of the worst-case impacts.

The reduction in the required works and need for highly noise intensive equipment during out of hours periods has also reduced the potential sleep disturbance impacts. Significant reductions are generally seen in all NCAs, with most areas predicted to have in the region of 50 to 70% less receivers with >20 dB exceedances of the sleep disturbance goals.

2.6.2 Proposed Additional Mitigation

Based on the predicted noise levels, additional mitigation measures as per the requirements of **Table 37** have been determined for works during standard daytime construction hours and for works at night-time during possessions/closedowns. A comparison is provided for the assessment completed for the exhibited project and the preferred project.

Maps showing the location of the receivers identified for additional mitigation in the daytime and night-time period are provided in **Appendix B**.

Table 39 Receivers Identified for Additional Mitigation

NCA	Number of Receivers						
	Standard Daytime	Possession / Closedown Works					
		Night-time (OOHW2)					
		With Ballast Tamping				Without Ballast Tamping	
	LB, M	LB	M, LB	M, IB, LB, PC, SN	AA, M, IB, LB, PC, SN	M, IB, LB, PC, SN	AA, M, IB, LB, PC, SN
Exhibited Project (EIS Noise and Vibration Technical Paper)							
NCA01	565	29	452	363	152	277	99
NCA02	594	67	620	334	191	213	164
NCA03	462	6	306	260	140	181	94
NCA04	121	25	150	74	38	65	32
NCA05	291	-	168	136	73	99	65
NCA06	161	27	245	175	101	115	65
NCA07	291	120	457	312	79	134	50
NCA08	88	122	295	111	19	83	1
NCA09	126	86	300	132	46	105	40
NCA10	73	172	326	102	15	71	-
NCA11	116	169	316	153	43	129	29
Preferred Project (this report)							
NCA01	188	196	510	205	78	205	78
NCA02	233	326	564	186	126	187	125
NCA03	196	88	387	154	83	154	83
NCA04	77	68	123	70	26	70	26
NCA05	132	-	188	119	70	98	62
NCA06	69	74	260	151	63	104	47
NCA07	81	256	527	133	34	108	33
NCA08	23	291	177	73	-	73	-
NCA09	65	171	271	102	20	102	20
NCA10	2	372	144	52	-	52	-
NCA11	77	170	318	152	41	117	16

Note: LB: Letterbox drops, M: Monitoring, IB: Individual briefings, PC: Phone calls, SN: Specific notifications, AA: Alternative accommodation

The above shows that as per the reduction in noise impacts at sensitive receivers as a result of the preferred project, similar reductions are seen in the requirements for additional mitigation measures in all NCAs.

2.7 Construction Road Traffic Noise Assessment

Temporary additional road traffic associated with the preferred project generally falls into two categories:

- Construction related traffic – this includes heavy vehicle movements to/from the construction compounds transporting construction materials and spoil along defined haulage routes, as well as vehicles of construction personnel travelling to/from the construction compounds.
- Temporary Transport Management Plans (TTMP) – during periods of extended track possession associated with construction works, train replacement bus services would be required. This would introduce additional heavy vehicles (buses) onto the public road network during these periods.

An assessment of the noise impacts from each of the temporary construction road traffic categories was presented in the EIS Noise and Vibration Technical Paper. Where changes have been made to the construction traffic road traffic assumptions for the preferred project, this is noted below.

2.7.1 Construction Traffic

The EIS Noise and Vibration Technical Paper presented the potential noise impacts from the maximum daily construction vehicle volumes expected during the construction of the exhibited project. Whilst the total impact from construction vehicle traffic would reduce as a result of less construction traffic being required overall for the preferred project, the worst-case maximum daily volumes remain consistent with the EIS Noise and Vibration Technical Paper and the worst-case impacts would be the same.

However, as the number of possessions and the typical duration of possessions would be less for the preferred project when compared to the exhibited project, the frequency and duration of the potential construction traffic noise impacts would be expected to be reduced for the preferred project.

2.7.2 Temporary Transport Arrangements during Possessions

A Temporary Transport Strategy (TTS) has been developed which outlines the process for planning and delivery of a temporary, integrated, multi-modal transport network that would operate during each of the rail possession periods. For each possession period, a TTMP would be developed to allow customers to continue to reach their destinations while trains are not operating.

An assessment of the noise impacts from TTMP traffic is presented in the EIS Noise and Vibration Technical Paper for the exhibited project. The assumptions presented remain a worst-case scenario and while the maximum daily TTMP volumes remain unchanged for the preferred project, the typical duration and frequency of possessions that would result in the maximum daily TTMP volumes would be significantly less.

On this basis, both the duration and frequency of TTMP noise impacts for the preferred project are expected to be significantly less than presented in the EIS Noise and Vibration Technical Paper.

2.7.3 Cumulative Construction Road Traffic

As discussed in **Section 2.7.1** and **Section 2.7.2**, the maximum number of construction vehicle and TTMP vehicle volumes would only be in operation during rail possessions. The potential cumulative impact of the concurrent operation of these construction road traffic noise sources is presented in the EIS Noise and Vibration Technical Paper for the exhibited project. The maximum cumulative noise impacts presented are representative of a worst-case scenario for the preferred project. However, because the typical duration of the revised rail possessions would be less, the duration and frequency of cumulative noise impacts presented in the EIS Noise and Vibration Technical Paper for the exhibited project would be significantly reduced for the preferred project.

2.8 Construction Vibration Assessment

2.8.1 Vibration Intensive Plant

The construction vibration assessment for the exhibited project assessed rockbreakers as the most vibration intensive item of equipment. As rockbreakers are unlikely to be required to construct the preferred project the most vibration intensive piece of construction equipment is now a ballast tamper. The ballast tamper was previously assessed as part of the exhibited project, however the locations it would be required for the preferred project have been significantly reduced.

The vibration levels generated by a ballast tamper are significantly lower than those generated by a rockbreaker and the ballast tamper would only be used on the rail tracks in a small number of locations of the preferred project.

The removal of rockbreakers from the preferred project has significantly reduced the potential vibration impacts at the nearest receivers. All other items of equipment required by the preferred project are generally not considered vibration intensive

It is also noted that rail tampers are routinely used for Sydney Trains rail maintenance works across the project area without significant impact to nearby sensitive receivers and structures.

Construction works associated with platform alterations would be required to be completed in the vicinity of several heritage structures at stations. These works however do not require the use of vibration intensive equipment and the potential vibration impacts from items such as concrete saws and excavators are expected to be minimal.

The required vibration intensive equipment should be reviewed during construction planning to ensure the potential vibration impacts are minimised. If impacts are considered likely then vibration monitoring should be completed to ensure acceptable levels of vibration are not exceeded.

3 Operational Noise and Vibration Assessment

3.1 Project Rail Track Design Modification

An assessment of the operational noise and vibration impacts for the exhibited project was presented in the EIS Noise and Vibration Technical Paper. The preferred project works description relating to the track design is described in Section 1.1 of the Submissions and Preferred Infrastructure Report. Key features of the track design for the preferred project in comparison to the exhibited project include:

- The preferred project would use the existing Sydney Trains tracks wherever possible and significant track modification would only be required around Bankstown Station to facilitate the separation of the metro tracks from the Sydney Trains network. The revised track design would no longer include significant realignment in the vicinity of stations.
- No new dedicated turnback track has been included in the preferred project design. Hence, there would no longer be a turnback facility at Campsie.
- No new crossovers, except for one on the eastern side of Campsie Station.
- The rail junction and turnback to the west of Bankstown Station for Sydney Trains services has been reconfigured.

3.2 Airborne Noise – Rail Operations

The design modifications described in **Section 3.1** are not anticipated to increase the operational rail airborne noise levels compared to the predictions presented in the EIS Noise and Vibration Technical Paper, with the exception of the new crossover on the eastern side of Campsie Station. Therefore, with the exception of the new crossover, the predicted airborne noise impacts and recommended feasible and reasonable noise mitigation presented in the EIS Noise and Vibration Technical Paper are considered applicable to the preferred design and are likely to be slightly conservative in some regions where previous track slewing resulted in the tracks being closer to sensitive receivers, and where new crossovers were marked for installation.

The rail turnouts at each end of the new rail crossover on the eastern side of Campsie Station would likely increase operational rail noise levels in a region of the study area that is already predicted to be sensitive to rail noise level increases (refer to Section 4.1.6.8 of the EIS Noise and Vibration Technical Paper). There is potential for the installation of a crossover in this area, as proposed as part of the preferred project, to trigger the requirement for consideration of noise mitigation options at some sensitive receivers in the vicinity of the crossover.

A detailed review of the operational rail noise impacts and the recommended feasible and reasonable noise mitigation would be undertaken during the detailed design stage of the preferred project when the rail track design is finalised.

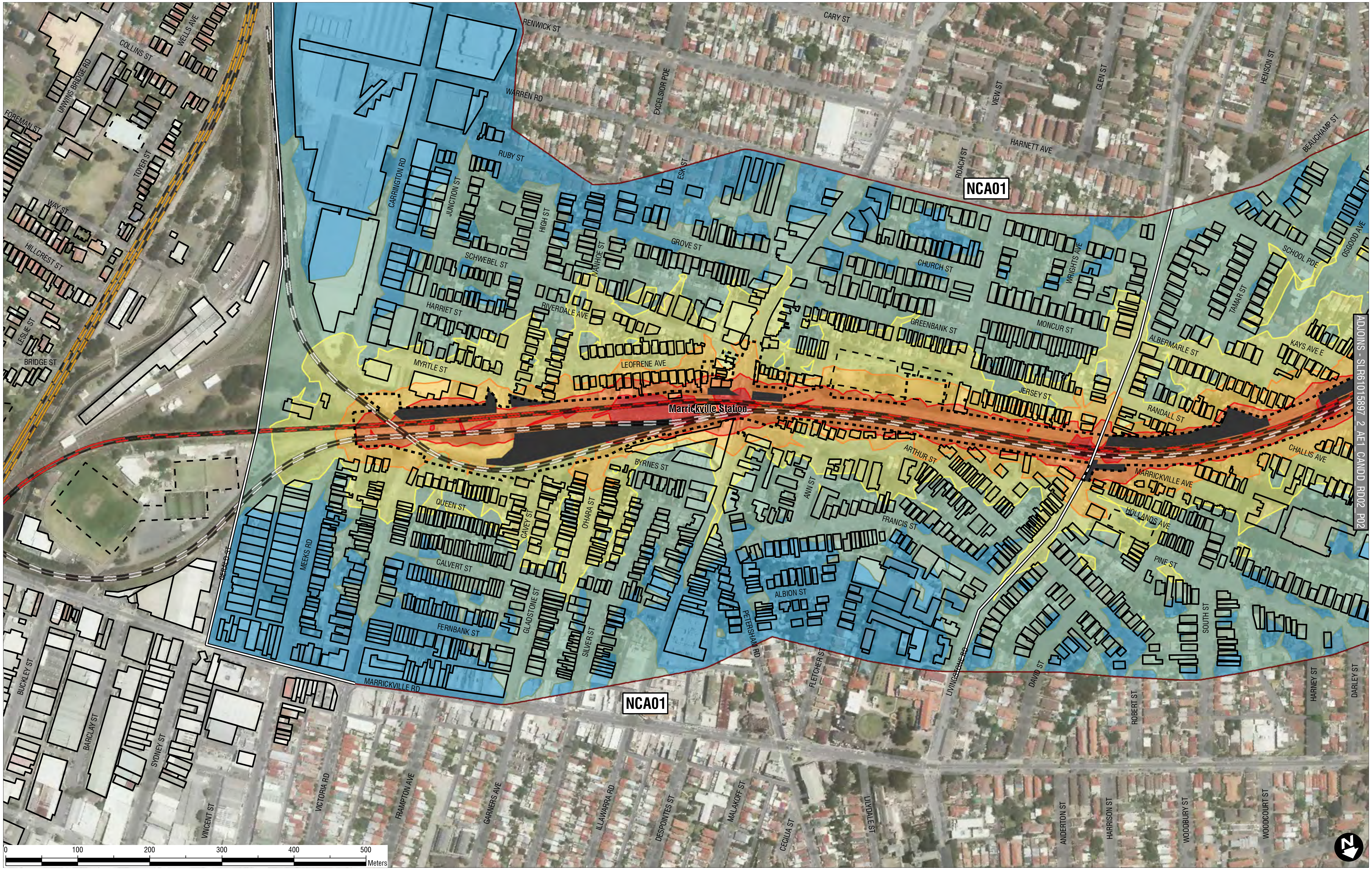
3.3 Ground-borne Noise and Vibration

The design modifications described in **Section 3.1** for the preferred project are not anticipated to increase the operational ground-borne noise and vibration levels compared to the predictions presented in the EIS Noise and Vibration Technical Paper.

Construction Airborne Noise Contours

INDEX

Construction Airborne Noise Contours - Worst-Case Daytime $L_{Aeq(15minute)}$ Construction Noise Predictions



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Project No.:	610.15987
Date:	04/05/2018
Drawn by:	NT
Scale:	1:5,000
Sheet Size:	A4
Projection:	GDA 1994 MGA Zone 56

Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks
Noise Contour Calculation Boundary

Worksites
Project Area

Worst Case Daytime Construction Noise
- < 40 dBA
- 40 - 50 dBA
- 50 - 60 dBA
- 60 - 70 dBA
- 70 - 80 dBA
- > 80 dBA

Assessed Receivers
- Buildings
- Outdoor

Note:
*Noise contours are indicative and represent the worst-case noise levels predicted for all scenarios operating in the period.

Transport for NSW

Sydney Metro City & Southwest
Sydenham to Bankstown

Construction Airborne Noise Contours
Worst-case Daytime
Construction Noise Predictions

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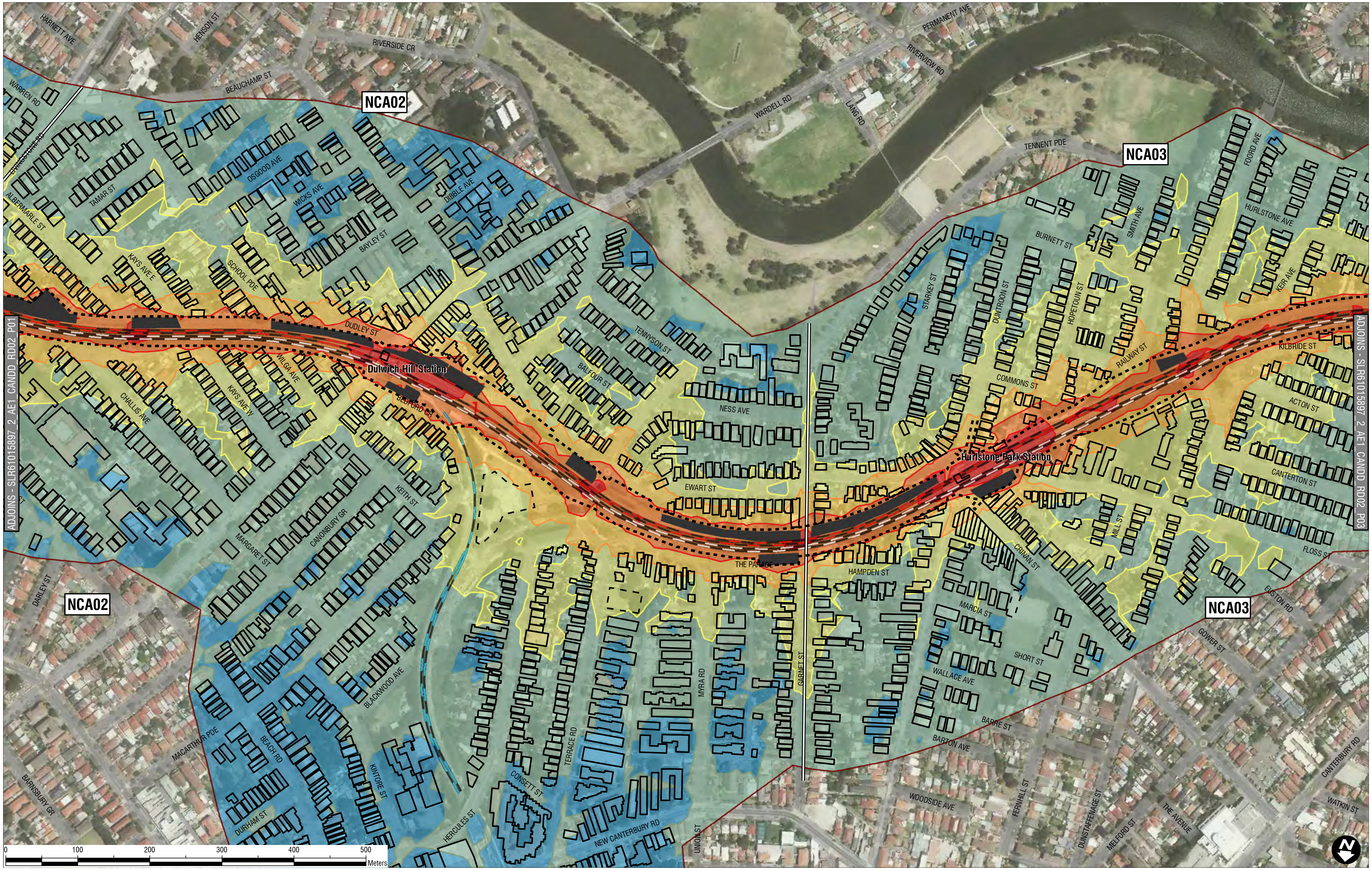

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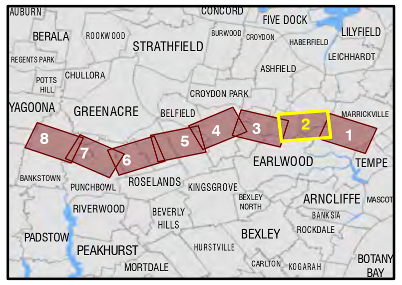

- Noise Catchment Areas
- Freight Rail Tracks
- Light Rail Tracks
- Metro Rail Tracks
- Sydney Trains Rail Tracks
- Noise Contour Calculation Boundary
- Worksites
- Project Area

Worst Case Daytime Construction Noise

- < 40 dBA
- 40 - 50 dBA
- 50 - 60 dBA
- 60 - 70 dBA
- 70 - 80 dBA
- > 80 dBA

Assessed Receivers

- Buildings
- Outdoor

Note:
*Noise contours are indicative and represent the worst-case noise levels predicted for all scenarios operating in the period.

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Sydenham to Bankstown

Construction Airborne Noise Contours
Worst-case Daytime
Construction Noise Predictions

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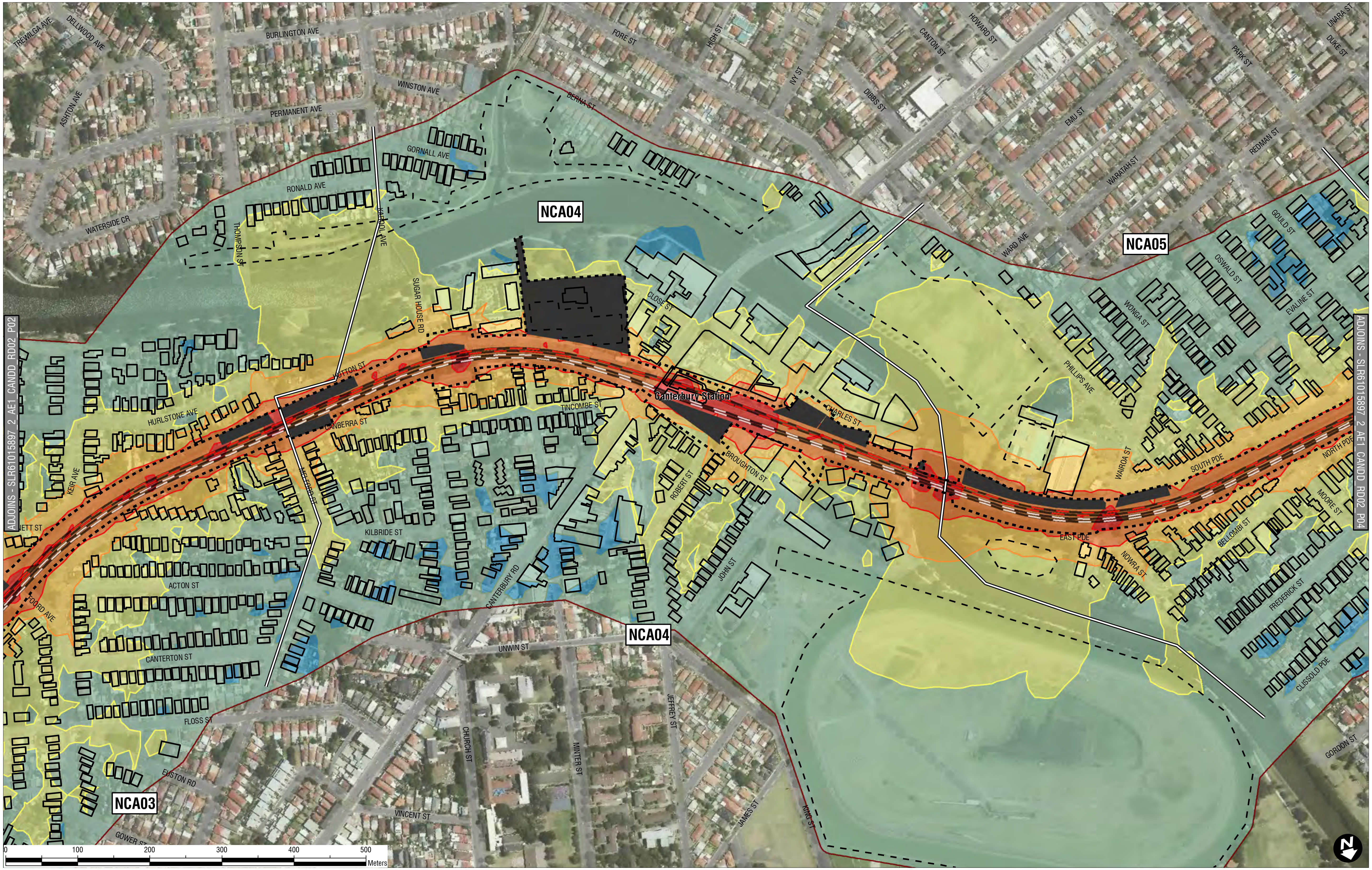

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Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks
Noise Contour Calculation Boundary

Worksites
Project Area

Worst Case Daytime Construction Noise
< 40 dBA
40 - 50 dBA
50 - 60 dBA
60 - 70 dBA
70 - 80 dBA
> 80 dBA

Assessed Receivers
Buildings
Outdoor

Note:
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Transport for NSW

Sydney Metro City & Southwest
Sydenham to Bankstown

Construction Airborne Noise Contours
Worst-case Daytime
Construction Noise Predictions

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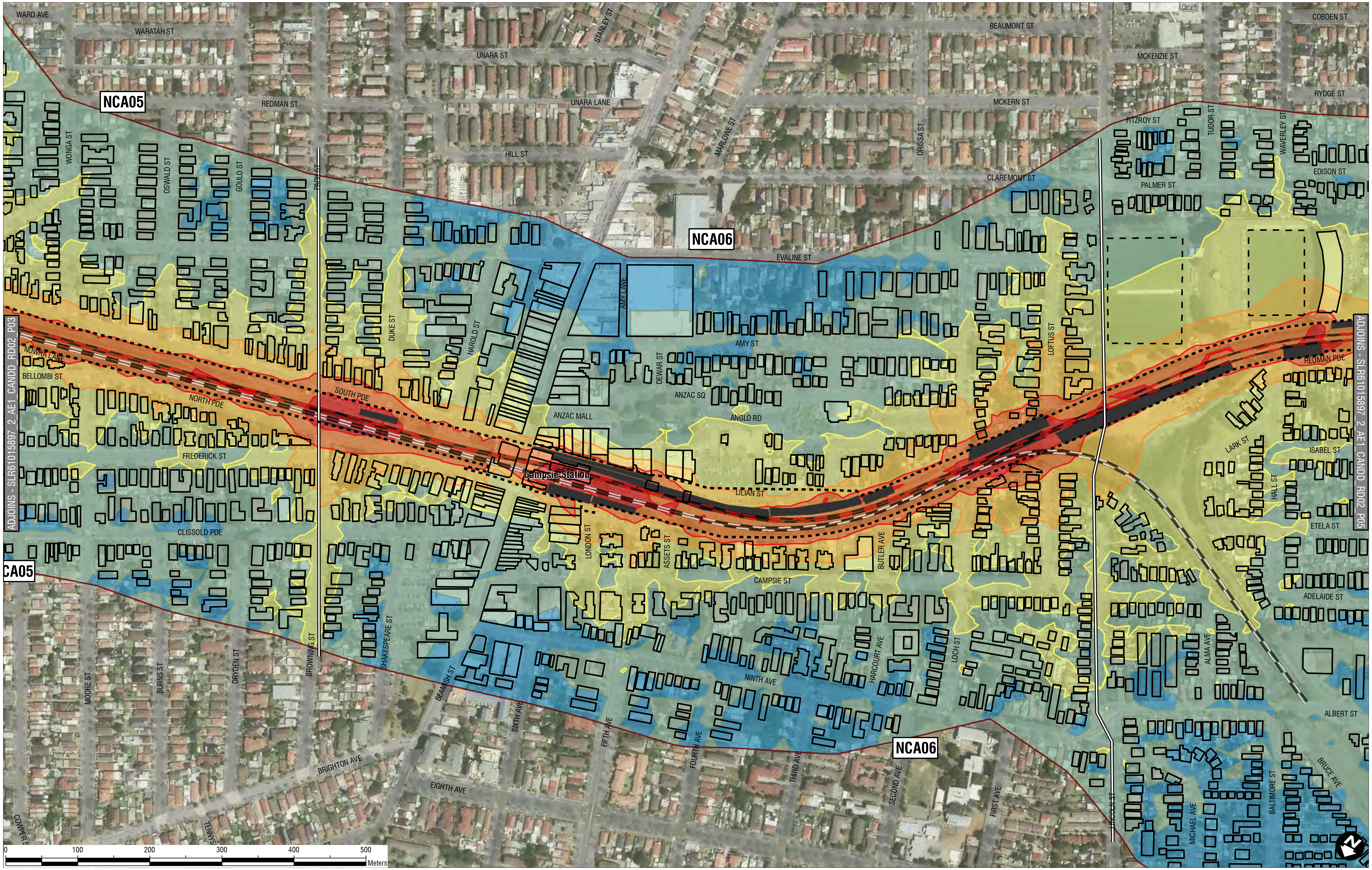

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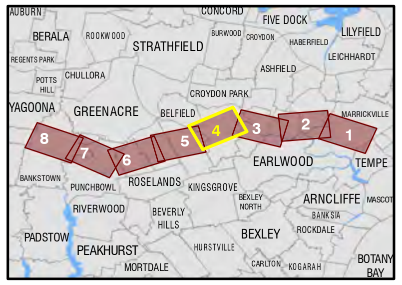

Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks
Noise Contour Calculation Boundary

Worksites
Project Area

Worst Case Daytime Construction Noise

- < 40 dBA
- 40 - 50 dBA
- 50 - 60 dBA
- 60 - 70 dBA
- 70 - 80 dBA
- > 80 dBA

Assessed Receivers

Buildings
Outdoor

Note:
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Construction Airborne Noise Contours
Worst-case Daytime
Construction Noise Predictions

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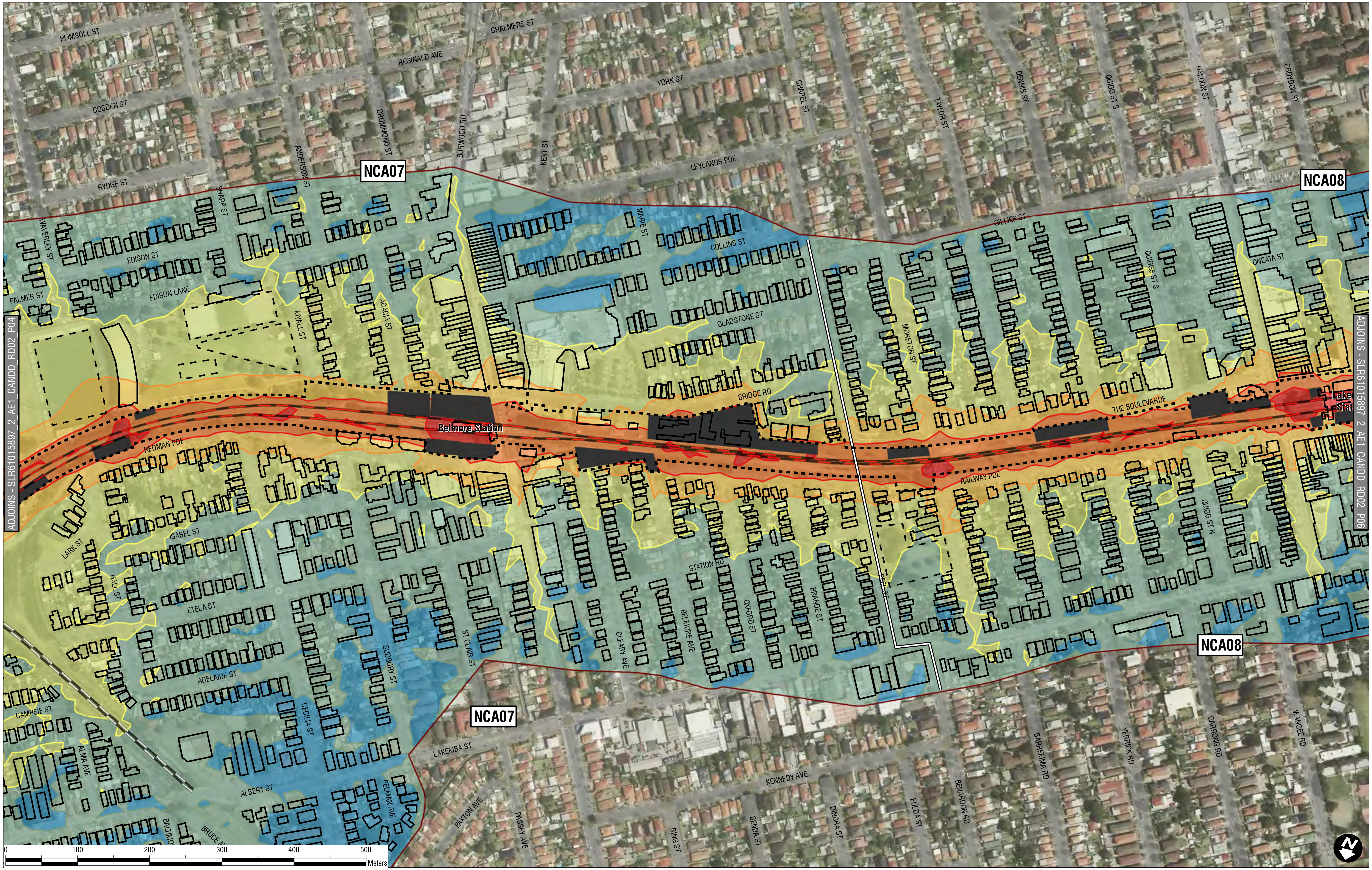

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Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks
Noise Contour Calculation Boundary

Worksites
Project Area

Worst Case Daytime Construction Noise
- < 40 dBA
- 40 - 50 dBA
- 50 - 60 dBA
- 60 - 70 dBA
- 70 - 80 dBA
- > 80 dBA

Assessed Receivers
- Buildings
- Outdoor

Note:
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Construction Airborne Noise Contours
Worst-case Daytime
Construction Noise Predictions

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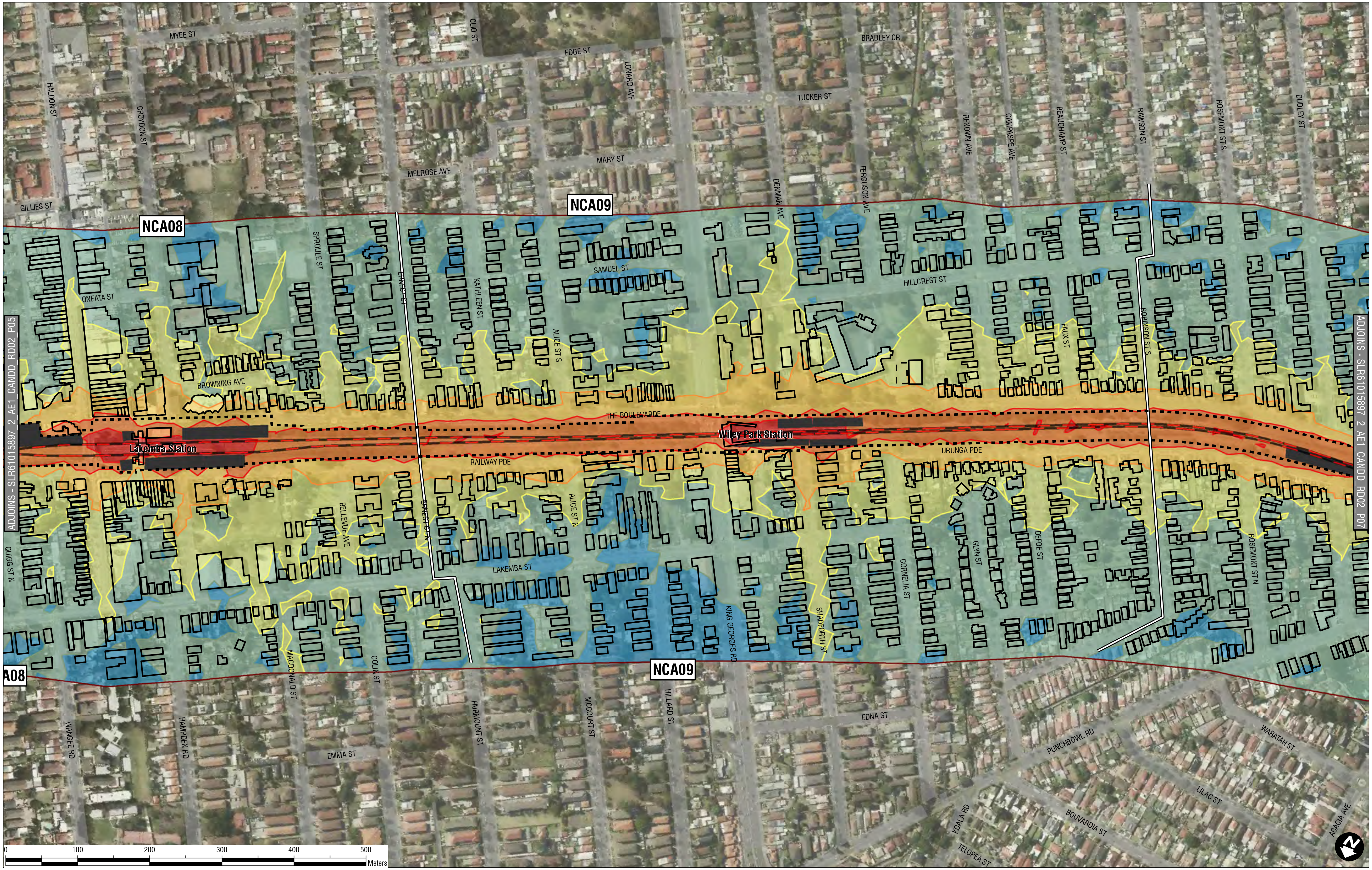

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Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks
Noise Contour Calculation Boundary

Worksites
Project Area

Worst Case Daytime Construction Noise
< 40 dBA
40 - 50 dBA
50 - 60 dBA
60 - 70 dBA
70 - 80 dBA
> 80 dBA

Assessed Receivers
Buildings
Outdoor

Note:
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Construction Airborne Noise Contours
Worst-case Daytime
Construction Noise Predictions

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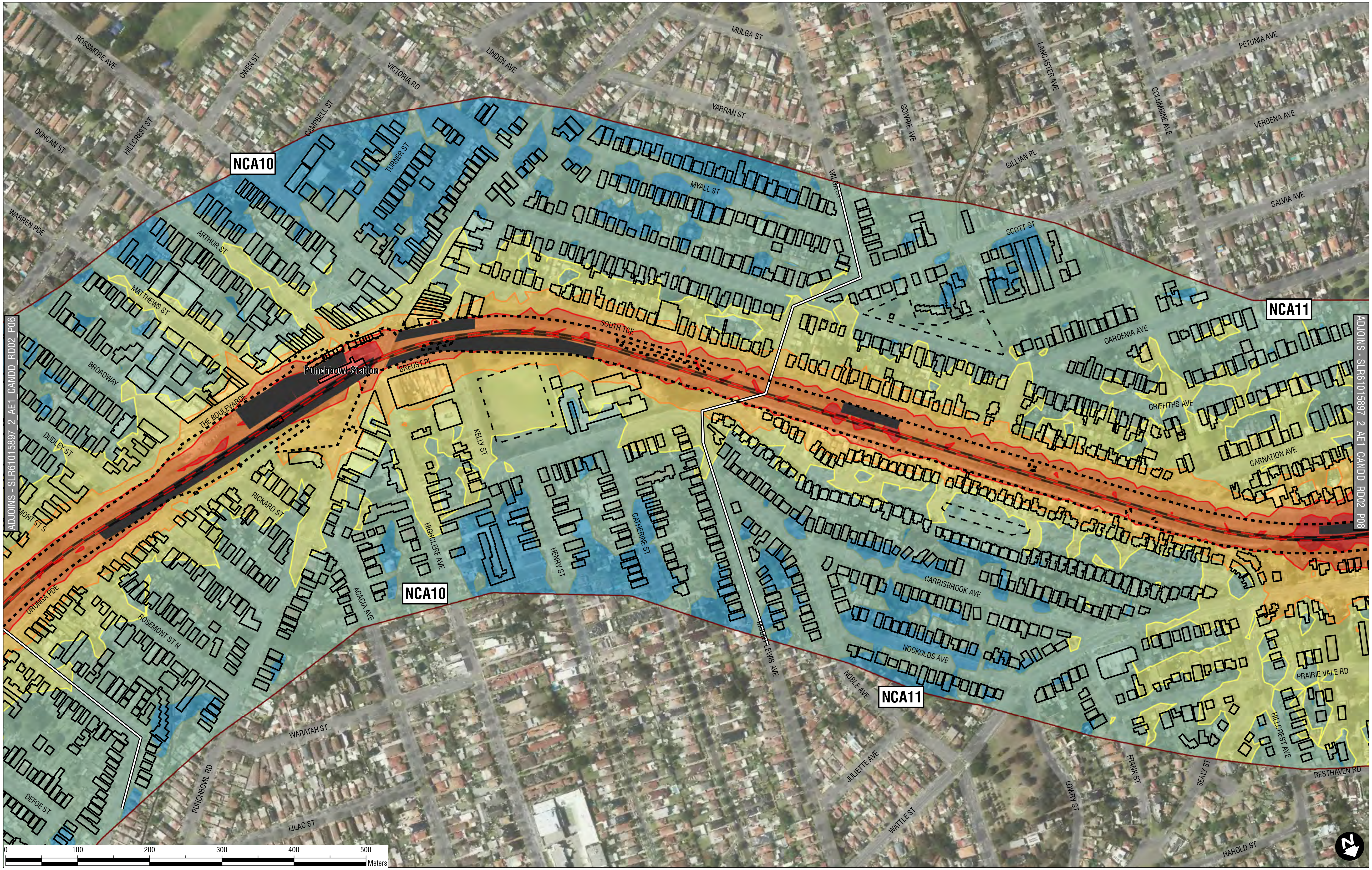

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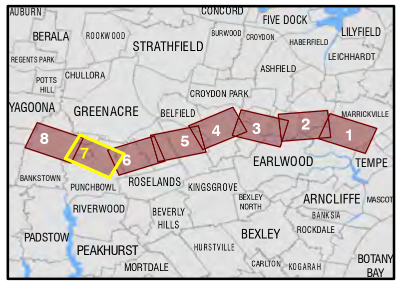

Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks
Noise Contour Calculation Boundary

Worksites
Project Area

Worst Case Daytime Construction Noise
- < 40 dBA
- 40 - 50 dBA
- 50 - 60 dBA
- 60 - 70 dBA
- 70 - 80 dBA
- > 80 dBA

Assessed Receivers
- Buildings
- Outdoor

Note:
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Construction Airborne Noise Contours
Worst-case Daytime
Construction Noise Predictions

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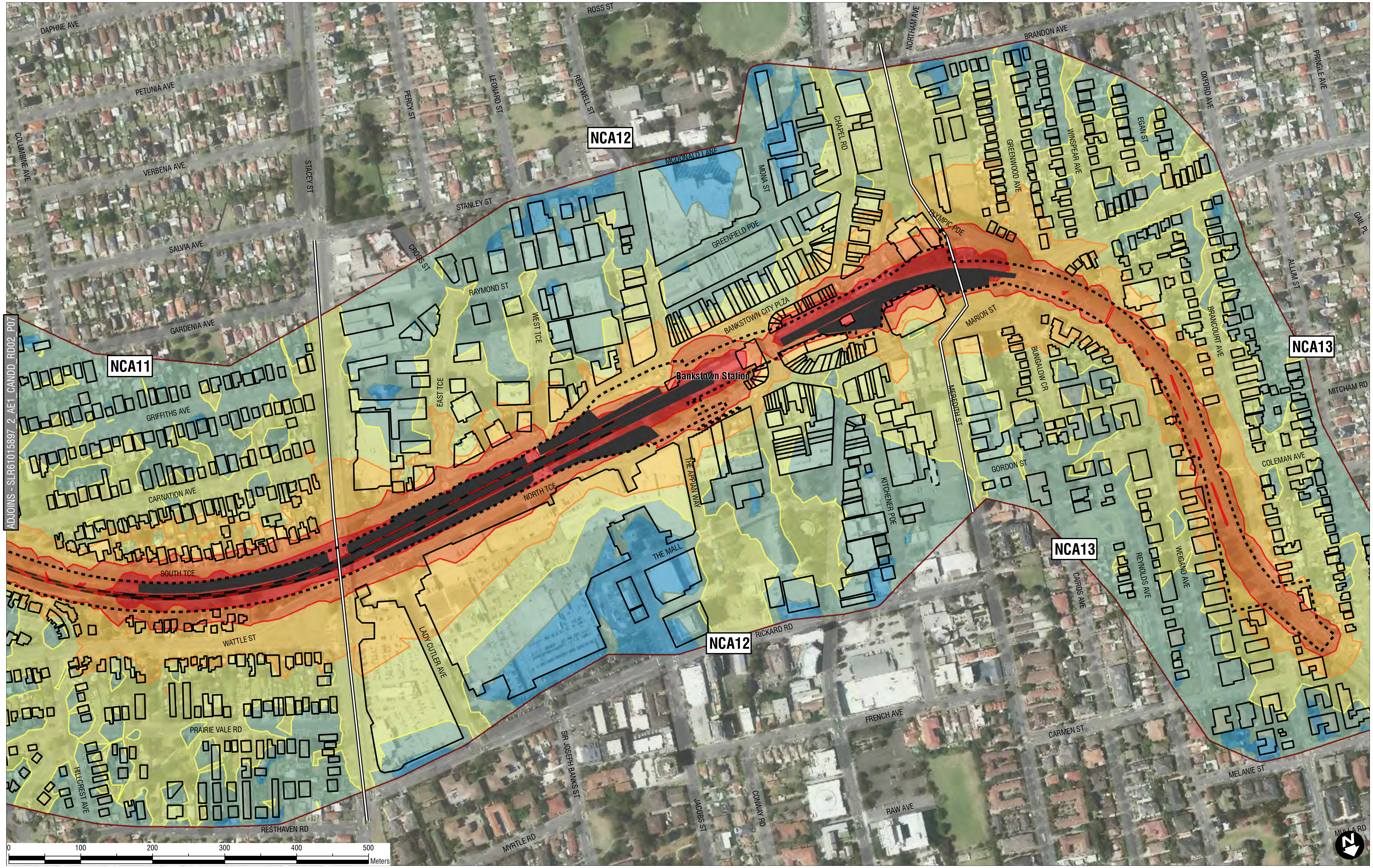

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Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks
Noise Contour Calculation Boundary

Worksites
Project Area

Worst Case Daytime Construction Noise

- < 40 dBA
- 40 - 50 dBA
- 50 - 60 dBA
- 60 - 70 dBA
- 70 - 80 dBA
- > 80 dBA

Assessed Receivers

- Buildings
- Outdoor

Note:
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Construction Airborne Noise Contours
Worst-case Daytime
Construction Noise Predictions

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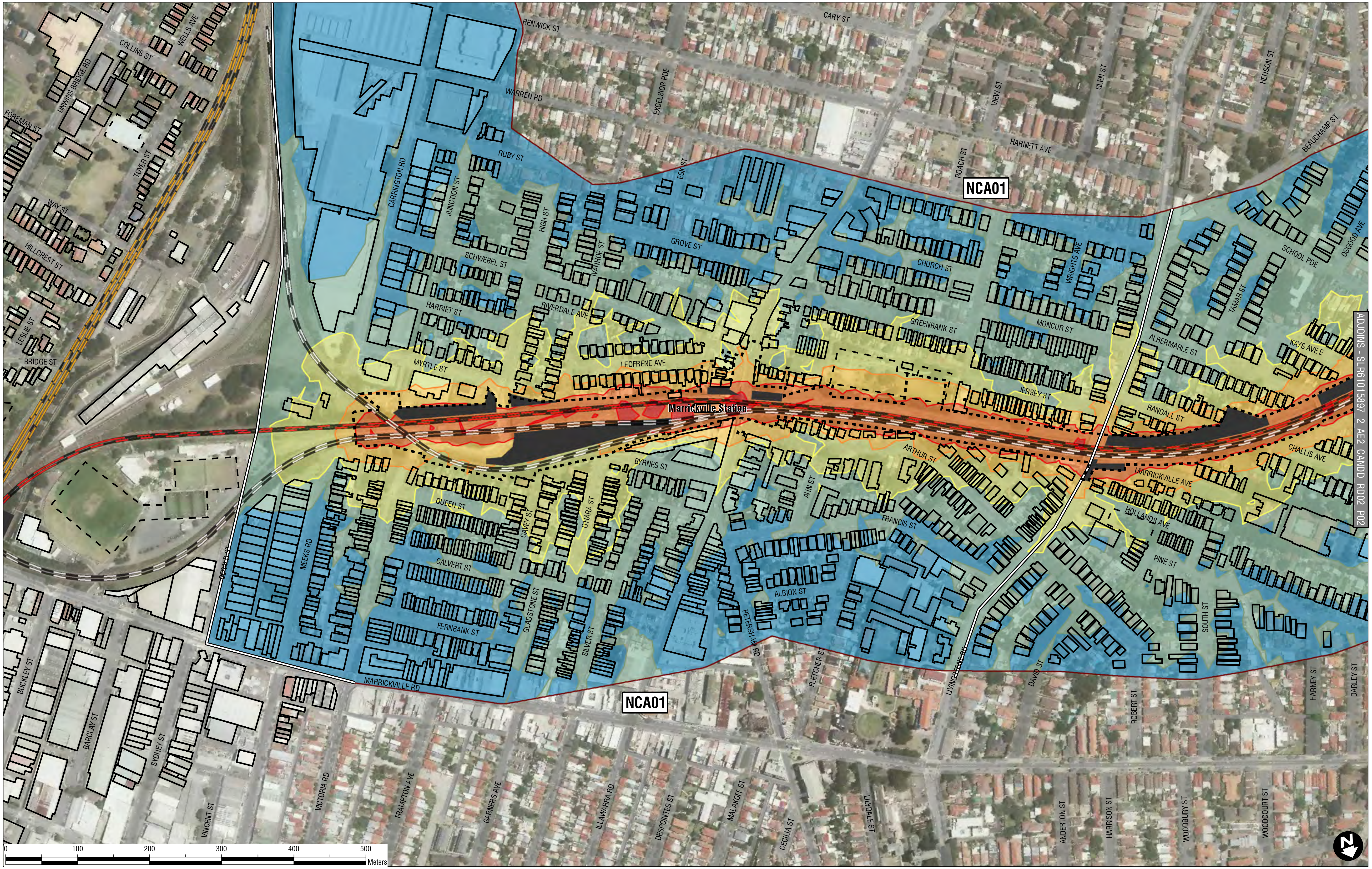
Appendix A2

Report 610.15897R4

Construction Airborne Noise Contours - Worst-Case Night-time $L_{Aeq(15minute)}$ Construction Noise Predictions



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- Noise Catchment Areas
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- Worksites
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Worst Case Night-time Construction Noise

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- 70 - 80 dBA
- > 80 dBA

Assessed Receivers

- Buildings
- Outdoor

Note:
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Construction Airborne Noise Contours
Worst-case Night-time
Construction Noise Predictions

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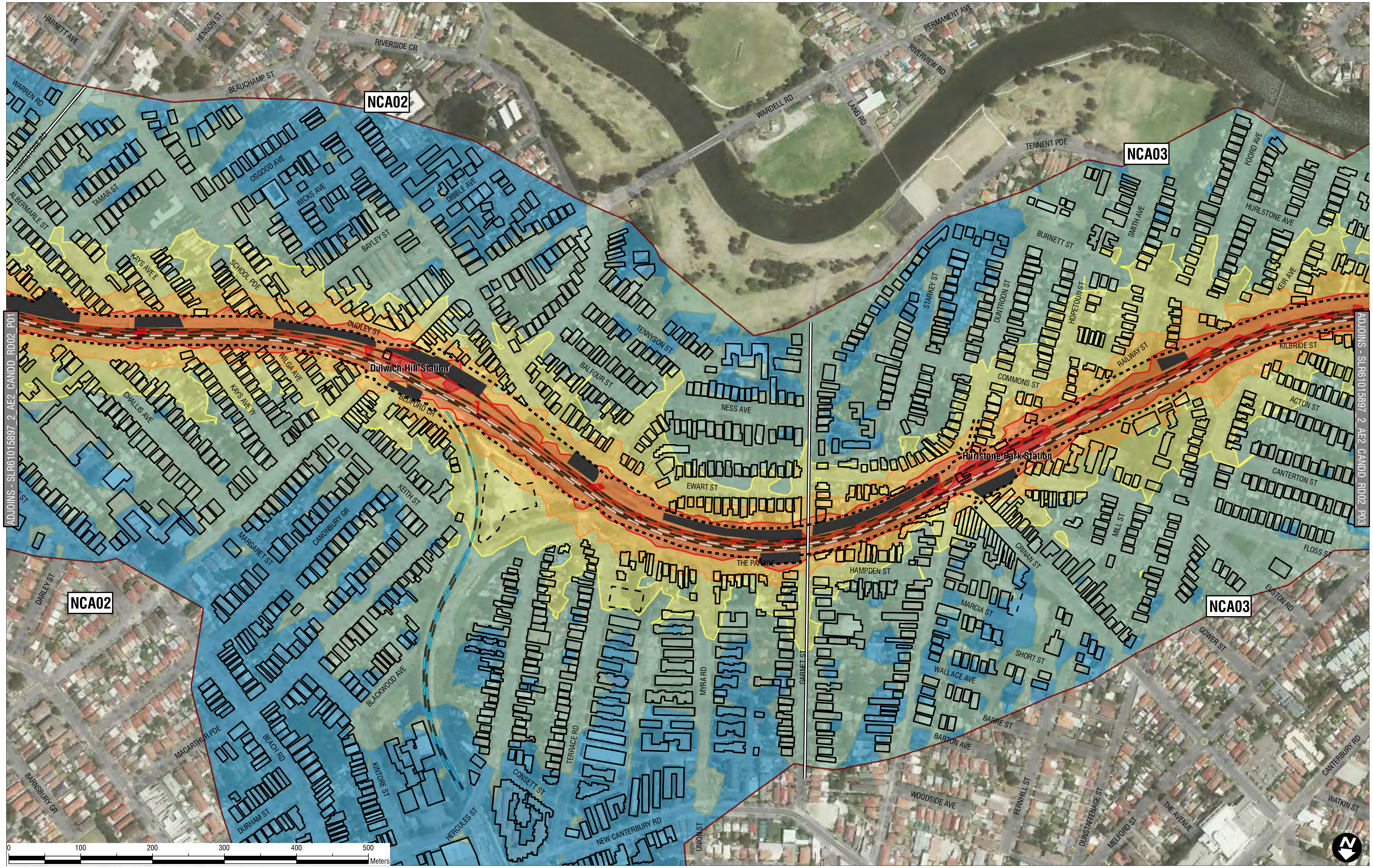

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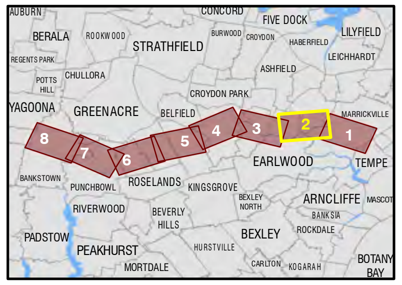

- Noise Catchment Areas
- Freight Rail Tracks
- Light Rail Tracks
- Metro Rail Tracks
- Sydney Trains Rail Tracks
- Noise Contour Calculation Boundary
- Worksites
- Project Area

Worst Case Night-time Construction Noise
- < 40 dBA
- 40 - 50 dBA
- 50 - 60 dBA
- 60 - 70 dBA
- 70 - 80 dBA
- > 80 dBA

Assessed Receivers
- Buildings
- Outdoor

Note:
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Transport for NSW

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Construction Airborne Noise Contours
Worst-case Night-time
Construction Noise Predictions

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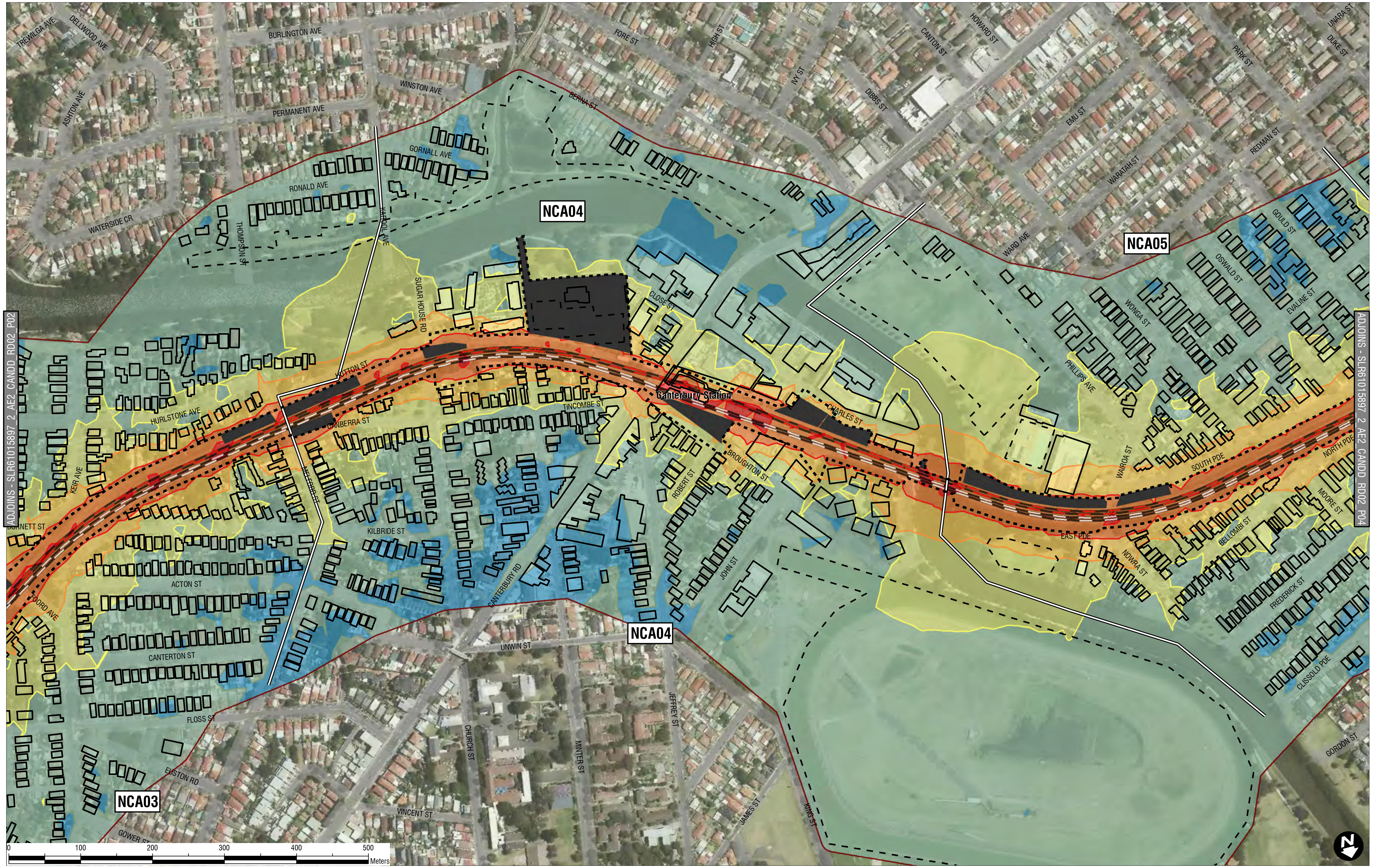

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Noise Catchment Areas
Freight Rail Tracks
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Metro Rail Tracks
Sydney Trains Rail Tracks
Noise Contour Calculation Boundary

Worksites
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Worst Case Night-time Construction Noise
< 40 dBA
40 - 50 dBA
50 - 60 dBA
60 - 70 dBA
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> 80 dBA

Assessed Receivers
Buildings
Outdoor

Note:
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Transport for NSW

Sydney Metro City & Southwest
Sydenham to Bankstown

Construction Airborne Noise Contours
Worst-case Night-time
Construction Noise Predictions

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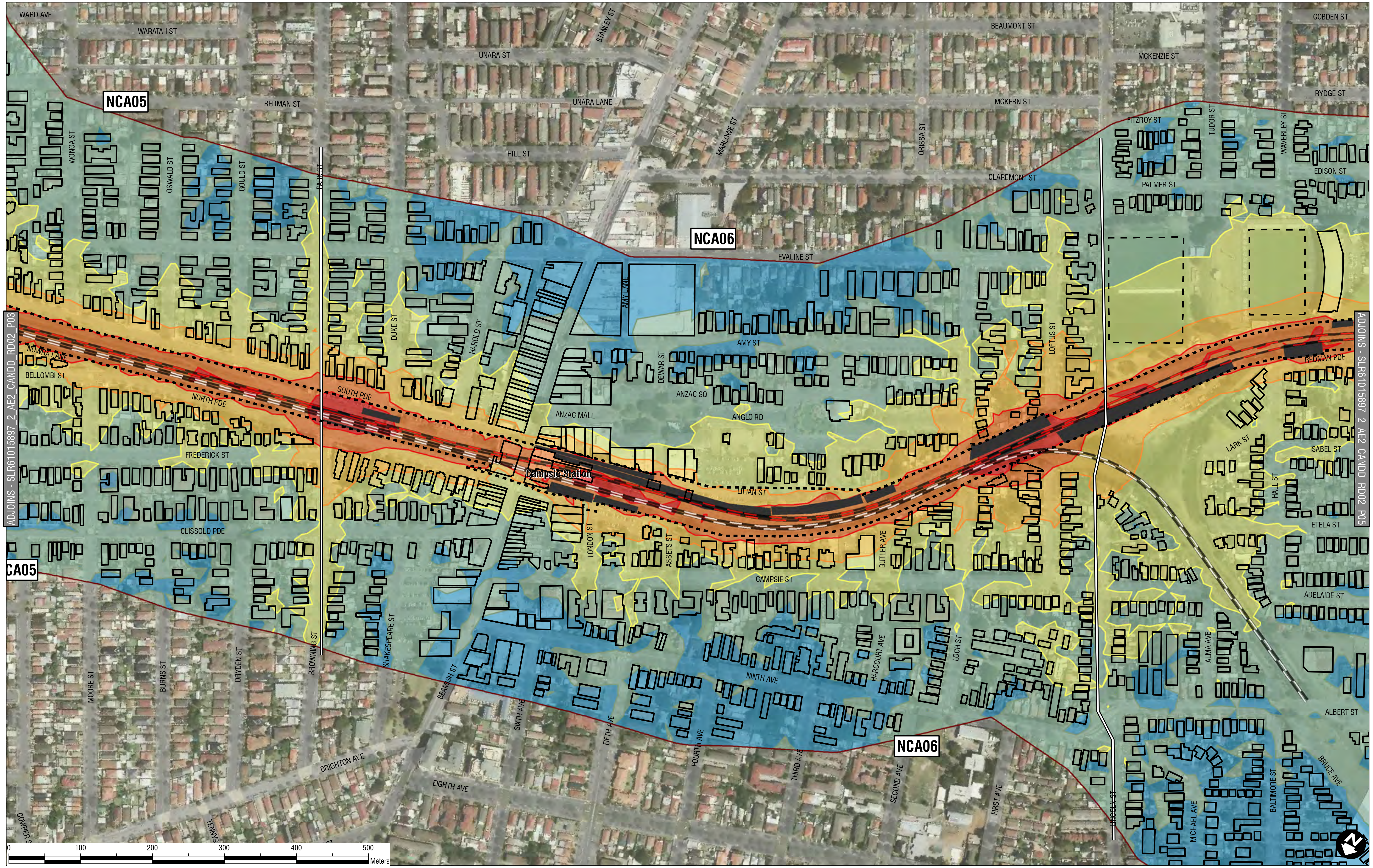

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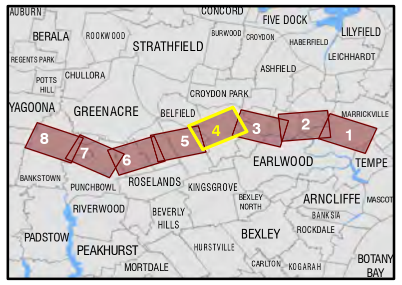

Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks
Noise Contour Calculation Boundary

Worksites
Project Area

Worst Case Night-time Construction Noise
< 40 dBA
40 - 50 dBA
50 - 60 dBA
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70 - 80 dBA
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Assessed Receivers
Buildings
Outdoor

Note:
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Transport for NSW

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Construction Airborne Noise Contours
Worst-case Night-time
Construction Noise Predictions

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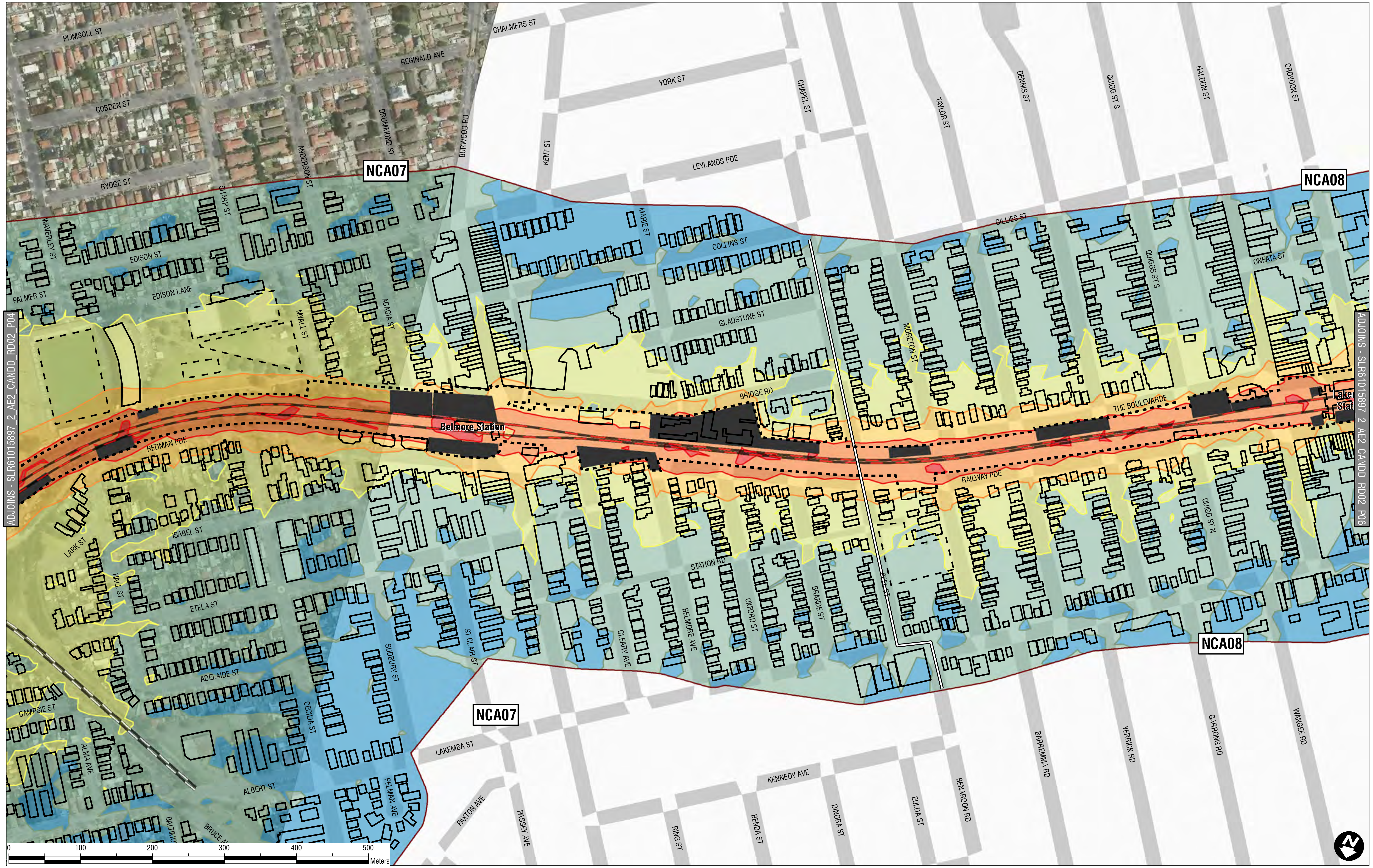

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Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks
Noise Contour Calculation Boundary

Worksites
Project Area

Worst Case Night-time Construction Noise
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- 40 - 50 dBA
- 50 - 60 dBA
- 60 - 70 dBA
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- > 80 dBA

Assessed Receivers
- Buildings
- Outdoor

Note:
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Transport for NSW

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Construction Airborne Noise Contours
Worst-case Night-time
Construction Noise Predictions

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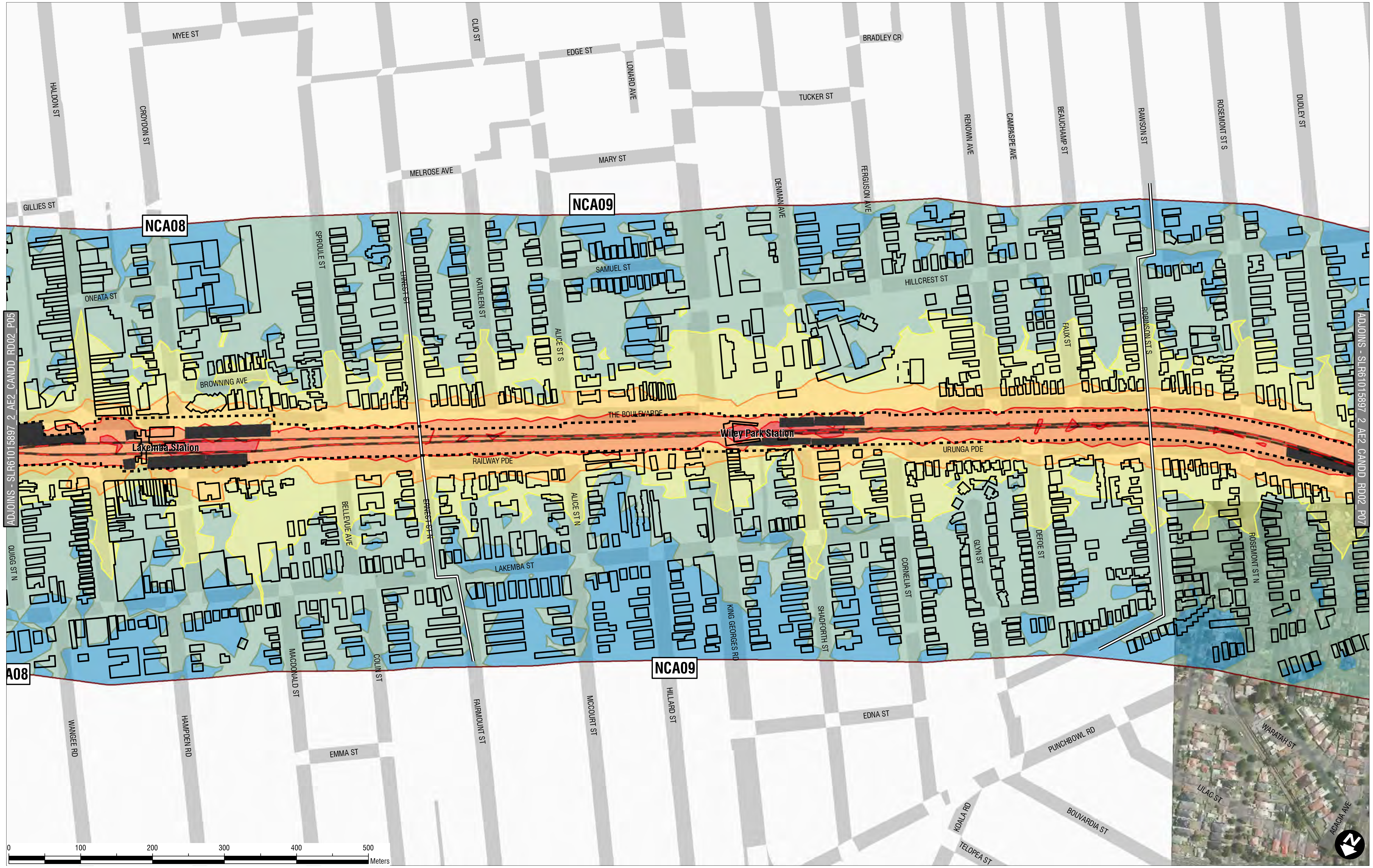

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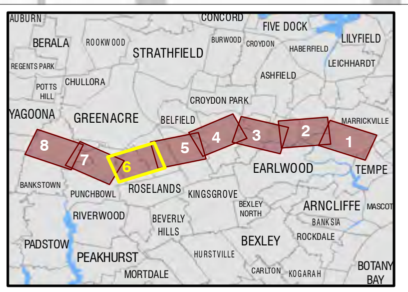

Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks
Noise Contour Calculation Boundary

Worksites
Project Area

Worst Case Night-time Construction Noise
- < 40 dBA
- 40 - 50 dBA
- 50 - 60 dBA
- 60 - 70 dBA
- 70 - 80 dBA
- > 80 dBA

Assessed Receivers
- Buildings
- Outdoor

Note:
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Transport for NSW

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Construction Airborne Noise Contours
Worst-case Night-time
Construction Noise Predictions

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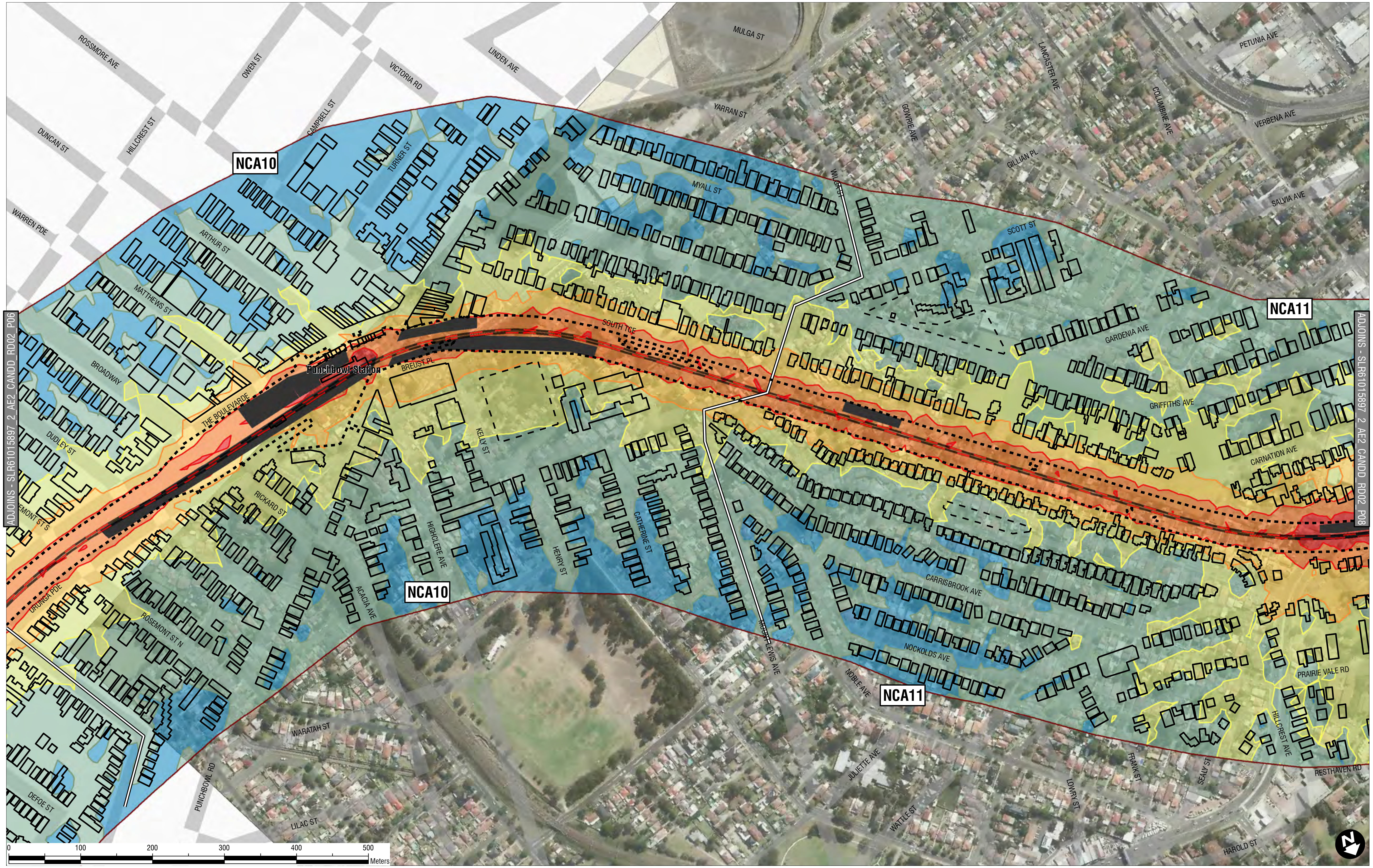

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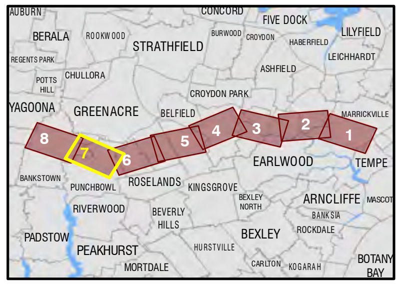

Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks
Noise Contour Calculation Boundary

Worksites
Project Area

Worst Case Night-time Construction Noise
< 40 dBA
40 - 50 dBA
50 - 60 dBA
60 - 70 dBA
70 - 80 dBA
> 80 dBA

Assessed Receivers
Buildings
Outdoor

Note:
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Construction Noise Predictions

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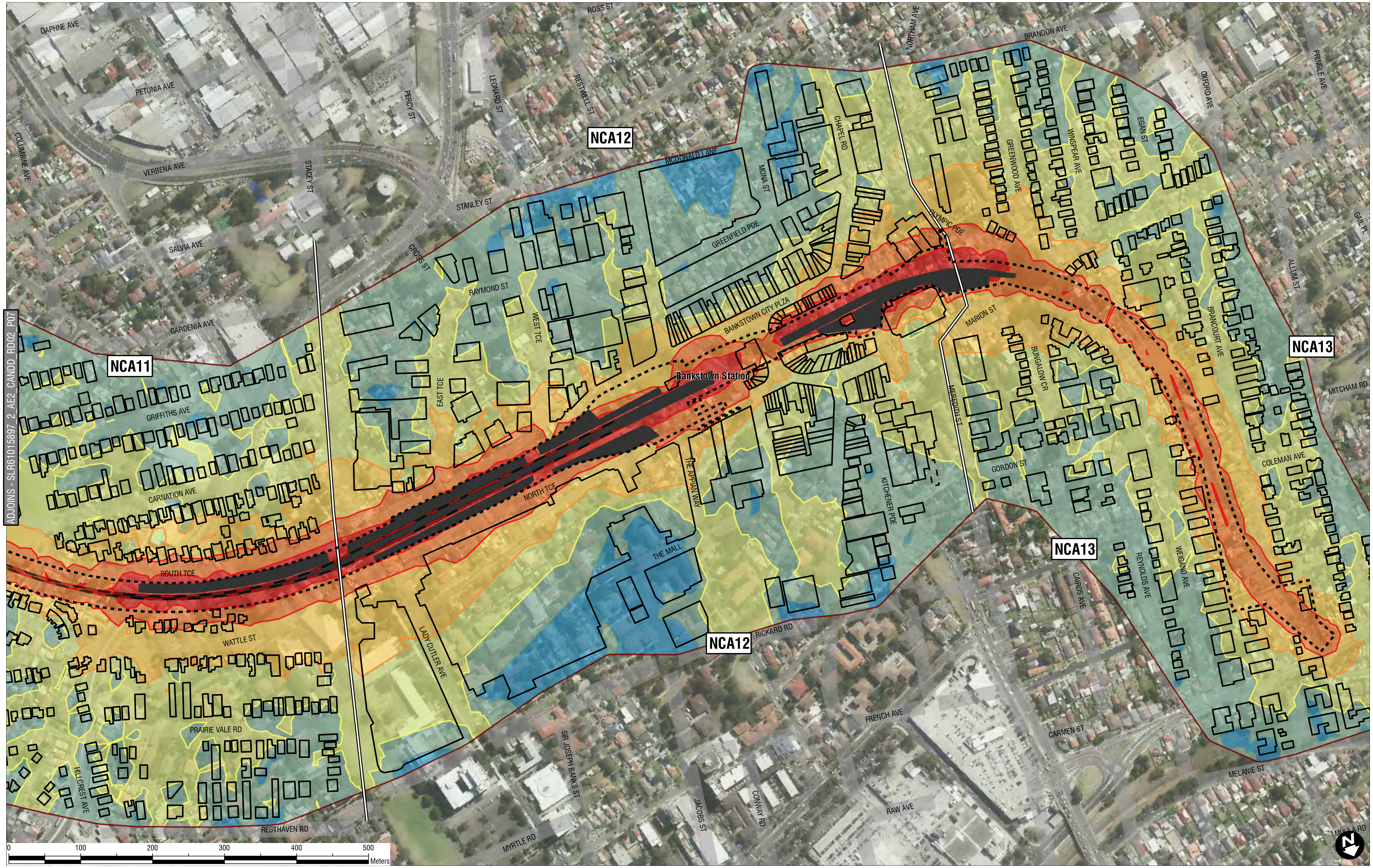

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Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks
Noise Contour Calculation Boundary

Worksites
Project Area

Worst Case Night-time Construction Noise

- < 40 dBA
- 40 - 50 dBA
- 50 - 60 dBA
- 60 - 70 dBA
- 70 - 80 dBA
- > 80 dBA

Assessed Receivers

- Buildings
- Outdoor

Note:
*Noise contours are indicative and represent the worst-case noise levels predicted for all scenarios operating in the period.

Transport for NSW

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Construction Airborne Noise Contours
Worst-case Night-time
Construction Noise Predictions

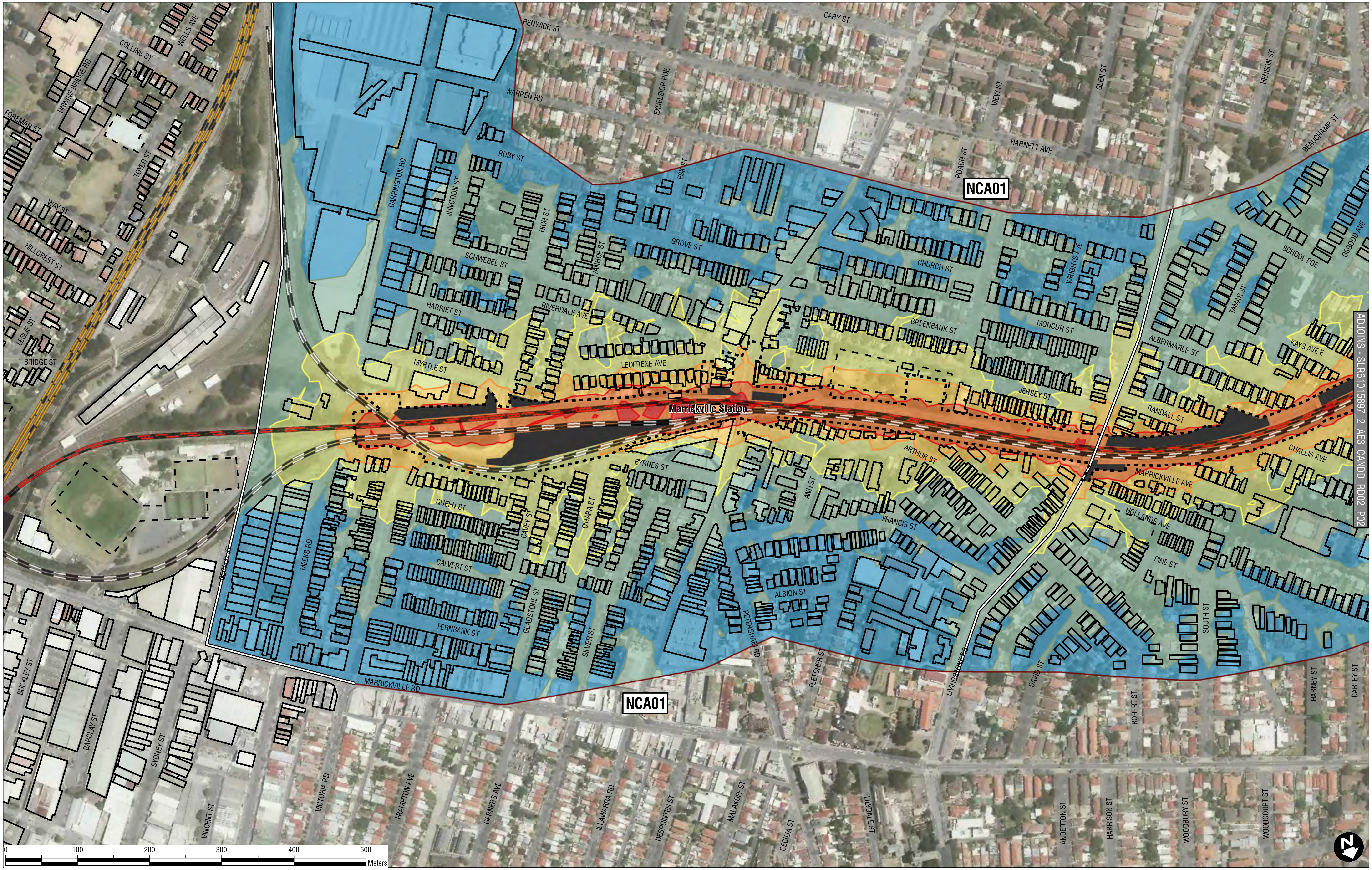
SLR61015897_2_AE2_CANDD_RD02_P08

Appendix A3

Report 610.15897R4

Construction Airborne Noise Contours

Worst-Case Night-time $L_{Aeq(15minute)}$ (No Ballast Tamper) Construction Noise Predictions



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Light Rail Tracks
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Worksites
Project Area

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- 50 - 60 dBA
- 60 - 70 dBA
- 70 - 80 dBA
- > 80 dBA

Assessed Receivers

- Buildings
- Outdoor

Note:
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Construction Airborne Noise Contours Worst-case Night-time (No Ballast Tamper) Construction Noise Predictions

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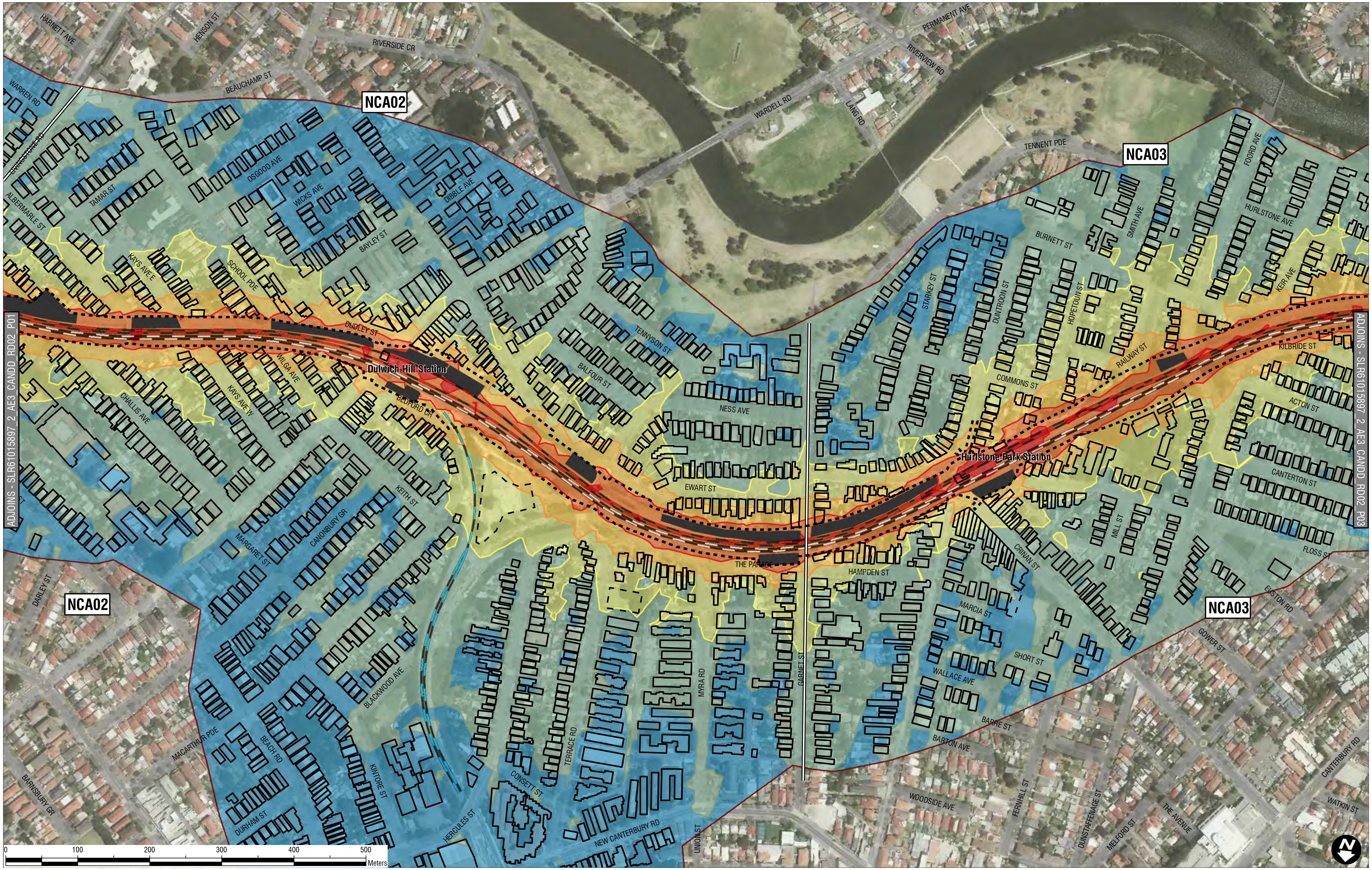

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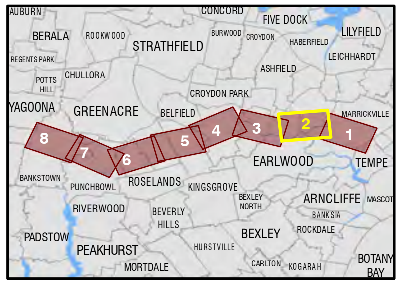

Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks
Noise Contour Calculation Boundary

Worksites
Project Area

Worst Case Night-time Construction Noise
- < 40 dBA
- 40 - 50 dBA
- 50 - 60 dBA
- 60 - 70 dBA
- 70 - 80 dBA
- > 80 dBA

Assessed Receivers
- Buildings
- Outdoor

Note:
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Sydney Metro City & Southwest
Sydenham to Bankstown

Construction Airborne Noise Contours
Worst-case Night-time (No Ballast Tamper) Construction Noise Predictions

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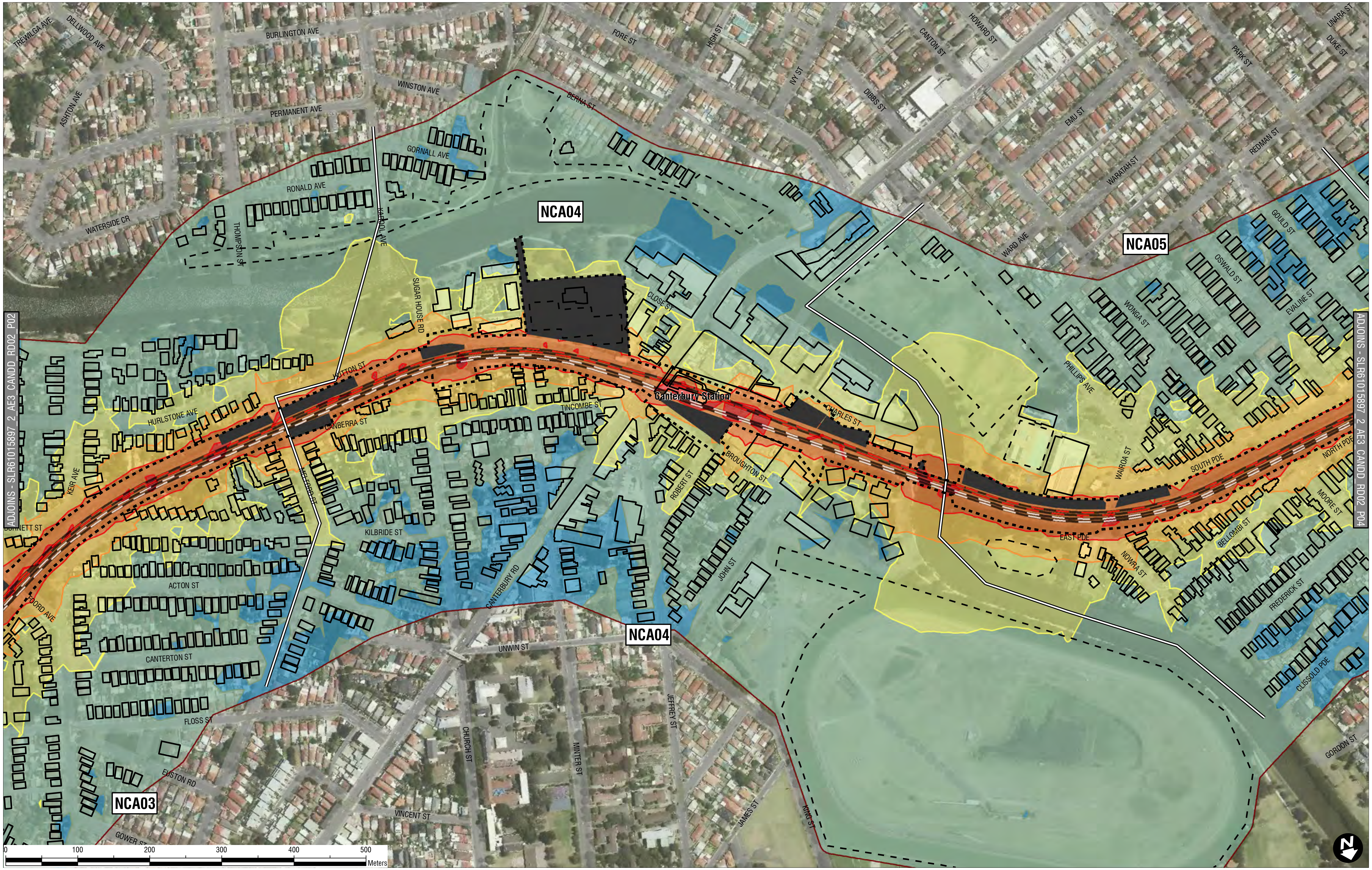

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- Noise Catchment Areas
- Freight Rail Tracks
- Light Rail Tracks
- Metro Rail Tracks
- Sydney Trains Rail Tracks
- Noise Contour Calculation Boundary
- Worksites
- Project Area

Worst Case Night-time Construction Noise
- < 40 dBA
- 40 - 50 dBA
- 50 - 60 dBA
- 60 - 70 dBA
- 70 - 80 dBA
- > 80 dBA

Assessed Receivers
- Buildings
- Outdoor

Note:
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Construction Airborne Noise Contours Worst-case Night-time (No Ballast Tamper) Construction Noise Predictions

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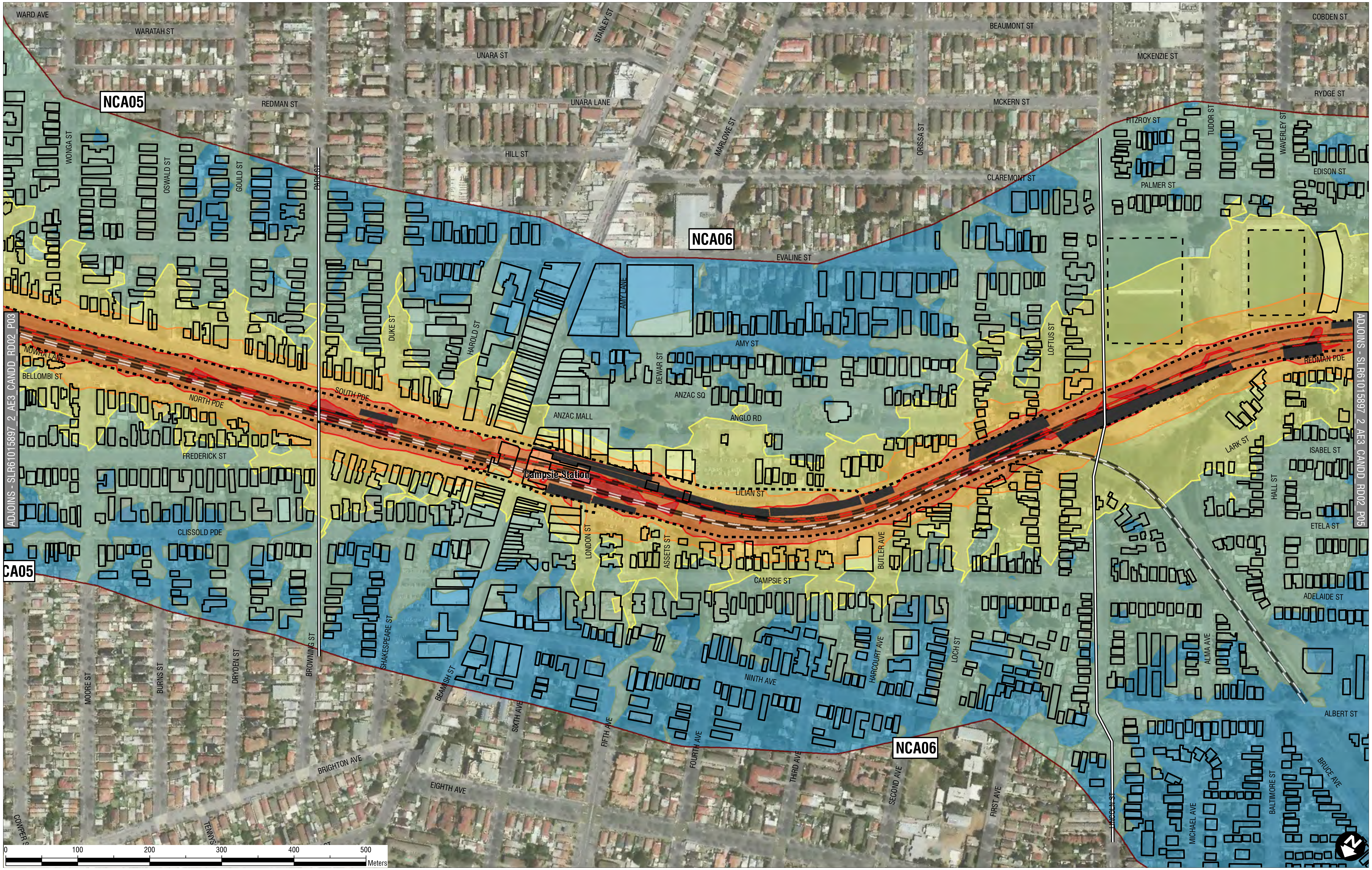

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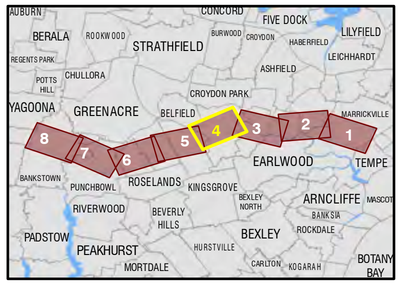

Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks
Noise Contour Calculation Boundary

Worksites
Project Area

Worst Case Night-time Construction Noise

- < 40 dBA
- 40 - 50 dBA
- 50 - 60 dBA
- 60 - 70 dBA
- 70 - 80 dBA
- > 80 dBA

Assessed Receivers

- Buildings
- Outdoor

Note:
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Construction Airborne Noise Contours Worst-case Night-time (No Ballast Tamper) Construction Noise Predictions

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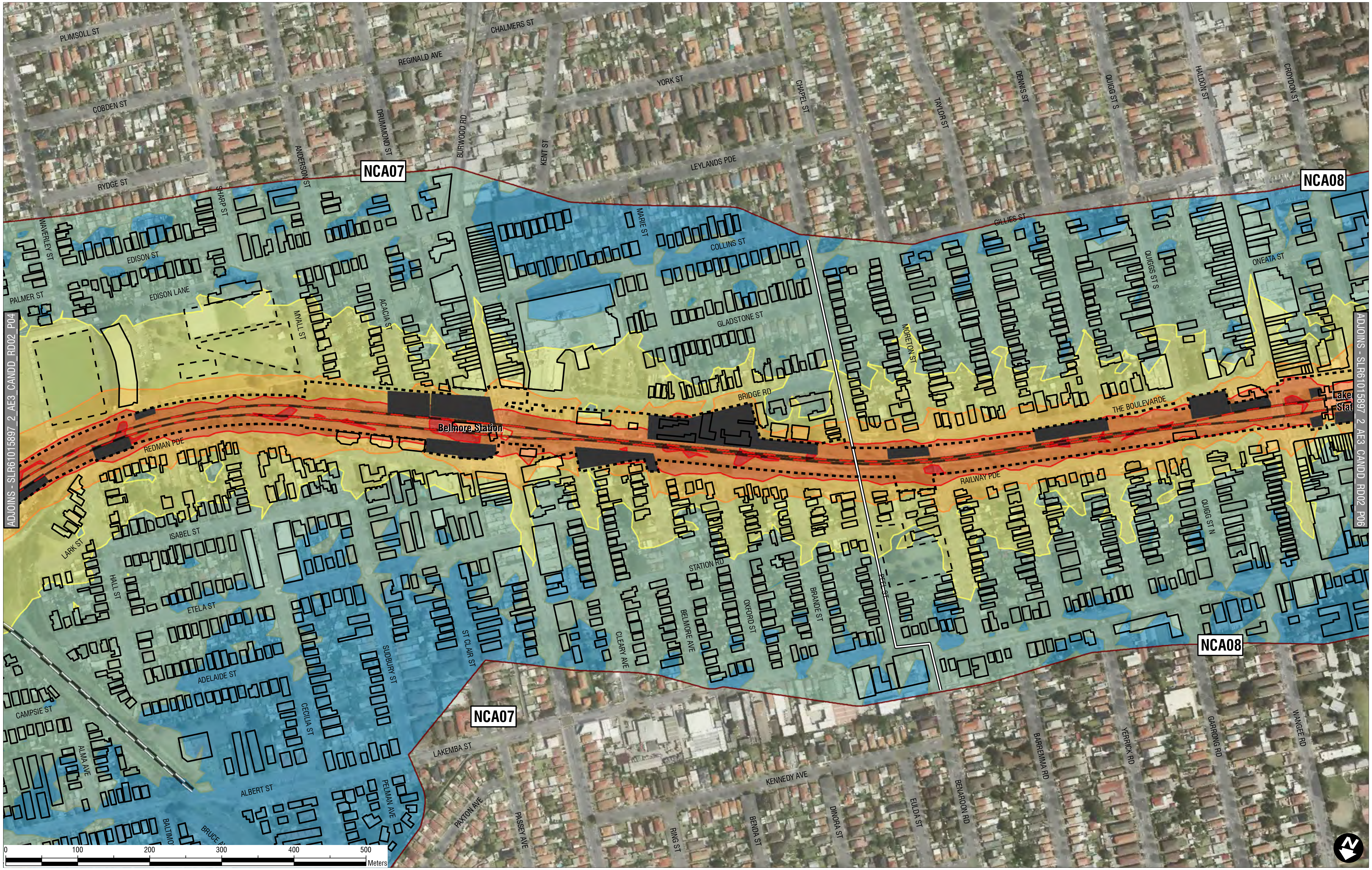

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Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks
Noise Contour Calculation Boundary

Worksites
Project Area

Worst Case Night-time Construction Noise
< 40 dBA
40 - 50 dBA
50 - 60 dBA
60 - 70 dBA
70 - 80 dBA
> 80 dBA

Assessed Receivers
Buildings
Outdoor

Note:
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Construction Airborne Noise Contours Worst-case Night-time (No Ballast Tamper) Construction Noise Predictions

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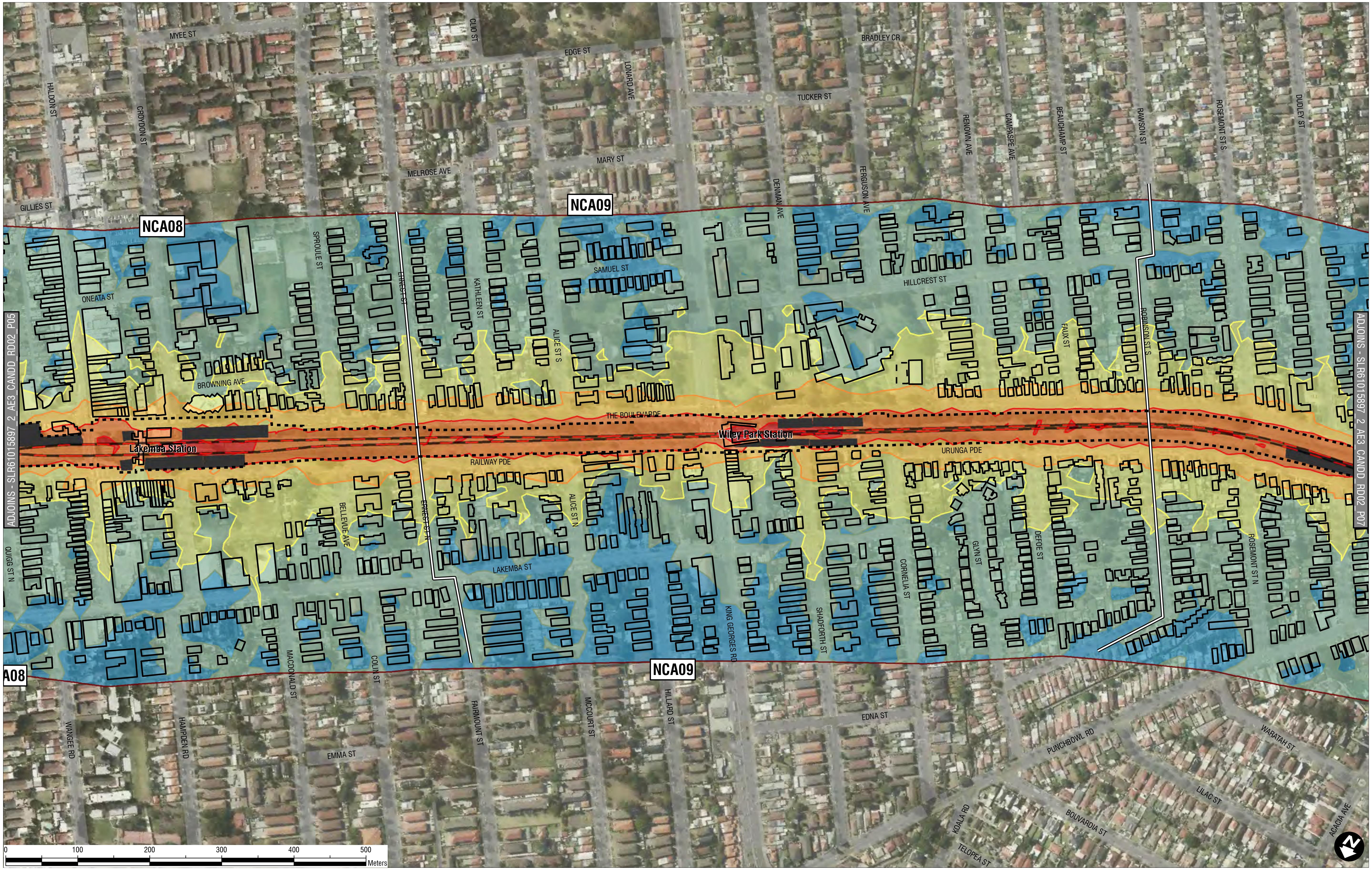

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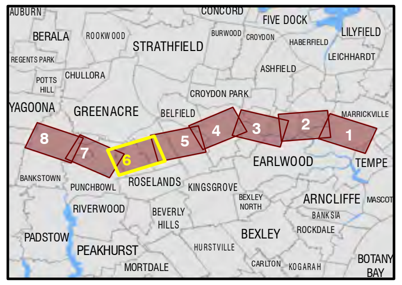

Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks
Noise Contour Calculation Boundary

Worksites
Project Area

Worst Case Night-time Construction Noise
< 40 dBA
40 - 50 dBA
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60 - 70 dBA
70 - 80 dBA
> 80 dBA

Assessed Receivers
Buildings
Outdoor

Note:
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Construction Airborne Noise Contours
Worst-case Night-time (No Ballast Tamper) Construction Noise Predictions

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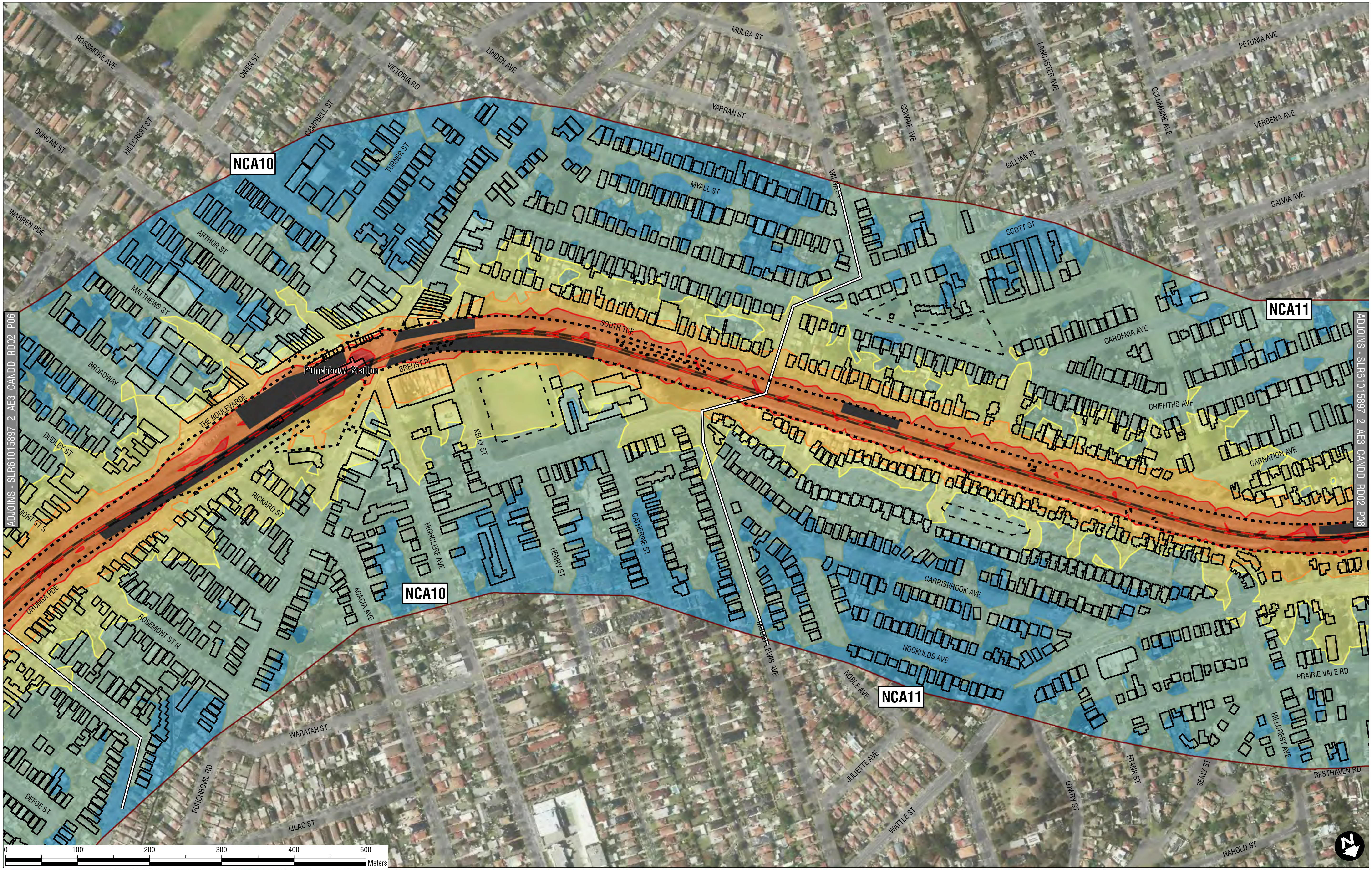

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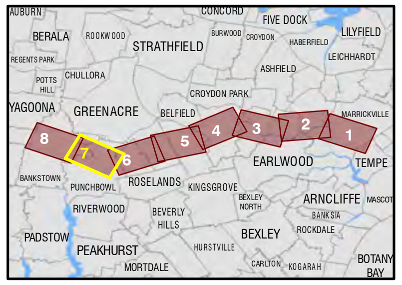

Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks
Noise Contour Calculation Boundary

Worksites
Project Area

Worst Case Night-time Construction Noise

- < 40 dBA
- 40 - 50 dBA
- 50 - 60 dBA
- 60 - 70 dBA
- 70 - 80 dBA
- > 80 dBA

Assessed Receivers

- Buildings
- Outdoor

Note:
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Transport for NSW

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Construction Airborne Noise Contours Worst-case Night-time (No Ballast Tamper) Construction Noise Predictions

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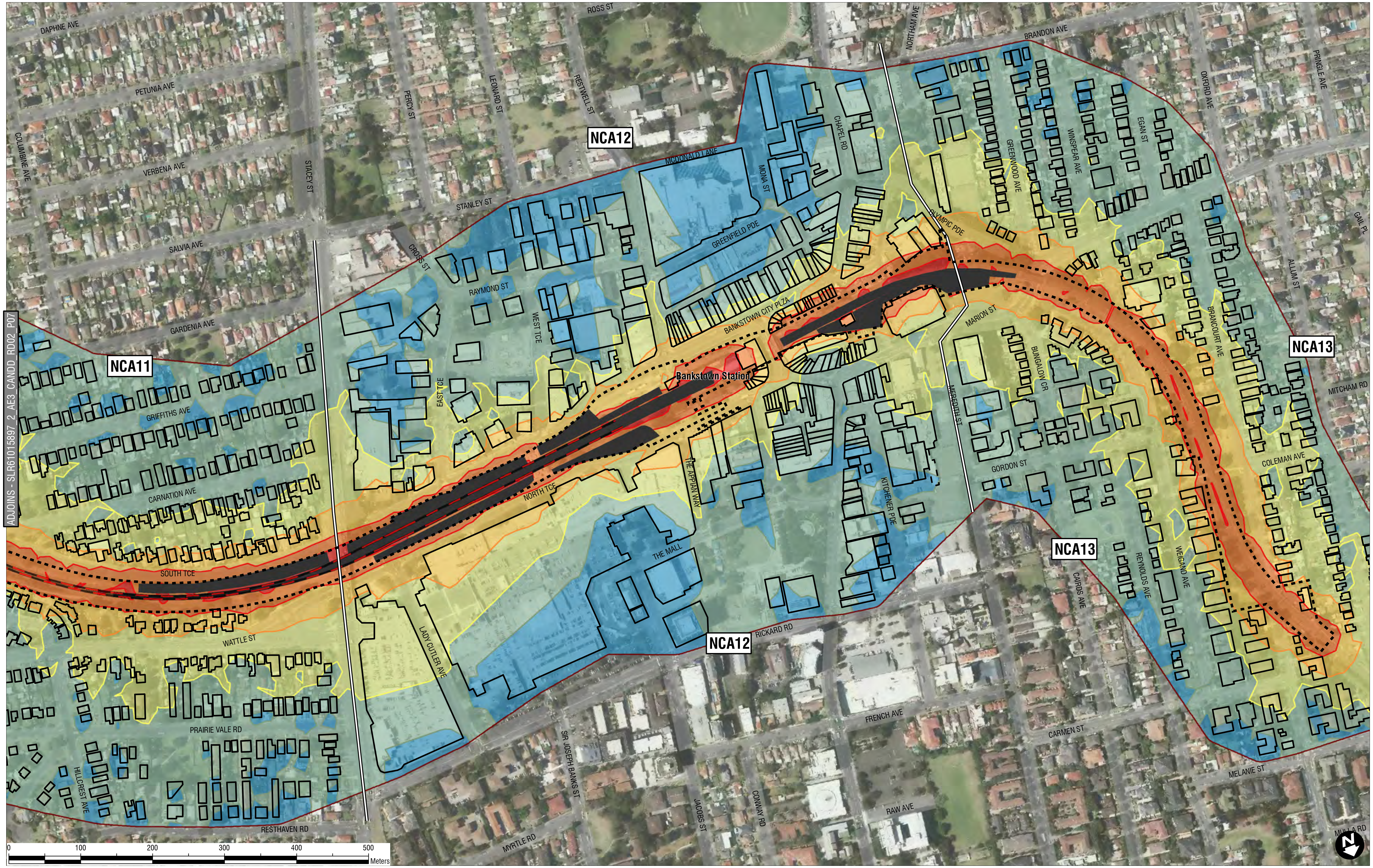

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Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks
Noise Contour Calculation Boundary

Worksites
Project Area

Worst Case Night-time Construction Noise
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- 40 - 50 dBA
- 50 - 60 dBA
- 60 - 70 dBA
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- > 80 dBA

Assessed Receivers
- Buildings
- Outdoor

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Transport for NSW

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Sydenham to Bankstown

Construction Airborne Noise Contours Worst-case Night-time (No Ballast Tamper) Construction Noise Predictions

SLR61015897_2_AE3_CANDD_RD02_P08

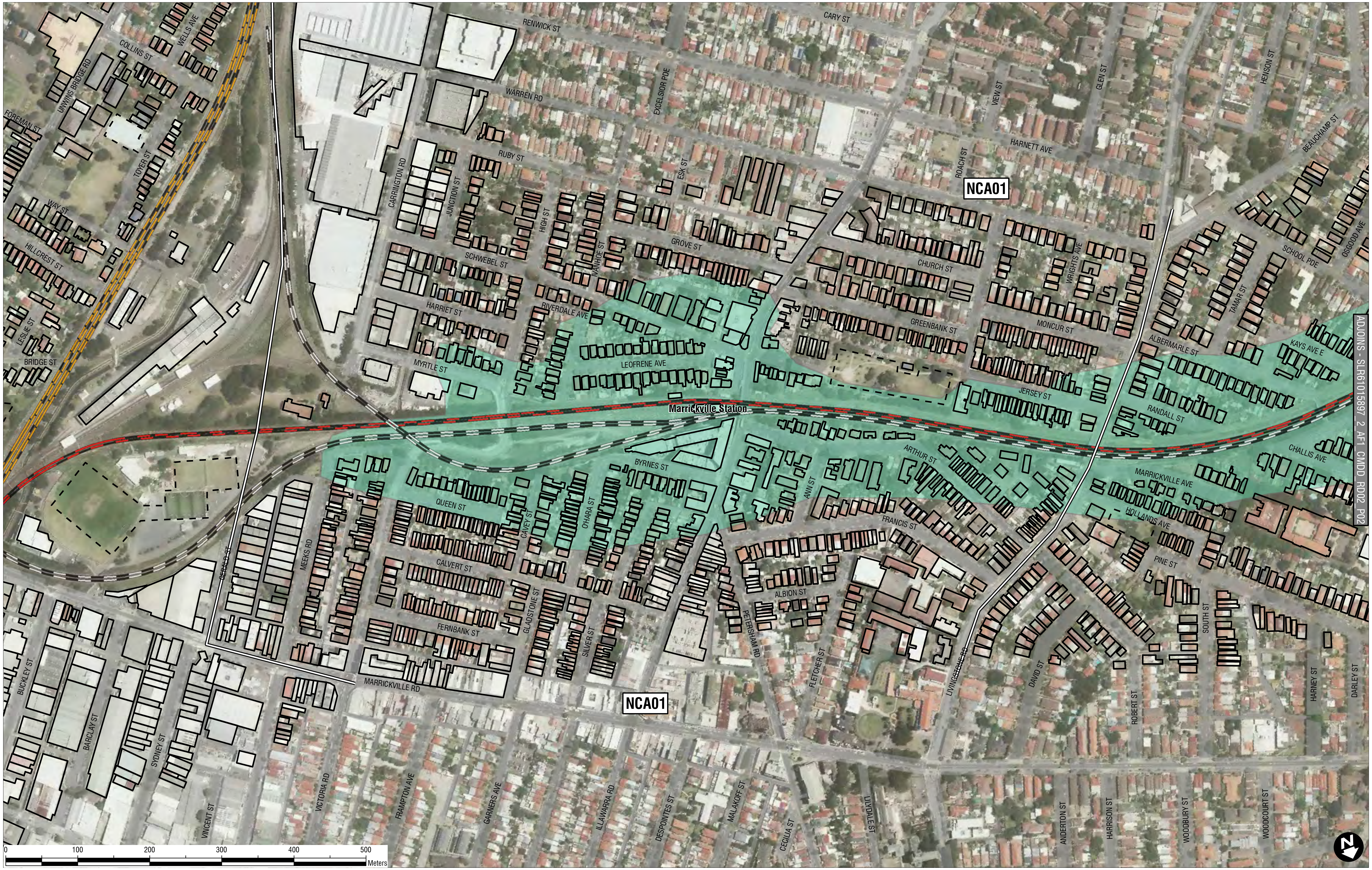
Construction Additional Mitigation

INDEX

Appendix B1

Report 610.15897R4

Construction Additional Mitigation - Construction Mitigation Daytime (Indicative)



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Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks

Construction Mitigation Areas
M, LB

Assessed Receivers
Buildings
Outdoor

Note:
*Construction mitigation areas are indicative
*The two most stringent mitigation categories have been shown only.

Transport for NSW

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Construction Mitigation
Daytime (Indicative)

Page 1 of 8

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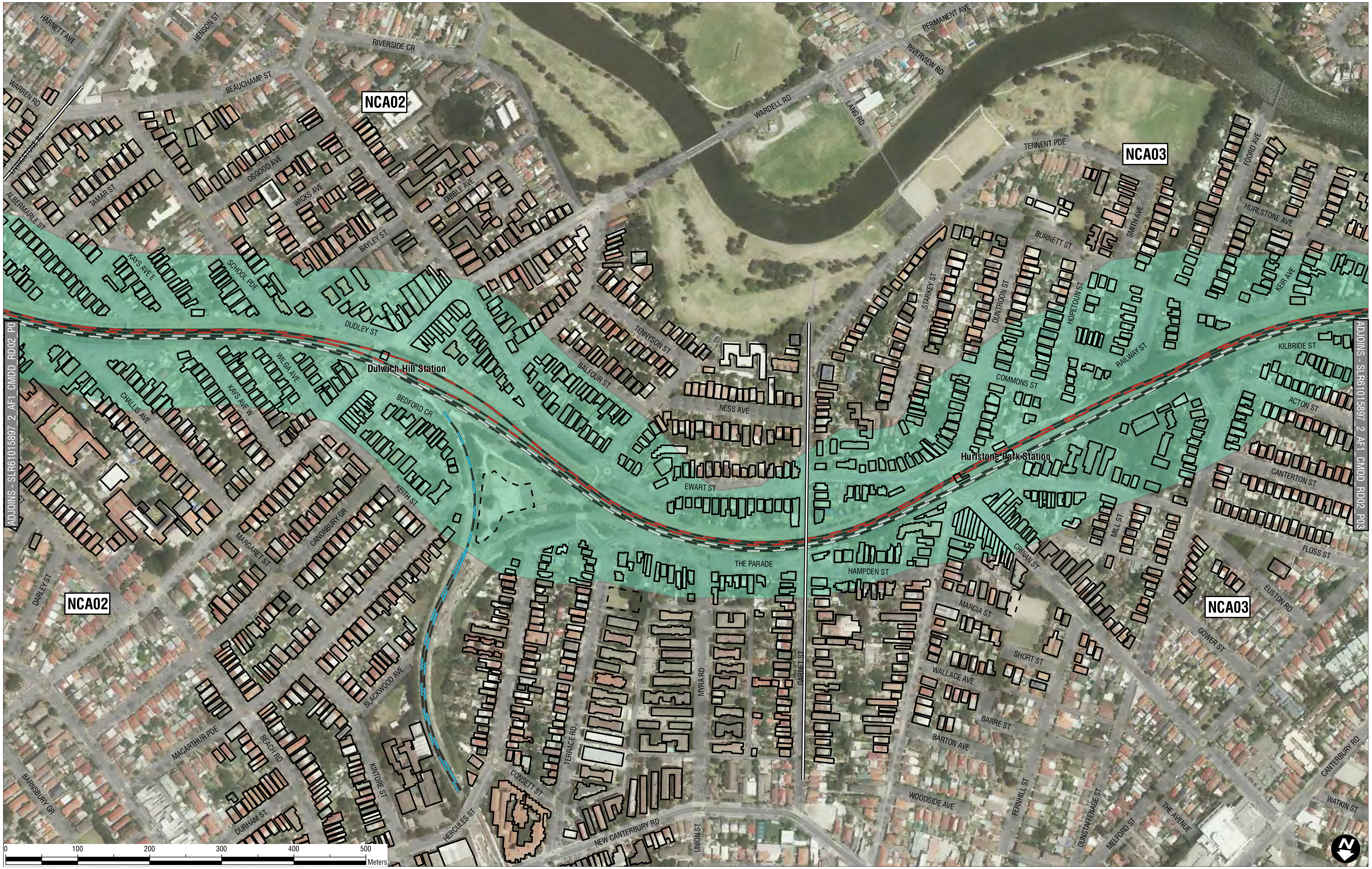

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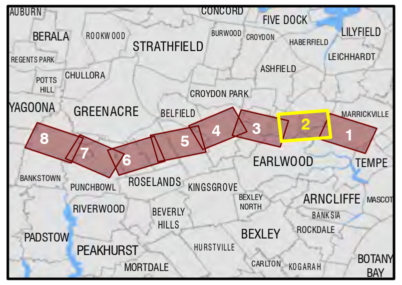

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Assessed Receivers
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Construction Mitigation
Daytime (Indicative)

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Transport for NSW
Sydney Metro City & Southwest
Sydenham to Bankstown
Construction Mitigation
Daytime (Indicative)

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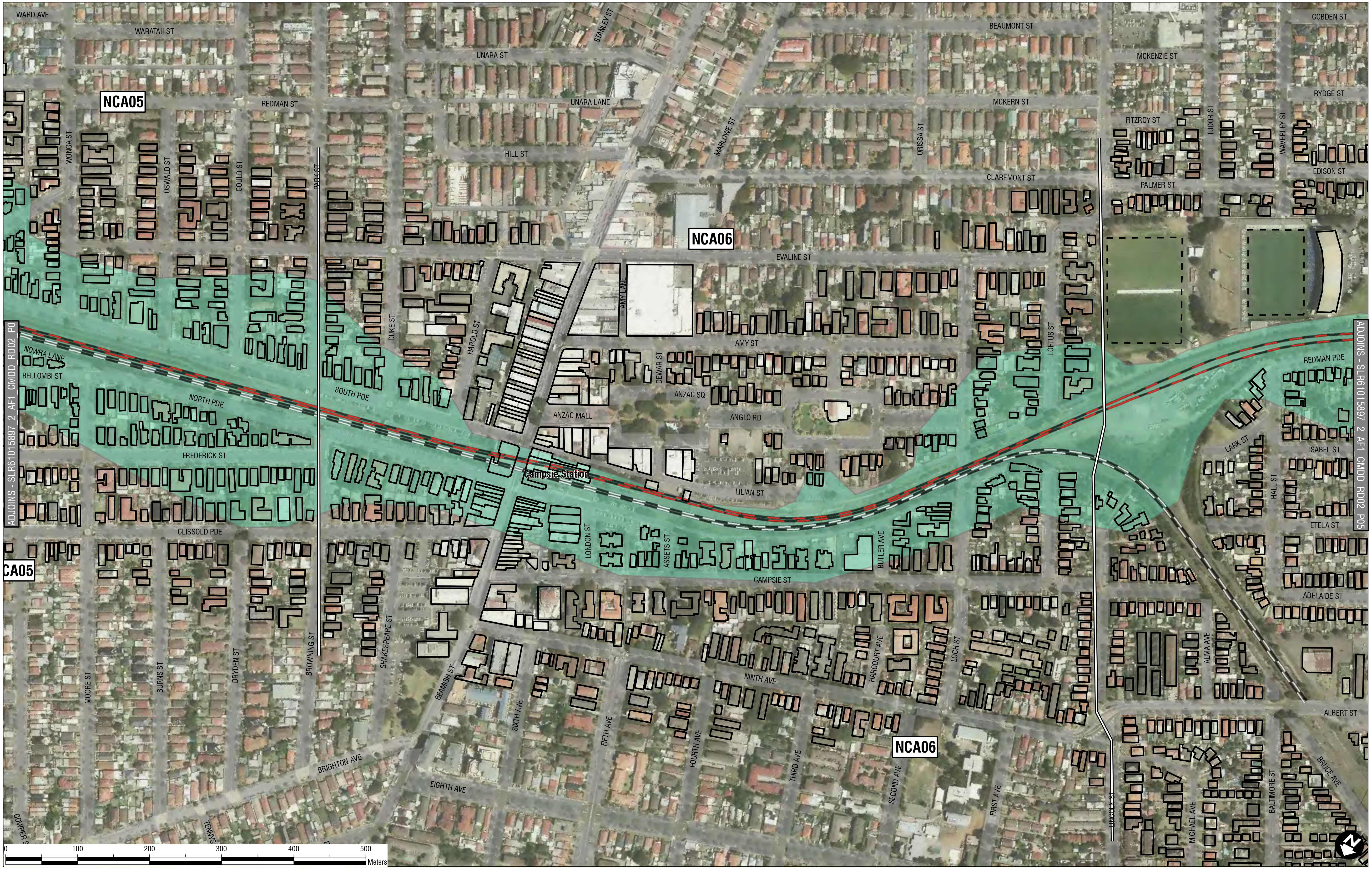

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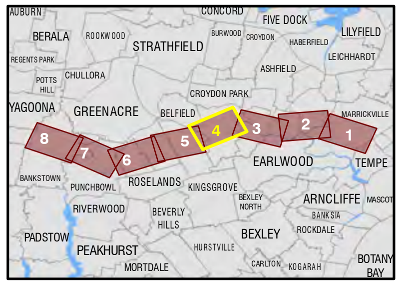

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Metro Rail Tracks
Sydney Trains Rail Tracks

Construction Mitigation Areas
M, LB

Assessed Receivers
Buildings
Outdoor

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Transport for NSW

Sydney Metro City & Southwest
Sydenham to Bankstown

Construction Mitigation
Daytime (Indicative)

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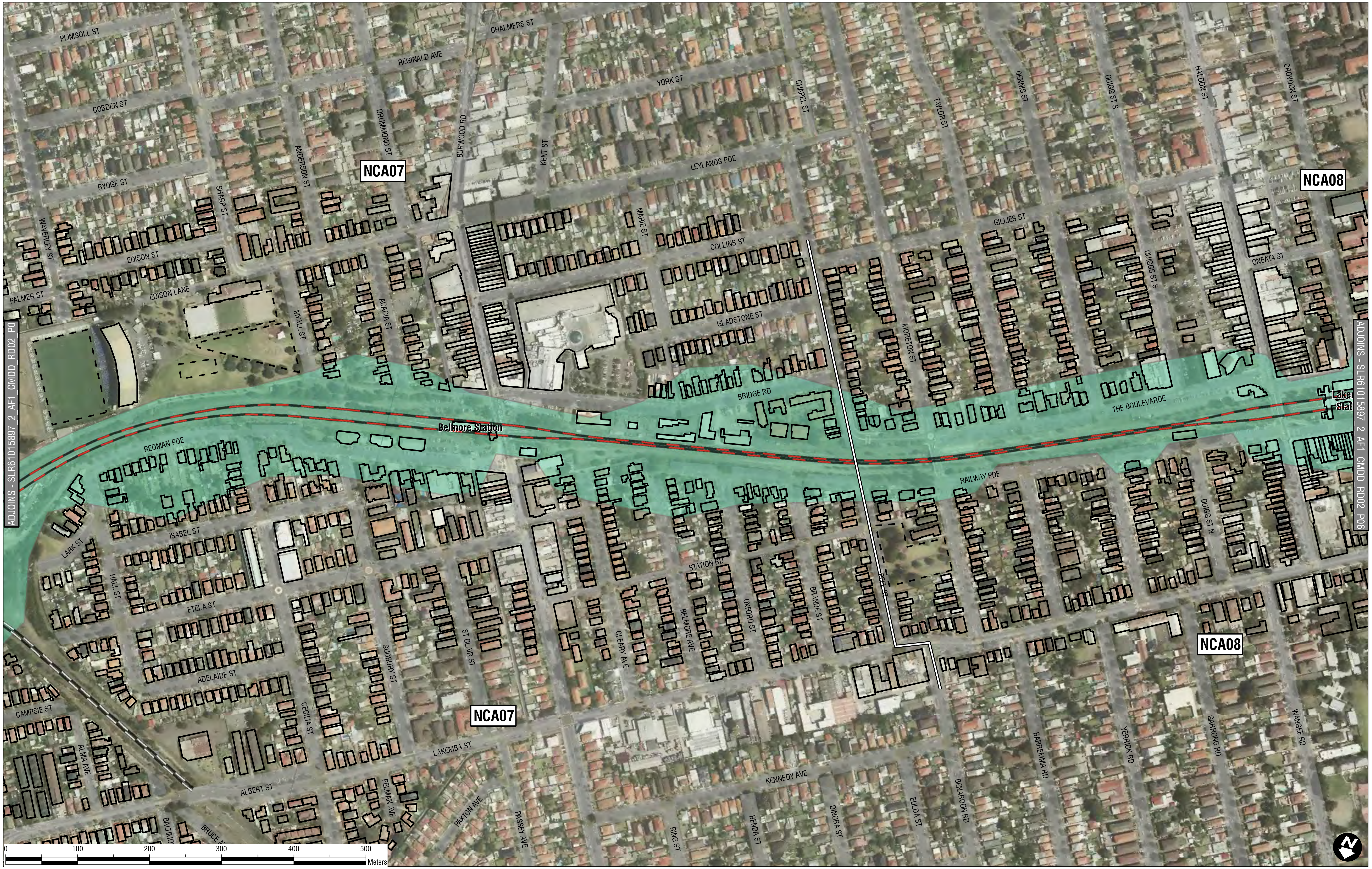

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Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks

Construction Mitigation Areas
M, LB

Assessed Receivers
Buildings
Outdoor

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Transport for NSW
Sydney Metro City & Southwest
Sydenham to Bankstown
Construction Mitigation
Daytime (Indicative)

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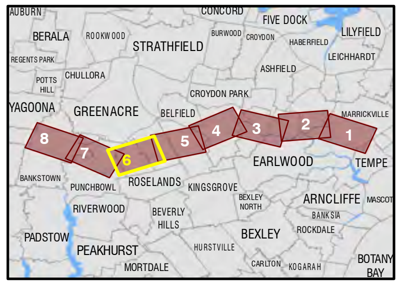

Noise Catchment Areas
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Construction Mitigation Areas
M, LB

Assessed Receivers
Buildings
Outdoor

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Transport for NSW

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Sydenham to Bankstown

Construction Mitigation
Daytime (Indicative)

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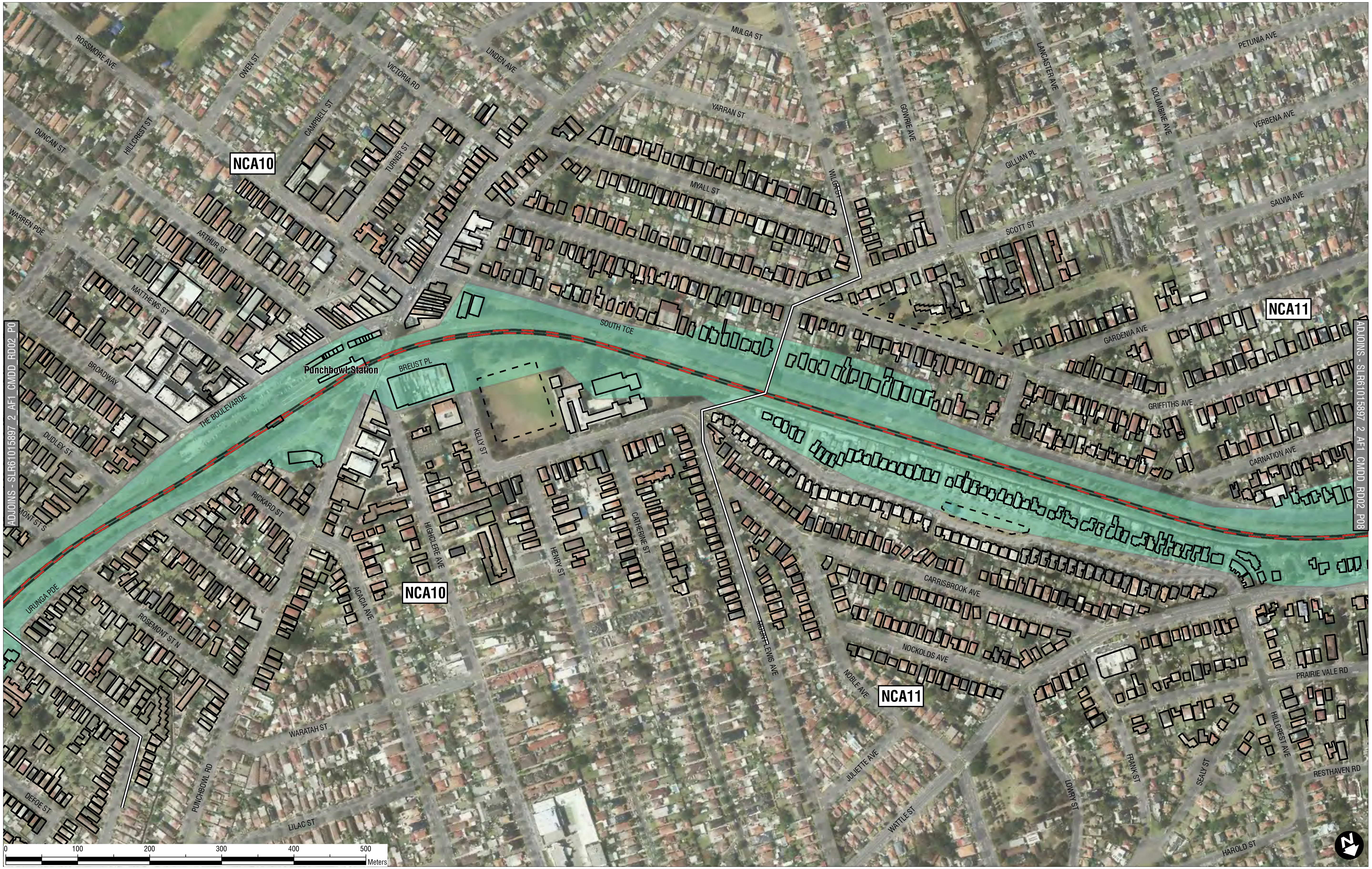

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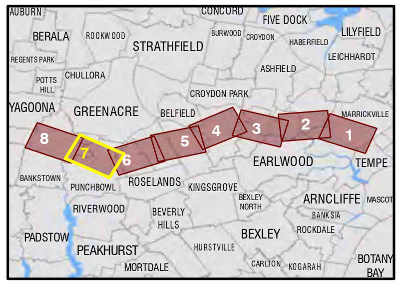

Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks

Construction Mitigation Areas
M, LB

Assessed Receivers
Buildings
Outdoor

Note:
*Construction mitigation areas are indicative
*The two most stringent mitigation categories have been shown only.

Transport for NSW

Sydney Metro City & Southwest
Sydenham to Bankstown

Construction Mitigation
Daytime (Indicative)

SLR61015897_2_AF1_CMDD_RD02_P07

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Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks

Construction Mitigation Areas
M, LB

Assessed Receivers
Buildings
Outdoor

Note:
*Construction mitigation areas are indicative
*The two most stringent mitigation categories have been shown only.

Transport for NSW

Sydney Metro City & Southwest
Sydenham to Bankstown

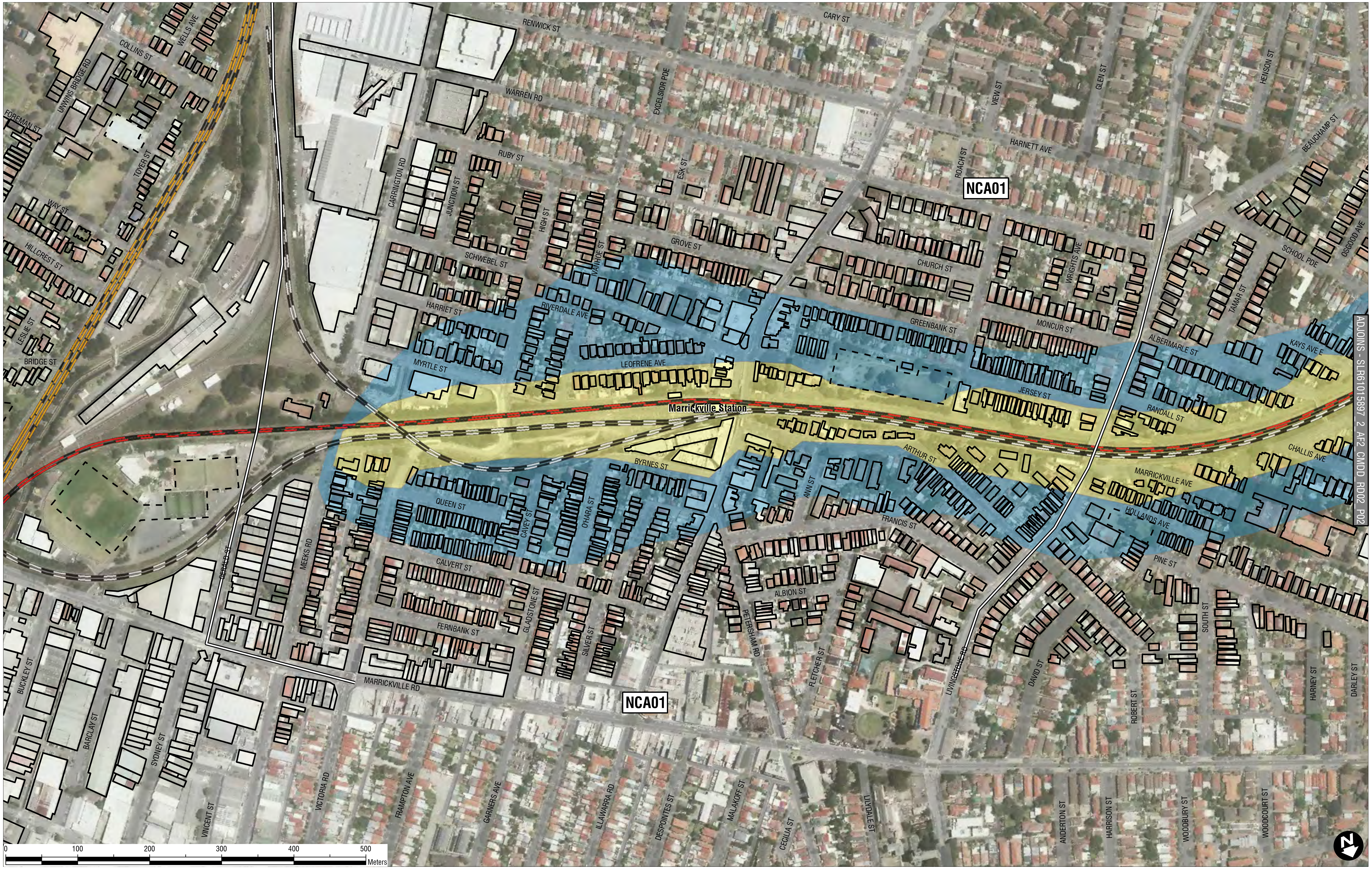
Construction Mitigation
Daytime (Indicative)

SLR61015897_2_AF1_CMDD_RD02_P08

Appendix B2

Report 610.15897R4

Construction Additional Mitigation - Construction Mitigation Night-time (Indicative)



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Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks

Construction Mitigation Areas
AA, M, IB, LB, PC, SN
M, IB, LB, PC, SN

Assessed Receivers
Buildings
Outdoor

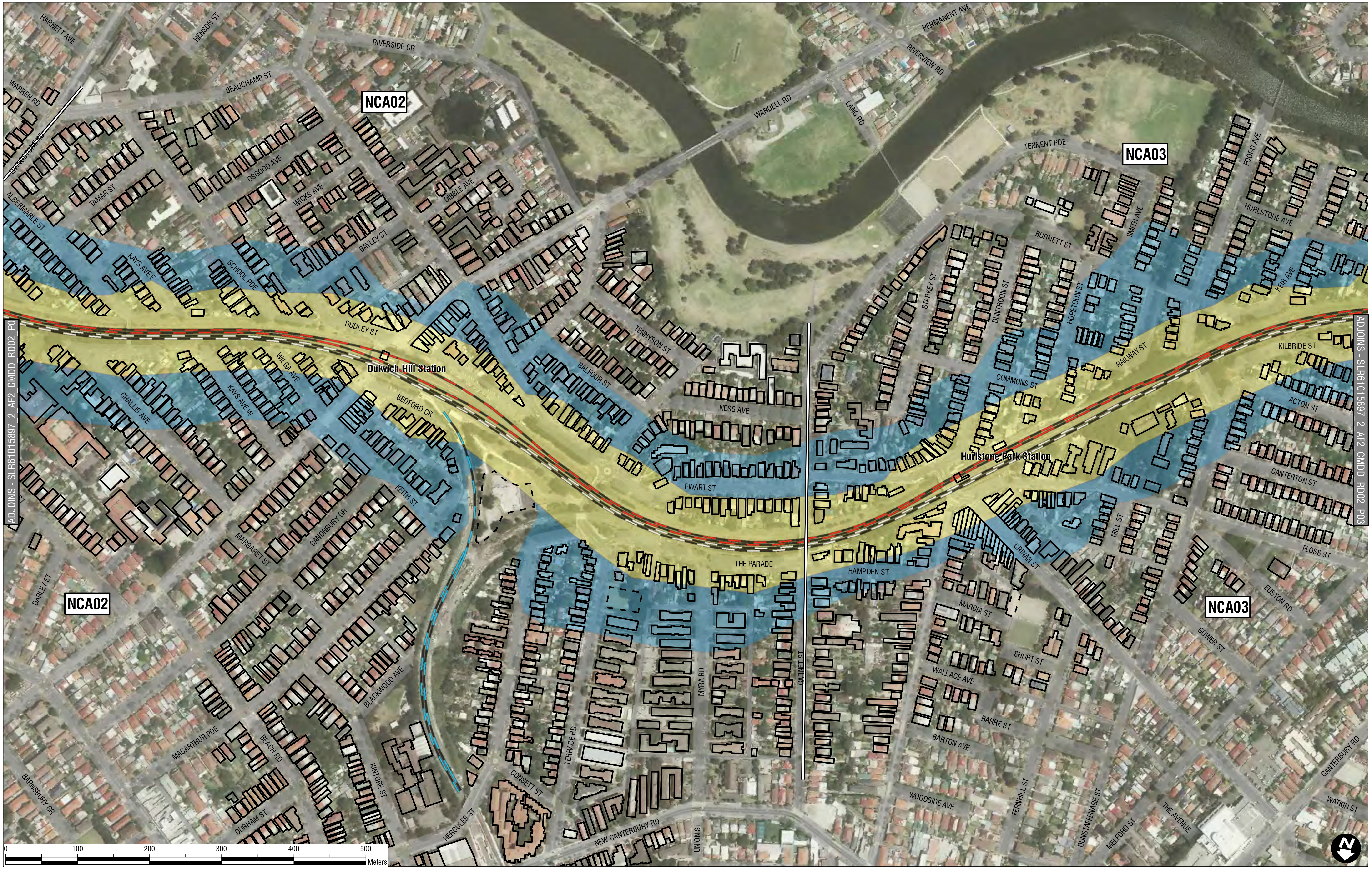
Note:
*Construction mitigation areas are indicative
*The two most stringent mitigation categories have been shown only.

Transport for NSW

Sydney Metro City & Southwest
Sydenham to Bankstown

Construction Mitigation
Night-time (Indicative)

SLR61015897_2_AF2_CMDD_RD02_P01



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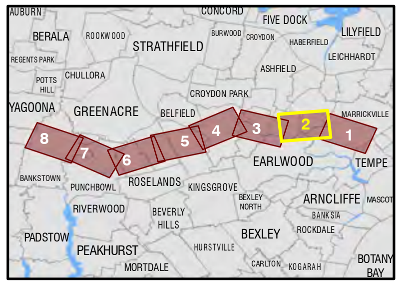

Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks

Construction Mitigation Areas
AA, M, IB, LB, PC, SN
M, IB, LB, PC, SN

Assessed Receivers
Buildings
Outdoor

Note:
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Transport for NSW

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Sydenham to Bankstown

Construction Mitigation
Night-time (Indicative)

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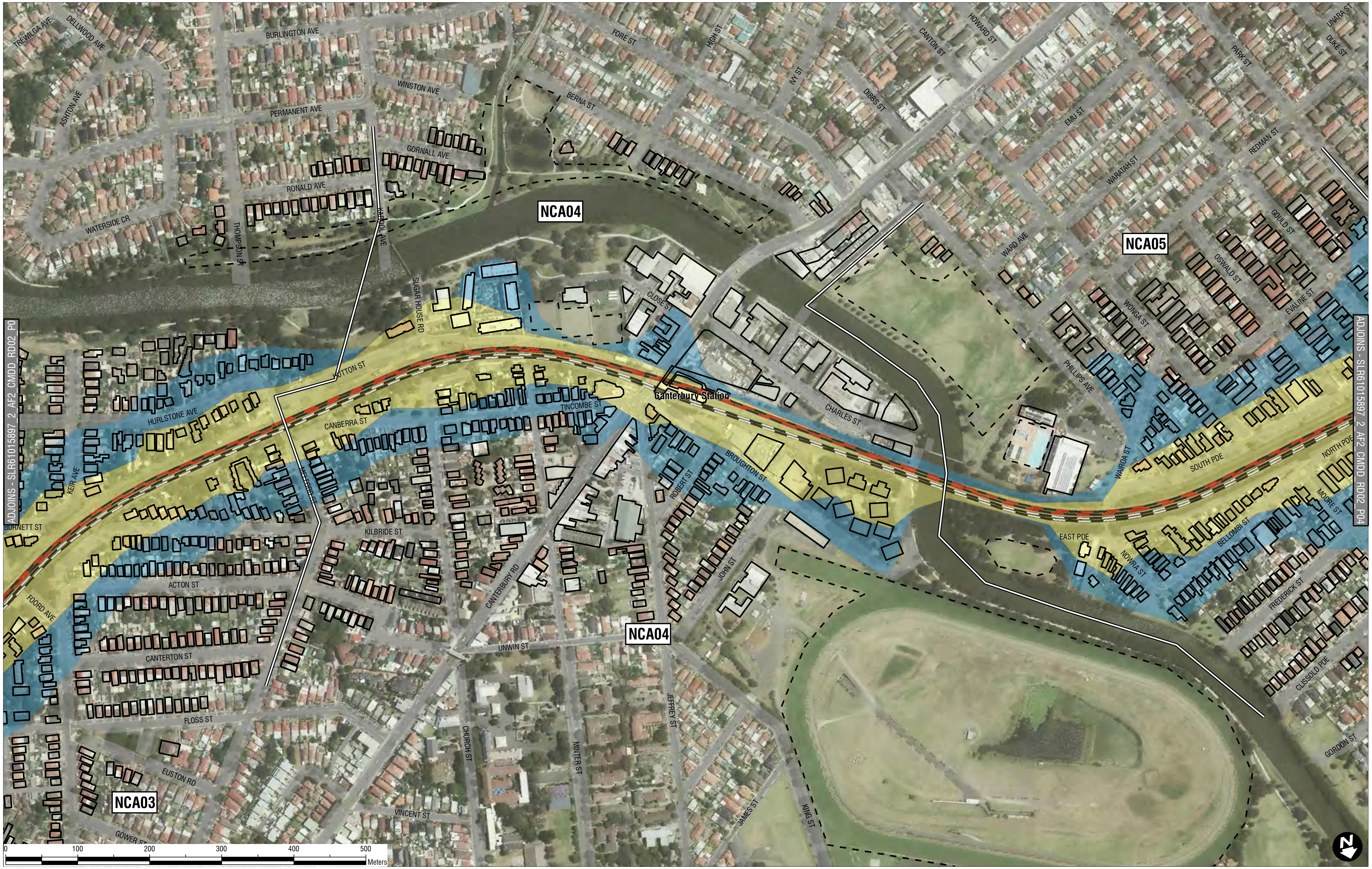

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Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks

Construction Mitigation Areas
AA, M, IB, LB, PC, SN
M, IB, LB, PC, SN

Assessed Receivers
Buildings
Outdoor

Note:
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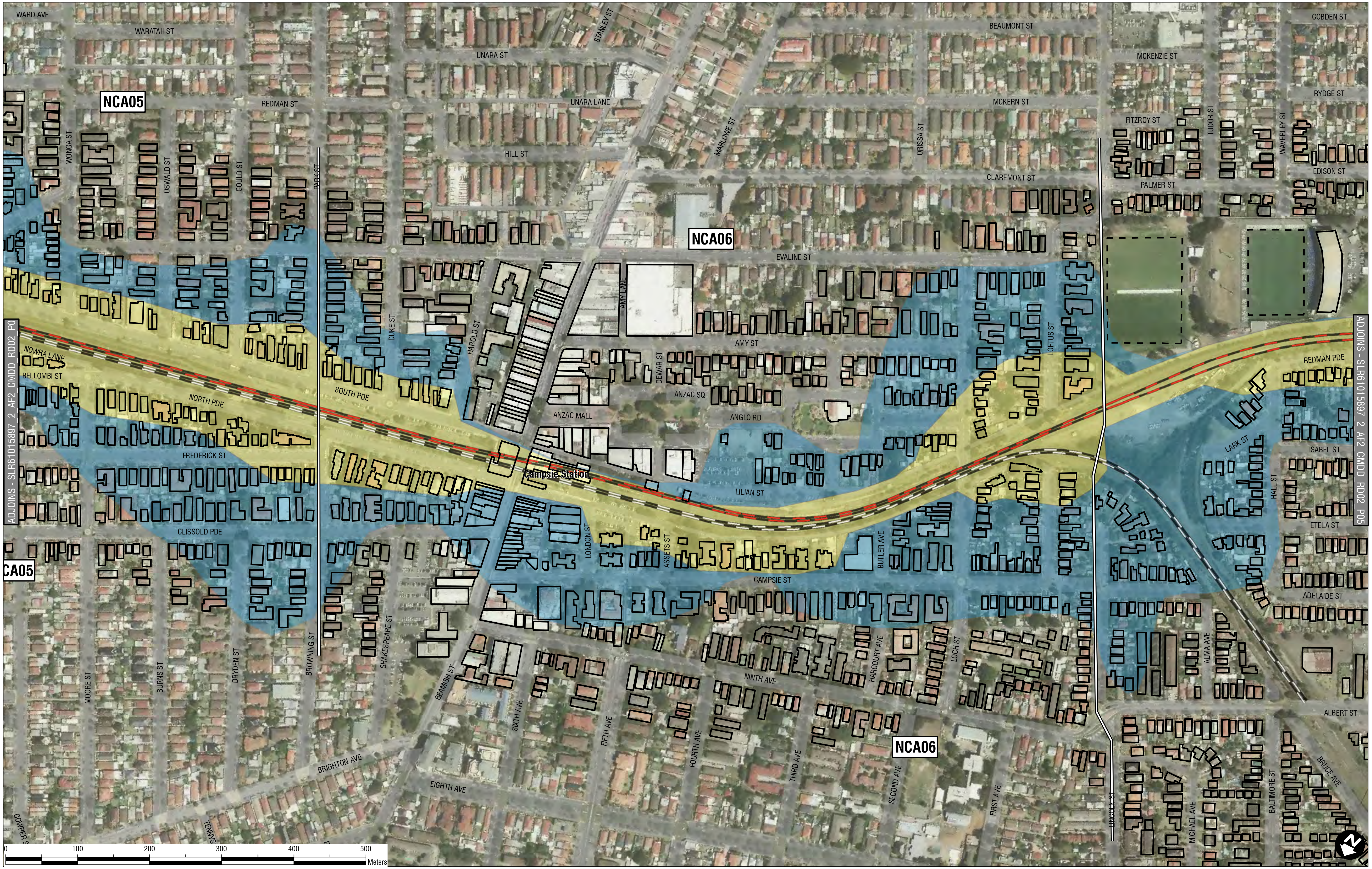
Transport for NSW

Sydney Metro City & Southwest
Sydenham to Bankstown

Construction Mitigation
Night-time (Indicative)

SLR61015897_2_AF2_CMDD_RD02_P03



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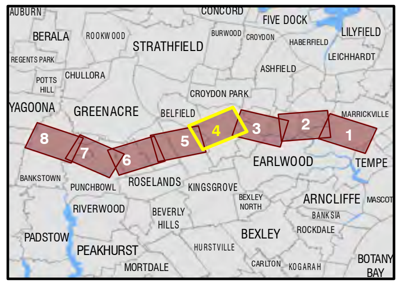

Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks

Construction Mitigation Areas
AA, M, IB, LB, PC, SN
M, IB, LB, PC, SN

Assessed Receivers
Buildings
Outdoor

Note:
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Transport for NSW

Sydney Metro City & Southwest
Sydenham to Bankstown

Construction Mitigation
Night-time (Indicative)

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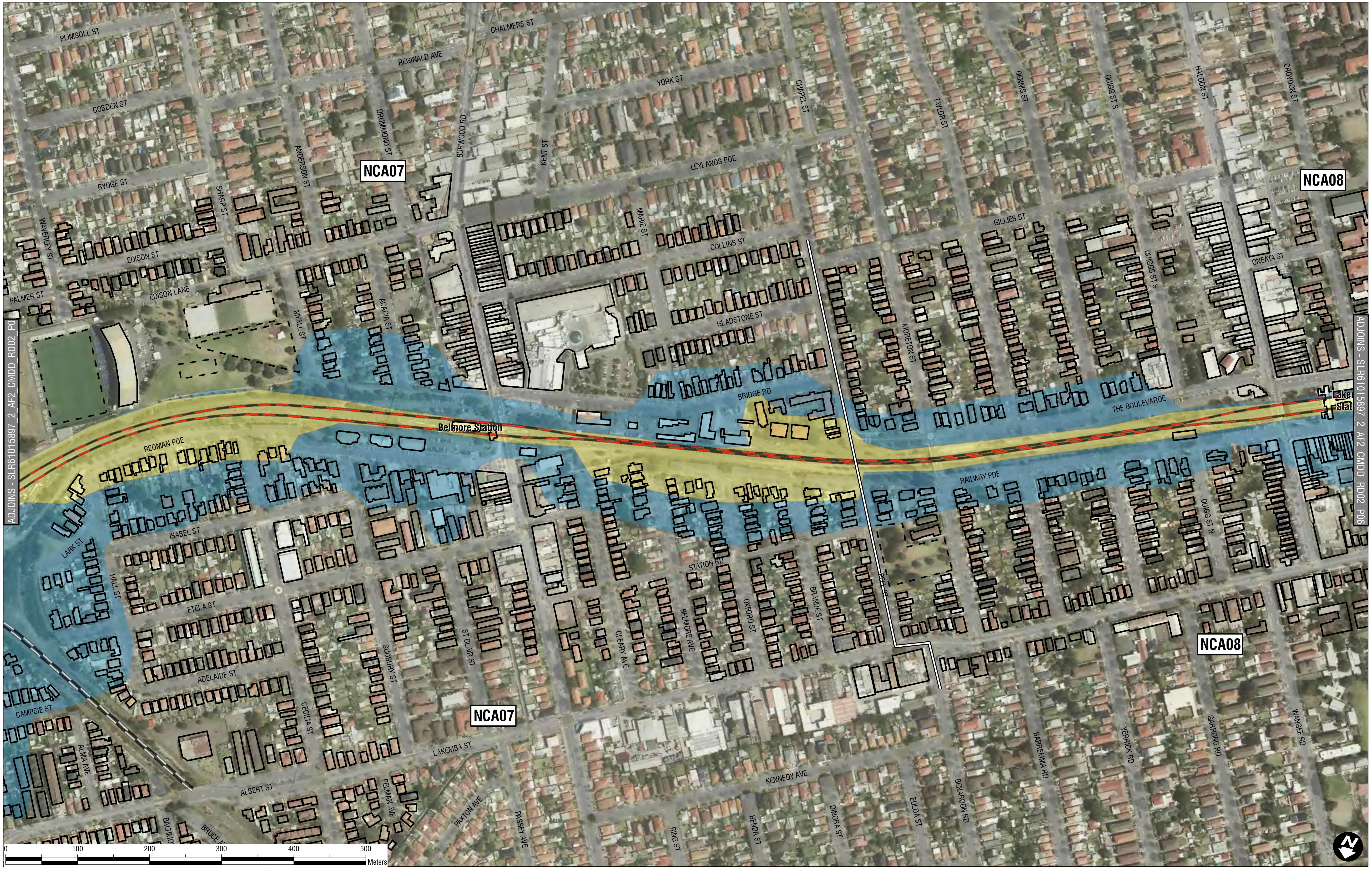

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Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks

Construction Mitigation Areas
AA, M, IB, LB, PC, SN
M, IB, LB, PC, SN

Assessed Receivers
Buildings
Outdoor

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Sydenham to Bankstown

Construction Mitigation
Night-time (Indicative)

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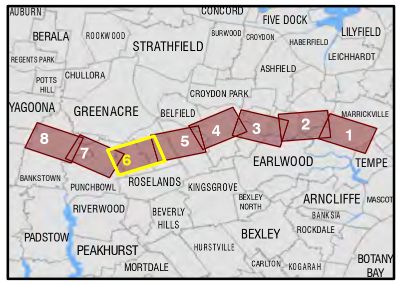

Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks

Construction Mitigation Areas
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Assessed Receivers
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Outdoor

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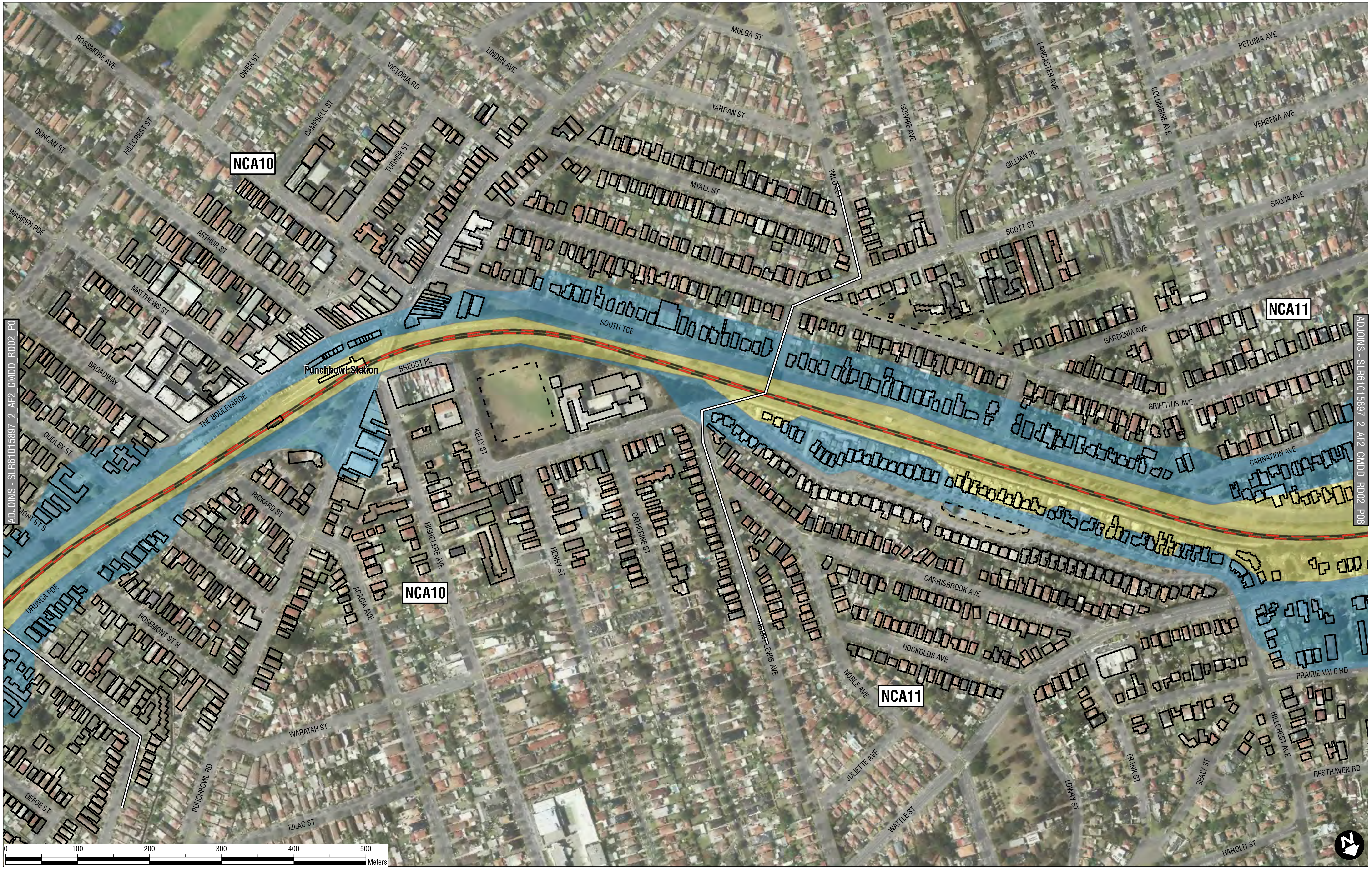
Transport for NSW

Sydney Metro City & Southwest
Sydenham to Bankstown

Construction Mitigation
Night-time (Indicative)



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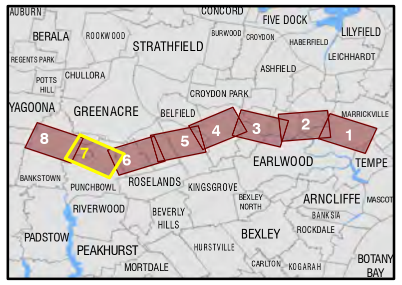

Noise Catchment Areas
Freight Rail Tracks
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Construction Mitigation Areas
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Transport for NSW
Sydney Metro City & Southwest
Sydenham to Bankstown
Construction Mitigation
Night-time (Indicative)

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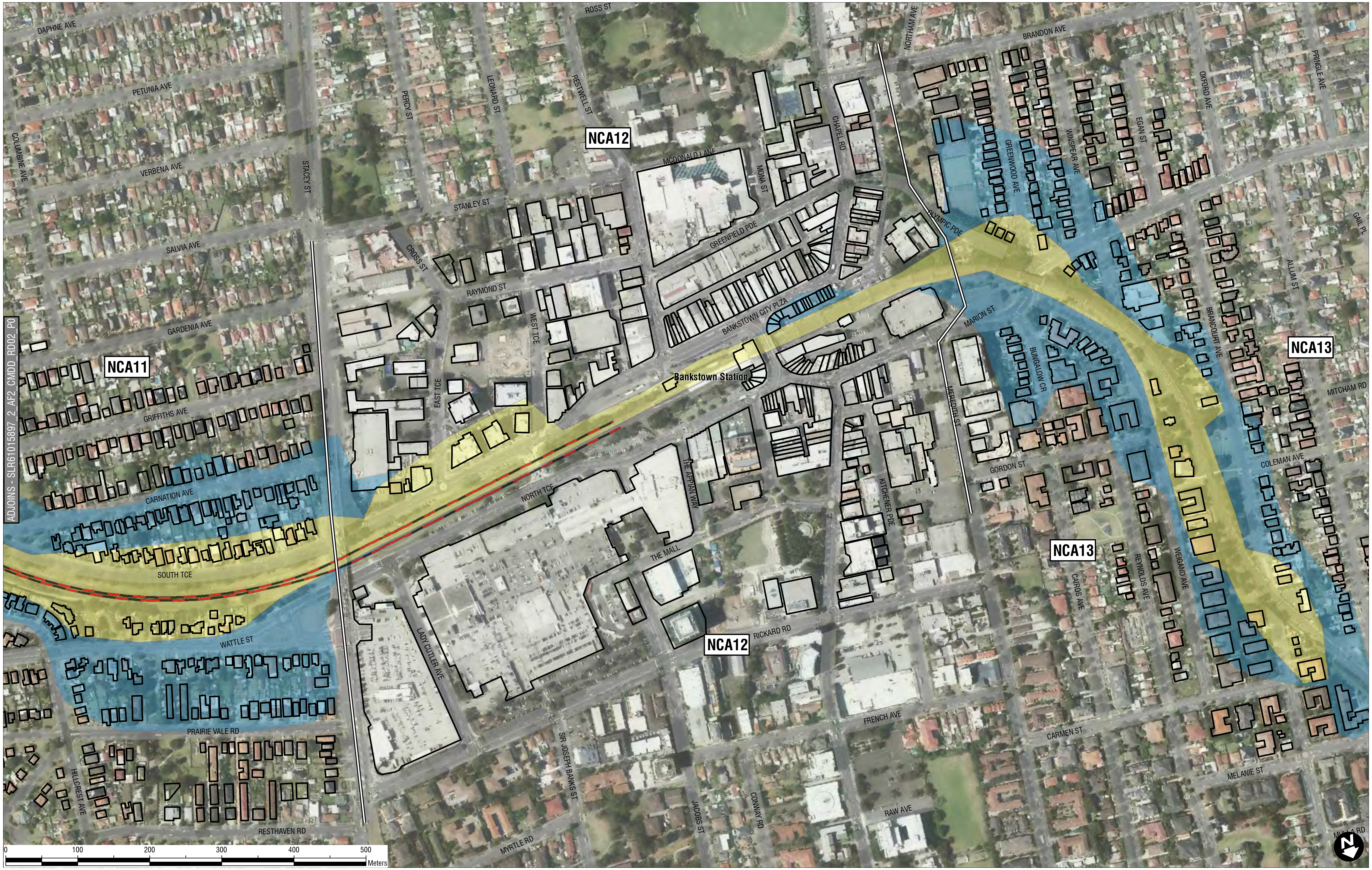

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Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks

Construction Mitigation Areas
AA, M, IB, LB, PC, SN
M, IB, LB, PC, SN

Assessed Receivers
Buildings
Outdoor

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Transport for NSW

Sydney Metro City & Southwest
Sydenham to Bankstown

Construction Mitigation
Night-time (Indicative)

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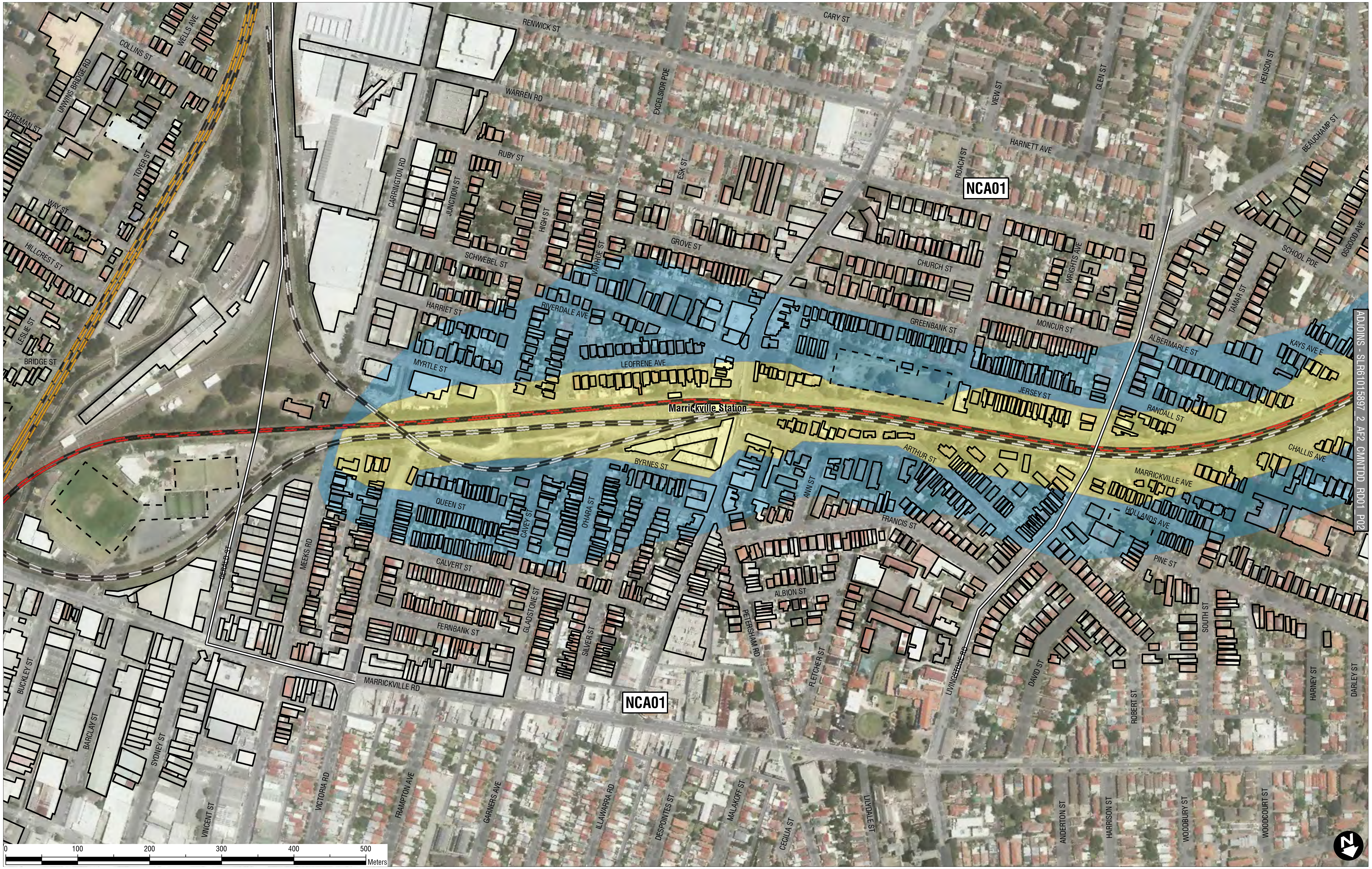
Appendix B3

Report 610.15897R4

Construction Additional Mitigation - Construction Mitigation Night-time (Indicative) - No Ballast Tamper



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Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks

Construction Mitigation Areas
No Ballast Tamper
AA, M, IB, LB, PC, SN
M, IB, LB, PC, SN

Assessed Receivers
Buildings
Outdoor

Note:
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Transport for NSW

Sydney Metro City & Southwest
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Construction Mitigation
Night-time (Indicative)
No Ballast Tamper

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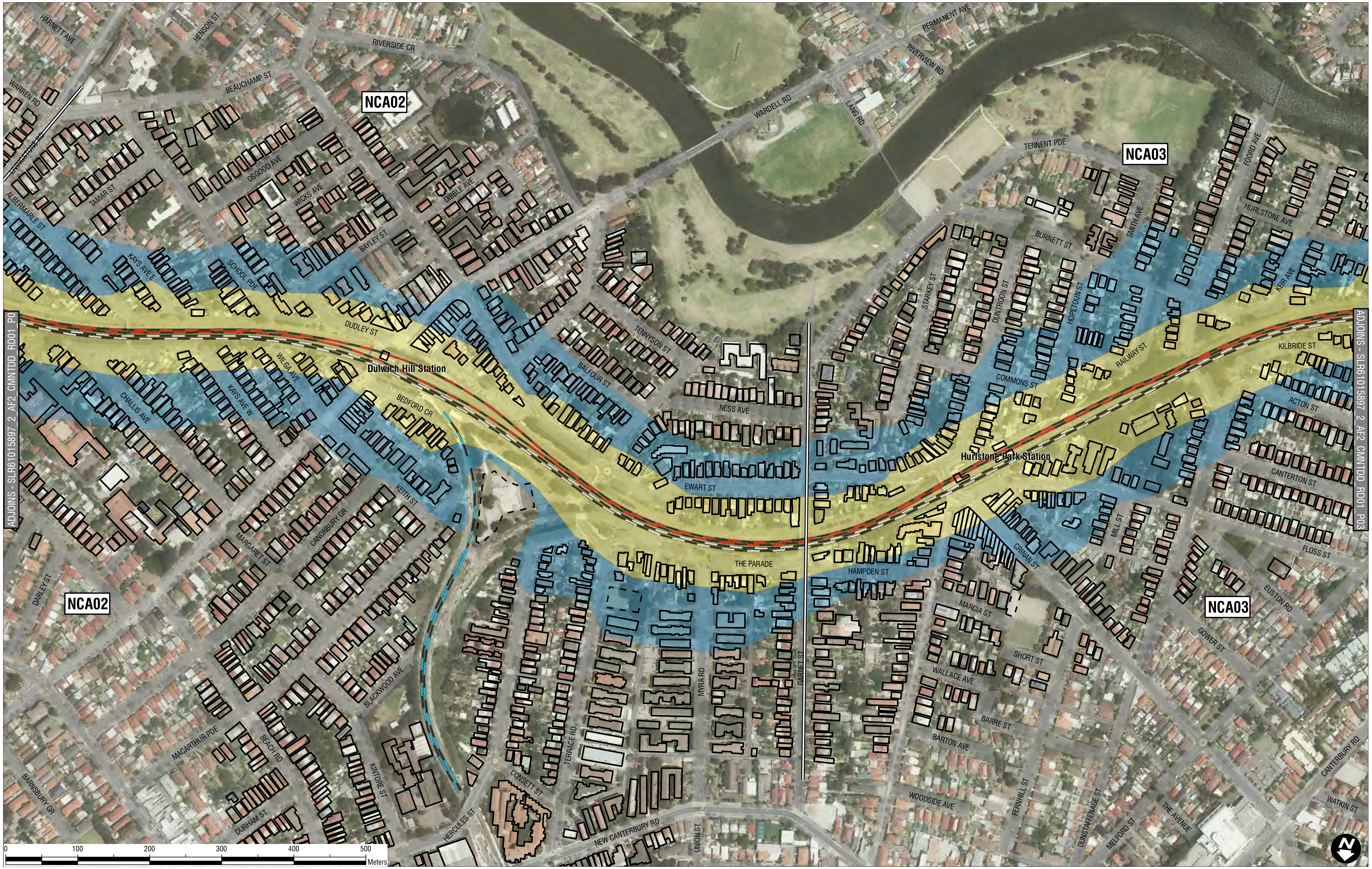

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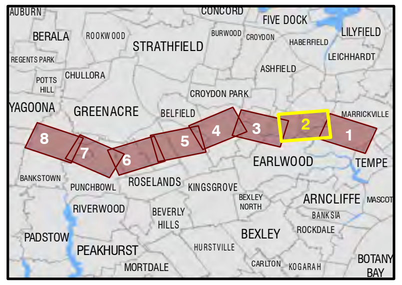

Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
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Sydney Trains Rail Tracks

Construction Mitigation Areas
No Ballast Tamper
AA, M, IB, LB, PC, SN
M, IB, LB, PC, SN

Assessed Receivers
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Transport for NSW

Sydney Metro City & Southwest
Sydenham to Bankstown

Construction Mitigation
Night-time (Indicative)
No Ballast Tamper

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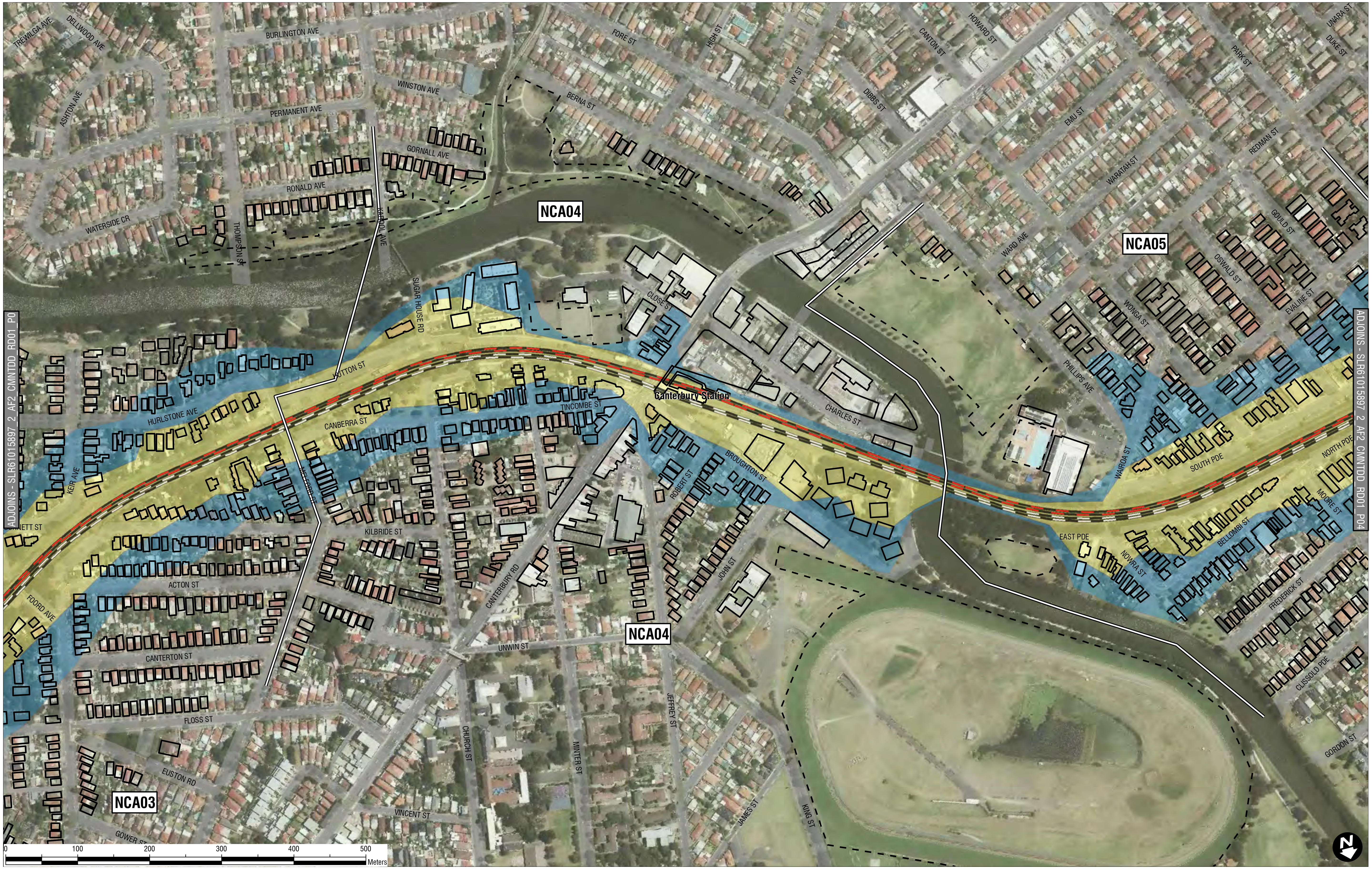

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Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks

Construction Mitigation Areas
No Ballast Tamper
AA, M, IB, LB, PC, SN
M, IB, LB, PC, SN

Assessed Receivers
Buildings
Outdoor

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Transport for NSW
Sydney Metro City & Southwest
Sydenham to Bankstown
Construction Mitigation
Night-time (Indicative)
No Ballast Tamper
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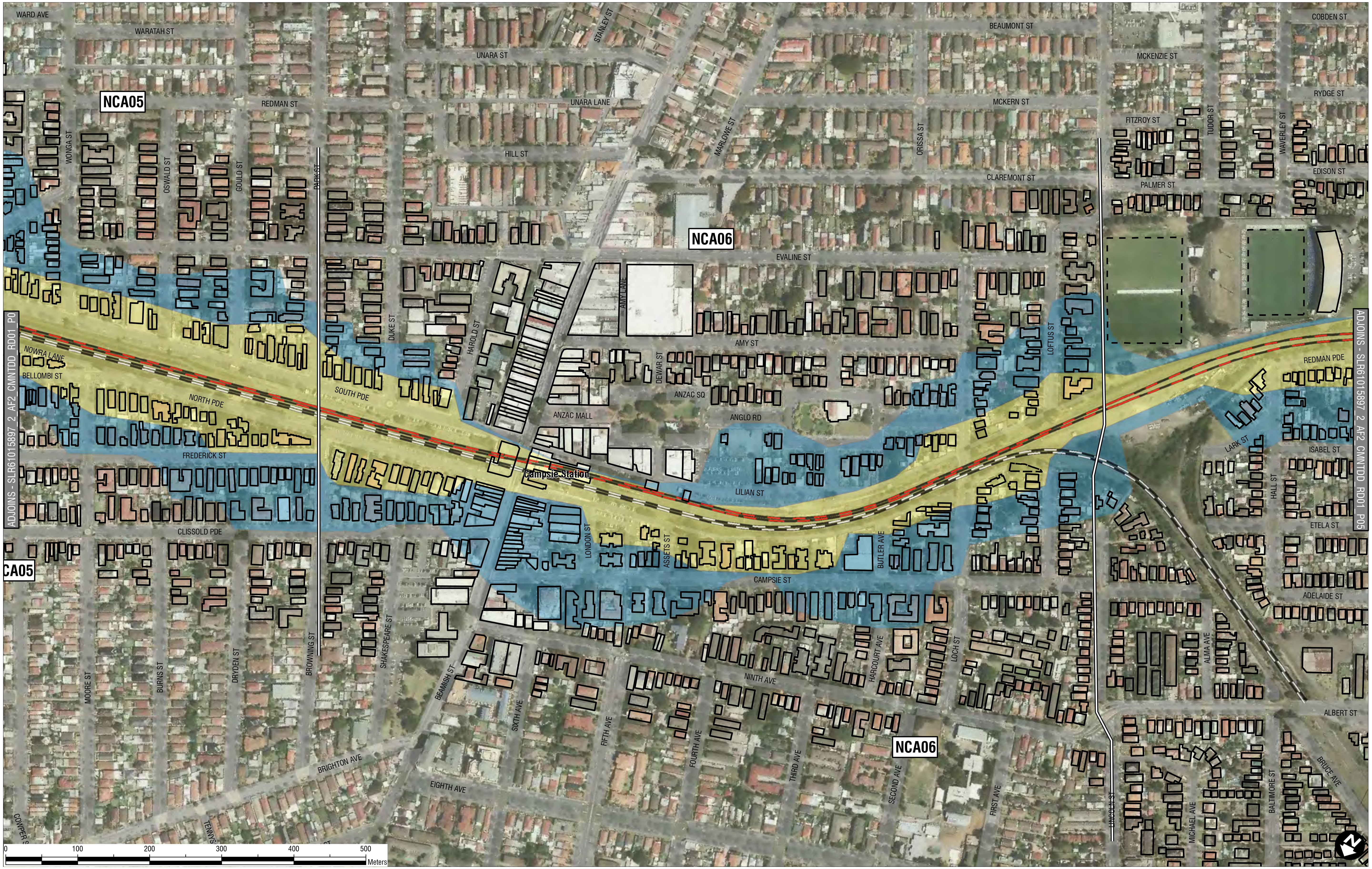

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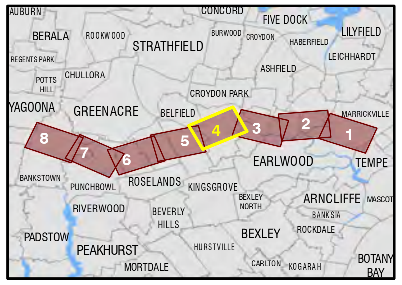

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Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks

Construction Mitigation Areas
No Ballast Tamper
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M, IB, LB, PC, SN

Assessed Receivers
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Outdoor

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Transport for NSW

Sydney Metro City & Southwest
Sydenham to Bankstown

Construction Mitigation
Night-time (Indicative)
No Ballast Tamper

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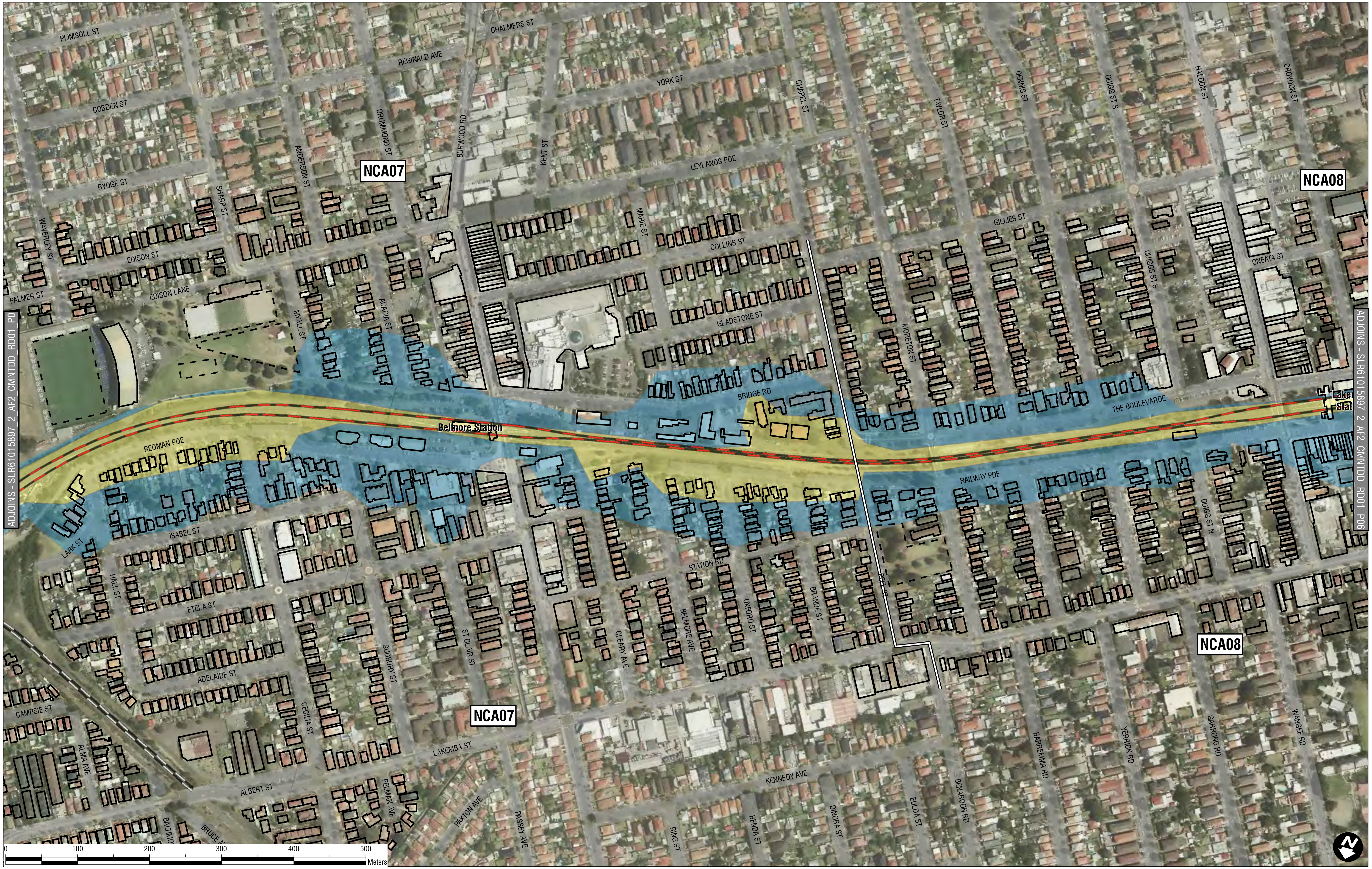

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Metro Rail Tracks
Sydney Trains Rail Tracks

Construction Mitigation Areas
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M, IB, LB, PC, SN

Assessed Receivers
Buildings
Outdoor

Note:
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Transport for NSW
Sydney Metro City & Southwest
Sydenham to Bankstown
Construction Mitigation
Night-time (Indicative)
No Ballast Tamper
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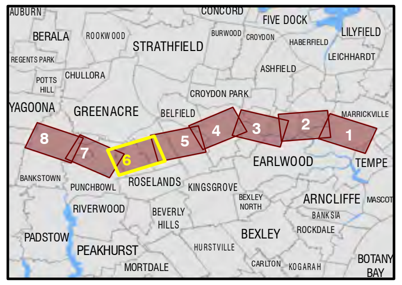

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Freight Rail Tracks
Light Rail Tracks
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Construction Mitigation Areas
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Transport for NSW

Sydney Metro City & Southwest
Sydenham to Bankstown

Construction Mitigation
Night-time (Indicative)
No Ballast Tamper

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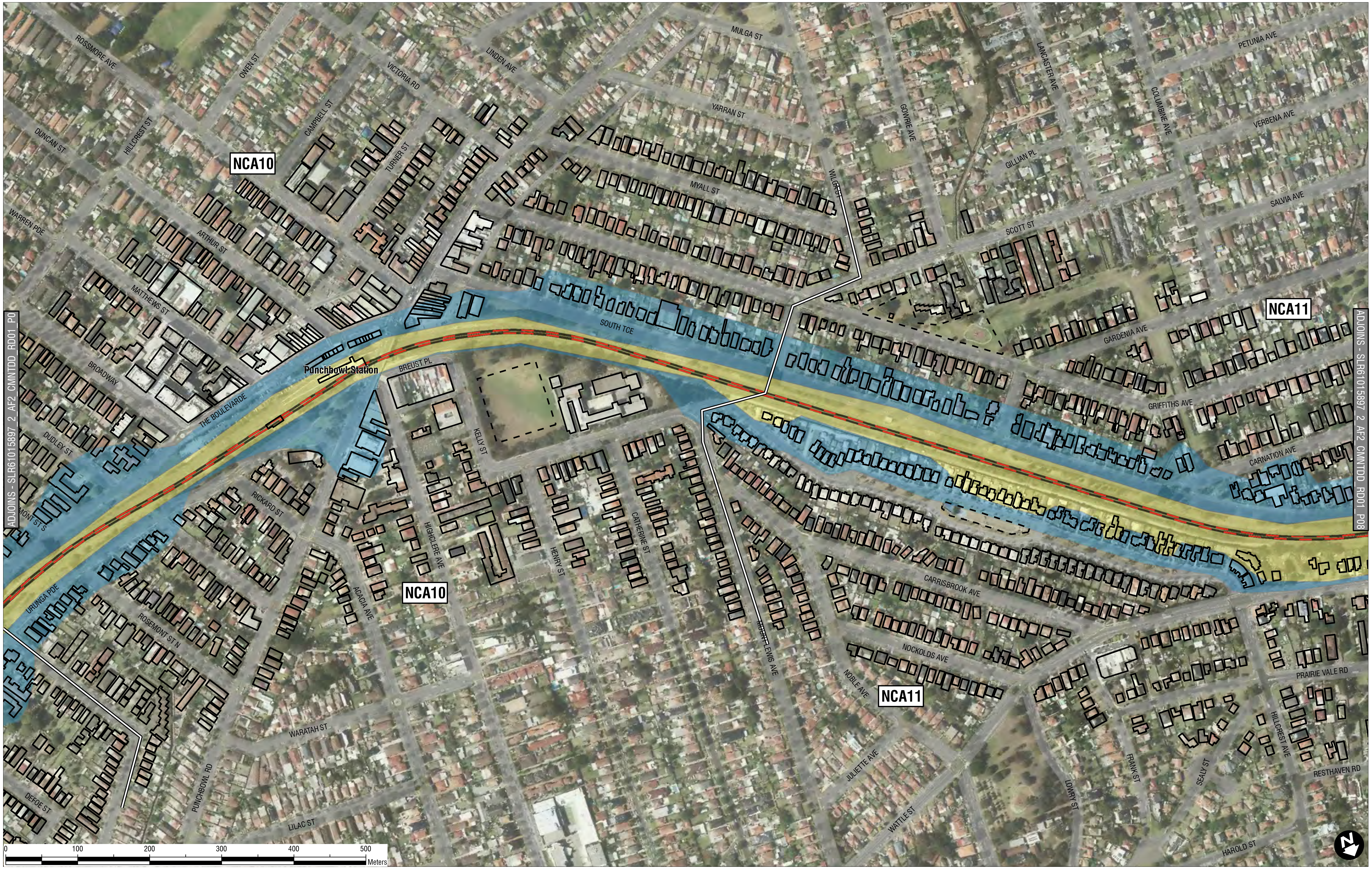

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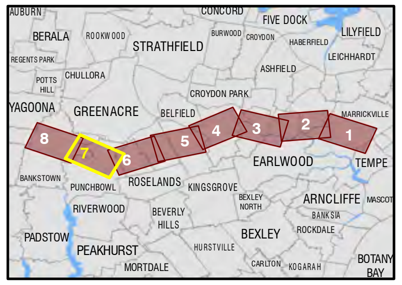

Noise Catchment Areas
Freight Rail Tracks
Light Rail Tracks
Metro Rail Tracks
Sydney Trains Rail Tracks

Construction Mitigation Areas
No Ballast Tamper
AA, M, IB, LB, PC, SN
M, IB, LB, PC, SN

Assessed Receivers
Buildings
Outdoor

Note:
*Construction mitigation areas are indicative
*The two most stringent mitigation categories have been shown only.

Transport for NSW

Sydney Metro City & Southwest
Sydenham to Bankstown

Construction Mitigation
Night-time (Indicative)
No Ballast Tamper

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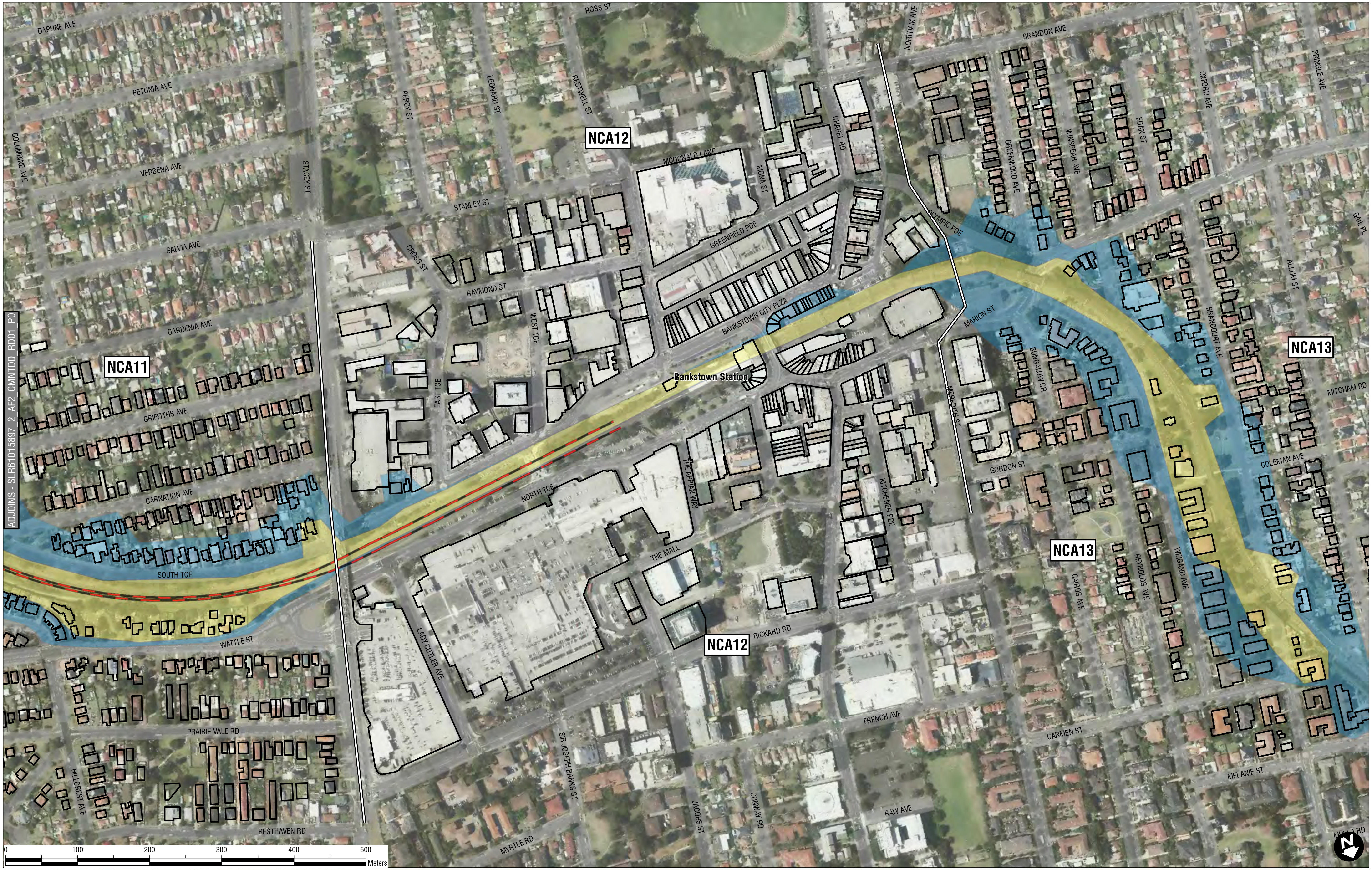

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Transport for NSW
Sydney Metro City & Southwest
Sydenham to Bankstown
Construction Mitigation
Night-time (Indicative)
No Ballast Tamper
Page 8 of 8
SLR61015897_2_AF2_CMNTDD_RD01_P08

SYDENHAM TO BANKSTOWN

SUBMISSIONS AND PREFERRED INFRASTRUCTURE REPORT

> Appendix E – Noise and vibration assessment

City & Southwest

SYDENHAM TO BANKSTOWN

SUBMISSIONS AND PREFERRED INFRASTRUCTURE REPORT

> Appendix F – Non-Aboriginal heritage assessment

Memo: Sydney Metro City & Southwest -Sydenham to Bankstown Upgrade

Submissions and Preferred Infrastructure Report Non-Aboriginal Heritage Assessment

Project: Sydney Metro City & Southwest – Sydenham to Bankstown Upgrade	**Date:** 7 June 2018
Client: Transport for NSW	**Author:** Shona Lindsay (Senior Heritage Consultant), Dr Sandra Wallace (Managing Director)

1.1 Background

Transport for NSW is developing the Sydenham to Bankstown upgrade component of Sydney Metro City & Southwest (the project).

The project involves upgrading 10 existing stations west of Sydenham (Marrickville to Bankstown inclusive), and a 13 kilometre long section of the Sydney Trains T3 Bankstown Line, between west of Sydenham Station and west of Bankstown Station, to improve accessibility for customers and meet the standards required for metro operations. The project would enable Sydney Metro to operate beyond Sydenham, to Bankstown.

The main infrastructure and features that form part of the project are described in this section. These include:

- works to upgrade the 10 stations and station areas between Marrickville and Bankstown (inclusive) and to provide lifts at stations where there are none currently
- works to allow for a metro service to Bankstown, including:
  - station works
  - track and rail system facility works
  - other works to support metro operations.

It is noted that the project described in this section is based on the level of design developed to date. Detailed design would include further engineering, construction planning, and detailed assessment work, and would be subject to further input from key stakeholders and consultation with the community.

The project is subject to assessment and approval by the NSW Minister for Planning under Division 5.1 (previously Part 5.1) of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

This non-Aboriginal heritage assessment (from herein referred to as 'memo') assesses design changes that Transport for NSW has made in response to submissions received during exhibition of the Environmental Impact Statement (from herein referred to as the 'preferred project'). This memo assesses design changes in relation to built heritage. It has been prepared by Shona Lindsay (Senior Heritage Consultant) and Dr Sandra Wallace (Managing Director).

The memo should be read in conjunction with the following documents:

- Artefact Heritage August 2017. Sydney Metro Sydenham to Bankstown Non-Aboriginal Heritage Impact Assessment (NAIA)
- Sydney Metro September 2017. Sydenham to Bankstown Environmental Impact Statement (EIS)

1.2 Limitations

This memo assesses design changes in relation to built heritage only. No additional site surveys were undertaken for this assessment as proposed impacts were within the existing project boundary.

1.3 Revised vibration assessment criteria

1.3.1 Vibration intensive plant

The construction vibration assessment for the exhibited project assessed rockbreakers as the most vibration intensive item of equipment. As the requirement for rockbreakers has been removed from the preferred project the most vibration intensive piece of construction equipment is now a ballast tamper. The ballast tamper was previously assessed as part of the exhibited project, however the locations it would be required for the preferred project have been significantly reduced.

The vibration levels generated by a ballast tamper are significantly lower than those generated by a rockbreaker and the ballast tamper would only be used on the rail tracks in a small number of locations of the preferred project. It is also noted that ballast tampers are routinely used without significant impact for Sydney Trains rail maintenance works across the project area. All other items of equipment required by the preferred project are generally not considered vibration intensive.

Construction works associated with platform alterations would be required to be completed in the vicinity of several heritage structures when working at stations. These works however are unlikely to require the use of vibration intensive equipment and the potential vibration impacts from items such as concrete saws and excavators are expected to be minimal.

The required vibration intensive equipment should be reviewed during construction planning to ensure the potential vibration impacts are minimised. If impacts are considered likely then vibration monitoring should be completed to ensure acceptable levels of vibration are not exceeded.

1.4 Applicable heritage listings

1.4.1 Registers search results

Statutory registers provide legal protection for heritage items. In NSW, the Heritage Act and the EP&A Act provide for heritage listings. The State Heritage Register, the s170 registers, and environmental heritage schedules of LEPs are statutory listings. Places on the National Heritage List and Commonwealth Heritage List are protected under the EPBC Act 1999.

A search of all relevant registers was undertaken on 17 May 2018. The results include both heritage items within the project area and a 25-metre visual buffer (the study area). The items are displayed below in Table 1.

Table 1: Heritage registers search results (with listed railway stations shaded)

Item	Suburb[1]	Significance	Listing	Within project area?
Marrickville Railway Station Group	Marrickville	State	SHR (01186) RailCorp S.170 Heritage and Conservation Register (4801091) Marrickville LEP 2011 (I89)	Yes
Sewage Pumping Station 271	Marrickville	State	SHR (01342) Sydney Water S.170 Heritage and Conservation Register (4571727) Marrickville LEP 2011 (I67)	No
Stone house, including interiors	Marrickville	Local	Marrickville LEP 2011 (I114)	Yes
Stonewalling, terracing and street planting	Marrickville	Local	Marrickville LEP 2011 (I86)	No
Dulwich Hill Railway Station Group	Dulwich Hill	Local	RailCorp S.170 Heritage and Conservation Register (4801909)	Yes
South Dulwich Hill Heritage Conservation Area	Dulwich Hill	Local	Marrickville LEP 2011 (C29)	Yes
Inter-War Heritage Conservation Area Group—Hollands Avenue; Jocelyn Avenue and Woodbury Street	Dulwich Hill	Local	Marrickville LEP 2011 (C35)	No
Gladstone Hall, including interiors	Dulwich Hill	Local	Department of Health S.170 Heritage and Conservation Register (3540048) Marrickville LEP 2011 (I13)	No

[1] Suburbs as per SHI listing

Item	Suburb[1]	Significance	Listing	Within project area?
Hurlstone Park Railway Station Group	Hurlstone Park	Local	RailCorp S.170 Heritage and Conservation Register (4802051) Canterbury LEP 2012 (I124)	Yes
Hurlstone Park Railway Underbridge	Hurlstone Park	Local	RailCorp S.170 Heritage and Conservation Register (4805737) Canterbury LEP 2012 (I126)	Yes
Canterbury Railway Station Group	Canterbury	State	SHR (01109) RailCorp S.170 Heritage and Conservation Register (4801100) Canterbury LEP 2012 (I67)	Yes
Canterbury (Cooks River) underbridge	Canterbury	Local	RailCorp S.170 Heritage and Conservation Register (4801568) Canterbury LEP 2012 (I72)	Yes
Canterbury (Cooks River/Charles St) Underbridge - Main Line	Canterbury	Local	RailCorp S.170 Heritage and Conservation Register (5062566)	Yes
Old Sugarmill	Canterbury	State	SHR (00290) Canterbury LEP 2012 (I82)	No
Inter-War Hotel (former Hotel Canterbury)	Canterbury	Local	Canterbury LEP 2012 (I68)	No
Federation Post Office Building (former Canterbury Post Office)	Canterbury	Local	Canterbury LEP 2012 (I66)	No
Electricity substation no. 275	Canterbury	Local	Ausgrid S.170 Heritage and Conservation Register (3430425)	No

Item	Suburb[1]	Significance	Listing	Within project area?
Campsie Railway Station Group	Campsie	Local	RailCorp S.170 Heritage and Conservation Register (4801101) Canterbury LEP 2012 (I40)	Yes
Federation commercial building–Coffill's Buildings	Campsie	Local	Canterbury LEP 2012 (I41)	No
Inter-War Commercial Building–Station House	Campsie	Local	Canterbury LEP 2012 (I42)	No
Inter-War Court House (former) Campsie Court House	Campsie	Local	Canterbury LEP 2012 (I44)	No
War Memorial Clock Tower	Campsie	Local	Canterbury LEP 2012 (I34)	No
Federation house	Campsie	Local	Canterbury LEP 2012 (I61)	No
Federation villa	Campsie	Local	Canterbury LEP 2012 (I62)	No
Belmore Railway Station Group	Belmore	State	SHR (No. 01081) RailCorp S.170 Heritage and Conservation Register (4801084) Canterbury LEP 2012 (I11)	Yes
Post-war bus shelter and public lavatories	Belmore	Local	Canterbury LEP 2012 (I29)	Yes
Federation House(former station master's cottage)	Belmore	Local	Canterbury LEP 2012 (I10)	No

Item	Suburb[1]	Significance	Listing	Within project area?
Lakemba Railway Station Group	Lakemba	Local	RailCorp S.170 Heritage and Conservation Register (4801916) Canterbury LEP 2012 (I143)	Yes
Federation weatherboard house	Lakemba	Local	Canterbury LEP 2012 (I144)	No
Inter-War post office building - Lakemba Post Office	Lakemba	Local	Canterbury LEP 2012 (I145)	No
Electricity Substation no. 143	Lakemba	Local	Ausgrid S. 170 Heritage and Conservation Register (3430296)	No
Wiley Park Railway Station Group	Wiley Park	Local	RailCorp S.170 Heritage and Conservation Register (4801946) Canterbury LEP 2012 (I159)	Yes
Inter-War water pumping station– Lakemba Pumping Station (WP0003)	Wiley Park	Local	Sydney Water S.170 Heritage and Conservation Register (4570136) Canterbury LEP 2012 (I158)	No
Punchbowl Railway Station Group	Punchbowl	Local	RailCorp S.170 Heritage and Conservation Register (4802009) Canterbury LEP 2012 (I155)	Yes
War Memorial and street trees	Punchbowl	Local	Canterbury LEP 2012 (I152)	No
Post-war Civic Building (former Punchbowl Baby Health Centre)	Punchbowl	Local	Canterbury LEP 2012 (I154)	No
Bankstown Railway Station Group	Bankstown	Local	RailCorp S.170 Heritage and Conservation Register (4802067) Bankstown LEP 2015 (I3)	Yes

Item	Suburb[1]	Significance	Listing	Within project area?
Bankstown Parcels Office (former)	Bankstown	Local	RailCorp S. 170 Heritage and Conservation Register (4802067) Bankstown LEP 2015 (I4)	Yes
Shop	Bankstown	Local	Bankstown LEP 2015 (I13)	No

1.4.2 Heritage Conservation Areas

The table below provides a summary of the Heritage Conservation Areas (HCA) within the study area. Of the two HCAs identified in Section 1.4.1, South Dulwich Hill HCA is partially located within the project area. Inter-War HCA is located within the 25-metre buffer (study area) and would not be directly impacted by the preferred project.

Table 2: Summary of HCAs located within study area

Item	Suburb	Significance	Listing	Within study area?
South Dulwich Hill Heritage Conservation Area	Dulwich Hill	Local	Marrickville LEP 2011 (C29)	Yes
Inter-War Heritage Conservation Area Group—Hollands Avenue; Jocelyn Avenue and Woodbury Street	Marrickville	Local	Marrickville LEP 2011 (C35)	Yes

1.5 Revised built heritage impact assessment

1.5.1 Marrickville Station

The Marrickville Station Catchment includes two heritage items including the Marrickville Railway Station Group, and Stone house, including interiors. The buffer zone around the station catchment includes two heritage items.

1.5.1.1 Summary of heritage listings

The table below provides a summary of the heritage items located within the station catchment and within the 25-metre buffer zone.

Table 3: Heritage items within Marrickville Station Catchment and buffer zone

Item	Suburb	Significance	Listing
Within project area			
Marrickville Railway Station Group	Marrickville	State	SHR (01186) RailCorp S.170 Heritage and Conservation Register (4801091) Marrickville LEP 2011 (I89)
Stone house, including interiors	Marrickville	Local	Marrickville LEP 2011 (I114)
Within buffer zone (outside project area)			
Sewage Pumping Station 271	Marrickville	State	SHR (01342) Sydney Water S.170 Heritage and Conservation Register (4571727) Marrickville LEP 2011 (I67)
Stonewalling, terracing and street planting	Marrickville	Local	Marrickville LEP 2011 (I86)

1.5.1.2 Direct impacts

Marrickville Railway Station Group

The table below provides an assessment of the direct impacts of the preferred project on the fabric of each element constituting the railway station and an assessment of the subsequent impacts on the heritage values of the station group as a whole.

Table 4: Assessment of direct impacts for Marrickville Railway Station Group

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
Platform 1 (1895)	Exceptional	Retention of western section of platform; removal of eastern section with new platform to be rebuilt in straight alignment and extended towards the east; platform canopies and platform screen doors to be anchored on the portion of retained platform; new building and canopies to be anchored on the portion of reconstructed platform	Major	Re-levelled New platform screen doors New emergency egress ramps	Platform 1 would be re-levelled including the removal of the top section of the concrete coping where necessary. Impacts to the original brick platform face should be avoided where possible. This would have a moderate impact on the platform. New platform screen doors would be anchored on the re-levelled platform. This would result in a moderate impact where screens and screen doors are anchored at the platform edge. New emergency egress ramps would be constructed to the eastern end of the platform and would have a minor impact on the platform. Overall, the proposal would result in a moderate impact on the platform and station overall.	Moderate
Platform 1 building (Type 11) (1895)[2]	Exceptional	Retention for re-use with potential retrofitting	Minor	Retained and repurposed	The proposed works to the Platform 1 building would include internal repurposing. Original layout and finishes, including the original plaster wall finishes, plaster ceilings, and ceiling roses in the general waiting room, ladies waiting room, ladies toilets, and the station master's room would be	Moderate

[2] See Artefact August 2017. Section 2.2.6 Station building types

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
					preserved where possible. The opportunity could be taken to remove any intrusive modifications to the structure. Internal additions to the building would be designed to be sympathetic to the heritage context and minimise fabric and visual impacts. It is understood platform levelling would not encroach on any sub floor ventilation or door frame thresholds. This aspect of the preferred project would have a moderate impact on the heritage values of the building and station overall, pending detailed design.	
Platform 2 (1911)	Exceptional	Partial retention on the western side; removal of eastern section with retention of structure underneath platform building; platform to be rebuilt in straight alignment and extended towards the east; station buildings, platform canopies and platform screen doors to be anchored on both the retained and new platforms.	Major	Re-levelled New platform screen doors New emergency egress ramps	Platform 2 would be re-levelled including the removal of the top section of the concrete coping where necessary. Impacts to the original brick platform face should be avoided where possible. This would have a moderate impact on the platform. New platform screen doors would be anchored on the re-levelled platform. This would result in a moderate impact where pylons and struts are anchored in the platform. New emergency egress ramps would be constructed to the eastern end of the platform and would have a minor impact on the platform.	Moderate

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
					Overall, the proposal would result in a moderate impact on the platform and station group as a whole.	
Platform 2 building (Type 11) (1911)[3]	High	Retention for re-use with potential retrofitting	Minor	Retained and repurposed	The proposed works to the Platform 2 building would include internal refurbishment/repurposing. Refurbishing for new accommodation should be designed to minimise impacts to original fabric. Original layout and finishes should be preserved where possible. The opportunity could be taken to remove any intrusive modifications to the structure. Internal additions to the building should be designed to be sympathetic to the heritage context and minimise fabric and visual impacts. It is understood platform levelling would not encroach on any ventilation or door frames. This aspect of the preferred project would have a moderate impact on the heritage values of the building and station overall, pending detailed design.	Moderate
Overbridge- Illawarra Road (1911, c.2013)	Brick parapets including curbs, piers and panels - Exceptional	Removal and replacement	Major	Throw screen will be installed on the country side of the bridge and will be fixed to existing parapet. Smoke	It is proposed to install anti-throw screens on the country side fixed to the existing parapet, install crack monitoring and implement a regime to monitor movement in piers and	Minor

[3] See Artefact August 2017. Section 2.2.6 Station building types

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
	Structure below the deck level - Moderate			screens will be removed	abutments, remove current smoke screens, and other minor upgrade works for safety, as required. The proposed works would have a minor direct impact on the overbridge.	
Platform 2 booking office (1917, relocated)	Exceptional	Retention in current location	Neutral	Retained	The structure is proposed to be retained in its current location with possible repainting. This would result in a neutral impact on the Platform 2 booking office.	Neutral
Pedestrian steps: northern set (1917, c. 2014-2016)	Little	Retention	Neutral	Retained	The existing stairs were installed as part of the recent TAP upgrade and the original stairs are no longer present. The existing stairs have little significance within the station group. It is proposed to retain them. This would result in a neutral impact on the steps and station overall.	Neutral
Pedestrian steps: southern set (1985, c.2014-2016)	Little	Retention	Neutral	Retained	The existing stairs were installed as part of the recent TAP upgrade and the original stairs are no longer present. The existing stairs have little significance within the station group. It is proposed to retain them. This would result in a neutral impact on the steps and station overall.	Neutral

When considering cumulative impacts, it is assessed that the preferred project would result in a moderate direct impact on Marrickville Railway Station Group overall. This is a reduction in impact from the assessment of the exhibited project, which assessed direct impacts as major.

Sewage Pumping Station 271

No direct impacts to the Sewage Pumping Station 271 are proposed as part of the preferred project.

Direct impact on the Sewage Pumping Station 271 would be neutral. This is consistent with the assessment of the exhibited project.

Stone house, including interiors

No direct impacts to the Stone house, including interiors are proposed as part of the preferred project.

Direct impact on the Stone house, including interiors would be neutral. This is consistent with the assessment of the exhibited project.

1.5.1.3 Visual impacts

Marrickville Railway Station Group

The TAP upgrade concourse and lifts would remain with the addition of canopies over the landing areas around the lifts. The existing concourse buildings would be painted. Pedestrian steps would also be retained. The addition of the canopies around the lift area would have a minor visual impact and would not obscure significant views onto the platform buildings.

The proposed platform screen doors would rise to about two metres to accommodate the specific workings of Metro trains. This would have a minor impact on external views from the platform buildings towards the heritage buildings and a moderate impact on internal views as a result of visual clutter. The new platform screen doors would partially obscure views towards the Platform 1 and Platform 2 building, where they would result in a moderate visual impact which is consistent with the exhibited project.

Existing views from the Illawarra Road overbridge to significant station buildings would be retained and the addition of throw screens on the countryside of the overbridge would have a minor visual impact on the overbridge.

Additional impacts such as the services building to be constructed to the north-east of the station in the rail corridor and signage would have a minor impact on the setting and context of the station as they would be in keeping with the use of the station.

Overall, the new platform screen doors would result in a moderate visual impact. Some views onto the Platform 1 building of exceptional significance and onto the Platform 2 building of high significance would be retained for continued appreciation by the public and users. When considering cumulative impacts, it is assessed that the preferred project would result in a moderate visual impact on Marrickville Railway Station Group. This is consistent with the assessment of the exhibited project.

Sewage Pumping Station 271

The heritage item is located approximately 350 metres from Marrickville Railway Station. The preferred project would have a neutral visual impact onto the pumping station given the intervening distance to the station. Such distances would prevent any significant visual impacts onto the pumping station and would likely be neutral. Any views of the Metro rail corridor would be in keeping with the current views and vistas of the heritage item and would have a neutral visual impact.

Visual impacts on the Sewage Pumping Station 271 would be neutral. This is a reduction in impact from the assessment of the exhibited project, which assessed visual impacts as negligible.

Stone house, including interiors

The heritage-listed stone house is located approximately 150 metres from Marrickville Station and 20 metres south of the existing railway corridor. There would be no significant visual impacts onto the heritage item as a result of the preferred project. Any views of the Metro rail corridor would be in keeping with the current views and vistas of the heritage item and would have a neutral visual impact.

Visual impacts on the heritage-listed Stone house would be neutral. This is a reduction in impact from the assessment of the exhibited project, which assessed visual impacts as negligible.

Stonewalling, terracing and street planting

The closest section of the heritage stonewalling, terracing and street planting is located approximately 65 metres from the southern boundary of Marrickville station. The station is presently screened from the item by existing commercial and residential development located along Station Street and Schwebel Street. Any views on the Metro rail corridor would be in keeping with the current views and vistas of the heritage item and would have a neutral visual impact.

Visual impacts on the heritage-listed stonewalling, terracing and street planting would be neutral. This is a reduction in impact from the assessment of the exhibited project, which assessed visual impacts as negligible.

1.5.1.4 Potential direct impacts

The following table provides an assessment of potential direct impacts on heritage items within the station catchment.

Table 5: Potential direct impact assessment

Item	Exhibited project impact	Potential direct impact assessment	Preferred project impact
Marrickville Railway Station Group	Minor	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
Sewage Pumping Station 271	Minor	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
Stone house, including interiors	Minor	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible

Item	Exhibited project impact	Potential direct impact assessment	Preferred project impact
Stonewalling, terracing and street planting	Negligible	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible

1.5.1.5 Assessment against conservation management policies

The conservation policies provided in the Draft Conservation Management Plan (CMP) prepared for the site for Marrickville Railway Station Group (2016) have been reviewed for this report. Policies provided in the Draft CMP relevant to assessing the impacts of the preferred project have been extracted and provided below for reference. Note that the Draft CMP has been reviewed by the Heritage Council of NSW, but has not yet been endorsed.

Table 6: Relevant conservation policies – Marrickville Railway Station Group[4]

Policy	Assessment of impacts against recommendations
6.1 Adaptive Reuse	*Retain the 1917/1944 Ticket office building in its relocated setting and conserve and enhance the present interior and exterior with all fittings.*
	The booking office would be retained in its current location.
6.3 Adaptive Reuse	*Consider the re-use of redundant spaces in the two buildings [Platform Buildings 1 and 2) for the provision of facilities and amenities which relate to the railway service and passenger and customer amenity and discuss with Property Group to determine the appropriate adaptive reuse options consistent with heritage significance.*
	Re-purposing would be considered during detailed design in accordance with mitigation measure NAH5 (Section 10).
13.1 Associated Sites	*Support the upgrading of the Illawarra Road bridge in rationalising the services and removing the vandalism and graffiti damage*
	The bridge would be retained and upgraded as part of the preferred project.
18.1 Built Heritage	*Ensure appropriate conservation of the Scouller station building on Platform 1*
	The Platform 1 station building would be retained and repurposed
18.2 Built Heritage	*Ensure appropriate conservation of the southern station building on Platform 2*
	The Platform 2 station building would be retained and repurposed.
18.3 Built Heritage	*Ensure appropriate conservation of the two Platforms and associated elements*

[4] David Scobie Architects Pty Ltd 2016

Policy	Assessment of impacts against recommendations
	Platforms 1 and 2 would be partially impacted by the preferred project. Sections of original fabric would be retained. Platform furniture and associated moveable heritage would be conserved and managed under the moveable heritage strategy and salvage strategy as discussed in the mitigation measures where appropriate.
18.4 Built Heritage	*Ensure appropriate conservation of the Illawarra road bridge and associated elements*
	The bridge would be retained and upgraded.
21.5 Materials and Techniques	*Original and early stone masonry (Platform edges) and brickwork should be retained intact and maintained. If new stone is required, a durable stone of suitable colour and texture should be used. Where brick repairs are required, the original bricks should be reused wherever possible, or recycled bricks of the same size and shape as the originals. In both cases, masonry units should be laid with mortar of matching appearance, strength and composition to the original. Consolidants or sealants should not be used.*
	Platforms 1 and 2 would be partially removed. Sections of original and early masonry would be retained where impacts resulting from releveling or installation of the platform barriers does not occur. If appropriate salvage and reuse of original fabric to be removed would be managed under the salvage requirements of mitigation measure NAH7.
22.1 Managing Change	*It is recognised that in the future certain building works may be required for changing passenger and staff facilities however these should be incorporated after appropriate heritage impact analysis, followed by sympathetic design and construction to reduce any adverse heritage impact on the significance of the place.*
	Reduction in heritage impacts has been a key consideration during the design process. Heritage experts have been consulted during the design and options phases including heritage architects and conservation specialists advising during design of the exhibited project. Consultation with the Heritage Working Group and Design Review Panel is ongoing. Results of this consultation have informed this impact assessment. Heritage advice will continue during detail design in order to ensure design is sympathetic to heritage values in accordance with mitigation measure NAH2 and NAH3.
22.2 Managing Change	*Removal of fabric of exceptional or high significance may be acceptable where that fabric has ceased to function and is actively contributing to deterioration in other significant fabric. Otherwise, such fabric should be removed only as a last resort after all other options have been considered. Where multiple elements are present, it may be acceptable to remove some of these elements provided that overall significance is not diminished.*
	The removal of significant fabric has been minimised. Removal of fabric associated with platform levelling is required to enable access to Metro rolling stock from the platform. Removal of significant fabric associated with re-purposing would be minimised and justified were required with appropriate mitigation undertaken.
22.3 Managing Change	*All works to the buildings and site, including unavoidable alteration or removal of significant fabric, should be recorded to an appropriate archival standard. Where fabric of state significance is to be removed, the Heritage Council guidelines for archival recording indicate that the appropriate standard will include measured drawings and archival photographs.*
	Archival recording would be undertaken in accordance with NAH10.

Policy	Assessment of impacts against recommendations
22.4 Managing Change	*Any demolition carried out to the buildings or other site elements should be performed with extreme care with the objective of removing the minimum amount of material, and recovering as much of it as possible in re-useable condition. Materials or components which have any likelihood of being re-used in future works should be protected, catalogued and stored in the dedicated Heritage store on Platform 1.*
	Mitigation measure NAH 13 addresses protection of non-impacted fabric during construction.
22.7 Managing Change	*Alterations and additions to original or early fabric of the buildings and other site elements should be confined to:* • *the removal of intrusive elements, and elements of little significance that interfere with interpretation, when they are no longer needed* • *the removal of elements of little or no significance that are contributing to the deterioration of original or early fabric* • *the reinstatement where appropriate of original or early fabric that has since been removed and for which good evidence exists* • *works to conserve the existing significant fabric, and* • *fully reversible works to adapt the place for changing uses as required.*
	Platform buildings would be retained and repurposed. The overbridge and the booking office would be retained. The original brick platform faces would be conserved where possible. Removal of fabric associated with platform levelling is required to enable access to Metro rolling stock from the platform. Removal of significant fabric associated with re-purposing would be minimised and justified where required with appropriate mitigation undertaken.
22.8 Managing Change	*Any alterations and additions to significant buildings and site elements should be confined to very minor works that are complementary and subservient to the original. Where new work is added to the old work, the new work should be shaped to fit the old rather than the old being altered to accommodate the new. It also implies that the original and early fabric should remain visually prominent after the alteration or addition.*
	This recommendation would be considered as part of detailed design.
22.9 Managing Change	*Any new external elements attached to the original buildings should be designed and constructed in the same style, design detail and materials as the original elements, continuing a process that has been occurring at the station for nearly 100 years. The reuse of surplus original components in any new elements is encouraged.*
	This recommendation would be considered as part of detailed design.
23.1 New Intervention, New Work	*Any new building structures independent of the original Platform 1 and 2 buildings such as the lift, stairs and canopies are to be of a minimal size and simple contemporary design that is sympathetic to the character of the precinct. They should not imitate the original design details; however it is preferred that similar building materials are used in the external finishes where appropriate.*
	This recommendation would be considered as part of detailed design.
23.2 New Intervention, New Work	*Where glass is used in contemporary canopies, it should incorporate a film (e.g. white sand-blast type) to reflect the tradition of toplight glazing in addition to producing dirt and debris hiding qualities.*

Policy	Assessment of impacts against recommendations
	This recommendation would be considered as part of detailed design and implemented if appropriate.
23.3 New Intervention, New Work	*Where steel is used for structural columns and beams, traditional plate and expressed web type sections should be used to reflect the traditional detailing of steelwork.*
	This recommendation would be considered as part of detailed design and implemented if appropriate.
23.4 New Intervention, New Work	*The orientation of new elements such as canopies, lifts and stairs should reflect the alignment and geometry of the related Platform and building elements and structures.*
	This recommendation would be considered as part of detailed design and implemented if appropriate.
23.5 New Intervention, New Work	*The colour of new materials used for cladding stairs and lifts should be dark and not light so as to allow the existing historic colours to remain visually dominant.*
	This recommendation would be considered as part of detailed design and implemented if appropriate.

1.5.2 Dulwich Hill Station

The Dulwich Hill Station Catchment includes one heritage item, the Dulwich Hill Railway Station Group, and one conservation area, the South Dulwich Hill Heritage Conservation Area. The buffer zone around the station catchment includes one heritage item and one conservation area.

1.5.2.1 Summary of heritage listings

The table below provides a summary of the heritage items located within the station catchment and within the 25-metre buffer zone.

Table 7: Heritage items within Dulwich Hill Station Catchment and buffer zone

Item	Suburb	Significance	Listing
Within project area			
Dulwich Hill Railway Station Group	Dulwich Hill	Local	RailCorp S.170 Heritage and Conservation Register (4801909)
South Dulwich Hill Heritage Conservation Area	Dulwich Hill	Local	Marrickville LEP 2011 (C29)
Within buffer zone (outside project area)			
Inter-War Heritage Conservation Area Group—Hollands Avenue; Jocelyn Avenue and Woodbury Street	Dulwich Hill	Local	Marrickville LEP 2011 (C35)
Gladstone Hall, including interiors	Dulwich Hill	Local	Department of Health S.170 Heritage and Conservation Register (3540048) Marrickville LEP 2011 (I13)

1.5.2.2 Direct impacts

Dulwich Hill Railway Station Group

The table below provides an assessment of the direct impacts of the preferred project on the fabric of each element constituting the railway station and an assessment of the subsequent impacts on the heritage values of the station group as a whole.

Table 8: Assessment of direct impacts for Dulwich Hill Railway Station Group

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
Platforms 1/2 (1935)	High	Removal apart from structure underneath heritage building; platform to be rebuilt in a similar curve to the existing and extend further towards the western end; covered concourse, access stairs, lift shaft, platform canopies and platform screen doors to be anchored on the west side of the new platform; new services building to be located on western end of reconstructed platform	Major	Re-levelled New platform screen doors New emergency egress ramps New concourse, stairs and lifts	Platform 1/2 would be re-levelled including the removal of the top section of the concrete coping where necessary. Impacts to the original brick platform face should be avoided where possible. This would have a moderate impact on the platform. New platform screen doors would be anchored on the re-levelled platform. This would result in a moderate impact where pylons and struts are anchored in the platform. New emergency egress ramps would be constructed to the eastern end of the platform and would have a minor impact on the platform. A new elevated station concourse with new stairs and lifts would be provided and would connect the station platform to the Dulwich Hill Light Rail stop. The concourse would be accessed from a new station entrance on Bedford Crescent (northern side). The new concourse, stairs and lifts would be constructed on the platform and located to the west of the platform	Moderate

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
					building. This would involve excavation into the platform for the lift shaft and stair pylons. The new stairs and lifts would have a moderate impact on the platform as a result of installation of pylons and construction of the lift shaft into the platform. Overall, the proposal would result in a moderate impact on the platform and station group as a whole.	
Platform 1/2 building (Type 13) (1935)[5]	High	Retention for re-use with potential retrofitting	Minor	Retained and repurposed	The proposed works to the Platform 1/2 building would include internal refurbishment/repurposing. The building would be used for stores, an accessible (F.A.T) toilet, and staff facilities (including toilets and lockers). The public waiting room would be closed and used for station function. The platform screen door equipment requires a new room and this would be installed underneath the proposed new concourse / stair on the platform. Refurbishing for new accommodation should be designed to minimise impacts to the original fabric. Original layout and finishes, including the original plaster ceiling and wall finishes and original timber seats in the waiting room, should be preserved where possible. The opportunity could be taken to remove any intrusive modifications to the structure. Internal	Moderate

[5] See Artefact August 2017. Section 2.2.6 Station building types

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
					additions to the building should be designed to be sympathetic to the heritage context and minimise fabric and visual impacts. It is understood platform levelling would not encroach on any subfloor ventilation or door thresholds. This aspect of the preferred project would have a moderate impact on the heritage values of the building and station overall, pending detailed design.	
Overhead booking office (1935)	High	Removal	Major	Retained and repurposed	The proposed works to the overhead booking office include internal refurbishment/repurposing. The building would be used for station management, comms, and AC room. The existing retail within the overhead booking office would be retained. The building was ranked in second position in the Sydney Trains Overhead Booking Offices Heritage Conservation Strategy [6] and recommended for retention. It was given an overall ranking of eight out of nine in the strategy. Refurbishing for new accommodation should be designed to minimise impacts to original fabric. Original layout and finishes should be preserved where possible. The opportunity could be taken to remove	Moderate

[6] Australian Museum Consulting 2014. *Railway Overhead Booking Offices Heritage Conservation Strategy*. Prepared for Transport for NSW.

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
					any intrusive modifications to the structure. Internal additions to the building should be designed to be sympathetic to the heritage context and minimise fabric and visual impacts. The refurbishment/repurposing and repainting of the overhead booking office would result in a moderate impact on the fabric and heritage values of the booking office and Dulwich Hill Railway Station as a whole.	
Stairs (1935)	Moderate	Removal	Major	Retained	It is proposed to retain the stairs and footbridge. The stairs were assessed as having moderate significance in the Railway Footbridges Heritage Conservation Strategy.[7] The retention of the stairs would result in a neutral impact on the fabric and historical values of the stairs and the station catchment as a whole.	Neutral
Wardell Road overbridge (c.1930; c.1975)	Moderate	Retention and upgrade	Minor	Full height throw screens would be installed on both sides of the bridge. Smoke screens would be removed as well as other minor upgrades	It is proposed to install throw screens on both sides of the Wardell Road overbridge and new insulation panels. The current smoke screens would be removed and other minor upgrade works provided for safety, as required. The proposed works would have a minor direct impact on the heritage	Minor

[7] NSW Government Architect's Office Heritage Group 2016. *Railway Footbridges Heritage Conservation Strategy*. Prepared for Sydney Trains.

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
					values of the overbridge and station overall.	

When considering cumulative impacts, it is assessed that the preferred project would result in a moderate direct impact on Dulwich Hill Railway Station Group overall. This is a reduction in impact from the assessment of the exhibited project, which assessed direct impacts as major.

South Dulwich Hill Heritage Conservation Area

Minor corridor works would be carried out between Marrickville and Dulwich Hill railway stations, including the installation of new fencing and communications services routes. The Albermarle Street overbridge would have train collision protection installed to the existing steel support trestles. The curtilage of the South Dulwich Hill HCA comprises a 295 metres section of railway line starting approximately 100 metres east of Dulwich Hill Station. Direct impacts proposed within the curtilage of the conservation area would include the corridor works, and installation of train collision protection to the existing steel support trestles of the Albermarle Street overbridge. No areas of heritage significance within the conservation area would be directly impacted by the works. Alterations to the railway corridor and the Albermarle Street overbridge would be in line with the exiting railway use and operation setting of this portion of the conservation area.

Direct impacts of the works onto the South Dulwich Hill HCA would be negligible. This is consistent with the assessment of the exhibited project.

1.5.2.3 Visual impacts

Dulwich Hill Railway Station Group

The new concourse would be modern in style and would be considerably larger in height in comparison with the 1935 platform building. New lifts and stairs would be constructed. Canopies would be constructed over the landing areas around lifts. There would not be canopies above, or adjacent to, the heritage building, which would remain clearly visible from the concourse, and separated from the new layers of development. The nature of the chosen materials and the contemporary nature of the proposed new concourse would be suitable within the present context as a contradistinctive design to be easily differentiated from the heritage components of the site. The proposed concourse and services building would be sited away from the heritage building.

The proposed platform screen doors along Platform 1/2 would rise to about two metres to accommodate the specific workings of Metro trains. This would have a minor impact on external views from the platform buildings and from the new concourse towards the heritage buildings and a moderate impact on internal views as a result of visual clutter.

The proposed full height throw screens and removal of smoke screens on the Wardell Road overbridge would have a minor visual impact to the overbridge.

Additional impacts such as the services building to be constructed to the west of the station in the rail corridor, landscaping, new pavement, kerbside facilities and signage would have a minor impact on the setting and context of the station as they would be in keeping with the use of the station.

Overall, the proposed concourse and station infrastructure would have a moderate visual impact on the character and setting of Dulwich Hill Station. The new Metro concourse would add considerable bulk to the station. The platform screen doors would result in a moderate visual impact.

When considering cumulative impacts, it is assessed that the preferred project would result in a moderate visual impact on Dulwich Hill Railway Station Group. This is a reduction in impact from the assessment of the exhibited project, which assessed visual impacts as major.

South Dulwich Hill Heritage Conservation Area

The South Dulwich Hill HCA comprises a portion of land extending from the north of Dulwich Hill Station, approximately 125 metres from the north boundary of the station, across the railway line and to the south-east where it reaches Beauchamp Road. The proposed corridor works and installation of train collision protection to the existing steel support trestles of the Albermarle Street overbridge would remain in line with the existing character of this portion of the HCA and would result in a neutral visual impact.

The preferred project would involve the construction of a new concourse, and new services building along the southern boundary of Dulwich Hill Station. There are some views from residential allotments within the HCA onto the eastern side of the station. These views are generally limited by mature trees and the siting of the station catchment in an embankment below street level. The bulk of the additions proposed would be concentrated on the western side of the station catchment further from views. The visual impacts of the proposed works on the contributory items in proximity would be minor. The remainder of the HCA does not share views to and from the station catchment and would not be impacted by the works.

Visual impacts on the Dulwich Hill HCA would be negligible. This is consistent with the assessment of the exhibited project.

Inter-War Heritage Conservation Area Group

The Inter-War HCA is located approximately 25 metres north of the railway corridor and 490 metres east from the eastern edge of the station platform. Current views from the HCA towards the railway line are screened by houses along Marrickville Avenue. The section of the conservation area located within the buffer zone at the corner of Marrickville Avenue and Livingstone Road is also screened by existing vegetation along the railway corridor. Additionally, the railway corridor is located in an embankment below street level and only limited views are available from the surrounding environment. Any views on the Metro rail corridor would be in keeping with the current views and vistas of the HCA and would have a neutral visual impact.

Visual impacts on the Inter-War HCA Group would be neutral. This is a reduction in impact from the assessment of the exhibited project, which assessed visual impacts as negligible.

Gladstone Hall, including interiors

Gladstone Hall is located approximately 40 metres south of the railway corridor and 270 metres from the western edge of the platform of Dulwich Hill Railway Station. Views from the heritage item towards the railway line are limited as they are screened by vegetation within the curtilage of the item, as well as along the railway corridor. Any views on the Metro rail corridor would be in keeping with the current views and vistas of the heritage item and would have a neutral visual impact.

Visual impact on Gladstone Hall would be neutral. This is consistent with the assessment of the exhibited project.

1.5.2.4 Potential direct impacts

The following table provides an assessment of potential direct impacts on heritage items within the station catchment.

Table 9: Potential direct impact assessment

Item	Exhibited project impact	Potential direct impact assessment	Preferred project impact
Dulwich Hill Railway Station Group	Minor	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
South Dulwich Hill Heritage Conservation Area	Minor	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
Inter-War Heritage Conservation Area Group	Minor	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
Gladstone Hall, including interiors	Minor	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible

1.5.3 Hurlstone Park Station

The Hurlstone Park Station Catchment comprises two heritage items, the Hurlstone Park Railway Station Group and the Hurlstone Park Railway Underbridge. The buffer zone around the station catchment does not comprise any heritage items or conservation areas.

1.5.3.1 Summary of heritage listings

The table below provides a summary of the heritage items located within the station catchment and within the 25-metre buffer zone.

Table 10: Heritage items within Hurlstone Park Station Catchment and buffer zone

Item	Suburb	Significance	Listing
Within project area			
Hurlstone Park Railway Station Group	Hurlstone Park	Local	RailCorp S.170 Heritage and Conservation Register (4802051) Canterbury LEP 2012 (I124)
Hurlstone Park Railway Underbridge	Hurlstone Park	Local	RailCorp S.170 Heritage and Conservation Register (4805737) Canterbury LEP 2012 (I126)

1.5.3.2 Direct impacts

Hurlstone Park Railway Station Group

The table below provides an assessment of the direct impacts of the preferred project on the fabric of each element constituting the railway station and an assessment of the subsequent impacts on the heritage values of the station group as a whole. Since preparation of the assessment of the exhibited project, Hurlstone Park Railway Station Group is no longer considered for SHR listing.

Table 11: Assessment of direct impacts for Hurlstone Park Railway Station Group

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
Platform 1 (1894)	High	Removal; platform to be rebuilt in straight alignment; covered concourse, access stairs, lift shafts, platform canopies, platform screen doors and station buildings to be anchored on new platform	Major	Re-levelled New platform screen doors New emergency egress ramps New lifts /concourse Stairs replaced	Platform 1 would be re-levelled including the removal of the top section of the concrete coping where necessary. Impacts to the original brick platform face should be avoided where possible. This would have a moderate impact on the platform. New platform screen doors would be anchored on the re-levelled platform. This would result in a moderate impact where pylons and struts are anchored in the platform. New emergency egress ramps would be constructed to the western end of the platform and would have a minor impact on the platform. New small concourse, stairs and lifts would be constructed on the platform and located to the north-east of the platform buildings, immediately adjacent the existing concourse and station entry. This would involve excavation into the platform for the lift shaft and stair pylons. The construction of the new stairs and lifts would have a moderate impact on the platform with pylons into the platform to support the stairs and excavation of the lift shaft into the platform. Overall, the proposal would result in a moderate impact on the platform and station group as a whole.	Moderate

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
Platform 2 (1894)	High	Removal apart from structure underneath heritage building; platform to be rebuilt in straight alignment; covered concourse, access stairs, lift shafts, platform canopies, platform screen doors and station buildings to be anchored on new platform	Major	Re-levelled New platform screen doors New emergency egress ramps New lifts /concourse Stairs replaced	Platform 2 would be re-levelled including the removal of the top section of the concrete coping where necessary. Impacts to the original brick platform face should be avoided where possible. This would have a moderate impact on the platform. New platform screen doors would be anchored on the re-levelled platform. This would result in a moderate impact where pylons and struts are anchored in the platform. New emergency egress ramps would be constructed to the western end of the platform and would have a minor impact on the platform. New small concourse, stairs and lifts would be constructed on the platform and located to the north-east of the platform buildings, immediately adjacent the existing concourse and station entry. This would involve excavation into the platform for the lift shaft and stair pylons. The construction of the new stairs and lifts would have a moderate impact on the platform as a result of installation of stair pylons and excavation of the platform for the lift shaft. Overall, the proposal would result in a moderate impact on the platform and station group as a whole.	Moderate

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
Platform building, platform 1 (Type 11) (1915)[8]	High	Removal	Major	Retained and repurposed	The proposed works to the Platform 1 building would include internal refurbishment/repurposing. The building would be used for stores, AC room, platform screen door equipment, and an accessible toilet. Refurbishing for new accommodation should be designed to minimise impacts to original fabric. Original layout and finishes, including the original plaster ceiling and wall finishes in the general waiting room, the ladies waiting room, and ladies toilets, and the original painting brick walls in the men's toilets, should be preserved where possible. The opportunity could be taken to remove any intrusive modifications to the structure. Internal additions to the building should be designed to be sympathetic to the heritage context and minimise fabric and visual impacts. It is understood platform levelling would not encroach on any subfloor ventilation or door thresholds. This aspect of the preferred project would have a moderate impact on the heritage values of the building and station overall, pending detailed design.	Moderate

[8] See Artefact August 2017. Section 2.2.6 Station building types

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
Platform building, platform 2 (Type 11) (1915)[9]	High	Retention for re-use with potential retrofitting	Minor	Retained and repurposed	The proposed works to the Platform 2 building would include internal refurbishment/repurposing. The building would be used for a station management room, and staff toilets. Refurbishing for new accommodation should be designed to minimise impacts to original fabric. Original layout and finishes, including the original plaster wall finishes, ripple iron ceiling, plaster ceiling rose and timber floor in the waiting room and ladies waiting room, the original timber partitions and fittings in the ladies toilets, and the original painted bricks walls, urinal stalls, and timber partitions, should be preserved where possible. The opportunity could be taken to remove any intrusive modifications to the structure. Internal additions to the building should be designed to be sympathetic to the heritage context and minimise fabric and visual impacts. It is understood platform levelling would not encroach on any subfloor ventilation or door thresholds. This aspect of the preferred project would have a moderate impact on the heritage values of the building and station overall, pending detailed design.	Moderate

[9] See Artefact August 2017. Section 2.2.6 Station building types

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
Footbridge (1915)	High (stairs) Moderate (footbridge) Little (deck)	Removal	Major	Replaced	The footbridge including significant stairs would be fully removed to allow for the construction of new lifts and stairs. The footbridge was assessed as having moderate significance as per the Railway Footbridges Heritage Conservation Strategy.[10] It was highlighted for careful conservation and adaptation. This removal would have a major impact on the fabric of the footbridge and on Hurlstone Park Station as a whole.	Major
Brick abutments (c.1915)	High	Retention and upgrade	Minor	Throw screens to both sides, remove smoke screens, and minor upgrades	It is proposed to install throw screens on both sides of Crinan Street overbridge. The current smoke screens would be removed, and other minor upgrades for safety as required. Proposed works to the brick abutments would be minor. The proposed works would have a negligible direct impact on the heritage values of the overbridge and station overall.	Negligible
Overhead booking office (c.1980)	Little	Removal	Neutral	Retained and repurposed	It is proposed to refurbish/repurpose the overhead booking office and repaint the exterior. The building would be used as staff rooms. The overhead booking office is not identified as significant in the Sydney Trains Overhead Booking Office	Neutral

[10] NSW Government Architect's Office Heritage Group 2016. *Railway Footbridges Heritage Conservation Strategy*. Prepared for Sydney Trains.

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
					Conservation Strategy. The opportunity could be taken to remove any intrusive modifications to the structure. The proposed works would result in a neutral impact on the overhead booking office and station overall.	
Landscape /natural features	High	Retention	Neutral positive	Retained	It is proposed to retain the sandstone wall on Platform 2. This would result in a neutral positive impact on Hurlstone Park Railway Station.	Neutral positive

When considering cumulative impacts, it is assessed that the preferred project would result in a moderate direct impact on Hurlstone Park Railway Station Group overall. This is a reduction in impact from the assessment of the exhibited project, which assessed direct impacts as major. It should be noted that the removal of the footbridge is a major localised impact.

Hurlstone Park Railway Underbridge

No works are proposed to the underbridge, which is located 180 metres west of Hurlstone Park Railway Station. Minor works would be undertaken within the rail corridor, including installation of fencing and communications services routes. The preferred project would have a negligible impact on the heritage values of the underbridge.

Direct impacts of the works on the Hurlstone Park Railway underbridge would be negligible. This is consistent with the assessment of the exhibited project.

Hurlstone Park Heritage Assessment Study – Heritage items

The Hurlstone Park Heritage Assessment study (Paul Davies September 2016) has recently been given a gateway Determination by the Department of Planning and Environment. There are a number of heritage items identified for listing and HCAs within the buffer zone of the Hurlstone Park Station Catchment. There would be no direct impacts to any newly identified heritage items as a result of the preferred project and indirect impacts are expected to be minor. Detailed design would consider the character of the Heritage Conservation Areas in the vicinity of the station. This is consistent with the assessment of the exhibited project.

1.5.3.3 Visual impacts

Hurlstone Park Railway Station Group

The new small concourse, lifts and stairs would be new elements within the station and use modern construction. The nature of the chosen materials and the contemporary nature of the proposed new concourse would be suitable within the present context as a contradistinctive design to be easily differentiated from the heritage components of the site. The proposed new concourse, lifts and stairs would have a moderate visual impact. The proposed concourse and services building would be sited away from the heritage building. Views from the Crinan Street overbridge towards the platform buildings would be partially impeded with the introduction of the new lifts.

The removal of the footbridge stairs would result in the loss of this heritage item and it would be replaced with modern structures. This would result in a major visual impact to the footbridge stairs.

The platform screen doors along the platforms would rise to about two metres to accommodate the specific workings of Metro trains. This would have a minor impact on external views from the platform buildings and from the new concourse towards the heritage buildings and a moderate impact on internal views as a result of visual clutter.

The proposed throw screens and removal of smoke screens on the Crinan Street overbridge would have a negligible visual impact to the brick abutments.

Additional impacts such as the services building to be constructed to the south-west of the station in the rail corridor, landscaping, new pavement, kerbside facilities and signage would have a minor impact on the setting and context of the station as they would be in keeping with the use of the station.

Overall, the proposed concourse, lifts and stairs, and station infrastructure would have a moderate visual impact on the character and setting of Hurlstone Park Railway Station Group. Views onto the platform buildings would be partially retained from the new concourse, although views from the overbridge would be partially impeded due to the introduction of the new lifts. Views of the footbridge stairs would be lost due to the removal of this element which would also result in a major visual impact. The platform screen doors would result in a moderate visual impact overall.

When considering cumulative impacts, it is assessed that the preferred project would result in a moderate visual impact on Hurlstone Park Railway Station Group. This is a reduction in impact from the assessment of the exhibited project, which assessed visual impacts as major.

Hurlstone Park Railway Underbridge

No works are proposed to the underbridge. The heritage item is located approximately 180 metres west of Hurlstone Park Railway Station. Current views on the station are very limited. The proposed redevelopment of Hurlstone Park Railway Station would have a negligible visual impact on the underbridge. The Metro rail corridor would be in keeping with the current setting of the heritage item and would have a neutral visual impact.

Visual impact on Hurlstone Park Railway Underbridge would be negligible. This is consistent with the assessment of the exhibited project.

1.5.3.4 Potential direct impacts

The following table provides an assessment of potential direct impacts on heritage items within the station catchment.

Table 12: Potential direct impact assessment

Item	Exhibited project impact	Potential direct impact assessment	Preferred project impact
Hurlstone Park Railway Station Group	Minor	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
Hurlstone Park Railway Underbridge	Negligible	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible

1.5.4 Canterbury Station

The Canterbury Station Catchment comprises three heritage items including the Canterbury Railway Station Group, the Canterbury (Cooks River) Underbridge and the Canterbury (Cooks River/Charles St) Underbridge - Main Line. The buffer zone around the station catchment comprises four heritage items.

1.5.4.1 Summary of heritage listings

The table below provides a summary of the heritage items located within the station catchment and within the 25-metre buffer zone.

Table 13: Heritage items within Canterbury Station Catchment and buffer zone

Item	Suburb	Significance	Listing
Within project area			
Canterbury Railway Station Group	Canterbury	State	SHR (01109) RailCorp S.170 Heritage and Conservation Register (4801100) Canterbury LEP 2012 (I67)
Canterbury (Cooks River) Underbridge	Canterbury	Local	RailCorp S.170 Heritage and Conservation Register (4801568) Canterbury LEP 2012 (I72)
Canterbury (Cooks River/Charles St) Underbridge - Main Line	Canterbury	Local	RailCorp S.170 Heritage and Conservation Register (5062566)
Within buffer zone (outside project area)			
Old Sugarmill	Canterbury	State	SHR (00290) Canterbury LEP 2012 (I82)
Inter-War Hotel (former Hotel Canterbury)	Canterbury	Local	Canterbury LEP 2012 (I68)
Federation Post Office Building (former Canterbury Post Office)	Canterbury	Local	Canterbury LEP 2012 (I66)
Electricity Substation no. 275	Canterbury	Local	Ausgrid S.170 Heritage and Conservation Register (3430425)

1.5.4.2 Direct impacts

Canterbury Railway Station Group

The table below provides an assessment of the direct impacts of the preferred project on the fabric of each element constituting the railway station and an assessment of the subsequent impacts on the heritage values of the station group as a whole.

Table 14: Assessment of direct impacts for Canterbury Railway Station Group

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
Platform 1 (1895)	High	Removal; platform to be rebuilt in straight alignment; covered concourse, access stairs, lift shaft, platform canopies and platform screen doors to be anchored on new platform	Major	Re-levelled New platform screen doors New emergency egress ramps Stairs demolished and replaced with new stairs Installation of a new lift	Platform 1 would be re-levelled including the removal of the top section of the concrete coping where necessary. Impacts to the original brick platform face should be avoided where possible. This would have a moderate impact on the platform. New platform screen doors would be anchored on the re-levelled platform. This would result in a moderate impact where pylons and struts are anchored in the platform. New emergency egress ramps would be constructed to the western end of the platform and would have a minor impact on the platform. The existing stairs would be demolished and replaced with new stairs. A new lift would be installed. This would involve excavation into the platform for the lift shaft and stair pylons. The new stairs and lift would have a moderate impact on the platform.	Moderate

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
					Overall, the proposal would result in a moderate impact on the platform and station group as a whole.	
Platform building, platform 1 (Type 11) (1895)[11]	Exceptional	Retention for re-use with potential retrofitting	Minor	Retained and repurposed Awning would be removed	The proposed works to the Platform 1 building would include internal refurbishment/repurposing and the awning at the stair end which is not significant, would be removed. The building would be used for stores, station management room, AC room and Accessible toilet. Refurbishing for new accommodation should be designed to minimise impacts to original fabric. Original layout and finishes should be preserved where possible. The opportunity could be taken to remove any intrusive modifications to the structure. Internal additions to the building should be designed to be sympathetic to the heritage context and minimise fabric and visual impacts. It is understood platform levelling would not encroach on any subfloor ventilation or door thresholds. This aspect of the preferred project would have a moderate impact on the heritage values of the building and station overall, pending detailed design.	Moderate

[11] See Artefact August 2017. Section 2.2.6 Station building types

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
Platform 2 (1895)	High	Removal apart from structure underneath heritage building; platform to be rebuilt in straight lines; covered concourse, access stairs, lift shafts, platform canopies and platform screen doors to be anchored on new platform	Major	Re-levelled New platform screen doors New emergency egress ramps New lift	Platform 2 would be re-levelled including the removal of the top section of the concrete coping where necessary. Impacts to the original brick platform face should be avoided where possible. This would have a moderate impact on the platform. New platform screen doors would be anchored on the re-levelled platform. This would result in a moderate impact where pylons and struts are anchored in the platform. New emergency egress ramps would be constructed to the western end of the platform and would have a minor impact on the platform. A new lift would be installed. This would involve excavation into the platform for the lift shaft. The new lifts would have a moderate impact on the platform. Overall, the proposal would result in a moderate impact on the platform and station group as a whole.	Moderate
Platform building, platform 2 (Type 11) (1915)[12]	High	Retention for re-use with potential retrofitting	Minor	Retained and repurposed	The proposed works to the Platform 2 building would include internal refurbishment/repurposing. The building would be used for platform screen door equipment and chemical store.	Moderate

[12] See Artefact August 2017. Section 2.2.6 Station building types

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
					Refurbishing for new accommodation should be designed to minimise impacts to original fabric. Original layout and finishes, including the original ripple iron ceiling, ceiling rose, and plaster wall finishes in the waiting room and ladies room, should be preserved where possible. The opportunity could be taken to remove any intrusive modifications to the structure. Internal additions to the building should be designed to be sympathetic to the heritage context and minimise fabric and visual impacts. It is understood platform levelling would not encroach on any subfloor ventilation or door thresholds. This aspect of the preferred project would have a moderate impact on the heritage values of the building and station overall, pending detailed design.	
Signal box (1915)	High	Retention	Neutral	Retained	The signal box would be retained as is and would not be affected by the project. This would result in a neutral impact on the signal box.	Neutral
Footbridge (1915, 1947)	Moderate	Removal for replacement with new covered concourse including access stairs and lift shafts	Moderate	Retained	It is proposed to retain the footbridge. The footbridge was assessed as having moderate significance as per the Railway Footbridges Heritage Conservation Strategy.[13]	Neutral

[13] NSW Government Architect's Office Heritage Group 2016. *Railway Footbridges Heritage Conservation Strategy*. Prepared for Sydney Trains.

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
					This would result in a neutral impact on the footbridge and Canterbury Railway Station overall.	
Overbridge (c.1917)	High	Retention and upgrade	Moderate	Retained	It is proposed to install throw screens on the city side of the Canterbury Road overbridge. Vehicle barriers would be installed on the north side of the bridge, as well as other minor upgrades for safety as required. The proposed works would have a minor direct impact on the heritage values of the overbridge and station overall.	Minor
Overhead booking office and concourse (Late 1980s)	Little	Removal for replacement with new covered concourse including access stairs and lift shafts	Neutral	Retained and repurposed	It is proposed to retain and repurpose the overhead booking office. It would be used for a staff room, bin room, and AC room. The overhead booking office is not identified as significant in the Sydney Trains Overhead Booking Office Conservation Strategy. This would result in a neutral impact on the station catchment.	Neutral
Canopies (Late 1980s)	Little	Removal for replacement with new platform canopies	Neutral	Retained	It is proposed to retain the canopies. This would result in a neutral impact on the canopies and station catchment.	Neutral
Canopies	Little	None	Neutral	Removed	These intrusive steel framed and metal roof clad canopies would be removed.	Neutral

The design provides for a potential future station entrance on Charles Street, to enable access to Platform 2. The future station entrance is to be safeguarded subject to detail design. No heritage items would be removed in regard to the future proofing. When considering cumulative impacts, it is assessed that the preferred project would result in a moderate direct impact on Canterbury Railway Station Group overall. This is consistent with the assessment of the exhibited project.

Canterbury (Cooks River) Underbridge

Throw screens and vehicle protection would be added to the bridge. This would have a minor direct impact onto Canterbury (Cooks River) Underbridge. This is a reduction in impact from the assessment of the exhibited project, which assessed direct impacts as moderate.

Canterbury (Cooks River/Charles St) Underbridge – Main Line

The proposed works include installing throw screens and vehicle protection. This would have a minor direct impact onto Canterbury (Cooks River/Charles St) Underbridge – Main Line. This is a reduction in impact from the assessment of the exhibited project, which assessed direct impacts as moderate.

1.5.4.3 Visual impacts

Canterbury Railway Station Group

The new lifts and stairs would be new elements within the station and use modern construction. The use of new materials would be suitable within the present context as a contradistinctive design to be easily differentiated from the heritage components of the site. The proposed new lifts and stairs would have a moderate visual impact. The proposed services building would be sited away from the heritage building to the south-west.

The modern brick retaining wall at the station entrance would be removed to allow for better accessible access. This would have a negligible visual impact on the station.

The removal of the footbridge stairs would result in the loss of this heritage item and it would be replaced with modern structures. This would result in a major visual impact to the footbridge stairs.

The platform screen doors along the platforms would rise to about two metres to accommodate the specific workings of Metro trains. This would have a minor impact on external views from the platform buildings towards the heritage buildings and a moderate impact on internal views as a result of visual clutter.

The proposed throw screens and installation of vehicle barriers on the overbridge would have a minor visual impact to the overbridge.

Additional impacts such as the services building to be constructed to the south-west of the station in the rail corridor, landscaping, new pavement, kerbside facilities and signage would have a minor impact on the setting and context of the station as they would be in keeping with the use of the station.

The design provides for a potential future station entrance on Charles Street, to be safeguarded subject to detail design. .. Views towards the provisional location of the future station entrance are not of high significance, and the entrance would be located at a suitable distance to the west of the Platform 2 building.

Overall, the proposed lifts and stairs, and station infrastructure would have a moderate visual impact on the character and setting of Canterbury Railway Station Group. Views of the footbridge stairs would be lost due to the removal of this element which would also result in a major visual impact. The platform screen doors would result in a moderate visual impact overall.

When considering cumulative impacts, it is assessed that the preferred project would result in a moderate visual impact on Canterbury Railway Station Group. This is consistent with the assessment of the exhibited project.

Canterbury (Cooks River) Underbridge

The heritage item is located approximately 200 metres to the northwest of Canterbury Railway Station. Current views on the station are very limited. The preferred project would have a negligible visual impact on the underbridge. The Metro rail corridor would be in keeping with the current setting of the heritage item and would have a neutral visual impact.

Visual impacts on Canterbury (Cooks River) Underbridge would be negligible. This is a reduction in impact from the assessment of the exhibited project, which assessed visual impacts as minor.

Canterbury (Cooks River/Charles St) Underbridge – Main Line

The heritage item is located approximately 200 metres to the northwest of Canterbury Railway Station, adjacent to the Canterbury (Cooks River) Underbridge. Current views on the station are very limited. The preferred project would have a minor visual impact on the underbridge as it is assumed throw screens and vehicle protection would be as light weight as possible. The Metro rail corridor would be in keeping with the current setting of the heritage item and would have a neutral visual impact.

Visual impacts on Canterbury (Cooks River/Charles St) Underbridge – Main Line would be minor. This is consistent with the assessment of the exhibited project.

Old Sugarmill

The Old Sugarmill is located approximately 30 metres south of the railway corridor and 270 metres south-east of Canterbury station. Current views towards the railway line are screened by the rise of Hutton Street as it goes west. Some vegetation also screens partial views towards the railway corridor. Views towards the station are screened by contemporary residential development. Any views on the Metro rail corridor would be in keeping with the current views and vistas of the heritage item and would have a neutral visual impact. It is proposed to install throw screens on both sides of the Church St/Hutton St footbridge. The current smoke screens would be removed, and other minor upgrades for safety as required. This would have a negligible visual impact on Old Sugarmill.

Visual impacts on the Old Sugarmill would be negligible. This is consistent with the assessment of the exhibited project.

Inter-War Hotel (former Hotel Canterbury)

The Inter-War Hotel is located approximately 45 metres east of the current station entrance. There is currently a direct view from the hotel towards the station entrance. Views towards the railway corridor are screened as the railway line is located in a cutting at a lower level. The installation of the new lifts would be screened by the existing overhead booking office and entrance. The modern brick retaining wall at the station entrance would be removed to allow for better accessible access. This would have a neutral visual impact on the Inter-War Hotel. Any views on the Metro rail corridor would be in keeping with the current views and vistas of the heritage item and would have a neutral visual impact. There are no views from the heritage item onto the Church St/Hutton St footbridge.

Visual impacts on the Inter-War Hotel would be neutral. This is consistent with the assessment of the exhibited project.

Federation Post Office Building (former Canterbury Post Office)

The post office is located approximately 15 metres north of the current station entrance. There is currently a direct view from the former post office towards the station entrance. Views towards the railway corridor are screened as the railway line is located in a cutting at a lower level. The installation of the new lifts would be screened by the existing overhead booking office and entrance. The modern brick retaining wall at the station entrance would be removed to allow for better accessible access. This would have a neutral visual impact. Any views on the Metro rail corridor would be in keeping with the current views and vistas of the heritage item and would have a neutral visual impact. There are no views from the heritage item onto the Church St/Hutton St footbridge.

Visual impacts on the Federation Post Office Building would be neutral. This is consistent with the assessment of the exhibited project.

Electricity Substation no. 275

The electricity substation is located approximately 10 metres north of the railway corridor and 210 metres south-east of the station. Current views towards the railway line are partially obstructed as the railway corridor is in a cutting at this location. Views towards the station are screened as the railway line turns slightly north. Any views on the Metro rail corridor would be in keeping with the current views and vistas of the heritage item and would have a neutral visual impact. It is proposed to install throw screens on both sides of the Church St/Hutton St footbridge. The current smoke screens would be removed, and other minor upgrades for safety would be carried out as required. This would have a negligible visual impact on the Electricity Substation no. 275.

Visual impacts on the Electricity Substation no. 275 would be negligible. This is consistent with the assessment of the exhibited project.

1.5.4.4 Potential direct impacts

The following table provides an assessment of potential direct impacts on heritage items within the station catchment.

Table 15: Potential direct impact assessment

Item	Exhibited project impact	Potential direct impact assessment	Preferred project impact
Canterbury Railway Station Group	Minor	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
Canterbury (Cooks River) underbridge	Negligible	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible

Item	Exhibited project impact	Potential direct impact assessment	Preferred project impact
Canterbury (Cooks River/Charles St) Underbridge - Main Line	Negligible	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
Old Sugarmill	Minor	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
Inter-War Hotel (former Hotel Canterbury)	Negligible	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
Federation Post Office Building (former Canterbury Post Office)	Minor	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
Electricity substation no. 275	Negligible	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible

1.5.5 Campsie Station

The Campsie Station Catchment comprises one heritage item, the Campsie Railway Station Group. The buffer zone around the station catchment comprises six heritage items.

1.5.5.1 Summary of heritage listings

The table below provides a summary of the heritage items located within the station catchment and within the 25-metre buffer zone.

Table 16: Heritage items within Campsie Station Catchment and buffer zone

Item	Suburb	Significance	Listing
Within project area			
Campsie Railway Station Group	Campsie	Local	RailCorp S.170 Heritage and Conservation Register (4801101) Canterbury LEP 2012 (I40)
Within buffer zone (outside project area)			
Federation commercial building–Coffill's Buildings	Campsie	Local	Canterbury LEP 2012 (I41)
Inter-War Commercial Building–Station House	Campsie	Local	Canterbury LEP 2012 (I42)
Inter-War Court House (former) Campsie Court House	Campsie	Local	Canterbury LEP 2012 (I44)
War Memorial Clock Tower	Campsie	Local	Canterbury LEP 2012 (I34)
Federation house	Campsie	Local	Canterbury LEP 2012 (I61)
Federation villa	Campsie	Local	Canterbury LEP 2012 (I62)

1.5.5.2 Direct impacts

Campsie Railway Station Group

The table below provides an assessment of the direct impacts of the preferred project on the fabric of each element constituting the railway station and an assessment of the subsequent impacts on the heritage values of the station group as a whole.

Table 17: Assessment of direct impacts for Campsie Railway Station Group

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred ect	Preferred project impact summary
Platform 1 (1894)	High	Removal apart from structure underneath heritage building; platform to be rebuilt in straight alignment; covered concourse, access stairs, lift shafts, platform canopies and platform screen doors to be anchored on new platform	Major	Re-levelled New platform screen doors New emergency egress ramps	Platform 1 would be re-levelled including the removal of the top section of the concrete coping where necessary. Impacts to the original brick platform face should be avoided where possible. This would have a moderate impact on the platform. New platform screen doors would be anchored on the re-levelled platform. This would result in a moderate impact where pylons and struts are anchored in the platform. New emergency egress ramps would be constructed to the western end of the platform and would have a minor impact on the platform. Overall, the proposal would result in a moderate impact on the platform and station group as a whole.	Moderate
Platform 2 (1894)	High	Removal apart from structure underneath heritage building; platform to be rebuilt in straight alignment; covered concourse, access stairs, lift shaft, platform canopies and platform screen doors to be anchored on new platform	Major	Re-levelled New platform screen doors New emergency egress ramps	Platform 2 would be re-levelled including the removal of the top section of the concrete coping where necessary. Impacts to the original brick platform face should be avoided where possible. This would have a moderate impact on the platform. New platform screen doors would be anchored on the re-levelled platform. This would result in a moderate impact where pylons and struts are anchored in the platform.	Moderate

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred ect	Preferred project impact summary
					New emergency egress ramps would be constructed to the western end of the platform and would have a minor impact on the platform. Overall, the proposal would result in a moderate impact on the platform and station group as a whole.	
Platform building, platform 1 (Type 11) (1915)[14]	High	Retention for re-use with potential retrofitting	Minor	Retained and repurposed	The proposed works to the Platform 1 building would include internal refurbishment/repurposing. The building would be used for cleaner's store, chemical store, and an accessible toilet. Refurbishing for new accommodation should be designed to minimise impacts to original fabric. Original layout and finishes should be preserved where possible. Note that original plaster wall finishes, ripple iron ceilings and timber cornices remain as well as celling roses in the general waiting room, ladies waiting room and ladies toilets. These should be retained. The opportunity could be taken to remove any intrusive modifications to the structure. Internal additions to the building should be designed to be sympathetic to the heritage context and minimise fabric and visual impacts.	Moderate

[14] See Artefact August 2017. Section 2.2.6 Station building types

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred ect	Preferred project impact summary
					It is understood platform levelling would not encroach on any subfloor ventilation or door thresholds. This aspect of the preferred project would have a moderate impact on the heritage values of the building and station overall, pending detailed design.	
Platform building, platform 2 (Type 11) (1915)[15]	High	Retention for re-use with potential retrofitting	Minor	Retained and repurposed	The proposed works to the Platform 2 building would include internal refurbishment/repurposing. The building would be used for stores for the platform screen door equipment and a station store room. Refurbishing for new accommodation should be designed to minimise impacts to original fabric. Original layout and finishes should be preserved where possible. The waiting room and ladies waiting room retain original plaster wall finishes, ripple iron ceiling, plaster ceiling roses and timber floors. These should be conserved. The opportunity could be taken to remove any intrusive modifications to the structure. Internal additions to the building should be designed to be sympathetic to the heritage context and minimise fabric and visual impacts.	Moderate

[15] See Artefact August 2017. Section 2.2.6 Station building types

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred ect	Preferred project impact summary
					It is understood platform levelling would not encroach on any ventilation or door frames. This aspect of the preferred project would have a moderate impact on the heritage values of the building and station overall, pending detailed design.	
Concourse including overhead booking office and Parcels Office	Little (Concourse) Moderate (Overhead booking office and Parcels Office)	Retention and partial removal for upgrading	Moderate	Retained and repurposed	It is proposed to retain the existing new concourse elements (c2001) including concrete deck, lifts, stairs, roof, gateline and customer toilets. The existing (original) concourse steel structure would be retained and repurposed. It is proposed to retain the 1915 overhead booking office, the c.1950 Parcels Office, and the remaining concourse structures between the gateline and Beamish Street, which would be repurposed for a store, bin room, comms room, staff toilets, station management, staff facilities and an AC room. Note that the overhead booking office ranked four out of nine in the Sydney Trains Overhead Booking Offices Heritage Conservation Strategy and its retention is a positive heritage outcome[16]. Remnant elements of the	Minor

[16] Australian Museum Consulting 2014. *Railway Overhead Booking Offices Heritage Conservation Strategy*. Prepared for Transport for NSW.

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred ect	Preferred project impact summary
					building are wholly incorporated into the modern overhead concourse.	
Overbridge (1915)	High	Retention and upgrade	Minor	Retained	The structure is proposed to be retained and repaired for ongoing use. These minor upgrade works would include checking exiting OHW connection and repairing where necessary, blasting clean and rectifying defects to structural steel members and installing vehicle and train collision protection. It is expected this aspect of the preferred project would result in a minor impact on the heritage values of the overbridge and station overall.	Minor
Footbridge (1947, 2002)	Little	Retention	Neutral	Retained	It is proposed to retain the footbridge. The footbridge was assessed as having little significance as per the Railway Footbridges Heritage Conservation Strategy.[17] Footbridges of little significance can be conserved and adapted or where there is no reasonable alternative, demolished. The retention of the footbridge would result in a neutral impact on the footbridge and Campsie Railway Station.	Neutral
Platform 3 (1916, 1950)	Moderate	Removal	Moderate	Retained	It is proposed to retain the platform. This would result in a neutral impact on the platform and station catchment.	Neutral

[17] NSW Government Architect's Office Heritage Group 2016. *Railway Footbridges Heritage Conservation Strategy*. Prepared for Sydney Trains.

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred ect	Preferred project impact summary
Platform canopies, platforms 1- 3 (2002)	Little	Removal	Neutral	Retained	It is proposed to retain the platform canopies. This would result in a neutral impact on the canopies and station catchment.	Neutral
Landscape/ natural features (n/a,1915)	High	Removal to accommodate new covered concourse, access stairs and lift shaft	Moderate	Retained	It is proposed to retain the landscape and natural features, including the cambered stone and brick retaining wall. This would result in a neutral impact to the landscape and natural features.	Neutral

When considering cumulative impacts, it is assessed that the preferred project would result in a moderate direct impact on Campsie Railway Station Group overall. This is consistent with the assessment of the exhibited project.

1.5.5.3 Visual impacts

Campsie Railway Station Group

Changes at Campsie Station are limited to upgrading of the station entrance, re-purposing of the station buildings and changes to the platforms including addition of platform end egress ramps

Visual impacts associated with the upgrades to the Beamish Street entrance are likely to be neutral to positive as the existing retail would be refreshed. Early elements of the station such as the 1915 overhead booking office and the c.1950 Parcels Office associated with the entrance have been detractingly modified overtime and can no longer be easily appreciated in their existing context. Their upgrade would result in a neutral visual impact.

The platform screen doors along the reconstructed platforms would rise to about two metres to accommodate the specific workings of Metro trains. This would have a minor impact on external views from the platform buildings and from the existing concourse towards the heritage buildings and a moderate impact on internal views as a result of visual clutter.

When considering cumulative impacts, it is assessed that the preferred project would result in a moderate visual impact on Campsie Railway Station Group. This is consistent with the assessment of the exhibited project.

Federation commercial building–Coffill's Buildings

Coffill's Buildings is located approximately 30 metres north-east of the station entrance. The construction in the vicinity of Coffill's Buildings consists of new Metro tracks. There is a direct visual connection between Coffill's Buildings and the station entrance. Any views on the Metro rail corridor would be in keeping with the current views and vistas of the heritage item and would have a neutral visual impact. It is proposed to upgrade the existing Duke Street footbridge including installing safety screens, lighting and other minor upgrades. The works are unlikely to significantly alter the aesthetics of the bridge and visual impacts on the heritage item are anticipated to be negligible.

Visual impacts on the Coffill's Federation Commercial Building would be negligible. This is consistent with the assessment of the exhibited project.

Inter-War Commercial Building–Station House

Station House is located approximately 35 metres south-east of the station entrance. The construction in the vicinity of Station House consists of minor corridor works. There is a direct visual connection between Station House and the station entrance. Any views on the Metro rail corridor would be in keeping with the current views and vistas of the heritage item and would have a neutral visual impact.

Visual impacts on the Inter-War Commercial Building –Station House would be neutral. This is a reduction in impact from the assessment of the exhibited project, which assessed visual impacts as negligible.

Inter-War Court House (former) Campsie Court House

Campsie Court House is located approximately 10 metres north of the railway corridor and 240 metres west of the western end of the station platforms. The construction in the vicinity of the Court House consists of minor corridor works. Current views towards the railway line are partially screened by vegetation. Any views on the Metro rail corridor would be in keeping with the current views and vistas of the heritage item and would have a neutral visual impact. It is proposed to install throw screens on both sides of the existing Lock Street overbridge, remove existing smoke screens, as well as other minor upgrades. The works are unlikely to significantly alter the aesthetics of the bridge and visual impacts on the heritage item, located at a notable distance, are anticipated to be negligible.

Visual impacts on the Inter-War Court House would be neutral. This is consistent with the assessment of the exhibited project.

War Memorial Clock Tower

The War Memorial Clock Tower is located approximately 55 metres south of the station entrance. The construction in the vicinity of the clock tower consists of new Metro tracks. Current views towards the station are screened by commercial buildings along the north side of Anzac Mall.

Visual impacts on the War Memorial Clock Tower would be neutral. This is consistent with the assessment of the exhibited project.

Federation house

The Federation House is located approximately 30 metres south of the railway corridor and 185 metres south-east of the station entrance. The construction in the vicinity of the Federation House consists of minor corridor works. Current views towards the railway line are partially screened by vegetation. Any views on the Metro rail corridor would be in keeping with the current views and vistas of the heritage item and would have a neutral visual impact. It is proposed to upgrade the existing Duke Street footbridge including installing safety screens, lighting and other minor upgrades. The works are unlikely to significantly alter the aesthetics of the bridge and visual impacts on the heritage item are anticipated to be negligible.

Visual impacts on the Federation House would be negligible. This is consistent with the assessment of the exhibited project.

Federation villa

The Federation villa is located approximately 30 metres south of the railway corridor and 130 metres south-east of the station entrance. The construction in the vicinity of the Federation villa consists of minor corridor works. Current views towards the railway line are partially screened by vegetation. Any views on the Metro rail corridor would be in keeping with the current views and vistas of the heritage item and would have a neutral visual impact. It is proposed to upgrade the existing Duke Street footbridge including installing safety screens, lighting and other minor upgrades. The works are unlikely to significantly alter the aesthetics of the bridge and visual impacts on the heritage item are anticipated to be negligible.

Visual impacts on the Federation villa would be negligible. This is consistent with the assessment of the exhibited project.

1.5.5.4 Potential direct impacts

The following table provides an assessment of potential direct impacts on heritage items within the station catchment.

Table 18: Potential direct impact assessment

Item	Exhibited project impact	Potential direct impact assessment	Preferred project impact
Campsie Railway Station Group	Minor	The proposed works would have a potential direct impact to platforms and station buildings from vibration associated with works in proximity to heritage items. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Minor
Federation commercial building–Coffill's Buildings	Negligible	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
Inter-War Commercial Building–Station House	Minor	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
Inter-War Court House (former) Campsie Court House	Negligible	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
War Memorial Clock Tower	Negligible	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
Federation house	Negligible	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
Federation villa	Negligible	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible

1.5.6 Belmore Station

The Belmore Station Catchment comprises two heritage items, the Belmore Railway Station Group and the Post-war bus shelter and public lavatories. The buffer zone around the station catchment comprises one heritage item.

1.5.6.1 Summary of heritage listings

The table below provides a summary of the heritage items located within the station catchment and within the 25-metre buffer zone.

Table 19: Heritage items within Belmore Station Catchment and buffer zone

Item	Suburb	Significance	Listing
Within project area			
Belmore Railway Station Group	Belmore	State	SHR (No. 01081) RailCorp S.170 Heritage and Conservation Register (4801084) Canterbury LEP 2012 (I11)
Post-war bus shelter and public lavatories	Belmore	Local	Canterbury LEP 2012 (I29)
Within buffer zone (outside project area)			
Federation House (former station master's cottage)	Belmore	Local	Canterbury LEP 2012 (I10)

1.5.6.2 Direct impacts

Belmore Railway Station Group

The table below provides an assessment of the direct impacts of the preferred project on the fabric of each element constituting the railway station and an assessment of the subsequent impacts on the heritage values of the station group as a whole.

Table 20: Assessment of direct impacts for Belmore Railway Station Group

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
Platform 1/2 (1895, 1907)	High	Removal apart from structure underneath heritage building; platform to be rebuilt in straight alignment; covered concourse, access stairs, lift shafts, platform station building, platform canopies and platform screen doors to be anchored on new platform	Major	Re-levelled New platform screen doors New emergency egress ramps	Platform 1/2 would be re-levelled including the removal of the top section of the original platform edge. Impacts to the original brick platform face should be avoided where possible. The re-levelling and removal of the original platform edge would have a moderate impact on the platform. New platform screen doors would be anchored on the re-levelled platform. This would result in a moderate impact where pylons and struts are anchored in the platform. New emergency egress ramps would be constructed to the eastern end of the platform and would have a minor impact on the platform. Overall, the proposal would result in a moderate impact on the platform and station group as a whole.	Moderate
Platform building (Type 11) (1895)[18]	Exceptional	Retention for re-use with potential retrofitting	Minor	Retained and repurposed	The proposed works to the Platform building would include internal refurbishment/repurposing. The building would be used for a store, station management room, platform screen door equipment, an AC room and a staff toilet. Refurbishing for new accommodation should be designed to minimise	Moderate

[18] See Artefact August 2017. Section 2.2.6 Station building types

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
					impacts to original fabric. Original layout and finishes should be preserved where possible. The opportunity could be taken to remove any intrusive modifications to the structure. Internal additions to the building should be designed to be sympathetic to the heritage context and minimise fabric and visual impacts. It is understood platform levelling would not encroach on any sub-floor ventilation or door thresholds. This aspect of the preferred project would have a moderate impact on the heritage values of the building and station overall, pending detailed design.	
Overhead booking office and concourse (1937, 2008)	High	Retention for re-use with potential retrofitting	Minor	Retained and repurposed	The proposed works to the overhead booking office include internal refurbishment. The building would be used for staff rooms. The overhead booking office ranked five out of nine in the Sydney Trains Overhead Booking Offices Heritage Conservation Strategy.[19] The strategy recommends adaptive reuse of the building. Retrofitting for new accommodation should be designed to minimise impacts to original fabric. Original layout should be preserved where	Moderate

[19] Australian Museum Consulting 2014. *Railway Overhead Booking Offices Heritage Conservation Strategy*. Prepared for Transport for NSW.

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
					possible. The opportunity could be taken to remove any intrusive modifications to the structure. Internal additions to the building should be designed to be sympathetic to the heritage context and minimise fabric and visual impacts. The preferred project would have a moderate impact on the heritage values of the overhead booking office and station overall.	
Overbridge (Modified 1961)	Little	Retention and upgrade	Negligible	Retained	The structure is proposed to be retained and upgraded for ongoing use. The proposed works would include installing throw screens to both sides, removing smoke screens, rectifying OHW connections and replacing where necessary, upgrading earth bonding and rectifying any defects in existing system. The preferred project would result in a negligible impact on the heritage values of the overbridge and station overall.	Negligible
Platform canopies (2008)	Little	Removal for replacement with new covered concourse including access stairs and lift shafts	Neutral	Retained	The canopies are proposed to be retained. This would result in a neutral impact on the canopies and station catchment.	Neutral

When considering cumulative impacts, it is assessed that the preferred project would result in a moderate direct impact on Belmore Railway Station Group overall. This is consistent with the assessment of the exhibited project.

Post-war bus shelter and public lavatories

Since preparation of the assessment of the exhibited project, the Post-war bus shelter and public lavatories are no longer considered for SHR listing.

The Post-war bus shelter and public lavatories located within the car park to the north of the station would be retained. This would have a neutral direct impact on the Post-war bus shelter and public lavatories. This is consistent with the assessment of the exhibited project.

1.5.6.3 Visual impacts

Belmore Railway Station Group

Changes within the Belmore Railway Station Group curtilage are limited to upgrading of the station entrance, re-purposing of the station buildings, and changes to the platforms including addition of platform screen doors and platform egress ramps.

The platform screen doors along the reconstructed platforms would rise to about two metres to accommodate the specific workings of Metro trains. This would have a minor impact on external views from the platform buildings and from the new concourse towards the heritage buildings and a moderate impact on internal views as a result of visual clutter.

The new services building would not visually dominate the retained heritage buildings, as it would be located at a distance to the east and is in keeping with the use of the station. The services building would have a minor visual impact on the station.

When considering cumulative impacts, it is assessed that the preferred project would result in a moderate visual impact on Belmore Railway Station Group. This is consistent with the assessment of the exhibited project.

Post-war bus shelter and public lavatories

It is proposed to retain the post-war bus shelter and public lavatories.

There are views to and from the post-war shelters and public lavatories and Belmore Railway Station Group. The preferred project at Belmore Station would not significantly alter views onto the Platform building of exceptional significance which would continue to be appreciated from the heritage item.

Visual impacts on the post-war shelters and public lavatories would be minor. This is consistent with the assessment of the exhibited project.

Federation House (former station master's cottage)

The Federation House is located approximately 15 metres north of the railway corridor and 25 metres north-west of the station entrance. There is a direct visual connection between the Federation House and the station entrance, but as the station entrance will not be significantly altered this will not result in visual impacts. Any views on the Metro rail corridor would be in keeping with the current views and vistas of the heritage item and would have a neutral visual impact. The current heritage station buildings adjacent to the Federation House would be retained. No views towards the Federation House would be impacted.

Visual impacts on the Federation House would be negligible. This is consistent with the assessment of the exhibited project.

1.5.6.4 Potential direct impacts

The following table provides an assessment of potential direct impacts on heritage items within the station catchment.

Table 21: Potential direct impact assessment

Item	Exhibited project impact	Potential direct impact assessment	Preferred project impact
Belmore Railway Station Group	Minor	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
Post-war bus shelter and public lavatories	Negligible	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
Federation House (former station master's cottage)	Minor	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible

1.5.7 Lakemba Station

The Lakemba Station Catchment includes one heritage item, the Lakemba Railway Station Group. The buffer zone around the station catchment includes three heritage items.

1.5.7.1 Summary of heritage listings

The table below provides a summary of the heritage items located within the station catchment and within the 25-metre buffer zone.

Table 22: Heritage items within Lakemba Station Catchment and buffer zone

Item	Suburb	Significance	Listing
Within project area			
Lakemba Railway Station Group	Lakemba	Local	RailCorp S.170 Heritage and Conservation Register (4801916) Canterbury LEP 2012 (I143)
Within buffer zone (outside project area)			
Federation weatherboard house	Lakemba	Local	Canterbury LEP 2012 (I144)
Inter-War post office building - Lakemba Post Office	Lakemba	Local	Canterbury LEP 2012 (I145)
Electricity Substation no. 143	Lakemba	Local	Ausgrid S. 170 Heritage and Conservation Register (3430296)

1.5.7.2 Direct impacts

Lakemba Railway Station Group

The table below provides an assessment of the direct impacts of the preferred project on the fabric of each element constituting the railway station and an assessment of the subsequent impacts on the heritage values of the station group as a whole. Since preparation of the assessment of the exhibited project, Lakemba Railway Station Group is no longer considered for SHR listing.

Table 23: Assessment of direct impacts for Lakemba Railway Station Group

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
Platform 1/2 (1919)	High	Removal apart from structure underneath heritage building and the current concourse and stairs; platform to be rebuilt in straight alignment; platform canopies and platform screen doors to be anchored on new platform	Major	Re-levelled New platform screen doors New emergency egress ramps	Platform 1/2 would be re-levelled including the removal of the top section of the coping where necessary. The original brick platform edge would be removed. Impacts to the original brick platform face should be avoided where possible. This would have a moderate impact on the platform. New platform screen doors would be anchored on the re-levelled platform. This would result in a moderate impact where pylons and struts are anchored in the platform. New emergency egress ramps would be constructed to the western end of the platform and would have a minor impact on the platform. Overall, the proposal would result in a moderate impact on the platform and station group as a whole.	Moderate
Platform building, platform 1/2 (Type 11) (1919)[20]	High	Retention for re-use with potential retrofitting	Minor	Retained and repurposed	The proposed works to the Platform 1/2 building would include internal refurbishment/repurposing. The building would be used for stores for the platform screen doors equipment, station management room, staff room and staff facilities (including toilet). Refurbishing for new accommodation should be designed to minimise impacts	Moderate

[20] See Artefact August 2017. Section 2.2.6 Station building types

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
					to original fabric. Original layout and finishes should be preserved where possible. The opportunity could be taken to remove any intrusive modifications to the structure. Internal additions to the building should be designed to be sympathetic to the heritage context and minimise fabric and visual impacts. It is understood platform levelling would not encroach on any subfloor ventilation or door thresholds. This aspect of the preferred project would have a moderate impact on the heritage values of the building and station overall, pending detailed design.	
Footbridge and stairs (1926)	Moderate	Retention with new lifts constructed to platform	Minor	Retained	It is proposed to retain the footbridge and stairs. The footbridge was assessed as having moderate significance as per the Railway Footbridges Heritage Conservation Strategy.[21] The retention of the footbridge and stairs would have a neutral impact on the original footbridge and station overall.	Neutral
War Memorial (1953)	High	Retention; construction of new platforms and toilets in proximity	Neutral	Retained	It is proposed to retain the memorial. This would result in a neutral impact on the memorial and the station catchment.	Neutral

[21] NSW Government Architect's Office Heritage Group 2016. *Railway Footbridges Heritage Conservation Strategy*. Prepared for Sydney Trains.

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
					The re-levelling of the platforms in proximity of the memorial would have a neutral impact on the memorial provided that construction works are carried out, so as to minimise any direct impacts and that the memorial is adequately protected during the works.	
Overhead booking office /concourse (2001)	Little/Intrusive	Existing concourse structure retained and expanded with new lifts to platforms	Neutral	Retained and repurposed	It is proposed to retain the existing concourse structure including stairs to platforms, stairs and lifts to the north and south entries. The overhead booking office would be retained and repurposed for storerooms. The overhead booking office is not identified as significant in the Sydney Trains Overhead Booking Office Conservation Strategy. This aspect of the proposal would result in a neutral impact on the Lakemba Railway Station.	Neutral
Canopies (2001)	Intrusive	Removal of the canopy over the stairs to the platform for replacement with new canopy. Retention of the concourse canopy.	Minor positive	Retained	It is proposed to retain the station canopies. This would result in a neutral impact on the canopies and station catchment.	Neutral

When considering cumulative impacts, it is assessed that the preferred project would result in a moderate direct impact on Lakemba Railway Station Group overall. This is consistent with the assessment of the exhibited project.

1.5.7.3 Visual impacts

Lakemba Railway Station Group

Changes at Lakemba Station are limited to re-purposing of the station buildings, changes to the platforms including re-levelling and addition of platform end egress ramps, and construction of a new services building. Minor works to the Haldon Street overbridge would also be carried out.

The platform screen doors along the reconstructed platforms would rise to about two metres to accommodate the specific workings of Metro trains. This would have a minor impact on external views from the platform buildings and from the existing concourse towards the heritage buildings and a moderate impact on internal views as a result of visual clutter.

The new services building would not visually dominate the station heritage structures as it would be located at a distance to the west in the rail corridor. The new services building would have a minor visual impact to the station. as it would be keeping with the current setting.

It is proposed to install new throw screens and balustrade to both sides of the Haldon Street overbridge which is situated in proximity of Lakemba Station. The proposed works would remove the existing smoke screens and other minor works would be conducted as required. The works to the bridge would be located at a notable distance from the platform building and mostly screened from the existing concourse. These works are unlikely to significantly alter the existing aesthetics of the bridge. The visual impacts of the works to the Haldon Street overbridge on Lakemba Railway Station Group would be minor.

When considering cumulative impacts, it is assessed that the preferred project would result in a moderate visual impact on the Lakemba Railway Station Group. This is consistent with the assessment of the exhibited project.

Federation weatherboard house

The Federation weatherboard house is located approximately 20 metres south of the railway corridor and 335 metres east of the eastern edge of the station platform. The construction in the vicinity of the Federation weatherboard house consists of station works and upgrades to the surrounding station area. Current views towards the railway line are screened by vegetation. Any views would be in keeping with the current views and vistas of the heritage item and would have a neutral visual impact. Distance and mature trees prevent views from the heritage item on Lakemba Station Catchment and there would be no views of proposed works.

Visual impacts on the Federation weatherboard house would be neutral. This is consistent with the assessment of the exhibited project.

Inter-War post office building - Lakemba Post Office

The Inter-War post office is located approximately 25 metres south-west of the station entrance. The construction in the vicinity of the post office consists of minor upgrades to the station entrance and area. There are views between the post office and the current station entrance. Any new development would be largely screened by existing single-storey retail buildings located on the north side of The Boulevarde. The proposed works would be within the scale of the existing development and as such would not significantly detract from the existing setting of this heritage item.

Visual impacts on the Inter-War post office would be negligible. This is consistent with the assessment of the exhibited project.

Electricity Substation no. 143

The electricity substation no.143 is located approximately 25 metres north of the railway corridor and 95 metres north-east of the eastern edge of the station platform. The construction in the vicinity of the substation consists of minor corridor works. Current views towards the railway line and the station are screened by vegetation. Distance and vegetation prevent views between the heritage item and Lakemba Station Catchment. Any views on the Metro rail corridor would be in keeping with the current views and vistas of the heritage item and would have a neutral visual impact.

Visual impacts on the electricity substation no.143 would be neutral. This is consistent with the assessment of the exhibited project.

1.5.7.4 Potential direct impacts

The following table provides an assessment of potential direct impacts on heritage items within the station catchment.

Table 24: Potential direct impact assessment

Item	Exhibited project impact	Potential direct impact assessment	Preferred project impact
Lakemba Railway Station Group	Minor	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
Federation weatherboard house	Negligible	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
Inter-War post office building - Lakemba Post Office	Negligible	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
Electricity Substation no. 143	Negligible	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible

1.5.8 Wiley Park Station

The Wiley Park Station Catchment includes one heritage item, the Wiley Park Railway Station Group. The buffer zone around the station catchment also includes one heritage item.

1.5.8.1 Summary of heritage listings

The table below provides a summary of the heritage items located within the station catchment and within the 25-metre buffer zone.

Table 25: Heritage items within Wiley Park Station Catchment and buffer zone

Item	Suburb	Significance	Listing
Within project area			
Wiley Park Railway Station Group	Wiley Park	Local	RailCorp S.170 Heritage and Conservation Register (4801946) Canterbury LEP 2012 (I159)
Within buffer zone (outside project area)			
Inter-War water pumping station– Lakemba Pumping Station (WP0003)	Wiley Park	Local	Sydney Water S.170 Heritage and Conservation Register (4570136) Canterbury LEP 2012 (I158)

1.5.8.2 Direct impacts

Wiley Park Railway Station Group

The table below provides an assessment of the direct impacts of the preferred project on the fabric of each element constituting the railway station and an assessment of the subsequent impacts on the heritage values of the station group as a whole.

Table 26: Assessment of direct impacts for Wiley Park Railway Station Group

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
Platform 1 (1938)	High	Removal; platform to be rebuilt in a straight alignment; covered concourse, access stairs, lift shafts, platform canopies and platform screen doors to be anchored on new platform	Major	Re-levelled New platform screen doors New emergency egress ramps New lift	Platform 1 would be re-levelled including the removal of the top section of the platform surface and edge. This would remove a section of the original platform, which was constructed using steel rail posts and concrete cast in situ. This would have a moderate impact on the platform. New platform screen doors would be anchored on the re-levelled platform. This would result in a moderate impact where pylons and struts are anchored in the platform. New emergency egress ramps would be constructed to the western end of the platform and would have a minor impact on the platform. A new lift would be installed. This would involve excavation into the platform for the lift shaft. The new lift would have a moderate impact on the platform. Overall, the proposal would result in a moderate impact on the platform and station group as a whole.	Moderate
Platform 2 (1938)	High	Removal; platform to be rebuilt in a straight alignment; covered concourse, access stairs, lift shafts, platform canopies and platform	Major	Re-levelled New platform screen doors	Platform 2 would be re-levelled including the removal of the top section of the platform surface and edge. This would remove a section of the original platform, which was constructed using steel rail posts and	Moderate

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
		screen doors to be anchored on new platform		New emergency egress ramps New lift	concrete cast in situ. This would have a moderate impact on the platform. New platform screen doors would be anchored on the re-levelled platform. This would result in a moderate impact where pylons and struts are anchored in the platform. New emergency egress ramps would be constructed to the western end of the platform and would have a minor impact on the platform. A new lift would be installed. This would involve excavation into the platform for the lift shaft. The new lift would have a moderate impact on the platform. Overall, the proposal would result in a moderate impact on the platform and station group as a whole.	
Platform building, platform 1 (Type 13) (1938)[22]	High	Removal; replacement with platform canopies and platform screen doors to be anchored on new platform	Major	Retained and repurposed	The proposed works to the Platform 1 building would include internal refurbishment/repurposing. The building would be used for staff facilities, chemical store, and an accessible toilet. Refurbishing for new accommodation should be designed to minimise impacts to original fabric. Note original internal fit outs and finishes are no longer extant. Timber framed windows	Moderate

[22] See Artefact August 2017. Section 2.2.6 Station building types

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
					remain, although the original glass louvres have been removed and boarded up or fitted with fixed glass. The opportunity could be taken to remove any intrusive modifications to the structure. Internal additions to the building should be designed to be sympathetic to the heritage context and minimise fabric and visual impacts. It is understood platform levelling would not encroach on any subfloor ventilation or door thresholds. This aspect of the preferred project would have a moderate impact on the heritage values of the building and station overall, pending detailed design.	
Platform building, platform 2 (Type 13) (1938)[23]	High	Removal; replacement with platform canopies and platform screen doors to be anchored on new platform	Major	Retained and repurposed	The proposed works to the Platform 2 building would include internal refurbishment/repurposing. The building would be used for stores for the platform screen doors. Refurbishing for new accommodation should be designed to minimise impacts to original fabric. Original layout and finishes should be preserved where possible. Note that original timber slatted seats remain.	Moderate

[23] See Artefact August 2017. Section 2.2.6 Station building types

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
					The opportunity could be taken to remove any intrusive modifications to the structure. Internal additions to the building should be designed to be sympathetic to the heritage context and minimise fabric and visual impacts. It is understood platform levelling would not encroach on any sub-floor ventilation or door thresholds. This aspect of the preferred project would have a moderate impact on the heritage values of the building and station overall, pending detailed design.	
Overhead booking office (1938)	High	Removal for replacement with new covered concourse including access stairs and lift shafts	Major	Retained and repurposed	The building is proposed to be retained and repurposed as store room, cleaner's store and multipurpose room. The station entrance and concourse through the overhead booking office would be retained. Refurbishing for new use should be designed to minimise impacts to original fabric. Note original weatherboard siding, multi-pane sash windows, covered booking hall with AC ceilings, cantilever awning over footpath, original ticket collector's cabin and window and an early safe. The overhead booking office ranked seven out of nine in the Sydney Trains Overhead Booking Offices Heritage	Moderate

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
					Conservation Strategy [24]. The strategy recommends adaptive reuse of the building. This aspect of the preferred project would have a moderate impact on the heritage values of the building and station overall.	
Retail at entrance	Little	Removal for replacement with new covered concourse including access stairs and lift shafts	n/a	Remove retail at each side of overhead booking office entrance	Existing retail would be removed. The SHI listing for the item identified the structures as detracting from the significance of the overhead booking office, therefore their removal would have a neutral impact on the overhead booking office and the station as a whole.	Neutral
Footbridge (1938)	Moderate	Removal for replacement with new covered concourse including access stairs and lift shafts	Major	Retained, regraded to allow access to new lifts.	It is proposed to retain the footbridge. Alterations would involve regrading to allow access to the new lifts required to connect the footbridge to the ramps that lead to the platform. The retention and adaptation of the footbridge would result in a moderate impact on the footbridge and Wiley Park Railway Station.	Moderate
Access ramp canopies (Modern)	Little	Retain in majority; new station building to be constructed along the southern boundary to the west of the platforms	Neutral	Retain	It is proposed to retain the access ramp canopies. This would result in a neutral impact on the access ramp canopies and a neutral impact on the station overall.	Neutral

[24] Australian Museum Consulting 2014. *Railway Overhead Booking Offices Heritage Conservation Strategy*. Prepared for Transport for NSW.

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
Landscape/ Natural features	Moderate		Moderate	Retained	It is proposed to retain the existing landscape and natural features, including the earth and stone formed retaining walls along the southern boundary, and the grass verges with mature plantings along both boundaries. This would result in a neutral impact on the landscape features and on Wiley Park Railway Station overall.	Neutral

When considering cumulative impacts, it is assessed that the preferred project would result in a moderate direct impact on Wiley Park Railway Station Group overall. This is a reduction in impact from the assessment of the exhibited project, which assessed direct impacts as major. Wiley Park Railway Station Group would now continue to meet the threshold for local significance. Impacts as a result of the exhibited project would have resulted in the heritage item no longer meeting the threshold for local significance and would likely have been delisted.

1.5.8.3 Visual impacts

Wiley Park Railway Station Group

Changes at Wiley Park are limited to upgrading of the station entrance including demolition of existing intrusive retail shops, re-purposing of the station buildings and changes to the platforms including re-levelling, addition of platform end egress ramps and installation of two lifts a. A new services building would also be constructed and be sited away from the heritage buildings.

Generally, there would be a positive visual impact at the station entrance with the intrusive retail structures on either side of the overhead booking office removed and replaced. The overhead booking office and its distinctive awning would be retained.

Visual impacts associated with the changes to the entrance on the King Georges Road overbridge are likely to be neutral to positive, as the existing retail would be removed and refreshed. Early elements of the station such as the 1938 platform buildings, overhead booking office and footbridge have been unsympathetically modified overtime and can no longer be easily appreciated in their existing context. Their upgrade would result in a neutral visual impact.

The new lifts would introduce new, modern elements into the station catchment. Contemporary design would provide a juxtaposition of the twentieth century elements and the new upgrades. Visual impacts associated with the lifts would be moderate.

A new service building would be located at the western end of the platforms along the southern boundary. This would have a minor visual impact as it would be keeping with the current setting of the station catchment and not impede views of the platform buildings.

The platform screen doors along the reconstructed platforms would rise to about two metres to accommodate the specific workings of Metro trains. This would have a minor impact on external views from the platform buildings and from the existing concourse towards the heritage buildings and a moderate impact on internal views as a result of visual clutter.

Minor upgrade works, including installation of vehicle and train collision protection, are proposed to the King Georges Road overbridge and would have a minor visual impact to the station catchment.

Overall, the proposed lifts would have a moderate visual impact on the character and setting of Wiley Park Station. The platform screen doors would result in a moderate visual impact.

When considering cumulative impacts, it is assessed that the preferred project would result in a moderate visual impact on the Wiley Park Railway Station Group. This is a reduction in impact from the assessment of the exhibited project, which assessed visual impacts as major.

Inter-War water pumping station– Lakemba Pumping Station (WP0003)

The Lakemba Pumping Station is located approximately 4 0metres south-west of the station platforms. The construction in the vicinity of the pumping station consists of new platform screen doors and provision of new lifts to the existing concourse. Views towards the railway corridor are mostly screened by existing vegetation. Views towards the station are mostly screened due to the cutting for the railway line and station buildings being located below street level. The proposal would result in the establishment of a services building along The Boulevarde, directly opposite the Lakemba Pumping Station. While the service building is in the immediate vicinity of the heritage item, it is not anticipated to be visually obtrusive, and views towards the heritage item from the station would not be obscured.

Visual impacts on the Inter-War water pumping station would be negligible. This is consistent with the assessment of the exhibited project.

1.5.8.4 Potential direct impacts

The following table provides an assessment of potential direct impacts on heritage items within the station catchment.

Table 27: Potential direct impact assessment

Item	Exhibited project impact	Potential direct impact assessment	Preferred project impact
Wiley Park Railway Station Group	Minor	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
Inter-War water pumping station– Lakemba Pumping Station (WP0003)	Negligible	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible

1.5.9 Punchbowl Station

The Punchbowl Station Catchment comprises one heritage item, the Punchbowl Railway Station Group. The buffer zone around the station catchment comprises two heritage items.

1.5.9.1 Summary of heritage listings

The table below provides a summary of the heritage items located within the station catchment and within the 25-metre buffer zone.

Table 28: Heritage items within Punchbowl Station Catchment and buffer zone

Item	Suburb	Significance	Listing
Within project area			
Punchbowl Railway Station Group	Punchbowl	Local	RailCorp S.170 Heritage and Conservation Register (4802009) Canterbury LEP 2012 (I155)

Item	Suburb	Significance	Listing
Within buffer zone (outside project area)			
War Memorial and street trees	Punchbowl	Local	Canterbury LEP 2012 (I152)
Post-war Civic Building (former Punchbowl Baby Health Centre)	Punchbowl	Local	Canterbury LEP 2012 (I154)

1.5.9.2 Direct impacts

Punchbowl Railway Station Group

The table below provides an assessment of the direct impacts of the preferred project on the fabric of each element constituting the railway station and an assessment of the subsequent impacts on the heritage values of the station group as a whole. Since preparation of the assessment of the exhibited project, Punchbowl Railway Station Group is no longer considered for SHR listing.

Table 29: Assessment of direct impacts for Punchbowl Railway Station Group

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
Platform 1/2 (1909)	High	Removal; platform to be rebuilt in straight alignment; covered concourse, access stairs, lift shafts, platform canopies and platform screen doors to be anchored on new platform	Major	Re-levelled New platform screen doors New emergency egress ramps New lift	Platform 1/2 would be re-levelled including the removal of the original platform edge. Impacts to the original brick platform face should be avoided where possible. This would have a moderate impact on the platform. New platform screen doors would be anchored on the re-levelled platform. This would result in a moderate impact where pylons and struts are anchored in the platform. New emergency egress ramps would be constructed to the eastern end of the platform and would have a minor impact on the platform. A new lift would be installed to the west of the platform building. This would involve excavation into the platform for the lift shaft. The new lift would have a moderate impact on the platform. Overall, the proposal would result in a moderate impact on the platform and station group as a whole.	Moderate
Overhead booking office (1929)	High	Removal for replacement with new covered concourse including access stairs and lift shafts	Major	Retained and repurposed	The overhead booking office is proposed to be retained. The later lamp room addition on the western side of the building would be used for a station management room and services	Moderate

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
					Refurbishing of the lamp room for new use should be designed to minimise impacts to original fabric. The overhead booking office ranked seven out of nine in the Sydney Trains Overhead Booking Offices Heritage Conservation Strategy [25]. The strategy recommends adaptive reuse of the building. This aspect of the proposal would result in a moderate impact on the building and station group as a whole.	
Footbridge (1930, 2014)	Moderate	Removal for replacement with new covered concourse including access stairs, lift shafts and station buildings	Major	Retained and extended to accommodate two new lifts and new stairs	It is proposed to retain and extend the footbridge to accommodate two new lifts and two new stairs. The footbridge was assessed as having moderate significance in the Railway Footbridges Heritage Conservation Strategy.[26] The typical footbridge with standard concrete platform supported on a steel structure has been modified over time. The retention and adaptation of the footbridge would result in a moderate impact on the footbridge and Campsie Railway Station.	Moderate

[25] Australian Museum Consulting 2014. *Railway Overhead Booking Offices Heritage Conservation Strategy*. Prepared for Transport for NSW.
[26] NSW Government Architect's Office Heritage Group 2016. *Railway Footbridges Heritage Conservation Strategy*. Prepared for Sydney Trains.

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
Toilet block, platform 1/2 (1970s)	Moderate	Removal for replacement with new covered concourse including access stairs and lift shafts	Major	Retained and repurposed	It is proposed to retain and adapt the toilet block on Platform 1/2 for use as a store, AC room, gas room and power and utilities room. The western station building has a central component with later extensions at either end which contain station control rooms, open waiting room and toilets. It is proposed to use the existing toilets and the open waiting room as a platform screen door equipment room and the western end as a store room. The toilet block on Platform 1/2 is a simple rectangular building with external walls of face brick, and aluminium framed windows. This aspect of the proposal would have a moderate impact on the heritage values of the building and station overall.	Moderate
Platform building, platform 1/2 (early 1980s)	Moderate	Removal for replacement with new covered concourse including access stairs, lift shafts and station buildings	Major	Retained and repurposed	The proposed works to the Platform 1/2 building would include internal refurbishment/repurposing. The building would be used for stores for staff facilities (including toilet), store room and multipurpose room. Internally, the Platform 1/2 building consists of face brick rendered brick walls and a concrete floor. Internal additions to the building should be designed to be sympathetic to the heritage context and minimise fabric and visual impacts.	Moderate

Element	Significance	Exhibited project proposed action	Exhibited project impact summary	Preferred project proposed action	Assessment of preferred project	Preferred project impact summary
					This aspect of the preferred project would have a moderate impact on the heritage values of the building and station overall, pending detailed design.	
Canopies and extensions to overhead booking office (c.2000s)	Little	Removal for replacement with new covered concourse including access stairs and lift shafts	Neutral	Retained	It is proposed to retain the canopies and extensions, and to extend the footbridge to accommodate two new lifts and two new stairs. The canopies and extensions have been assessed as having little significance. This aspect of the proposal would result in a negligible impact on the canopies and station catchment.	Negligible

When considering cumulative impacts, it is assessed that the preferred project would result in a moderate direct impact on Punchbowl Railway Station Group overall. This is a reduction in impact from the assessment of the exhibited project, which assessed direct impacts as major. Punchbowl Railway Station Group would now continue to meet the threshold for local significance. Impacts as a result of the exhibited project would have resulted in the heritage item no longer meeting the threshold for local significance and would likely have been delisted.

1.5.9.3 Visual impacts

Punchbowl Railway Station Group

Changes at Punchbowl are limited to upgrading of the station entrance, retaining and repurposing existing station buildings, extension of the existing concourse footbridge and changes to the platforms including re-levelling, installation of three new lifts and two new stairs. A new services building would be constructed to the east of the station in the northern rail corridor. No works are proposed to the Punchbowl Road overbridge.

Visual impacts associated with the changes to the entrances on Punchbowl Road (via Warren Reserve) and The Boulevarde are likely to be neutral to positive. Early elements of the station such as the 1929 overhead booking office and 1930 footbridge have been unsympathetically modified overtime and can no longer be easily appreciated in their existing context. Their upgrade would result in a neutral visual impact.

The new lifts and stairs would introduce new, modern elements into the station catchment. Contemporary design would provide a juxtaposition of the twentieth century elements and the new upgrades. Visual impacts associated with the lifts and stairs would be moderate.

The platform screen doors along the reconstructed platforms would rise to about two metres to accommodate the specific workings of Metro trains. This would have a minor impact on external views from the platform buildings and from the existing concourse towards the heritage buildings and a moderate impact on internal views as a result of visual clutter.

The new services building would not visually dominate the retained heritage buildings, as it would be located at a distance to the east and is in keeping with the use of the station. The services building would have a minor visual impact on the station.

Overall, the proposed lifts and stairs would have a moderate visual impact on the character and setting of Punchbowl Station. The platform screen doors would result in a moderate visual impact. The new services building would result in a minor visual impact.

When considering cumulative impacts, it is assessed that the preferred project would result in a moderate visual impact on the Punchbowl Railway Station Group. This is a reduction in impact from the assessment of the exhibited project, which assessed visual impacts as major.

War Memorial and street trees

Since preparation of the assessment of the exhibited project, the War Memorial and street trees are no longer considered for SHR listing. No works are proposed to the War Memorial and street trees located on The Broadway as part of the preferred project. The construction in the vicinity of the heritage item would comprise new Metro tracks and reconfiguration of the existing parking area on the northern side of The Boulevard.

Punchbowl Railway Station is located 150 to 275 metres away from the north boundary of the heritage item and views from this vantage point onto the station would be mostly screened by existing mature trees along The Boulevarde. It would remain outside the visual catchment of the remainder of the curtilage of the heritage item including the listed trees and War Memorial as it would be screened by existing development on The Broadway. The works to Punchbowl Railway Station would result in a negligible visual impact on the item.

Visual impacts on the War Memorial and street trees would be negligible. This is consistent with the assessment of the exhibited project.

Post-war Civic Building (former Punchbowl Baby Health Centre)

The Post-war Civic Building is located approximately 80m north of the eastern end of the station platforms. The construction in the vicinity of the baby health centre consists of new platform screen doors, extension of the existing footbridge and installation of new lifts and stairs. Views towards the railway corridor, platforms and station are mostly screened by vegetation and reduced by the distance. The proposed works would be keeping with the current visual landscape to and from the heritage item.

Visual impacts on the Post-war Civic Building would be negligible. This is consistent with the assessment of the exhibited project.

1.5.9.4 Potential direct impacts

The following table provides an assessment of potential direct impacts on heritage items within the station catchment.

Table 30: Potential direct impact assessment

Item	Exhibited project impact	Potential direct impact assessment	Preferred project impact
Punchbowl Railway Station Group	Minor	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
War Memorial and street trees	Negligible	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible
Post-war Civic Building (former Punchbowl Baby Health Centre)	Negligible	Vibration levels would not generate higher structural damage than typical Sydney Trains rail track maintenance works. Further assessment and management would be undertaken in accordance with management measures outlined in Table 34.	Negligible

1.5.10 Bankstown Station

There are no changes proposed at Bankstown Station compared to the exhibited project. Therefore, the heritage impact assessment provided in the assessment of the exhibited project remains relevant.

1.6 Corridor works and compound sites

Impacts as a result of the preferred project in relation to corridor works would be reduced from the assessment of the exhibited project. The preferred project would include minimal track and corridor works. It is assumed the location of compound sites would remain the same as outlined in the assessment of the exhibited project.

1.7 Other infrastructure elements

The potential heritage impacts from the installation of throw screens and vehicle protection measures on heritage listed bridges (Illawarra Road Overbridge, Hurlstone Park Railway Underbridge, Canterbury (Cooks River) Underbridge, Canterbury (Cooks River/Charles St) Underbridge – Main Line) are minor. This is a reduction in impacts from the assessment of the exhibited project, which assessed impacts as negligible to major. A summary of these impacts is provided in Table 31.

Table 31: Summary of impacts for other infrastructure elements

Item	Exhibited project direct impact	Exhibited project visual impact	Preferred project direct impact	Preferred project visual impact
Illawarra Road Overbridge (Part of Marrickville Railway Station Group)	Major	Moderate	Minor	Minor
Hurlstone Park Railway Underbridge	Negligible	Negligible	Negligible	Negligible
Canterbury (Cooks River) Underbridge	Moderate	Minor	Neutral	Negligible
Canterbury (Cooks River/Charles St) Underbridge – Main Line	Moderate	Minor	Minor	Minor

1.8 Revised cumulative impacts

1.8.1 The Bankstown Line

1.8.1.1 Overview of Impacts

A summary table of direct, visual, potential direct is provided below for each railway heritage item located on the Bankstown Line within the preferred project area. An assessment is provided of whether the overall significance level of the heritage item is retained following the impacts (would it still meet the threshold for local or State significance). All items are listed on the RailCorp S.170 Heritage and Conservation Register. There are no RailCorp S.170 items listed within the buffer zone of the preferred project area.

Table 32: Summary of Heritage Impacts for the Bankstown Line

Item	Significance level	Direct	Visual	Potential direct	Significance level retained?
Marrickville Railway Station Group	State	**Moderate**	**Moderate**	Negligible	Yes
Dulwich Hill Railway Station Group	Local	**Moderate**	**Moderate**	Negligible	Yes
Hurlstone Park Railway Station Group	Local	**Moderate**	**Moderate**	Negligible	Yes
Hurlstone Park Railway Underbridge	Local	Negligible	Negligible	Negligible	Yes
Canterbury Railway Station Group	State	**Moderate**	**Moderate**	Negligible	Yes
Canterbury (Cooks River) underbridge	Local	Neutral	Negligible	Negligible	Yes
Canterbury (Cooks River/Charles St) Underbridge - Main Line	Local	Minor	Minor	Negligible	Yes
Campsie Railway Station Group	Local	**Moderate**	**Moderate**	Negligible	Yes
Belmore Railway Station Group	State	**Moderate**	**Moderate**	Negligible	Yes
Lakemba Railway Station Group	Local	**Moderate**	**Moderate**	Negligible	Yes
Wiley Park Railway Station Group	Local	**Moderate**	**Moderate**	Negligible	Yes
Punchbowl Railway Station Group	Local	**Moderate**	**Moderate**	Negligible	Yes
Bankstown Railway Station Group	Local	**Moderate**	**Moderate**	Negligible	Yes

Item	Significance level	Direct	Visual	Potential direct	Significance level retained?
Bankstown Parcels Office (former)	Local	Neutral	Neutral	Negligible	Yes

1.8.1.2 Statement of Heritage Impact for the Bankstown Line

Impact summary

The Bankstown Line was constructed in three stages between 1880 and 1939. The Sydenham to Belmore section was first constructed between 1880 and 1895. The second phase of development of the line was between 1896 and 1909, where the rail corridor cut through undeveloped country estate and farm land to Bankstown. The early twentieth century saw the addition of platform buildings, overhead booking offices, footbridges and overbridges at existing railway stations. The line was electrified in 1926, marking a significant change in the railway network system. The third phase of development of the line occurred between 1928 and 1939 when it reached Regents Park via Yagoona and Birrong. Wiley Park opened in 1938 as an infill station on the Sydenham to Bankstown section and Dulwich Hill Station was redeveloped in 1935, both stations representing examples of Inter-War railway architecture. The development of the line can be recognised across the line as a whole, with phases of building, platform and station types. It can also be appreciated within a single station, such as at Dulwich Hill which has retained layers of development.

Each railway station within the preferred project area is listed as a heritage item at a State or local level as well as being listed under the RailCorp Section 170 Heritage & Conservation Register. Marrickville, Canterbury, and Belmore railway stations are listed on the State Heritage Register. Other heritage items listed under the RailCorp s170 register within the preferred project area include underbridges at Hurlstone Park and Canterbury and the parcels office at Bankstown. All railway stations include several elements of significance including wayside or island platforms, platform buildings, overhead booking offices, footbridges and overbridges. A few stations include a parcels office, evidencing the role of rail in transportation. A signal box is located at Canterbury station.

Among the ten heritage railway stations located on the Marrickville to Bankstown section of the Bankstown Line, the preferred project would not result in major direct or visual impacts to any stations.

There would be moderate direct and visual impacts to ten stations, three of which are listed on the SHR: Marrickville, Canterbury and Belmore. All SHR stations would continue to meet the threshold for State significance under more than one significance assessment criteria. All locally listed stations would continue to meet the threshold for local significance.

Direct and visual impacts to three railway underbridges would be neutral to minor.

As there would be impacts to significant elements at all listed stations along the line, conservation management plans (CMPs) for SHR listed stations and Conservation Management Strategies (CMS) for s170 items of local significance would be prepared by the Metro Operator. These documents would address any changes to the item including an updated assessment of significance of elements. The CMP would also provide suggested site-specific exemptions or management policies.

Re-purposing of station buildings

Existing station buildings at every station would be re-purposed for new uses to facilitate the construction and operation of the Metro line. In general, this would involve change of use for the room, refurbishment to service the new function and maintenance where required for the new use, for example when the room has not been used for an extended period. All station buildings would maintain their general function supporting the operation of the railway stations and enabling the continued use of the Bankstown Line as a modern transport route.

Re-purposing is required to avoid the need to construct new buildings within the heritage curtilages of the items.

In some cases original fabric would be removed, in general when safety standards require it, such as wooden floors in a plant room with electrics. Rooms which are publicly accessible such as waiting rooms would in some cases be no longer available to customers, as their new use would require them to be closed. Where publicly accessible rooms, such as toilets do not meet DDA standards, they would be upgraded to FAT amenities.

Re-purposing would be undertaken in accordance with the recommended mitigation measures with removal of original fabric minimised and maintenance of retained fabric where possible.

Although some impacts to original fabric would be required, it is expected that all station buildings would retain their assessed significance as elements of the listed stations.

Conclusion

Where new additions are proposed, these would generally be distinguishable from the heritage character of the historic stations. The preferred project would enable the line to function in its original use within a modern railway infrastructure context.

1.8.2 The Study Area

1.8.2.1 Overview of impacts

A summary table of direct, visual, potential direct is provided below for each heritage item located within the study area. An assessment is provided of whether the overall significance level of the heritage item is retained following the impacts. Items where there are more than a minor impact are bolded to identify areas of impact that cannot be fully mitigated.

Table 33: Summary of Built Heritage Impacts for the Study Area

Station	Item	Significance	Direct	Visual	Potential direct	Significance level retained?
Marrickville	Marrickville Railway Station Group	State	**Moderate**	**Moderate**	Negligible	Yes
	Sewage Pumping Station 271	State	Neutral	Neutral	Negligible	Yes
	Stone house, including interiors	Local	Neutral	Neutral	Negligible	Yes

Station	Item	Significance	Direct	Visual	Potential direct	Significance level retained?
	Stonewalling, terracing and street planting	Local	Neutral	Neutral	Negligible	Yes
Dulwich Hill	Dulwich Hill Railway Station Group	Local	**Moderate**	**Moderate**	Negligible	Yes
	South Dulwich Hill Heritage Conservation Area	Local	Negligible	Negligible	Negligible	Yes
	Inter-War Heritage Conservation Area Group	Local	Neutral	Neutral	Negligible	Yes
	Gladstone Hall, including interiors	Local	Neutral	Neutral	Negligible	Yes
Hurlstone Park	Hurlstone Park Railway Station Group	Local	**Moderate**	**Moderate**	Negligible	Yes
	Hurlstone Park Railway Underbridge	Local	Negligible	Negligible	Negligible	Yes
Canterbury	Canterbury Railway Station Group	State	**Moderate**	**Moderate**	Negligible	Yes
	Canterbury (Cooks River) underbridge	Local	Neutral	Negligible	Negligible	Yes
	Canterbury (Cooks River/Charles St) Underbridge - Main Line	Local	Minor	Minor	Negligible	Yes

Station	Item	Significance	Direct	Visual	Potential direct	Significance level retained?
	Old Sugarmill	State	Neutral	Negligible	Negligible	Yes
	Inter-War Hotel (former Hotel Canterbury)	Local	Neutral	Neutral	Negligible	Yes
	Federation Post Office Building (former Canterbury Post Office)	Local	Neutral	Neutral	Negligible	Yes
	Electricity substation no. 275	Local	Neutral	Negligible	Negligible	Yes
Campsie	Campsie Railway Station Group	Local	**Moderate**	**Moderate**	Negligible	Yes
	Federation commercial building– Coffill's Buildings	Local	Neutral	Negligible	Negligible	Yes
	Inter-War Commercial Building– Station House	Local	Neutral	Neutral	Negligible	Yes
	Inter-War Court House (former) Campsie Court House	Local	Neutral	Neutral	Negligible	Yes
	War Memorial Clock Tower	Local	Neutral	Neutral	Negligible	Yes
	Federation house	Local	Neutral	Negligible	Negligible	Yes
	Federation villa	Local	Neutral	Negligible	Negligible	Yes

Station	Item	Significance	Direct	Visual	Potential direct	Significance level retained?
Belmore	Belmore Railway Station Group	State	**Moderate**	**Moderate**	Negligible	Yes
	Post-war bus shelter and public lavatories	Local	Neutral	Minor	Negligible	Yes
	Federation House (former station master's cottage)	Local	Neutral	Negligible	Negligible	Yes
Lakemba	Lakemba Railway Station Group	Local	**Moderate**	**Moderate**	Negligible	Yes
	Federation weatherboard house	Local	Neutral	Neutral	Negligible	Yes
	Inter-War post office building - Lakemba Post Office	Local	Neutral	Negligible	Negligible	Yes
	Electricity Substation no. 143	Local	Neutral	Neutral	Negligible	Yes
Wiley Park	Wiley Park Railway Station Group	Local	**Moderate**	**Moderate**	Negligible	Yes
	Inter-War water pumping station– Lakemba Pumping Station (WP0003)	Local	Neutral	Negligible	Negligible	Yes

Station	Item	Significance	Direct	Visual	Potential direct	Significance level retained?
Punchbowl	Punchbowl Railway Station Group	Local	**Moderate**	**Moderate**	Negligible	Yes
	War Memorial and street trees	Local	Neutral	Negligible	Negligible	Yes
	Post-war Civic Building (former Punchbowl Baby Health Centre)	Local	Neutral	Negligible	Negligible	Yes
Bankstown	Bankstown Railway Station Group	Local	**Moderate**	**Moderate**	Negligible	Yes
	Bankstown Parcels Office (former)	Local	Neutral	Neutral	Negligible	Yes
	Shop	Local	Neutral	Negligible	Negligible	Yes

1.8.2.2 Statement of Heritage Impact for the study area

Impact summary

Five SHR items, thirty-two items of local significance and two heritage conservation areas are located within the study area. The preferred project area includes three SHR items, thirteen local heritage items and one heritage conservation area. The buffer zone includes two SHR items, nineteen local heritage items and one heritage conservation area.

Assessment of heritage items within the preferred project area considered direct, visual, and potential direct (vibration) impacts. Assessment for heritage items in the buffer zone considered visual, and potential direct (vibration) impacts. All construction sites are included in the preferred project area.

Among the five SHR items in the study area, it was assessed that the preferred project would result in moderate direct impacts to three items (Marrickville Railway Station Group, Canterbury Railway Station Group and Belmore Railway Station Group), and neutral direct impacts to two items (Sewage Pumping Station 271 and Old Sugarmill). The preferred project would result in moderate visual impacts to three SHR items (Marrickville Railway Station Group, Canterbury Railway Station Group and Belmore Railway Station Group), and neutral-negligible visual impacts to two items (Sewage Pumping Station 271 and Old Sugarmill). All SHR items would continue to meet the threshold for State significance.

Among the thirty-two local items and two heritage conservation areas in the study area, eight would have moderate direct impacts and visual impacts. One LEP item would have minor direct and visual impacts. Among the heritage items and conservation areas located within the buffer zone, impacts would range from neutral to negligible. No LEP items would have major direct or visual impacts. All LEP items would continue to meet the threshold for local significance.

Residual impacts

Heritage impacts caused by the preferred project would be mitigated by implementing management measures such as photographic archival recording, salvage schemes, interpretation and moveable heritage items strategies, archaeological management, Construction Environmental Management Plan (CEMP) and site remediation, as well as sensitive design and re-purposing or refurbishment of significant elements where possible. However, impacts assessed as moderate would not be fully mitigated and there would be some residual impacts.

Residual impacts would include items or fabric proposed for removal where the function and condition of the item would not easily enable re-use or interpretation in any meaningful way. More generally, the historic character of the line, a late nineteenth-century to early twentieth century railway line with layers of inter-war development, would be altered by the contemporary Metro infrastructure.

1.9 Revised Environmental Management Measures

Revised mitigation and management measures are provided below and relevant heritage items concerned summarised for easy reference. These would be implemented to address heritage impacts on non-Aboriginal heritage sites within the study area.

Table 34: Mitigation and management measures

ID	Impact	Mitigation measures	Relevant location(s)
Design/pre-construction			
NAH1	*Minimising impacts during design*	The project design would minimise adverse impacts to heritage buildings, elements, fabric, spaces and vistas that contribute to the overall heritage significance of the Bankstown Line.	• All heritage items
NAH2		The project design would maximise the retention and legibility of heritage buildings, structures, fabric, spaces and vistas that are individually significant and contribute to the overall heritage significance of the Bankstown Line.	• All heritage items
NAH3		The project design would complement retained heritage buildings, elements, fabric, spaces and vistas to avoid outcomes that compromise the significance of these heritage items.	• All heritage items
NAH4		The project design would be developed with guidance from an appropriately qualified and experienced conservation architect.	• All heritage items
NAH5	*Reuse of retained items*	Where heritage significant items or elements are to be retained within the operational area, an adaptive reuse strategy would be prepared	• All heritage items

ID	Impact	Mitigation measures	Relevant location(s)
		by an appropriately qualified and experienced heritage architect.	
NAH6	*Interpretation*	A Heritage Interpretation Plan would be prepared to document the development of the Bankstown Line and detail the history of each station and its contribution to both the Bankstown Line and the surrounding suburbs. Appropriate heritage interpretation would be incorporated in the design and would provide legible connection between stations.	• Each railway station in the preferred project area • Bankstown Parcels Office (former)
NAH7	*Management of moveable heritage and heritage fabric*	A moveable heritage item strategy would be prepared by an appropriately qualified and experienced heritage specialist in consultation with Sydney Trains, and would include a comprehensive record of significant railway elements to be impacted. This would include items contained within station and platform buildings, as well as of any other significant equipment within the curtilage of the heritage railway stations. The moveable heritage item strategy would form part of the broader interpretation strategy.	• Each railway station in the preferred project area apart from Bankstown Station and Bankstown Parcels Office (former)
NAH8	*Station Building repurposing and refreshing*	Where significant station buildings are to be re-purposed or refreshed: • the inherent character of the building should be retained with new additions, including form, palette and materiality, sympathetic to its heritage values • a suitably qualified and experienced heritage architect should advise on appropriate materials and finishes which would be sympathetic to the heritage values of each individual station. • the internal layout of the building should be retained where possible and rooms should not be subdivided unless it can be completed without adverse impact and/or is reversible without any long term adverse impact. • a significant element register should be prepared by a suitably qualified and experienced heritage architect. The register should list significant fabric, assess its condition, tolerance for change and recommend retention or salvage. • Where fabric of high significance is to be removed, adequate assessment should be carried out that outlines impact and justification in accordance	• Each railway station in the preferred project area

ID	Impact	Mitigation measures	Relevant location(s)
		with the *Statements of Heritage Impact* guidelines (NSW Heritage Council 2002).	
NAH9	*Design of new access stairs, concourses, canopies and lift shafts*	The design and materials used for the construction of new access stairs, concourses, canopies and lift shafts should be as sympathetic as possible to the existing character of the stations with the aim of minimising visual impacts. The design should use unobtrusive, modern, lightweight materials such as glass panelling and slim frame elements. The Design Review Panel should be consulted in regard to the design, form and material of these additions.	• Each railway station in the preferred project area
NAH10	*Design of platform re-levelling*	Where platforms are re-levelled, door thresholds and steps should be accessible without raising or relocation of entries. Sub-floor ventilation should remain open to avoid long term impacts to the structures.	• Each railway station in the preferred project area
NAH11	*Impacts to the Old Sugarmill*	A landscape scheme would be prepared for the Old Sugarmill to re-instate planting within and close to the curtilage of the item. The scheme would consider appropriate period plants and trees. Any boundary wall treatment would be designed in consultation with a heritage architect.	• Old Sugarmill
NAH12	*Impacts to archaeology*	The archaeological research design, including any mitigation measures identified in the Archaeological Assessment and Research Design report, would be implemented. •	• Bankstown Line
NAH13	*Archival recording*	Photographic Archival Recording would be carried out in accordance with the NSW Heritage Office's How to Prepare Archival Records of Heritage Items (1998), and Photographic Recording of Heritage Items Using Film or Digital Capture (2006).	• Each railway station in the preferred project area • Bankstown Parcels Office (former)
NAH14	*Unexpected finds*	An unexpected finds procedure would be developed and included in the construction heritage management plan.	• Bankstown Line
Construction			
NAH15	*Minimising impacts during construction*	Methodologies for the removal of existing structures and construction of new structures would be developed and implemented during construction to minimise direct and indirect impacts to other elements within the curtilages of the heritage items, or to heritage items located in the vicinity of works.	• All heritage items

ID	Impact	Mitigation measures	Relevant location(s)
NAH16		All retained heritage buildings, structures, fabric and moveable heritage items would be protected to avoid damage during works in the vicinity of these items, including from vibration. Retained significant buildings or elements susceptible to damage would be protected by hoardings or screens.	• All heritage items
NAH17		Prior to construction commencing, a detailed inventory of all buildings, structures, fabric, spaces and vistas of heritage significance that are to be retained or removed would be prepared by appropriately qualified and experienced heritage specialists. The inventory must provide an assessment of the heritage impact based on the significance of each element and sub-element that comprises it and include recommendations for protection and conservation relative to the identified level of heritage significance.	• All heritage items
NAH18	*Unexpected finds*	In the event that unexpected archaeological remains, relics, or potential heritage items are discovered during construction, all works in the immediate area would cease, and the unexpected finds procedure would be implemented.	• Bankstown line
NAH19	*Human skeleton material*	In the event that a potential burial site or potential human skeletal material is exposed during construction, the Sydney Metro Exhumation Management Plan would be implemented.	• Bankstown line
NAH20	*Works to heritage fabric*	All works to conserve, protect or remove significant heritage fabric would be undertaken by skilled tradespeople with experience working on heritage sites, in consultation with an appropriately qualified conservation heritage architect.	• Each railway station in the preferred project area • Bankstown Parcels Office (former)
Operation			
NA21	*Conservation management*	A conservation management plan would be prepared for all State Heritage Register listed stations, in accordance with NSW Heritage Council guidelines. The plan would address any changes to the item, including updated assessment of significance of elements and recommendations on curtilage changes. It would also provide suggested site specific exemptions and management policies.	• Marrickville Railway Station Group • Canterbury Railway Station Group • Belmore Railway Station Group

ID	Impact	Mitigation measures	Relevant location(s)
NA22		A conservation management strategy would be prepared for nominated Section 170 register listed stations not listed on the State Heritage Register, in accordance with NSW Heritage Council guidelines.	• Dulwich Hill Railway Station Group • Hurlstone Park Railway Station Group • Campsie Railway Station Group • Lakemba Railway Station Group • Wiley Park Railway Station Group • Punchbowl Railway Station Group • Bankstown Railway Station Group

SYDENHAM TO BANKSTOWN

SUBMISSIONS AND PREFERRED INFRASTRUCTURE REPORT

> Appendix F – Non-Aboriginal heritage assessment

SYDENHAM TO BANKSTOWN

SUBMISSIONS AND PREFERRED INFRASTRUCTURE REPORT

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