Our Ref: 16165

2 September 2016

Dyldam
Level 1
74 Macquarie Street
Parramatta NSW 2150

Attention: Mr Tom Copping

Dear Tom,

RE: BONDS SPINNING MILLS, PENDLE HILL
UPDATED SUPPLEMENTARY TRAFFIC ASSESSMENT

As requested, we have provided additional analysis of the Gilba Road/ Pendle Way intersection as requested by Cumberland Council. This is summarised below.

INTRODUCTION

The proposed Bonds Spinning Mills development located in 190 – 220 Dunmore Street, Pendle Hill is a mixed use development with high density residential and retail mixes.

A supplementary traffic assessment was prepared in January 2016 as an addendum of the traffic impact assessment that supported the Planning Proposal for this proposed development.

Cumberland Council (formerly Holroyd City Council) has reviewed the traffic impact assessment and the supplementary material and advised that the Planning Proposal is likely to receive endorsement for public exhibition, subject to identification of a preferred option to address the traffic capacity issues at the Gilba Road/ Pendle Way intersection, to be approved by the Holroyd Traffic Committee.

The previous intersection modelling results indicated that the average delay at the intersection would increase significantly due to general traffic growth and the traffic from the Bonds site, resulting in a poor Level of Service F in the Thursday PM peak hour and Saturday peak hour. To address this capacity issue, it was suggested the conversion of the existing priority intersection to be either traffic signal control, or a roundabout, to address the traffic capacity issues.

This matter was discussed extensively during my presentation to the former Holroyd Council traffic committee earlier this year and it was clear that they had a preference for traffic signals.

Consequently, we have provided further information on the proposed signalisation of the Gilba Road/ Pendle Way intersection. Furthermore, we have amended the modelling to reflect the recent reduction in dwelling yield and a slight increase in retail gross floor area.

OBJECTIVES

The objectives of this updated traffic assessment are to:

- update the SIDRA modelling undertaken for the Pendle Way/ Gilba Road intersection with the revised traffic flows as a result of the changes in the development yield.
- recommend an intersection layout to improve the future operating conditions of the subject intersection.

TRAFFIC GENERATION

The design of the subject development has been revised with the following yield:

- 1,500 dwellings
- 3,160 m^2 GFA supermarket
- 2,840 m^2 GFA speciality retail.

Using the same traffic generation rates adopted in the previous traffic assessment, the additional trips associated with the proposed development would be:

- 736 trips in the PM peak hour
- 920 trips in the Saturday peak hour

These trips are a reduction from the traffic generation associated with the previous development yield.

In terms of background traffic growth, the review of the BTS Strategic Travel Model (STM), as assessed in the previous modelling report, suggested traffic growth of 1.5% per annum along local streets in Pendle Hill. This background traffic growth rate has therefore been adopted to be consistent with the previous traffic assessment.

Figure 1 below presents the proportion of site-related traffic in relation to the total traffic in a stacked column graph. Total traffic is the sum of existing traffic, background traffic growth in the future year and site-related traffic.

Figure 1: Proportion of Site-Related Traffic in Total Traffic

The site-related traffic is approximately 40% and 53% of the traffic increase between the present year and 2027 during the Thursday PM and Saturday peak hours respectively.

These site-related trips have been distributed to the road network based on the percentage of directional split adopted in the previous traffic assessment, and subsequently superimposed on the background traffic. It is noted that only a proportion of the site-related traffic would travel past the subject intersection given its location and distance from the proposed development.

INTERSECTION OPERATING CONDITIONS

The intersection performance has been assessed in SIDRA modelling for the following scenarios:

- Existing base case (current intersection layout)
- 2027 future base case with general background traffic growth (current intersection layout)
- 2027 future with general background traffic growth and development (current intersection layout)
- 2027 future with general background traffic growth and development (traffic signals with two southbound lanes in northern leg).

In the tested intersection layout, two southbound lanes have been assumed in the northern leg. The southbound through lane adjacent to the kerb would be 60 m long extended to just south of the pedestrian zebra crossing (north of Stapleton Street), while the southbound right turn lane would be in full length. This is achievable by removing the existing raised median and the traffic island to accommodate two southbound lanes in the northern leg. It is noted that Pendle Way is approximately 12 m wide between kerbs and is sufficient to provide the aforementioned layout. An indicative layout is shown as Figure 2.

Figure 2: Recommended Intersection Layout

Table 1 shows the intersection operating conditions for various scenarios. Detailed modelling results are shown in Appendix A.

Table 1: Existing and Future Intersection Operating Conditions of the Pendle Way/ Gilba Road Intersection

Scenario	Intersection Layout	Peak	Degree of Saturation (DoS)	Average Delay (sec)	95th Percentile Queuing	Level of Service (LoS)
Existing base case	Priority (current layout)	PM	0.84	37	C	49
		SAT	0.86	38	C	55
2027 future base case	Priority (current layout)	PM	1.25	287	F	277
		SAT	1.23	269	F	289
2027 future with development	Priority (current layout)	PM	1.59	585	F	437
		SAT	1.75	731	F	542
2027 future with development	Signals with two southbound lanes (no marked foot crossings)	PM	0.62	15	B	97
		SAT	0.65	16	B	107
2027 future with development	Signals two southbound lanes (full marked foot crossings)	PM	0.71	18	B	109
		SAT	0.74	20	B	120
2027 future with development	Signals two southbound lanes (marked foot crossings in northern and western legs)	PM	0.66	17	B	103
		SAT	0.70	18	B	111

The intersection currently operates at LoS C within its theoretical capacity, but its performance will deteriorate to LoS F in 2027 and operate beyond its theoretical capacity solely as a result of the background traffic growth (i.e. without the development traffic).

The additional traffic associated with the subject development would further deteriorate the intersection performance, and the northbound traffic queues in Pendle Way would extend beyond the upstream intersection, affecting the operation of the Pendle Way/ Dunmore Street intersection.

The intersection performance has been tested for traffic signal control with two aforementioned southbound lanes in Pendle Way. The intersection performance would significantly improve to LoS B and operate with spare capacity. The future operating conditions are described below for the exclusion and inclusion of marked foot crossings at the intersection:

- No marked foot crossings: during the peaks the northbound queue of 50 – 51 m in Pendle Way would store within the queue storage space (i.e. 60 m available) between Gilba Road and Dunmore Street.
- Full marked foot crossings: during the peaks the northbound queue of 55 – 59 m in Pendle Way would store within the available queue storage space between Gilba Road and Dunmore Street.
- Marked foot crossings in the northern and western legs only: the northbound queue in Pendle Way would be 53 – 56 m during the peaks and stored within the available queue storage space between Gilba Road and Dunmore Street. This would be possible if the signals were linked to the adjacent Pendle Way/ Dunmore Street intersection.

The above results show that the intersection performance would be significantly improved with reduced average delay should it be upgraded to traffic signal.

The provision of marked foot crossings on only the northern and western legs of the intersection could enhance the performance of the paired intersections (subject to signals coordination), as it maximises the queue storage space in Pendle Way between Gilba Road and Dunmore Street.

On the other hand, given the intersection performance as a result of the provision of full marked foot crossings on all legs of the signals is similar to the partial provision of the marked foot crossings, it can be noted that providing full marked foot crossings is also acceptable from a capacity perspective, and furthermore, it provides safety benefits to pedestrians with additional designated crossing locations across Pendle Way.

The exact layout of the signals would be finalised during the Development Application process.

RECOMMENDATIONS

Based on the above satisfactory assessment results, TTPP recommends the Pendle Way/ Gilba Road intersection be upgraded to traffic signals and coordinated with the adjacent Pendle Way/ Dunmore Street intersection that is also controlled by traffic signals. The traffic signal coordination is to ensure the performance of both intersections is optimised and traffic queues between the two signalised intersections do not interact.

The schematic diagram shown in Figure 2 illustrates the following recommended layout:

- Conversion of the existing priority controlled intersection to be traffic signal controlled, with the provision of appropriate linemarking and removal of the "GIVE WAY" signage.
- Provision of two southbound lanes in Gilba Road, including a 60 m long through lane extended to south of the existing pedestrian zebra crossing, located north of Stapleton Street.
- Provision of marked foot crossings in Pendle Way (northern leg) and Gilba Road (western leg).
- Removal of the existing raised thresholds and medians and their associated signage in Gilba Road to accommodate two southbound lanes north and south of the intersection.
- Removal of the existing refuge island to accommodate the marked foot crossing in Gilba Road.
- Removal of the existing kerb blister in Gilba Road just south of Stapleton Street.

We trust the above is clear but should you require anything further, please feel free to call me.

Yours sincerely,

Ken Hollyoak
Director

Appendix A SIDRA Modelling Results

MOVEMENT SUMMARY

Site: Pendle Way/Gilba Rd (Ex-PM)

16165 - Bonds Pendle Hill Modelling
Gilba Road / Pendle Way
Existing Thursday PM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pendle Way - S											
1	L	434	1.0	0.235	6.4	LOS A	0.0	0.0	0.00	0.61	43.3
2	T	192	0.5	0.581	13.8	LOS A	3.0	21.0	0.61	0.96	37.5
Approach		625	0.8	0.581	8.7	LOS A	3.0	21.0	0.19	0.72	41.3
North: Pendle Way - N											
8	T	146	4.3	0.841	36.0	LOS C	6.8	49.0	0.64	1.43	26.7
9	R	51	2.1	0.842	37.4	LOS C	6.8	49.0	0.64	1.31	26.4
Approach		197	3.7	0.840	36.3	LOS C	6.8	49.0	0.64	1.40	26.6
West: Gilba Rd - W											
10	L	163	0.6	0.214	6.4	LOS A	0.0	0.0	0.00	0.61	43.3
12	R	231	1.4	0.214	6.5	LOS A	0.0	0.0	0.00	0.62	43.3
Approach		394	1.1	0.214	6.5	LOS A	0.0	0.0	0.00	0.61	43.3
All Vehicles		1216	1.4	0.840	12.4	NA	6.8	49.0	0.20	0.79	38.5

MOVEMENT SUMMARY

Site: Pendle Way/Gilba Rd (Ex-SAT)

16165 - Bonds Pendle Hill Modelling
Gilba Road / Pendle Way
Existing Saturday Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pendle Way - S											
1	L	281	2.2	0.154	6.5	LOS A	0.0	0.0	0.00	0.61	43.3
2	T	196	0.0	0.590	14.9	LOS B	3.2	22.6	0.64	0.99	36.8
Approach		477	1.3	0.590	9.9	LOS B	3.2	22.6	0.26	0.77	40.4
North: Pendle Way - N											
8	T	145	3.6	0.860	36.2	LOS C	7.7	55.3	0.68	1.53	26.6
9	R	73	1.4	0.865	37.7	LOS C	7.7	55.3	0.68	1.40	26.3
Approach		218	2.9	0.860	36.7	LOS C	7.7	55.3	0.68	1.49	26.5
West: Gilba Rd - W											
10	L	171	1.2	0.233	6.4	LOS A	0.0	0.0	0.00	0.61	43.3
12	R	260	0.4	0.233	6.5	LOS A	0.0	0.0	0.00	0.62	43.3
Approach		431	0.7	0.233	6.5	LOS A	0.0	0.0	0.00	0.61	43.3
All Vehicles		1125	1.4	0.860	13.8	NA	7.7	55.3	0.24	0.85	37.5

MOVEMENT SUMMARY

Site: Pendle Way/Gilba Rd (FU-PM)

16165 - Bonds Pendle Hill Modelling
Gilba Road / Pendle Way
Future Thursday PM Peak (No Development)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pendle Way - S											
1	L	512	1.0	0.277	6.4	LOS A	0.0	0.0	0.00	0.61	43.3
2	T	226	0.5	0.775	22.7	LOS B	5.4	38.2	0.68	1.23	32.3
Approach		738	0.8	0.776	11.4	LOS B	5.4	38.2	0.21	0.80	39.2
North: Pendle Way - N											
8	T	173	4.3	1.242	285.7	LOS F	38.3	276.6	1.00	5.10	6.3
9	R	60	2.1	1.250	287.2	LOS F	38.3	276.6	1.00	3.68	6.3
Approach		233	3.7	1.245	286.1	LOS F	38.3	276.6	1.00	4.74	6.3
West: Gilba Rd - W											
10	L	193	0.6	0.252	6.4	LOS A	0.0	0.0	0.00	0.61	43.3
12	R	272	1.4	0.252	6.5	LOS A	0.0	0.0	0.00	0.62	43.3
Approach		464	1.1	0.252	6.5	LOS A	0.0	0.0	0.00	0.61	43.3
All Vehicles		1435	1.4	1.245	54.4	NA	38.3	276.6	0.27	1.38	21.6

MOVEMENT SUMMARY

Site: Pendle Way/Gilba Rd (FU-SAT)

16165 - Bonds Pendle Hill Modelling
Gilba Road / Pendle Way
Future Saturday Peak (No Development)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pendle Way - S											
1	L	332	2.2	0.181	6.5	LOS A	0.0	0.0	0.00	0.61	43.3
2	T	231	0.0	0.798	25.7	LOS B	6.1	42.6	0.71	1.30	30.8
Approach		562	1.3	0.798	14.4	LOS B	6.1	42.6	0.29	0.90	37.2
North: Pendle Way - N											
8	T	172	3.6	1.234	266.9	LOS F	40.3	289.4	1.00	5.03	6.7
9	R	85	1.4	1.236	268.4	LOS F	40.3	289.4	1.00	3.88	6.7
Approach		257	2.9	1.234	267.4	LOS F	40.3	289.4	1.00	4.65	6.7
West: Gilba Rd - W											
10	L	201	1.2	0.275	6.4	LOS A	0.0	0.0	0.00	0.61	43.3
12	R	306	0.4	0.275	6.5	LOS A	0.0	0.0	0.00	0.62	43.3
Approach		507	0.7	0.275	6.5	LOS A	0.0	0.0	0.00	0.61	43.3
All Vehicles		1326	1.4	1.234	60.3	NA	40.3	289.4	0.32	1.51	20.4

MOVEMENT SUMMARY

Site: Pendle Way/Gilba Rd (FU-DEV-PM)

16165 - Bonds Pendle Hill Modelling
Gilba Road / Pendle Way
Future Thursday PM Peak (With Development)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pendle Way - S											
1	L	571	1.0	0.309	6.4	LOS A	0.0	0.0	0.00	0.61	43.3
2	T	226	0.5	0.916	44.2	LOS D	9.1	63.7	0.74	1.71	24.2
Approach		797	0.9	0.916	17.2	LOS D	9.1	63.7	0.21	0.92	35.4
North: Pendle Way - N											
8	T	173	4.3	1.584	583.8	LOS F	60.4	436.6	1.00	7.02	3.3
9	R	60	2.1	1.579	585.2	LOS F	60.4	436.6	1.00	5.17	3.3
Approach		233	3.7	1.578	584.1	LOS F	60.4	436.6	1.00	6.55	3.3
West: Gilba Rd - W											
10	L	193	0.6	0.300	6.4	LOS A	0.0	0.0	0.00	0.61	43.3
12	R	360	1.4	0.300	6.5	LOS A	0.0	0.0	0.00	0.62	43.3
Approach		553	1.1	0.300	6.5	LOS A	0.0	0.0	0.00	0.61	43.3
All Vehicles		1582	1.4	1.578	96.8	NA	60.4	436.6	0.25	1.64	15.0

MOVEMENT SUMMARY

Site: Pendle Way/Gilba Rd (FU-DEV-SAT)

16165 - Bonds Pendle Hill Modelling
Gilba Road / Pendle Way
Future PM Peak (With Development)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pendle Way - S											
1	L	444	2.2	0.243	6.5	LOS A	0.0	0.0	0.00	0.61	43.3
2	T	231	0.0	0.998	76.7	LOS F	14.3	100.1	0.81	2.27	17.5
Approach		675	1.5	0.998	30.5	LOS F	14.3	100.1	0.28	1.18	28.8
North: Pendle Way - N											
8	T	172	3.6	1.751	729.7	LOS F	75.5	541.8	1.00	7.53	2.7
9	R	85	1.4	1.740	731.1	LOS F	75.5	541.8	1.00	5.86	2.7
Approach		257	2.9	1.747	730.2	LOS F	75.5	541.8	1.00	6.98	2.7
West: Gilba Rd - W											
10	L	201	1.2	0.336	6.4	LOS A	0.0	0.0	0.00	0.61	43.3
12	R	419	0.4	0.335	6.5	LOS A	0.0	0.0	0.00	0.62	43.3
Approach		620	0.7	0.335	6.5	LOS A	0.0	0.0	0.00	0.61	43.3
All Vehicles		1552	1.4	1.747	136.7	NA	75.5	541.8	0.29	1.91	11.6

MOVEMENT SUMMARY

Site: Pendle Way/Gilba Rd (FU-DEV-PM) - No Ped

16165 - Bonds Pendle Hill Modelling
Gilba Road / Pendle Way
Future Thursday PM Peak (With Development)
Intersection Upgrade - Signals - No Pedestrian Crossings
Signals - Fixed Time Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pendle Way - S											
1	L	571	1.0	0.387	6.7	LOS A	1.1	7.5	0.08	0.63	43.0
2	T	226	0.5	0.624	18.8	LOS B	7.1	50.0	0.82	0.71	33.0
Approach		797	0.9	0.624	10.2	LOS A	7.1	50.0	0.29	0.66	39.6
North: Pendle Way - N											
8	T	173	4.3	0.345	16.1	LOS B	5.2	37.6	0.77	0.63	34.6
9	R	60	2.1	0.333	31.7	LOS C	2.5	17.7	0.91	0.76	28.3
Approach		233	3.7	0.346	20.1	LOS B	5.2	37.6	0.81	0.66	32.7
West: Gilba Rd - W											
10	L	193	0.6	0.605	19.4	LOS B	13.7	96.7	0.80	0.83	34.1
12	R	360	1.4	0.605	19.5	LOS B	13.7	96.7	0.80	0.83	34.1
Approach		553	1.1	0.605	19.4	LOS B	13.7	96.7	0.80	0.83	34.1
All Vehicles		1582	1.4	0.624	14.9	LOS B	13.7	96.7	0.54	0.72	36.4

MOVEMENT SUMMARY

Site: Pendle Way/Gilba Rd (FU-DEV-SAT) - No Ped

16165 - Bonds Pendle Hill Modelling
Gilba Road / Pendle Way
Future Saturday Peak (With Development)
Intersection Upgrade - Signals - No Pedestrian Crossings
Signals - Fixed Time Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pendle Way - S											
1	L	444	2.2	0.304	6.7	LOS A	0.7	5.3	0.08	0.63	43.0
2	T	231	0.0	0.622	19.7	LOS B	7.3	51.2	0.83	0.72	32.6
Approach		675	1.5	0.622	11.1	LOS A	7.3	51.2	0.33	0.66	38.8
North: Pendle Way - N											
8	T	172	3.6	0.348	16.9	LOS B	5.3	38.0	0.79	0.64	34.1
9	R	85	1.4	0.453	33.1	LOS C	3.5	25.0	0.94	0.78	27.8
Approach		257	2.9	0.453	22.3	LOS B	5.3	38.0	0.84	0.69	31.7
West: Gilba Rd - W											
10	L	201	1.2	0.653	19.2	LOS B	15.3	107.4	0.81	0.83	34.2
12	R	419	0.4	0.653	19.2	LOS B	15.3	107.4	0.81	0.84	34.2
Approach		620	0.7	0.653	19.2	LOS B	15.3	107.4	0.81	0.84	34.2
All Vehicles		1552	1.4	0.653	16.2	LOS B	15.3	107.4	0.61	0.74	35.6

MOVEMENT SUMMARY

Site: Pendle Way/Gilba Rd (FU-DEV-THU) - Full Ped

16165 - Bonds Pendle Hill Modelling
Gilba Road / Pendle Way
Future Thursday PM Peak (With Development)
Intersection Upgrade - Signals - Full Pedestrian Crossings
Signals - Fixed Time Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pendle Way - S											
1	L	571	1.0	0.516	8.7	LOS A	4.3	30.0	0.36	0.71	41.4
2	T	226	0.5	0.693	22.4	LOS B	7.8	54.9	0.88	0.80	31.1
Approach		797	0.9	0.693	12.6	LOS A	7.8	54.9	0.51	0.73	37.8
North: Pendle Way - N											
8	T	173	4.3	0.360	17.8	LOS B	5.4	39.3	0.81	0.66	33.6
9	R	60	2.1	0.370	34.6	LOS C	2.6	18.5	0.95	0.76	27.2
Approach		233	3.7	0.370	22.2	LOS B	5.4	39.3	0.85	0.69	31.7
West: Gilba Rd - W											
10	L	193	0.6	0.706	23.6	LOS B	15.5	109.3	0.89	0.86	31.9
12	R	360	1.4	0.706	23.6	LOS B	15.5	109.3	0.89	0.86	31.9
Approach		553	1.1	0.706	23.6	LOS B	15.5	109.3	0.89	0.86	31.9
All Vehicles		1582	1.4	0.706	17.8	LOS B	15.5	109.3	0.69	0.77	34.6

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow	Average Delay	Level of Service	Average Back of Queue		Prop. Queued	Effective Stop Rate
					Pedestrian	Distance		
		ped/h	sec		ped	m		per ped
P1	Across S approach	53	13.3	LOS B	0.1	0.1	0.67	0.67
P5	Across N approach	53	11.4	LOS B	0.1	0.1	0.62	0.62
P7	Across W approach	53	20.0	LOS C	0.1	0.1	0.82	0.82
All Pedestrians		159	14.9				0.70	0.70

MOVEMENT SUMMARY

Site: Pendle Way/Gilba Rd (FU-DEV-SAT) - Full Ped

16165 - Bonds Pendle Hill Modelling
Gilba Road / Pendle Way
Future Saturday Peak (With Development)
Intersection Upgrade - Signals - Full Pedestrian Crossings
Signals - Fixed Time Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pendle Way - S											
1	L	444	2.2	0.405	8.5	LOS A	3.0	21.5	0.32	0.69	41.5
2	T	231	0.0	0.739	25.3	LOS B	8.4	58.8	0.93	0.86	29.8
Approach		675	1.5	0.739	14.3	LOS A	8.4	58.8	0.52	0.75	36.6
North: Pendle Way - N											
8	T	172	3.6	0.370	19.6	LOS B	5.6	40.7	0.85	0.69	32.5
9	R	85	1.4	0.553	37.4	LOS C	3.8	26.7	0.99	0.80	26.3
Approach		257	2.9	0.553	25.5	LOS B	5.6	40.7	0.90	0.72	30.1
West: Gilba Rd - W											
10	L	201	1.2	0.728	22.8	LOS B	17.1	120.1	0.89	0.87	32.3
12	R	419	0.4	0.729	22.8	LOS B	17.1	120.1	0.89	0.87	32.2
Approach		620	0.7	0.729	22.8	LOS B	17.1	120.1	0.89	0.87	32.2
All Vehicles		1552	1.4	0.739	19.6	LOS B	17.1	120.1	0.73	0.80	33.6

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow	Average Delay	Level of Service	Average Back of Queue		Prop. Queued	Effective Stop Rate
					Pedestrian	Distance		
		ped/h	sec		ped	m		per ped
P1	Across S approach	53	12.0	LOS B	0.1	0.1	0.63	0.63
P5	Across N approach	53	10.2	LOS B	0.1	0.1	0.58	0.58
P7	Across W approach	53	21.7	LOS C	0.1	0.1	0.85	0.85
All Pedestrians		159	14.6				0.69	0.69

MOVEMENT SUMMARY

Site: Pendle Way/Gilba Rd (FU-DEV-PM) - N&W Ped

16165 - Bonds Pendle Hill Modelling
Gilba Road / Pendle Way
Future Thursday PM Peak (With Development)
Intersection Upgrade - Signals - Pedestrian Crossings in North and West Legs
Signals - Fixed Time Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pendle Way - S											
1	L	571	1.0	0.516	8.7	LOS A	4.2	29.9	0.36	0.71	41.4
2	T	226	0.5	0.657	20.5	LOS B	7.4	52.4	0.85	0.76	32.1
Approach		797	0.9	0.657	12.0	LOS A	7.4	52.4	0.50	0.72	38.2
North: Pendle Way - N											
8	T	173	4.3	0.353	16.9	LOS B	5.3	38.5	0.79	0.64	34.1
9	R	60	2.1	0.350	32.7	LOS C	2.5	18.0	0.92	0.76	27.9
Approach		233	3.7	0.353	21.0	LOS B	5.3	38.5	0.83	0.68	32.2
West: Gilba Rd - W											
10	L	193	0.6	0.662	21.2	LOS B	14.5	102.6	0.85	0.84	33.1
12	R	360	1.4	0.662	21.3	LOS B	14.5	102.6	0.85	0.84	33.1
Approach		553	1.1	0.662	21.3	LOS B	14.5	102.6	0.85	0.84	33.1
All Vehicles		1582	1.4	0.662	16.6	LOS B	14.5	102.6	0.67	0.76	35.3

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow	Average Delay	Level of Service	Average Back of Queue		Prop. Queued	Effective Stop Rate
					Pedestrian	Distance		
		ped/h	sec		ped	m		per ped
P5	Across N approach	53	12.0	LOS B	0.1	0.1	0.63	0.63
P7	Across W approach	53	19.2	LOS B	0.1	0.1	0.80	0.80
All Pedestrians		106	15.6				0.72	0.72

MOVEMENT SUMMARY

Site: Pendle Way/Gilba Rd (FU-DEV-SAT) - N&W Ped

16165 - Bonds Pendle Hill Modelling
Gilba Road / Pendle Way
Future Saturday Peak (With Development)
Intersection Upgrade - Signals - Pedestrian Crossings in North and West Legs
Signals - Fixed Time Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pendle Way - S											
1	L	444	2.2	0.405	8.5	LOS A	3.0	21.4	0.32	0.69	41.5
2	T	231	0.0	0.695	23.3	LOS B	8.0	56.0	0.89	0.81	30.7
Approach		675	1.5	0.695	13.6	LOS A	8.0	56.0	0.51	0.73	37.1
North: Pendle Way - N											
8	T	172	3.6	0.362	18.7	LOS B	5.5	39.8	0.83	0.67	33.1
9	R	85	1.4	0.515	35.4	LOS C	3.7	26.0	0.97	0.79	26.9
Approach		257	2.9	0.515	24.3	LOS B	5.5	39.8	0.88	0.71	30.7
West: Gilba Rd - W											
10	L	201	1.2	0.682	20.1	LOS B	15.7	110.8	0.84	0.84	33.7
12	R	419	0.4	0.683	20.1	LOS B	15.7	110.8	0.84	0.84	33.7
Approach		620	0.7	0.682	20.1	LOS B	15.7	110.8	0.84	0.84	33.7
All Vehicles		1552	1.4	0.695	18.0	LOS B	15.7	110.8	0.70	0.77	34.5

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow	Average Delay	Level of Service	Average Back of Queue		Prop. Queued	Effective Stop Rate
					Pedestrian	Distance		
		ped/h	sec		ped	m		per ped
P5	Across N approach	53	10.8	LOS B	0.1	0.1	0.60	0.60
P7	Across W approach	53	20.8	LOS C	0.1	0.1	0.83	0.83
All Pedestrians		106	15.8				0.72	0.72

Our Ref: 16165

2 September 2016

Dyldam
Level 1
74 Macquarie Street
Parramatta NSW 2150

Attention: Mr Tom Copping

Dear Tom,

RE: BONDS SPINNING MILLS, PENDLE HILL
TRAFFIC IMPACT OF UPDATED YIELD

I refer to your email dated Monday 29th August in which you informed me of the updated yield for the site.

You will be aware that the previous traffic assessments undertaken by his author whilst working at GTA were based upon yields between 1600 and 1700 dwellings. The traffic generated by this level of residential development is summarised below.

Table 1 – Areas of Residential Traffic Generation from previous Schemes

		Use	Units	Generation Rate			Movements per hour		
				AM	PM	Sat	AM	PM	Sat
Original Traffic Report	Apr-14	Dwellings	1600	0.32	0.18	0.23	512	288	368
Amendment	Sep-15	Dwellings	1700	0.32	0.18	0.23	544	306	391
Amendment	Jan-16	Dwellings	1640	0.32	0.18	0.23	525	295	377

In addition to the residential development, a number of retail uses have been proposed but these have remained almost constant throughout the assessment process.

- 3,141 m^2 - 3,160 m^2 GFA supermarket
- 2,823 m^2 - 2,840 m^2 GFA speciality retail.

The traffic generated by the retail element of the development would be as follows

Table 2 – Areas of Proposed Retail Areas / Traffic Generation

Use	Units	Generation Rate per 1000m2			Movements per hour		
		AM	PM	Sat	AM	PM	Sat
Supermarket	3160	58	116	110	183	367	348
Specialty Retail	2840	17.5	35	80	50	99	227

The historic assessments showed that the road network could accommodate the level of traffic generated by a development pf up to 1700 dwellings but it would be necessary to upgrade the Gilba Way Pendle Hill priority intersection to provide a traffic signal.

The current proposed site yield has been revised to be: -

- 1,500 dwellings
- 3,160 m2 GFA supermarket
- 2,840 m2 GFA speciality retail.

The retail elements of the scheme remain unchanged but the residential element has now dropped from 1640 to 1500 dwellings.

I have therefore undertaken a comparison of the historic yields compared to that currently proposed in Table 3 below.

Table 3 – Comparison of Residential Traffic Generated by Current Yield

		Use	Units	Generation Rate			Movements per hour		
				AM	PM	Sat	AM	PM	Sat
Original Traffic Report	Apr-14	Dwellings	1600	0.32	0.18	0.23	512	288	368
Amendment	Sep-15	Dwellings	1700	0.32	0.18	0.23	544	306	391
Amendment	Jan-16	Dwellings	1640	0.32	0.18	0.23	525	295	377
Amendment	Aug-16	Dwellings	1500	0.32	0.18	0.23	480	270	345

It can be seen that the 1500 dwellings would generate 45 (AM Peak)15 (PM peak) 32(Sat) less trips than the previous scheme.

It can be concluded therefore that the latest residential yields (together with the retained retail yields) will have a lesser traffic impact on the road network than the previous proposals although the upgrade to the Gilba Way / Pendle Hill priority intersection to a traffic signal will still be necessary.

I trust that this is clear but please feel free to call me should you require anything further.

Yours sincerely,

Ken Hollyoak
Director

Reference: #13S1210200

3 March 2016

JST Pty Ltd
Level 2, 72 Macquarie Street
PARRAMATTA NSW 2150

Attention: Mr. Tom Copping

Dear Tom

RE: BONDS SPINNING MILLS, PENDLE HILL – SUPPLEMENTARY TRAFFIC ASSESSMENT

I refer to your recent email in which you confirmed that the number of units was to be reduced to 1640 units.

My letter dated 2nd September 2015 considered the dwelling numbers as being approximately 1700 dwellings.

The reduction of 60 dwellings will mean that the traffic generated by the proposed development in the AP peak will reduce by approximately 19 trips, by 11 trips in the PM peak and by 14 trips in the Saturday peak.

Table 1: Traffic Generation Estimates (External Trips)

Use	Units / GFA	Generation Rate			Movements/hr.		
		AM	PM	Sat	AM	PM	Sat
Residential							
Dwellings	1,700	0.32 per dwelling	0.18 per dwelling	0.23 per dwelling	544	306	391
Dwellings	1,640	0.32 per dwelling	0.18 per dwelling	0.23 per dwelling	525	295	377

The reduction in traffic by between 11 and 19 trips in the peak hour will not result in material change in any of the traffic modelling and will not change the conclusions reached in my previous letters and reports.

Should you require anything further, please do not hesitate to contact me in our Sydney office on (02) 8448 1800.

Yours sincerely

GTA CONSULTANTS

Ken Hollyoak
Director (NSW)

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Reference: #13S1210200

11th January 2016

JST Pty Ltd
Level 2, 72 Macquarie Street
PARRAMATTA NSW 2150

Attention: Mr. Tom Copping

Dear Tom

RE: BONDS SPINNING MILLS, PENDLE HILL – SUPPLEMENTARY TRAFFIC ASSESSMENT

I refer to your recent email in which you referred to a number of traffic concerns that Council has raised. I have repeated these concerns below and have responded accordingly.

Measures to address the poor performance of Gilba Road/Pendle Way intersection would need to be addressed prior to public exhibition. The submitted table stipulates that the performance in 2027 would be LOS F (with development) and LOS B (without development).

First of all, we need to correct an error which was included on the spreadsheet summary of the results. Clearly it makes no sense that the addition of the development traffic would send the intersection from LOS B (without development) to LOS F (with development). Our analysis actually showed that the intersection would operate overcapacity in the year 2027 even without the subject development. The correct summary analysis is shown below.

Table 1: Existing – Sidra Results

Intersection	Intersection Control	Peak	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queuing	Level of Service (LOS)
Pendle Way/ Gilba Road	Priority	PM	0.84	37	48	C
		SAT	0.87	39	45	C

Table 2: 2027 Base – Sidra Results

Intersection	Intersection Control	Peak	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queuing	Level of Service (LOS)
Pendle Way/ Gilba Road	Priority	PM	1.05	125	127	F
		Sat	1.06	127	145	F

Table 3: 2027 Post Development – Sidra Results

Intersection	Intersection Control	Peak	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queuing	Level of Service (LOS)
Pendle Way/ Gilba Road	Priority (existing layout)	PM	1.56	570	420	F
		Sat	1.82	799	560	F

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This table shows that even without the development, the intersection would be overcapacity in 2027 which would be largely as a result of the background growth (some 18% growth up to 2027).

Some of the existing problems with the intersection at present are:

- The north approach effectively operates as a single lane approach and right turners can block the straight-through traffic.
- Pedestrians use the coloured marking as a pedestrian crossing, even though it is not designated as such. This causes delays to traffic.
- The largest movements are the west to south and south to west.

Figure 1: Layout of Pendle Way / Gilba Road Intersection

We have looked at 2 possible options to rectify the existing problems at the intersection, these being:

1. A traffic signal layout
2. A small roundabout

Although a traffic signal located here would be relatively close to the signalised intersection of Pendle Way and Dunmore Street, this is commonplace in town centre locations and the main requirement would be to ensure the 2 traffic signals are linked to ensure that the performance is optimised and that traffic queues between the two signalised intersections do not interact.

The success of a signalised intersection in this location would be dependent upon how often the pedestrian phase of the traffic signals was called. If there was no pedestrian demand, a traffic signal could operate in 2027 at this location with a LOS of B although this would be resulted to LOS C if a pedestrian stage was called on every cycle.

The performance could be further improved by linking the signals at Dunmore Street to provide what would be effectively be a staggered arrangement. This would remove the need to provide a pedestrian phase on the traffic signals to the south of the Gilba Road intersection as pedestrians would have a signalised crossing at the Pendle Hill /Dunmore Street traffic signals some 70m to the south. The removal of the pedestrian stage would facilitate the heavy left turn into Gilba Road which is the main traffic issue resulting from the introduction of traffic signals.

Table 4: Performance of Improvements at Pendle Way / Gilba Road Intersection

Intersection	Intersection Control	Peak	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queuing	Level of Service (LOS)
Pendle Way/ Gilba Road (upgraded)	Signal (No Ped)	PM	0.63	16	79	B
		Sat	0.71	18	99	B
	Signal (Full Ped mvmt)	PM	0.82	35	164	C
		Sat	0.85	37	200	C
	Signal (N/W Ped mvmt only)	PM	0.67	18	84	B
		Sat	0.78	20	115	B

Alternatively, a roundabout could be located here but the southern approach would have problems unless a designated left lane / slip lane was provided (as shown below). This might require third party land on the south west corner of the intersection to allow the construction of a slip lane but it would result in an intersection which operated with a LOS of B.

Figure 2: Potential Roundabout Layout at Pendle Way / Gilba Road Intersection

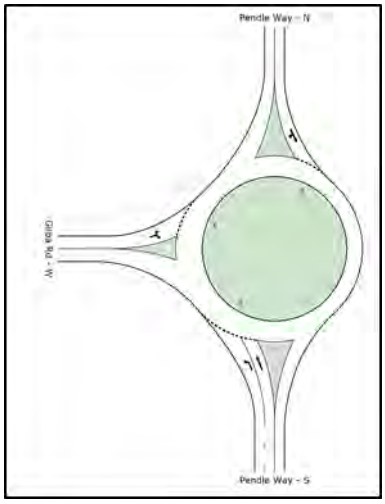


Table 5: Performance of roundabout Improvement at Pendle Way / Gilba Road

Intersection	Intersection Control	Peak	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queuing	Level of Service (LOS)
Pendle Way/ Gilba Road (upgraded)	Roundabout (with left turn lane)	PM	0.70	15	27	A
		Sat	0.58	17	34	B

In summary, this intersection will operate over capacity in 2027 with or without the proposed development. This letter has suggested 2 possible layouts which would overcome the traffic capacity issues although these would need to be investigated in further detail.

The proposed roundabout on Dunmore Street is not considered ideal due to its proximity to the signalised intersection and the impacts of this need to be discussed. RMS concurrence is required and all proposed amendments to existing road conditions need to be reported to Holroyd Traffic Committee. Queue length along Dunmore Street would need to be addressed as queues may extend beyond the roundabout during peak periods.

The proposed roundabout provides 70m of stacking from the give way line at the traffic signals to the roundabout intersection. The modelling provided in my letter dated 2nd September 2015 included modelling of the development in 2027 with the 18% general traffic growth and full development of the site. Even allowing for this, the 95%ile queue was demonstrated to be only 46m on a Thursday PM and 59m in the Saturday PM. Consequently no conflict between the intersections would occur.

Table 6: Previously Reported performance of Dunmore Street Site access – Thursday PM

Dunmore Street - Access
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Access											
1	L	102	2.0	0.443	18.7	LOS B	3.4	24.1	0.98	1.05	35.4
3	R	54	2.0	0.443	22.1	LOS B	3.4	24.1	0.98	1.05	34.3
Approach		156	2.0	0.443	19.9	LOS B	3.4	24.1	0.98	1.05	35.0
East: Dunmore Street											
4	L	93	2.0	0.862	13.4	LOS A	18.5	131.7	1.00	0.76	39.4
5	T	845	2.0	0.862	12.6	LOS A	18.5	131.7	1.00	0.76	39.5
Approach		938	2.0	0.862	12.6	LOS A	18.5	131.7	1.00	0.76	39.5
West: Dunmore Street											
11	T	561	2.0	0.553	6.3	LOS A	6.4	45.8	0.41	0.48	43.3
12	R	158	2.0	0.553	10.5	LOS A	6.4	45.8	0.41	0.69	41.4
Approach		719	2.0	0.553	7.3	LOS A	6.4	45.8	0.41	0.53	42.8
All Vehicles		1813	2.0	0.862	11.1	LOS A	18.5	131.7	0.76	0.69	40.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

Table 7: Previously Reported performance of Dunmore Street Site access – Saturday peak

Movement Performance - Vehicles

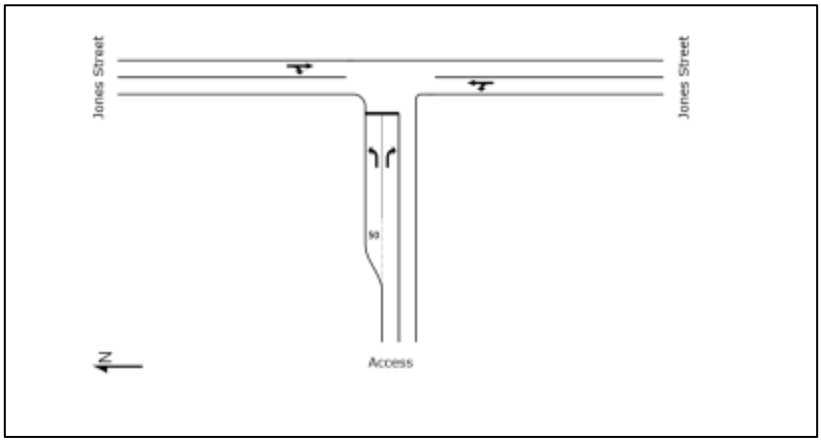
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Access											
1	L	215	2.0	0.590	16.9	LOS B	5.6	39.7	0.94	1.08	36.5
3	R	113	2.0	0.590	20.3	LOS B	5.6	39.7	0.94	1.09	35.2
Approach		327	2.0	0.590	18.1	LOS B	5.6	39.7	0.94	1.08	36.0
East: Dunmore Street											
4	L	113	2.0	0.720	11.5	LOS A	9.7	68.8	0.87	0.79	40.7
5	T	576	2.0	0.720	10.7	LOS A	9.7	68.8	0.87	0.77	40.9
Approach		688	2.0	0.720	10.8	LOS A	9.7	68.8	0.87	0.78	40.9
West: Dunmore Street											
11	T	546	2.0	0.667	7.4	LOS A	8.4	59.9	0.68	0.56	42.0
12	R	215	2.0	0.667	11.5	LOS A	8.4	59.9	0.68	0.67	41.0
Approach		761	2.0	0.667	8.5	LOS A	8.4	59.9	0.68	0.59	41.7
All Vehicles		1777	2.0	0.720	11.2	LOS A	9.7	68.8	0.80	0.75	40.2

It can be seen that based upon the information provided, the queue from the roundabout would not extend as far as the roundabout even allowing for full development of the site and up to 18% background traffic growth.

Also, impacts from vehicles turning right to access the site via Jones Street need to be assessed. In the case that there are impacts on traffic flow left-in/left-out treatments should be considered. N.B. Any proposals that affect traffic signs, linemarking or traffic devices on any public road are subject to approval through the Holroyd Traffic Committee.

My traffic report dated 2nd September 2015 confirmed that the intersection layout modelled for the Jones Street access was a simple Tee intersection.

Figure 3: Modelled Layout of Jones Street Access



The number of right turners into the site even in 2027 is predicted to be only 45 vehicles per hour which is less than one vehicle per minute. As result the modelling indicates that the greatest predicted queue would be 2 vehicles. I do not believe this is an issue. Consequently left in / left out treatments do not need to be considered as the intersection will operate adequately.

Table 8: Traffic Modelling results from Jones Street Access – Thursday PM Peak

MOVEMENT SUMMARY

Site: Jones-Access 2027+Dev Thurs PM

John Street - Access
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
4	L	223	2.0	0.301	7.3	LOS A	0.0	0.0	0.00	0.77	43.8
5	T	344	2.0	0.301	0.0	LOS A	0.0	0.0	0.00	0.00	51.3
Approach		567	2.0	0.301	2.9	NA	0.0	0.0	0.00	0.30	48.1
North: Jones Street											
11	T	374	2.0	0.240	3.2	LOS A	2.1	15.0	0.64	0.00	42.7
12	R	45	2.0	0.240	10.6	LOS A	2.1	15.0	0.64	0.92	42.5
Approach		419	2.0	0.240	4.0	NA	2.1	15.0	0.64	0.10	42.7
West: Access											
1	L	22	2.0	0.025	12.3	LOS A	0.1	0.7	0.47	0.87	40.5
3	R	114	2.0	0.281	18.8	LOS B	1.1	7.7	0.73	1.04	36.3
Approach		136	2.0	0.281	17.8	LOS B	1.1	7.7	0.69	1.01	36.9
All Vehicles		1122	2.0	0.301	5.1	NA	2.1	15.0	0.32	0.31	44.3

Table 9: Traffic Modelling results from Jones Street Access – Saturday peak

MOVEMENT SUMMARY

Site: Jones-Access 2027+Dev Sat

John Street - Access
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
4	L	241	2.0	0.254	7.3	LOS A	0.0	0.0	0.00	0.74	43.8
5	T	236	2.0	0.254	0.0	LOS A	0.0	0.0	0.00	0.00	51.3
Approach		477	2.0	0.254	3.7	NA	0.0	0.0	0.00	0.38	47.2
North: Jones Street											
11	T	286	2.0	0.190	2.3	LOS A	1.4	10.3	0.56	0.00	43.6
12	R	46	2.0	0.190	9.7	LOS A	1.4	10.3	0.56	0.86	43.0
Approach		333	2.0	0.190	3.3	NA	1.4	10.3	0.56	0.12	43.5
West: Access											
1	L	46	2.0	0.047	11.7	LOS A	0.2	1.3	0.42	0.88	40.9
3	R	241	2.0	0.453	17.7	LOS B	2.3	16.7	0.70	1.11	36.9
Approach		287	2.0	0.453	16.7	LOS B	2.3	16.7	0.65	1.07	37.5
All Vehicles		1097	2.0	0.453	7.0	NA	2.3	16.7	0.34	0.48	43.2

I trust that this addresses the problems raised in councils letter but should you have any questions or require any further information, please do not hesitate to contact me in our Sydney office on (02) 8448 1800.

Yours sincerely

GTA CONSULTANTS

Ken Hollyoak
Director (NSW)

Reference: #13S1210200

2 September 2015

JST Pty Ltd
Level 2, 72 Macquarie Street
PARRAMATTA NSW 2150

Attention: Mr. Tom Copping

Dear Tom

RE: BONDS SPINNING MILLS, PENDLE HILL – SUPPLEMENTARY TRAFFIC ASSESSMENT

1. Introduction

GTA Consultants had previously prepared a traffic and transport report in April 2014 for redevelopment of the Bonds Spinning Mills in Pendle Hill to incorporate approximately 1,600 new dwellings and 6,000m² of retail, including an approximately 4,000m² supermarket.

Subsequently, the Holroyd City Council has requested additional information on 20 June 2015. In July 2015, a revised masterplan was prepared by PTW Architects to incorporate approximately 1,700 new dwellings and 6,000m² retail area. Carparking is to be provided with a basement carpark.

As per the Council's letter dated 20 June 2014, the following items are addressed in the chapters specified below.

Table 1: Council's Comments

Issues Raised by Council	Addressed in Chapter(s)
Item 1. The 40:60 in/out split for residential during the PM Peak shall be further justified. Alternatively the more traditional 70:30 split can be applied.	Section 5
Item 2. The retail traffic distribution split between Gilba Road and Magowar Road should be reviewed considering Gilba Road is the higher order road and carries a more traffic than Magowar Road. It is more likely that the split is reversed (i.e. Gilba Road - 30% and Magowar Road - 5%).	Section 5
Item 3. The I% per annum linear growth rate applied to background traffic is considered too low. The assessment of the future scenario shall consider the proposed intensification of the Pendle Hill Town Centre based on the recently updated Holroyd DCP and LEP and previous studies undertaken.	Section 5
Item 4. The intersection modelling shall be extended to include the intersection of: i. Great Western Highway with Jones Street ii. Cumberland Highway with Dunmore Street iii. Cumberland Highway with Smith Street iv. Gilba Road with Pendle Way v. Wentworth Avenue with Goodall Street (if required by Parramatta City Council) vi. others as required by the Roads and Maritime Services (RMS).	Section 2 & 5

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Issues Raised by Council	Addressed in Chapter(s)
It is acknowledged that traffic generated by the proposed rezoning is unlikely to have an impact on the overall performance of these intersections however, minor traffic volume increases can make a difference to low priority movements (e.g. right turns, side roads) particularly at intersections which are saturated. In addition, the RMS will not increase green times on the side roads (i.e. Dunmore Street and Jones Street) as their aim is to maintain traffic flow along the highway. Therefore, any increase in traffic will likely increase delay queue lengths on the side road which will need to be addressed.	
Item 5. The Sidra modelling output summary shall include DOS and Queue Lengths.	Tables 2, 5 & 6
Item 6. The proposed access intersection treatments on Jones Street and Dunmore Street shall be detailed and assessed in regard to traffic (traffic modelling), road safety, loss of on-street parking and pedestrians.	Conceptual layouts are shown in Attachment 4
Item 7. An assessment of the Environmental Capacities of local and collector roads shall be undertaken to determine the impact on road safety and residential amenity. Based on the traffic generation analysis, Jones Street, Dunmore Street and possibly Smith Street will be above the limits. Measures to manage speed and maintain residential amenity shall be provided.	Section 5 Table 7
Item 8. The rezoning includes new access intersections and modification to existing intersections which will result in loss of on-street parking. Any loss of on-street parking will need to be detailed and addressed.	It should be noted that a significant number of new on street parking spaces will be created within the new internal roads, which will more than compensate for loss of parking at the site entries. Conceptual layouts are shown in Attachment 4
Item 9. Any changes to traffic signs (including parking restrictions), line marking and traffic devices are subject to the approval of the Holroyd Traffic Committee. Concept designs shall be prepared in accordance with Australian Standards, Austroads and RMS Supplements for reporting to the Holroyd Traffic Committee when issues have been resolved and further details have been provided.	Conceptual layouts are shown in Attachment 4
Item 10. The rezoning is a traffic generating development under SEPP (Infrastructure) 2007 and includes modification to signalised intersections which are subject to RMS approval. Therefore the proposal shall be referred to the RMS as soon as possible.	The proposal will be referred to RMS during agency consultation stage.
Item 11. Off-street parking including visitor parking shall be in accordance with Council's DCP.	Section 4

As this report provides supplementary traffic assessment to the submitted traffic report, this should be read in conjunction with GTA's Traffic and Transport Report[1] dated 30/04/14 (refer to Attachment 1).

2. Existing Conditions

We have undertaken additional intersection counts and queuing surveys at the following intersections to address Council's issue (refer to Item 4):

- Great Western Highway – Jones Street
- Great Western Highway – Pendle Way
- Cumberland Highway – Dunmore Street
- Cumberland Highway – Smith Street

[1] Bonds Spinning Mills Pendle Hill, Traffic and Transport Report, GTA Consultants, 30/04/14

- Gilba Road – Pendle Way
- Wentworth Avenue – Goodall Street.

The surveys were conducted on a Saturday 14 February 2015 between 11AM and 1PM and on Thursday 19 February 2015 between 4PM and 6PM. These periods coincide with the previous analyses submitted to council.

The intersection turning movement diagrams for Thursday PM and Saturday midday peak hours including the six intersections surveyed for the original traffic report are included in Attachment 2A.

Table 2 presents a summary of the existing operation of the study intersections with full results provided in Attachment 3A.

Table 2: Existing – Sidra Results

Intersection	Controls	Peak	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queuing	Level of Service (LOS)
Jones Street/ Rogers Street	Priority	PM	0.14	8	7	A
		Sat	0.11	7	4	A
Jones Street/ Oatlands Street	Priority	PM	0.16	8	6	A
		Sat	0.11	7	4	A
Jones Street/ Smith Street	Roundabout	PM	0.32	11	14	A
		Sat	0.21	10	8	A
Jones Street/ Dunmore Street	Roundabout	PM	0.63	15	43	A
		Sat	0.39	12	18	A
Goodall Street/ Dunmore Street	Signals	PM	0.76	18	79	B
		Sat	0.48	16	44	B
Pendle Way/ Dunmore Street	Signals	PM	0.65	18	73	B
		Sat	0.65	15	41	B
Great Western Highway/ Jones Street	Signals	PM	0.62	20	157	B
		Sat	0.59	23	102	B
Cumberland Highway/ Dunmore Street	Signals	PM	0.83	38	276	C
		SAT	0.86	38	183	C
Cumberland Highway/ Smith Street	Signals	PM	0.86	16	123	B
		SAT	0.64	17	127	B
Pendle Way/ Gilba Road	Priority	PM	0.85	41	43	C
		SAT	0.86	39	46	C
Goodall Street/ Wentworth Avenue	Signals	PM	0.73	26	112	B
		SAT	0.86	27	104	B
Cumberland Highway/ Pendle Way	Signals	PM	0.93	43	191	D
		SAT	0.99	42	134	C

Table 2 indicates that all intersections currently operate satisfactorily with Level of Service (LoS) C or better, except Cumberland Highway/Pendle Way intersection.

Cumberland Highway/Pendle Way intersection operates near capacity (i.e. LoS D) during the Thursday PM peak period. It is expected that the majority of intersections along the arterial road would operate at or near capacity during the commuter peak periods. Hence,

intersections operating at Level of Service D during peak periods are generally considered acceptable.

3. Development Proposal

Following the submission of the Concept Mater Plan in 2014, the proposed development mix has been revised.

Table 3 presents the indicative development mix as provided by the Concept Masterplan as submitted to Council (adopted in the original GTA traffic report) against the current building envelopes as amended.

Table 3: Proposed Development Mix

Use	Units/GFA	
	Previous Proposal	Current Proposal
Residential		
-Dwellings	1,600 units*	1,700 units*
Retail		
-Supermarket	4,000m^2	3,141m^2
-Specialty retail	2,000m^2	2,823m^2

NOTE: * - Unit numbers are indicative and subject to further refinement and unit mix employed during detailed planning phase.

Consistent with the traffic report[1], the following vehicle accesses are proposed:

- Dunmore Street-Access Road roundabout
- Jones Street-Access Road T-intersection.

The indicative concept layout for the access road intersections at Dunmore Street and Jones Street are included in Attachment 4. However, this is an indicative conceptual layout and further details will be confirmed during the DA stage.

4. Car Parking

The Concept Master Plan envisages that the following general on-site car parking provision rates:

- Residential at 1 space / dwelling = 1,700 residential parking spaces
- Visitor parking at 1 space / 5 dwellings = 340 residential visitor parking spaces
- Retail at 1 space / 44m2 GLFA = 140 retail parking spaces.

The above parking rates are consistent with the traffic report[1].

The envisaged provision of 2,180 car parking spaces accords with the minimum City of Holroyd DCP 2013 car parking requirements. Under the revised masterplan, the car parking spaces will be located within a basement. A significant additional on-street parking spaces will be provided within the new road reserves within the development.

Notwithstanding the above, the exact on-site parking provision will need to be defined once further details regarding the type of retail, commercial and residential land uses are proposed on the site, which will be in accordance with Council's DCP.

5. Traffic Impact Assessment

Traffic Generation

The traffic generation rates applied for this assessment are consistent with the original traffic assessment1. Table 4 presents the estimates of external peak hour traffic volumes resulting from the current proposal.

Table 4: Traffic Generation Estimates (External Trips)

Use	Units / GFA	Generation Rate			Movements/hr.		
		AM	PM	Sat	AM	PM	Sat
Residential							
Dwellings	1,700	0.32 per dwelling	0.18 per dwelling	0.23 per dwelling	544	306	391
Retail							
Supermarket	3,141m^2	58 per 1,000m^2	116 per 1,000m^2	110 per 1,000m^2	182	364	345
Specialty retail	2,823m^2	17.5 per 1,000m^2	35 per 1,000m^2	80 per 1,000m^2	50	99	226
Total					776	769	962

Table 4 indicates that the site could potentially generate approximately 780 external vehicle movements in the AM peak hour, 770 external vehicle movements in the PM peak hour and 960 external vehicle movements in the Saturday midday peak hour.

Despite the increase in unit numbers from the previous proposal, the above external movements for the proposed development are lower than the previously assessed development of approximately 800 external vehicle movements in the AM peak hour, 840 external vehicle movements in the PM peak hour and 1,000 external vehicle movements in the Saturday midday peak hour.

For this supplementary assessment, we have focused on traffic impact assessment during the Thursday PM and Saturday midday periods, as requested by Council in previous submission in order to ensure that the impact of the development generated traffic coincided with the busiest times in the town centre, which is in close vicinity of the site.

Trip Distribution

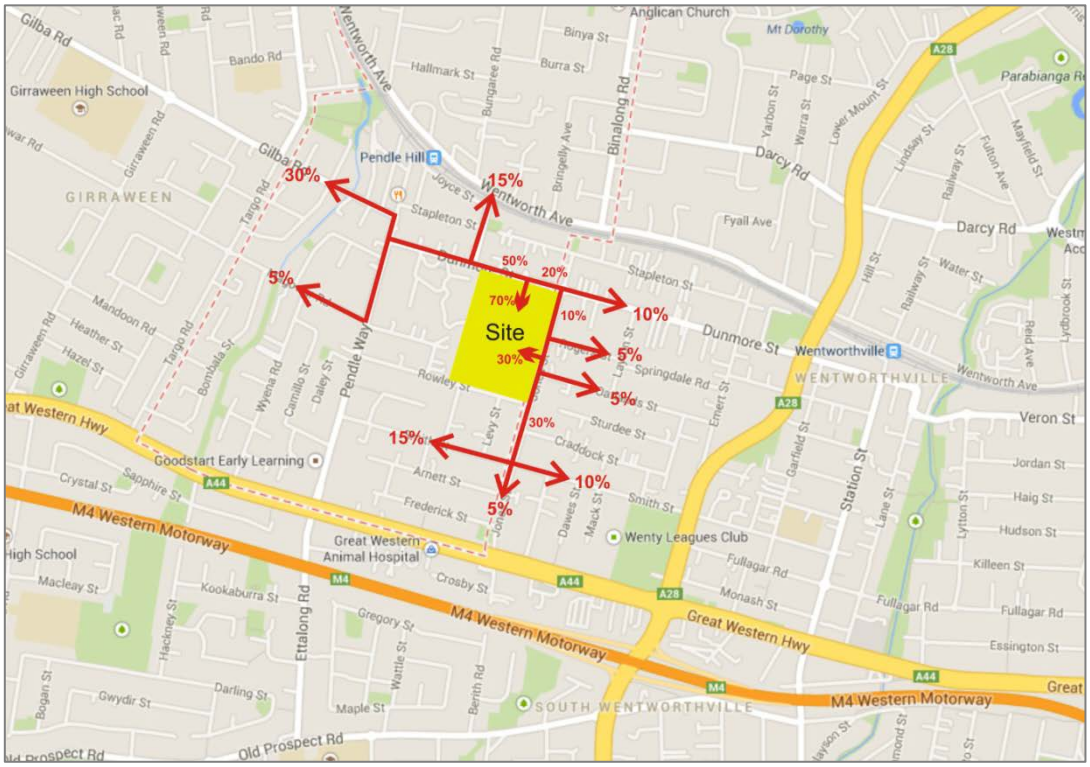
As requested by the Council (refer to Item 1), the following directional split of traffic (i.e. the ratio between the inbound and outbound traffic movements) has been adopted:

- Residential: 20% inbound/ 80% outbound during the Thursday AM peak, and 70% inbound/ 30% outbound during the Thursday PM peak.
- Retail: 70% inbound/ 30% outbound during the Thursday AM peak, and 60% inbound/ 40% outbound during the Thursday PM peak.
- During the Saturday midday peak, the directional split of both retail and residential traffic has been assumed as 50% outbound/ 50% inbound.

In addition, the PM peak hour residential directional split has been revised to 70% inbound/ 30% outbound.

In addition to above, the anticipated retail traffic distribution was revised as suggested by the Council (refer to Item 2). This is presented in Figure 1.

Figure 1: Traffic Distribution – Retail Component

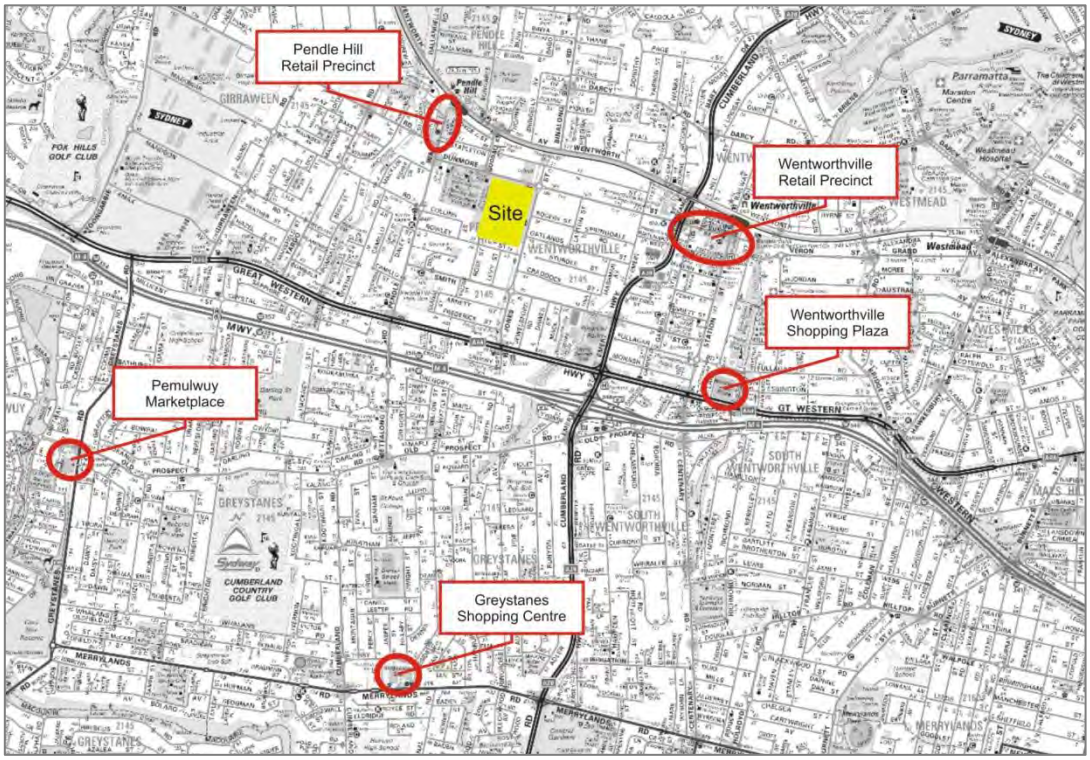


The revised retail trip distribution assumed that 30% of retail trips would be to/from Gilba Road and 5% would travel to/from Magowar Road.

For the development traffic generated by the retail component, it was assumed that these trips would be generally contained within the boundary of Great Western Highway and Cumberland Highway. It is anticipated that the majority of customers of the proposed local retail facilities would be the local residents of Pendle Hill.

Figure 2 shows the location of other nearby retail centres. It can be seen that would be unlikely for the potential customers to travel along Great Western Highway and/or Cumberland Highway since there are already other regional retail centres nearby.

Figure 2: Location of Other Retail Centres



Future Impacts

GTA has previously applied 1% background traffic growth per annum on the existing road network. However, following the Council's comment (refer to Item 3), we have reviewed the Bureau of Transport Statistics' (BTS) data.

BTS maintains the Strategic Travel Model (STM) for projecting travel patterns in New South Wales. A broad range of assumptions are included in the model and as such, results should only be used as an indicative measure.

A review of Strategic Travel Model data at Pendle Hill suggested that the following traffic growth would be appropriate:

- 1.5% growth per annum along all local streets
- 1% growth per annum along the main highways (i.e. Great Western Highway and Cumberland Highway).

The above traffic growth percentages are applied to the existing intersection flows up to the future year, 2027. Intersection turning movement diagrams for 2027 Thursday PM and Saturday midday peak hours are included in Attachment 2B.

Intersection turning movement diagrams for 2027 with development generated traffic are also included in Attachment 2C.

Intersection Assessment

Following the distribution and assignment of development traffic and application of growth to background traffic, the study intersections were reanalysed using SIDRA INTERSECTION.

Table 5 summarises the SIDRA results of the Year 2027 'without development' and 'with development' scenarios in terms of average delay and level of service.

The full results from the SIDRA analysis are presented in Attachment 3B and 3C for the Year 2027 'without development' and 'with development' scenarios, respectively.

Intersection assessment results shown in Table 5 indicates that all sign controlled and roundabout intersections would operate satisfactorily with LoS C or better for both peak periods, except for the Pendle Way/Gilba Road intersection.

Pendle Way/Gilba Road intersection would operate at LoS F in 2027 under post development conditions. Hence, mitigation measures would be necessary to improve performance of this intersection. Notwithstanding the above, the operation of this intersection is largely affected by the activities along Pendle Way, north of the intersection such as delays due to parking manoeuvres, pedestrian crossings generated by the retail strip etc. The vehicle queues generated by these activities downstream of the Pendle Way/Gilba Road intersection, obstruct vehicles from passing through this intersection.

It is noted that in order to replicate the observed queue length on north and south approaches of Pendle Way using SIDRA INTERSECTION, the capacity of these approaches have been reduced by 40-45% for both existing and 2027 scenarios. This has significant impact on the 2027 post development SIDRA results as additional development traffic was added on to the network.

Therefore, mitigation measures are likely to require the consideration of the effect of retail activities in vicinity of the Pendle Hill station, which is located downstream from Pendle Way/Gilba Road intersection rather than increasing the capacity of this intersection itself.

Cumberland Highway intersections with Pendle Way and Dunmore Street would operate near capacity (i.e. LoS D) in 2027 with or without the development traffic added to the road network. As mentioned in Chapter 2, it is expected that the majority of intersections along the arterial road would operate at or near capacity during the commuter peak periods. Hence, intersections operating at Level of Service D during peak periods are generally considered acceptable.

It is noted that Goodall Street/ Wentworth Avenue intersection would operate near capacity (i.e. LoS D) in 2027 with the development traffic added to the road network. The existing traffic signal timings have been adopted at this signalised intersection. Further assessment of this intersection indicated that the level of service could be improved to "B", if traffic signal timing is revised to reflect the additional traffic on Goodall Street.

As requested by the Council (refer to Item 4), all traffic signal timings have been fixed based on the existing Intersection Diagnostic Monitor (IDM) data obtained from RMS.

Table 5: Year 2027 'Without Development' and 'With Development' scenarios – SIDRA Results

Intersection	Controls	Peak	'Without Development'				'With Development'			
			Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queuing	Level of Service (LOS)	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queuing	Level of Service (LOS)
Jones Street/ Rogers Street	Priority	PM	0.17	9	8	A	0.20	9	10	A
		Sat	0.13	8	5	A	0.17	8	7	A
Jones Street/ Oatlands Street	Priority	PM	0.19	9	8	A	0.28	11	18	A
		Sat	0.13	8	5	A	0.28	12	16	A
Jones Street/ Smith Street	Roundabout	PM	0.39	11	19	A	0.53	15	30	B
		Sat	0.26	10	11	A	0.49	12	27	A
Jones Street/ Dunmore Street	Roundabout	PM	0.80	21	86	B	0.92	31	165	C
		Sat	0.48	13	24	A	0.61	14	40	A
Goodall Street/ Dunmore Street	Signals	PM	0.80	20	101	B	0.87	23	117	B
		Sat	0.59	17	44	B	0.64	19	90	B
Pendle Way/ Dunmore Street	Signals	PM	0.78	20	101	B	0.82	22	128	B
		Sat	0.78	16	54	B	0.81	18	86	B
Great Western Highway/ Jones Street	Signals	PM	0.77	22	188	B	0.87	23	188	B
		Sat	0.75	24	118	B	1.13	30	122	C
Cumberland Highway/ Dunmore Street	Signals	PM	1.01	44	337	D	1.03	46	337	D
		SAT	1.07	49	305	D	1.10	45	323	D
Cumberland Highway/ Smith Street	Signals	PM	1.05	21	205	B	1.11	23	200	B
		SAT	0.80	18	150	B	1.14	23	159	B
Pendle Way/ Gilba Road	Priority	PM	0.59	24	30	B	1.61	612	438	F
		SAT	0.69	27	37	B	2.06	1015	632	F
Goodall Street/ Wentworth Avenue	Signals	PM	0.87	29	139	C	0.97	30	139	C
		SAT	0.92	27	102	B	1.13	47	233	D
Cumberland Highway/ Pendle Way	Signals	PM	1.10	49	248	D	1.10	50	253	D
		SAT	1.00	44	155	D	1.00	45	157	D

Access Road Intersections

The indicative concept layout for the access road intersections at Dunmore Street and Jones Street are included in Attachment 4. The following form of access is proposed:

- Dunmore Street-Access Road roundabout
- Jones Street-Access Road T-intersection.

The results of the intersection performance are presented in Table 6.

Table 6: Year 2027 Access Road – SIDRA Results

Access Location	Controls	Peak	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queuing	Level of Service (LOS)
Dunmore Street	Roundabout	PM	0.86	22	132	B
		Sat	0.72	20	69	B
Jones Street	Priority	PM	0.30	19	15	B
		Sat	0.45	18	17	B

As demonstrated above, both Dunmore Street and Jones Street access road intersections would operate at a good level of service (i.e. LoS B) with acceptable delays for both peak periods under the 2027 post development scenarios.

Environmental Capacity Assessment

A copy of the Environmental capacity performance standards on residential streets table from RMS *Guide to Traffic Generating Development* is produced below.

Table 4.6
Environmental capacity performance standards on residential streets

Road class	Road type	Maximum Speed (km/hr)	Maximum peak hour volume (veh/hr)
Local	Access way	25	100
	Street	40	200 environmental goal
			300 maximum
Collector	Street	50	300 environmental goal
			500 maximum

Note: Maximum speed relates to the appropriate design maximum speeds in new residential developments. In existing areas maximum speed relates to 85th percentile speed.

Table 7 presents the two-way midblock flows on the collector and local residential streets in vicinity of the site.

Table 7: Peak Hour Two-Way Flows on Residential Streets

Road Sections	Existing Flows		2027 'Without Development' Flows		2027 'With Development' Flows	
	PM	Sat	PM	Sat	PM	Sat
Collector Streets:						
Dunmore St, east of Jones St	842	653	1006	780	1144	975
Dunmore St, east of Goodall St	1124	899	1343	1074	1589	1482
Jones St, north of Dunmore St	195	131	232	157	232	157
Jones St, south of Dunmore St	495	339	592	405	684	541
Jones St, south of Oatlands St	513	351	613	419	974	945
Pendle Way, north of Dunmore St	1008	940	1205	1123	1344	1356
Goodall St, north of Dunmore St	1076	732	1286	875	1356	991
Smith St, east of Jones St	550	344	657	411	765	567
Local Streets:						
Rogers St, east of Jones St	33	35	39	42	63	81
Oatlands St, east of Jones St	59	45	71	54	94	93

Table 7 indicates that except at Jones Street, north of Dunmore Street, all of the above collector type residential streets currently do not meet the environmental capacity threshold of 500 vehicles per hour (albeit that the above criteria are for purely residential roads rather than mixed use roads) with or without the development traffic added to the 2027 road network. The RMS Guide to Traffic Generating Development recognises that "the Environmental Capacity of a street can be increased through a reduction in speed" and that "traffic speed may be reduced by the introduction of traffic calming methods".

We consider that the following traffic calming devices could be considered but this would usually be the subject of further discussions at a more advanced stage of scheme development:

- Road humps – to stop vehicles from speeding up but it may not be suitable along the bus routes.
- Speed cushions – one to three devices could be installed, depending on the width of the road. Speed cushions are most accommodating for vehicles such as buses and emergency vehicles compared to the road humps.
- Speed tables - similar to road humps but longer and with a flattened top, sometimes used to give pedestrians a level crossing between footways.
- Pedestrian refuges - allow pedestrians to cross one stream of traffic at a time. It is designed to reduce the speed by narrowing the road, however the road needs to be wide enough to allow for a suitable refuge and the safe passage of vehicles and cycles.

The above table also indicates that all local streets such as Rogers Street and Oatlands Street are expected to meet the environmental capacity threshold.

6. Conclusion

This supplementary traffic assessment report has addressed the issues raised by the Council.

In conclusion, the proposed redevelopment would be able to proceed without having a significant adverse impact on the overall performance of the road network in the vicinity of the site, albeit that some local intersection improvements may be required at Pendle Way/Gilba Road intersection which is likely to require the consideration of the effect of retail activities downstream of this intersection rather than increasing the capacity of itself and modification of traffic signal timing at Goodall Street/ Wentworth Avenue intersection to reflect the additional traffic on Goodall Street.

Furthermore, traffic calming measures may be required to manage speed and to minimise any environmental effects on residential amenity. Details of intersection upgrades and traffic calming options would be addressed and approved by Council during the detail design stage.

Naturally, should you have any questions or require any further information, please do not hesitate to contact me in our Sydney office on (02) 8448 1800.

Yours sincerely

GTA CONSULTANTS

Ken Hollyoak
Director (NSW)

encl.

Attachment 1

Traffic and Transport Report, GTA Consultants (30 April 2014)

Bonds Spinning Mills
Pendle Hill
Traffic and Transport Report

transportation planning, design and delivery

13S1210100 30/04/14

GTAconsultants

Bonds Spinning Mills

Pendle Hill

Traffic and Transport Report

Issue: E 30/04/14

Client: Dyldam Development Pty Ltd
Reference: 13S1210100
GTA Consultants Office: NSW

Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
A	13/12/12	Final	Sarah Court	Ken Hollyoak	Ken Hollyoak	Ken Hollyoak
B	22/05/13	Revised Final	Jason Rudd	Ken Hollyoak	Ken Hollyoak	Ken Hollyoak
C	05/06/13	Revised Final	Jason Rudd	Ken Hollyoak	Jason Rudd	Jason Rudd
D	11/04/14	Incorporating Council and RMS comments	Ashish Modessa	Wayne Johnson	Ken Hollyoak	Ken Hollyoak
E	30/04/14	Amended Car Parking Provisions	Ashish Modessa	Wayne Johnson	Ken Hollyoak	

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1. Introduction

1.1 Background

Dyldam Development Pty Ltd is currently investigating the redevelopment of the Bonds Spinning Mills in Pendle Hill to incorporate approximately 1,600 new dwellings and 6,000m^2 of retail, including an approximately 4,000m^2 supermarket. The final dwelling numbers/mix as well as the retail floor areas would be confirmed at a later stage.

The site is located close to public transport and is within easy walking and/or cycling distance of key destinations such as Pendle Hill Station, Westmead Hospital precinct and the Parramatta CBD. Such a location provides an opportunity to create a sustainable urban neighbourhood which promotes and encourages sustainable transport, and provides a catalyst for urban renewal and revitalisation in and around the Pendle Hill area.

GTA Consultants was commissioned by CBRE to undertake a transport impact assessment for the proposed development. This report has also taken into account comments from the City of Holroyd Council meeting in October 2013.

1.2 Purpose of this Report

This report sets out an assessment of the anticipated transport implications of the proposed development, including consideration of the following:

i existing traffic and parking conditions surrounding the site;
ii existing pedestrian, bicycle and public transport facilities and accessibility;
iii pedestrian, bicycle & public transport needs, in particular with regard to site layout;
iv service vehicle requirements;
v the traffic generating characteristics of the proposed development;
vi suitability of the proposed access arrangements for the site; and
vii the transport impact of the development proposal on the surrounding road network.

1.3 References

In preparing this report, reference has been made to the following:

- an inspection of the site and its surrounds;
- City of Holroyd Development Control Plan (DCP) and Local Environment Plan (LEP);
- Australian Standard/ New Zealand Standard, Parking Facilities, Part 1: Off-Street Car Parking AS/NZS 2890.1:2004;
- Australian Standard, Parking Facilities, Part 2: Off-Street Commercial Vehicle Facilities AS 2890.2:2002;
- Australian Standard / New Zealand Standard, Parking Facilities, Part 6: Off-Street Parking for People with Disabilities AS/NZS 2890.6:2009;
- City of Holroyd – Ordinary Council Meeting 29 October 2013 at 6:30pm;
- traffic and car parking surveys undertaken by Colston Budd Hunt & Kafes as referenced in *Transport Report for Proposed Mixed Use Residential Development, Pendle Hill*, dated July 2012;
- traffic surveys undertaken by Skyhigh Traffic Data in March 2014;
- correspondence relating to proposed development configuration; and
- other documents and data as referenced in this report.

2. Existing Conditions

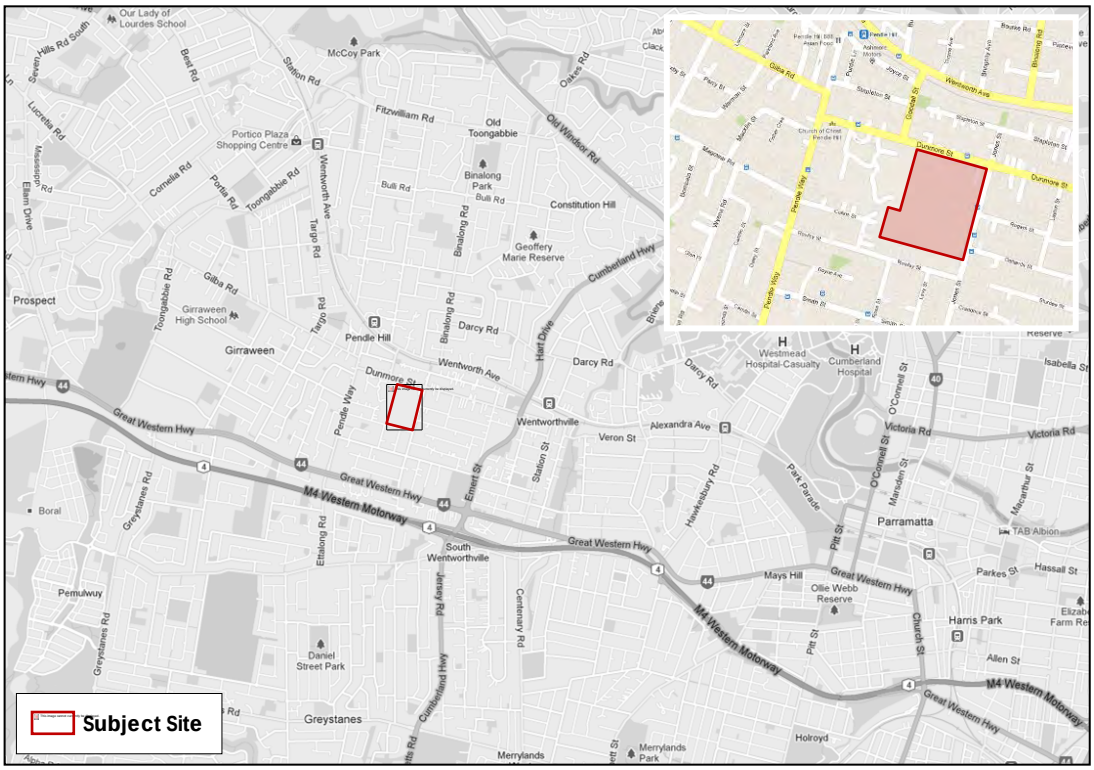
The subject site is located at 190-192 Dunmore Street, Pendle Hill. The site has frontage to Dunmore Street (~230m) and Jones Street (~320m), and comprises 8 hectares with approximately 47,000m^2 of existing industrial/warehouse development.

The site currently has a land use classification as Light Industrial and is occupied by the Pacific Brands industrial/ manufacturing facility, administration, storage and distribution operations. Surrounding land use is predominately residential and commercial/ retail, with the Pendle Hill Retirement Village located just west of the site.

Access to the site is currently provided from both Dunmore Street and Jones Street via combined entry/exit driveways.

The location of the subject site and its surrounding environs is shown in Figure 2.1.

Figure 2.1: Subject Site and Its Environs



(Source: Google Maps)

2.1 Road Network

The major road network in the vicinity of the site includes the Great Western Highway and the M4 Western Motorway running east-west to the south of the site and the Cumberland Highway running north-south to the east of the site. These arterial roads connect the site to major destinations including the Sydney CBD, Parramatta and Liverpool.

2.1.1 Adjoining Roads

Dunmore Street

Dunmore Street is a classified Regional Road and in the vicinity of the site is aligned in an east-west direction. It is a two-way road configured with a 4-lane, comprising a traffic lane and a kerbside parking lane in each direction, 12m wide carriageway, set within an approximately 20m wide road reserve.

Kerbside parking is permitted in certain locations, including along the perimeter of the site. Dunmore Street is shown in Figure 2.2 and carries approximately 12,000 vehicles per day[1] (in the vicinity of the site).

Jones Street

Jones Street is a local road and in the vicinity of the site is aligned in a north-south direction. It is a two-way road configured with a 2-lane, 12m wide carriageway, set within an approximately 20m wide road reserve.

Kerbside parking is permitted, subject to time restrictions. Jones Street is shown in Figure 2.3 and carries approximately 5,000 vehicles per day[2] (in the vicinity of the site).

Figure 2.2: Dunmore Street

Figure 2.3: Jones Street

Pendle Way

Pendle Way is a local road and in the vicinity of the site is aligned in a north-south direction. It is a two-way road configured with a 2-lane, 12m wide carriageway, set within an approximately 20m wide road reserve.

Kerbside parking is permitted and is unrestricted. Pendle Way is shown in Figure 2.4 and carries approximately 11,000 vehicles per day[3] (in the vicinity of the site).

Smith Street

Smith Street is a local road and in the vicinity of the site is aligned in an east-west direction. It is a two-way road configured with a 2-lane, 12m wide carriageway, set within an approximately 20m wide road reserve.

Kerbside parking is permitted and is unrestricted. Smith Street is shown in Figure 2.5 and carries approximately 5,500 vehicles per day[4] (in the vicinity of the site).

1 Based on tube count data collected between Jones Street and Goodall Street in March 2014.
2 Based on tube count data collected between Jones Street and Goodall Street in March 2014.
3 Based on the peak hour traffic counts undertaken by Colston Budd Hunt in 2012 (factored for a Thursday PM peak hour) and assuming a peak-to-daily ratio of 10% for local roads.

Figure 2.4: Pendle Way

Figure 2.5: Smith Street

Rogers Street

Rogers Street is a local road and in the vicinity of the site is aligned in an east-west direction. It is a two-way road configured with a 2-lane, 10m wide carriageway, set within a 20m wide road reserve (approximate).

Kerbside parking is permitted and is unrestricted. Rogers Street is shown in Figure 2.1 and carries less than 400 vehicles per day[5].

Oatlands Street

Oatlands Street is a local road and in the vicinity of the site is aligned in an east-west direction. It is a two-way road configured with a 2-lane, 12m wide carriageway, set within a 20m wide road reserve (approximate).

Kerbside parking is permitted and is unrestricted. Oatlands Street is shown in Figure 2.7 and carries less than 600 vehicles per day[6].

Figure 2.6: Rogers Street

Figure 2.7: Oatlands Street

4 Based on the peak hour traffic counts undertaken by Colston Budd Hunt in 2012 (factored for a Thursday PM peak hour) and assuming a peak-to-daily ratio of 10% for local roads.

5 Based on the peak hour traffic counts undertaken by Colston Budd Hunt in 2012 (factored for a Thursday PM peak hour) and assuming a peak-to-daily ratio of 10% for local roads.

6 Based on the peak hour traffic counts undertaken by GTA Consultants in 2012 (factored for a Thursday PM peak hour) and assuming a peak-to-daily ratio of 10% for local roads.

2.1.2 Surrounding Intersections

The following intersections currently exist in the vicinity of the site:

- Dunmore Street/ Jones Street (roundabout)
- Dunmore Street/ Goodall Street (signalised intersection)
- Dunmore Street/ Pendle Way (signalised intersection)
- Jones Street/ Smith Street (roundabout)
- Jones Street/ Rogers Street (unsignalised intersection)
- Jones Street/ Oatlands Street (roundabout).

2.2 Traffic Volumes

As part of a previous planning proposal submission for the subject site, Colston Budd Hunt and Kafes (CBHK) on behalf of Pacific Brands, undertook traffic movement counts on key roads/ intersections in the vicinity of the site during the AM and PM peak period.

GTA Consultants supplemented these counts by undertaking traffic movement counts at the intersection of Jones Street/ Oatlands Street on Tuesday 27 November 2012 during the AM and PM peak hours, determined to be 7.30am-8.30am and 5.00pm to 6.00pm, respectively.

Following comments from City of Holroyd Council and Roads and Maritime Services (RMS), the study intersections were surveyed on Saturday 8th March 2014 during the midday peak hour, determined to be 11:00am-12:00pm.

In addition, classified traffic volumes were collected on Dunmore Street and Jones Street for 7-days starting 5th March 2014 to estimate the change in traffic on a Thursday in 2014 as compared to a Tuesday in 2012. In this way the existing Tuesday counts could be factored to replicate the Thursday conditions required by Council. As a result, all movements along Dunmore Street were increased by 2% and 5% during the weekday AM and PM peak hour periods respectively. Similarly, all movements along Jones Street were reduced by 6% and increased by 10% during the weekday AM and PM peak hour periods respectively.

The estimated Thursday AM and PM peak hour and surveyed Saturday midday traffic volumes are summarised in Figure 2.8, Figure 2.9 and Figure 2.10, respectively.

2.2.1 Historic / Potential Re-Use of Site

In addition to the surveyed intersections, Colston Budd also undertook traffic counts of the number of vehicles entering and exiting the site from Dunmore Street and Jones Street. These counts indicated that the existing facility on the site generated between 50-60 vehicles per hour two-way during the morning and afternoon peak. Historically, the site would have generated significantly more traffic than this. Indeed, the Colston Budd report noted the following:

> *"over recent years, the industrial and manufacturing operations on the site have been scaled down and as a consequence, a number of existing buildings within the site are either vacant or underutilised. At peak operation the site generated significant heavy vehicle movements, including articulated vehicles, and significant on-site employee parking. The site operated 24 hours per day seven days per week and had an employment work force of some 2,000 staff. The site currently has substantial fewer staff, with some 400 people employed on the site".*

With approximately 47,000m^2 of existing industrial/warehouse development spread over 8 hectares, the existing site has significantly higher potential to generate traffic than it currently does. If the existing building footprint on-site was to be used to full capacity (without redevelopment) the site has the potential to generated 565 trips per hour in the peak periods. Given the nature of the use, a significant number of these would presumably be by trucks.

If redeveloped for an industrial or warehousing / distribution use, for which the current zoning allows, it is likely that a developer would increase the floor space ration (FSR) from the current provision, and as such the traffic generated could be much higher than 565 trips per hour.

Based on surrounding development patterns of 0.5:1 for R2 Low Density Residential and 1.2:1 for the R4 High Density Residential, the subject site, if developed for industrial use to an FSR of, say, 0.85:1, could potentially generate around 800 trips per hour.

Figure 2.8: Estimated Existing Thursday AM Traffic Volumes

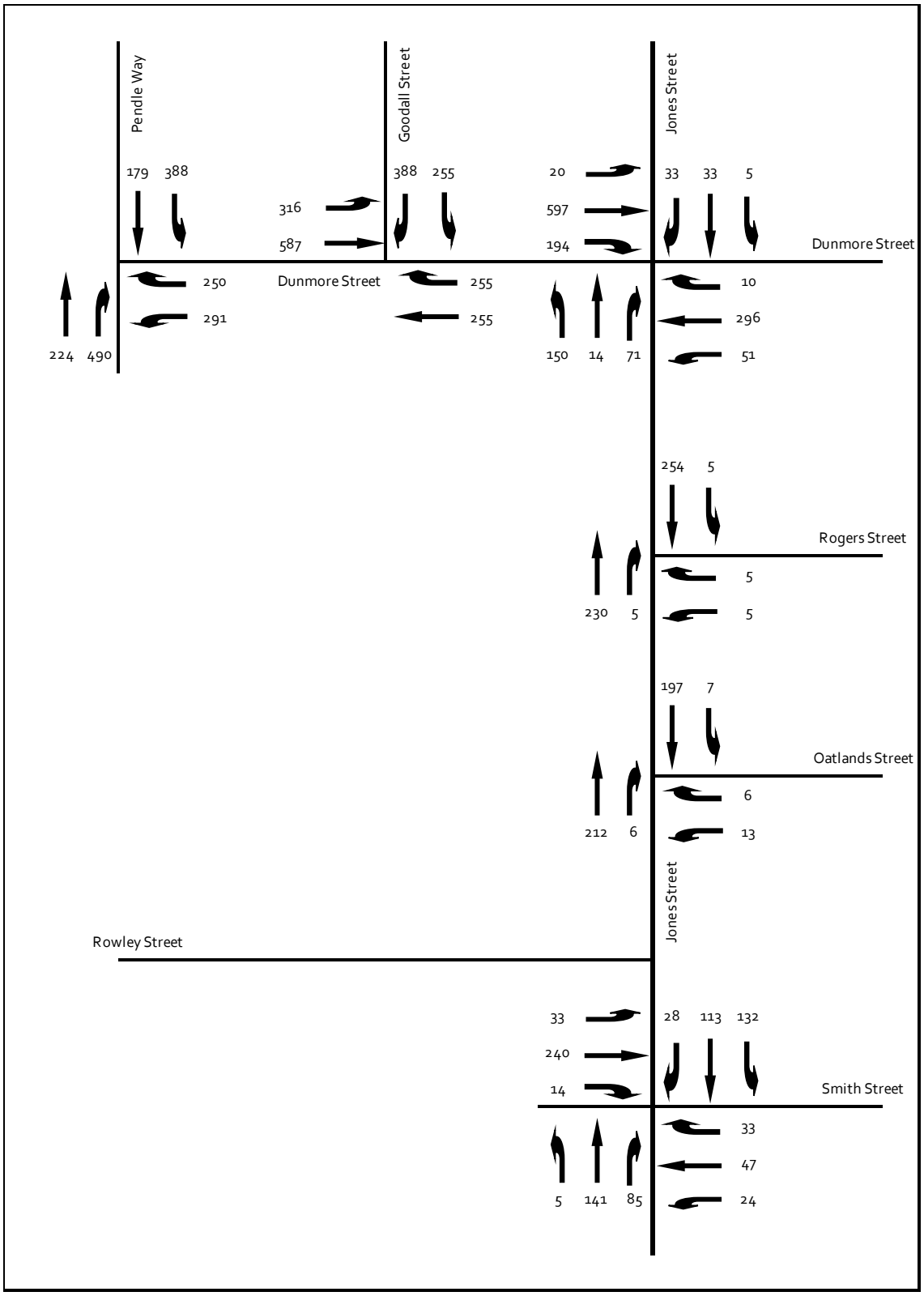


Figure 2.9: Estimated Existing Thursday PM Traffic Volumes

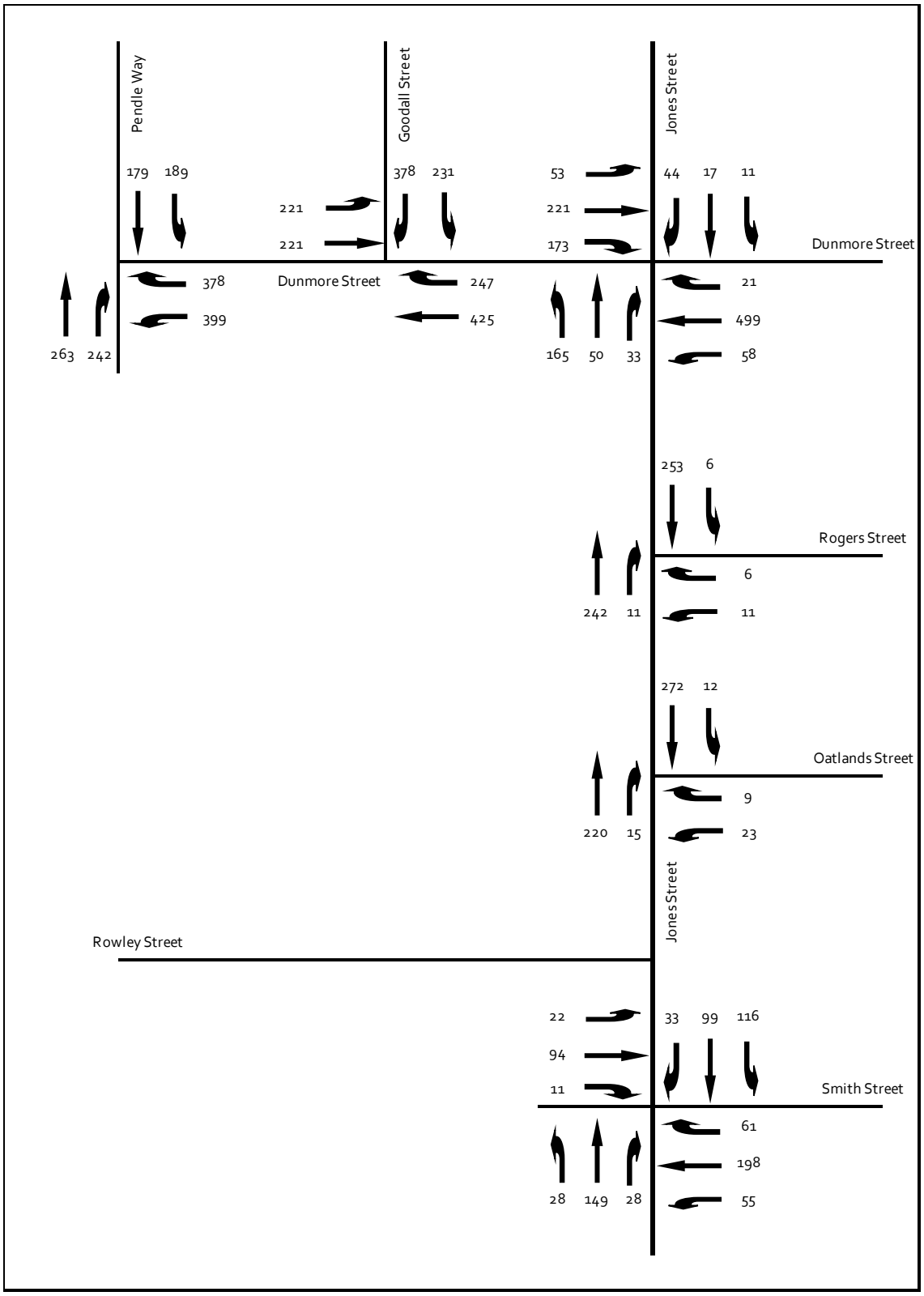
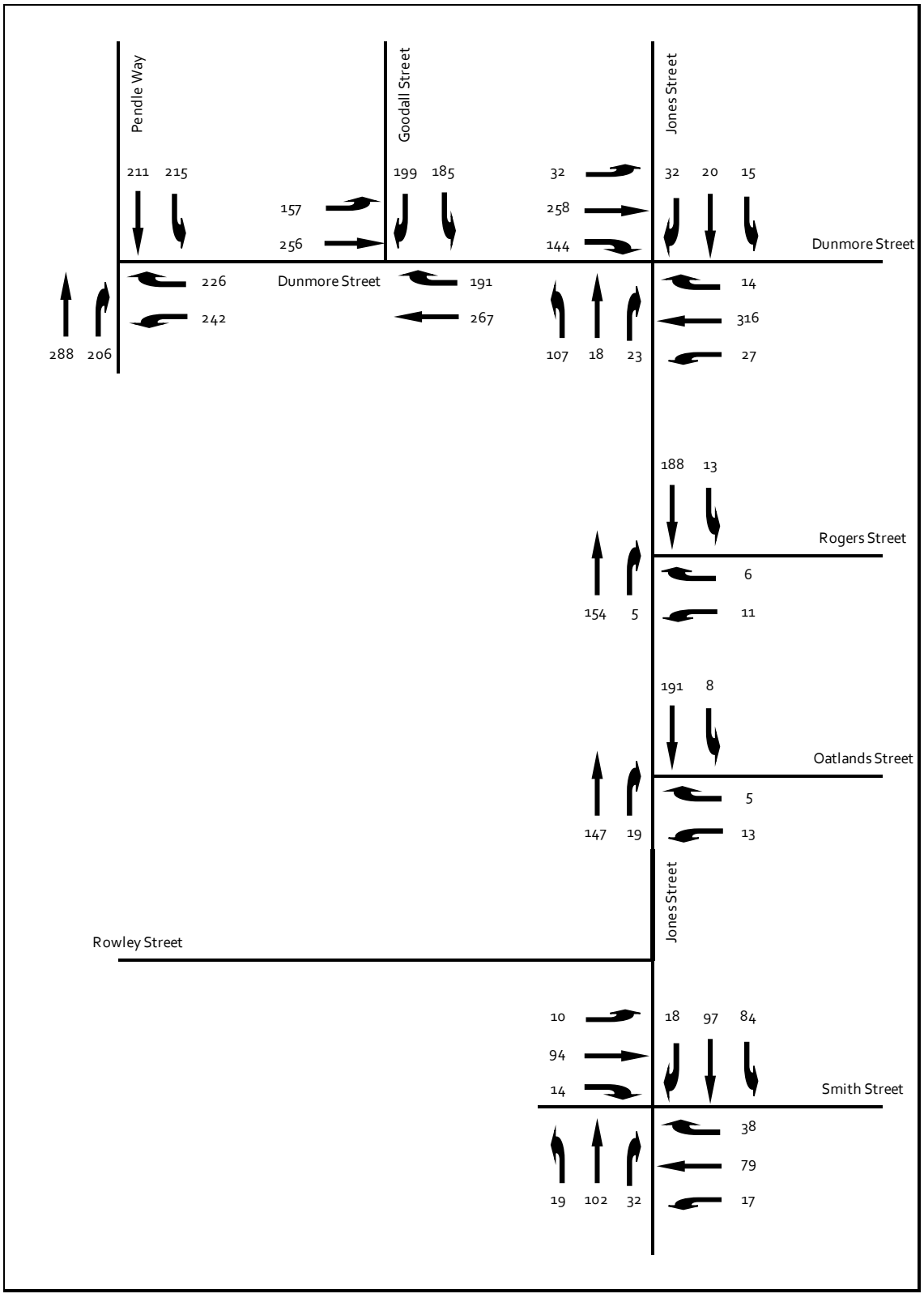


Figure 2.10: Existing Saturday Midday Traffic Volumes



2.3 Intersection Operation

The operation of the key intersections within the study area have been assessed using SIDRA INTERSECTION[7], a computer based modelling package which calculates intersection performance.

The commonly used measure of intersection performance, as defined by the RMS, is vehicle delay. SIDRA INTERSECTION determines the average delay that vehicles encounter and provides a measure of the level of service.

Table 2.1 shows the criteria that SIDRA INTERSECTION adopts in assessing the level of service.

Table 2.1: SIDRA INTERSECTION Level of Service Criteria

Level of Service (LOS)	Average Delay per vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity, at signals incidents will cause excessive delays	At capacity, requires other control mode
F	Greater than 70	Extra capacity required	Extreme delay, major treatment required
N/A	Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.		

Table 2.2 presents a summary of the existing operation of the study intersections with full results provided in Appendix A of this report.

[7] Program used under license from Akcelik & Associates Pty Ltd.

Table 2.2: Existing – Sidra Results

Intersection	Peak	Leg	Average Delay (sec)	Level of Service (LOS)
Jones Street/ Rogers Street	AM	South	1	NA
		East	11	A
		North	0	NA
		All	1	NA
	PM	South	2	NA
		East	10	A
		North	0	NA
		All	1	NA
	Sat	South	1	NA
		East	9	A
		North	0	NA
		All	1	NA
Jones Street/ Oatlands Street	AM	South	1	NA
		East	9	A
		North	0	NA
		All	1	NA
	PM	South	2	NA
		East	10	A
		North	0	NA
		All	2	NA
	Sat	South	2	NA
		East	8	A
		North	0	NA
		All	1	NA
Jones Street/ Smith Street	AM	South	7	A
		East	7	A
		North	9	A
		West	8	A
		All	8	A
	PM	South	8	A
		East	7	A
		North	7	A
		West	7	A
		All	7	A
	Sat	South	7	A
		East	7	A
		North	7	A
		West	7	A
		All	7	A

Intersection	Peak	Leg	Average Delay (sec)	Level of Service (LOS)
Jones Street/ Dunmore Street	AM	South	10	A
		East	8	A
		North	15	B
		West	7	A
		All	8	A
	PM	South	12	A
		East	9	A
		North	11	A
		West	7	A
		All	9	A
	Sat	South	9	A
		East	7	A
		North	10	A
		West	7	A
		All	7	A
Goodall Street/ Dunmore Street	AM	East	26	B
		North	31	C
		West	23	B
		All	26	B
	PM	East	14	A
		North	24	B
		West	14	A
		All	18	B
	Sat	East	14	A
		North	20	B
		West	15	B
		All	16	B
Pendle Way/ Dunmore Street	AM	South	20	B
		East	23	B
		North	16	B
		All	20	B
	PM	South	16	B
		East	20	B
		North	15	B
		All	18	B
	Sat	South	10	A
		East	22	B
		North	12	A
		All	15	B

The priority controlled intersections of Jones Street/ Rogers Street and Jones Street/ Oatlands Street are currently operating with little to no delay (less than 14 seconds) and an average Level of Service A during all peak hours. This signifies good intersection operation.

The roundabout controlled intersections of Dunmore Street/ Jones Street and Jones Street/ Smith Street are also operating with minimal delay (less than 20 seconds) and an average Level of Service A/ B during all peak hours, constituting a good level of intersection operation.

The signalised intersections of Dunmore Street/ Goodall Street and Dunmore Street/ Pendle Way are both currently operating with minimal but acceptable delay (35 seconds or less). Both intersections have an average Level of Service B, indicating spare capacity.

2.4 Public Transport

2.4.1 Rail

Pendle Hill Station is located approximately 500m north-west of the subject site, equivalent to an 8-10 minute walk. The station is served by the North Shore and Western Line, and the Cumberland Line.

The North Shore and Western Line travels from Richmond and Emu Plains through Parramatta and the Sydney CBD to North Sydney and Chatswood. During the AM and PM peak, services run every 15 minutes. Outside of the peak services run every 30 minutes.

The Cumberland Line travels from Blacktown through Parramatta and Liverpool to Campbelltown. During the AM and PM peak, services run every 15 minutes. Outside of the peak services run every 30 minutes.

Combined, these train services run every 5-10 minutes in the peak and every 20-30 minutes in the off-peak in both directions. Transferring trains at Parramatta Station allows for more frequent trips between Pendle Hill and major destinations such as the Sydney CBD and Liverpool.

2.4.2 Bus

Local bus services are operated by Hillsbus and include the following routes:

- Route 700: Every 15 minutes during weekday AM/ PM peak and every hour off-peak (including weekends). Runs along Smith Street between Blacktown Station and Parramatta Station via Girraween and Pendle Hill.
- Route 705: Every 30 minutes during weekday AM/ PM peak and every hour off-peak (including weekends). Runs along Dunmore Street and Pendle Way between Seven Hill, Toongabbie, Pendle Hill, Wentworthville and Parramatta.
- Route 708: One service in the morning and one in the afternoon. Runs along Dunmore Street and Pendle Way, connecting retirement villages in Parramatta, Wentworthville and Pendle Hill.

2.5 Pedestrian Infrastructure

Pedestrian paths are located as follows:

- Dunmore Street – 1.2m wide footpath on both sides
- Jones Street – 1.2m wide footpath on the western side only
- Pendle Way – 1.2m wide footpath on both sides, widening to approximately 3m in the town centre
- Smith Street – 1.2m wide footpath on the northern side only
- Rogers Street – 1.2m wide footpath on the southern side only
- Oatlands Street – 1.2m wide footpath on the southern side only.

The northern and western arms of the Dunmore Street/ Goodall Street intersection and the eastern and southern arms of the Dunmore Street/ Pendle Way intersection have signalised pedestrian crossings.

Pedestrian refuges are provided on all the arms of the roundabout intersections of Smith Street/ Jones Street and Dunmore Street/ Jones Street.

There are no other pedestrian crossings in the vicinity of the site. Additional crossing facilities could be provided to help encourage increased pedestrian activity.

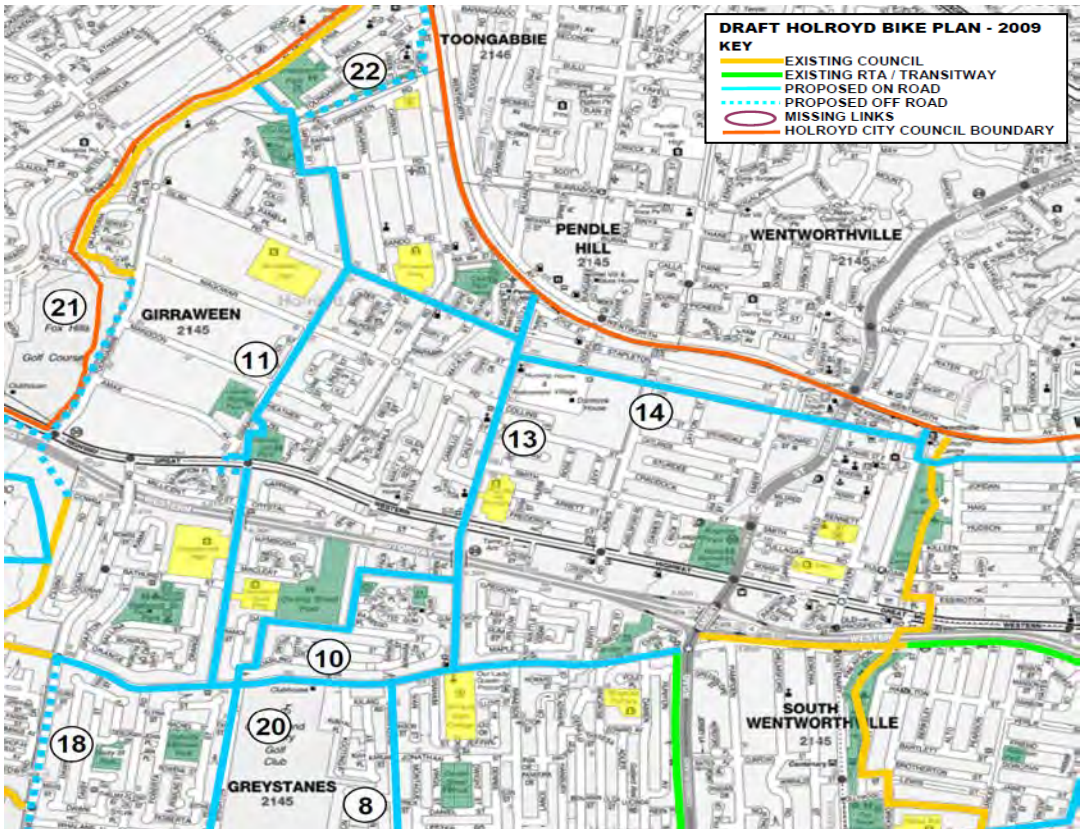
2.6 Cycle Infrastructure

There are no dedicated cycling facilities within the immediate vicinity of the subject site, however many of the local streets are suitable for mixed traffic. Children under the age of 12, and accompanying adults can of course legally cycle on footpaths.

The 2009 Holroyd Bike Plan, shown in Figure 2.11, indicates that on-road bicycle facilities are proposed along Dunmore Street and Pendle Way. These are likely be mixed traffic facilities shared with parked vehicles.

Four secure bicycle lockers are currently available at Pendle Hill Station.

Figure 2.11: Holroyd Bike Plan



2.7 Local Car Sharing Initiatives

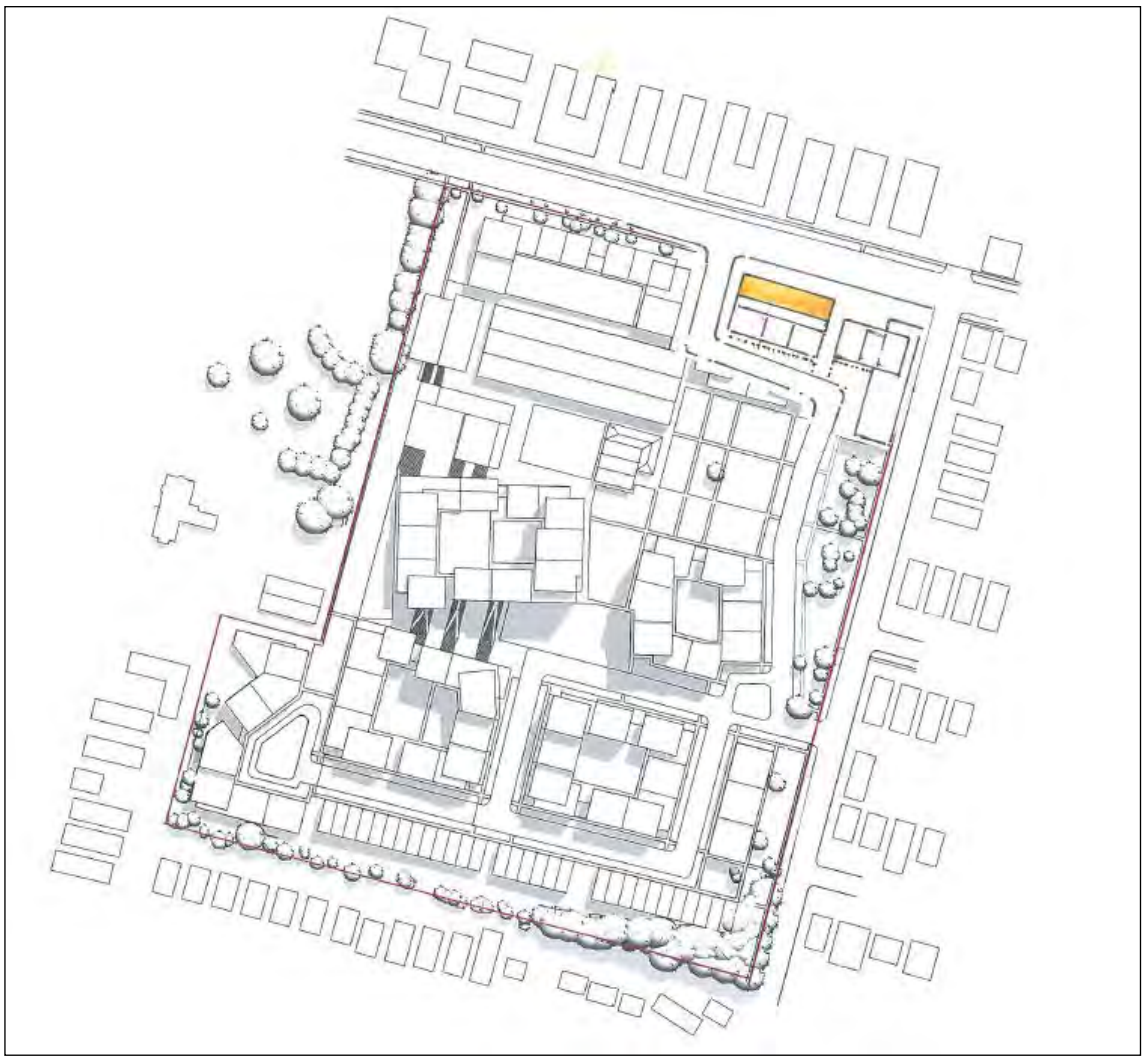
There are currently no local car sharing initiatives operating near the subject site.

3. Development Proposal

3.1 Land Uses

The revised Concept Master Plan, shown in Figure 3.1, includes approximately 1,600 new dwellings and 6,000m^2 of retail floor space, including approximately 4,000m^2 of supermarket and 2,000m^2 of specialty retail. The final dwelling numbers/mix as well as retail floor areas will be confirmed at a later stage.

Figure 3.1: Site Layout



Source: Roberts Day dated 26 April 13 (Drawing No. RD3 313).

3.2 Vehicle Access

The revised Concept Master Plan will seek to provide vehicle access via both of the site's road frontages, namely Dunmore Street and Jones Street. The provision of multiple site access roads with supporting internal road linkages will assist the general distribution and dispersion of site generated traffic to the external road network.

The exact location of accesses is not proposed to be fixed at this point as the location will be dependent upon a number of variables (e.g. heritage buildings). Whilst it was the intention to use the existing single access T-intersection on Dunmore Street and Jones Street, it is unlikely that a simple tee intersection would be able to operate satisfactorily on Dunmore Street. Furthermore this access is close to the Dunmore Street/ Jones Street roundabout.

Consequently, in Section 4.6, scenarios have been tested which show that access to the site can be satisfactorily achieved on the Dunmore and Jones Street frontages, this report does not intend to finalise the form and location of these as this stage as they may need to amended during the development application. However the traffic analysis does show, for the purposes of rezoning the site, that satisfactory accesses can be achieved along the site frontages.

3.3 Car Parking

On-site car parking provision would need to be provided in accordance with the goals and objectives as set out in the City of Holroyd LEP 2013 and DCP 2013. Essentially the objectives of the current DCPs are to ensure that there is sufficient on-site car parking to accommodate the site's parking demands.

Figure 3.2 has been extracted from the City of Holroyd DCP 2013 and provides the minimum and maximum car parking requirements for residential and retail uses.

Figure 3.2: City of Holroyd DCP 2013 – Car Parking Requirements

Residential			
Use	**Measure**	**Minimum Spaces Required**	**Maximum Spaces Required**
Attached dwellings and Small lot dwelling houses (<300m² or 8m or less width)	Per dwelling	1	2 (max. 1 covered)
Dwelling houses (other than on small lots), semi detached dwellings, dual occupancies.	Per dwelling	2 (min. 1 covered)	n/a
Multi dwelling housing	Bedroom per dwelling: Studio / 1 bedroom	1	1.5
	2 bedroom	1	2
	3 bedroom	1.2	2
	4+ bedroom	1.5	2
	Visitor / dwelling	0.2	0.5
Residential flat buildings, dwellings in B1, B2 and B6 business zones (including shop top housing)	Bedroom per dwelling: Studio / 1 bedroom	0.8	1
	2 bedroom	1	1.5
	3 bedroom	1.2	2
	4+ bedroom	1.5	2
	Visitor / dwelling	0.2	0.5
Dwellings in mixed use development in B4 Mixed Use zone (including shop top housing)	Bedroom per dwelling: Studio / 1 bedroom	0.8	1
	2 bedroom	1	1.2
	3 bedroom	1	1.2
	4+ bedroom	1.2	1.5
	Visitor / dwelling	0.2	0.2
Retail & Commercial			
Use	**Measure**	**Minimum Spaces Required**	**Maximum Spaces Required**
Commercial (including retail premises, business premises and office premises) - B4 zone	Ground Floor Leasable GFA	1 per 50m²	1 per 15m²
	Above Ground Floor Leasable GFA		
Commercial (including retail premises, business premises and office premises) - B2 zones in: * Wentworthville * Pendle Hill * Toongabbie * Guildford	Ground Floor - Leasable GFA	1 per 20m²	1 per 15m²
	Above Ground Floor - Leasable GFA	1 per 40m²	1 per 20m²
Commercial (including retail premises, business premises and office premises) in all other B1, B2 and B6 zoned areas	Ground Floor - Leasable GFA	1 per 20m²	1 per 10m²
	Above Ground Floor - Leasable GFA	1 per 40m²	1 per 15m²
Neighbourhood shop	leasable GFA	1 space per 30m²	n/a

Extract from City of Holroyd DCP 2013

Based on the above, the car parking provisions for the proposed mixed use development would need to provide in the order of 2,040 spaces with a breakdown by use as follows:

- 1,600 spaces for Residential
- 320 for Residential Visitors
- 120 for Retail.

The demands of the development on the site also need to be considered with the broader state and local government transport objectives where non-private motor vehicle modes of travel are to be encouraged.

With the above in mind, and given the proposed rezoning of the site to Mixed Use, the Concept Master Plan envisages the following general on-site car parking provisions:

- Residential at 1 space / dwelling = 1,600 residential parking spaces
- Visitor parking at 1 space / 5 dwellings = 320 residential visitor parking spaces
- Retail at 1 space / 44m^2 GLFA = 137 retail parking spaces.

As such the envisaged provision of 2,057 car parking spaces accords with the minimum City of Holroyd DCP 2013 car parking requirements.

It is also expected that the supermarket and associated specialty stores would operate complementary to residential development, with a significant proportion of the trips generated internally/locally. Consequently, the parking provision at the site will be required for local/pass by facility rather than for a destination shopping centre.

Notwithstanding the above, the exact on-site parking provision will need to be defined once further details regarding the type of retail, commercial and residential land uses are proposed on the site.

3.4 Pedestrian Facilities

A network of new pedestrian paths connecting to the surround area would be provided as part of the proposed development. Additional details will be provided at the development application stage.

3.5 Bicycle Facilities

Cycle paths will be provided through the site and bicycle parking will be provided in accordance with the requirements of the City of Holroyd DCP.

3.6 Loading Areas

Loading areas for the proposed supermarket and specialty retail shops, as well as service vehicle access and refuse storage areas are to be provided in accordance with the City of Holroyd DCP and the relevant Australian Standards.

The required provisions will be determined at a later stage.

3.7 Consistency of Development Proposal with Holroyd Centres Strategy

The Holroyd Residential Centres Strategy Transport Review prepared by Stapleton Transportation and Planning Pty Ltd (STAP) identifies that:

- Pendle Hill provides good opportunities for the retention and enhancement of the currently surveyed use of non-car travel, and is well situated to provide high and medium density residential development.
- STAP is of the opinion that it would not be unwarranted for Council to investigate further expansion of the high density zone (or provision of a medium density zone)

south of the station to 400m at least if additional residential capacity is required in the future.

In terms of the provision of infrastructure to accommodate the future growth in population, previous discussions with Sydney Trains indicated that as the population grows in a given area and demand subsequently grows for rail services, the level of services to particular stations can be adjusted accordingly.

With regard to parking, the transport consultant review concluded that "total parking demands within Holroyd, and within the transit centres, will be lower under a high density residential strategy than under a dispersed strategy". According to their research and analysis "High density residential development in close proximity to transit centres (unlike dispersed medium density) reduces commuter parking demand, as residents can walk to public transport services rather than have to drive.....their commuter parking is provided in the basement parking levels below their dwelling. Non-residential development (i.e. shops and businesses) within the transit centres also generates a lower parking demand, as a higher percentage of visitors (staff, customers etc.) can walk/cycle or use public transport to access the development".

With a dispersed strategy (applied to either the new non-residential or residential development) those same customers simply cannot walk/cycle the greater distance and as such car trip and car parking demand is higher.

4. Traffic Impact Assessment

The traffic impact assessment presented in this section was prepared on the basis of an earlier development profile of 1,679 dwellings. Consequently, the modelling provides a conservative approach.

4.1 Traffic Generation

Traffic generation estimates for the proposed development have been sourced from the RMS *Guide to Traffic Generating Development* (including the recently issued Technical Direction TDT 2013/04a). The RMS Guide specifies different rates having consideration for a number of parameters including the size and location of the development. The document recorded the following traffic generation at the surveyed sites (which general comprise a mixture of unit sizes but with the majority being 2 bed apartments).

Table 4.1: Traffic generation of High Density Dwellings

	RMS Updated Traffic Surveys (2012)*								
	Site 1 – St Leonards	Site 2 - Chatswood	Site 3 - Cronulla	Site 4 - Rockdale	Site 5 - Parramatta	Site 6 – Liberty Grove	Site 7 - Strathfield	Site 10 - Pyrmont	Sydney Metropolitan Area (Average)
No. of Units	70	129	28	234	83	64	31	131	96
No. of Parking Spaces	97	206	18	260	108	93	30	199	126
Parking Provision Ratio (spaces/unit)	1.39	1.60	0.64	1.11	1.30	1.45	0.97	1.52	1.31
Peak hour vehicle trips per unit	0.14(AM) 0.07(PM)	0.14(AM) 0.12(PM)	0.07(AM) 0.11(PM)	0.32(AM) 0.18(PM)	0.27(AM) 0.12(PM)	0.28(AM) 0.41(PM)	0.10(AM) 0.06(PM)	0.18(AM) 0.10(PM)	0.19 (AM) 0.15 (PM)

The sites surveyed within Sydney Metropolitan Area included sites within close proximity to the Sydney CBD with excellent access to public transport and retail and commercial precincts. As such, although the development is located in close proximity to public transport, traffic generation rates towards the higher end of the spectrum are anticipated. We have therefore used some of the highest recorded rates in the study (i.e. those at Rockdale), these rates being:

- weekday AM peak hour - 0.32 vehicles per dwelling two-way
- weekday PM peak hour - 0.18 vehicles per dwelling two-way
- Saturday peak hour - 0.23 vehicles per dwelling two-way.

The revised Concept Master Plan also includes approximately 6,000m^2 of retail floor area, including approximately 4,000m^2 of supermarket.

The RMS Guide, in Section 3.6.1, indicates that a supermarket of this size would generate around 155 and 147 two-way vehicle movements (per 1,000m^2) in the Thursday PM and Saturday peak hours respectively, and specialty stores around 46 and 107 two-way vehicle movements (per 1,000m^2) in the Thursday PM and Saturday peak hours respectively.

For the purpose of this assessment, it has been assumed that during the AM peak hour the traffic movements for the retail component would be around 50% of that generated during the PM peak hour.

It is also envisaged that the supermarket and associated specialty stores will operate complementary to residential development, with a limited number of trips generated externally. Retail analysis suggests that approximately 40% of retail activity in mixed use developments is generated by the residential component of the site. However, a conservative reduction of 25% has been applied to reflect this characteristic of the development - suggesting that up to 75% of trips could be generated externally (which again is believed to be a conservative figure).

Based on the above, estimates of external peak hour traffic volumes resulting from the proposal are set out in Table 4.2.

Table 4.2: Traffic Generation Estimates (External Trips)

Use	Units / GFA	Generation Rate			Movements/hr.		
		AM	PM	Sat	AM	PM	Sat
Residential							
Dwellings	1,679	0.32 per dwelling	0.18 per dwelling	0.23 per dwelling	537	302	386
Retail							
Supermarket	4,000m^2	58 per 1,000m^2	116 per 1,000m^2	110 per 1,000m^2	232	464	440
Specialty retail	2,000m^2	17.5 per 1,000m^2	35 per 1,000m^2	80 per 1,000m^2	35	70	160
Total					804	836	986

Table 4.2 indicates that the site could potentially generate approximately 800 external vehicle movements in the AM peak hour, 840 external vehicle movements in the PM peak hour and 1,000 external vehicle movements in the Saturday midday peak hour.

This compares to the 800 peak hour trips that could be generated by redeveloping the site to accommodate a higher FSR whilst maintaining a similar industrial use, as detailed in Section 2.2.1.

4.2 Distribution and Assignment

The directional distribution and assignment of traffic generated by the proposed development will be influenced by a number of factors, including the:

- configuration of the arterial road network in the immediate vicinity of the site
- existing operation of intersections providing access between the local and arterial road network
- distribution of households both within the site and in the vicinity of the site
- surrounding employment centres, retail centres and schools in relation to the site
- configuration of access points to the site.

Having considered the above, for the purposes of estimating vehicle movements, the directional split of traffic (i.e. the ratio between the inbound and outbound traffic movements) has been assumed as follows:

- Residential: 20% inbound/ 80% outbound during the Thursday AM peak, and 40% inbound/ 60% outbound during the Thursday PM peak.
- Retail: 70% inbound/ 30% outbound during the Thursday AM peak, and 60% inbound/ 40% outbound during the Thursday PM peak.
- During the Saturday midday peak, the directional split of both retail and residential traffic has been assumed as 50% outbound/ 50% inbound.

The splits are based on results from traffic surveys undertaken by Halcrow to update the RMS Guide to Traffic Generating Developments for shopping centres.

As stated in Section 3.2, the traffic distribution and assignment was undertaken based on one access on Dunmore Street and one access on Jones Street.

The NSW Governments' Bureau of Transport Statistics website was used to undertake where employed residents from Pendle Hill work. Mode of travel had also been considered with only vehicle travel assessed. The distribution of residential traffic was determined based on the top six destinations, factoring in the portion that drive, and has been summarised in Table 4.3.

Table 4.3: Journey to Work Assessment

Employment Region	Where residents work	Portion that drive to work	Distribution Factor
Parramatta	36%	17%	**40%**
City	22%	4%	**5%**
Blacktown	14%	20%	**19%**
Auburn	14%	19%	**18%**
Ryde	7%	18%	**9%**
Baulkham Hill	6%	22%	**8%**
	100%	**100%**	**100%**

Therefore based on the above the anticipated traffic distribution for the residential component is summarised in Figure 4.1.

Figure 4.1: Traffic Distribution – Residential Component

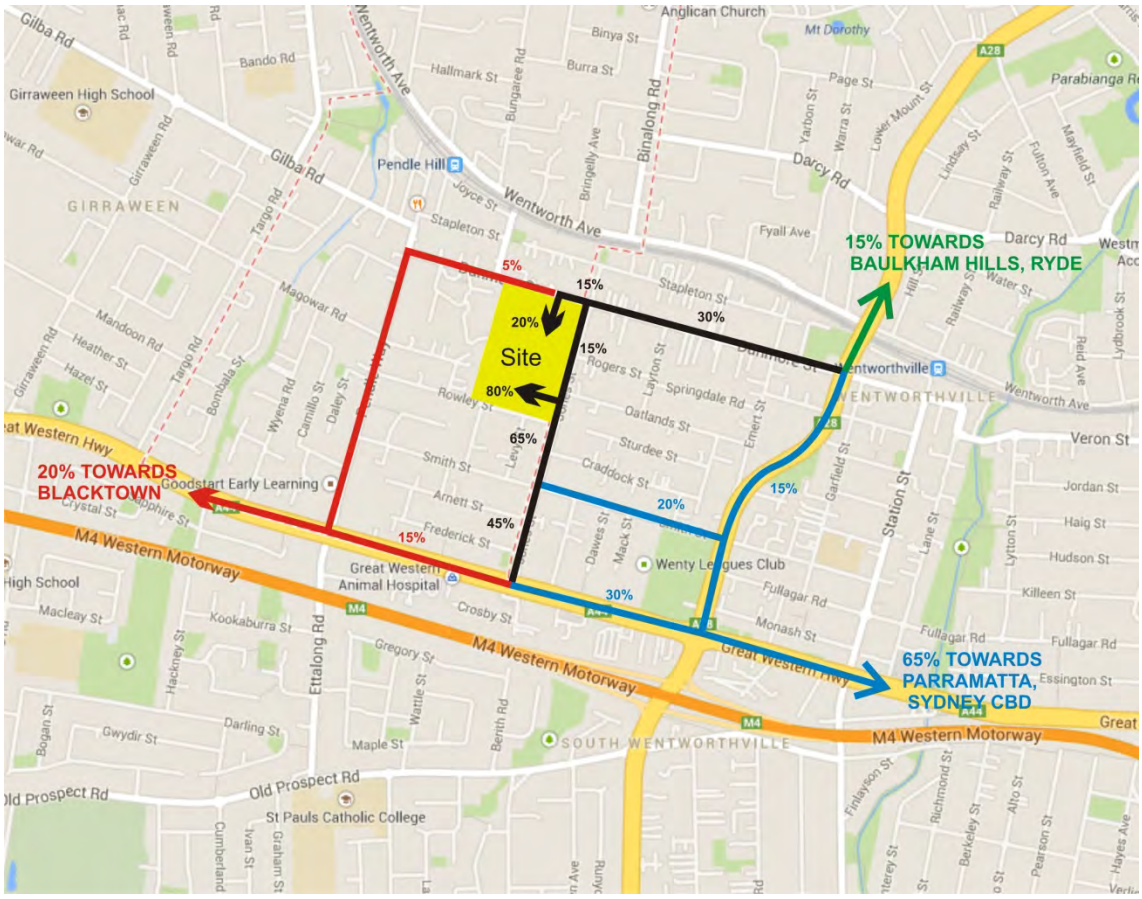


Figure 4.1 illustrates that the employed residents that work east of Pendle Hill would either travel between the Great Western Highway and the development by either Dunmore Street (15%), Smith Street (20%) or Jones Street (30%). Employed residents that work west of Pendle Hill would either travel via Pendle Way (5%) or Jones Street (15%). All traffic towards the north (15%) would use Dunmore Street. Traffic using Dunmore Street to/ from Cumberland Highway would access the development via either the Dunmore Street or Jones Street access (50/50 split).

For the retail component, the anticipated traffic distribution was determined based on the residential and retail in proximity to the development and is presented in Figure 4.2.

Figure 4.2: Traffic Distribution – Retail Component

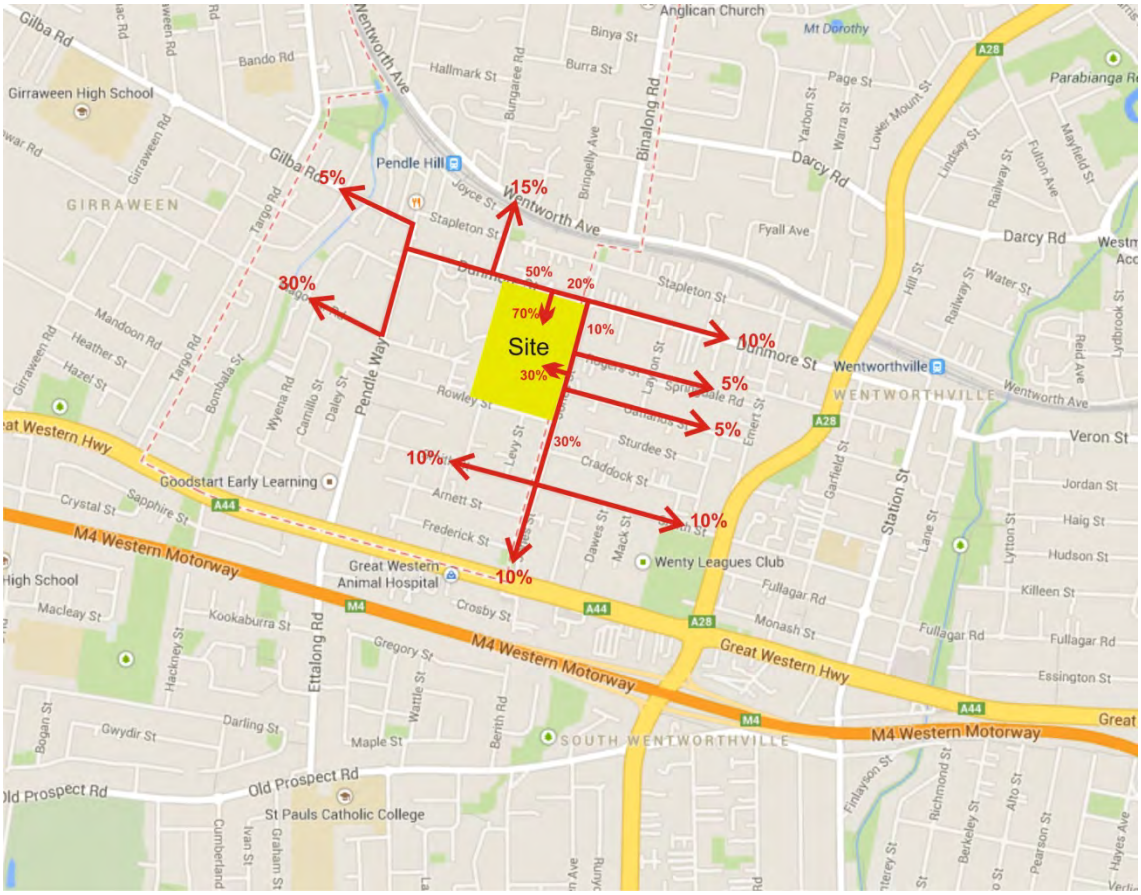


Figure 4.2 illustrates that 70% of retail traffic would access the development via the Dunmore Street access and 30% via the Jones Street access. This was determined based on the retail component being located at the north end of the development.

4.3 Future Impacts

To consider the likely traffic conditions on the surrounding road network under a 10 year horizon (dependant on when the development is likely to be constructed), a "per annum" linear growth factor was applied to the background traffic.

The growth of traffic surrounding the site is influenced by a range of factors including nearby developments and regional traffic conditions. Given that the surrounding area is well established, future developments are likely to be 'infill' developments of existing sites, a 1% per annum linear growth rate was applied to the background traffic.

For the purpose of this assessment it was assumed that the development would be completed by 2017, hence modelling was undertaken for the Year 2027.

In addition, two 10 year horizon scenarios have been assessed, a 'without development' scenario to understand the likely traffic conditions in 2027 without the development; and a 'with development' scenario to understand the potential impacts the development has on the road network.

Based on the above, Figure 4.3, Figure 4.4 and Figure 4.5 have been prepared to show the anticipated Year 2027 background traffic volumes and the estimated increase in turning movements (shown in red on the figures) in the vicinity of the subject property following full site development.

Figure 4.3: Thursday AM Peak Hour Site Generated Traffic Volumes

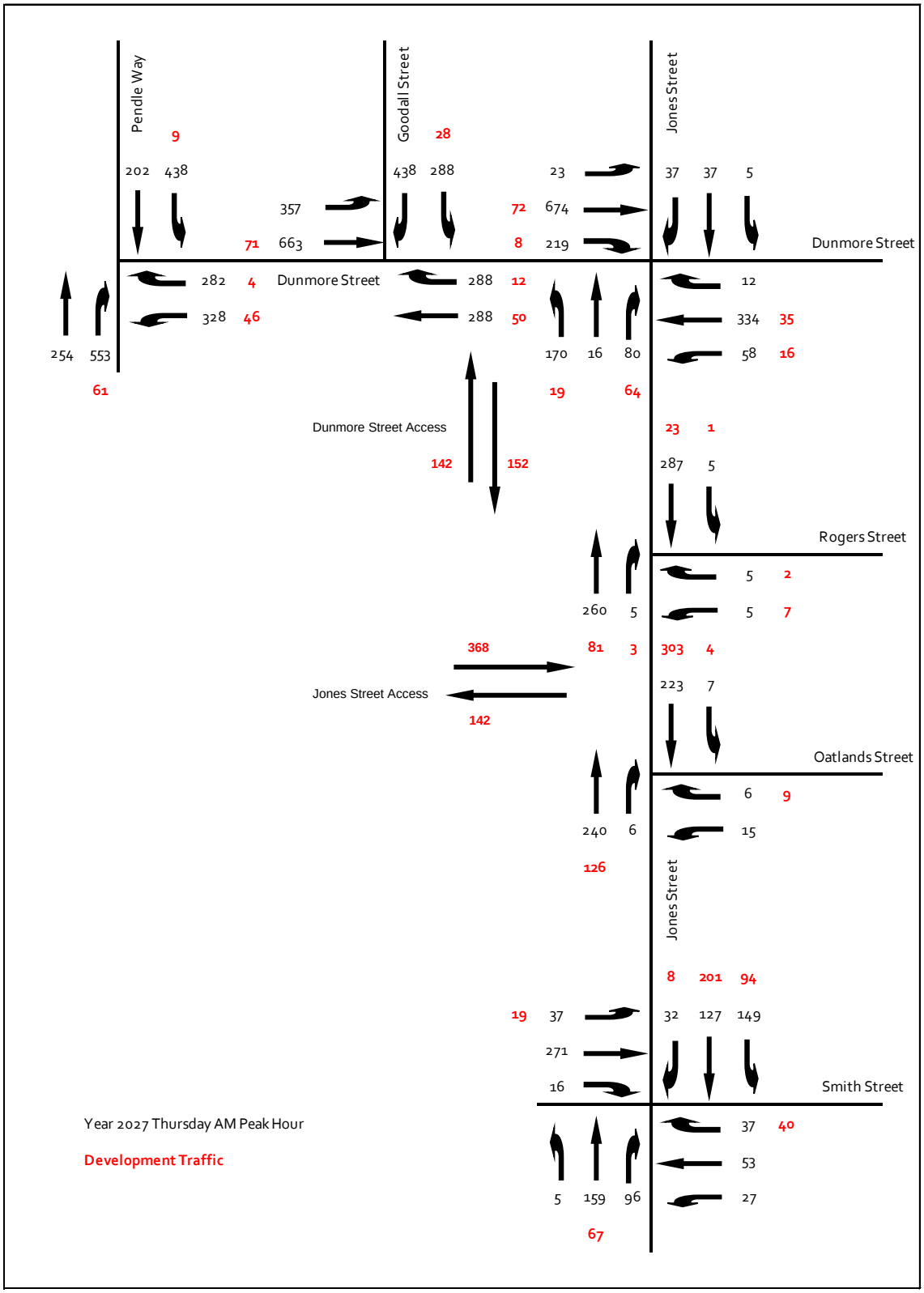


Figure 4.4: Thursday PM Peak Hour Site Generated Traffic Volumes

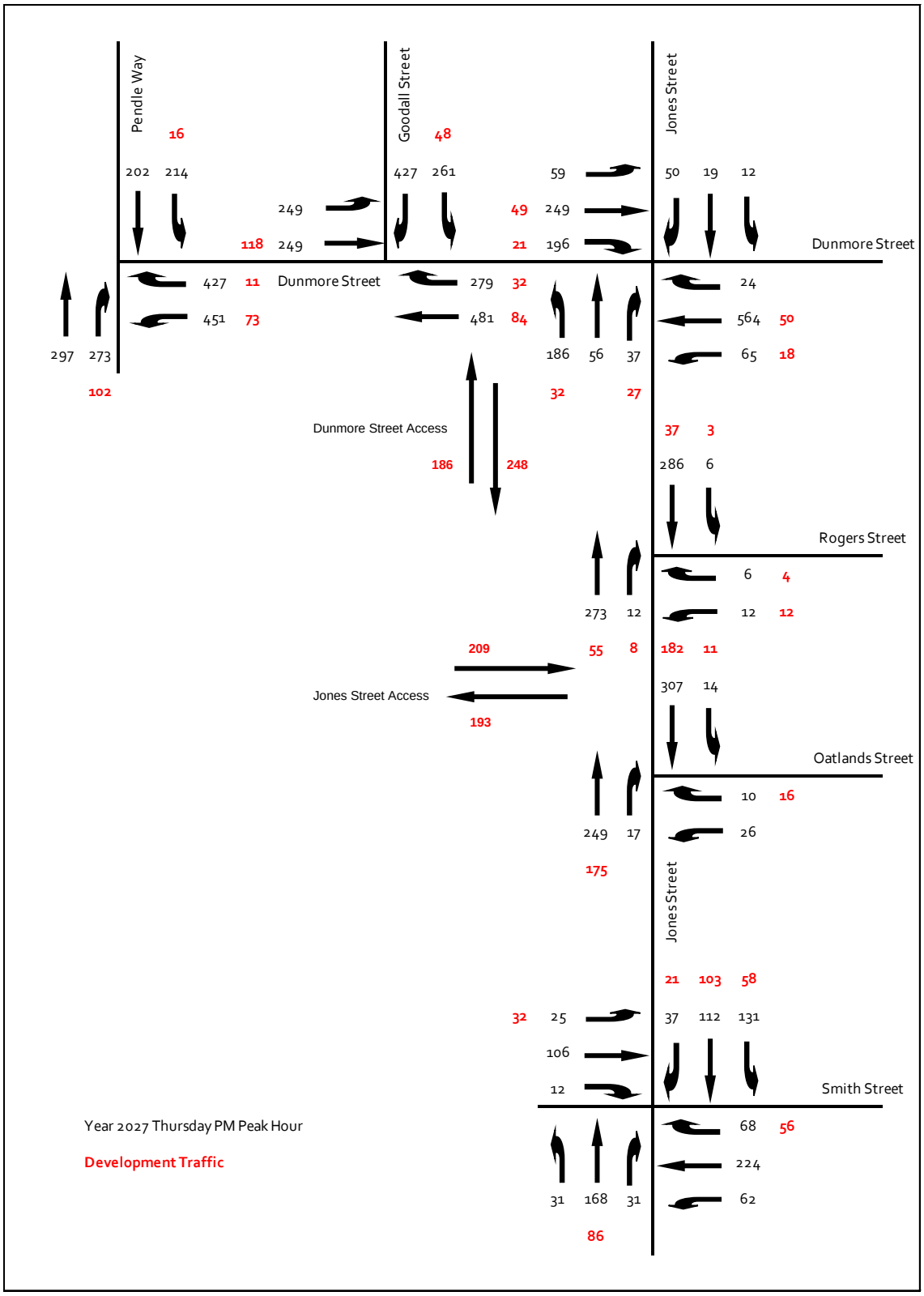
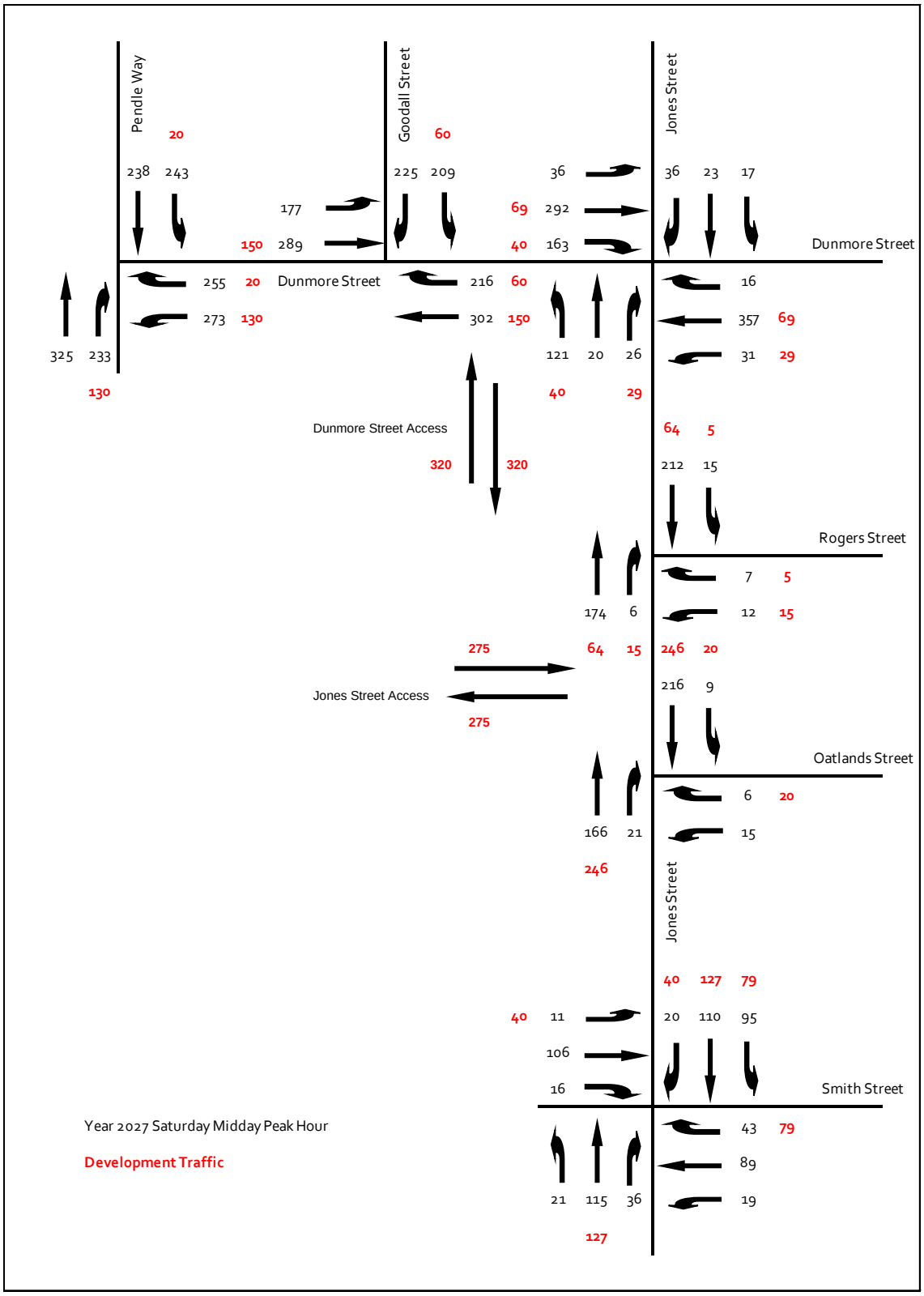


Figure 4.5: Saturday Midday Peak Hour Site Generated Traffic Volumes



4.4 Traffic Impact

Following the distribution and assignment of development traffic and application of growth to background traffic, the study intersections were reanalysed using SIDRA INTERSECTION.

Table 4.4 summarises the SIDRA results of the Year 2027 'without development' and 'with development' scenarios in terms of average delay and level of service.

The full results from the SIDRA analysis are presented in Appendix A of this report.

Table 4.4: Year 2027 'Without Development' and 'With Development' scenarios – SIDRA Results

Intersection	Peak	Leg	'Without Development'		'With Development'	
			Average Delay (sec)	Level of Service (LOS)	Average Delay (sec)	Level of Service (LOS)
Jones Street/ Rogers Street	AM	South	2	NA	2	NA
		East	11	A	12	A
		North	0	NA	0	NA
		All	1	NA	1	NA
	PM	South	2	NA	2	NA
		East	11	A	11	A
		North	0	NA	0	NA
		All	1	NA	2	NA
	Sat	South	1	NA	2	NA
		East	9	A	10	A
		North	0	NA	0	NA
		All	1	NA	2	NA
Jones Street/ Oatlands Street	AM	South	1	NA	4	NA
		East	9	A	20	B
		North	0	NA	0	NA
		All	1	NA	2	NA
	PM	South	2	NA	4	NA
		East	10	A	27	B
		North	0	NA	0	NA
		All	2	NA	4	NA
	Sat	South	2	NA	4	NA
		East	9	A	24	B
		North	0	NA	0	NA
		All	1	NA	3	NA
Jones Street/ Smith Street	AM	South	7	A	8	A
		East	8	A	11	A
		North	9	A	18	B
		West	8	A	10	A
		All	8	A	13	A
	PM	South	8	A	10	A
		East	7	A	9	A
		North	7	A	7	A
		West	7	A	9	A
		All	7	A	9	A
	Sat	South	7	A	8	A
		East	7	A	10	A
		North	7	A	7	A
		West	7	A	9	A
		All	7	A	8	A

Table 4.4: Year 2027 'Without Development' and 'With Development' scenarios – SIDRA Results (cont.)

Intersection	Peak	Leg	'Without Development'		'With Development'	
			Average Delay (sec)	Level of Service (LOS)	Average Delay (sec)	Level of Service (LOS)
Jones Street/ Dunmore Street	AM	South	10	A	12	A
		East	8	A	9	A
		North	18	B	24	B
		West	8	A	27	B
		All	9	A	20	B
	PM	South	15	B	23	B
		East	11	A	16	B
		North	11	A	12	A
		West	8	A	8	A
		All	11	A	14	A
	Sat	South	10	A	11	A
		East	7	A	9	A
		North	11	A	12	A
		West	7	A	7	A
		All	8	A	9	A
Goodall Street/ Dunmore Street	AM	East	34	C	29	C
		North	46	D	77	F
		West	35	C	57	E
		All	38	C	56	D
	PM	East	18	B	20	B
		North	23	B	27	B
		West	15	B	17	B
		All	19	B	21	B
	Sat	East	15	B	16	B
		North	20	B	24	B
		West	15	B	17	B
		All	16	B	19	B
Pendle Way/ Dunmore Street	AM	South	23	B	24	B
		East	26	B	27	B
		North	19	B	23	B
		All	23	B	24	B
	PM	South	18	B	23	B
		East	22	B	23	B
		North	15	B	17	B
		All	19	B	22	B
	Sat	South	11	A	15	B
		East	23	B	23	B
		North	13	A	13	A
		All	16	B	17	B

The following conclusions are made from the modelling results:

- The priority controlled intersection of Jones Street/ Rogers Street would continue to operate with a Level of Service A.
- The priority controlled intersection of Jones Street/ Oatlands Street would experience some minor delay in the peaks for vehicles entering from Oatlands Street (comparative to 'without development' conditions), however the intersection would maintain an acceptable operating conditions with an average Level of Service B.
- The roundabout controlled intersection of Jones Street/ Smith Street would maintain good operating conditions with an average Level of Service A/ B.
- The roundabout controlled intersection of Jones Street/ Dunmore Street would experience some minor additional delay in the Thursday AM peak on the west approach (<30 seconds) and Thursday PM peaks on the east approach (<30 seconds), compared to 'without development' conditions. The intersection would maintain to operate with an average Level of Service B during these peak hours which is considered to be a good level of service. During the Saturday midday peak hour the intersection continues to operate with an average Level of Service A.
- The signalised intersection of Dunmore Street/ Goodall Street would experience additional delay and queuing during the Thursday AM peak. Overall, the intersection would operate with an average Level of Service D which is considered to be approaching capacity. During the Thursday PM and Saturday midday peaks the intersection would continue to operate with an average Level of Service B.
- The signalised intersection of Dunmore Street/ Pendle Way would continue to operate with a Level of Service B with some minor additional delay experienced. This is considered to be a good level of service.

4.5 Mitigating Measures

There are a number of options which could be progressed to improve operating conditions at the intersection of Dunmore Street/ Goodall Street. These include:

- altering signal phasings to optimise vehicle movements;
- altering or removing parking provisions along Dunmore Street (east) and Goodall Street to provide increased vehicle capacity on approach to and departure from the intersection; and
- providing a residential travel plan to minimise the number of peak hour car trips generated by the site (detailed further below).

4.6 Modelling of Accesses

As stated in Section 3.2, this section provides an assessment of a number of potential access options for consideration during the Development Application once the site layout is at a more detailed stage.

Figure 4.6 to Figure 4.10 present the access configurations assessed using SIDRA INTERSECTION and the results are provided in Table 4.5 and Table 4.6 for the Dunmore Street and Jones Street accesses respectively.

Figure 4.6: Dunmore Access – Priority-Controlled All Movements

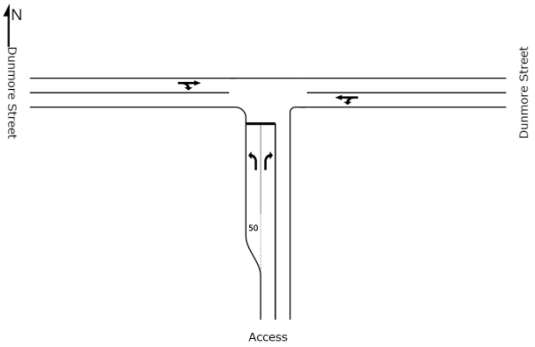


Figure 4.7: Dunmore Access – Priority-Controlled Left in/ Left Out

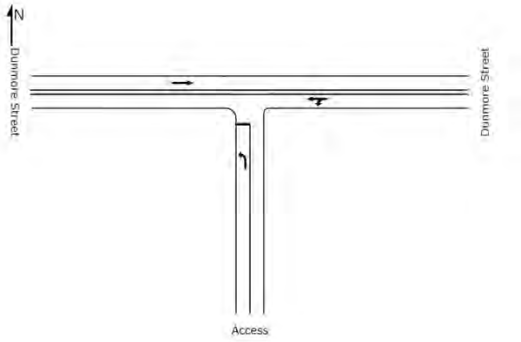


Figure 4.8: Dunmore Access – Roundabout-Controlled

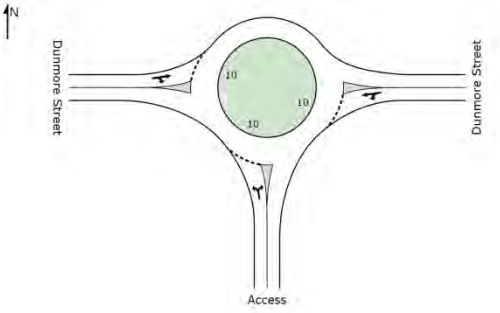


Figure 4.9: Dunmore Access – Signalised-Controlled

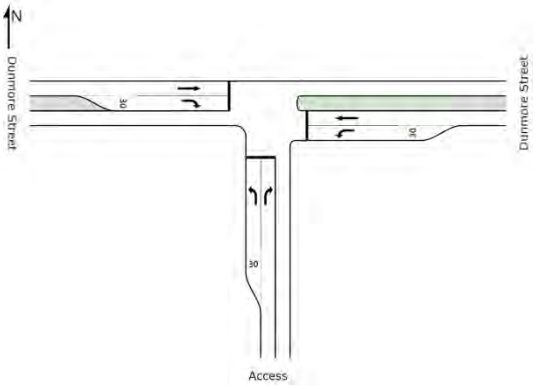


Figure 4.10: Jones Access – Priority-Controlled All Movements

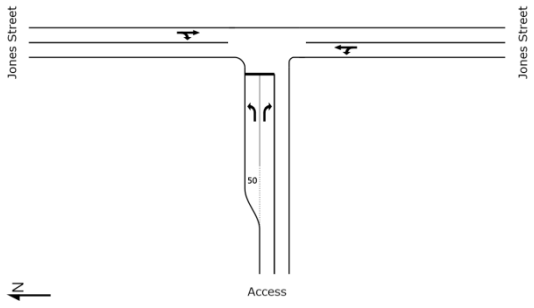


Table 4.5: Dunmore Street Access Options Testing – SIDRA Results

Intersection	Peak	Leg	Average Delay (sec)	Level of Service (LOS)
Priority-Controlled (All Movement)	AM	South	146	F
		East	0	NA
		West	11	NA
		All	18	NA
	PM	South	36	C
		East	1	NA
		West	15	NA
		All	10	NA
	Sat	South	25	B
		East	1	NA
		West	9	NA
		All	9	NA
Priority-Controlled (Left-In/ Left-Out)	AM	South	14	A
		East	1	NA
		West	0	NA
		All	1	NA
	PM	South	21	B
		East	2	NA
		West	0	NA
		All	2	NA
	Sat	South	17	B
		East	3	NA
		West	0	NA
		All	3	NA
Roundabout	AM	South	13	A
		East	6	A
		West	7	A
		All	7	A
	PM	South	12	A
		East	5	A
		West	5	A
		All	6	A
	Sat	South	10	A
		East	5	A
		West	6	A
		All	7	A

Table 4.5: Dunmore Street Access Options Testing – SIDRA Results (cont.)

Signalised	AM	South	54	D
		East	4	A
		West	2	A
		All	7	A
	PM	South	46	D
		East	8	A
		West	8	A
		All	12	A
	Sat	South	38	C
		East	12	A
		West	15	B
		All	18	B

Based on options testing indicated above, for the Dunmore Street access, the following conclusions are made:

- An all movement priority-controlled intersection would operate at a Level of Service F during the Thursday AM peak hour (worst case). This is a result of the right-turn movement from the access would experiencing significant delays and queuing due to high volumes of through movement on Dunmore Street reducing the opportunities to undertake the manoeuvre. Consequently, this option has been discounted.
- A left-in/ left-out intersection would operate at a Level of Service B during the Thursday PM and Saturday midday peak hours (worst cases). This option was tested assuming all proposed right-turn development traffic from Dunmore Street into the development would continue to use the access via undertaking a U-turn manoeuvre at roundabout at Jones Street. However, due to the proximity of the intersection to the Dunmore Street/ Jones Street roundabout, this has been discounted.
- A roundabout-controlled intersection would operate at a Level of Service A during all peak hours.
- A signalised-controlled intersection would operate at a Level of Service B during the Saturday midday peak hour (worst case).

Table 4.6: Jones Street Access Options Testing – SIDRA Results

Intersection	Peak	Leg	Average Delay (sec)	Level of Service (LOS)
Priority-Controlled (All Movement)	AM	South	2	NA
		North	2	NA
		West	16	B
		All	7	NA
	PM	South	3	NA
		North	3	NA
		West	17	B
		All	6	NA
	Sat	South	4	NA
		North	3	NA
		West	15	B
		All	7	NA
Priority-Controlled (All Movement) [1]	AM	South	2	NA
		North	2	NA
		West	15	B
		All	7	NA
	PM	South	3	NA
		North	3	NA
		West	16	B
		All	6	NA
	Sat	South	4	NA
		North	3	NA
		West	15	B
		All	8	NA

[1] If Dunmore Street access was Left in/ Left out only. As such, all right-turn movements from the Dunmore access would be relocated.

Based on options testing above for an access on Jones Street, the following conclusions are made:

- An all movement priority-controlled intersection would operate at a Level of Service B during all peak hours.
- Should the Dunmore Street access be a left-in/ left-out arrangement, the additional traffic resulting from the inability to undertake a right-turn into Dunmore Street would not impact on the intersection performance and a Level of Service B during all peak hours would be maintained.

In summary, this shows that for the purposes of rezoning, adequate access can be provided on both the Dunmore and Jones Street frontages. The likely preference for access from Dunmore Street would be for a roundabout as this would also introduce an element of traffic calming on Dunmore Street and there are a number of locations where such an intersection could be provided without compromising access into properties on the northern side of Dunmore Street. Furthermore, the proposed access would allow closure of the existing access which is located close to the Jones Street/ Dunmore Street roundabout which would provide additional road safety benefits.

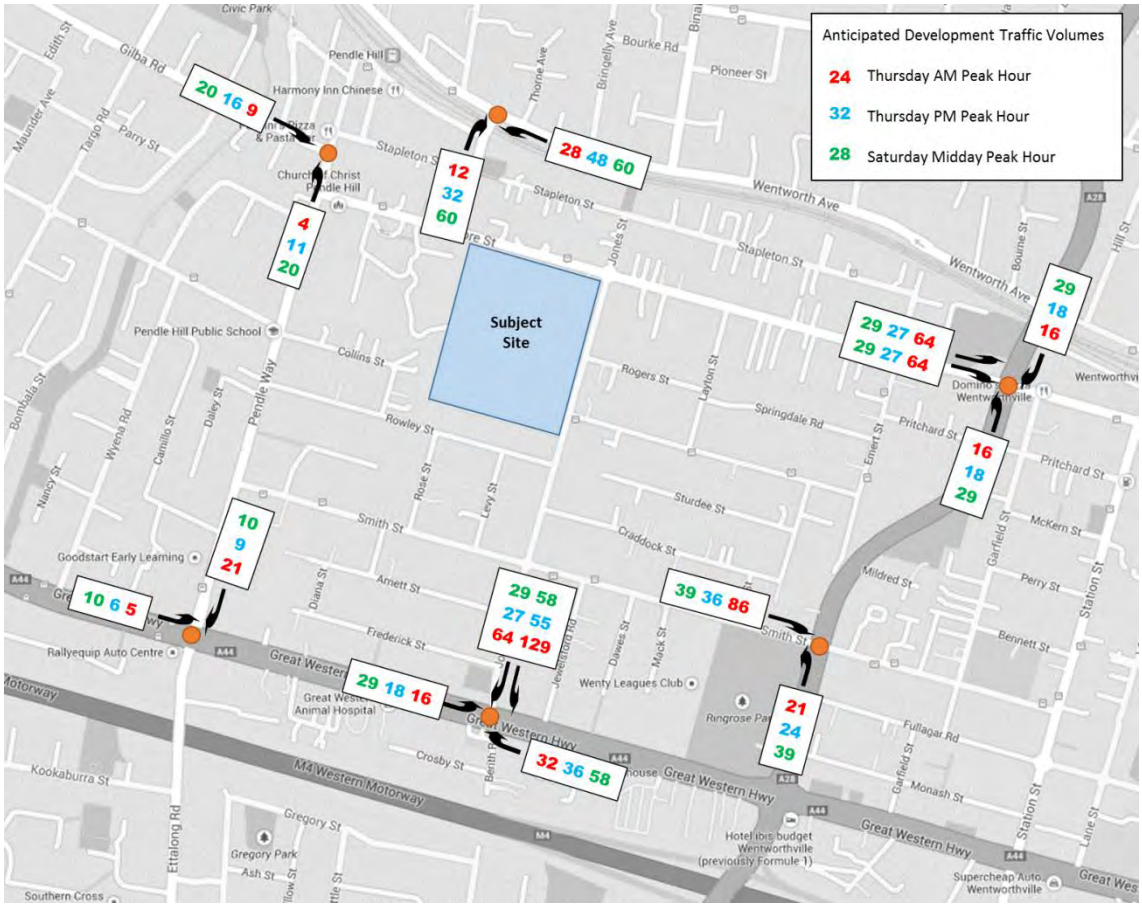
The access onto Jones Street would be likely to be in the form of a priority tee intersection.

4.7 Impact on Additional Intersections

Further to the original analysis, Roads and Maritime Services requested additional consideration be given to the impacts of the development on a number of intersections located beyond the seven intersections modelled by GTA. These intersections have been shown on Figure 4.11.

The overall anticipated traffic volumes added to each of the intersections are presented in Figure 4.11.

Figure 4.11: Traffic Volumes at Additional Intersections



Of the intersections considered, it is clear that the Pendle Way/ Gilba Street and Pendle Way/ Great Western Highway intersections would experience insignificant impacts with a maximum of one vehicle every three minutes.

Similarly, the Wentworth Avenue/ Goodall Street intersection would experience a maximum of one vehicle every one minute during the Saturday peak.

The intersections on the Cumberland Highway would experience more than a vehicle every minute entering Cumberland Highway during the Thursday AM peak, at other times they would experience less than one vehicle every one minute.

Similarly, with respect to the Jones Street intersection with the Great Western Highway, it is noted that the increase in traffic would be between one to two minutes per vehicle, except during the Thursday AM peak with a vehicle turning left into the highway every 30 seconds.

In summary, it can be seen that the additional traffic at each of the intersections offers a very modest increase. In terms of the two-way flows on the Cumberland highway and the Great Western Highway, the additional traffic would be negligible and would probably be within the daily variation in traffic. The additional traffic on the side road arms is generally less than one a minute and would be unlikely to affect the performance of the intersections significantly.

Due to these minor increases in flow, it has been considered that the modelling of the intersections is an excessive requirement for rezoning as the development is unlikely to trigger the need for any improvements at these intersections. If necessary, however, this additional intersection modelling could be undertaken at development application stage.

4.8 Residential Travel Plan

The use of such plans has been accepted at such sites as Harold Park in Sydney as a means of reducing the peak hour traffic impacts of development. A number of measures can be provided to encourage sustainable travel, and hence reduced car use, such as:

- Creation of street networks and associated cycle ways, footpaths and links to encourage cycling and walking.
- Provision of a Transport Access Guide which would be given to every new occupant of dwellings.
- Provision of public transport information boards to make residents and visitors more aware of the alternative transport options available to them. The format would be based upon the Transport Access Guide.
- Provision of a free public transport tickets for the initial occupation of the dwellings so that residents would be encouraged to make public transport their modal choice from the day they moved into their new dwelling.
- Provision of half yearly membership to a car club which could have dedicated cars and dedicated parking spaces reasonably close to the proposed development.
- Providing properties with high quality telecommunication points which will provide residents with the opportunity to work at home and to reduce the need to travel.
- Provision of bicycle parking spaces both for residents and for visitors to the site.
- Provision of a half yearly newsletter to residents to promote local travel initiatives.

All residents could be given this travel information and any associated membership in the owners pack for new residents.

5. Conclusion

Based on the analysis and discussions presented within this report, the following conclusions are made:

i A Concept Master Plan has been developed for the site, incorporating approximately 1,600 new dwellings and approximately 6,000m^2 of retail floor space, including a supermarket.

ii The site is within walking distance to Pendle Hill Station and bus stops are located on the surrounding streets. Note: It is generally accepted that residents are willing to walk up to 800m to a rail station as opposed to only 400m to a bus stop.

iii The envisaged provision of 2,057 on-site car parking spaces accords with the minimum City of Holroyd DCP 2013 car parking requirements.

iv The site is expected to generate approximately 800-850 vehicle movements in the AM and PM peak hour and 1,000 vehicle movements in the Saturday midday peak hour.

v A potential re-use of the site for industrial purposes with an FSR comparable with adjacent development would be likely to generate at least 800 trips in the peak hours

vi Other than at the intersection of Dunmore Street/ Goodall Street, there appears to be adequate capacity in the surrounding road network to cater for the traffic generated by the proposed development.

vii Operation of the signalised intersection at Dunmore Street/ Goodall Street could be improved by altering signal phasings to optimise vehicle movements, altering or removing parking provisions along Dunmore Street (east) and Goodall Street, and/ or reviewing the number or configuration of apartments/ commercial floor space to reduce overall vehicle flows expected.

viii The anticipated increase in traffic resulting from the development at each of the additional intersections that RMS asked to be considered is expected to be very modest.

ix In terms of the two-way flows on the Cumberland Highway and the Great Western Highway, the additional traffic would be negligible and would probably be within the daily variation in traffic.

x Due to these minor increases in flow, it has been considered that the modelling of the intersections is an excessive requirement for rezoning as the development is unlikely to trigger the need for any improvements at these intersections. If necessary however, the intersection modelling could be undertaken at development application stage.

xi As the exact location of entrances and exits to the site along Jones Street and Dunmore Street cannot be fixed at this time, a range of access options has been presented and the analysis shows that adequate access to the site can be achieved.

xii The development proposal is consistent with the Holroyd Residential Centres Strategy Transport Review which identifies that

- Pendle Hill provides good opportunities for the retention and enhancement of the currently surveyed use of non-car travel, and is well situated to provide high and medium density residential development.
- It would not be unwarranted for Council to investigate further expansion of the high density zone (or provision of a medium density zone) south of the station to 400m at least if additional residential capacity is required in the future.

In conclusion, the proposed redevelopment would be able to proceed without having a significant adverse impact on the performance of the road network in the vicinity of the site.

Appendix A

SIDRA INERSECTION Results

MOVEMENT SUMMARY

Site: Jones-Rogers (Ex Thurs AM)

13S1210100
Jones Street-Rogers Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	242	2.0	0.131	1.3	LOS A	1.0	6.8	0.43	0.00	44.9
3	R	5	2.0	0.131	8.1	LOS A	1.0	6.8	0.43	0.89	43.0
Approach		247	2.0	0.131	1.5	NA	1.0	6.8	0.43	0.02	44.9
East: Rogers Street											
4	L	5	2.0	0.019	10.4	LOS A	0.1	0.5	0.48	0.60	39.9
6	R	5	2.0	0.019	10.8	LOS A	0.1	0.5	0.48	0.75	39.8
Approach		11	2.0	0.019	10.6	LOS A	0.1	0.5	0.48	0.67	39.8
North: Jones Street											
7	L	5	2.0	0.142	6.5	LOS A	0.0	0.0	0.00	0.91	43.3
8	T	267	2.0	0.142	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		273	2.0	0.142	0.1	NA	0.0	0.0	0.00	0.02	49.9
All Vehicles		531	2.0	0.142	1.0	NA	1.0	6.8	0.21	0.03	47.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Rogers (Ex Thurs PM)

13S1210100
Jones Street-Rogers Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	255	2.0	0.143	1.3	LOS A	1.0	7.4	0.44	0.00	44.8
3	R	12	2.0	0.143	8.1	LOS A	1.0	7.4	0.44	0.88	43.0
Approach		266	2.0	0.143	1.6	NA	1.0	7.4	0.44	0.04	44.8
East: Rogers Street											
4	L	12	2.0	0.030	9.8	LOS A	0.1	0.7	0.45	0.62	40.4
6	R	6	2.0	0.030	10.2	LOS A	0.1	0.7	0.45	0.77	40.2
Approach		18	2.0	0.030	10.0	LOS A	0.1	0.7	0.45	0.67	40.3
North: Jones Street											
7	L	6	2.0	0.142	6.5	LOS A	0.0	0.0	0.00	0.91	43.3
8	T	266	2.0	0.142	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		273	2.0	0.142	0.1	NA	0.0	0.0	0.00	0.02	49.8
All Vehicles		557	2.0	0.143	1.2	NA	1.0	7.4	0.22	0.05	46.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Rogers (Ex Sat)

13S1210100
Jones Street-Rogers Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	162	2.0	0.089	0.9	LOS A	0.6	4.2	0.36	0.00	45.7
3	R	5	2.0	0.089	7.7	LOS A	0.6	4.2	0.36	0.88	43.0
Approach		167	2.0	0.089	1.1	NA	0.6	4.2	0.36	0.03	45.6
East: Rogers Street											
4	L	12	2.0	0.024	8.5	LOS A	0.1	0.6	0.37	0.58	41.4
6	R	6	2.0	0.024	8.9	LOS A	0.1	0.6	0.37	0.71	41.3
Approach		18	2.0	0.024	8.7	LOS A	0.1	0.6	0.37	0.63	41.4
North: Jones Street											
7	L	14	2.0	0.110	6.5	LOS A	0.0	0.0	0.00	0.89	43.3
8	T	198	2.0	0.110	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		212	2.0	0.110	0.4	NA	0.0	0.0	0.00	0.06	49.5
All Vehicles		397	2.0	0.110	1.1	NA	0.6	4.2	0.17	0.07	47.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Oatlands (Ex Thurs AM)

13S1210100
Jones Street-Oatlands Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	223	2.0	0.121	1.0	LOS A	0.8	5.9	0.38	0.00	45.5
3	R	6	2.0	0.121	7.8	LOS A	0.8	5.9	0.38	0.88	43.0
Approach		229	2.0	0.121	1.2	NA	0.8	5.9	0.38	0.02	45.5
East: Oatlands Street											
4	L	14	2.0	0.028	8.8	LOS A	0.1	0.7	0.38	0.59	41.2
6	R	6	2.0	0.028	9.2	LOS A	0.1	0.7	0.38	0.73	41.1
Approach		20	2.0	0.028	8.9	LOS A	0.1	0.7	0.38	0.63	41.2
North: Jones Street											
7	L	7	2.0	0.112	6.5	LOS A	0.0	0.0	0.00	0.91	43.3
8	T	207	2.0	0.112	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		215	2.0	0.112	0.2	NA	0.0	0.0	0.00	0.03	49.7
All Vehicles		464	2.0	0.121	1.1	NA	0.8	5.9	0.20	0.05	47.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Oatlands (Ex Thurs PM)

13S1210100
Jones Street-Oatlands Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	232	2.0	0.135	1.5	LOS A	1.0	7.0	0.45	0.00	44.6
3	R	16	2.0	0.135	8.3	LOS A	1.0	7.0	0.45	0.88	43.0
Approach		247	2.0	0.135	1.9	NA	1.0	7.0	0.45	0.06	44.5
East: Oatlands Street											
4	L	24	2.0	0.053	9.7	LOS A	0.2	1.3	0.45	0.65	40.5
6	R	9	2.0	0.053	10.0	LOS A	0.2	1.3	0.45	0.79	40.4
Approach		34	2.0	0.053	9.8	LOS A	0.2	1.3	0.45	0.69	40.5
North: Jones Street											
7	L	13	2.0	0.156	6.5	LOS A	0.0	0.0	0.00	0.90	43.3
8	T	286	2.0	0.156	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		299	2.0	0.156	0.3	NA	0.0	0.0	0.00	0.04	49.7
All Vehicles		580	2.0	0.156	1.5	NA	1.0	7.0	0.22	0.08	46.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Oatlands (Ex Sat)

13S1210100
Jones Street-Oatlands Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	155	2.0	0.097	0.9	LOS A	0.6	4.4	0.35	0.00	45.6
3	R	20	2.0	0.097	7.7	LOS A	0.6	4.4	0.35	0.85	42.9
Approach		175	2.0	0.097	1.7	NA	0.6	4.4	0.35	0.10	45.3
East: Oatland Street											
4	L	14	2.0	0.025	8.3	LOS A	0.1	0.6	0.36	0.59	41.6
6	R	5	2.0	0.025	8.7	LOS A	0.1	0.6	0.36	0.71	41.4
Approach		19	2.0	0.025	8.4	LOS A	0.1	0.6	0.36	0.62	41.6
North: Jones Street											
7	L	8	2.0	0.109	6.5	LOS A	0.0	0.0	0.00	0.90	43.3
8	T	201	2.0	0.109	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		209	2.0	0.109	0.3	NA	0.0	0.0	0.00	0.04	49.7
All Vehicles		403	2.0	0.109	1.3	NA	0.6	4.4	0.17	0.09	47.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Smith (Ex Thurs AM)

13S1210100
Jones Street-Smith Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	5	2.0	0.225	6.7	LOS A	1.3	9.1	0.33	0.58	42.6
2	T	148	2.0	0.225	5.7	LOS A	1.3	9.1	0.33	0.49	43.0
3	R	89	2.0	0.225	9.7	LOS A	1.3	9.1	0.33	0.73	40.8
Approach		243	2.0	0.225	7.2	LOS A	1.3	9.1	0.33	0.58	42.2
East: Smith Street											
4	L	25	2.0	0.113	7.0	LOS A	0.6	4.3	0.38	0.59	42.4
5	T	49	2.0	0.113	6.0	LOS A	0.6	4.3	0.38	0.51	42.7
6	R	35	2.0	0.113	10.0	LOS A	0.6	4.3	0.38	0.72	40.7
Approach		109	2.0	0.113	7.5	LOS A	0.6	4.3	0.38	0.60	42.0
North: Jones Street											
7	L	139	2.0	0.357	8.9	LOS A	2.2	15.6	0.63	0.74	41.3
8	T	119	2.0	0.357	7.9	LOS A	2.2	15.6	0.63	0.70	41.6
9	R	29	2.0	0.357	12.0	LOS A	2.2	15.6	0.63	0.83	39.5
Approach		287	2.0	0.357	8.8	LOS A	2.2	15.6	0.63	0.73	41.2
West: Smith Street											
10	L	35	2.0	0.343	8.2	LOS A	2.1	14.8	0.55	0.70	42.1
11	T	253	2.0	0.343	7.2	LOS A	2.1	14.8	0.55	0.64	42.1
12	R	15	2.0	0.343	11.2	LOS A	2.1	14.8	0.55	0.82	40.1
Approach		302	2.0	0.343	7.5	LOS A	2.1	14.8	0.55	0.66	42.0
All Vehicles		942	2.0	0.357	7.8	LOS A	2.2	15.6	0.50	0.65	41.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Smith (Ex Thurs PM)

13S1210100
Jones Street-Smith Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	29	2.0	0.255	8.2	LOS A	1.4	10.3	0.55	0.70	42.0
2	T	157	2.0	0.255	7.3	LOS A	1.4	10.3	0.55	0.64	42.1
3	R	29	2.0	0.255	11.3	LOS A	1.4	10.3	0.55	0.81	40.0
Approach		216	2.0	0.255	8.0	LOS A	1.4	10.3	0.55	0.67	41.8
East: Smith Street											
4	L	58	2.0	0.318	7.0	LOS A	2.0	14.1	0.42	0.61	42.4
5	T	208	2.0	0.318	6.1	LOS A	2.0	14.1	0.42	0.53	42.6
6	R	64	2.0	0.318	10.1	LOS A	2.0	14.1	0.42	0.75	40.7
Approach		331	2.0	0.318	7.0	LOS A	2.0	14.1	0.42	0.59	42.2
North: Jones Street											
7	L	122	2.0	0.252	6.9	LOS A	1.5	10.5	0.38	0.59	42.4
8	T	104	2.0	0.252	5.9	LOS A	1.5	10.5	0.38	0.51	42.8
9	R	35	2.0	0.252	10.0	LOS A	1.5	10.5	0.38	0.73	40.8
Approach		261	2.0	0.252	6.9	LOS A	1.5	10.5	0.38	0.58	42.3
West: Smith Street											
10	L	23	2.0	0.150	7.6	LOS A	0.8	5.6	0.47	0.65	42.3
11	T	99	2.0	0.150	6.7	LOS A	0.8	5.6	0.47	0.58	42.5
12	R	12	2.0	0.150	10.7	LOS A	0.8	5.6	0.47	0.78	40.4
Approach		134	2.0	0.150	7.2	LOS A	0.8	5.6	0.47	0.61	42.3
All Vehicles		941	2.0	0.318	7.2	LOS A	2.0	14.1	0.44	0.61	42.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Smith (Ex Sat)

13S1210100
Jones Street-Smith Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	20	2.0	0.161	6.9	LOS A	0.9	6.1	0.35	0.60	42.6
2	T	107	2.0	0.161	5.9	LOS A	0.9	6.1	0.35	0.51	43.0
3	R	34	2.0	0.161	9.9	LOS A	0.9	6.1	0.35	0.75	40.8
Approach		161	2.0	0.161	6.9	LOS A	0.9	6.1	0.35	0.57	42.4
East: Smith Street											
4	L	18	2.0	0.140	6.8	LOS A	0.7	5.2	0.34	0.59	42.6
5	T	83	2.0	0.140	5.9	LOS A	0.7	5.2	0.34	0.50	43.0
6	R	40	2.0	0.140	9.9	LOS A	0.7	5.2	0.34	0.74	40.8
Approach		141	2.0	0.140	7.1	LOS A	0.7	5.2	0.34	0.58	42.3
North: Jones Street											
7	L	88	2.0	0.207	6.9	LOS A	1.1	8.2	0.37	0.60	42.5
8	T	102	2.0	0.207	6.0	LOS A	1.1	8.2	0.37	0.52	42.8
9	R	19	2.0	0.207	10.0	LOS A	1.1	8.2	0.37	0.75	40.8
Approach		209	2.0	0.207	6.8	LOS A	1.1	8.2	0.37	0.57	42.5
West: Smith Street											
10	L	11	2.0	0.129	7.1	LOS A	0.7	4.7	0.39	0.61	42.5
11	T	99	2.0	0.129	6.1	LOS A	0.7	4.7	0.39	0.53	42.9
12	R	15	2.0	0.129	10.2	LOS A	0.7	4.7	0.39	0.77	40.7
Approach		124	2.0	0.129	6.7	LOS A	0.7	4.7	0.39	0.57	42.6
All Vehicles		636	2.0	0.207	6.9	LOS A	1.1	8.2	0.36	0.57	42.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Dunmore (Ex Thurs AM)

13S1210100
Jones Street-Dunmore Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	158	2.0	0.311	8.8	LOS A	1.9	13.4	0.62	0.73	41.2
2	T	15	2.0	0.311	7.8	LOS A	1.9	13.4	0.62	0.68	41.4
3	R	75	2.0	0.311	11.8	LOS A	1.9	13.4	0.62	0.80	39.4
Approach		247	2.0	0.311	9.6	LOS A	1.9	13.4	0.62	0.75	40.6
East: Dunmore Street											
4	L	54	2.0	0.426	8.4	LOS A	2.9	20.3	0.61	0.72	41.9
5	T	312	2.0	0.426	7.4	LOS A	2.9	20.3	0.61	0.67	41.9
6	R	11	2.0	0.426	11.4	LOS A	2.9	20.3	0.61	0.82	40.0
Approach		376	2.0	0.426	7.7	LOS A	2.9	20.3	0.61	0.68	41.8
North: Jones Street											
7	L	5	2.0	0.175	14.2	LOS A	1.0	7.5	0.84	0.89	37.3
8	T	35	2.0	0.175	13.3	LOS A	1.0	7.5	0.84	0.87	37.5
9	R	35	2.0	0.175	17.3	LOS B	1.0	7.5	0.84	0.93	35.9
Approach		75	2.0	0.175	15.2	LOS B	1.0	7.5	0.84	0.90	36.7
West: Dunmore Street											
10	L	21	2.0	0.704	7.2	LOS A	8.4	59.7	0.60	0.58	41.8
11	T	628	2.0	0.704	6.2	LOS A	8.4	59.7	0.60	0.53	41.8
12	R	204	2.0	0.704	10.2	LOS A	8.4	59.7	0.60	0.68	40.6
Approach		854	2.0	0.704	7.2	LOS A	8.4	59.7	0.60	0.56	41.5
All Vehicles		1552	2.0	0.704	8.1	LOS A	8.4	59.7	0.61	0.64	41.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Dunmore (Ex Thurs PM)

13S1210100
Jones Street-Dunmore Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	174	2.0	0.427	11.7	LOS A	2.9	20.9	0.81	0.91	39.0
2	T	53	2.0	0.427	10.8	LOS A	2.9	20.9	0.81	0.89	39.2
3	R	35	2.0	0.427	14.8	LOS B	2.9	20.9	0.81	0.95	37.5
Approach		261	2.0	0.427	11.9	LOS A	2.9	20.9	0.81	0.91	38.8
East: Dunmore Street											
4	L	61	2.0	0.634	9.4	LOS A	6.0	42.8	0.71	0.76	41.2
5	T	525	2.0	0.634	8.4	LOS A	6.0	42.8	0.71	0.72	41.5
6	R	22	2.0	0.634	12.4	LOS A	6.0	42.8	0.71	0.84	39.4
Approach		608	2.0	0.634	8.7	LOS A	6.0	42.8	0.71	0.73	41.4
North: Jones Street											
7	L	12	2.0	0.102	8.9	LOS A	0.5	3.8	0.58	0.69	41.0
8	T	18	2.0	0.102	8.0	LOS A	0.5	3.8	0.58	0.64	41.4
9	R	46	2.0	0.102	12.0	LOS A	0.5	3.8	0.58	0.77	39.2
Approach		76	2.0	0.102	10.6	LOS A	0.5	3.8	0.58	0.73	40.0
West: Dunmore Street											
10	L	56	2.0	0.415	6.8	LOS A	3.1	22.2	0.41	0.58	42.3
11	T	233	2.0	0.415	5.8	LOS A	3.1	22.2	0.41	0.50	42.6
12	R	182	2.0	0.415	9.8	LOS A	3.1	22.2	0.41	0.71	40.7
Approach		471	2.0	0.415	7.5	LOS A	3.1	22.2	0.41	0.59	41.8
All Vehicles		1416	2.0	0.634	9.0	LOS A	6.0	42.8	0.62	0.72	40.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Dunmore (Ex Sat)

13S1210100
Jones Street-Dunmore Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	113	2.0	0.199	8.7	LOS A	1.1	7.8	0.58	0.71	41.4
2	T	19	2.0	0.199	7.7	LOS A	1.1	7.8	0.58	0.65	41.7
3	R	24	2.0	0.199	11.7	LOS A	1.1	7.8	0.58	0.79	39.5
Approach		156	2.0	0.199	9.0	LOS A	1.1	7.8	0.58	0.71	41.1
East: Dunmore Street											
4	L	28	2.0	0.385	7.6	LOS A	2.4	17.4	0.50	0.66	42.2
5	T	333	2.0	0.385	6.7	LOS A	2.4	17.4	0.50	0.60	42.4
6	R	15	2.0	0.385	10.7	LOS A	2.4	17.4	0.50	0.80	40.5
Approach		376	2.0	0.385	6.9	LOS A	2.4	17.4	0.50	0.61	42.3
North: Jones Street											
7	L	16	2.0	0.094	8.9	LOS A	0.5	3.4	0.56	0.69	41.1
8	T	21	2.0	0.094	7.9	LOS A	0.5	3.4	0.56	0.63	41.5
9	R	34	2.0	0.094	12.0	LOS A	0.5	3.4	0.56	0.78	39.3
Approach		71	2.0	0.094	10.1	LOS A	0.5	3.4	0.56	0.71	40.3
West: Dunmore Street											
10	L	34	2.0	0.362	6.3	LOS A	2.5	18.1	0.26	0.55	42.9
11	T	272	2.0	0.362	5.3	LOS A	2.5	18.1	0.26	0.46	43.4
12	R	152	2.0	0.362	9.4	LOS A	2.5	18.1	0.26	0.72	40.9
Approach		457	2.0	0.362	6.7	LOS A	2.5	18.1	0.26	0.55	42.5
All Vehicles		1059	2.0	0.385	7.4	LOS A	2.5	18.1	0.41	0.61	42.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Dunmore-Goodall (Ex Thurs AM)

13S1210100
Dunmore Street-Goodall Street
Signals - Fixed Time Cycle Time = 65 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Dunmore Street											
5	T	268	2.0	0.305	8.1	LOS A	4.4	31.4	0.55	0.47	40.5
6	R	268	2.0	0.888	44.2	LOS D	9.4	67.2	1.00	1.16	24.2
Approach		537	2.0	0.888	26.2	LOS B	9.4	67.2	0.78	0.81	30.3
North: Goodall Street											
7	L	268	2.0	0.562	19.1	LOS B	5.6	39.7	0.69	0.77	34.2
9	R	408	2.0	0.853	39.1	LOS C	14.9	105.9	1.00	1.01	25.8
Approach		677	2.0	0.853	31.2	LOS C	14.9	105.9	0.88	0.91	28.6
West: Dunmore Street											
10	L	333	2.0	0.308	9.7	LOS A	3.5	25.2	0.36	0.70	40.5
11	T	618	2.0	0.869	29.7	LOS C	22.6	161.1	1.00	1.09	27.9
Approach		951	2.0	0.869	22.7	LOS B	22.6	161.1	0.77	0.96	31.3
All Vehicles		2164	2.0	0.888	26.2	LOS B	22.6	161.1	0.81	0.91	30.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	Across N approach	53	20.0	LOS C	0.1	0.1	0.78	0.78
P7	Across W approach	53	25.9	LOS C	0.1	0.1	0.89	0.89
All Pedestrians		106	22.9	LOS C			0.84	0.84

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Goodall (Ex Thurs PM)

13S1210100
Dunmore Street-Goodall Street
Signals - Fixed Time Cycle Time = 56 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Dunmore Street											
5	T	447	2.0	0.502	9.9	LOS A	8.1	57.4	0.70	0.60	38.7
6	R	260	2.0	0.573	21.1	LOS B	5.7	40.4	0.91	0.82	33.1
Approach		707	2.0	0.573	14.0	LOS A	8.1	57.4	0.77	0.68	36.5
North: Goodall Street											
7	L	243	2.0	0.425	15.2	LOS B	3.9	27.5	0.61	0.75	36.6
9	R	398	2.0	0.761	29.4	LOS C	11.1	79.3	0.97	0.92	29.3
Approach		641	2.0	0.761	24.0	LOS B	11.1	79.3	0.83	0.86	31.7
West: Dunmore Street											
10	L	233	2.0	0.216	10.0	LOS A	2.3	16.6	0.39	0.70	40.3
11	T	233	2.0	0.423	18.0	LOS B	5.3	37.9	0.86	0.71	33.4
Approach		465	2.0	0.423	14.0	LOS A	5.3	37.9	0.62	0.71	36.5
All Vehicles		1814	2.0	0.761	17.6	LOS B	11.1	79.3	0.76	0.75	34.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	Across N approach	53	22.3	LOS C	0.1	0.1	0.89	0.89
P7	Across W approach	53	22.3	LOS C	0.1	0.1	0.89	0.89
All Pedestrians		106	22.3	LOS C			0.89	0.89

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Goodall (Ex Sat)

13S1210100
Dunmore Street-Goodall Street
Signals - Fixed Time Cycle Time = 56 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Dunmore Street											
5	T	281	2.0	0.315	8.9	LOS A	4.5	32.3	0.62	0.53	39.7
6	R	201	2.0	0.451	21.0	LOS B	4.2	30.1	0.87	0.79	33.2
Approach		482	2.0	0.451	13.9	LOS A	4.5	32.3	0.73	0.64	36.7
North: Goodall Street											
7	L	195	2.0	0.340	15.0	LOS B	3.0	21.4	0.59	0.74	36.8
9	R	209	2.0	0.400	24.4	LOS B	4.8	34.0	0.85	0.79	31.5
Approach		404	2.0	0.400	19.9	LOS B	4.8	34.0	0.73	0.77	33.8
West: Dunmore Street											
10	L	165	2.0	0.157	9.9	LOS A	1.6	11.6	0.37	0.69	40.4
11	T	269	2.0	0.482	18.2	LOS B	6.2	44.2	0.87	0.72	33.3
Approach		435	2.0	0.482	15.0	LOS B	6.2	44.2	0.68	0.71	35.7
All Vehicles		1321	2.0	0.482	16.1	LOS B	6.2	44.2	0.71	0.70	35.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	Across N approach	53	22.3	LOS C	0.1	0.1	0.89	0.89
P7	Across W approach	53	22.3	LOS C	0.1	0.1	0.89	0.89
All Pedestrians		106	22.3	LOS C			0.89	0.89

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Pendle (Ex Thurs AM)

13S1210100
Dunmore Street-Pendle Way
Signals - Fixed Time Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pendle Way											
2	T	236	2.0	0.204	5.9	LOS A	3.1	22.4	0.48	0.41	42.5
3	R	516	2.0	0.780	25.8	LOS B	12.7	90.1	0.95	1.03	30.8
Approach		752	2.0	0.780	19.5	LOS B	12.7	90.1	0.80	0.83	33.7
East: Dunmore Street											
4	L	306	2.0	0.314	15.0	LOS B	5.1	36.0	0.60	0.76	36.8
6	R	263	2.0	0.719	33.4	LOS C	7.9	56.3	0.99	0.89	27.7
Approach		569	2.0	0.719	23.5	LOS B	7.9	56.3	0.78	0.82	31.9
North: Pendle Way											
7	L	408	2.0	0.450	14.3	LOS A	6.7	47.8	0.60	0.76	37.2
8	T	188	2.0	0.367	19.8	LOS B	4.6	32.9	0.86	0.70	32.4
Approach		597	2.0	0.450	16.0	LOS B	6.7	47.8	0.68	0.74	35.6
All Vehicles		1918	2.0	0.780	19.6	LOS B	12.7	90.1	0.76	0.80	33.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	12.0	LOS B	0.1	0.1	0.63	0.63
P3	Across E approach	53	24.3	LOS C	0.1	0.1	0.90	0.90
All Pedestrians		106	18.2	LOS B			0.77	0.77

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Pendle (Ex Thurs PM)

13S1210100
Dunmore Street-Pendle Way
Signals - Fixed Time Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pendle Way											
2	T	277	2.0	0.308	10.8	LOS A	5.1	36.2	0.66	0.56	38.2
3	R	255	2.0	0.573	22.5	LOS B	6.0	42.7	0.91	0.82	32.4
Approach		532	2.0	0.573	16.4	LOS B	6.0	42.7	0.78	0.68	35.2
East: Dunmore Street											
4	L	420	2.0	0.430	15.7	LOS B	7.5	53.5	0.65	0.78	36.3
6	R	398	2.0	0.652	25.5	LOS B	10.3	73.2	0.91	0.84	31.0
Approach		818	2.0	0.652	20.5	LOS B	10.3	73.2	0.77	0.81	33.5
North: Pendle Way											
7	L	199	2.0	0.184	9.7	LOS A	1.9	13.9	0.36	0.69	40.6
8	T	188	2.0	0.367	19.8	LOS B	4.6	32.9	0.86	0.70	32.4
Approach		387	2.0	0.367	14.6	LOS B	4.6	32.9	0.60	0.70	36.2
All Vehicles		1737	2.0	0.652	17.9	LOS B	10.3	73.2	0.74	0.75	34.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	12.0	LOS B	0.1	0.1	0.63	0.63
P3	Across E approach	53	24.3	LOS C	0.1	0.1	0.90	0.90
All Pedestrians		106	18.2	LOS B			0.77	0.77

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Pendle (Ex Sat)

13S1210100
Dunmore Street-Pendle Way
Signals - Fixed Time Cycle Time = 50 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pendle Way											
2	T	303	2.0	0.449	6.5	LOS A	4.2	29.6	0.57	0.48	41.5
3	R	217	2.0	0.449	16.0	LOS B	4.2	29.6	0.79	0.80	36.2
Approach		520	2.0	0.449	10.4	LOS A	4.2	29.6	0.66	0.61	39.1
East: Dunmore Street											
4	L	255	2.0	0.316	16.5	LOS B	4.1	29.4	0.69	0.77	35.8
6	R	238	2.0	0.650	28.2	LOS B	5.8	41.4	0.97	0.86	29.8
Approach		493	2.0	0.650	22.1	LOS B	5.8	41.4	0.82	0.81	32.6
North: Pendle Way											
7	L	226	2.0	0.211	10.4	LOS A	2.3	16.2	0.44	0.71	40.0
8	T	222	2.0	0.361	14.5	LOS B	4.3	30.6	0.81	0.67	35.5
Approach		448	2.0	0.361	12.5	LOS A	4.3	30.6	0.62	0.69	37.6
All Vehicles		1461	2.0	0.650	15.0	LOS B	5.8	41.4	0.70	0.70	36.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	14.4	LOS B	0.1	0.1	0.76	0.76
P3	Across E approach	53	19.4	LOS B	0.1	0.1	0.88	0.88
All Pedestrians		106	16.9	LOS B			0.82	0.82

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Jones-Rogers (2027 Thurs AM)

13S1210100
Jones Street-Rogers Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	274	2.0	0.147	1.6	LOS A	1.1	8.0	0.47	0.00	44.5
3	R	5	2.0	0.147	8.4	LOS A	1.1	8.0	0.47	0.90	43.1
Approach		279	2.0	0.147	1.7	NA	1.1	8.0	0.47	0.02	44.5
East: Rogers Street											
4	L	5	2.0	0.022	11.3	LOS A	0.1	0.5	0.51	0.62	39.3
6	R	5	2.0	0.022	11.6	LOS A	0.1	0.5	0.51	0.78	39.1
Approach		11	2.0	0.022	11.4	LOS A	0.1	0.5	0.51	0.70	39.2
North: Jones Street											
7	L	5	2.0	0.160	6.5	LOS A	0.0	0.0	0.00	0.92	43.3
8	T	302	2.0	0.160	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		307	2.0	0.160	0.1	NA	0.0	0.0	0.00	0.02	49.9
All Vehicles		597	2.0	0.160	1.0	NA	1.1	8.0	0.23	0.03	47.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Rogers (2027 Thurs PM)

13S1210100
Jones Street-Rogers Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	287	2.0	0.161	1.6	LOS A	1.2	8.8	0.48	0.00	44.4
3	R	13	2.0	0.161	8.4	LOS A	1.2	8.8	0.48	0.89	43.0
Approach		300	2.0	0.161	1.9	NA	1.2	8.8	0.48	0.04	44.4
East: Rogers Street											
4	L	13	2.0	0.034	10.4	LOS A	0.1	0.8	0.48	0.64	39.9
6	R	6	2.0	0.034	10.8	LOS A	0.1	0.8	0.48	0.80	39.8
Approach		19	2.0	0.034	10.5	LOS A	0.1	0.8	0.48	0.69	39.9
North: Jones Street											
7	L	6	2.0	0.160	6.5	LOS A	0.0	0.0	0.00	0.91	43.3
8	T	301	2.0	0.160	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		307	2.0	0.160	0.1	NA	0.0	0.0	0.00	0.02	49.8
All Vehicles		626	2.0	0.161	1.3	NA	1.2	8.8	0.24	0.05	46.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Rogers (2027 Sat)

13S1210100
Jones Street-Rogers Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	183	2.0	0.101	1.1	LOS A	0.7	4.9	0.39	0.00	45.3
3	R	6	2.0	0.101	7.9	LOS A	0.7	4.9	0.39	0.88	43.0
Approach		189	2.0	0.101	1.3	NA	0.7	4.9	0.39	0.03	45.3
East: Rogers Street											
4	L	13	2.0	0.029	9.0	LOS A	0.1	0.7	0.40	0.60	41.1
6	R	7	2.0	0.029	9.3	LOS A	0.1	0.7	0.40	0.73	40.9
Approach		20	2.0	0.029	9.1	LOS A	0.1	0.7	0.40	0.65	41.0
North: Jones Street											
7	L	16	2.0	0.125	6.5	LOS A	0.0	0.0	0.00	0.89	43.3
8	T	223	2.0	0.125	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		239	2.0	0.125	0.4	NA	0.0	0.0	0.00	0.06	49.5
All Vehicles		448	2.0	0.125	1.2	NA	0.7	4.9	0.18	0.07	47.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Oatlands (2027 Thurs AM)

13S1210100
Jones Street-Oatlands Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	253	2.0	0.137	1.1	LOS A	1.0	6.9	0.41	0.00	45.2
3	R	6	2.0	0.137	7.9	LOS A	1.0	6.9	0.41	0.88	43.0
Approach		259	2.0	0.137	1.3	NA	1.0	6.9	0.41	0.02	45.1
East: Oatlands Street											
4	L	16	2.0	0.033	9.1	LOS A	0.1	0.8	0.41	0.61	41.0
6	R	6	2.0	0.033	9.5	LOS A	0.1	0.8	0.41	0.75	40.8
Approach		22	2.0	0.033	9.2	LOS A	0.1	0.8	0.41	0.65	40.9
North: Jones Street											
7	L	7	2.0	0.126	6.5	LOS A	0.0	0.0	0.00	0.91	43.3
8	T	235	2.0	0.126	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		242	2.0	0.126	0.2	NA	0.0	0.0	0.00	0.03	49.8
All Vehicles		523	2.0	0.137	1.1	NA	1.0	6.9	0.22	0.05	46.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Oatlands (2027 Thurs PM)

13S1210100
Jones Street-Oatlands Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	262	2.0	0.154	1.8	LOS A	1.2	8.4	0.49	0.00	44.2
3	R	18	2.0	0.154	8.6	LOS A	1.2	8.4	0.49	0.89	42.9
Approach		280	2.0	0.154	2.2	NA	1.2	8.4	0.49	0.06	44.1
East: Oatlands Street											
4	L	27	2.0	0.065	10.3	LOS A	0.2	1.6	0.49	0.67	40.0
6	R	11	2.0	0.065	10.7	LOS A	0.2	1.6	0.49	0.83	39.9
Approach		38	2.0	0.065	10.4	LOS A	0.2	1.6	0.49	0.72	40.0
North: Jones Street											
7	L	15	2.0	0.176	6.5	LOS A	0.0	0.0	0.00	0.90	43.3
8	T	323	2.0	0.176	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		338	2.0	0.176	0.3	NA	0.0	0.0	0.00	0.04	49.7
All Vehicles		656	2.0	0.176	1.7	NA	1.2	8.4	0.24	0.09	46.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Oatlands (2027 Sat)

13S1210100
Jones Street-Oatlands Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	175	2.0	0.110	1.1	LOS A	0.7	5.1	0.38	0.00	45.3
3	R	22	2.0	0.110	7.9	LOS A	0.7	5.1	0.38	0.85	42.9
Approach		197	2.0	0.110	1.8	NA	0.7	5.1	0.38	0.10	45.0
East: Oatland Street											
4	L	16	2.0	0.031	8.7	LOS A	0.1	0.8	0.39	0.60	41.3
6	R	6	2.0	0.031	9.1	LOS A	0.1	0.8	0.39	0.73	41.1
Approach		22	2.0	0.031	8.8	LOS A	0.1	0.8	0.39	0.64	41.3
North: Jones Street											
7	L	9	2.0	0.123	6.5	LOS A	0.0	0.0	0.00	0.90	43.3
8	T	227	2.0	0.123	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		237	2.0	0.123	0.3	NA	0.0	0.0	0.00	0.04	49.7
All Vehicles		456	2.0	0.123	1.4	NA	0.7	5.1	0.18	0.09	47.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Smith (2027 Thurs AM)

13S1210100
Jones Street-Smith Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	5	2.0	0.257	6.8	LOS A	1.5	10.7	0.36	0.59	42.5
2	T	167	2.0	0.257	5.9	LOS A	1.5	10.7	0.36	0.51	42.9
3	R	101	2.0	0.257	9.9	LOS A	1.5	10.7	0.36	0.73	40.8
Approach		274	2.0	0.257	7.4	LOS A	1.5	10.7	0.36	0.59	42.1
East: Smith Street											
4	L	28	2.0	0.130	7.1	LOS A	0.7	5.0	0.41	0.60	42.3
5	T	56	2.0	0.130	6.2	LOS A	0.7	5.0	0.41	0.53	42.6
6	R	39	2.0	0.130	10.2	LOS A	0.7	5.0	0.41	0.73	40.6
Approach		123	2.0	0.130	7.7	LOS A	0.7	5.0	0.41	0.61	41.9
North: Jones Street											
7	L	157	2.0	0.422	9.5	LOS A	2.7	19.4	0.69	0.79	40.8
8	T	134	2.0	0.422	8.5	LOS A	2.7	19.4	0.69	0.75	41.1
9	R	34	2.0	0.422	12.6	LOS A	2.7	19.4	0.69	0.86	39.1
Approach		324	2.0	0.422	9.4	LOS A	2.7	19.4	0.69	0.78	40.8
West: Smith Street											
10	L	39	2.0	0.400	8.6	LOS A	2.5	18.1	0.61	0.73	41.8
11	T	285	2.0	0.400	7.7	LOS A	2.5	18.1	0.61	0.68	41.9
12	R	17	2.0	0.400	11.7	LOS A	2.5	18.1	0.61	0.84	39.8
Approach		341	2.0	0.400	8.0	LOS A	2.5	18.1	0.61	0.69	41.8
All Vehicles		1062	2.0	0.422	8.2	LOS A	2.7	19.4	0.55	0.68	41.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Smith (2027 Thurs PM)

13S1210100
Jones Street-Smith Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	33	2.0	0.297	8.6	LOS A	1.7	12.5	0.59	0.73	41.6
2	T	177	2.0	0.297	7.7	LOS A	1.7	12.5	0.59	0.68	41.9
3	R	33	2.0	0.297	11.7	LOS A	1.7	12.5	0.59	0.83	39.7
Approach		242	2.0	0.297	8.4	LOS A	1.7	12.5	0.59	0.70	41.5
East: Smith Street											
4	L	65	2.0	0.365	7.3	LOS A	2.4	17.0	0.46	0.63	42.2
5	T	236	2.0	0.365	6.3	LOS A	2.4	17.0	0.46	0.56	42.4
6	R	72	2.0	0.365	10.3	LOS A	2.4	17.0	0.46	0.76	40.6
Approach		373	2.0	0.365	7.3	LOS A	2.4	17.0	0.46	0.61	42.0
North: Jones Street											
7	L	138	2.0	0.289	7.1	LOS A	1.8	12.5	0.42	0.61	42.3
8	T	118	2.0	0.289	6.1	LOS A	1.8	12.5	0.42	0.53	42.6
9	R	39	2.0	0.289	10.1	LOS A	1.8	12.5	0.42	0.74	40.7
Approach		295	2.0	0.289	7.1	LOS A	1.8	12.5	0.42	0.59	42.2
West: Smith Street											
10	L	26	2.0	0.174	7.9	LOS A	0.9	6.7	0.50	0.67	42.2
11	T	112	2.0	0.174	6.9	LOS A	0.9	6.7	0.50	0.60	42.3
12	R	13	2.0	0.174	10.9	LOS A	0.9	6.7	0.50	0.79	40.2
Approach		151	2.0	0.174	7.4	LOS A	0.9	6.7	0.50	0.63	42.1
All Vehicles		1060	2.0	0.365	7.5	LOS A	2.4	17.0	0.49	0.63	42.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Smith (2027 Sat)

13S1210100
Jones Street-Smith Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	22	2.0	0.184	7.0	LOS A	1.0	7.1	0.38	0.61	42.5
2	T	121	2.0	0.184	6.1	LOS A	1.0	7.1	0.38	0.53	42.8
3	R	38	2.0	0.184	10.1	LOS A	1.0	7.1	0.38	0.75	40.7
Approach		181	2.0	0.184	7.0	LOS A	1.0	7.1	0.38	0.58	42.3
East: Smith Street											
4	L	20	2.0	0.161	7.0	LOS A	0.9	6.1	0.37	0.60	42.5
5	T	94	2.0	0.161	6.0	LOS A	0.9	6.1	0.37	0.51	42.8
6	R	45	2.0	0.161	10.0	LOS A	0.9	6.1	0.37	0.74	40.8
Approach		159	2.0	0.161	7.3	LOS A	0.9	6.1	0.37	0.59	42.2
North: Jones Street											
7	L	100	2.0	0.239	7.1	LOS A	1.4	9.7	0.41	0.61	42.4
8	T	116	2.0	0.239	6.2	LOS A	1.4	9.7	0.41	0.54	42.7
9	R	21	2.0	0.239	10.2	LOS A	1.4	9.7	0.41	0.75	40.7
Approach		237	2.0	0.239	6.9	LOS A	1.4	9.7	0.41	0.59	42.4
West: Smith Street											
10	L	12	2.0	0.149	7.3	LOS A	0.8	5.5	0.42	0.63	42.5
11	T	112	2.0	0.149	6.3	LOS A	0.8	5.5	0.42	0.55	42.7
12	R	17	2.0	0.149	10.4	LOS A	0.8	5.5	0.42	0.78	40.6
Approach		140	2.0	0.149	6.9	LOS A	0.8	5.5	0.42	0.58	42.4
All Vehicles		717	2.0	0.239	7.0	LOS A	1.4	9.7	0.40	0.59	42.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Dunmore (2027 Thurs AM)

13S1210100
Jones Street-Dunmore Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	179	2.0	0.371	9.3	LOS A	2.4	16.8	0.68	0.77	40.8
2	T	17	2.0	0.371	8.3	LOS A	2.4	16.8	0.68	0.73	41.1
3	R	84	2.0	0.371	12.4	LOS A	2.4	16.8	0.68	0.83	39.0
Approach		280	2.0	0.371	10.2	LOS A	2.4	16.8	0.68	0.79	40.2
East: Dunmore Street											
4	L	61	2.0	0.504	9.0	LOS A	3.7	26.6	0.69	0.77	41.5
5	T	352	2.0	0.504	8.0	LOS A	3.7	26.6	0.69	0.73	41.5
6	R	13	2.0	0.504	12.1	LOS A	3.7	26.6	0.69	0.85	39.6
Approach		425	2.0	0.504	8.3	LOS A	3.7	26.6	0.69	0.73	41.5
North: Jones Street											
7	L	5	2.0	0.252	16.6	LOS B	1.6	11.5	0.92	0.97	35.7
8	T	39	2.0	0.252	15.7	LOS B	1.6	11.5	0.92	0.96	35.8
9	R	39	2.0	0.252	19.7	LOS B	1.6	11.5	0.92	0.98	34.5
Approach		83	2.0	0.252	17.6	LOS B	1.6	11.5	0.92	0.97	35.2
West: Dunmore Street											
10	L	24	2.0	0.808	7.8	LOS A	12.1	86.1	0.80	0.60	41.2
11	T	709	2.0	0.808	6.8	LOS A	12.1	86.1	0.80	0.57	40.9
12	R	231	2.0	0.808	10.8	LOS A	12.1	86.1	0.80	0.65	40.4
Approach		964	2.0	0.808	7.8	LOS A	12.1	86.1	0.80	0.59	40.8
All Vehicles		1753	2.0	0.808	8.8	LOS A	12.1	86.1	0.76	0.67	40.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Dunmore (2027 Thurs PM)

13S1210100
Jones Street-Dunmore Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	196	2.0	0.543	15.0	LOS B	4.5	32.0	0.90	1.05	36.8
2	T	59	2.0	0.543	14.0	LOS A	4.5	32.0	0.90	1.04	36.9
3	R	39	2.0	0.543	18.0	LOS B	4.5	32.0	0.90	1.07	35.5
Approach		294	2.0	0.543	15.2	LOS B	4.5	32.0	0.90	1.05	36.6
East: Dunmore Street											
4	L	68	2.0	0.741	12.1	LOS A	9.5	67.6	0.85	0.89	39.2
5	T	594	2.0	0.741	11.1	LOS A	9.5	67.6	0.85	0.87	39.3
6	R	25	2.0	0.741	15.1	LOS B	9.5	67.6	0.85	0.93	37.6
Approach		687	2.0	0.741	11.4	LOS A	9.5	67.6	0.85	0.88	39.3
North: Jones Street											
7	L	13	2.0	0.123	9.5	LOS A	0.7	4.7	0.63	0.72	40.6
8	T	20	2.0	0.123	8.5	LOS A	0.7	4.7	0.63	0.68	41.0
9	R	53	2.0	0.123	12.5	LOS A	0.7	4.7	0.63	0.80	38.8
Approach		85	2.0	0.123	11.1	LOS A	0.7	4.7	0.63	0.76	39.6
West: Dunmore Street											
10	L	62	2.0	0.476	7.0	LOS A	3.9	27.6	0.47	0.59	42.1
11	T	262	2.0	0.476	6.0	LOS A	3.9	27.6	0.47	0.52	42.3
12	R	206	2.0	0.476	10.0	LOS A	3.9	27.6	0.47	0.71	40.6
Approach		531	2.0	0.476	7.7	LOS A	3.9	27.6	0.47	0.60	41.6
All Vehicles		1597	2.0	0.741	10.8	LOS A	9.5	67.6	0.72	0.81	39.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Dunmore (2027 Sat)

13S1210100
Jones Street-Dunmore Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	127	2.0	0.237	9.1	LOS A	1.4	9.6	0.63	0.74	41.0
2	T	21	2.0	0.237	8.2	LOS A	1.4	9.6	0.63	0.70	41.3
3	R	27	2.0	0.237	12.2	LOS A	1.4	9.6	0.63	0.82	39.1
Approach		176	2.0	0.237	9.5	LOS A	1.4	9.6	0.63	0.75	40.7
East: Dunmore Street											
4	L	33	2.0	0.447	8.0	LOS A	3.0	21.5	0.56	0.69	42.1
5	T	376	2.0	0.447	7.1	LOS A	3.0	21.5	0.56	0.63	42.1
6	R	17	2.0	0.447	11.1	LOS A	3.0	21.5	0.56	0.81	40.3
Approach		425	2.0	0.447	7.3	LOS A	3.0	21.5	0.56	0.64	42.0
North: Jones Street											
7	L	18	2.0	0.112	9.4	LOS A	0.6	4.1	0.61	0.72	40.7
8	T	24	2.0	0.112	8.5	LOS A	0.6	4.1	0.61	0.67	41.1
9	R	38	2.0	0.112	12.5	LOS A	0.6	4.1	0.61	0.80	38.9
Approach		80	2.0	0.112	10.6	LOS A	0.6	4.1	0.61	0.74	39.9
West: Dunmore Street											
10	L	38	2.0	0.412	6.4	LOS A	3.1	22.1	0.30	0.55	42.7
11	T	307	2.0	0.412	5.4	LOS A	3.1	22.1	0.30	0.46	43.2
12	R	172	2.0	0.412	9.4	LOS A	3.1	22.1	0.30	0.71	40.9
Approach		517	2.0	0.412	6.8	LOS A	3.1	22.1	0.30	0.55	42.3
All Vehicles		1198	2.0	0.447	7.6	LOS A	3.1	22.1	0.46	0.63	41.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Dunmore-Goodall (2027 Thurs AM)

13S1210100
Dunmore Street-Goodall Street
Signals - Fixed Time Cycle Time = 85 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Dunmore Street											
5	T	303	2.0	0.381	9.1	LOS A	6.1	43.3	0.52	0.45	39.7
6	R	303	2.0	0.913	59.1	LOS E	14.1	100.3	1.00	1.23	20.6
Approach		606	2.0	0.913	34.1	LOS C	14.1	100.3	0.76	0.84	27.1
North: Goodall Street											
7	L	303	2.0	0.745	26.3	LOS B	9.0	64.3	0.69	0.83	30.6
9	R	461	2.0	0.931	59.1	LOS E	24.9	177.3	1.00	1.09	20.6
Approach		764	2.0	0.931	46.1	LOS D	24.9	177.3	0.88	0.98	23.7
West: Dunmore Street											
10	L	376	2.0	0.387	10.6	LOS A	5.2	37.2	0.36	0.71	39.8
11	T	698	2.0	0.934	47.8	LOS D	37.8	269.4	1.00	1.19	22.4
Approach		1074	2.0	0.934	34.8	LOS C	37.8	269.4	0.78	1.02	26.5
All Vehicles		2444	2.0	0.934	38.2	LOS C	37.8	269.4	0.80	0.96	25.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	Across N approach	53	22.6	LOS C	0.1	0.1	0.73	0.73
P7	Across W approach	53	30.5	LOS D	0.1	0.1	0.85	0.85
All Pedestrians		106	26.6	LOS C			0.79	0.79

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Goodall (2027 Thurs PM)

13S1210100
Dunmore Street-Goodall Street
Signals - Fixed Time Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Dunmore Street											
5	T	506	2.0	0.612	12.6	LOS A	10.9	77.4	0.77	0.68	36.7
6	R	294	2.0	0.740	28.3	LOS B	8.1	57.9	0.99	0.94	29.7
Approach		800	2.0	0.740	18.4	LOS B	10.9	77.4	0.85	0.78	33.8
North: Goodall Street											
7	L	275	2.0	0.479	14.8	LOS B	4.4	31.6	0.58	0.74	36.9
9	R	449	2.0	0.736	27.8	LOS B	12.6	90.1	0.94	0.89	30.0
Approach		724	2.0	0.736	22.8	LOS B	12.6	90.1	0.81	0.84	32.3
West: Dunmore Street											
10	L	262	2.0	0.243	9.8	LOS A	2.7	19.0	0.37	0.70	40.5
11	T	262	2.0	0.511	20.8	LOS B	6.7	47.9	0.90	0.75	31.9
Approach		524	2.0	0.511	15.3	LOS B	6.7	47.9	0.64	0.72	35.7
All Vehicles		2048	2.0	0.740	19.2	LOS B	12.6	90.1	0.78	0.78	33.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	Across N approach	53	24.3	LOS C	0.1	0.1	0.90	0.90
P7	Across W approach	53	20.8	LOS C	0.1	0.1	0.83	0.83
All Pedestrians		106	22.6	LOS C			0.87	0.87

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Goodall (2027 Sat)

13S1210100
Dunmore Street-Goodall Street
Signals - Fixed Time Cycle Time = 56 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Dunmore Street											
5	T	318	2.0	0.356	9.1	LOS A	5.3	37.4	0.64	0.54	39.5
6	R	227	2.0	0.535	22.2	LOS B	5.0	35.9	0.91	0.81	32.5
Approach		545	2.0	0.535	14.6	LOS B	5.3	37.4	0.75	0.65	36.2
North: Goodall Street											
7	L	220	2.0	0.385	15.1	LOS B	3.4	24.5	0.60	0.74	36.7
9	R	237	2.0	0.453	24.7	LOS B	5.5	39.1	0.87	0.80	31.3
Approach		457	2.0	0.453	20.1	LOS B	5.5	39.1	0.74	0.77	33.7
West: Dunmore Street											
10	L	186	2.0	0.168	10.0	LOS A	2.1	14.9	0.38	0.71	40.4
11	T	304	2.0	0.514	17.6	LOS B	6.7	47.6	0.85	0.71	33.6
Approach		491	2.0	0.514	14.7	LOS B	6.7	47.6	0.67	0.71	35.9
All Vehicles		1493	2.0	0.535	16.3	LOS B	6.7	47.6	0.72	0.71	35.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	Across N approach	53	22.3	LOS C	0.1	0.1	0.89	0.89
P7	Across W approach	53	22.3	LOS C	0.1	0.1	0.89	0.89
All Pedestrians		106	22.3	LOS C			0.89	0.89

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Pendle (2027 Thurs AM)

13S1210100
Dunmore Street-Pendle Way
Signals - Fixed Time Cycle Time = 65 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pendle Way											
2	T	267	2.0	0.226	6.0	LOS A	3.8	26.8	0.48	0.40	42.4
3	R	582	2.0	0.831	31.2	LOS C	15.9	113.0	0.97	1.10	28.5
Approach		849	2.0	0.831	23.3	LOS B	15.9	113.0	0.81	0.88	31.8
East: Dunmore Street											
4	L	345	2.0	0.331	14.5	LOS A	5.8	41.5	0.57	0.75	37.1
6	R	297	2.0	0.811	38.7	LOS C	10.4	73.8	1.00	0.96	25.9
Approach		642	2.0	0.811	25.7	LOS B	10.4	73.8	0.77	0.85	30.9
North: Pendle Way											
7	L	461	2.0	0.548	16.5	LOS B	9.1	64.6	0.66	0.79	35.8
8	T	213	2.0	0.449	23.0	LOS B	5.9	42.0	0.89	0.74	30.8
Approach		674	2.0	0.548	18.5	LOS B	9.1	64.6	0.73	0.77	34.1
All Vehicles		2165	2.0	0.831	22.5	LOS B	15.9	113.0	0.77	0.84	32.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	11.1	LOS B	0.1	0.1	0.58	0.58
P3	Across E approach	53	26.8	LOS C	0.1	0.1	0.91	0.91
All Pedestrians		106	18.9	LOS B			0.75	0.75

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Pendle (2027 Thurs PM)

13S1210100
Dunmore Street-Pendle Way
Signals - Fixed Time Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pendle Way											
2	T	313	2.0	0.348	11.1	LOS A	5.9	41.9	0.68	0.58	38.0
3	R	287	2.0	0.672	24.8	LOS B	7.4	52.9	0.96	0.86	31.3
Approach		600	2.0	0.672	17.7	LOS B	7.4	52.9	0.81	0.71	34.4
East: Dunmore Street											
4	L	475	2.0	0.486	16.0	LOS B	8.8	62.9	0.67	0.79	36.1
6	R	449	2.0	0.736	27.8	LOS B	12.6	90.1	0.94	0.89	30.0
Approach		924	2.0	0.736	21.7	LOS B	12.6	90.1	0.80	0.84	32.8
North: Pendle Way											
7	L	225	2.0	0.209	9.7	LOS A	2.2	16.0	0.36	0.69	40.5
8	T	213	2.0	0.414	20.1	LOS B	5.3	37.7	0.87	0.72	32.3
Approach		438	2.0	0.414	14.8	LOS B	5.3	37.7	0.61	0.71	36.0
All Vehicles		1962	2.0	0.736	18.9	LOS B	12.6	90.1	0.76	0.77	34.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	12.0	LOS B	0.1	0.1	0.63	0.63
P3	Across E approach	53	24.3	LOS C	0.1	0.1	0.90	0.90
All Pedestrians		106	18.2	LOS B			0.77	0.77

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Pendle (2027 Sat)

13S1210100
Dunmore Street-Pendle Way
Signals - Fixed Time Cycle Time = 50 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pendle Way											
2	T	342	2.0	0.520	6.7	LOS A	4.9	35.2	0.58	0.49	41.3
3	R	245	2.0	0.520	17.1	LOS B	4.9	35.2	0.84	0.81	35.5
Approach		587	2.0	0.520	11.0	LOS A	4.9	35.2	0.69	0.63	38.7
East: Dunmore Street											
4	L	287	2.0	0.357	16.7	LOS B	4.8	33.9	0.71	0.78	35.7
6	R	268	2.0	0.733	29.7	LOS C	6.9	49.2	0.99	0.92	29.1
Approach		556	2.0	0.733	23.0	LOS B	6.9	49.2	0.84	0.84	32.2
North: Pendle Way											
7	L	256	2.0	0.238	10.5	LOS A	2.6	18.7	0.44	0.71	39.9
8	T	251	2.0	0.407	14.8	LOS B	4.9	35.1	0.83	0.69	35.3
Approach		506	2.0	0.407	12.6	LOS A	4.9	35.1	0.63	0.70	37.5
All Vehicles		1649	2.0	0.733	15.5	LOS B	6.9	49.2	0.72	0.72	35.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	14.4	LOS B	0.1	0.1	0.76	0.76
P3	Across E approach	53	19.4	LOS B	0.1	0.1	0.88	0.88
All Pedestrians		106	16.9	LOS B			0.82	0.82

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Jones-Rogers (2027+Dev Thurs AM)

13S1210100
Jones Street-Rogers Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	359	2.0	0.195	1.8	LOS A	1.6	11.4	0.52	0.00	44.1
3	R	8	2.0	0.195	8.6	LOS A	1.6	11.4	0.52	0.91	43.0
Approach		367	2.0	0.195	2.0	NA	1.6	11.4	0.52	0.02	44.0
East: Rogers Street											
4	L	13	2.0	0.042	11.8	LOS A	0.1	1.0	0.53	0.66	38.9
6	R	7	2.0	0.042	12.1	LOS A	0.1	1.0	0.53	0.84	38.8
Approach		20	2.0	0.042	11.9	LOS A	0.1	1.0	0.53	0.73	38.9
North: Jones Street											
7	L	6	2.0	0.173	6.5	LOS A	0.0	0.0	0.00	0.92	43.3
8	T	326	2.0	0.173	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		333	2.0	0.173	0.1	NA	0.0	0.0	0.00	0.02	49.9
All Vehicles		720	2.0	0.195	1.4	NA	1.6	11.4	0.28	0.04	46.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Rogers (2027+Dev Thurs PM)

13S1210100
Jones Street-Rogers Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	345	2.0	0.200	2.0	LOS A	1.6	11.7	0.53	0.00	43.9
3	R	21	2.0	0.200	8.8	LOS A	1.6	11.7	0.53	0.90	42.8
Approach		366	2.0	0.200	2.4	NA	1.6	11.7	0.53	0.05	43.8
East: Rogers Street											
4	L	25	2.0	0.071	11.4	LOS A	0.2	1.7	0.52	0.69	39.2
6	R	11	2.0	0.071	11.7	LOS A	0.2	1.7	0.52	0.85	39.1
Approach		36	2.0	0.071	11.5	LOS A	0.2	1.7	0.52	0.73	39.2
North: Jones Street											
7	L	9	2.0	0.182	6.5	LOS A	0.0	0.0	0.00	0.91	43.3
8	T	340	2.0	0.182	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		349	2.0	0.182	0.2	NA	0.0	0.0	0.00	0.02	49.8
All Vehicles		752	2.0	0.200	1.8	NA	1.6	11.7	0.28	0.07	46.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Rogers (2027+Dev Sat)

13S1210100
Jones Street-Rogers Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	251	2.0	0.151	1.6	LOS A	1.1	7.9	0.47	0.00	44.4
3	R	22	2.0	0.151	8.4	LOS A	1.1	7.9	0.47	0.88	42.9
Approach		273	2.0	0.151	2.1	NA	1.1	7.9	0.47	0.07	44.3
East: Rogers Street											
4	L	28	2.0	0.069	10.1	LOS A	0.2	1.7	0.47	0.66	40.2
6	R	13	2.0	0.069	10.5	LOS A	0.2	1.7	0.47	0.82	40.0
Approach		41	2.0	0.069	10.2	LOS A	0.2	1.7	0.47	0.71	40.1
North: Jones Street											
7	L	21	2.0	0.162	6.5	LOS A	0.0	0.0	0.00	0.89	43.3
8	T	291	2.0	0.162	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		312	2.0	0.162	0.4	NA	0.0	0.0	0.00	0.06	49.5
All Vehicles		625	2.0	0.162	1.8	NA	1.1	7.9	0.24	0.11	46.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Oatlands (2027+Dev Thurs AM)

13S1210100
Jones Street-Oatlands Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	385	2.0	0.209	4.0	LOS A	2.3	16.1	0.69	0.00	42.4
3	R	6	2.0	0.209	10.8	LOS A	2.3	16.1	0.69	1.00	41.7
Approach		392	2.0	0.209	4.1	NA	2.3	16.1	0.69	0.02	42.4
East: Oatlands Street											
4	L	16	2.0	0.129	19.9	LOS B	0.4	3.0	0.75	0.89	33.7
6	R	16	2.0	0.129	20.3	LOS B	0.4	3.0	0.75	0.92	33.6
Approach		32	2.0	0.129	20.1	LOS B	0.4	3.0	0.75	0.90	33.7
North: Jones Street											
7	L	12	2.0	0.294	6.5	LOS A	0.0	0.0	0.00	0.91	43.3
8	T	554	2.0	0.294	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		565	2.0	0.294	0.1	NA	0.0	0.0	0.00	0.02	49.8
All Vehicles		988	2.0	0.294	2.4	NA	2.3	16.1	0.30	0.05	45.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Oatlands (2027+Dev Thurs PM)

13S1210100
Jones Street-Oatlands Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	446	2.0	0.255	4.0	LOS A	2.7	19.5	0.70	0.00	42.2
3	R	18	2.0	0.255	10.8	LOS A	2.7	19.5	0.70	1.00	41.6
Approach		464	2.0	0.255	4.3	NA	2.7	19.5	0.70	0.04	42.2
East: Oatlands Street											
4	L	27	2.0	0.314	26.4	LOS B	1.2	8.3	0.81	0.99	30.5
6	R	38	2.0	0.314	26.7	LOS B	1.2	8.3	0.81	0.98	30.4
Approach		65	2.0	0.314	26.6	LOS B	1.2	8.3	0.81	0.99	30.5
North: Jones Street											
7	L	26	2.0	0.282	6.5	LOS A	0.0	0.0	0.00	0.90	43.3
8	T	515	2.0	0.282	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		541	2.0	0.282	0.3	NA	0.0	0.0	0.00	0.04	49.6
All Vehicles		1071	2.0	0.314	3.6	NA	2.7	19.5	0.35	0.10	44.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Oatlands (2027+Dev Sat)

13S1210100
Jones Street-Oatlands Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	434	2.0	0.253	3.7	LOS A	2.6	18.5	0.68	0.00	42.4
3	R	22	2.0	0.253	10.5	LOS A	2.6	18.5	0.68	0.98	41.8
Approach		456	2.0	0.253	4.1	NA	2.6	18.5	0.68	0.05	42.3
East: Oatland Street											
4	L	16	2.0	0.204	23.4	LOS B	0.7	4.9	0.79	0.92	31.9
6	R	27	2.0	0.204	23.7	LOS B	0.7	4.9	0.79	0.94	31.8
Approach		43	2.0	0.204	23.6	LOS B	0.7	4.9	0.79	0.93	31.8
North: Jones Street											
7	L	31	2.0	0.269	6.5	LOS A	0.0	0.0	0.00	0.90	43.3
8	T	486	2.0	0.269	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		517	2.0	0.269	0.4	NA	0.0	0.0	0.00	0.05	49.5
All Vehicles		1016	2.0	0.269	3.0	NA	2.6	18.5	0.34	0.09	45.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Smith (2027+Dev Thurs AM)

13S1210100
Jones Street-Smith Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	5	2.0	0.369	7.7	LOS A	2.4	17.3	0.54	0.67	42.0
2	T	238	2.0	0.369	6.8	LOS A	2.4	17.3	0.54	0.61	42.1
3	R	101	2.0	0.369	10.8	LOS A	2.4	17.3	0.54	0.78	40.3
Approach		344	2.0	0.369	8.0	LOS A	2.4	17.3	0.54	0.66	41.5
East: Smith Street											
4	L	28	2.0	0.285	9.0	LOS A	1.8	12.8	0.68	0.75	41.0
5	T	56	2.0	0.285	8.1	LOS A	1.8	12.8	0.68	0.71	41.1
6	R	123	2.0	0.285	12.1	LOS A	1.8	12.8	0.68	0.82	39.2
Approach		207	2.0	0.285	10.6	LOS A	1.8	12.8	0.68	0.78	39.9
North: Jones Street											
7	L	256	2.0	0.826	18.7	LOS B	13.2	94.3	1.00	1.19	34.7
8	T	345	2.0	0.826	17.7	LOS B	13.2	94.3	1.00	1.19	34.8
9	R	42	2.0	0.826	21.7	LOS B	13.2	94.3	1.00	1.19	33.6
Approach		643	2.0	0.826	18.4	LOS B	13.2	94.3	1.00	1.19	34.7
West: Smith Street											
10	L	59	2.0	0.494	11.1	LOS A	3.6	25.9	0.75	0.88	39.8
11	T	285	2.0	0.494	10.1	LOS A	3.6	25.9	0.75	0.85	40.1
12	R	17	2.0	0.494	14.1	LOS A	3.6	25.9	0.75	0.95	38.2
Approach		361	2.0	0.494	10.4	LOS A	3.6	25.9	0.75	0.86	40.0
All Vehicles		1556	2.0	0.826	13.2	LOS A	13.2	94.3	0.80	0.94	37.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Smith (2027+Dev Thurs PM)

13S1210100
Jones Street-Smith Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	33	2.0	0.450	10.0	LOS A	3.1	22.0	0.73	0.83	40.7
2	T	267	2.0	0.450	9.0	LOS A	3.1	22.0	0.73	0.79	40.9
3	R	33	2.0	0.450	13.0	LOS A	3.1	22.0	0.73	0.90	38.9
Approach		333	2.0	0.450	9.5	LOS A	3.1	22.0	0.73	0.81	40.7
East: Smith Street											
4	L	65	2.0	0.501	8.8	LOS A	3.6	25.8	0.67	0.75	41.4
5	T	236	2.0	0.501	7.9	LOS A	3.6	25.8	0.67	0.70	41.4
6	R	131	2.0	0.501	11.9	LOS A	3.6	25.8	0.67	0.82	39.5
Approach		432	2.0	0.501	9.2	LOS A	3.6	25.8	0.67	0.75	40.8
North: Jones Street											
7	L	199	2.0	0.460	7.3	LOS A	3.4	24.6	0.50	0.62	42.1
8	T	226	2.0	0.460	6.3	LOS A	3.4	24.6	0.50	0.56	42.2
9	R	61	2.0	0.460	10.3	LOS A	3.4	24.6	0.50	0.74	40.6
Approach		486	2.0	0.460	7.2	LOS A	3.4	24.6	0.50	0.61	41.9
West: Smith Street											
10	L	60	2.0	0.248	9.2	LOS A	1.4	10.2	0.64	0.76	41.2
11	T	112	2.0	0.248	8.2	LOS A	1.4	10.2	0.64	0.71	41.5
12	R	13	2.0	0.248	12.2	LOS A	1.4	10.2	0.64	0.85	39.3
Approach		184	2.0	0.248	8.8	LOS A	1.4	10.2	0.64	0.73	41.3
All Vehicles		1435	2.0	0.501	8.6	LOS A	3.6	25.8	0.62	0.71	41.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Smith (2027+Dev Sat)

13S1210100
Jones Street-Smith Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	22	2.0	0.366	8.3	LOS A	2.3	16.4	0.59	0.71	41.9
2	T	255	2.0	0.366	7.4	LOS A	2.3	16.4	0.59	0.66	41.9
3	R	38	2.0	0.366	11.4	LOS A	2.3	16.4	0.59	0.82	40.0
Approach		315	2.0	0.366	7.9	LOS A	2.3	16.4	0.59	0.68	41.7
East: Smith Street											
4	L	20	2.0	0.295	8.5	LOS A	1.8	12.5	0.59	0.71	41.5
5	T	94	2.0	0.295	7.5	LOS A	1.8	12.5	0.59	0.66	41.6
6	R	128	2.0	0.295	11.6	LOS A	1.8	12.5	0.59	0.79	39.6
Approach		242	2.0	0.295	9.8	LOS A	1.8	12.5	0.59	0.73	40.5
North: Jones Street											
7	L	183	2.0	0.475	7.4	LOS A	3.6	25.5	0.52	0.63	42.0
8	T	249	2.0	0.475	6.4	LOS A	3.6	25.5	0.52	0.57	42.1
9	R	63	2.0	0.475	10.5	LOS A	3.6	25.5	0.52	0.74	40.5
Approach		496	2.0	0.475	7.3	LOS A	3.6	25.5	0.52	0.61	41.9
West: Smith Street											
10	L	54	2.0	0.240	9.1	LOS A	1.4	9.6	0.62	0.75	41.2
11	T	112	2.0	0.240	8.1	LOS A	1.4	9.6	0.62	0.70	41.6
12	R	17	2.0	0.240	12.2	LOS A	1.4	9.6	0.62	0.84	39.4
Approach		182	2.0	0.240	8.8	LOS A	1.4	9.6	0.62	0.73	41.3
All Vehicles		1235	2.0	0.475	8.2	LOS A	3.6	25.5	0.56	0.67	41.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Dunmore (2027+Dev Thurs AM)

13S1210100
Jones Street-Dunmore Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	199	2.0	0.510	10.9	LOS A	4.0	28.3	0.78	0.87	39.4
2	T	17	2.0	0.510	10.0	LOS A	4.0	28.3	0.78	0.85	39.7
3	R	152	2.0	0.510	14.0	LOS A	4.0	28.3	0.78	0.92	37.8
Approach		367	2.0	0.510	12.2	LOS A	4.0	28.3	0.78	0.89	38.8
East: Dunmore Street											
4	L	78	2.0	0.575	10.0	LOS A	5.1	36.1	0.76	0.82	40.7
5	T	388	2.0	0.575	9.0	LOS A	5.1	36.1	0.76	0.79	41.0
6	R	13	2.0	0.575	13.0	LOS A	5.1	36.1	0.76	0.88	39.0
Approach		479	2.0	0.575	9.3	LOS A	5.1	36.1	0.76	0.80	40.9
North: Jones Street											
7	L	5	2.0	0.358	22.7	LOS B	2.5	17.6	1.00	1.02	32.3
8	T	39	2.0	0.358	21.7	LOS B	2.5	17.6	1.00	1.02	32.4
9	R	39	2.0	0.358	25.7	LOS B	2.5	17.6	1.00	1.02	31.5
Approach		83	2.0	0.358	23.7	LOS B	2.5	17.6	1.00	1.02	32.0
West: Dunmore Street											
10	L	24	2.0	0.977	27.4	LOS B	40.1	285.9	1.00	1.11	30.3
11	T	785	2.0	0.977	26.4	LOS B	40.1	285.9	1.00	1.11	30.4
12	R	239	2.0	0.977	30.4	LOS C	40.1	285.9	1.00	1.11	29.6
Approach		1048	2.0	0.977	27.3	LOS B	40.1	285.9	1.00	1.11	30.2
All Vehicles		1978	2.0	0.977	20.0	LOS B	40.1	285.9	0.90	0.99	33.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Dunmore (2027+Dev Thurs PM)

13S1210100
Jones Street-Dunmore Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	229	2.0	0.735	22.7	LOS B	8.1	57.9	1.00	1.23	32.3
2	T	59	2.0	0.735	21.7	LOS B	8.1	57.9	1.00	1.23	32.4
3	R	67	2.0	0.735	25.7	LOS B	8.1	57.9	1.00	1.23	31.5
Approach		356	2.0	0.735	23.1	LOS B	8.1	57.9	1.00	1.23	32.2
East: Dunmore Street											
4	L	87	2.0	0.839	16.2	LOS B	14.8	105.6	1.00	1.07	36.4
5	T	646	2.0	0.839	15.3	LOS B	14.8	105.6	1.00	1.06	36.4
6	R	25	2.0	0.839	19.3	LOS B	14.8	105.6	1.00	1.07	35.2
Approach		759	2.0	0.839	15.5	LOS B	14.8	105.6	1.00	1.06	36.4
North: Jones Street											
7	L	13	2.0	0.138	10.4	LOS A	0.8	5.5	0.69	0.77	39.9
8	T	20	2.0	0.138	9.4	LOS A	0.8	5.5	0.69	0.74	40.2
9	R	53	2.0	0.138	13.5	LOS A	0.8	5.5	0.69	0.83	38.2
Approach		85	2.0	0.138	12.1	LOS A	0.8	5.5	0.69	0.80	38.9
West: Dunmore Street											
10	L	62	2.0	0.565	7.4	LOS A	5.1	36.6	0.59	0.62	41.7
11	T	314	2.0	0.565	6.5	LOS A	5.1	36.6	0.59	0.57	41.7
12	R	228	2.0	0.565	10.5	LOS A	5.1	36.6	0.59	0.72	40.4
Approach		604	2.0	0.565	8.1	LOS A	5.1	36.6	0.59	0.63	41.2
All Vehicles		1804	2.0	0.839	14.4	LOS A	14.8	105.6	0.85	0.94	37.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Dunmore (2027+Dev Sat)

13S1210100
Jones Street-Dunmore Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	169	2.0	0.366	10.1	LOS A	2.3	16.5	0.74	0.82	40.1
2	T	21	2.0	0.366	9.2	LOS A	2.3	16.5	0.74	0.79	40.4
3	R	58	2.0	0.366	13.2	LOS A	2.3	16.5	0.74	0.88	38.4
Approach		248	2.0	0.366	10.8	LOS A	2.3	16.5	0.74	0.83	39.7
East: Dunmore Street											
4	L	63	2.0	0.580	9.3	LOS A	4.9	34.8	0.69	0.77	41.3
5	T	448	2.0	0.580	8.3	LOS A	4.9	34.8	0.69	0.73	41.5
6	R	17	2.0	0.580	12.4	LOS A	4.9	34.8	0.69	0.85	39.4
Approach		528	2.0	0.580	8.6	LOS A	4.9	34.8	0.69	0.74	41.4
North: Jones Street											
7	L	18	2.0	0.132	10.8	LOS A	0.7	5.2	0.70	0.78	39.6
8	T	24	2.0	0.132	9.8	LOS A	0.7	5.2	0.70	0.74	39.9
9	R	38	2.0	0.132	13.9	LOS A	0.7	5.2	0.70	0.84	38.0
Approach		80	2.0	0.132	12.0	LOS A	0.7	5.2	0.70	0.80	38.9
West: Dunmore Street											
10	L	38	2.0	0.530	6.8	LOS A	4.7	33.5	0.44	0.57	42.2
11	T	380	2.0	0.530	5.8	LOS A	4.7	33.5	0.44	0.50	42.5
12	R	214	2.0	0.530	9.8	LOS A	4.7	33.5	0.44	0.70	40.7
Approach		632	2.0	0.530	7.2	LOS A	4.7	33.5	0.44	0.57	41.8
All Vehicles		1488	2.0	0.580	8.6	LOS A	4.9	34.8	0.60	0.69	41.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Dunmore-Goodall (2027+Dev Thurs AM)

13S1210100
Dunmore Street-Goodall Street
Signals - Fixed Time Cycle Time = 90 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Dunmore Street											
5	T	356	2.0	0.439	8.4	LOS A	7.1	50.9	0.50	0.43	40.4
6	R	316	2.0	0.847	52.4	LOS D	13.7	97.3	1.00	1.13	22.1
Approach		672	2.0	0.847	29.1	LOS C	13.7	97.3	0.73	0.76	29.1
North: Goodall Street											
7	L	333	2.0	0.859	34.6	LOS C	11.5	81.6	0.82	0.89	27.3
9	R	461	2.0	1.030	107.8	LOS F	35.6	253.5	1.00	1.32	13.9
Approach		794	2.0	1.030	77.1	LOS F	35.6	253.5	0.93	1.14	17.5
West: Dunmore Street											
10	L	376	2.0	0.410	11.5	LOS A	5.9	42.1	0.39	0.71	39.2
11	T	773	2.0	1.003	79.8	LOS F	56.0	398.9	1.00	1.44	16.6
Approach		1148	2.0	1.003	57.4	LOS E	56.0	398.9	0.80	1.20	20.5
All Vehicles		2614	2.0	1.030	56.1	LOS D	56.0	398.9	0.82	1.07	21.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	Across N approach	53	22.8	LOS C	0.1	0.1	0.71	0.71
P7	Across W approach	53	33.8	LOS D	0.1	0.1	0.87	0.87
All Pedestrians		106	28.3	LOS C			0.79	0.79

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Goodall (2027+Dev Thurs PM)

13S1210100
Dunmore Street-Goodall Street
Signals - Fixed Time Cycle Time = 56 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Dunmore Street											
5	T	595	2.0	0.669	11.1	LOS A	11.9	84.9	0.78	0.69	37.8
6	R	327	2.0	0.874	36.7	LOS C	9.7	68.9	1.00	1.14	26.5
Approach		922	2.0	0.874	20.2	LOS B	11.9	84.9	0.86	0.85	32.8
North: Goodall Street											
7	L	325	2.0	0.570	15.7	LOS B	5.5	38.9	0.65	0.76	36.3
9	R	449	2.0	0.859	35.2	LOS C	14.5	103.4	1.00	1.03	27.0
Approach		775	2.0	0.859	27.0	LOS B	14.5	103.4	0.85	0.92	30.3
West: Dunmore Street											
10	L	262	2.0	0.243	10.1	LOS A	2.7	19.1	0.40	0.71	40.3
11	T	386	2.0	0.702	21.0	LOS B	10.1	72.3	0.95	0.86	31.7
Approach		648	2.0	0.702	16.6	LOS B	10.1	72.3	0.73	0.80	34.7
All Vehicles		2345	2.0	0.874	21.4	LOS B	14.5	103.4	0.82	0.86	32.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	Across N approach	53	22.3	LOS C	0.1	0.1	0.89	0.89
P7	Across W approach	53	22.3	LOS C	0.1	0.1	0.89	0.89
All Pedestrians		106	22.3	LOS C			0.89	0.89

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Goodall (2027+Dev Sat)

13S1210100
Dunmore Street-Goodall Street
Signals - Fixed Time Cycle Time = 65 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Dunmore Street											
5	T	476	2.0	0.531	8.6	LOS A	8.6	61.6	0.61	0.54	39.9
6	R	291	2.0	0.685	28.1	LOS B	8.2	58.7	0.97	0.92	29.8
Approach		766	2.0	0.685	16.0	LOS B	8.6	61.6	0.75	0.68	35.4
North: Goodall Street											
7	L	283	2.0	0.580	18.5	LOS B	5.8	41.1	0.68	0.77	34.6
9	R	237	2.0	0.525	30.1	LOS C	6.7	47.9	0.92	0.81	29.0
Approach		520	2.0	0.580	23.8	LOS B	6.7	47.9	0.79	0.79	31.8
West: Dunmore Street											
10	L	186	2.0	0.217	12.0	LOS A	2.3	16.3	0.60	0.74	38.9
11	T	462	2.0	0.665	19.3	LOS B	12.4	88.4	0.90	0.78	32.6
Approach		648	2.0	0.665	17.2	LOS B	12.4	88.4	0.81	0.77	34.2
All Vehicles		1935	2.0	0.685	18.5	LOS B	12.4	88.4	0.78	0.74	33.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	Across N approach	53	20.8	LOS C	0.1	0.1	0.80	0.80
P7	Across W approach	53	26.8	LOS C	0.1	0.1	0.91	0.91
All Pedestrians		106	23.8	LOS C			0.85	0.85

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Pendle (2027+Dev Thurs AM)

13S1210100
Dunmore Street-Pendle Way
Signals - Fixed Time Cycle Time = 75 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pendle Way											
2	T	267	2.0	0.217	6.0	LOS A	4.0	28.8	0.45	0.38	42.5
3	R	646	2.0	0.817	31.1	LOS C	18.0	128.0	0.94	1.07	28.6
Approach		914	2.0	0.817	23.8	LOS B	18.0	128.0	0.80	0.87	31.6
East: Dunmore Street											
4	L	394	2.0	0.343	13.6	LOS A	6.8	48.5	0.51	0.74	37.7
6	R	301	2.0	0.822	43.6	LOS D	12.1	86.0	1.00	0.96	24.4
Approach		695	2.0	0.822	26.6	LOS B	12.1	86.0	0.72	0.84	30.5
North: Pendle Way											
7	L	471	2.0	0.639	20.5	LOS B	11.8	83.9	0.73	0.80	33.5
8	T	213	2.0	0.518	29.0	LOS C	7.1	50.5	0.93	0.77	28.3
Approach		683	2.0	0.639	23.1	LOS B	11.8	83.9	0.79	0.79	31.7
All Vehicles		2292	2.0	0.822	24.4	LOS B	18.0	128.0	0.77	0.84	31.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	9.6	LOS A	0.1	0.1	0.51	0.51
P3	Across E approach	53	31.7	LOS D	0.1	0.1	0.92	0.92
All Pedestrians		106	20.7	LOS C			0.71	0.71

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Pendle (2027+Dev Thurs PM)

13S1210100
Dunmore Street-Pendle Way
Signals - Fixed Time Cycle Time = 65 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pendle Way											
2	T	313	2.0	0.330	10.8	LOS A	6.0	43.0	0.65	0.55	38.2
3	R	395	2.0	0.794	31.9	LOS C	11.6	82.8	0.99	1.04	28.3
Approach		707	2.0	0.794	22.6	LOS B	11.6	82.8	0.84	0.82	31.9
East: Dunmore Street											
4	L	552	2.0	0.529	15.8	LOS B	10.8	77.2	0.66	0.79	36.2
6	R	461	2.0	0.779	31.5	LOS C	14.8	105.1	0.97	0.92	28.4
Approach		1013	2.0	0.779	23.0	LOS B	14.8	105.1	0.80	0.85	32.2
North: Pendle Way											
7	L	242	2.0	0.245	11.0	LOS A	3.0	21.2	0.41	0.71	39.5
8	T	213	2.0	0.449	23.0	LOS B	5.9	42.0	0.89	0.74	30.8
Approach		455	2.0	0.449	16.7	LOS B	5.9	42.0	0.64	0.72	34.9
All Vehicles		2175	2.0	0.794	21.5	LOS B	14.8	105.1	0.78	0.82	32.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	11.1	LOS B	0.1	0.1	0.58	0.58
P3	Across E approach	53	26.8	LOS C	0.1	0.1	0.91	0.91
All Pedestrians		106	18.9	LOS B			0.75	0.75

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Pendle (2027+Dev Sat)

13S1210100
Dunmore Street-Pendle Way
Signals - Fixed Time Cycle Time = 50 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pendle Way											
2	T	342	2.0	0.317	6.4	LOS A	4.5	32.1	0.57	0.49	41.8
3	R	382	2.0	0.755	22.1	LOS B	8.6	61.4	0.97	0.94	32.6
Approach		724	2.0	0.755	14.7	LOS B	8.6	61.4	0.78	0.73	36.4
East: Dunmore Street											
4	L	424	2.0	0.527	17.7	LOS B	7.7	55.1	0.78	0.81	35.1
6	R	289	2.0	0.790	31.5	LOS C	7.8	55.8	1.00	0.97	28.4
Approach		714	2.0	0.790	23.3	LOS B	7.8	55.8	0.87	0.87	32.0
North: Pendle Way											
7	L	277	2.0	0.258	10.6	LOS A	2.9	20.5	0.45	0.72	39.9
8	T	251	2.0	0.407	14.8	LOS B	4.9	35.1	0.83	0.69	35.3
Approach		527	2.0	0.407	12.6	LOS A	4.9	35.1	0.63	0.70	37.6
All Vehicles		1965	2.0	0.790	17.3	LOS B	8.6	61.4	0.77	0.77	35.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	14.4	LOS B	0.1	0.1	0.76	0.76
P3	Across E approach	53	19.4	LOS B	0.1	0.1	0.88	0.88
All Pedestrians		106	16.9	LOS B			0.82	0.82

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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GTAconsultants

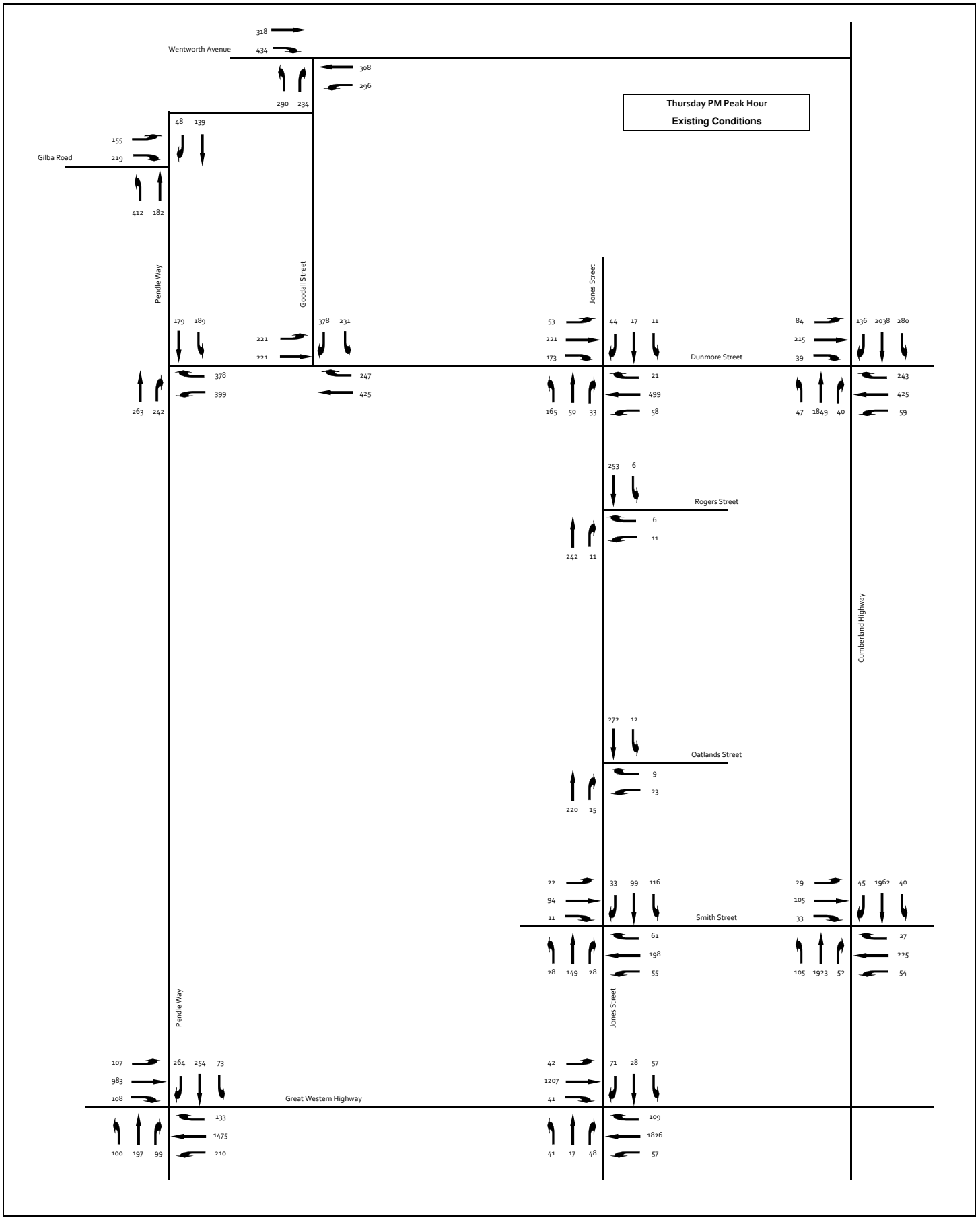
Attachment 2

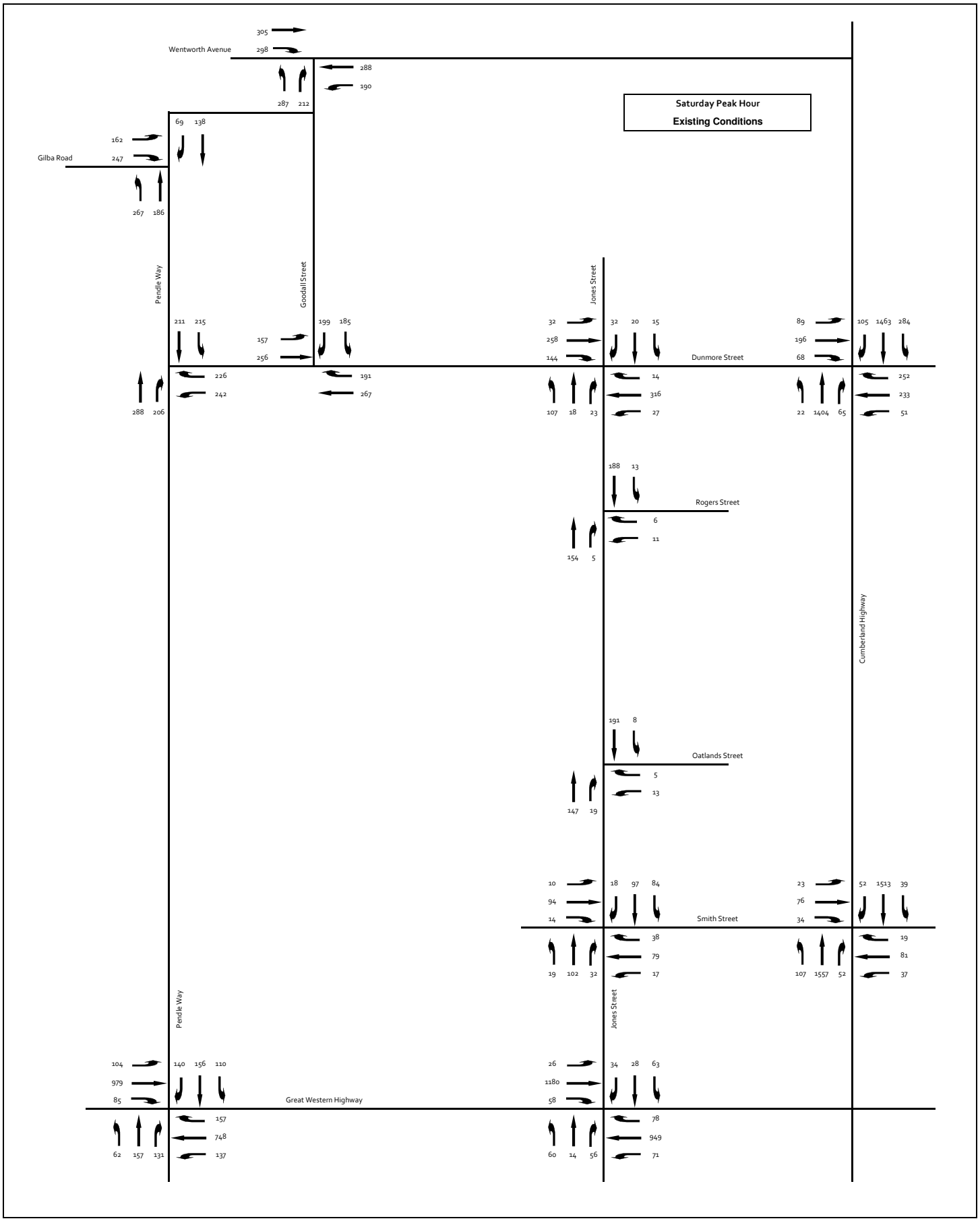
Attachment 2A - Existing Peak Hour Intersection Turning Movement Diagrams for Thursday PM & Saturday Midday

Attachment 2B – 2027 Future Base Peak Hour Intersection Turning Movement Diagrams for Thursday PM & Saturday Midday

Attachment 2C – 2027 Post Development Peak Hour Intersection Turning Movement Diagrams for Thursday PM & Saturday Midday

Attachment 2A - Existing Peak Hour Intersection Turning Movement Diagrams for Thursday PM & Saturday Midday


Thursday PM Peak Hour
Existing Conditions
Wentworth Avenue
Gilba Road
Pendle Way
Goodall Street
Jones Street
Dunmore Street
Rogers Street
Oatlands Street
Smith Street
Cumberland Highway
Great Western Highway


Saturday Peak Hour
Existing Conditions
Wentworth Avenue
Gilba Road
Pendle Way
Goodall Street
Jones Street
Dunmore Street
Rogers Street
Oatlands Street
Smith Street
Cumberland Highway
Great Western Highway
305
298
288
190
287
212
69
138
162
247
267
186
211
215
157
256
199
185
191
267
226
242
288
206
32
258
144
32
20
15
89
196
68
105
1463
284
14
316
27
252
233
51
107
18
23
22
1404
65
188
13
6
11
154
5
191
8
5
13
147
19
10
94
14
18
97
84
23
76
34
52
1513
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38
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17
19
81
37
19
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32
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979
85
140
156
110
26
1180
58
34
28
63
157
748
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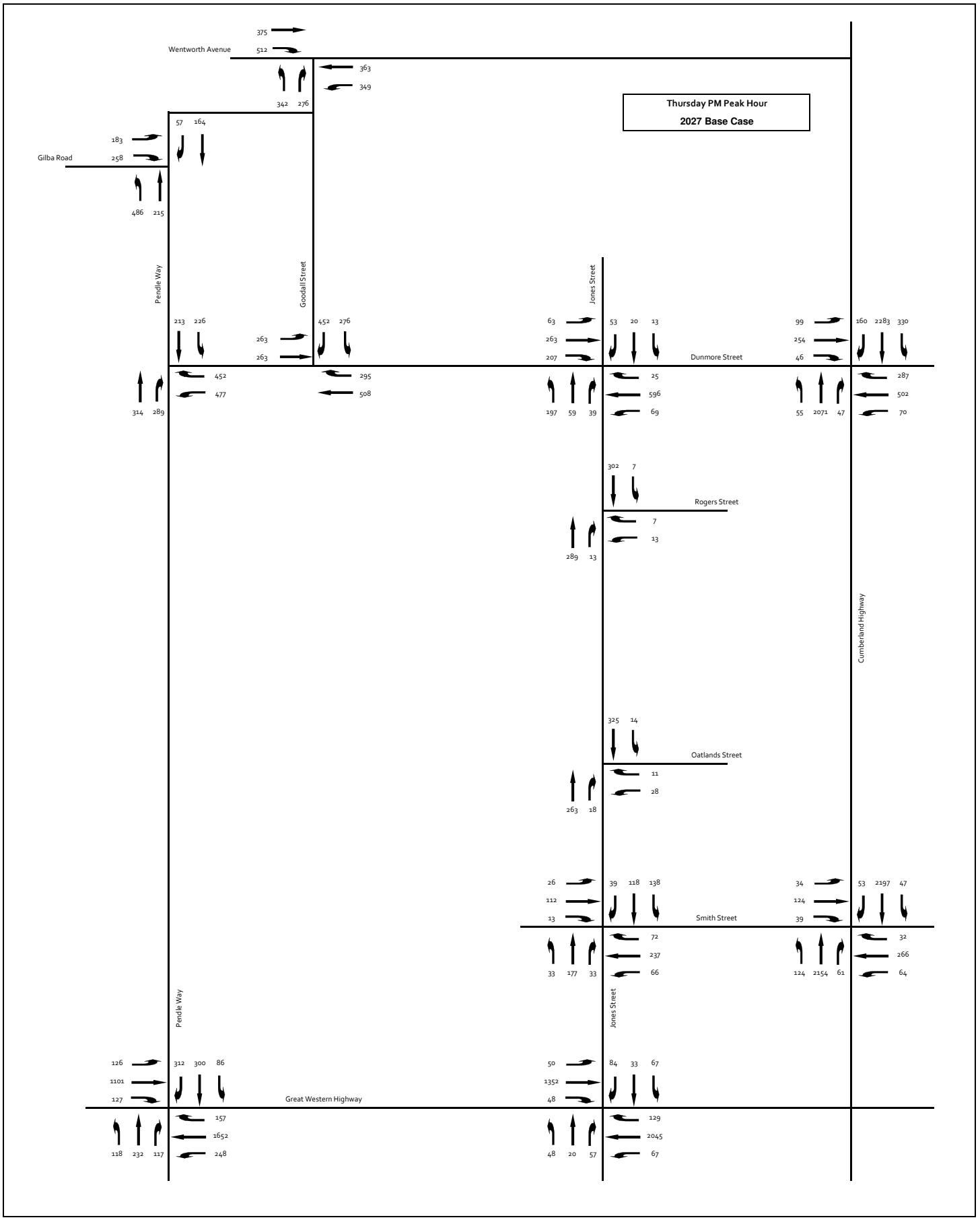
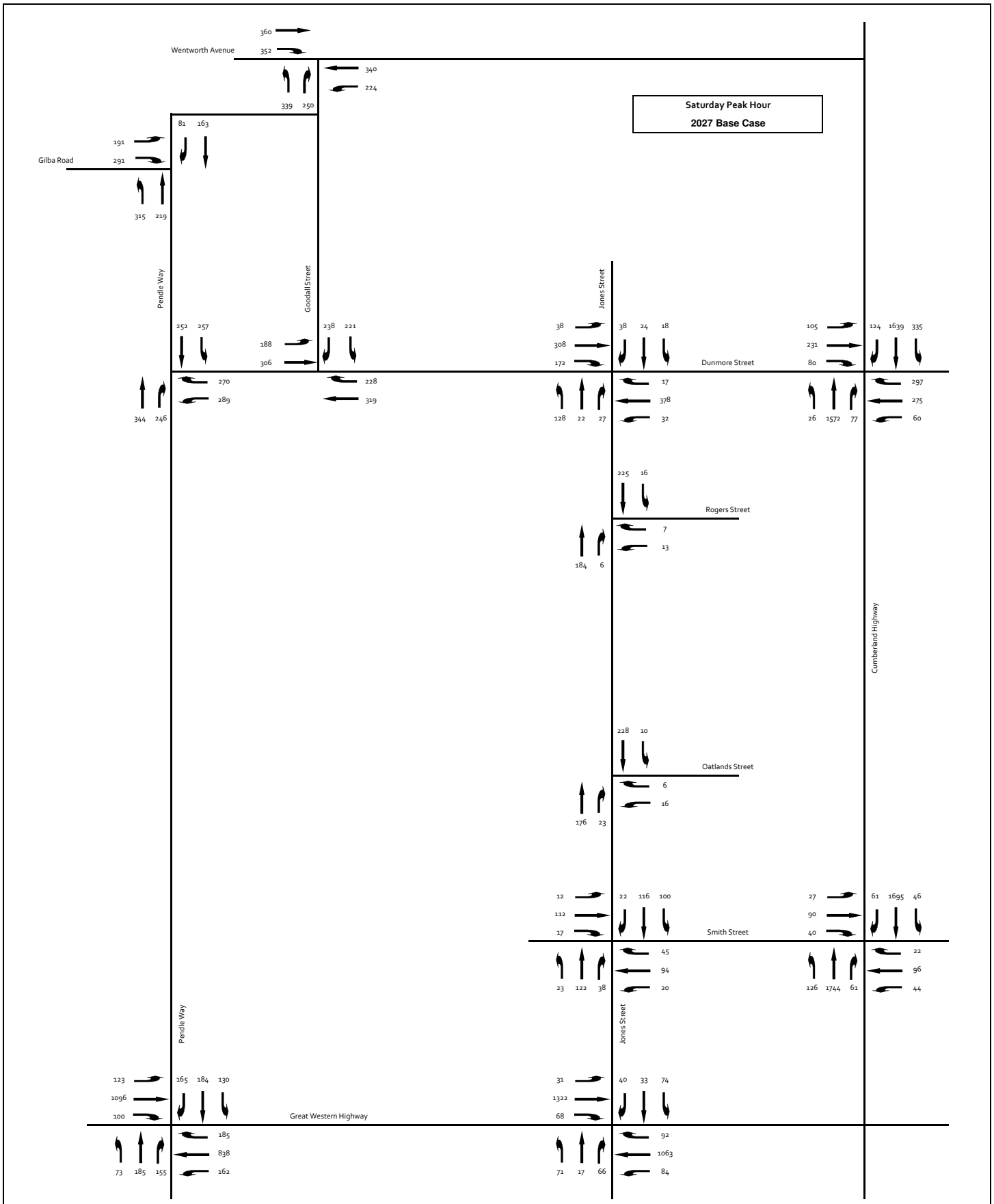
949
71
62
157
131
60
14
56

Attachment 2B – 2027 Future Base Peak Hour Intersection Turning Movement Diagrams for Thursday PM & Saturday Midday


Thursday PM Peak Hour
2027 Base Case
Wentworth Avenue
Gilba Road
Pendle Way
Goodall Street
Jones Street
Dunmore Street
Rogers Street
Oatlands Street
Smith Street
Cumberland Highway
Great Western Highway


Saturday Peak Hour
2027 Base Case
Wentworth Avenue
Gilba Road
Pendle Way
Goodall Street
Jones Street
Dunmore Street
Rogers Street
Oatlands Street
Smith Street
Cumberland Highway
Great Western Highway
360
352
340
224
339
250
81
163
191
291
315
219
252
257
188
306
238
221
270
289
228
319
344
246
38
308
172
38
24
18
105
231
80
124
1639
335
17
378
32
297
275
60
128
22
27
26
1572
77
225
16
7
13
184
6
228
10
6
16
176
23
12
112
17
22
116
100
27
90
40
61
1695
46
45
94
20
22
96
44
23
122
38
126
1744
61
123
1096
100
165
184
130
31
1322
68
40
33
74
185
838
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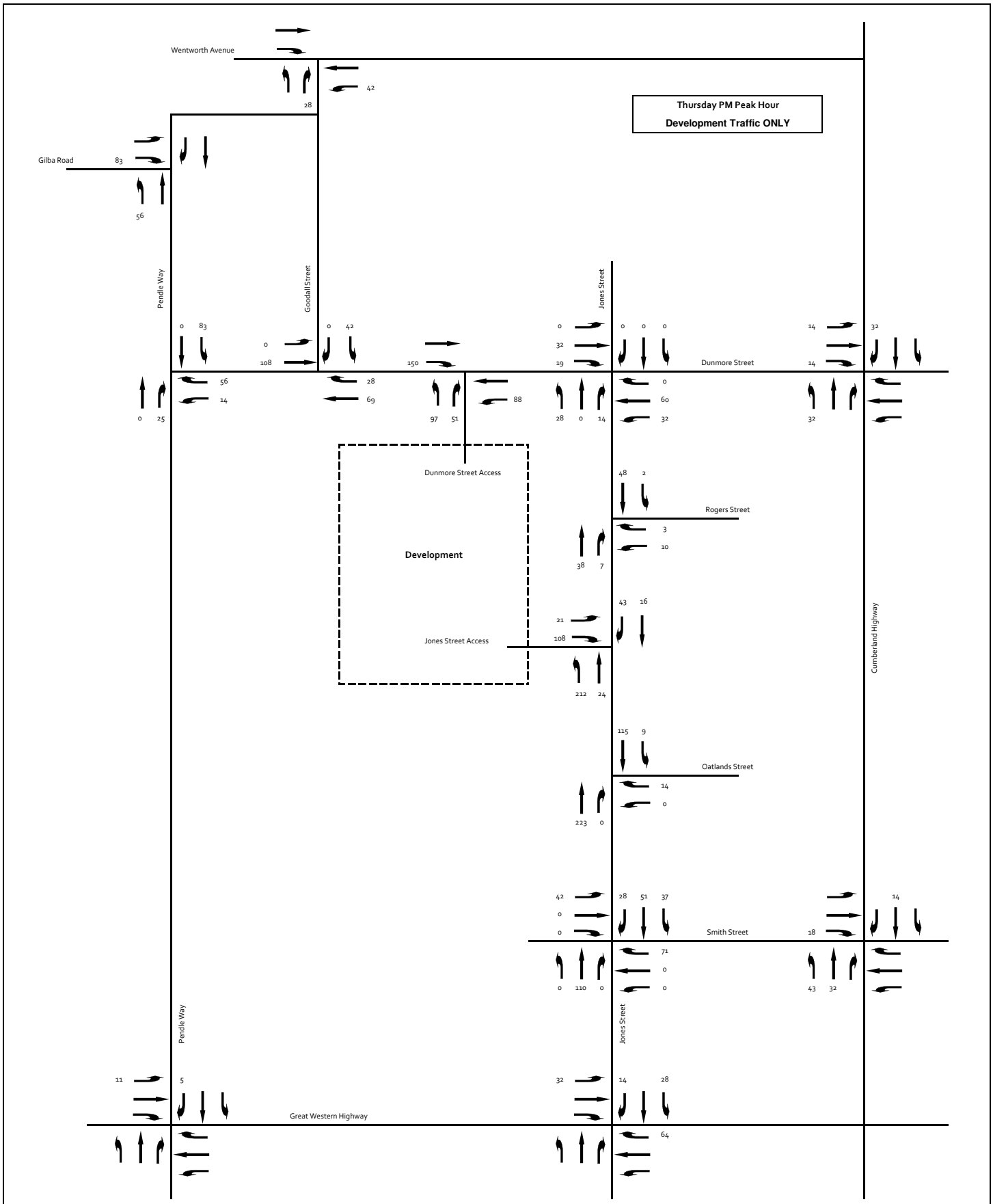
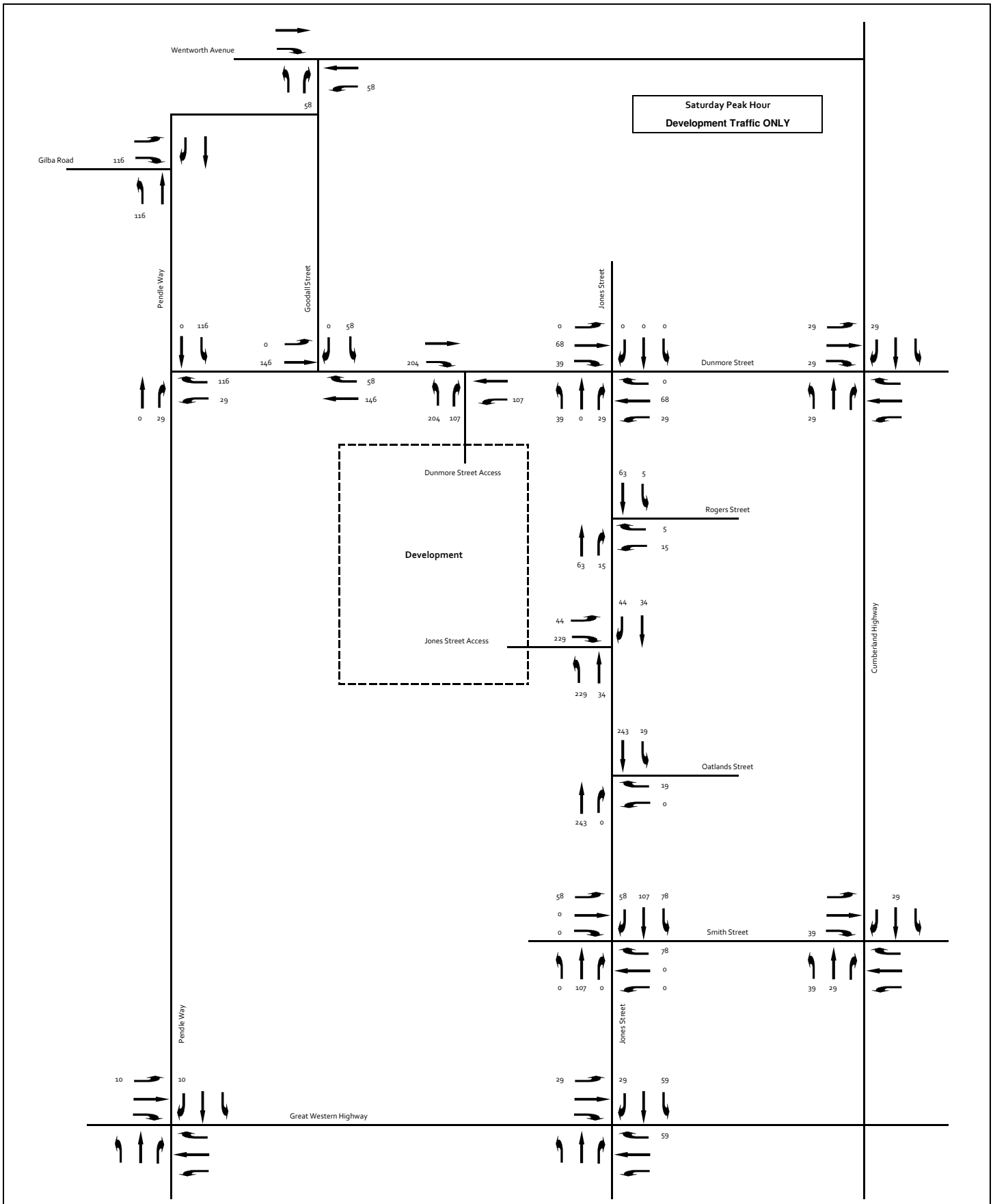
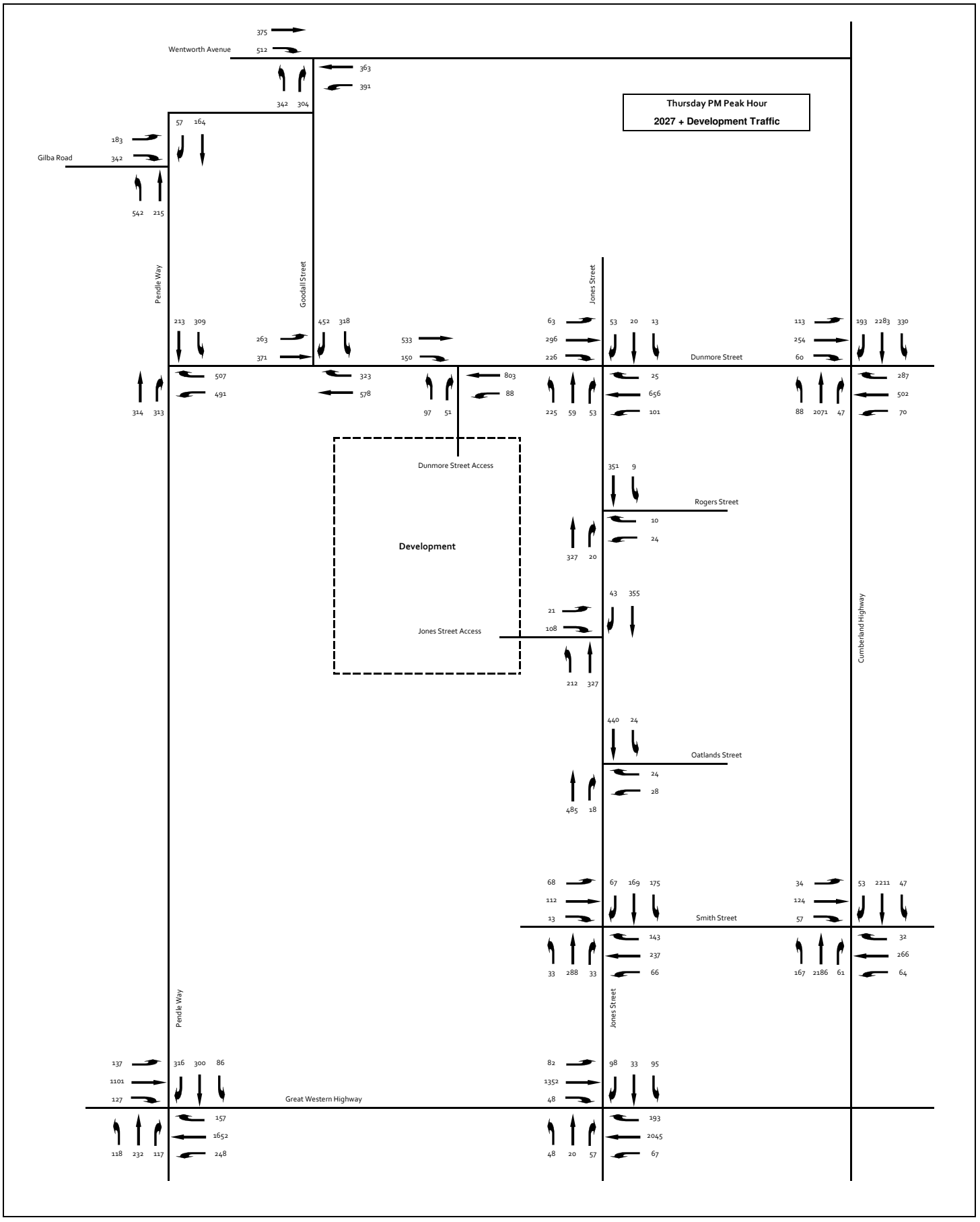
92
1063
84
73
185
155
71
17
66

Attachment 2C – 2027 Post Development Peak Hour Intersection Turning Movement Diagrams for Thursday PM & Saturday Midday


Thursday PM Peak Hour
Development Traffic ONLY
Wentworth Avenue
Gilba Road
Pendle Way
Goodall Street
Jones Street
Dunmore Street
Dunmore Street Access
Development
Rogers Street
Jones Street Access
Oatlands Street
Smith Street
Cumberland Highway
Great Western Highway


Saturday Peak Hour
Development Traffic ONLY
Wentworth Avenue
Gilba Road
Pendle Way
Goodall Street
Jones Street
Dunmore Street
Dunmore Street Access
Development
Rogers Street
Jones Street Access
Cumberland Highway
Oatlands Street
Smith Street
Great Western Highway


Thursday PM Peak Hour
2027 + Development Traffic
Wentworth Avenue
Gilba Road
Pendle Way
Goodall Street
Jones Street
Dunmore Street
Dunmore Street Access
Development
Rogers Street
Jones Street Access
Oatlands Street
Smith Street
Cumberland Highway
Great Western Highway
375
512
363
391
342
304
57
164
183
342
542
215
213
309
263
371
452
318
533
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53
20
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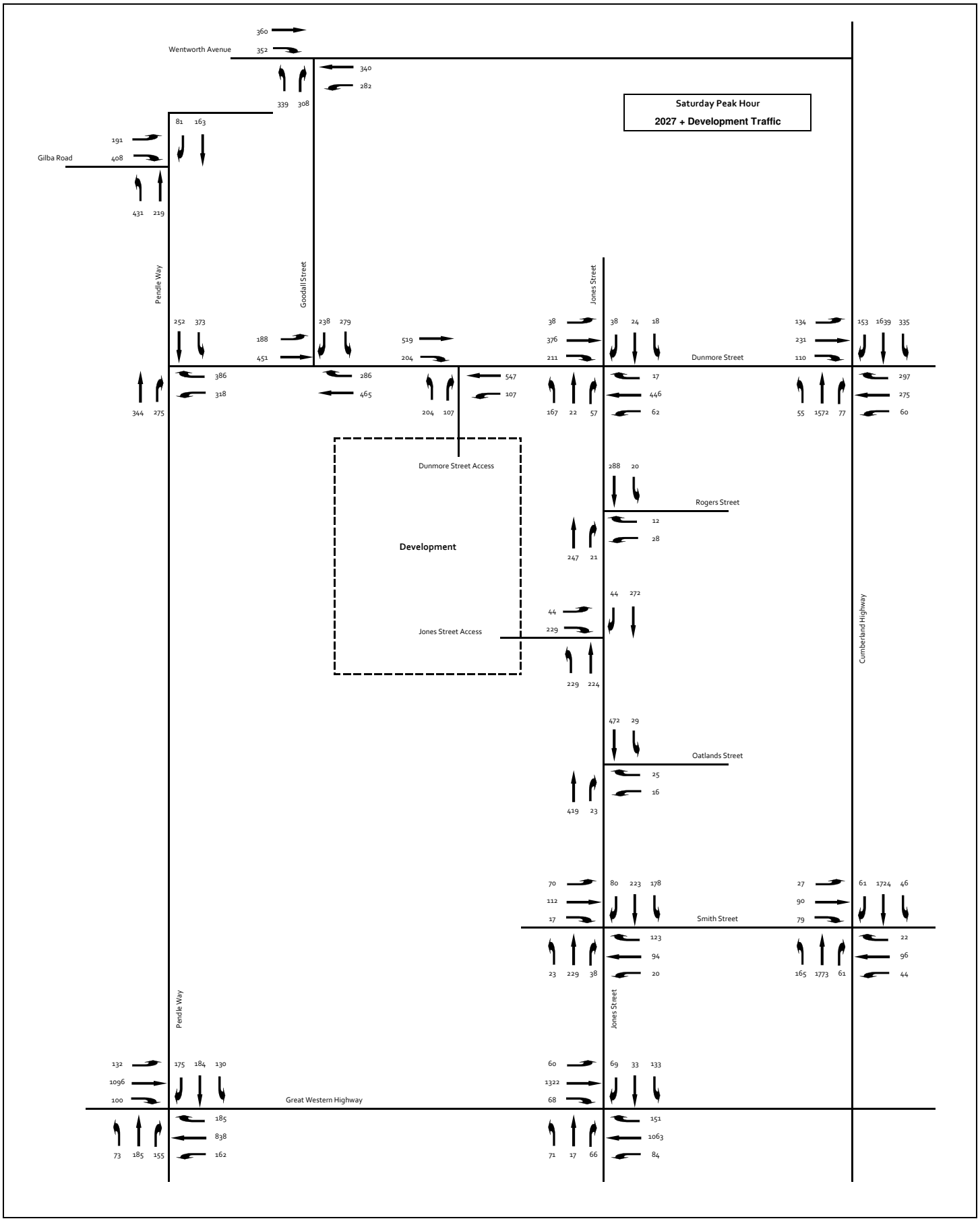
Saturday Peak Hour
2027 + Development Traffic
Wentworth Avenue
Gilba Road
Pendle Way
Goodall Street
Jones Street
Dunmore Street
Dunmore Street Access
Development
Rogers Street
Jones Street Access
Oatlands Street
Smith Street
Cumberland Highway
Great Western Highway
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Attachment 3

Attachment 3A – SIDRA Output (Existing Thursday PM & Saturday Midday)

Attachment 3B – SIDRA Output (2027 Future Base Thursday PM & Saturday Midday)

Attachment 3C – SIDRA Output (2027 Post Development Thursday PM & Saturday Midday)

Attachment 3A – SIDRA Output (Existing Thursday PM & Saturday Midday)

Intersection	Peak	Leg	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile	Level of Service (LOS)
Jones Street/ Rogers Street	PM	South	0.14	1	7	A
		East	0.02	8	0	A
		North	0.14	0	0	A
		All	0.14	1	7	A
	Sat	South	0.09	1	4	A
		East	0.02	7	0	A
		North	0.11	0	0	A
		All	0.11	1	4	A
Jones Street/ Oatlands Street	PM	South	0.13	2	6	A
		East	0.03	8	1	A
		North	0.16	0	0	A
		All	0.16	1	6	A
	Sat	South	0.09	1	4	A
		East	0.02	7	0	A
		North	0.11	0	0	A
		All	0.11	1	4	A
Jones Street/ Smith Street	PM	South	0.25	11	10	A
		East	0.32	10	14	A
		North	0.25	10	10	A
		West	0.15	11	6	A
		All	0.32	7	14	A
	Sat	South	0.16	10	6	A
		East	0.14	10	5	A
		North	0.21	10	8	A
		West	0.13	10	5	A
		All	0.21	7	8	A
Jones Street/ Dunmore Street	PM	South	0.43	15	21	A
		East	0.63	12	43	A
		North	0.10	12	4	A
		West	0.41	10	22	A
		All	0.63	9	43	A
	Sat	South	0.20	12	8	A
		East	0.38	11	17	A
		North	0.09	12	3	A
		West	0.36	9	18	A
		All	0.38	7	18	A

Intersection	Peak	Leg	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile	Level of Service (LOS)
Goodall Street/ Dunmore Street	PM	East	0.57	14	57	A
		North	0.76	24	79	B
		West	0.42	14	38	A
		All	0.76	18	79	B
	Sat	East	0.45	14	32	A
		North	0.40	20	34	B
		West	0.48	15	44	B
		All	0.48	16	44	B
Pendle Way/ Dunmore Street	PM	South	0.57	16	43	B
		East	0.65	20	73	B
		North	0.37	15	33	B
		All	0.65	18	73	B
	Sat	South	0.45	10	30	A
		East	0.65	22	41	B
		North	0.36	12	31	A
		All	0.65	15	41	B
Great Western Highway/ Jones Street	PM	South	0.43	62	31	E
		East	0.51	14	157	A
		North	0.62	60	50	E
		West	0.42	22	122	B
		All	0.62	20	157	B
	Sat	South	0.59	60	33	E
		East	0.34	19	102	B
		North	0.59	56	31	D
		West	0.39	19	102	B
		All	0.59	23	102	B
Cumberland Highway/ Dunmore Street	PM	South	0.70	37	244	C
		East	0.83	40	187	C
		North	0.75	35	276	C
		West	0.53	57	78	E
		All	0.83	38	276	C
	Sat	South	0.71	38	177	C
		East	0.86	41	155	C
		North	0.73	35	183	C
		West	0.52	52	76	D
		All	0.86	38	183	C

Intersection	Peak	Leg	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile	Level of Service (LOS)
Cumberland Highway/ Smith Street	PM	South	0.59	11	123	A
		East	0.86	69	121	E
		North	0.59	10	114	A
		West	0.67	67	53	E
		All	0.86	16	123	B
	Sat	South	0.46	14	127	A
		East	0.54	59	46	E
		North	0.43	13	115	A
		West	0.64	65	45	E
		All	0.64	17	127	B
Pendle Way/ Gilba Road	PM	South	0.59	16	17	B
		North	0.85	41	43	C
		West	0.21	8	0	A
		All	0.85	15	43	B
	Sat	South	0.59	17	18	B
		North	0.86	39	46	C
		West	0.23	8	0	A
		All	0.86	16	46	B
Goodall Street/ Wentworth Avenue	PM	South	0.71	29	75	C
		East	0.73	30	92	C
		West	0.55	20	112	B
		All	0.73	26	112	B
	Sat	South	0.86	34	86	C
		East	0.76	32	91	C
		West	0.47	19	104	B
		All	0.86	27	104	B
Cumberland Highway/ Pendle Way	PM	South	0.93	74	101	F
		East	0.90	35	191	C
		North	0.79	59	179	E
		West	0.54	36	135	C
		All	0.93	43	191	D
	Sat	South	0.81	62	93	E
		East	0.99	37	104	C
		North	0.70	51	106	D
		West	0.53	37	134	C
		All	0.99	42	134	C

MOVEMENT SUMMARY

Site: Jones-Rogers (Ex Thurs PM)

13S1210200
Jones Street-Rogers Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	255	2.0	0.141	1.0	LOS A	0.9	6.5	0.40	0.00	45.2
3	R	12	2.0	0.141	7.8	LOS A	0.9	6.5	0.40	0.87	43.0
Approach		266	2.0	0.141	1.3	NA	0.9	6.5	0.40	0.04	45.1
East: Rogers Street											
4	L	12	2.0	0.017	7.9	LOS A	0.1	0.4	0.37	0.58	41.9
6	R	6	2.0	0.017	8.2	LOS A	0.1	0.4	0.37	0.70	41.8
Approach		18	2.0	0.017	8.0	LOS A	0.1	0.4	0.37	0.62	41.9
North: Jones Street											
7	L	6	2.0	0.142	6.5	LOS A	0.0	0.0	0.00	0.91	43.3
8	T	266	2.0	0.142	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		273	2.0	0.142	0.1	NA	0.0	0.0	0.00	0.02	49.8
All Vehicles		557	2.0	0.142	1.0	NA	0.9	6.5	0.20	0.05	47.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Rogers (Ex Sat)

13S1210200
Jones Street-Rogers Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	162	2.0	0.088	0.7	LOS A	0.5	3.7	0.33	0.00	46.0
3	R	5	2.0	0.088	7.5	LOS A	0.5	3.7	0.33	0.87	43.0
Approach		167	2.0	0.088	0.9	NA	0.5	3.7	0.33	0.03	45.9
East: Rogers Street											
4	L	12	2.0	0.015	7.4	LOS A	0.1	0.4	0.31	0.56	42.1
6	R	6	2.0	0.015	7.7	LOS A	0.1	0.4	0.31	0.66	42.1
Approach		18	2.0	0.015	7.5	LOS A	0.1	0.4	0.31	0.60	42.1
North: Jones Street											
7	L	14	2.0	0.110	6.5	LOS A	0.0	0.0	0.00	0.89	43.3
8	T	198	2.0	0.110	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		212	2.0	0.110	0.4	NA	0.0	0.0	0.00	0.06	49.5
All Vehicles		397	2.0	0.110	0.9	NA	0.5	3.7	0.15	0.07	47.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Oatlands (Ex Thurs PM)

13S1210200
Jones Street-Oatlands Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	232	2.0	0.132	1.1	LOS A	0.9	6.1	0.42	0.00	45.0
3	R	16	2.0	0.132	7.9	LOS A	0.9	6.1	0.42	0.87	43.0
Approach		247	2.0	0.132	1.6	NA	0.9	6.1	0.42	0.06	44.9
East: Oatlands Street											
4	L	24	2.0	0.032	7.8	LOS A	0.1	0.8	0.38	0.60	41.9
6	R	9	2.0	0.032	8.2	LOS A	0.1	0.8	0.38	0.72	41.9
Approach		34	2.0	0.032	7.9	LOS A	0.1	0.8	0.38	0.63	41.9
North: Jones Street											
7	L	13	2.0	0.156	6.5	LOS A	0.0	0.0	0.00	0.90	43.3
8	T	286	2.0	0.156	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		299	2.0	0.156	0.3	NA	0.0	0.0	0.00	0.04	49.7
All Vehicles		580	2.0	0.156	1.3	NA	0.9	6.1	0.20	0.08	47.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Oatlands (Ex Sat)

13S1210200
Jones Street-Oatlands Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	155	2.0	0.094	0.7	LOS A	0.5	3.9	0.33	0.00	45.9
3	R	20	2.0	0.094	7.5	LOS A	0.5	3.9	0.33	0.84	42.9
Approach		175	2.0	0.094	1.5	NA	0.5	3.9	0.33	0.10	45.5
East: Oatland Street											
4	L	14	2.0	0.016	7.3	LOS A	0.1	0.4	0.30	0.56	42.2
6	R	5	2.0	0.016	7.7	LOS A	0.1	0.4	0.30	0.67	42.1
Approach		19	2.0	0.016	7.4	LOS A	0.1	0.4	0.30	0.59	42.2
North: Jones Street											
7	L	8	2.0	0.109	6.5	LOS A	0.0	0.0	0.00	0.90	43.3
8	T	201	2.0	0.109	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		209	2.0	0.109	0.3	NA	0.0	0.0	0.00	0.04	49.7
All Vehicles		403	2.0	0.109	1.1	NA	0.5	3.9	0.16	0.09	47.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Smith (Ex Thurs PM)

13S1210200
Jones Street-Smith Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	29	2.0	0.255	8.2	LOS A	1.4	10.3	0.55	0.70	42.0
2	T	157	2.0	0.255	7.3	LOS A	1.4	10.3	0.55	0.64	42.1
3	R	29	2.0	0.255	11.3	LOS A	1.4	10.3	0.55	0.81	40.0
Approach		216	2.0	0.255	8.0	LOS A	1.4	10.3	0.55	0.67	41.8
East: Smith Street											
4	L	58	2.0	0.318	7.0	LOS A	2.0	14.1	0.42	0.61	42.4
5	T	208	2.0	0.318	6.1	LOS A	2.0	14.1	0.42	0.53	42.6
6	R	64	2.0	0.318	10.1	LOS A	2.0	14.1	0.42	0.75	40.7
Approach		331	2.0	0.318	7.0	LOS A	2.0	14.1	0.42	0.59	42.2
North: Jones Street											
7	L	122	2.0	0.252	6.9	LOS A	1.5	10.5	0.38	0.59	42.4
8	T	104	2.0	0.252	5.9	LOS A	1.5	10.5	0.38	0.51	42.8
9	R	35	2.0	0.252	10.0	LOS A	1.5	10.5	0.38	0.73	40.8
Approach		261	2.0	0.252	6.9	LOS A	1.5	10.5	0.38	0.58	42.3
West: Smith Street											
10	L	23	2.0	0.150	7.6	LOS A	0.8	5.6	0.47	0.65	42.3
11	T	99	2.0	0.150	6.7	LOS A	0.8	5.6	0.47	0.58	42.5
12	R	12	2.0	0.150	10.7	LOS A	0.8	5.6	0.47	0.78	40.4
Approach		134	2.0	0.150	7.2	LOS A	0.8	5.6	0.47	0.61	42.3
All Vehicles		941	2.0	0.318	7.2	LOS A	2.0	14.1	0.44	0.61	42.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Smith (Ex Sat)

13S1210200
Jones Street-Smith Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	20	2.0	0.161	6.9	LOS A	0.9	6.1	0.35	0.60	42.6
2	T	107	2.0	0.161	5.9	LOS A	0.9	6.1	0.35	0.51	43.0
3	R	34	2.0	0.161	9.9	LOS A	0.9	6.1	0.35	0.75	40.8
Approach		161	2.0	0.161	6.9	LOS A	0.9	6.1	0.35	0.57	42.4
East: Smith Street											
4	L	18	2.0	0.140	6.8	LOS A	0.7	5.2	0.34	0.59	42.6
5	T	83	2.0	0.140	5.9	LOS A	0.7	5.2	0.34	0.50	43.0
6	R	40	2.0	0.140	9.9	LOS A	0.7	5.2	0.34	0.74	40.8
Approach		141	2.0	0.140	7.1	LOS A	0.7	5.2	0.34	0.58	42.3
North: Jones Street											
7	L	88	2.0	0.207	6.9	LOS A	1.1	8.2	0.37	0.60	42.5
8	T	102	2.0	0.207	6.0	LOS A	1.1	8.2	0.37	0.52	42.8
9	R	19	2.0	0.207	10.0	LOS A	1.1	8.2	0.37	0.75	40.8
Approach		209	2.0	0.207	6.8	LOS A	1.1	8.2	0.37	0.57	42.5
West: Smith Street											
10	L	11	2.0	0.129	7.1	LOS A	0.7	4.7	0.39	0.61	42.5
11	T	99	2.0	0.129	6.1	LOS A	0.7	4.7	0.39	0.53	42.9
12	R	15	2.0	0.129	10.2	LOS A	0.7	4.7	0.39	0.77	40.7
Approach		124	2.0	0.129	6.7	LOS A	0.7	4.7	0.39	0.57	42.6
All Vehicles		636	2.0	0.207	6.9	LOS A	1.1	8.2	0.36	0.57	42.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Dunmore (Ex Thurs PM)

13S1210200
Jones Street-Dunmore Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	174	2.0	0.427	11.7	LOS A	2.9	20.9	0.81	0.91	39.0
2	T	53	2.0	0.427	10.8	LOS A	2.9	20.9	0.81	0.89	39.2
3	R	35	2.0	0.427	14.8	LOS B	2.9	20.9	0.81	0.95	37.5
Approach		261	2.0	0.427	11.9	LOS A	2.9	20.9	0.81	0.91	38.8
East: Dunmore Street											
4	L	61	2.0	0.634	9.4	LOS A	6.0	42.8	0.71	0.76	41.2
5	T	525	2.0	0.634	8.4	LOS A	6.0	42.8	0.71	0.72	41.5
6	R	22	2.0	0.634	12.4	LOS A	6.0	42.8	0.71	0.84	39.4
Approach		608	2.0	0.634	8.7	LOS A	6.0	42.8	0.71	0.73	41.4
North: Jones Street											
7	L	12	2.0	0.102	8.9	LOS A	0.5	3.8	0.58	0.69	41.0
8	T	18	2.0	0.102	8.0	LOS A	0.5	3.8	0.58	0.64	41.4
9	R	46	2.0	0.102	12.0	LOS A	0.5	3.8	0.58	0.77	39.2
Approach		76	2.0	0.102	10.6	LOS A	0.5	3.8	0.58	0.73	40.0
West: Dunmore Street											
10	L	56	2.0	0.415	6.8	LOS A	3.1	22.2	0.41	0.58	42.3
11	T	233	2.0	0.415	5.8	LOS A	3.1	22.2	0.41	0.50	42.6
12	R	182	2.0	0.415	9.8	LOS A	3.1	22.2	0.41	0.71	40.7
Approach		471	2.0	0.415	7.5	LOS A	3.1	22.2	0.41	0.59	41.8
All Vehicles		1416	2.0	0.634	9.0	LOS A	6.0	42.8	0.62	0.72	40.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Dunmore (Ex Sat)

13S1210200
Jones Street-Dunmore Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	113	2.0	0.199	8.7	LOS A	1.1	7.8	0.58	0.71	41.4
2	T	19	2.0	0.199	7.7	LOS A	1.1	7.8	0.58	0.65	41.7
3	R	24	2.0	0.199	11.7	LOS A	1.1	7.8	0.58	0.79	39.5
Approach		156	2.0	0.199	9.0	LOS A	1.1	7.8	0.58	0.71	41.1
East: Dunmore Street											
4	L	28	2.0	0.385	7.6	LOS A	2.4	17.4	0.50	0.66	42.2
5	T	333	2.0	0.385	6.7	LOS A	2.4	17.4	0.50	0.60	42.4
6	R	15	2.0	0.385	10.7	LOS A	2.4	17.4	0.50	0.80	40.5
Approach		376	2.0	0.385	6.9	LOS A	2.4	17.4	0.50	0.61	42.3
North: Jones Street											
7	L	16	2.0	0.094	8.9	LOS A	0.5	3.4	0.56	0.69	41.1
8	T	21	2.0	0.094	7.9	LOS A	0.5	3.4	0.56	0.63	41.5
9	R	34	2.0	0.094	12.0	LOS A	0.5	3.4	0.56	0.78	39.3
Approach		71	2.0	0.094	10.1	LOS A	0.5	3.4	0.56	0.71	40.3
West: Dunmore Street											
10	L	34	2.0	0.362	6.3	LOS A	2.5	18.1	0.26	0.55	42.9
11	T	272	2.0	0.362	5.3	LOS A	2.5	18.1	0.26	0.46	43.4
12	R	152	2.0	0.362	9.4	LOS A	2.5	18.1	0.26	0.72	40.9
Approach		457	2.0	0.362	6.7	LOS A	2.5	18.1	0.26	0.55	42.5
All Vehicles		1059	2.0	0.385	7.4	LOS A	2.5	18.1	0.41	0.61	42.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Dunmore-Goodall (Ex Thurs PM)

13S1210200
Dunmore Street-Goodall Street
Signals - Fixed Time Cycle Time = 56 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Dunmore Street											
5	T	447	2.0	0.502	9.9	LOS A	8.1	57.4	0.70	0.60	38.7
6	R	260	2.0	0.573	21.1	LOS B	5.7	40.4	0.91	0.82	33.1
Approach		707	2.0	0.573	14.0	LOS A	8.1	57.4	0.77	0.68	36.5
North: Goodall Street											
7	L	243	2.0	0.425	15.2	LOS B	3.9	27.5	0.61	0.75	36.6
9	R	398	2.0	0.761	29.4	LOS C	11.1	79.3	0.97	0.92	29.3
Approach		641	2.0	0.761	24.0	LOS B	11.1	79.3	0.83	0.86	31.7
West: Dunmore Street											
10	L	233	2.0	0.216	10.0	LOS A	2.3	16.6	0.39	0.70	40.3
11	T	233	2.0	0.423	18.0	LOS B	5.3	37.9	0.86	0.71	33.4
Approach		465	2.0	0.423	14.0	LOS A	5.3	37.9	0.62	0.71	36.5
All Vehicles		1814	2.0	0.761	17.6	LOS B	11.1	79.3	0.76	0.75	34.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	Across N approach	53	22.3	LOS C	0.1	0.1	0.89	0.89
P7	Across W approach	53	22.3	LOS C	0.1	0.1	0.89	0.89
All Pedestrians		106	22.3	LOS C			0.89	0.89

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Goodall (Ex Sat)

13S1210200
Dunmore Street-Goodall Street
Signals - Fixed Time Cycle Time = 56 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Dunmore Street											
5	T	281	2.0	0.315	8.9	LOS A	4.5	32.3	0.62	0.53	39.7
6	R	201	2.0	0.451	21.0	LOS B	4.2	30.1	0.87	0.79	33.2
Approach		482	2.0	0.451	13.9	LOS A	4.5	32.3	0.73	0.64	36.7
North: Goodall Street											
7	L	195	2.0	0.340	15.0	LOS B	3.0	21.4	0.59	0.74	36.8
9	R	209	2.0	0.400	24.4	LOS B	4.8	34.0	0.85	0.79	31.5
Approach		404	2.0	0.400	19.9	LOS B	4.8	34.0	0.73	0.77	33.8
West: Dunmore Street											
10	L	165	2.0	0.157	9.9	LOS A	1.6	11.6	0.37	0.69	40.4
11	T	269	2.0	0.482	18.2	LOS B	6.2	44.2	0.87	0.72	33.3
Approach		435	2.0	0.482	15.0	LOS B	6.2	44.2	0.68	0.71	35.7
All Vehicles		1321	2.0	0.482	16.1	LOS B	6.2	44.2	0.71	0.70	35.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	Across N approach	53	22.3	LOS C	0.1	0.1	0.89	0.89
P7	Across W approach	53	22.3	LOS C	0.1	0.1	0.89	0.89
All Pedestrians		106	22.3	LOS C			0.89	0.89

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Pendle (Ex Thurs PM)

13S1210200
Dunmore Street-Pendle Way
Signals - Fixed Time Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pendle Way											
2	T	277	2.0	0.308	10.8	LOS A	5.1	36.2	0.66	0.56	38.2
3	R	255	2.0	0.573	22.5	LOS B	6.0	42.7	0.91	0.82	32.4
Approach		532	2.0	0.573	16.4	LOS B	6.0	42.7	0.78	0.68	35.2
East: Dunmore Street											
4	L	420	2.0	0.430	15.7	LOS B	7.5	53.5	0.65	0.78	36.3
6	R	398	2.0	0.652	25.5	LOS B	10.3	73.2	0.91	0.84	31.0
Approach		818	2.0	0.652	20.5	LOS B	10.3	73.2	0.77	0.81	33.5
North: Pendle Way											
7	L	199	2.0	0.184	9.7	LOS A	1.9	13.9	0.36	0.69	40.6
8	T	188	2.0	0.367	19.8	LOS B	4.6	32.9	0.86	0.70	32.4
Approach		387	2.0	0.367	14.6	LOS B	4.6	32.9	0.60	0.70	36.2
All Vehicles		1737	2.0	0.652	17.9	LOS B	10.3	73.2	0.74	0.75	34.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	12.0	LOS B	0.1	0.1	0.63	0.63
P3	Across E approach	53	24.3	LOS C	0.1	0.1	0.90	0.90
All Pedestrians		106	18.2	LOS B			0.77	0.77

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Pendle (Ex Sat)

13S1210200
Dunmore Street-Pendle Way
Signals - Fixed Time Cycle Time = 50 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pendle Way											
2	T	303	2.0	0.449	6.5	LOS A	4.2	29.6	0.57	0.48	41.5
3	R	217	2.0	0.449	16.0	LOS B	4.2	29.6	0.79	0.80	36.2
Approach		520	2.0	0.449	10.4	LOS A	4.2	29.6	0.66	0.61	39.1
East: Dunmore Street											
4	L	255	2.0	0.316	16.5	LOS B	4.1	29.4	0.69	0.77	35.8
6	R	238	2.0	0.650	28.2	LOS B	5.8	41.4	0.97	0.86	29.8
Approach		493	2.0	0.650	22.1	LOS B	5.8	41.4	0.82	0.81	32.6
North: Pendle Way											
7	L	226	2.0	0.211	10.4	LOS A	2.3	16.2	0.44	0.71	40.0
8	T	222	2.0	0.361	14.5	LOS B	4.3	30.6	0.81	0.67	35.5
Approach		448	2.0	0.361	12.5	LOS A	4.3	30.6	0.62	0.69	37.6
All Vehicles		1461	2.0	0.650	15.0	LOS B	5.8	41.4	0.70	0.70	36.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	14.4	LOS B	0.1	0.1	0.76	0.76
P3	Across E approach	53	19.4	LOS B	0.1	0.1	0.88	0.88
All Pedestrians		106	16.9	LOS B			0.82	0.82

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Gt Western Hwy/Jones St (Ex-PM)

13S1210200 - Bonds Pendle Hill Additional Modelling
Great Western Highway / Jones Street
Existing Thursday PM Peak
Signals - Fixed Time Cycle Time = 140 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Berith Rd - S											
4	L	43	2.4	0.427	55.2	LOS D	2.4	16.9	0.84	0.73	24.3
5	T	18	0.0	0.329	60.4	LOS E	4.3	30.7	0.95	0.74	19.4
6	R	51	2.1	0.329	68.1	LOS E	4.3	30.7	0.95	0.77	21.6
Approach		112	1.9	0.427	61.9	LOS E	4.3	30.7	0.91	0.75	22.2
East: Gt Western Hwy - E											
7	L	60	0.0	0.512	22.2	LOS B	21.9	155.7	0.54	1.11	46.0
8	T	1922	1.8	0.512	12.1	LOS A	22.1	157.3	0.54	0.50	54.3
9	R	115	0.0	0.455	48.5	LOS D	5.6	38.9	0.96	0.78	27.8
Approach		2097	1.7	0.512	14.4	LOS A	22.1	157.3	0.57	0.53	51.7
North: Jones St - N											
10	L	60	0.0	0.306	38.6	LOS C	2.6	18.5	0.69	0.73	29.1
11	T	29	0.0	0.623	67.3	LOS E	7.1	50.3	1.00	0.81	18.2
12	R	75	1.4	0.623	75.0	LOS F	7.1	50.3	1.00	0.81	20.4
Approach		164	0.6	0.623	60.3	LOS E	7.1	50.3	0.89	0.78	22.5
West: Gt Western Hwy - W											
1	L	44	0.0	0.416	29.5	LOS C	17.0	120.9	0.63	1.05	40.0
2	T	1271	2.2	0.416	19.4	LOS B	17.2	122.5	0.63	0.56	46.5
3	R	43	2.4	0.414	82.6	LOS F	3.0	21.5	1.00	0.74	19.1
Approach		1358	2.2	0.416	21.7	LOS B	17.2	122.5	0.64	0.58	44.6
All Vehicles		3731	1.8	0.623	20.5	LOS B	22.1	157.3	0.62	0.56	44.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across S approach	53	11.2	LOS B	0.1	0.1	0.40	0.40
P7	Across N approach	53	19.0	LOS B	0.1	0.1	0.52	0.52
P1	Across W approach	53	60.4	LOS F	0.2	0.2	0.93	0.93
All Pedestrians		159	30.2	LOS D			0.62	0.62

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Gt Western Hwy/Jones St (Ex-SAT)

13S1210200 - Bonds Pendle Hill Additional Modelling
Great Western Highway / Jones Street
Existing Saturday Peak
Signals - Fixed Time Cycle Time = 130 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Berith Rd - S											
4	L	63	1.7	0.587	52.9	LOS D	3.3	23.8	0.86	0.76	22.0
5	T	15	0.0	0.468	61.3	LOS E	4.6	32.9	0.98	0.77	21.4
6	R	59	3.6	0.468	67.5	LOS E	4.6	32.9	0.98	0.78	19.2
Approach		137	2.3	0.587	60.1	LOS E	4.6	32.9	0.93	0.77	20.7
East: Gt Western Hwy - E											
7	L	75	1.4	0.282	23.8	LOS B	12.9	92.7	0.63	1.05	45.0
8	T	999	3.5	0.282	16.7	LOS B	14.1	101.8	0.67	0.66	48.2
9	R	81	3.9	0.343	48.9	LOS D	3.9	28.3	0.95	0.76	27.7
Approach		1155	3.4	0.343	19.5	LOS B	14.1	101.8	0.69	0.69	45.7
North: Jones St - N											
10	L	66	0.0	0.333	39.7	LOS C	2.9	20.1	0.73	0.74	28.7
11	T	29	0.0	0.587	67.5	LOS E	4.3	30.9	1.00	0.78	18.2
12	R	36	5.9	0.587	75.4	LOS F	4.3	30.9	1.00	0.78	20.4
Approach		132	1.6	0.587	55.6	LOS D	4.3	30.9	0.86	0.76	23.4
West: Gt Western Hwy - W											
1	L	27	0.0	0.382	25.9	LOS B	14.2	101.0	0.58	1.07	42.8
2	T	1242	2.0	0.382	15.7	LOS B	14.3	101.9	0.58	0.52	50.1
3	R	61	1.7	0.393	73.2	LOS F	3.8	27.1	0.99	0.76	20.9
Approach		1331	2.0	0.393	18.6	LOS B	14.3	101.9	0.60	0.54	47.4
All Vehicles		2754	2.6	0.587	22.8	LOS B	14.3	101.9	0.67	0.62	42.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across S approach	53	10.8	LOS B	0.1	0.1	0.41	0.41
P7	Across N approach	53	16.3	LOS B	0.1	0.1	0.50	0.50
P1	Across W approach	53	58.2	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		159	28.4	LOS C			0.62	0.62

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Cumberland Hwy/Dunmore St (Ex-PM)

13S1210200 - Bonds Pendle Hill Additional Modelling
Cumberland Highway / Dunmore Street
Existing Thursday PM Peak
Signals - Fixed Time Cycle Time = 140 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Cumberland Hwy - S											
1	L	49	0.0	0.697	43.7	LOS D	33.8	241.8	0.82	0.98	30.1
2	T	1946	2.9	0.697	36.0	LOS C	34.0	243.6	0.82	0.75	31.4
3	R	42	0.0	0.244	73.7	LOS F	2.7	19.2	0.97	0.74	20.0
Approach		2038	2.8	0.697	36.9	LOS C	34.0	243.6	0.82	0.75	31.0
East: Dunmore St - E											
4	L	62	0.0	0.625	38.5	LOS C	13.3	93.8	0.73	0.83	28.4
5	T	447	1.2	0.834	35.8	LOS C	26.5	186.8	0.86	0.76	25.6
6	R	256	0.4	0.834	48.2	LOS D	26.5	186.8	1.00	0.91	25.4
Approach		765	0.8	0.834	40.2	LOS C	26.5	186.8	0.90	0.82	25.7
North: Cumberland Hwy - N											
7	L	295	1.4	0.487	22.4	LOS B	7.2	50.8	0.39	0.75	39.4
8	T	2145	4.4	0.752	37.0	LOS C	38.0	276.3	0.85	0.78	31.0
9	R	143	3.7	0.586	36.8	LOS C	5.3	38.2	0.95	0.82	31.0
Approach		2583	4.0	0.752	35.3	LOS C	38.0	276.3	0.81	0.78	31.7
West: Dunmore St - W											
10	L	88	0.0	0.530	61.5	LOS E	11.1	78.1	0.94	0.82	22.1
11	T	226	1.9	0.530	53.8	LOS D	11.1	78.1	0.94	0.78	20.9
12	R	41	5.1	0.530	61.4	LOS E	10.7	76.8	0.94	0.82	22.3
Approach		356	1.8	0.530	56.6	LOS E	11.1	78.1	0.94	0.79	21.3
All Vehicles		5742	3.0	0.834	37.8	LOS C	38.0	276.3	0.83	0.78	29.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	39.4	LOS D	0.2	0.2	0.75	0.75
P3	Across E approach	53	32.9	LOS D	0.1	0.1	0.69	0.69
P5	Across N approach	53	58.5	LOS E	0.2	0.2	0.91	0.91
P7	Across W approach	53	32.9	LOS D	0.1	0.1	0.69	0.69
All Pedestrians		212	40.9	LOS E			0.76	0.76

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Cumberland Hwy/Dunmore St (Ex-SAT)

13S1210200 - Bonds Pendle Hill Additional Modelling
Cumberland Highway / Dunmore Street
Existing Saturday Peak
Signals - Fixed Time Cycle Time = 130 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Cumberland Hwy - S											
1	L	23	0.0	0.711	43.6	LOS D	24.6	176.3	0.84	0.97	30.2
2	T	1478	3.0	0.711	35.9	LOS C	24.7	177.4	0.84	0.76	31.4
3	R	68	1.5	0.538	75.0	LOS F	4.4	31.4	1.00	0.76	19.8
Approach		1569	2.9	0.711	37.7	LOS C	24.7	177.4	0.85	0.76	30.6
East: Dunmore St - E											
4	L	54	3.9	0.519	33.6	LOS C	6.5	46.3	0.68	0.81	30.2
5	T	245	0.4	0.865	34.7	LOS C	22.0	155.2	0.86	0.78	25.9
6	R	265	0.8	0.865	49.3	LOS D	22.0	155.2	1.00	0.97	25.0
Approach		564	0.9	0.865	41.5	LOS C	22.0	155.2	0.91	0.87	25.8
North: Cumberland Hwy - N											
7	L	299	1.8	0.638	26.9	LOS B	10.4	74.1	0.60	0.78	36.3
8	T	1540	2.7	0.725	36.1	LOS C	25.5	182.9	0.85	0.77	31.4
9	R	111	0.0	0.545	36.8	LOS C	4.1	28.5	0.94	0.80	30.9
Approach		1949	2.4	0.725	34.7	LOS C	25.5	182.9	0.82	0.77	32.0
West: Dunmore St - W											
10	L	94	0.0	0.520	56.0	LOS D	10.8	75.8	0.93	0.82	23.3
11	T	206	0.5	0.520	48.4	LOS D	10.8	75.8	0.93	0.77	22.0
12	R	72	1.5	0.520	55.9	LOS D	10.1	71.1	0.93	0.82	23.4
Approach		372	0.6	0.520	51.8	LOS D	10.8	75.8	0.93	0.79	22.6
All Vehicles		4455	2.2	0.865	38.1	LOS C	25.5	182.9	0.85	0.78	29.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	34.7	LOS D	0.1	0.1	0.73	0.73
P3	Across E approach	53	32.6	LOS D	0.1	0.1	0.71	0.71
P5	Across N approach	53	53.6	LOS E	0.2	0.2	0.91	0.91
P7	Across W approach	53	32.6	LOS D	0.1	0.1	0.71	0.71
All Pedestrians		212	38.3	LOS D			0.76	0.76

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Cumberland Hwy/Smith St (Ex-PM)

13S1210200 - Bonds Pendle Hill Additional Modelling
Cumberland Highway / Smith Street
Existing Thursday PM Peak
Signals - Fixed Time Cycle Time = 140 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Cumberland Hwy - S											
1	L	111	1.0	0.595	17.6	LOS B	17.2	123.2	0.40	0.96	41.5
2	T	2024	3.0	0.595	8.5	LOS A	17.2	123.2	0.36	0.33	47.2
3	R	55	0.0	0.375	76.5	LOS F	3.7	25.8	0.99	0.75	19.3
Approach		2189	2.8	0.595	10.7	LOS A	17.2	123.2	0.38	0.38	45.2
East: Smith St - E											
4	L	57	0.0	0.429	62.4	LOS E	5.5	38.9	0.91	0.79	22.4
5	T	237	1.8	0.859	69.3	LOS E	17.0	120.7	0.99	0.94	19.8
6	R	28	0.0	0.859	79.9	LOS F	17.0	120.7	1.00	0.98	19.4
Approach		322	1.3	0.859	69.0	LOS E	17.0	120.7	0.97	0.92	20.2
North: Cumberland Hwy - N											
7	L	42	2.5	0.591	16.9	LOS B	15.8	114.4	0.37	1.00	42.2
8	T	2065	4.4	0.591	8.3	LOS A	15.8	114.4	0.35	0.32	47.5
9	R	47	2.2	0.330	76.3	LOS F	3.2	22.7	0.98	0.75	19.4
Approach		2155	4.3	0.591	9.9	LOS A	15.8	114.4	0.37	0.35	45.9
West: Smith St - W											
10	L	31	0.0	0.333	63.4	LOS E	4.2	30.0	0.91	0.78	22.3
11	T	111	4.8	0.666	64.5	LOS E	7.4	53.0	0.97	0.78	20.6
12	R	35	0.0	0.666	77.6	LOS F	7.4	53.0	1.00	0.82	19.6
Approach		176	3.0	0.666	66.9	LOS E	7.4	53.0	0.96	0.79	20.7
All Vehicles		4842	3.4	0.859	16.3	LOS B	17.2	123.2	0.44	0.41	40.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	59.4	LOS E	0.2	0.2	0.92	0.92
P3	Across E approach	53	13.7	LOS B	0.1	0.1	0.44	0.44
P5	Across N approach	53	59.4	LOS E	0.2	0.2	0.92	0.92
P7	Across W approach	53	13.7	LOS B	0.1	0.1	0.44	0.44
All Pedestrians		212	36.6	LOS D			0.68	0.68

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Cumberland Hwy/Smith St (Ex-SAT)

13S1210200 - Bonds Pendle Hill Additional Modelling
Cumberland Highway / Smith Street
Existing Saturday Peak
Signals - Fixed Time Cycle Time = 130 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Cumberland Hwy - S											
1	L	113	0.9	0.462	19.5	LOS B	17.6	125.5	0.53	0.93	40.4
2	T	1639	2.8	0.462	11.3	LOS A	17.7	126.8	0.53	0.48	43.9
3	R	55	3.8	0.394	72.5	LOS F	3.5	25.0	0.99	0.75	20.1
Approach		1806	2.7	0.462	13.7	LOS A	17.7	126.8	0.54	0.51	42.2
East: Smith St - E											
4	L	39	2.7	0.156	48.6	LOS D	1.9	13.5	0.80	0.73	25.7
5	T	85	0.0	0.541	61.2	LOS E	6.5	45.8	0.99	0.78	21.4
6	R	20	0.0	0.541	69.1	LOS E	6.5	45.8	0.99	0.79	21.4
Approach		144	0.7	0.541	58.9	LOS E	6.5	45.8	0.94	0.77	22.4
North: Cumberland Hwy - N											
7	L	41	0.0	0.430	19.1	LOS B	16.0	114.3	0.51	0.97	40.8
8	T	1593	2.9	0.430	11.0	LOS A	16.0	114.7	0.51	0.46	44.4
9	R	55	0.0	0.383	72.2	LOS F	3.4	24.1	0.99	0.75	20.1
Approach		1688	2.7	0.430	13.1	LOS A	16.0	114.7	0.53	0.48	42.6
West: Smith St - W											
10	L	24	0.0	0.181	60.8	LOS E	2.3	16.0	0.91	0.75	22.8
11	T	80	0.0	0.635	62.1	LOS E	6.4	45.2	0.98	0.78	21.0
12	R	36	2.9	0.635	72.7	LOS F	6.4	45.2	1.00	0.81	20.5
Approach		140	0.8	0.635	64.6	LOS E	6.4	45.2	0.97	0.78	21.2
All Vehicles		3779	2.6	0.635	17.0	LOS B	17.7	126.8	0.57	0.52	39.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	59.1	LOS E	0.2	0.2	0.95	0.95
P3	Across E approach	53	11.2	LOS B	0.1	0.1	0.42	0.42
P5	Across N approach	53	59.1	LOS E	0.2	0.2	0.95	0.95
P7	Across W approach	53	11.2	LOS B	0.1	0.1	0.42	0.42
All Pedestrians		212	35.2	LOS D			0.68	0.68

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Pendle Way/Gilba Rd (Ex-PM)

13S1210200 - Bonds Pendle Hill Additional Modelling
Gilba Road / Pendle Way
Existing Thursday PM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pendle Way - S											
1	L	434	1.0	0.235	8.2	LOS A	0.0	0.0	0.00	0.67	49.0
2	T	192	0.5	0.592	15.9	LOS B	2.5	17.3	0.61	0.97	41.7
Approach		625	0.8	0.592	10.6	LOS A	2.5	17.3	0.19	0.76	46.5
North: Pendle Way - N											
8	T	146	4.3	0.855	40.1	LOS C	5.9	42.8	0.64	1.41	28.5
9	R	51	2.1	0.855	41.4	LOS C	5.9	42.8	0.64	1.29	28.2
Approach		197	3.7	0.855	40.4	LOS C	5.9	42.8	0.64	1.38	28.4
West: Gilba Rd - W											
10	L	163	0.6	0.214	8.2	LOS A	0.0	0.0	0.00	0.66	49.0
12	R	231	1.4	0.214	8.3	LOS A	0.0	0.0	0.00	0.67	48.9
Approach		394	1.1	0.214	8.2	NA	0.0	0.0	0.00	0.67	48.9
All Vehicles		1216	1.4	0.855	14.6	NA	5.9	42.8	0.20	0.83	42.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Pendle Way/Gilba Rd (Ex-SAT)

13S1210200 - Bonds Pendle Hill Additional Modelling
Gilba Road / Pendle Way
Existing Saturday Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pendle Way - S											
1	L	281	2.2	0.154	8.3	LOS A	0.0	0.0	0.00	0.67	49.0
2	T	196	0.0	0.590	16.7	LOS B	2.6	18.4	0.64	1.00	41.1
Approach		477	1.3	0.590	11.7	LOS A	2.6	18.4	0.26	0.80	45.4
North: Pendle Way - N											
8	T	145	3.6	0.860	38.1	LOS C	6.4	46.3	0.68	1.46	29.2
9	R	73	1.4	0.860	39.4	LOS C	6.4	46.3	0.68	1.35	28.9
Approach		218	2.9	0.860	38.5	LOS C	6.4	46.3	0.68	1.42	29.1
West: Gilba Rd - W											
10	L	171	1.2	0.233	8.2	LOS A	0.0	0.0	0.00	0.66	49.0
12	R	260	0.4	0.233	8.2	LOS A	0.0	0.0	0.00	0.67	48.9
Approach		431	0.7	0.233	8.2	NA	0.0	0.0	0.00	0.67	48.9
All Vehicles		1125	1.4	0.860	15.6	NA	6.4	46.3	0.24	0.87	42.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Goodall St/Wentworth Ave (Ex-PM)

13S1210200 - Bonds Pendle Hill Additional Modelling
Goodall Street / Wentworth Avenue
Existing Thursday PM Peak
Signals - Fixed Time Cycle Time = 90 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Goodall St - S											
1	L	305	1.7	0.518	15.0	LOS B	5.8	41.3	0.47	0.74	37.9
3	R	246	0.9	0.706	46.3	LOS D	10.7	75.5	0.99	0.86	24.5
Approach		552	1.3	0.706	29.0	LOS C	10.7	75.5	0.70	0.80	30.5
East: Wentworth Ave - E											
4	L	312	0.3	0.734	26.7	LOS B	9.0	62.9	0.69	0.82	33.5
5	T	324	2.9	0.605	33.6	LOS C	12.9	92.3	0.95	0.80	29.8
Approach		636	1.7	0.734	30.2	LOS C	12.9	92.3	0.82	0.81	31.4
West: Wentworth Ave - W											
11	T	335	2.8	0.459	5.8	LOS A	5.4	38.9	0.40	0.34	50.1
12	R	457	2.3	0.552	31.2	LOS C	15.8	112.4	0.84	0.84	31.2
Approach		792	2.5	0.552	20.5	LOS B	15.8	112.4	0.66	0.63	37.4
All Vehicles		1979	1.9	0.734	26.0	LOS B	15.8	112.4	0.72	0.73	33.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P7	Across W approach	53	36.5	LOS D	0.1	0.1	0.90	0.90
All Pedestrians		53	36.5	LOS D			0.90	0.90

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Goodall St/Wentworth Ave (Ex-SAT)

13S1210200 - Bonds Pendle Hill Additional Modelling
Goodall Street / Wentworth Avenue
Existing Saturday Peak
Signals - Fixed Time Cycle Time = 90 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Goodall St - S											
1	L	305	1.7	0.518	16.0	LOS B	5.8	41.3	0.47	0.75	41.7
3	R	246	0.9	0.858	56.9	LOS E	12.2	86.1	1.00	0.96	23.4
Approach		552	1.3	0.858	34.2	LOS C	12.2	86.1	0.71	0.85	30.9
East: Wentworth Ave - E											
4	L	312	0.3	0.762	30.9	LOS C	9.7	68.3	0.73	0.84	32.4
5	T	324	2.9	0.559	33.0	LOS C	12.7	90.8	0.94	0.79	30.0
Approach		636	1.7	0.762	32.0	LOS C	12.7	90.8	0.83	0.81	31.1
West: Wentworth Ave - W											
11	T	335	2.8	0.414	4.6	LOS A	4.8	34.3	0.36	0.30	51.7
12	R	457	2.3	0.468	29.0	LOS C	14.5	103.7	0.78	0.83	33.4
Approach		792	2.5	0.468	18.6	LOS B	14.5	103.7	0.60	0.60	39.3
All Vehicles		1979	1.9	0.858	27.3	LOS B	14.5	103.7	0.71	0.74	33.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P7	Across W approach	53	39.2	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		53	39.2	LOS D			0.93	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Gt Western Hwy/Pendle Way (Ex-PM)

13S1210200 - Bonds Pendle Hill Additional Modelling
Great Western Highway / Pendle Way
Existing Thursday PM Peak
Signals - Fixed Time Cycle Time = 140 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Ettalong Rd - S											
4	L	105	1.0	0.513	53.1	LOS D	5.7	39.9	0.84	0.76	24.4
5	T	207	1.0	0.933	75.2	LOS F	14.4	101.3	1.00	0.90	18.8
6	R	104	0.0	0.933	93.6	LOS F	14.4	101.3	1.00	1.04	17.0
Approach		417	0.8	0.933	74.2	LOS F	14.4	101.3	0.96	0.90	19.4
East: Gt Western Hwy - E											
7	L	221	0.5	0.614	40.4	LOS C	26.7	189.4	0.77	0.94	29.1
8	T	1553	2.2	0.614	29.8	LOS C	26.8	191.1	0.73	0.67	31.6
9	R	140	1.5	0.897	85.2	LOS F	10.4	73.4	0.99	0.95	18.0
Approach		1914	2.0	0.897	35.1	LOS C	26.8	191.1	0.76	0.72	29.6
North: Pendle Way - N											
10	L	77	1.4	0.629	56.7	LOS E	14.1	99.7	0.94	0.85	24.1
11	T	267	1.6	0.786	52.1	LOS D	24.9	178.9	0.96	0.83	23.3
12	R	278	3.8	0.786	66.6	LOS E	24.9	178.9	1.00	0.88	21.5
Approach		622	2.5	0.786	59.2	LOS E	24.9	178.9	0.98	0.86	22.5
West: Gt Western Hwy - W											
1	L	113	7.5	0.480	39.6	LOS C	18.2	131.9	0.78	0.88	29.7
2	T	1035	2.6	0.480	31.2	LOS C	18.9	135.4	0.78	0.68	30.9
3	R	114	0.9	0.539	72.7	LOS F	7.5	53.1	0.99	0.79	20.0
Approach		1261	2.9	0.539	35.7	LOS C	18.9	135.4	0.80	0.71	29.4
All Vehicles		4214	2.2	0.933	42.7	LOS D	26.8	191.1	0.82	0.75	26.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across S approach	53	31.6	LOS D	0.1	0.1	0.67	0.67
P5	Across E approach	53	59.4	LOS E	0.2	0.2	0.92	0.92
P7	Across N approach	53	29.6	LOS C	0.1	0.1	0.65	0.65
All Pedestrians		159	40.2	LOS E			0.75	0.75

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Gt Western Hwy/Pendle Way (Ex-SAT)

13S1210200 - Bonds Pendle Hill Additional Modelling
Great Western Highway / Pendle Way
Existing Saturday Peak
Signals - Fixed Time Cycle Time = 130 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Ettalong Rd - S											
4	L	65	1.6	0.279	41.8	LOS C	2.9	20.6	0.74	0.74	27.9
5	T	165	0.6	0.807	59.9	LOS E	13.1	92.9	0.98	0.82	21.7
6	R	138	1.5	0.807	73.0	LOS F	13.1	92.9	1.00	0.92	20.2
Approach		368	1.1	0.807	61.6	LOS E	13.1	92.9	0.94	0.84	21.9
East: Gt Western Hwy - E											
7	L	144	0.7	0.397	36.8	LOS C	12.3	88.0	0.78	0.89	30.5
8	T	787	3.9	0.397	30.9	LOS C	14.4	104.0	0.78	0.68	31.0
9	R	165	3.2	0.985	67.8	LOS E	10.2	73.4	0.99	0.82	21.0
Approach		1097	3.4	0.985	37.3	LOS C	14.4	104.0	0.81	0.73	28.9
North: Pendle Way - N											
10	L	116	3.6	0.560	41.0	LOS C	7.8	55.8	0.96	0.81	28.8
11	T	164	0.6	0.701	46.5	LOS D	14.9	105.9	0.98	0.82	24.5
12	R	147	2.1	0.701	64.1	LOS E	14.9	105.9	1.00	0.85	22.1
Approach		427	2.0	0.701	51.1	LOS D	14.9	105.9	0.98	0.83	24.6
West: Gt Western Hwy - W											
1	L	109	1.9	0.530	41.9	LOS C	18.2	129.9	0.83	0.88	28.8
2	T	1031	2.1	0.530	33.6	LOS C	18.8	133.9	0.83	0.73	29.8
3	R	89	1.2	0.409	63.7	LOS E	5.2	37.0	0.95	0.78	21.9
Approach		1229	2.1	0.530	36.6	LOS C	18.8	133.9	0.84	0.74	28.9
All Vehicles		3122	2.4	0.985	41.7	LOS C	18.8	133.9	0.86	0.76	27.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across S approach	53	34.0	LOS D	0.1	0.1	0.72	0.72
P5	Across E approach	53	59.1	LOS E	0.2	0.2	0.95	0.95
P7	Across N approach	53	31.9	LOS D	0.1	0.1	0.70	0.70
All Pedestrians		159	41.7	LOS E			0.79	0.79

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Attachment 3B – SIDRA Output (2027 Future Base Thursday PM & Saturday Midday)

Intersection	Peak	Leg	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile (m)	Level of Service (LOS)
Jones Street/ Rogers Street	PM	South	0.17	8	8	A
		East	0.02	9	1	A
		North	0.17	7	0	A
		All	**0.17**	**1**	**8**	**A**
	Sat	South	0.11	8	5	A
		East	0.02	8	1	A
		North	0.13	7	0	A
		All	**0.13**	**1**	**5**	**A**
Jones Street/ Oatlands Street	PM	South	0.16	8	8	A
		East	0.04	9	1	A
		North	0.19	7	0	A
		All	**0.19**	**1**	**8**	**A**
	Sat	South	0.11	8	5	A
		East	0.02	8	1	A
		North	0.13	7	0	A
		All	**0.13**	**1**	**5**	**A**
Jones Street/ Smith Street	PM	South	0.32	12	14	A
		East	0.39	11	19	A
		North	0.31	10	14	A
		West	0.19	11	7	A
		All	**0.39**	**8**	**19**	**A**
	Sat	South	0.20	10	8	A
		East	0.17	10	7	A
		North	0.26	10	11	A
		West	0.16	10	6	A
		All	**0.26**	**7**	**11**	**A**
Jones Street/ Dunmore Street	PM	South	0.62	21	40	B
		East	0.80	17	86	B
		North	0.14	13	5	A
		West	0.51	10	31	A
		All	**0.80**	**12**	**86**	**B**
	Sat	South	0.26	13	11	A
		East	0.48	11	24	A
		North	0.12	13	5	A
		West	0.44	10	24	A
		All	**0.48**	**8**	**24**	**A**

Intersection	Peak	Leg	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile (m)	Level of Service (LOS)
Goodall Street/ Dunmore Street	PM	East	0.80	20	83	B
		North	0.78	24	101	B
		West	0.54	15	51	B
		All	**0.80**	**20**	**101**	**B**
	Sat	East	0.58	15	32	B
		North	0.48	20	34	B
		West	0.59	16	44	B
		All	**0.59**	**17**	**44**	**B**
Pendle Way/ Dunmore Street	PM	South	0.73	19	59	B
		East	0.78	23	101	B
		North	0.44	15	40	B
		All	**0.78**	**20**	**101**	**B**
	Sat	South	0.56	11	38	B
		East	0.78	24	54	B
		North	0.43	13	38	B
		All	**0.78**	**16**	**54**	**B**
Great Western Highway / Jones Street	PM	South	0.50	62	37	E
		East	0.57	15	188	B
		North	0.77	63	62	E
		West	0.48	23	142	B
		All	**0.77**	**22**	**188**	**B**
	Sat	South	0.69	63	40	E
		East	0.41	20	116	B
		North	0.75	58	38	E
		West	0.46	19	118	B
		All	**0.75**	**24**	**118**	**B**
Cumberland Highway / Dunmore Street	PM	South	0.78	39	292	C
		East	1.01	69	315	E
		North	0.84	38	337	C
		West	0.64	58	96	E
		All	**1.01**	**44**	**337**	**D**
	Sat	South	0.80	40	216	C
		East	1.07	101	305	F
		North	0.81	38	225	C
		West	0.62	53	92	D
		All	**1.07**	**49**	**305**	**D**

Intersection	Peak	Leg	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile (m)	Level of Service (LOS)
Cumberland Highway / Smith Street	PM	South	0.67	11	156	A
		East	1.05	122	205	F
		North	0.66	11	144	A
		West	0.92	76	63	F
		All	**1.05**	**21**	**205**	**B**
	Sat	South	0.52	14	150	A
		East	0.66	60	55	E
		North	0.48	14	135	A
		West	0.80	68	55	E
		All	**0.80**	**18**	**150**	**B**
Pendle Way / Gilba Road	PM	South	0.41	14	16	A
		North	0.59	24	30	B
		West	0.25	8	0	A
		All	**0.59**	**11**	**30**	**A**
	Sat	South	0.48	16	19	B
		North	0.69	27	37	B
		West	0.27	8	0	A
		All	**0.69**	**13**	**37**	**A**
Goodall Street /Wentworth Avenue	PM	South	0.83	32	98	C
		East	0.87	35	113	C
		West	0.65	21	139	B
		All	**0.87**	**29**	**139**	**C**
	Sat	South	0.92	37	100	C
		East	0.62	30	102	C
		West	0.47	16	81	B
		All	**0.92**	**27**	**102**	**B**
Cumberland Highway / Pendle Way	PM	South	1.10	116	176	F
		East	1.00	36	233	C
		North	0.93	70	248	E
		West	0.63	37	157	C
		All	**1.10**	**49**	**248**	**D**
	Sat	South	0.95	73	130	F
		East	1.00	37	124	C
		North	0.82	55	134	D
		West	0.60	38	155	C
		All	**1.00**	**44**	**155**	**D**

MOVEMENT SUMMARY

Site: Jones-Rogers (2027 Base Thurs PM)

13S1210200
Jones Street-Rogers Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	304	2.0	0.168	1.3	LOS A	1.2	8.4	0.46	0.00	44.6
3	R	14	2.0	0.168	8.1	LOS A	1.2	8.4	0.46	0.88	43.0
Approach		318	2.0	0.168	1.6	NA	1.2	8.4	0.46	0.04	44.6
East: Rogers Street											
4	L	14	2.0	0.022	8.2	LOS A	0.1	0.6	0.41	0.60	41.7
6	R	7	2.0	0.022	8.6	LOS A	0.1	0.6	0.41	0.73	41.5
Approach		21	2.0	0.022	8.4	LOS A	0.1	0.6	0.41	0.64	41.6
North: Jones Street											
7	L	7	2.0	0.169	6.5	LOS A	0.0	0.0	0.00	0.91	43.3
8	T	318	2.0	0.169	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		325	2.0	0.169	0.1	NA	0.0	0.0	0.00	0.02	49.8
All Vehicles		664	2.0	0.169	1.1	NA	1.2	8.4	0.23	0.05	46.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Rogers (2027 Base Sat)

13S1210200
Jones Street-Rogers Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	194	2.0	0.105	0.9	LOS A	0.7	4.7	0.38	0.00	45.5
3	R	6	2.0	0.105	7.7	LOS A	0.7	4.7	0.38	0.87	43.0
Approach		200	2.0	0.105	1.1	NA	0.7	4.7	0.38	0.03	45.4
East: Rogers Street											
4	L	14	2.0	0.019	7.6	LOS A	0.1	0.5	0.34	0.57	42.0
6	R	7	2.0	0.019	8.0	LOS A	0.1	0.5	0.34	0.68	42.0
Approach		21	2.0	0.019	7.7	LOS A	0.1	0.5	0.34	0.61	42.0
North: Jones Street											
7	L	17	2.0	0.132	6.5	LOS A	0.0	0.0	0.00	0.89	43.3
8	T	237	2.0	0.132	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		254	2.0	0.132	0.4	NA	0.0	0.0	0.00	0.06	49.5
All Vehicles		475	2.0	0.132	1.0	NA	0.7	4.7	0.17	0.07	47.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Oatlands (2027 Base Thurs PM)

13S1210200
Jones Street-Oatlands Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	277	2.0	0.159	1.5	LOS A	1.1	7.9	0.47	0.00	44.4
3	R	19	2.0	0.159	8.3	LOS A	1.1	7.9	0.47	0.88	43.0
Approach		296	2.0	0.159	1.9	NA	1.1	7.9	0.47	0.06	44.3
East: Oatlands Street											
4	L	29	2.0	0.042	8.2	LOS A	0.2	1.1	0.42	0.62	41.7
6	R	12	2.0	0.042	8.6	LOS A	0.2	1.1	0.42	0.76	41.5
Approach		41	2.0	0.042	8.3	LOS A	0.2	1.1	0.42	0.66	41.7
North: Jones Street											
7	L	15	2.0	0.186	6.5	LOS A	0.0	0.0	0.00	0.90	43.3
8	T	342	2.0	0.186	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		357	2.0	0.186	0.3	NA	0.0	0.0	0.00	0.04	49.7
All Vehicles		694	2.0	0.186	1.4	NA	1.1	7.9	0.23	0.08	46.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Oatlands (2027 Base Sat)

13S1210200
Jones Street-Oatlands Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	185	2.0	0.113	0.9	LOS A	0.7	4.9	0.37	0.00	45.4
3	R	24	2.0	0.113	7.7	LOS A	0.7	4.9	0.37	0.84	42.9
Approach		209	2.0	0.113	1.7	NA	0.7	4.9	0.37	0.10	45.1
East: Oatland Street											
4	L	17	2.0	0.020	7.5	LOS A	0.1	0.5	0.34	0.58	42.1
6	R	6	2.0	0.020	7.9	LOS A	0.1	0.5	0.34	0.69	42.0
Approach		23	2.0	0.020	7.6	LOS A	0.1	0.5	0.34	0.61	42.0
North: Jones Street											
7	L	11	2.0	0.130	6.5	LOS A	0.0	0.0	0.00	0.90	43.3
8	T	240	2.0	0.130	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		251	2.0	0.130	0.3	NA	0.0	0.0	0.00	0.04	49.7
All Vehicles		483	2.0	0.130	1.2	NA	0.7	4.9	0.18	0.09	47.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Smith (2027 Base Thurs PM)

13S1210200
Jones Street-Smith Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	35	2.0	0.321	8.9	LOS A	1.9	13.7	0.62	0.75	41.5
2	T	186	2.0	0.321	7.9	LOS A	1.9	13.7	0.62	0.70	41.8
3	R	35	2.0	0.321	11.9	LOS A	1.9	13.7	0.62	0.84	39.6
Approach		256	2.0	0.321	8.6	LOS A	1.9	13.7	0.62	0.72	41.4
East: Smith Street											
4	L	69	2.0	0.391	7.4	LOS A	2.6	18.7	0.49	0.64	42.1
5	T	249	2.0	0.391	6.4	LOS A	2.6	18.7	0.49	0.57	42.3
6	R	76	2.0	0.391	10.5	LOS A	2.6	18.7	0.49	0.76	40.5
Approach		395	2.0	0.391	7.4	LOS A	2.6	18.7	0.49	0.62	41.9
North: Jones Street											
7	L	145	2.0	0.308	7.2	LOS A	1.9	13.6	0.44	0.61	42.2
8	T	124	2.0	0.308	6.2	LOS A	1.9	13.6	0.44	0.54	42.5
9	R	41	2.0	0.308	10.2	LOS A	1.9	13.6	0.44	0.74	40.6
Approach		311	2.0	0.308	7.2	LOS A	1.9	13.6	0.44	0.60	42.1
West: Smith Street											
10	L	27	2.0	0.187	8.0	LOS A	1.0	7.3	0.52	0.68	42.1
11	T	118	2.0	0.187	7.1	LOS A	1.0	7.3	0.52	0.62	42.2
12	R	14	2.0	0.187	11.1	LOS A	1.0	7.3	0.52	0.80	40.2
Approach		159	2.0	0.187	7.6	LOS A	1.0	7.3	0.52	0.64	42.0
All Vehicles		1120	2.0	0.391	7.6	LOS A	2.6	18.7	0.51	0.64	41.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Smith (2027 Base Sat)

13S1210200
Jones Street-Smith Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	24	2.0	0.198	7.1	LOS A	1.1	7.7	0.40	0.61	42.4
2	T	128	2.0	0.198	6.2	LOS A	1.1	7.7	0.40	0.53	42.7
3	R	40	2.0	0.198	10.2	LOS A	1.1	7.7	0.40	0.76	40.7
Approach		193	2.0	0.198	7.1	LOS A	1.1	7.7	0.40	0.59	42.2
East: Smith Street											
4	L	21	2.0	0.172	7.0	LOS A	0.9	6.6	0.39	0.60	42.4
5	T	99	2.0	0.172	6.1	LOS A	0.9	6.6	0.39	0.52	42.8
6	R	47	2.0	0.172	10.1	LOS A	0.9	6.6	0.39	0.74	40.7
Approach		167	2.0	0.172	7.3	LOS A	0.9	6.6	0.39	0.60	42.1
North: Jones Street											
7	L	105	2.0	0.256	7.2	LOS A	1.5	10.5	0.42	0.62	42.3
8	T	122	2.0	0.256	6.3	LOS A	1.5	10.5	0.42	0.54	42.6
9	R	23	2.0	0.256	10.3	LOS A	1.5	10.5	0.42	0.75	40.6
Approach		251	2.0	0.256	7.0	LOS A	1.5	10.5	0.42	0.60	42.3
West: Smith Street											
10	L	13	2.0	0.160	7.4	LOS A	0.8	6.0	0.43	0.64	42.4
11	T	118	2.0	0.160	6.4	LOS A	0.8	6.0	0.43	0.56	42.6
12	R	18	2.0	0.160	10.4	LOS A	0.8	6.0	0.43	0.78	40.6
Approach		148	2.0	0.160	7.0	LOS A	0.8	6.0	0.43	0.59	42.4
All Vehicles		759	2.0	0.256	7.1	LOS A	1.5	10.5	0.41	0.59	42.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Dunmore (2027 Base Thurs PM)

13S1210200
Jones Street-Dunmore Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	207	2.0	0.616	17.5	LOS B	5.6	40.1	0.95	1.11	35.2
2	T	62	2.0	0.616	16.6	LOS B	5.6	40.1	0.95	1.11	35.3
3	R	41	2.0	0.616	20.6	LOS B	5.6	40.1	0.95	1.12	34.0
Approach		311	2.0	0.616	17.8	LOS B	5.6	40.1	0.95	1.11	35.0
East: Dunmore Street											
4	L	73	2.0	0.796	14.1	LOS A	12.1	85.8	0.93	0.98	37.7
5	T	627	2.0	0.796	13.2	LOS A	12.1	85.8	0.93	0.97	37.9
6	R	26	2.0	0.796	17.2	LOS B	12.1	85.8	0.93	1.00	36.4
Approach		726	2.0	0.796	13.4	LOS A	12.1	85.8	0.93	0.97	37.8
North: Jones Street											
7	L	14	2.0	0.135	9.7	LOS A	0.7	5.2	0.65	0.74	40.4
8	T	21	2.0	0.135	8.8	LOS A	0.7	5.2	0.65	0.70	40.7
9	R	56	2.0	0.135	12.8	LOS A	0.7	5.2	0.65	0.81	38.6
Approach		91	2.0	0.135	11.4	LOS A	0.7	5.2	0.65	0.77	39.4
West: Dunmore Street											
10	L	66	2.0	0.507	7.1	LOS A	4.3	30.7	0.51	0.60	42.0
11	T	277	2.0	0.507	6.1	LOS A	4.3	30.7	0.51	0.53	42.1
12	R	218	2.0	0.507	10.1	LOS A	4.3	30.7	0.51	0.71	40.5
Approach		561	2.0	0.507	7.8	LOS A	4.3	30.7	0.51	0.61	41.4
All Vehicles		1688	2.0	0.796	12.2	LOS A	12.1	85.8	0.78	0.87	38.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Dunmore (2027 Base Sat)

13S1210200
Jones Street-Dunmore Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	135	2.0	0.258	9.4	LOS A	1.5	10.7	0.66	0.76	40.8
2	T	23	2.0	0.258	8.5	LOS A	1.5	10.7	0.66	0.72	41.1
3	R	28	2.0	0.258	12.5	LOS A	1.5	10.7	0.66	0.83	39.0
Approach		186	2.0	0.258	9.8	LOS A	1.5	10.7	0.66	0.77	40.5
East: Dunmore Street											
4	L	34	2.0	0.479	8.2	LOS A	3.3	23.7	0.59	0.71	42.0
5	T	398	2.0	0.479	7.3	LOS A	3.3	23.7	0.59	0.65	42.0
6	R	18	2.0	0.479	11.3	LOS A	3.3	23.7	0.59	0.81	40.1
Approach		449	2.0	0.479	7.5	LOS A	3.3	23.7	0.59	0.66	41.9
North: Jones Street											
7	L	19	2.0	0.122	9.7	LOS A	0.6	4.5	0.62	0.73	40.5
8	T	25	2.0	0.122	8.7	LOS A	0.6	4.5	0.62	0.69	40.9
9	R	40	2.0	0.122	12.7	LOS A	0.6	4.5	0.62	0.81	38.7
Approach		84	2.0	0.122	10.9	LOS A	0.6	4.5	0.62	0.76	39.7
West: Dunmore Street											
10	L	40	2.0	0.437	6.4	LOS A	3.4	24.2	0.32	0.55	42.7
11	T	324	2.0	0.437	5.5	LOS A	3.4	24.2	0.32	0.47	43.1
12	R	181	2.0	0.437	9.5	LOS A	3.4	24.2	0.32	0.71	40.9
Approach		545	2.0	0.437	6.9	LOS A	3.4	24.2	0.32	0.55	42.3
All Vehicles		1265	2.0	0.479	7.8	LOS A	3.4	24.2	0.49	0.64	41.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Dunmore-Goodall (2027 Base Thurs PM)

13S1210200
Dunmore Street-Goodall Street
Signals - Fixed Time Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Dunmore Street											
5	T	535	2.0	0.647	12.9	LOS A	11.7	83.4	0.79	0.69	36.5
6	R	311	2.0	0.800	31.9	LOS C	9.0	64.3	1.00	1.02	28.3
Approach		845	2.0	0.800	19.9	LOS B	11.7	83.4	0.87	0.81	33.0
North: Goodall Street											
7	L	291	2.0	0.507	14.9	LOS B	4.7	33.8	0.59	0.75	36.8
9	R	476	2.0	0.780	29.5	LOS C	14.1	100.6	0.96	0.93	29.2
Approach		766	2.0	0.780	24.0	LOS B	14.1	100.6	0.82	0.86	31.7
West: Dunmore Street											
10	L	277	2.0	0.257	9.9	LOS A	2.9	20.3	0.38	0.70	40.4
11	T	277	2.0	0.539	21.0	LOS B	7.2	51.1	0.91	0.76	31.8
Approach		554	2.0	0.539	15.4	LOS B	7.2	51.1	0.64	0.73	35.6
All Vehicles		2165	2.0	0.800	20.2	LOS B	14.1	100.6	0.79	0.81	33.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	Across N approach	53	24.3	LOS C	0.1	0.1	0.90	0.90
P7	Across W approach	53	20.8	LOS C	0.1	0.1	0.83	0.83
All Pedestrians		106	22.6	LOS C			0.87	0.87

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Goodall (2027 Base Sat)

13S1210200
Dunmore Street-Goodall Street
Signals - Fixed Time Cycle Time = 56 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Dunmore Street											
5	T	336	2.0	0.377	9.2	LOS A	5.6	40.0	0.64	0.55	39.4
6	R	240	2.0	0.583	22.7	LOS B	5.5	39.1	0.93	0.82	32.3
Approach		576	2.0	0.583	14.8	LOS B	5.6	40.0	0.77	0.66	36.1
North: Goodall Street											
7	L	233	2.0	0.407	15.2	LOS B	3.7	26.2	0.61	0.74	36.6
9	R	251	2.0	0.479	24.9	LOS B	5.9	41.8	0.88	0.81	31.3
Approach		483	2.0	0.479	20.2	LOS B	5.9	41.8	0.75	0.78	33.6
West: Dunmore Street											
10	L	198	2.0	0.192	9.9	LOS A	1.9	13.8	0.38	0.69	40.4
11	T	322	2.0	0.586	19.1	LOS B	7.8	55.7	0.91	0.77	32.7
Approach		520	2.0	0.586	15.6	LOS B	7.8	55.7	0.71	0.74	35.3
All Vehicles		1579	2.0	0.586	16.7	LOS B	7.8	55.7	0.74	0.72	35.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	Across N approach	53	22.3	LOS C	0.1	0.1	0.89	0.89
P7	Across W approach	53	22.3	LOS C	0.1	0.1	0.89	0.89
All Pedestrians		106	22.3	LOS C			0.89	0.89

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Pendle (2027 Base Thurs PM)

13S1210200
Dunmore Street-Pendle Way
Signals - Fixed Time Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pendle Way											
2	T	331	2.0	0.368	11.2	LOS A	6.3	44.8	0.69	0.59	37.9
3	R	304	2.0	0.725	26.6	LOS B	8.3	59.0	0.98	0.91	30.5
Approach		635	2.0	0.725	18.6	LOS B	8.3	59.0	0.83	0.74	33.9
East: Dunmore Street											
4	L	502	2.0	0.514	16.2	LOS B	9.5	68.0	0.69	0.80	36.0
6	R	476	2.0	0.780	29.5	LOS C	14.1	100.6	0.96	0.93	29.2
Approach		978	2.0	0.780	22.7	LOS B	14.1	100.6	0.82	0.86	32.3
North: Pendle Way											
7	L	238	2.0	0.221	9.8	LOS A	2.4	17.0	0.37	0.70	40.5
8	T	224	2.0	0.437	20.3	LOS B	5.6	40.0	0.88	0.72	32.2
Approach		462	2.0	0.437	14.9	LOS B	5.6	40.0	0.61	0.71	36.0
All Vehicles		2075	2.0	0.780	19.7	LOS B	14.1	100.6	0.78	0.79	33.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	12.0	LOS B	0.1	0.1	0.63	0.63
P3	Across E approach	53	24.3	LOS C	0.1	0.1	0.90	0.90
All Pedestrians		106	18.2	LOS B			0.77	0.77

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Pendle (2027 Base Sat)

13S1210200
Dunmore Street-Pendle Way
Signals - Fixed Time Cycle Time = 50 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pendle Way											
2	T	362	2.0	0.556	6.7	LOS A	5.3	37.9	0.59	0.50	41.3
3	R	259	2.0	0.556	17.4	LOS B	5.3	37.9	0.86	0.82	35.3
Approach		621	2.0	0.556	11.2	LOS A	5.3	37.9	0.70	0.63	38.6
East: Dunmore Street											
4	L	304	2.0	0.378	16.8	LOS B	5.1	36.3	0.71	0.78	35.6
6	R	284	2.0	0.776	31.0	LOS C	7.6	54.0	1.00	0.95	28.6
Approach		588	2.0	0.776	23.6	LOS B	7.6	54.0	0.85	0.86	31.9
North: Pendle Way											
7	L	271	2.0	0.252	10.6	LOS A	2.8	20.0	0.45	0.72	39.9
8	T	265	2.0	0.431	14.9	LOS B	5.3	37.5	0.83	0.70	35.2
Approach		536	2.0	0.431	12.7	LOS A	5.3	37.5	0.64	0.71	37.4
All Vehicles		1745	2.0	0.776	15.9	LOS B	7.6	54.0	0.73	0.73	35.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	14.4	LOS B	0.1	0.1	0.76	0.76
P3	Across E approach	53	19.4	LOS B	0.1	0.1	0.88	0.88
All Pedestrians		106	16.9	LOS B			0.82	0.82

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Gt Western Hwy/Jones St (2027 Base Thurs PM)

13S1210200 - Bonds Pendle Hill Additional Modelling
Great Western Highway / Jones Street
2027 Base Condition Thursday PM Peak
Signals - Fixed Time Cycle Time = 140 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Berith Rd - S											
4	L	51	2.1	0.499	55.4	LOS D	2.8	19.8	0.84	0.73	24.2
5	T	21	0.0	0.399	61.2	LOS E	5.2	36.8	0.96	0.75	19.2
6	R	60	1.8	0.399	68.9	LOS E	5.2	36.8	0.96	0.78	21.5
Approach		132	1.6	0.499	62.5	LOS E	5.2	36.8	0.91	0.76	22.1
East: Gt Western Hwy - E											
7	L	71	0.0	0.574	23.0	LOS B	26.3	186.1	0.58	1.09	45.4
8	T	2153	1.6	0.574	12.9	LOS A	26.5	188.1	0.58	0.53	53.1
9	R	136	0.0	0.539	49.1	LOS D	6.7	46.7	0.98	0.79	27.6
Approach		2359	1.5	0.574	15.3	LOS B	26.5	188.1	0.60	0.57	50.6
North: Jones St - N											
10	L	71	0.0	0.360	38.8	LOS C	3.1	21.9	0.69	0.73	29.0
11	T	35	0.0	0.767	72.0	LOS F	8.9	62.4	1.00	0.90	17.4
12	R	88	1.2	0.767	79.8	LOS F	8.9	62.4	1.00	0.90	19.6
Approach		194	0.5	0.767	63.4	LOS E	8.9	62.4	0.89	0.84	21.8
West: Gt Western Hwy - W											
1	L	53	0.0	0.467	30.2	LOS C	19.8	140.5	0.65	1.05	39.6
2	T	1423	2.0	0.467	20.1	LOS B	20.0	142.4	0.65	0.58	45.7
3	R	51	2.1	0.483	83.0	LOS F	3.5	25.2	1.00	0.75	19.0
Approach		1526	1.9	0.483	22.5	LOS B	20.0	142.4	0.66	0.60	43.8
All Vehicles		4211	1.6	0.767	21.6	LOS B	26.5	188.1	0.65	0.60	43.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across S approach	53	11.2	LOS B	0.1	0.1	0.40	0.40
P7	Across N approach	53	19.0	LOS B	0.1	0.1	0.52	0.52
P1	Across W approach	53	60.4	LOS F	0.2	0.2	0.93	0.93
All Pedestrians		159	30.2	LOS D			0.62	0.62

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Gt Western Hwy/Jones St (2027 Base SAT)

13S1210200 - Bonds Pendle Hill Additional Modelling
Great Western Highway / Jones Street
2027 Base Condition Saturday Peak
Signals - Fixed Time Cycle Time = 130 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Berith Rd - S											
4	L	75	1.4	0.694	56.3	LOS D	4.2	29.5	0.87	0.83	21.2
5	T	18	0.0	0.569	63.0	LOS E	5.5	39.6	1.00	0.79	21.1
6	R	69	3.0	0.569	69.1	LOS E	5.5	39.6	1.00	0.79	18.9
Approach		162	1.9	0.694	62.5	LOS E	5.5	39.6	0.94	0.80	20.2
East: Gt Western Hwy - E											
7	L	88	1.2	0.317	24.2	LOS B	14.7	105.5	0.65	1.04	44.7
8	T	1119	3.1	0.317	17.2	LOS B	16.2	116.3	0.68	0.67	47.8
9	R	97	3.3	0.408	49.3	LOS D	4.7	34.0	0.96	0.77	27.5
Approach		1304	3.0	0.408	20.0	LOS B	16.2	116.3	0.70	0.70	45.2
North: Jones St - N											
10	L	78	0.0	0.392	40.0	LOS C	3.4	23.8	0.73	0.74	28.6
11	T	35	0.0	0.751	71.4	LOS F	5.3	37.7	1.00	0.87	17.6
12	R	42	5.0	0.751	79.3	LOS F	5.3	37.7	1.00	0.87	19.8
Approach		155	1.4	0.751	57.7	LOS E	5.3	37.7	0.87	0.81	22.9
West: Gt Western Hwy - W											
1	L	33	0.0	0.428	26.4	LOS B	16.5	117.1	0.60	1.07	42.4
2	T	1392	1.8	0.428	16.3	LOS B	16.6	118.2	0.60	0.54	49.4
3	R	72	1.5	0.460	73.7	LOS F	4.5	32.0	0.99	0.77	20.8
Approach		1496	1.8	0.460	19.3	LOS B	16.6	118.2	0.62	0.56	46.7
All Vehicles		3117	2.3	0.751	23.7	LOS B	16.6	118.2	0.68	0.65	41.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across S approach	53	10.8	LOS B	0.1	0.1	0.41	0.41
P7	Across N approach	53	16.3	LOS B	0.1	0.1	0.50	0.50
P1	Across W approach	53	58.2	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		159	28.4	LOS C			0.62	0.62

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Cumberland Hwy/Dunmore St (2027 Base Thurs PM)

13S1210200 - Bonds Pendle Hill Additional Modelling
Cumberland Highway / Dunmore Street
2027 Base Condition Thursday PM Peak
Signals - Fixed Time Cycle Time = 140 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Cumberland Hwy - S											
1	L	58	0.0	0.780	45.4	LOS D	40.5	289.3	0.88	0.96	29.5
2	T	2180	2.6	0.780	37.6	LOS C	40.8	292.2	0.88	0.80	30.6
3	R	49	0.0	0.287	74.1	LOS F	3.2	22.7	0.97	0.75	19.9
Approach		2287	2.5	0.780	38.6	LOS C	40.8	292.2	0.88	0.80	30.2
East: Dunmore St - E											
4	L	74	0.0	0.757	41.4	LOS C	17.2	121.4	0.76	0.87	27.4
5	T	528	1.0	1.009	58.7	LOS E	44.8	315.1	0.87	0.92	19.9
6	R	302	0.3	1.009	93.3	LOS F	44.8	315.1	1.00	1.20	17.0
Approach		904	0.7	1.009	68.9	LOS E	44.8	315.1	0.91	1.01	19.2
North: Cumberland Hwy - N											
7	L	347	1.2	0.579	25.4	LOS B	8.9	62.8	0.49	0.77	37.3
8	T	2403	3.9	0.840	39.5	LOS C	46.6	337.0	0.92	0.85	29.8
9	R	168	3.1	0.696	40.9	LOS C	6.6	47.2	1.00	0.85	29.2
Approach		2919	3.5	0.840	37.9	LOS C	46.6	337.0	0.88	0.84	30.5
West: Dunmore St - W											
10	L	104	0.0	0.639	62.8	LOS E	13.7	96.4	0.96	0.83	21.8
11	T	267	1.6	0.639	55.7	LOS D	13.7	96.4	0.97	0.81	20.5
12	R	48	4.3	0.639	63.6	LOS E	12.8	91.3	0.97	0.83	21.8
Approach		420	1.5	0.639	58.4	LOS E	13.7	96.4	0.97	0.82	21.0
All Vehicles		6531	2.6	1.009	43.7	LOS D	46.6	337.0	0.89	0.85	27.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	39.4	LOS D	0.2	0.2	0.75	0.75
P3	Across E approach	53	32.9	LOS D	0.1	0.1	0.69	0.69
P5	Across N approach	53	58.5	LOS E	0.2	0.2	0.91	0.91
P7	Across W approach	53	32.9	LOS D	0.1	0.1	0.69	0.69
All Pedestrians		212	40.9	LOS E			0.76	0.76

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Cumberland Hwy/Dunmore St (2027 Base SAT)

13S1210200 - Bonds Pendle Hill Additional Modelling
Cumberland Highway / Dunmore Street
2027 Base Condition Saturday Peak
Signals - Fixed Time Cycle Time = 130 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Cumberland Hwy - S											
1	L	27	0.0	0.795	46.3	LOS D	30.0	214.3	0.90	0.96	29.2
2	T	1655	2.7	0.795	38.5	LOS C	30.1	215.8	0.90	0.83	30.2
3	R	81	1.3	0.636	76.1	LOS F	5.3	37.7	1.00	0.80	19.5
Approach		1763	2.6	0.795	40.4	LOS C	30.1	215.8	0.90	0.83	29.5
East: Dunmore St - E											
4	L	63	3.3	0.641	34.2	LOS C	8.3	58.5	0.70	0.82	30.0
5	T	289	0.4	1.068	79.3	LOS F	43.3	304.6	0.85	0.99	16.6
6	R	313	0.7	1.068	135.4	LOS F	43.3	304.6	1.00	1.38	13.0
Approach		665	0.8	1.068	101.4	LOS F	43.3	304.6	0.91	1.16	15.2
North: Cumberland Hwy - N											
7	L	353	1.5	0.752	32.6	LOS C	13.6	96.5	0.70	0.82	33.0
8	T	1725	2.4	0.811	39.4	LOS C	31.5	225.3	0.91	0.84	29.9
9	R	131	0.0	0.651	39.9	LOS C	5.0	34.8	0.98	0.82	29.6
Approach		2208	2.1	0.811	38.4	LOS C	31.5	225.3	0.88	0.84	30.3
West: Dunmore St - W											
10	L	111	0.0	0.620	57.2	LOS E	13.2	92.4	0.95	0.83	23.0
11	T	243	0.4	0.620	49.7	LOS D	13.2	92.4	0.95	0.80	21.7
12	R	84	1.3	0.620	57.2	LOS E	12.1	85.1	0.96	0.83	23.1
Approach		438	0.5	0.620	53.0	LOS D	13.2	92.4	0.95	0.81	22.3
All Vehicles		5075	1.9	1.068	48.6	LOS D	43.3	304.6	0.90	0.87	25.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	34.7	LOS D	0.1	0.1	0.73	0.73
P3	Across E approach	53	32.6	LOS D	0.1	0.1	0.71	0.71
P5	Across N approach	53	53.6	LOS E	0.2	0.2	0.91	0.91
P7	Across W approach	53	32.6	LOS D	0.1	0.1	0.71	0.71
All Pedestrians		212	38.3	LOS D			0.76	0.76

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Cumberland Hwy/Smith St (2027 Base Thurs PM)

13S1210200 - Bonds Pendle Hill Additional Modelling
Cumberland Highway / Smith Street
2027 Base Condition Thursday PM Peak
Signals - Fixed Time Cycle Time = 140 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Cumberland Hwy - S											
1	L	131	0.8	0.667	18.5	LOS B	21.8	155.7	0.45	0.96	41.0
2	T	2267	2.6	0.667	9.2	LOS A	21.8	155.7	0.41	0.38	46.3
3	R	64	0.0	0.440	77.0	LOS F	4.4	30.5	0.99	0.76	19.2
Approach		2462	2.5	0.667	11.5	LOS A	21.8	155.7	0.43	0.42	44.4
East: Smith St - E											
4	L	67	0.0	0.527	64.0	LOS E	6.9	48.5	0.93	0.79	22.0
5	T	280	1.5	1.055	131.8	LOS F	29.0	205.4	0.99	1.24	12.7
6	R	34	0.0	1.055	154.5	LOS F	29.0	205.4	1.00	1.34	11.7
Approach		381	1.1	1.055	121.8	LOS F	29.0	205.4	0.98	1.17	13.6
North: Cumberland Hwy - N											
7	L	49	2.1	0.660	17.5	LOS B	19.9	144.0	0.41	1.00	41.8
8	T	2313	3.9	0.660	8.9	LOS A	19.9	144.0	0.40	0.37	46.7
9	R	56	1.9	0.387	76.7	LOS F	3.8	26.8	0.99	0.75	19.3
Approach		2418	3.8	0.660	10.6	LOS A	19.9	144.0	0.41	0.39	45.1
West: Smith St - W											
10	L	36	0.0	0.461	63.6	LOS E	5.9	42.1	0.92	0.80	22.3
11	T	131	4.0	0.923	72.6	LOS F	8.9	63.5	0.96	0.88	19.1
12	R	41	0.0	0.923	95.8	LOS F	8.9	63.5	1.00	1.02	16.9
Approach		207	2.5	0.923	75.6	LOS F	8.9	63.5	0.96	0.89	19.1
All Vehicles		5468	3.0	1.055	21.2	LOS B	29.0	205.4	0.48	0.48	36.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	59.4	LOS E	0.2	0.2	0.92	0.92
P3	Across E approach	53	13.7	LOS B	0.1	0.1	0.44	0.44
P5	Across N approach	53	59.4	LOS E	0.2	0.2	0.92	0.92
P7	Across W approach	53	13.7	LOS B	0.1	0.1	0.44	0.44
All Pedestrians		212	36.6	LOS D			0.68	0.68

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Cumberland Hwy/Smith St (2027 Base SAT)

13S1210200 - Bonds Pendle Hill Additional Modelling
Cumberland Highway / Smith Street
2027 Base Condition Saturday Peak
Signals - Fixed Time Cycle Time = 130 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Cumberland Hwy - S											
1	L	133	0.8	0.518	20.1	LOS B	20.9	148.7	0.56	0.93	39.9
2	T	1836	2.5	0.518	11.9	LOS A	21.0	150.3	0.56	0.51	43.3
3	R	64	3.3	0.460	72.9	LOS F	4.1	29.4	1.00	0.76	20.0
Approach		2033	2.4	0.518	14.4	LOS A	21.0	150.3	0.57	0.54	41.5
East: Smith St - E											
4	L	46	2.3	0.189	49.7	LOS D	2.3	16.5	0.82	0.74	25.4
5	T	101	0.0	0.663	63.0	LOS E	7.9	55.4	1.00	0.83	21.0
6	R	23	0.0	0.663	71.0	LOS F	7.9	55.4	1.00	0.83	21.0
Approach		171	0.6	0.663	60.4	LOS E	7.9	55.4	0.95	0.80	22.1
North: Cumberland Hwy - N											
7	L	48	0.0	0.482	19.7	LOS B	18.8	134.3	0.54	0.97	40.4
8	T	1784	2.6	0.482	11.5	LOS A	18.8	134.9	0.54	0.49	43.8
9	R	64	0.0	0.449	72.7	LOS F	4.1	28.5	1.00	0.76	20.0
Approach		1897	2.4	0.482	13.8	LOS A	18.8	134.9	0.55	0.51	42.0
West: Smith St - W											
10	L	28	0.0	0.227	61.3	LOS E	2.9	20.1	0.92	0.76	22.7
11	T	95	0.0	0.796	65.9	LOS E	7.8	55.1	0.98	0.85	20.3
12	R	42	2.5	0.796	77.9	LOS F	7.8	55.1	1.00	0.90	19.6
Approach		165	0.6	0.796	68.2	LOS E	7.8	55.1	0.97	0.85	20.5
All Vehicles		4265	2.3	0.796	18.0	LOS B	21.0	150.3	0.59	0.55	38.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	59.1	LOS E	0.2	0.2	0.95	0.95
P3	Across E approach	53	11.2	LOS B	0.1	0.1	0.42	0.42
P5	Across N approach	53	59.1	LOS E	0.2	0.2	0.95	0.95
P7	Across W approach	53	11.2	LOS B	0.1	0.1	0.42	0.42
All Pedestrians		212	35.2	LOS D			0.68	0.68

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Pendle Way/Gilba Rd (2027 Base Thurs PM)

13S1210200 - Bonds Pendle Hill Additional Modelling
Gilba Road / Pendle Way
2027 Base Condition Thursday PM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pendle Way - S											
1	L	512	0.8	0.277	8.2	LOS A	0.0	0.0	0.00	0.67	49.0
2	T	226	0.5	0.407	13.5	LOS A	2.3	16.3	0.63	0.92	43.7
Approach		738	0.7	0.407	9.8	LOS A	2.3	16.3	0.19	0.75	47.2
North: Pendle Way - N											
8	T	173	3.7	0.591	22.4	LOS B	4.2	30.2	0.70	1.08	37.0
9	R	60	1.8	0.591	23.7	LOS B	4.2	30.2	0.70	1.08	36.6
Approach		233	3.2	0.591	22.7	LOS B	4.2	30.2	0.70	1.08	36.9
West: Gilba Rd - W											
10	L	193	0.5	0.252	8.2	LOS A	0.0	0.0	0.00	0.66	49.0
12	R	272	1.2	0.252	8.3	LOS A	0.0	0.0	0.00	0.67	48.9
Approach		464	0.9	0.252	8.2	NA	0.0	0.0	0.00	0.67	48.9
All Vehicles		1435	1.2	0.591	11.4	NA	4.2	30.2	0.21	0.78	45.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Pendle Way/Gilba Rd (2027 Base SAT)

13S1210200 - Bonds Pendle Hill Additional Modelling
Gilba Road / Pendle Way
2027 Base Condition Saturday Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pendle Way - S											
1	L	332	1.9	0.181	8.3	LOS A	0.0	0.0	0.00	0.67	49.0
2	T	231	0.0	0.482	15.8	LOS B	2.7	18.9	0.69	0.98	41.7
Approach		562	1.1	0.482	11.4	LOS A	2.7	18.9	0.28	0.80	45.7
North: Pendle Way - N											
8	T	172	3.1	0.686	25.7	LOS B	5.2	37.3	0.78	1.22	35.0
9	R	85	1.2	0.686	27.0	LOS B	5.2	37.3	0.78	1.18	34.6
Approach		257	2.5	0.686	26.1	LOS B	5.2	37.3	0.78	1.20	34.9
West: Gilba Rd - W											
10	L	201	1.0	0.274	8.2	LOS A	0.0	0.0	0.00	0.66	49.0
12	R	306	0.3	0.274	8.2	LOS A	0.0	0.0	0.00	0.67	48.9
Approach		507	0.6	0.274	8.2	NA	0.0	0.0	0.00	0.67	48.9
All Vehicles		1326	1.2	0.686	13.0	NA	5.2	37.3	0.27	0.83	44.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Goodall St/Wentworth Ave (2027 Base Thurs PM)

13S1210200 - Bonds Pendle Hill Additional Modelling
Goodall Street / Wentworth Avenue
2027 Base Condition Thursday PM Peak
Signals - Fixed Time Cycle Time = 90 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Goodall St - S											
1	L	360	1.5	0.610	15.7	LOS B	7.1	50.5	0.52	0.75	37.4
3	R	291	0.7	0.832	51.9	LOS D	13.9	97.9	1.00	0.95	23.1
Approach		651	1.1	0.832	31.9	LOS C	13.9	97.9	0.73	0.84	29.3
East: Wentworth Ave - E											
4	L	367	0.3	0.866	33.9	LOS C	11.6	81.6	0.84	0.87	30.0
5	T	382	2.5	0.711	35.2	LOS C	15.8	113.2	0.98	0.85	29.1
Approach		749	1.4	0.866	34.5	LOS C	15.8	113.2	0.91	0.86	29.5
West: Wentworth Ave - W											
11	T	395	2.4	0.540	6.4	LOS A	6.6	47.1	0.45	0.39	49.1
12	R	539	2.0	0.649	32.4	LOS C	19.5	138.9	0.88	0.85	30.7
Approach		934	2.1	0.649	21.4	LOS B	19.5	138.9	0.70	0.66	36.7
All Vehicles		2334	1.6	0.866	28.6	LOS C	19.5	138.9	0.78	0.77	31.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P7	Across W approach	53	36.5	LOS D	0.1	0.1	0.90	0.90
All Pedestrians		53	36.5	LOS D			0.90	0.90

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Goodall St/Wentworth Ave (2027 Base SAT)

13S1210200 - Bonds Pendle Hill Additional Modelling
Goodall Street / Wentworth Avenue
2027 Base Condition Saturday Peak
Signals - Fixed Time Cycle Time = 90 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Goodall St - S											
1	L	357	1.5	0.605	16.6	LOS B	7.0	49.9	0.51	0.77	41.2
3	R	263	0.8	0.916	64.2	LOS E	14.2	100.2	1.00	1.04	21.7
Approach		620	1.2	0.916	36.8	LOS C	14.2	100.2	0.72	0.88	29.8
East: Wentworth Ave - E											
4	L	236	0.4	0.576	23.9	LOS B	6.2	43.3	0.64	0.77	36.2
5	T	358	2.6	0.615	33.6	LOS C	14.2	101.7	0.95	0.80	29.8
Approach		594	1.8	0.615	29.7	LOS C	14.2	101.7	0.83	0.79	32.0
West: Wentworth Ave - W											
11	T	379	2.5	0.468	4.8	LOS A	5.5	39.5	0.38	0.32	51.3
12	R	371	2.8	0.381	28.1	LOS B	11.3	80.8	0.74	0.81	33.9
Approach		749	2.7	0.468	16.3	LOS B	11.3	80.8	0.56	0.56	40.9
All Vehicles		1963	1.9	0.916	26.9	LOS B	14.2	101.7	0.69	0.73	34.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P7	Across W approach	53	39.2	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		53	39.2	LOS D			0.93	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Gt Western Hwy/Pendle Way (2027 Base Thurs PM)

13S1210200 - Bonds Pendle Hill Additional Modelling
Great Western Highway / Pendle Way
2027 Base Condition Thursday PM Peak
Signals - Fixed Time Cycle Time = 140 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Ettalong Rd - S											
4	L	124	0.8	0.606	53.5	LOS D	6.7	47.5	0.84	0.77	24.2
5	T	244	0.9	1.099	111.6	LOS F	25.1	176.2	1.00	1.05	14.3
6	R	123	0.0	1.099	187.0	LOS F	25.1	176.2	1.00	1.36	9.9
Approach		492	0.6	1.099	115.8	LOS F	25.1	176.2	0.96	1.06	14.2
East: Gt Western Hwy - E											
7	L	261	0.4	0.695	41.9	LOS C	32.3	228.9	0.82	0.95	28.6
8	T	1748	2.0	0.695	31.3	LOS C	32.7	232.6	0.79	0.72	30.8
9	R	156	1.3	1.000[3]	73.0	LOS F	10.4	73.4	1.00	0.80	20.0
Approach		2165	1.8	1.000	35.6	LOS C	32.7	232.6	0.81	0.75	29.4
North: Pendle Way - N											
10	L	91	1.2	0.741	59.9	LOS E	17.5	123.7	0.96	0.88	23.3
11	T	316	1.3	0.926	60.0	LOS E	34.7	248.5	0.98	0.91	21.4
12	R	328	3.2	0.926	82.9	LOS F	34.7	248.5	1.00	1.01	18.5
Approach		735	2.1	0.926	70.2	LOS E	34.7	248.5	0.99	0.95	20.2
West: Gt Western Hwy - W											
1	L	133	6.3	0.539	40.6	LOS C	21.2	152.8	0.80	0.89	29.3
2	T	1159	2.4	0.539	32.2	LOS C	22.0	157.0	0.80	0.71	30.4
3	R	134	0.8	0.633	73.8	LOS F	9.0	63.4	1.00	0.81	19.9
Approach		1425	2.6	0.633	36.9	LOS C	22.0	157.0	0.82	0.73	28.9
All Vehicles		4817	1.9	1.099	49.4	LOS D	34.7	248.5	0.85	0.81	24.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

3 x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across S approach	53	31.6	LOS D	0.1	0.1	0.67	0.67
P5	Across E approach	53	59.4	LOS E	0.2	0.2	0.92	0.92
P7	Across N approach	53	29.6	LOS C	0.1	0.1	0.65	0.65
All Pedestrians		159	40.2	LOS E			0.75	0.75

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Gt Western Hwy/Pendle Way (2027 Base SAT)

13S1210200 - Bonds Pendle Hill Additional Modelling
Great Western Highway / Pendle Way
2027 Base Condition Saturday Peak
Signals - Fixed Time Cycle Time = 130 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Ettalong Rd - S											
4	L	77	1.4	0.328	42.1	LOS C	3.4	24.4	0.75	0.75	27.8
5	T	195	0.5	0.952	67.7	LOS E	18.4	129.8	0.98	0.89	20.1
6	R	163	1.3	0.952	93.5	LOS F	18.4	129.8	1.00	1.11	17.0
Approach		435	1.0	0.952	72.8	LOS F	18.4	129.8	0.95	0.95	19.7
East: Gt Western Hwy - E											
7	L	171	0.6	0.460	38.1	LOS C	15.0	106.5	0.81	0.90	29.9
8	T	908	3.5	0.460	31.9	LOS C	17.2	123.7	0.81	0.71	30.5
9	R	168	2.7	1.000[3]	66.0	LOS E	10.3	73.4	0.99	0.80	21.3
Approach		1247	3.0	1.000	37.4	LOS C	17.2	123.7	0.83	0.75	28.7
North: Pendle Way - N											
10	L	137	3.1	0.660	43.1	LOS D	9.6	68.7	0.98	0.82	28.0
11	T	194	0.5	0.825	50.6	LOS D	19.0	134.3	0.99	0.88	23.4
12	R	174	1.8	0.825	69.7	LOS E	19.0	134.3	1.00	0.93	20.9
Approach		504	1.7	0.825	55.2	LOS D	19.0	134.3	0.99	0.88	23.5
West: Gt Western Hwy - W											
1	L	129	1.6	0.595	43.0	LOS D	21.2	150.5	0.86	0.88	28.4
2	T	1154	1.9	0.595	34.7	LOS C	21.8	155.4	0.86	0.76	29.3
3	R	105	1.0	0.481	64.2	LOS E	6.2	44.0	0.96	0.78	21.7
Approach		1388	1.8	0.595	37.7	LOS C	21.8	155.4	0.87	0.77	28.5
All Vehicles		3575	2.1	1.000	44.3	LOS D	21.8	155.4	0.88	0.80	26.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

3 x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across S approach	53	34.0	LOS D	0.1	0.1	0.72	0.72
P5	Across E approach	53	59.1	LOS E	0.2	0.2	0.95	0.95
P7	Across N approach	53	31.9	LOS D	0.1	0.1	0.70	0.70
All Pedestrians		159	41.7	LOS E			0.79	0.79

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Attachment 3C – SIDRA Output (2027 Post Development Thursday PM & Saturday Midday)

Intersection	Peak	Leg	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile (m)	Level of Service (LOS)
Jones Street/ Rogers Street	PM	South	0.20	9	10	A
		East	0.04	9	1	A
		North	0.20	7	0	A
		All	**0.20**	**1**	**10**	**A**
	Sat	South	0.15	8	7	A
		East	0.04	8	1	A
		North	0.17	7	0	A
		All	**0.17**	**2**	**7**	**A**
Jones Street/ Oatlands Street	PM	South	0.28	10	18	A
		East	0.09	11	2	A
		North	0.25	7	0	A
		All	**0.27**	**2**	**17**	**A**
	Sat	South	0.25	10	16	A
		East	0.08	12	2	A
		North	0.28	7	0	A
		All	**0.28**	**2**	**16**	**A**
Jones Street/ Smith Street	PM	South	0.53	15	30	B
		East	0.52	12	27	A
		North	0.42	10	21	A
		West	0.29	13	12	A
		All	**0.53**	**9**	**30**	**A**
	Sat	South	0.36	12	16	A
		East	0.31	12	13	A
		North	0.49	11	27	A
		West	0.27	12	11	A
		All	**0.49**	**8**	**27**	**A**
Jones Street/ Dunmore Street	PM	South	0.79	31	68	C
		East	0.92	27	165	B
		North	0.15	14	6	A
		West	0.57	10	37	A
		All	**0.92**	**19**	**165**	**B**
	Sat	South	0.39	14	18	A
		East	0.61	13	40	A
		North	0.14	14	6	A
		West	0.56	10	37	A
		All	**0.61**	**9**	**40**	**A**

Intersection	Peak	Leg	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile (m)	Level of Service (LOS)
Goodall Street/ Dunmore Street	PM	East	0.86	21	96	B
		North	0.87	28	117	B
		West	0.76	19	83	B
		All	**0.87**	**23**	**117**	**B**
	Sat	East	0.64	15	64	B
		North	0.64	26	56	B
		West	0.62	17	90	B
		All	**0.64**	**19**	**90**	**B**
Pendle Way/ Dunmore Street	PM	South	0.77	22	71	B
		East	0.82	24	128	B
		North	0.47	16	45	B
		All	**0.82**	**22**	**128**	**B**
	Sat	South	0.68	15	49	B
		East	0.81	25	86	B
		North	0.47	14	43	A
		All	**0.81**	**18**	**86**	**B**
Great Western Highway/ Jones Street	PM	South	0.50	63	37	E
		East	0.81	17	188	B
		North	0.87	66	74	E
		West	0.48	23	147	B
		All	**0.87**	**23**	**188**	**B**
	Sat	South	0.69	63	40	E
		East	0.66	22	116	B
		North	1.13	116	93	F
		West	0.46	20	122	B
		All	**1.13**	**30**	**122**	**C**
Cumberland Highway/ Dunmore Street	PM	South	0.79	39	301	C
		East	1.03	77	330	F
		North	0.84	39	337	C
		West	0.70	60	107	E
		All	**1.03**	**46**	**337**	**D**
	Sat	South	0.72	33	192	C
		East	1.10	115	323	F
		North	0.76	32	192	C
		West	0.72	56	111	D
		All	**1.10**	**45**	**323**	**D**

Intersection	Peak	Leg	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile (m)	Level of Service (LOS)
Cumberland Highway/ Smith Street	PM	South	0.68	12	178	A
		East	1.04	116	200	F
		North	0.66	11	146	A
		West	1.11	125	95	F
		All	**1.11**	**23**	**200**	**B**
	Sat	South	0.54	15	159	B
		East	0.65	60	55	E
		North	0.49	14	138	A
		West	1.14	161	119	F
		All	**1.14**	**23**	**159**	**B**
Pendle Way/ Gilba Road	PM	South	0.93	50	58	D
		North	1.61	611	438	F
		West	0.30	8	0	A
		All	**1.61**	**103**	**438**	**F**
	Sat	South	1.16	205	190	F
		North	2.06	1015	632	F
		West	0.34	8	0	A
		All	**2.06**	**201**	**632**	**F**
Goodall Street/ Wentworth Avenue	PM	South	0.92	38	122	C
		East	0.97	33	113	C
		West	0.65	21	139	B
		All	**0.97**	**30**	**139**	**C**
	Sat	South	1.13	97	233	F
		East	0.73	31	102	C
		West	0.47	16	81	B
		All	**1.13**	**47**	**233**	**D**
Cumberland Highway/ Pendle Way	PM	South	1.10	116	176	F
		East	1.00	36	233	C
		North	0.93	71	253	F
		West	0.63	37	159	C
		All	**1.10**	**50**	**253**	**D**
	Sat	South	0.95	73	130	F
		East	1.00	37	124	C
		North	0.85	57	140	E
		West	0.60	38	157	C
		All	**1.00**	**45**	**157**	**D**

MOVEMENT SUMMARY

Site: Jones-Rogers (2027 Post Dev Thurs PM)

13S1210200
Jones Street-Rogers Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	344	2.0	0.196	1.7	LOS A	1.5	10.4	0.51	0.00	44.1
3	R	21	2.0	0.196	8.5	LOS A	1.5	10.4	0.51	0.89	43.0
Approach		365	2.0	0.196	2.1	NA	1.5	10.4	0.51	0.05	44.0
East: Rogers Street											
4	L	25	2.0	0.039	8.6	LOS A	0.1	1.0	0.45	0.63	41.4
6	R	11	2.0	0.039	8.9	LOS A	0.1	1.0	0.45	0.78	41.3
Approach		36	2.0	0.039	8.7	LOS A	0.1	1.0	0.45	0.67	41.4
North: Jones Street											
7	L	9	2.0	0.197	6.5	LOS A	0.0	0.0	0.00	0.91	43.3
8	T	369	2.0	0.197	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		379	2.0	0.197	0.2	NA	0.0	0.0	0.00	0.02	49.8
All Vehicles		780	2.0	0.197	1.4	NA	1.5	10.4	0.26	0.07	46.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Rogers (2027 Post Dev Sat)

13S1210200
Jones Street-Rogers Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	260	2.0	0.152	1.3	LOS A	1.0	7.3	0.45	0.00	44.7
3	R	22	2.0	0.152	8.1	LOS A	1.0	7.3	0.45	0.87	43.0
Approach		282	2.0	0.152	1.8	NA	1.0	7.3	0.45	0.07	44.5
East: Rogers Street											
4	L	29	2.0	0.041	8.1	LOS A	0.2	1.1	0.40	0.61	41.8
6	R	13	2.0	0.041	8.4	LOS A	0.2	1.1	0.40	0.74	41.7
Approach		42	2.0	0.041	8.2	LOS A	0.2	1.1	0.40	0.65	41.8
North: Jones Street											
7	L	21	2.0	0.169	6.5	LOS A	0.0	0.0	0.00	0.89	43.3
8	T	303	2.0	0.169	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		324	2.0	0.169	0.4	NA	0.0	0.0	0.00	0.06	49.5
All Vehicles		648	2.0	0.169	1.5	NA	1.0	7.3	0.22	0.10	46.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Oatlands (2027 Post Dev Thurs PM)

13S1210200
Jones Street-Oatlands Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	511	2.0	0.282	2.7	LOS A	2.6	18.3	0.64	0.00	42.8
3	R	19	2.0	0.282	9.5	LOS A	2.6	18.3	0.64	0.94	42.6
Approach		529	2.0	0.282	2.9	NA	2.6	18.3	0.64	0.03	42.8
East: Oatlands Street											
4	L	29	2.0	0.089	10.8	LOS A	0.3	2.2	0.56	0.71	39.6
6	R	25	2.0	0.089	11.2	LOS A	0.3	2.2	0.56	0.86	39.5
Approach		55	2.0	0.089	11.0	LOS A	0.3	2.2	0.56	0.78	39.5
North: Jones Street											
7	L	25	2.0	0.254	6.5	LOS A	0.0	0.0	0.00	0.90	43.3
8	T	463	2.0	0.254	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		488	2.0	0.254	0.3	NA	0.0	0.0	0.00	0.05	49.6
All Vehicles		1073	2.0	0.282	2.2	NA	2.6	18.3	0.34	0.08	45.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Oatlands (2027 Post Dev Sat)

13S1210200
Jones Street-Oatlands Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
2	T	441	2.0	0.252	2.9	LOS A	2.3	16.2	0.64	0.00	42.8
3	R	24	2.0	0.252	9.7	LOS A	2.3	16.2	0.64	0.94	42.4
Approach		465	2.0	0.252	3.3	NA	2.3	16.2	0.64	0.05	42.8
East: Oatland Street											
4	L	17	2.0	0.078	11.4	LOS A	0.3	1.9	0.60	0.73	39.1
6	R	26	2.0	0.078	11.8	LOS A	0.3	1.9	0.60	0.86	39.0
Approach		43	2.0	0.078	11.7	LOS A	0.3	1.9	0.60	0.81	39.0
North: Jones Street											
7	L	31	2.0	0.275	6.5	LOS A	0.0	0.0	0.00	0.90	43.3
8	T	497	2.0	0.275	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		527	2.0	0.275	0.4	NA	0.0	0.0	0.00	0.05	49.6
All Vehicles		1036	2.0	0.275	2.1	NA	2.3	16.2	0.31	0.08	45.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Smith (2027 Post Dev Thurs PM)

13S1210200
Jones Street-Smith Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	35	2.0	0.525	11.6	LOS A	4.2	29.6	0.79	0.92	39.4
2	T	303	2.0	0.525	10.6	LOS A	4.2	29.6	0.79	0.89	39.7
3	R	35	2.0	0.525	14.7	LOS B	4.2	29.6	0.79	0.97	37.9
Approach		373	2.0	0.525	11.1	LOS A	4.2	29.6	0.79	0.90	39.5
East: Smith Street											
4	L	69	2.0	0.515	8.4	LOS A	3.8	27.3	0.65	0.72	41.5
5	T	249	2.0	0.515	7.5	LOS A	3.8	27.3	0.65	0.67	41.5
6	R	151	2.0	0.515	11.5	LOS A	3.8	27.3	0.65	0.80	39.8
Approach		469	2.0	0.515	8.9	LOS A	3.8	27.3	0.65	0.72	40.9
North: Jones Street											
7	L	184	2.0	0.420	7.3	LOS A	3.0	21.4	0.50	0.62	42.0
8	T	178	2.0	0.420	6.4	LOS A	3.0	21.4	0.50	0.56	42.2
9	R	71	2.0	0.420	10.4	LOS A	3.0	21.4	0.50	0.74	40.5
Approach		433	2.0	0.420	7.4	LOS A	3.0	21.4	0.50	0.62	41.8
West: Smith Street											
10	L	72	2.0	0.291	9.8	LOS A	1.7	12.4	0.69	0.80	40.7
11	T	118	2.0	0.291	8.8	LOS A	1.7	12.4	0.69	0.76	41.0
12	R	14	2.0	0.291	12.9	LOS A	1.7	12.4	0.69	0.87	38.9
Approach		203	2.0	0.291	9.4	LOS A	1.7	12.4	0.69	0.78	40.7
All Vehicles		1478	2.0	0.525	9.1	LOS A	4.2	29.6	0.65	0.74	40.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Smith (2027 Post Dev Sat)

13S1210200
Jones Street-Smith Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	24	2.0	0.364	8.6	LOS A	2.3	16.2	0.60	0.73	41.8
2	T	241	2.0	0.364	7.6	LOS A	2.3	16.2	0.60	0.68	41.9
3	R	40	2.0	0.364	11.6	LOS A	2.3	16.2	0.60	0.83	39.8
Approach		305	2.0	0.364	8.2	LOS A	2.3	16.2	0.60	0.70	41.6
East: Smith Street											
4	L	21	2.0	0.306	8.6	LOS A	1.8	13.1	0.60	0.72	41.4
5	T	99	2.0	0.306	7.6	LOS A	1.8	13.1	0.60	0.67	41.6
6	R	129	2.0	0.306	11.7	LOS A	1.8	13.1	0.60	0.80	39.5
Approach		249	2.0	0.306	9.8	LOS A	1.8	13.1	0.60	0.74	40.5
North: Jones Street											
7	L	187	2.0	0.491	7.5	LOS A	3.8	26.7	0.54	0.64	41.9
8	T	235	2.0	0.491	6.6	LOS A	3.8	26.7	0.54	0.58	42.0
9	R	84	2.0	0.491	10.6	LOS A	3.8	26.7	0.54	0.74	40.4
Approach		506	2.0	0.491	7.6	LOS A	3.8	26.7	0.54	0.63	41.7
West: Smith Street											
10	L	74	2.0	0.274	9.1	LOS A	1.6	11.2	0.62	0.75	41.2
11	T	118	2.0	0.274	8.1	LOS A	1.6	11.2	0.62	0.70	41.6
12	R	18	2.0	0.274	12.2	LOS A	1.6	11.2	0.62	0.84	39.4
Approach		209	2.0	0.274	8.8	LOS A	1.6	11.2	0.62	0.73	41.3
All Vehicles		1271	2.0	0.491	8.4	LOS A	3.8	26.7	0.58	0.69	41.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Dunmore (2027 Post Dev Thurs PM)

13S1210200
Jones Street-Dunmore Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	237	2.0	0.790	28.0	LOS B	9.6	68.3	1.00	1.30	29.8
2	T	62	2.0	0.790	27.1	LOS B	9.6	68.3	1.00	1.30	29.9
3	R	56	2.0	0.790	31.1	LOS C	9.6	68.3	1.00	1.30	29.1
Approach		355	2.0	0.790	28.4	LOS B	9.6	68.3	1.00	1.30	29.7
East: Dunmore Street											
4	L	106	2.0	0.919	23.7	LOS B	23.2	165.4	1.00	1.30	32.1
5	T	691	2.0	0.919	22.8	LOS B	23.2	165.4	1.00	1.30	32.2
6	R	26	2.0	0.919	26.8	LOS B	23.2	165.4	1.00	1.30	31.3
Approach		823	2.0	0.919	23.0	LOS B	23.2	165.4	1.00	1.30	32.1
North: Jones Street											
7	L	14	2.0	0.146	10.4	LOS A	0.8	5.8	0.69	0.78	39.9
8	T	21	2.0	0.146	9.4	LOS A	0.8	5.8	0.69	0.74	40.2
9	R	56	2.0	0.146	13.5	LOS A	0.8	5.8	0.69	0.83	38.2
Approach		91	2.0	0.146	12.1	LOS A	0.8	5.8	0.69	0.80	38.9
West: Dunmore Street											
10	L	66	2.0	0.567	7.3	LOS A	5.2	37.1	0.58	0.62	41.7
11	T	312	2.0	0.567	6.4	LOS A	5.2	37.1	0.58	0.56	41.8
12	R	238	2.0	0.567	10.4	LOS A	5.2	37.1	0.58	0.71	40.4
Approach		616	2.0	0.567	8.0	LOS A	5.2	37.1	0.58	0.63	41.2
All Vehicles		1884	2.0	0.919	18.6	LOS B	23.2	165.4	0.85	1.06	34.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Dunmore (2027 Post Dev Sat)

13S1210200
Jones Street-Dunmore Street
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
1	L	176	2.0	0.394	10.5	LOS A	2.5	18.1	0.77	0.85	39.9
2	T	23	2.0	0.394	9.5	LOS A	2.5	18.1	0.77	0.82	40.1
3	R	60	2.0	0.394	13.5	LOS A	2.5	18.1	0.77	0.89	38.2
Approach		259	2.0	0.394	11.1	LOS A	2.5	18.1	0.77	0.85	39.5
East: Dunmore Street											
4	L	65	2.0	0.614	9.9	LOS A	5.7	40.3	0.73	0.81	40.7
5	T	469	2.0	0.614	9.0	LOS A	5.7	40.3	0.73	0.77	41.0
6	R	18	2.0	0.614	13.0	LOS A	5.7	40.3	0.73	0.88	39.0
Approach		553	2.0	0.614	9.2	LOS A	5.7	40.3	0.73	0.78	40.9
North: Jones Street											
7	L	19	2.0	0.144	11.1	LOS A	0.8	5.7	0.72	0.80	39.4
8	T	25	2.0	0.144	10.2	LOS A	0.8	5.7	0.72	0.76	39.7
9	R	40	2.0	0.144	14.2	LOS A	0.8	5.7	0.72	0.86	37.8
Approach		84	2.0	0.144	12.3	LOS A	0.8	5.7	0.72	0.82	38.7
West: Dunmore Street											
10	L	40	2.0	0.556	6.9	LOS A	5.1	36.5	0.47	0.58	42.1
11	T	396	2.0	0.556	5.9	LOS A	5.1	36.5	0.47	0.51	42.3
12	R	222	2.0	0.556	9.9	LOS A	5.1	36.5	0.47	0.70	40.6
Approach		658	2.0	0.556	7.3	LOS A	5.1	36.5	0.47	0.58	41.7
All Vehicles		1554	2.0	0.614	8.9	LOS A	5.7	40.3	0.63	0.71	40.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Dunmore-Goodall (2027 Post Dev Thurs PM)

13S1210200
Dunmore Street-Goodall Street
Signals - Fixed Time Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Dunmore Street											
5	T	608	2.0	0.709	12.5	LOS A	13.5	96.2	0.78	0.71	36.8
6	R	340	2.0	0.857	37.4	LOS C	10.2	72.8	1.00	1.13	26.3
Approach		948	2.0	0.857	21.4	LOS B	13.5	96.2	0.86	0.86	32.2
North: Goodall Street											
7	L	335	2.0	0.585	15.1	LOS B	5.6	40.1	0.61	0.76	36.7
9	R	476	2.0	0.866	37.0	LOS C	16.5	117.4	1.00	1.03	26.4
Approach		811	2.0	0.866	28.0	LOS B	16.5	117.4	0.84	0.92	29.9
West: Dunmore Street											
10	L	277	2.0	0.269	10.7	LOS A	3.2	22.6	0.42	0.71	39.8
11	T	391	2.0	0.761	25.0	LOS B	11.7	83.1	0.98	0.93	29.9
Approach		667	2.0	0.761	19.0	LOS B	11.7	83.1	0.75	0.84	33.3
All Vehicles		2426	2.0	0.866	23.0	LOS B	16.5	117.4	0.82	0.87	31.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	Across N approach	53	24.3	LOS C	0.1	0.1	0.90	0.90
P7	Across W approach	53	22.5	LOS C	0.1	0.1	0.87	0.87
All Pedestrians		106	23.4	LOS C			0.88	0.88

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Goodall (2027 Post Dev Sat)

13S1210200
Dunmore Street-Goodall Street
Signals - Fixed Time Cycle Time = 70 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Dunmore Street											
5	T	489	2.0	0.545	8.1	LOS A	8.9	63.7	0.58	0.51	40.4
6	R	301	2.0	0.643	27.1	LOS B	8.7	62.2	0.95	0.89	30.3
Approach		791	2.0	0.643	15.3	LOS B	8.9	63.7	0.72	0.65	35.8
North: Goodall Street											
7	L	294	2.0	0.638	20.1	LOS B	6.6	47.1	0.69	0.78	33.7
9	R	251	2.0	0.599	33.4	LOS C	7.9	56.4	0.95	0.82	27.7
Approach		544	2.0	0.638	26.2	LOS B	7.9	56.4	0.81	0.80	30.7
West: Dunmore Street											
10	L	198	2.0	0.203	11.1	LOS A	2.9	20.6	0.47	0.73	39.5
11	T	475	2.0	0.622	18.7	LOS B	12.6	89.7	0.85	0.73	33.0
Approach		673	2.0	0.622	16.5	LOS B	12.6	89.7	0.74	0.73	34.7
All Vehicles		2007	2.0	0.643	18.6	LOS B	12.6	89.7	0.75	0.72	33.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	Across N approach	53	20.8	LOS C	0.1	0.1	0.77	0.77
P7	Across W approach	53	29.3	LOS C	0.1	0.1	0.91	0.91
All Pedestrians		106	25.0	LOS C			0.84	0.84

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Pendle (2027 Post Dev Thurs PM)

13S1210200
Dunmore Street-Pendle Way
Signals - Fixed Time Cycle Time = 65 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pendle Way											
2	T	331	2.0	0.372	12.3	LOS A	6.9	48.9	0.69	0.59	37.1
3	R	329	2.0	0.773	32.1	LOS C	9.9	70.5	0.99	1.01	28.2
Approach		660	2.0	0.773	22.2	LOS B	9.9	70.5	0.84	0.80	32.0
East: Dunmore Street											
4	L	517	2.0	0.496	15.5	LOS B	9.9	70.4	0.64	0.79	36.4
6	R	534	2.0	0.824	32.8	LOS C	18.0	128.3	0.98	0.96	27.9
Approach		1051	2.0	0.824	24.3	LOS B	18.0	128.3	0.81	0.88	31.5
North: Pendle Way											
7	L	325	2.0	0.315	10.5	LOS A	3.8	27.3	0.40	0.71	40.0
8	T	224	2.0	0.473	23.2	LOS B	6.3	44.6	0.90	0.74	30.7
Approach		549	2.0	0.473	15.7	LOS B	6.3	44.6	0.60	0.72	35.6
All Vehicles		2260	2.0	0.824	21.6	LOS B	18.0	128.3	0.77	0.82	32.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	11.1	LOS B	0.1	0.1	0.58	0.58
P3	Across E approach	53	26.8	LOS C	0.1	0.1	0.91	0.91
All Pedestrians		106	18.9	LOS B			0.75	0.75

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Pendle (2027 Post Dev Sat)

13S1210200
Dunmore Street-Pendle Way
Signals - Fixed Time Cycle Time = 55 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pendle Way											
2	T	362	2.0	0.369	8.9	LOS A	5.9	42.3	0.64	0.55	39.6
3	R	289	2.0	0.675	23.2	LOS B	6.9	49.4	0.96	0.87	32.1
Approach		652	2.0	0.675	15.2	LOS B	6.9	49.4	0.79	0.70	35.9
East: Dunmore Street											
4	L	335	2.0	0.372	16.0	LOS B	5.7	40.4	0.66	0.77	36.1
6	R	406	2.0	0.814	32.0	LOS C	12.0	85.6	0.99	0.98	28.2
Approach		741	2.0	0.814	24.8	LOS B	12.0	85.6	0.84	0.88	31.3
North: Pendle Way											
7	L	393	2.0	0.365	10.5	LOS A	4.4	31.3	0.45	0.73	39.9
8	T	265	2.0	0.474	17.8	LOS B	6.0	43.1	0.87	0.73	33.5
Approach		658	2.0	0.474	13.5	LOS A	6.0	43.1	0.62	0.73	37.0
All Vehicles		2051	2.0	0.814	18.1	LOS B	12.0	85.6	0.75	0.77	34.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	13.1	LOS B	0.1	0.1	0.69	0.69
P3	Across E approach	53	21.8	LOS C	0.1	0.1	0.89	0.89
All Pedestrians		106	17.5	LOS B			0.79	0.79

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Gt Western Hwy/Jones St (2027 Post Dev Thurs PM)

13S1210200 - Bonds Pendle Hill Additional Modelling
Great Western Highway / Jones Street
Post Development 2027 Thursday PM Peak
Signals - Fixed Time Cycle Time = 140 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Berith Rd - S											
4	L	51	2.1	0.499	55.4	LOS D	2.8	19.8	0.84	0.73	24.2
5	T	21	0.0	0.405	61.3	LOS E	5.2	36.9	0.96	0.76	19.2
6	R	60	1.8	0.405	69.0	LOS E	5.2	36.9	0.96	0.78	21.5
Approach		132	1.6	0.499	62.6	LOS E	5.2	36.9	0.91	0.76	22.1
East: Gt Western Hwy - E											
7	L	71	0.0	0.574	23.0	LOS B	26.3	186.1	0.58	1.09	45.4
8	T	2153	1.6	0.574	12.9	LOS A	26.5	188.1	0.58	0.53	53.1
9	R	203	0.0	0.806	55.0	LOS D	11.1	77.8	1.00	0.87	25.6
Approach		2426	1.4	0.806	16.7	LOS B	26.5	188.1	0.62	0.58	49.1
North: Jones St - N											
10	L	100	0.0	0.512	39.4	LOS C	4.5	31.6	0.71	0.75	28.8
11	T	35	0.0	0.869	78.7	LOS F	10.5	74.2	1.00	1.00	16.5
12	R	103	1.0	0.869	86.4	LOS F	10.5	74.2	1.00	1.00	18.6
Approach		238	0.4	0.869	65.5	LOS E	10.5	74.2	0.88	0.89	21.5
West: Gt Western Hwy - W											
1	L	86	0.0	0.478	31.0	LOS C	20.5	145.8	0.67	1.04	39.1
2	T	1423	2.0	0.478	20.4	LOS B	20.7	147.3	0.66	0.59	45.3
3	R	51	2.1	0.483	83.0	LOS F	3.5	25.2	1.00	0.75	19.0
Approach		1560	1.9	0.483	23.1	LOS B	20.7	147.3	0.67	0.62	43.4
All Vehicles		4356	1.5	0.869	23.1	LOS B	26.5	188.1	0.66	0.62	42.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across S approach	53	11.2	LOS B	0.1	0.1	0.40	0.40
P7	Across N approach	53	19.0	LOS B	0.1	0.1	0.52	0.52
P1	Across W approach	53	60.4	LOS F	0.2	0.2	0.93	0.93
All Pedestrians		159	30.2	LOS D			0.62	0.62

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Gt Western Hwy/Jones St (2027 Post Dev SAT)

13S1210200 - Bonds Pendle Hill Additional Modelling
Great Western Highway / Jones Street
Post Development 2027 Saturday Peak
Signals - Fixed Time Cycle Time = 130 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Berith Rd - S											
4	L	75	1.4	0.694	56.3	LOS D	4.2	29.5	0.87	0.83	21.2
5	T	18	0.0	0.577	63.2	LOS E	5.6	39.7	1.00	0.79	21.1
6	R	69	3.0	0.577	69.3	LOS E	5.6	39.7	1.00	0.79	18.9
Approach		162	1.9	0.694	62.6	LOS E	5.6	39.7	0.94	0.81	20.2
East: Gt Western Hwy - E											
7	L	88	1.2	0.317	24.2	LOS B	14.7	105.5	0.65	1.04	44.7
8	T	1119	3.1	0.317	17.2	LOS B	16.2	116.3	0.68	0.67	47.8
9	R	159	2.0	0.664	57.4	LOS E	8.0	56.8	1.00	0.86	24.9
Approach		1366	2.9	0.664	22.3	LOS B	16.2	116.3	0.71	0.72	43.1
North: Jones St - N											
10	L	140	0.0	0.706	45.2	LOS D	6.8	47.8	0.76	0.82	27.0
11	T	35	0.0	1.130	202.4	LOS F	13.1	93.2	1.00	1.38	8.3
12	R	73	2.9	1.130	210.2	LOS F	13.1	93.2	1.00	1.38	9.6
Approach		247	0.9	1.130	115.7	LOS F	13.1	93.2	0.87	1.06	14.8
West: Gt Western Hwy - W											
1	L	63	0.0	0.438	26.6	LOS B	16.9	119.9	0.61	1.06	42.3
2	T	1392	1.8	0.438	16.4	LOS B	17.2	122.0	0.61	0.54	49.2
3	R	72	1.5	0.460	73.7	LOS F	4.5	32.0	0.99	0.77	20.8
Approach		1526	1.7	0.460	19.5	LOS B	17.2	122.0	0.63	0.58	46.4
All Vehicles		3302	2.1	1.130	30.0	LOS C	17.2	122.0	0.70	0.68	37.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across S approach	53	10.8	LOS B	0.1	0.1	0.41	0.41
P7	Across N approach	53	16.3	LOS B	0.1	0.1	0.50	0.50
P1	Across W approach	53	58.2	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		159	28.4	LOS C			0.62	0.62

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Cumberland Hwy/Dunmore St (2027 Post Dev Thurs PM)

13S1210200 - Bonds Pendle Hill Additional Modelling
Cumberland Highway / Dunmore Street
Post Development 2027 Thursday PM Peak
Signals - Fixed Time Cycle Time = 140 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Cumberland Hwy - S											
1	L	93	0.0	0.794	46.7	LOS D	41.8	298.3	0.90	0.94	28.9
2	T	2180	2.6	0.794	38.2	LOS C	42.1	301.3	0.89	0.81	30.3
3	R	49	0.0	0.287	74.1	LOS F	3.2	22.7	0.97	0.75	19.9
Approach		2322	2.4	0.794	39.3	LOS C	42.1	301.3	0.89	0.82	29.9
East: Dunmore St - E											
4	L	74	0.0	0.771	42.3	LOS C	17.9	125.9	0.76	0.88	27.1
5	T	528	1.0	1.028	64.5	LOS E	46.8	329.7	0.87	0.94	18.9
6	R	302	0.3	1.028	106.1	LOS F	46.8	329.7	1.00	1.24	15.5
Approach		904	0.7	1.028	76.6	LOS F	46.8	329.7	0.91	1.04	18.0
North: Cumberland Hwy - N											
7	L	347	1.2	0.579	25.4	LOS B	8.9	62.8	0.49	0.77	37.3
8	T	2403	3.9	0.840	39.5	LOS C	46.6	337.0	0.92	0.85	29.8
9	R	203	2.6	0.832	54.8	LOS D	10.1	72.4	1.00	0.93	24.4
Approach		2954	3.5	0.840	38.9	LOS C	46.6	337.0	0.88	0.85	30.1
West: Dunmore St - W											
10	L	119	0.0	0.696	63.9	LOS E	15.2	107.0	0.97	0.85	21.6
11	T	267	1.6	0.696	57.1	LOS E	15.2	107.0	0.98	0.84	20.1
12	R	63	3.3	0.696	65.3	LOS E	13.8	98.3	0.99	0.86	21.5
Approach		449	1.4	0.696	60.0	LOS E	15.2	107.0	0.98	0.84	20.7
All Vehicles		6629	2.6	1.028	45.6	LOS D	46.8	337.0	0.89	0.86	26.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	39.4	LOS D	0.2	0.2	0.75	0.75
P3	Across E approach	53	32.9	LOS D	0.1	0.1	0.69	0.69
P5	Across N approach	53	58.5	LOS E	0.2	0.2	0.91	0.91
P7	Across W approach	53	32.9	LOS D	0.1	0.1	0.69	0.69
All Pedestrians		212	40.9	LOS E			0.76	0.76

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Cumberland Hwy/Dunmore St (2027 Post Dev SAT)

13S1210200 - Bonds Pendle Hill Additional Modelling
Cumberland Highway / Dunmore Street
Post Development 2027 Saturday Peak
Signals - Fixed Time Cycle Time = 130 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Cumberland Hwy - S											
1	L	58	0.0	0.722	38.9	LOS C	26.7	190.5	0.81	0.98	32.2
2	T	1655	2.7	0.722	31.0	LOS C	26.8	192.2	0.80	0.74	33.8
3	R	81	1.3	0.636	76.1	LOS F	5.3	37.7	1.00	0.80	19.5
Approach		1794	2.5	0.722	33.3	LOS C	26.8	192.2	0.81	0.75	32.7
East: Dunmore St - E											
4	L	63	3.3	0.657	34.4	LOS C	8.5	60.5	0.70	0.82	29.9
5	T	289	0.4	1.095	88.1	LOS F	45.9	323.1	0.85	1.01	15.5
6	R	313	0.7	1.095	156.3	LOS F	45.9	323.1	1.00	1.44	11.6
Approach		665	0.8	1.095	115.0	LOS F	45.9	323.1	0.91	1.20	13.9
North: Cumberland Hwy - N											
7	L	353	1.5	0.752	32.6	LOS C	13.6	96.5	0.70	0.82	33.0
8	T	1725	2.4	0.721	30.8	LOS C	26.8	191.7	0.80	0.74	34.0
9	R	161	0.0	0.758	41.4	LOS C	6.2	43.6	1.00	0.88	28.9
Approach		2239	2.1	0.758	31.9	LOS C	26.8	191.7	0.80	0.76	33.4
West: Dunmore St - W											
10	L	141	0.0	0.719	58.7	LOS E	15.9	111.2	0.97	0.86	22.6
11	T	243	0.4	0.719	52.2	LOS D	15.9	111.2	0.98	0.85	21.1
12	R	116	0.9	0.719	60.7	LOS E	14.3	100.4	0.99	0.88	22.3
Approach		500	0.4	0.719	56.0	LOS D	15.9	111.2	0.98	0.86	21.8
All Vehicles		5198	1.9	1.095	45.3	LOS D	45.9	323.1	0.83	0.82	26.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	34.7	LOS D	0.1	0.1	0.73	0.73
P3	Across E approach	53	28.4	LOS C	0.1	0.1	0.66	0.66
P5	Across N approach	53	53.6	LOS E	0.2	0.2	0.91	0.91
P7	Across W approach	53	28.4	LOS C	0.1	0.1	0.66	0.66
All Pedestrians		212	36.3	LOS D			0.74	0.74

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Cumberland Hwy/Smith St (2027 Post Dev Thurs PM)

13S1210200 - Bonds Pendle Hill Additional Modelling
Cumberland Highway / Smith Street
Post Development 2027 Thursday PM Peak
Signals - Fixed Time Cycle Time = 140 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Cumberland Hwy - S											
1	L	176	0.6	0.690	19.8	LOS B	24.9	177.5	0.50	0.94	40.0
2	T	2301	2.6	0.690	9.7	LOS A	24.9	177.5	0.44	0.41	45.7
3	R	64	0.0	0.440	77.0	LOS F	4.4	30.5	0.99	0.76	19.2
Approach		2541	2.4	0.690	12.1	LOS A	24.9	177.5	0.46	0.45	43.7
East: Smith St - E											
4	L	67	0.0	0.521	63.9	LOS E	6.8	47.9	0.93	0.79	22.1
5	T	280	1.5	1.042	124.5	LOS F	28.2	199.8	0.99	1.22	13.2
6	R	34	0.0	1.042	145.4	LOS F	28.2	199.8	1.00	1.31	12.3
Approach		381	1.1	1.042	115.7	LOS F	28.2	199.8	0.98	1.15	14.1
North: Cumberland Hwy - N											
7	L	49	2.1	0.664	17.6	LOS B	20.2	145.9	0.42	1.00	41.8
8	T	2327	3.9	0.664	8.9	LOS A	20.2	145.9	0.40	0.37	46.6
9	R	56	1.9	0.387	76.7	LOS F	3.8	26.8	0.99	0.75	19.3
Approach		2433	3.8	0.664	10.7	LOS A	20.2	145.9	0.42	0.39	45.1
West: Smith St - W											
10	L	36	0.0	0.555	65.1	LOS E	7.2	51.3	0.94	0.80	22.1
11	T	131	4.0	1.110	108.3	LOS F	13.4	95.0	0.96	0.94	14.6
12	R	60	0.0	1.110	198.6	LOS F	13.4	95.0	1.00	1.26	9.4
Approach		226	2.3	1.110	125.4	LOS F	13.4	95.0	0.97	1.01	13.3
All Vehicles		5581	2.9	1.110	23.2	LOS B	28.2	199.8	0.50	0.50	35.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	59.4	LOS E	0.2	0.2	0.92	0.92
P3	Across E approach	53	13.7	LOS B	0.1	0.1	0.44	0.44
P5	Across N approach	53	59.4	LOS E	0.2	0.2	0.92	0.92
P7	Across W approach	53	13.7	LOS B	0.1	0.1	0.44	0.44
All Pedestrians		212	36.6	LOS D			0.68	0.68

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Cumberland Hwy/Smith St (2027 Post Dev SAT)

13S1210200 - Bonds Pendle Hill Additional Modelling
Cumberland Highway / Smith Street
Post Development 2027 Saturday Peak
Signals - Fixed Time Cycle Time = 130 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Cumberland Hwy - S											
1	L	174	0.6	0.537	20.4	LOS B	22.0	156.7	0.57	0.92	39.7
2	T	1866	2.4	0.537	12.2	LOS A	22.2	158.9	0.57	0.52	43.0
3	R	64	3.3	0.460	72.9	LOS F	4.1	29.4	1.00	0.76	20.0
Approach		2104	2.3	0.537	14.7	LOS B	22.2	158.9	0.58	0.56	41.3
East: Smith St - E											
4	L	46	2.3	0.186	48.8	LOS D	2.3	16.1	0.81	0.74	25.6
5	T	101	0.0	0.651	62.7	LOS E	7.9	55.3	1.00	0.82	21.1
6	R	23	0.0	0.651	70.7	LOS F	7.9	55.3	1.00	0.82	21.1
Approach		171	0.6	0.651	60.0	LOS E	7.9	55.3	0.95	0.80	22.2
North: Cumberland Hwy - N											
7	L	48	0.0	0.490	19.8	LOS B	19.3	137.6	0.54	0.97	40.4
8	T	1815	2.6	0.490	11.6	LOS A	19.3	138.1	0.54	0.49	43.7
9	R	64	0.0	0.449	72.7	LOS F	4.1	28.5	1.00	0.76	20.0
Approach		1927	2.4	0.490	13.8	LOS A	19.3	138.1	0.56	0.51	41.9
West: Smith St - W											
10	L	28	0.0	0.325	63.2	LOS E	4.2	29.2	0.94	0.78	22.4
11	T	95	0.0	1.139	139.4	LOS F	16.9	119.1	0.97	1.08	12.0
12	R	83	1.3	1.139	219.1	LOS F	16.9	119.1	1.00	1.37	8.6
Approach		206	0.5	1.139	161.0	LOS F	16.9	119.1	0.98	1.15	11.0
All Vehicles		4408	2.2	1.139	22.9	LOS B	22.2	158.9	0.60	0.58	35.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	59.1	LOS E	0.2	0.2	0.95	0.95
P3	Across E approach	53	11.2	LOS B	0.1	0.1	0.42	0.42
P5	Across N approach	53	59.1	LOS E	0.2	0.2	0.95	0.95
P7	Across W approach	53	11.2	LOS B	0.1	0.1	0.42	0.42
All Pedestrians		212	35.2	LOS D			0.68	0.68

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Pendle Way/Gilba Rd (2027 Post Dev Thurs PM)

13S1210200 - Bonds Pendle Hill Additional Modelling
Gilba Road / Pendle Way
Post Development 2027 Thursday PM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pendle Way - S											
1	L	571	0.7	0.309	8.2	LOS A	0.0	0.0	0.00	0.67	49.0
2	T	226	0.5	0.932	50.2	LOS D	8.3	58.1	0.74	1.69	25.1
Approach		797	0.7	0.932	20.1	LOS B	8.3	58.1	0.21	0.96	38.6
North: Pendle Way - N											
8	T	173	3.7	1.606	610.9	LOS F	60.9	437.5	1.00	6.34	3.4
9	R	60	1.8	1.606	612.2	LOS F	60.9	437.5	1.00	4.69	3.3
Approach		233	3.2	1.606	611.2	LOS F	60.9	437.5	1.00	5.91	3.4
West: Gilba Rd - W											
10	L	193	0.5	0.299	8.2	LOS A	0.0	0.0	0.00	0.66	49.0
12	R	360	0.9	0.299	8.3	LOS A	0.0	0.0	0.00	0.67	48.9
Approach		553	0.8	0.299	8.2	NA	0.0	0.0	0.00	0.67	48.9
All Vehicles		1582	1.1	1.606	102.9	NA	60.9	437.5	0.25	1.59	15.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Pendle Way/Gilba Rd (2027 Post Dev SAT)

13S1210200 - Bonds Pendle Hill Additional Modelling
Gilba Road / Pendle Way
Post Development 2027 Saturday Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pendle Way - S											
1	L	454	1.4	0.247	8.2	LOS A	0.0	0.0	0.00	0.67	49.0
2	T	231	0.0	1.163	204.8	LOS F	27.1	189.5	1.00	3.42	9.0
Approach		684	0.9	1.163	74.5	LOS F	27.1	189.5	0.34	1.59	19.6
North: Pendle Way - N											
8	T	172	3.1	2.058	1013.6	LOS F	88.4	632.2	1.00	6.95	2.1
9	R	85	1.2	2.058	1014.9	LOS F	88.4	632.2	1.00	5.62	2.1
Approach		257	2.5	2.058	1014.0	LOS F	88.4	632.2	1.00	6.51	2.1
West: Gilba Rd - W											
10	L	201	1.0	0.341	8.2	LOS A	0.0	0.0	0.00	0.66	49.0
12	R	429	0.2	0.341	8.2	LOS A	0.0	0.0	0.00	0.67	48.9
Approach		631	0.5	0.341	8.2	NA	0.0	0.0	0.00	0.67	48.9
All Vehicles		1572	1.0	2.058	201.4	NA	88.4	632.2	0.31	2.03	9.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Goodall St/Wentworth Ave (2027 Post Dev Thurs PM)

13S1210200 - Bonds Pendle Hill Additional Modelling
Goodall Street / Wentworth Avenue
Post Development 2027 Thursday PM Peak
Signals - Fixed Time Cycle Time = 90 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Goodall St - S											
1	L	360	1.5	0.610	15.7	LOS B	7.1	50.5	0.52	0.75	37.4
3	R	320	0.7	0.917	62.0	LOS E	17.4	122.3	1.00	1.06	20.8
Approach		680	1.1	0.917	37.5	LOS C	17.4	122.3	0.75	0.90	27.2
East: Wentworth Ave - E											
4	L	412	0.3	0.971	31.4	LOS C	11.6	81.6	0.97	0.86	31.1
5	T	382	2.5	0.711	35.2	LOS C	15.8	113.2	0.98	0.85	29.1
Approach		794	1.3	0.971	33.2	LOS C	15.8	113.2	0.97	0.85	30.1
West: Wentworth Ave - W											
11	T	395	2.4	0.540	6.4	LOS A	6.6	47.1	0.45	0.39	49.1
12	R	539	2.0	0.649	32.4	LOS C	19.5	138.9	0.88	0.85	30.7
Approach		934	2.1	0.649	21.4	LOS B	19.5	138.9	0.70	0.66	36.7
All Vehicles		2407	1.6	0.971	29.9	LOS C	19.5	138.9	0.80	0.79	31.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P7	Across W approach	53	36.5	LOS D	0.1	0.1	0.90	0.90
All Pedestrians		53	36.5	LOS D			0.90	0.90

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Goodall St/Wentworth Ave (2027 Post Dev SAT)

13S1210200 - Bonds Pendle Hill Additional Modelling
Goodall Street / Wentworth Avenue
Post Development 2027 Saturday Peak
Signals - Fixed Time Cycle Time = 90 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Goodall St - S											
1	L	357	1.5	0.605	16.6	LOS B	7.0	49.9	0.51	0.77	41.2
3	R	324	0.6	1.127	184.7	LOS F	33.0	232.5	1.00	1.50	9.8
Approach		681	1.1	1.127	96.6	LOS F	33.0	232.5	0.75	1.12	16.4
East: Wentworth Ave - E											
4	L	297	0.4	0.726	28.0	LOS B	8.8	61.5	0.69	0.81	33.9
5	T	358	2.6	0.615	33.6	LOS C	14.2	101.7	0.95	0.80	29.8
Approach		655	1.6	0.726	31.0	LOS C	14.2	101.7	0.83	0.81	31.5
West: Wentworth Ave - W											
11	T	379	2.5	0.468	4.8	LOS A	5.5	39.5	0.38	0.32	51.3
12	R	371	2.8	0.381	28.1	LOS B	11.3	80.8	0.74	0.81	33.9
Approach		749	2.7	0.468	16.3	LOS B	11.3	80.8	0.56	0.56	40.9
All Vehicles		2085	1.8	1.127	47.2	LOS D	33.0	232.5	0.71	0.82	25.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P7	Across W approach	53	39.2	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		53	39.2	LOS D			0.93	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Gt Western Hwy/Pendle Way (2027 Post Dev Thurs PM)

13S1210200 - Bonds Pendle Hill Additional Modelling
Great Western Highway / Pendle Way
Post Development 2027 Thursday PM Peak
Signals - Fixed Time Cycle Time = 140 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Ettalong Rd - S											
4	L	124	0.8	0.606	53.5	LOS D	6.7	47.5	0.84	0.77	24.2
5	T	244	0.9	1.099	111.6	LOS F	25.1	176.2	1.00	1.05	14.3
6	R	123	0.0	1.099	187.0	LOS F	25.1	176.2	1.00	1.36	9.9
Approach		492	0.6	1.099	115.8	LOS F	25.1	176.2	0.96	1.06	14.2
East: Gt Western Hwy - E											
7	L	261	0.4	0.695	41.9	LOS C	32.3	228.9	0.82	0.95	28.6
8	T	1748	2.0	0.695	31.3	LOS C	32.7	232.6	0.79	0.72	30.8
9	R	156	1.3	1.000[3]	73.0	LOS F	10.4	73.4	1.00	0.80	20.0
Approach		2165	1.8	1.000	35.6	LOS C	32.7	232.6	0.81	0.75	29.4
North: Pendle Way - N											
10	L	91	1.2	0.745	60.1	LOS E	17.6	124.8	0.96	0.89	23.3
11	T	316	1.3	0.931	60.5	LOS E	35.3	252.5	0.98	0.91	21.3
12	R	333	3.2	0.931	84.3	LOS F	35.3	252.5	1.00	1.02	18.3
Approach		739	2.1	0.931	71.2	LOS F	35.3	252.5	0.99	0.96	20.0
West: Gt Western Hwy - W											
1	L	144	5.8	0.544	40.1	LOS C	21.3	153.3	0.80	0.89	29.4
2	T	1159	2.4	0.544	32.1	LOS C	22.3	158.9	0.80	0.71	30.5
3	R	134	0.8	0.633	73.8	LOS F	9.0	63.4	1.00	0.81	19.9
Approach		1437	2.6	0.633	36.8	LOS C	22.3	158.9	0.82	0.74	28.9
All Vehicles		4833	1.9	1.099	49.5	LOS D	35.3	252.5	0.85	0.81	24.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

3 x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across S approach	53	31.6	LOS D	0.1	0.1	0.67	0.67
P5	Across E approach	53	59.4	LOS E	0.2	0.2	0.92	0.92
P7	Across N approach	53	29.6	LOS C	0.1	0.1	0.65	0.65
All Pedestrians		159	40.2	LOS E			0.75	0.75

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Gt Western Hwy/Pendle Way (2027 Post Dev SAT)

13S1210200 - Bonds Pendle Hill Additional Modelling
Great Western Highway / Pendle Way
Post Development 2027 Saturday Peak
Signals - Fixed Time Cycle Time = 130 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Ettalong Rd - S											
4	L	77	1.4	0.328	42.1	LOS C	3.4	24.4	0.75	0.75	27.8
5	T	195	0.5	0.952	67.7	LOS E	18.4	129.8	0.98	0.89	20.1
6	R	163	1.3	0.952	93.5	LOS F	18.4	129.8	1.00	1.11	17.0
Approach		435	1.0	0.952	72.8	LOS F	18.4	129.8	0.95	0.95	19.7
East: Gt Western Hwy - E											
7	L	171	0.6	0.460	38.1	LOS C	15.0	106.5	0.81	0.90	29.9
8	T	908	3.5	0.460	31.9	LOS C	17.2	123.7	0.81	0.71	30.5
9	R	168	2.7	1.000[3]	66.0	LOS E	10.3	73.4	0.99	0.80	21.3
Approach		1247	3.0	1.000	37.4	LOS C	17.2	123.7	0.83	0.75	28.7
North: Pendle Way - N											
10	L	137	3.1	0.676	44.8	LOS D	10.1	72.0	0.98	0.84	27.4
11	T	194	0.5	0.845	51.8	LOS D	19.8	139.9	0.99	0.89	23.1
12	R	184	1.7	0.845	71.2	LOS F	19.8	139.9	1.00	0.95	20.6
Approach		515	1.6	0.845	56.9	LOS E	19.8	139.9	0.99	0.90	23.1
West: Gt Western Hwy - W											
1	L	139	1.5	0.600	43.1	LOS D	21.4	151.8	0.86	0.88	28.3
2	T	1154	1.9	0.600	34.8	LOS C	22.1	157.0	0.86	0.76	29.3
3	R	105	1.0	0.481	64.2	LOS E	6.2	44.0	0.96	0.78	21.7
Approach		1398	1.8	0.600	37.9	LOS C	22.1	157.0	0.87	0.77	28.4
All Vehicles		3595	2.1	1.000	44.6	LOS D	22.1	157.0	0.88	0.80	26.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

3 x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across S approach	53	34.0	LOS D	0.1	0.1	0.72	0.72
P5	Across E approach	53	59.1	LOS E	0.2	0.2	0.95	0.95
P7	Across N approach	53	31.9	LOS D	0.1	0.1	0.70	0.70
All Pedestrians		159	41.7	LOS E			0.79	0.79

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Dunmore-Access 2027+Dev
Thurs PM

Dunmore Street - Access
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Access											
1	L	102	2.0	0.443	18.7	LOS B	3.4	24.1	0.98	1.05	35.4
3	R	54	2.0	0.443	22.1	LOS B	3.4	24.1	0.98	1.05	34.3
Approach		156	2.0	0.443	19.9	LOS B	3.4	24.1	0.98	1.05	35.0
East: Dunmore Street											
4	L	93	2.0	0.862	13.4	LOS A	18.5	131.7	1.00	0.76	39.4
5	T	845	2.0	0.862	12.6	LOS A	18.5	131.7	1.00	0.76	39.5
Approach		938	2.0	0.862	12.6	LOS A	18.5	131.7	1.00	0.76	39.5
West: Dunmore Street											
11	T	561	2.0	0.553	6.3	LOS A	6.4	45.8	0.41	0.48	43.3
12	R	158	2.0	0.553	10.5	LOS A	6.4	45.8	0.41	0.69	41.4
Approach		719	2.0	0.553	7.3	LOS A	6.4	45.8	0.41	0.53	42.8
All Vehicles		1813	2.0	0.862	11.1	LOS A	18.5	131.7	0.76	0.69	40.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Dunmore-Access 2027+Dev Sat

Dunmore Street - Access
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Access											
1	L	215	2.0	0.590	16.9	LOS B	5.6	39.7	0.94	1.08	36.5
3	R	113	2.0	0.590	20.3	LOS B	5.6	39.7	0.94	1.09	35.2
Approach		327	2.0	0.590	18.1	LOS B	5.6	39.7	0.94	1.08	36.0
East: Dunmore Street											
4	L	113	2.0	0.720	11.5	LOS A	9.7	68.8	0.87	0.79	40.7
5	T	576	2.0	0.720	10.7	LOS A	9.7	68.8	0.87	0.77	40.9
Approach		688	2.0	0.720	10.8	LOS A	9.7	68.8	0.87	0.78	40.9
West: Dunmore Street											
11	T	546	2.0	0.667	7.4	LOS A	8.4	59.9	0.68	0.56	42.0
12	R	215	2.0	0.667	11.5	LOS A	8.4	59.9	0.68	0.67	41.0
Approach		761	2.0	0.667	8.5	LOS A	8.4	59.9	0.68	0.59	41.7
All Vehicles		1777	2.0	0.720	11.2	LOS A	9.7	68.8	0.80	0.75	40.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Access 2027+Dev
Thurs PM

John Street - Access
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
4	L	223	2.0	0.301	7.3	LOS A	0.0	0.0	0.00	0.77	43.8
5	T	344	2.0	0.301	0.0	LOS A	0.0	0.0	0.00	0.00	51.3
Approach		567	2.0	0.301	2.9	NA	0.0	0.0	0.00	0.30	48.1
North: Jones Street											
11	T	374	2.0	0.240	3.2	LOS A	2.1	15.0	0.64	0.00	42.7
12	R	45	2.0	0.240	10.6	LOS A	2.1	15.0	0.64	0.92	42.5
Approach		419	2.0	0.240	4.0	NA	2.1	15.0	0.64	0.10	42.7
West: Access											
1	L	22	2.0	0.025	12.3	LOS A	0.1	0.7	0.47	0.87	40.5
3	R	114	2.0	0.281	18.8	LOS B	1.1	7.7	0.73	1.04	36.3
Approach		136	2.0	0.281	17.8	LOS B	1.1	7.7	0.69	1.01	36.9
All Vehicles		1122	2.0	0.301	5.1	NA	2.1	15.0	0.32	0.31	44.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Jones-Access 2027+Dev Sat

John Street - Access
Stop (Two-Way)

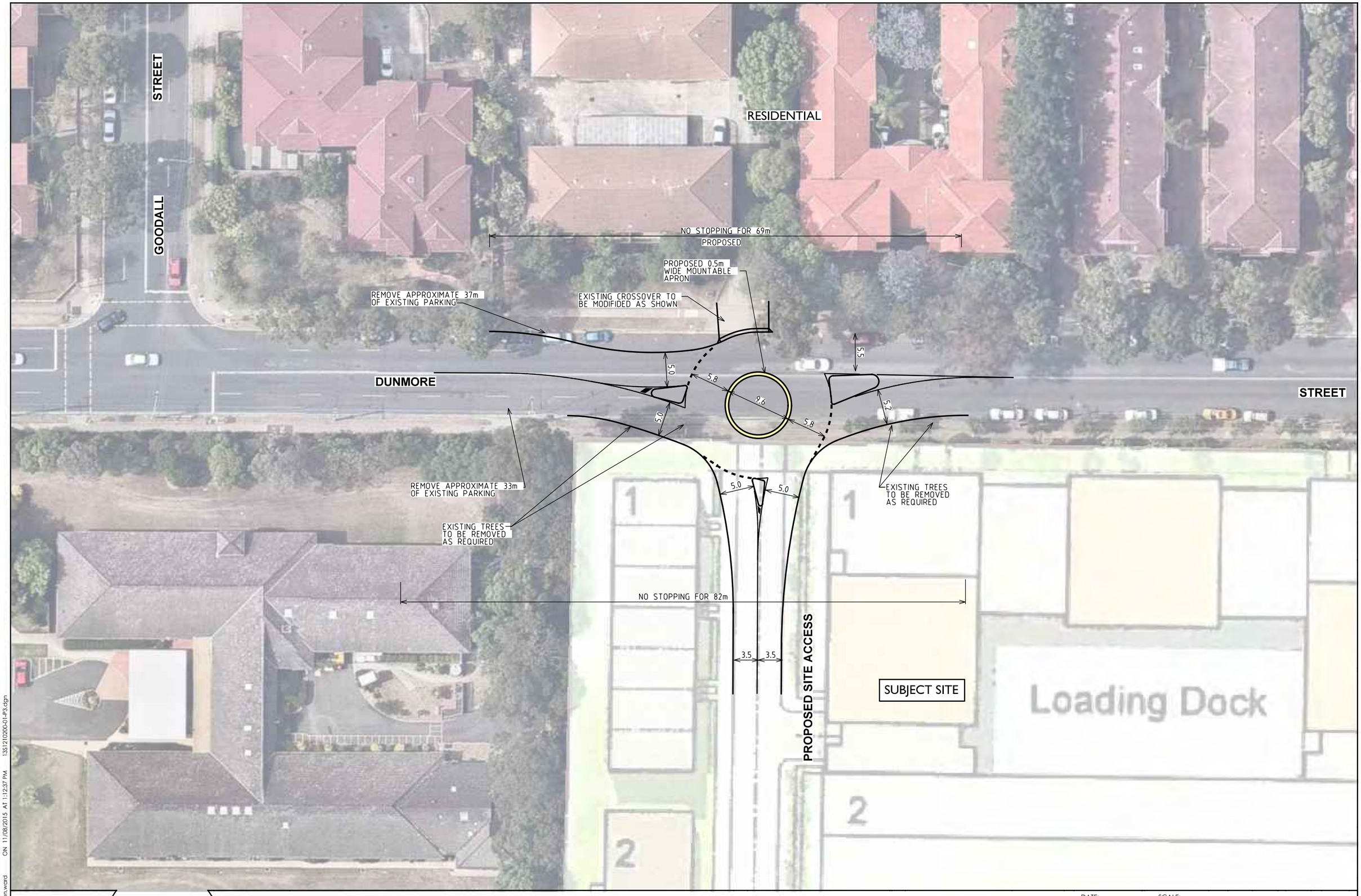
Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Jones Street											
4	L	241	2.0	0.254	7.3	LOS A	0.0	0.0	0.00	0.74	43.8
5	T	236	2.0	0.254	0.0	LOS A	0.0	0.0	0.00	0.00	51.3
Approach		477	2.0	0.254	3.7	NA	0.0	0.0	0.00	0.38	47.2
North: Jones Street											
11	T	286	2.0	0.190	2.3	LOS A	1.4	10.3	0.56	0.00	43.6
12	R	46	2.0	0.190	9.7	LOS A	1.4	10.3	0.56	0.86	43.0
Approach		333	2.0	0.190	3.3	NA	1.4	10.3	0.56	0.12	43.5
West: Access											
1	L	46	2.0	0.047	11.7	LOS A	0.2	1.3	0.42	0.88	40.9
3	R	241	2.0	0.453	17.7	LOS B	2.3	16.7	0.70	1.11	36.9
Approach		287	2.0	0.453	16.7	LOS B	2.3	16.7	0.65	1.07	37.5
All Vehicles		1097	2.0	0.453	7.0	NA	2.3	16.7	0.34	0.48	43.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

Attachment 4

Access Road Concept Layout
- Dunmore Street Roundabout
- Jones Street T- Intersection



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CONCEPT LAYOUT

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