



TRAFFIC AND PARKING IMPACT ASSESSMENT OF A PROPOSED RESIDENTIAL DEVELOPMENT

15-17 Dent Street in Jamisontown

Traffic and Parking Impact Report

Prepared for: Bishi Constructions

A1615739N (Version 1a)

October 2016

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1. INTRODUCTION

ML Traffic Engineers was commissioned by Bishi Constructions to undertake a traffic and parking impact assessment of proposed residential development at 15-17 Dent Street in Jamisontown. The site is currently occupied by two single dwelling houses.

This traffic report focuses on the proposed development and changes in car usage and car park utilisation and additional trips from the proposed development.

In the course of preparing this assessment, the subject site and its environs have been inspected, plans of the development examined, and all relevant traffic and parking data collected and analysed.

2. BACKGROUND AND EXISTING CONDITIONS OF THE PROPOSED LOCATION

2.1 Location and Land Use

The development site is located to the south of Penrith Town Centre. The immediate landuses from the site is residential. The surrounding area is a mix of residential, commercial businesses and public parks.

Figures 1 and 2 show the location of the development site from the aerial and street map perspective respectively.

Figure 3 shows photographs of the site.



Figure 1: Location of the Subject Site on Aerial

2.2 Road Network

This section describes the roads near the proposed development.

Dent Street is a local road with one lane each way. The speed limit is 50km/hr. Unrestricted on-street parking is provided on both sides of the road. Figure 4a shows a photograph of Dent Street.

Jamison Road is a major collector road and has two lanes each way, separated by a median strip near Dent Street. The sign posted speed limit is 60km/hr. Parking is not permitted on both sides of the road. Figure 4b shows a photograph of Jamison Road.

Preston Street is a local road and has one lanes each way. The speed limit is 50km/hr. Unrestricted on-street parking is available on both sides of the road at any time. Figure 4c shows a photograph of Preston Street.



Figure 4a: Dent Street looking south from Jamison Road



Figure 4b: Jamison Road looking east



Figure 4c: Preston Street looking east from Dent Street

2.3 Public Parking Opportunities

The development site is located in a R4 high density residential zone. The closest on street public parking is along Dent Street and Preston Street, where there are ample parking opportunities. Site visits show that there are ample vacant car spaces on these streets.

2.4 Intersection Description

As part of the traffic assessment, four nearby intersections are assessed:

- Priority intersection of Jamison Road with Dent Street
- Priority intersection of Preston Street with Dent Street
- Priority intersection of Mulgoa Road with Preston Street
- Stop-controlled intersection of York Road with Preston Street

External traffic travelling to or from the development site will most likely need to travel through the above intersection.

The priority intersection of Jamison Road with Dent Street is a three leg intersection with drivers from Dent Street giving way to traffic along Jamison Road. The only turn movements permitted are the left turns. Figure 5 presents the layout of this intersection using SIDRA – an industry standard intersection software.

The priority intersection of Preston Street with Dent Street is a three leg intersection with drivers along Dent Street giving way to traffic along Preston Street. All turn movements are permitted. Figure 6 presents the layout of this intersection using SIDRA.

The priority intersection of Mulgoa Road with Preston Street is a three leg intersection with vehicles from Preston Street giving way to traffic along Mulgoa Road. Right turns from Mulgoa Road into Preston Street and from Preston street to Mulgoa Road northbound are not permitted. Only the left turns are permitted. Figure 7 presents the layout of this intersection using SIDRA.

The stop-controlled intersection of York Road with Preston Street is a four leg intersection with drivers from Preston Street stop and then give way to traffic from York Road. All turn movements are permitted. Figure 8 presents the layout of this intersection using SIDRA. The numbers on the lane represent the length of the short lanes in metres.

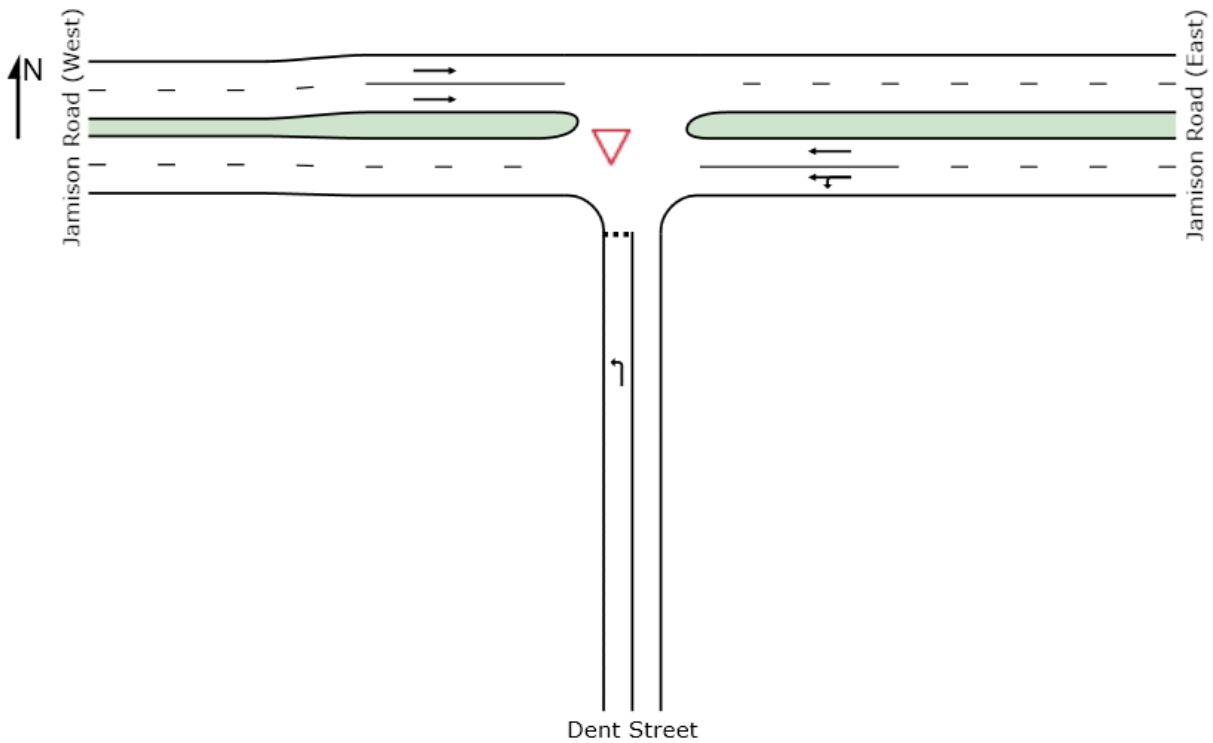


Figure 5: Priority intersection of Jamison Road with Dent Street (SIDRA)

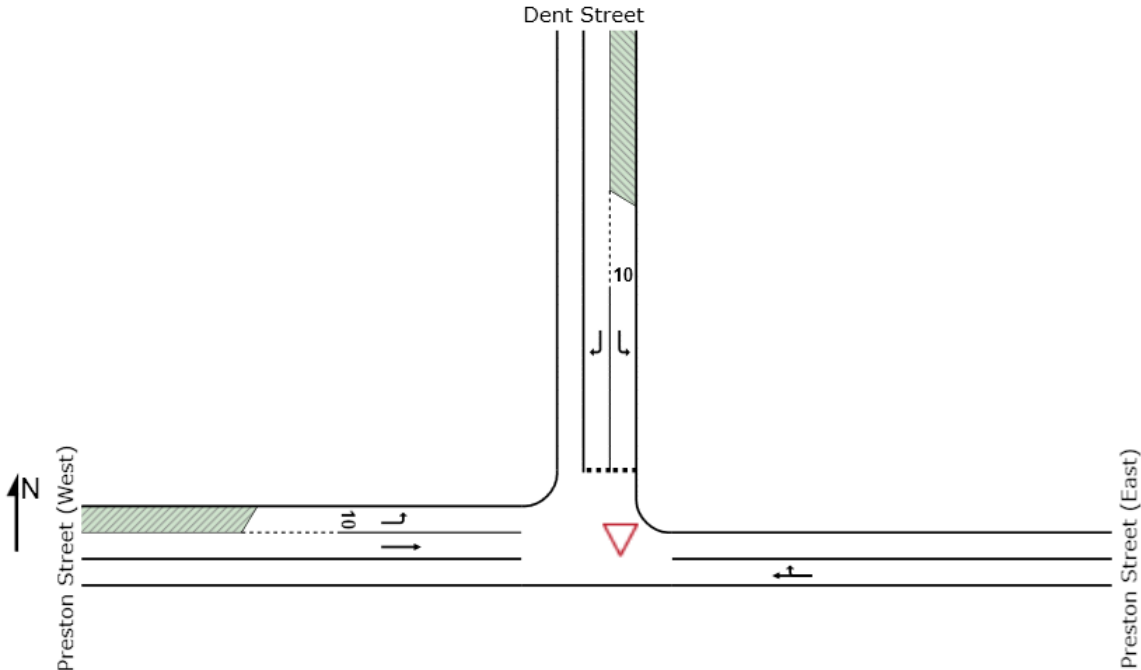


Figure 6: Priority intersection of Preston Street with Dent Street (SIDRA)

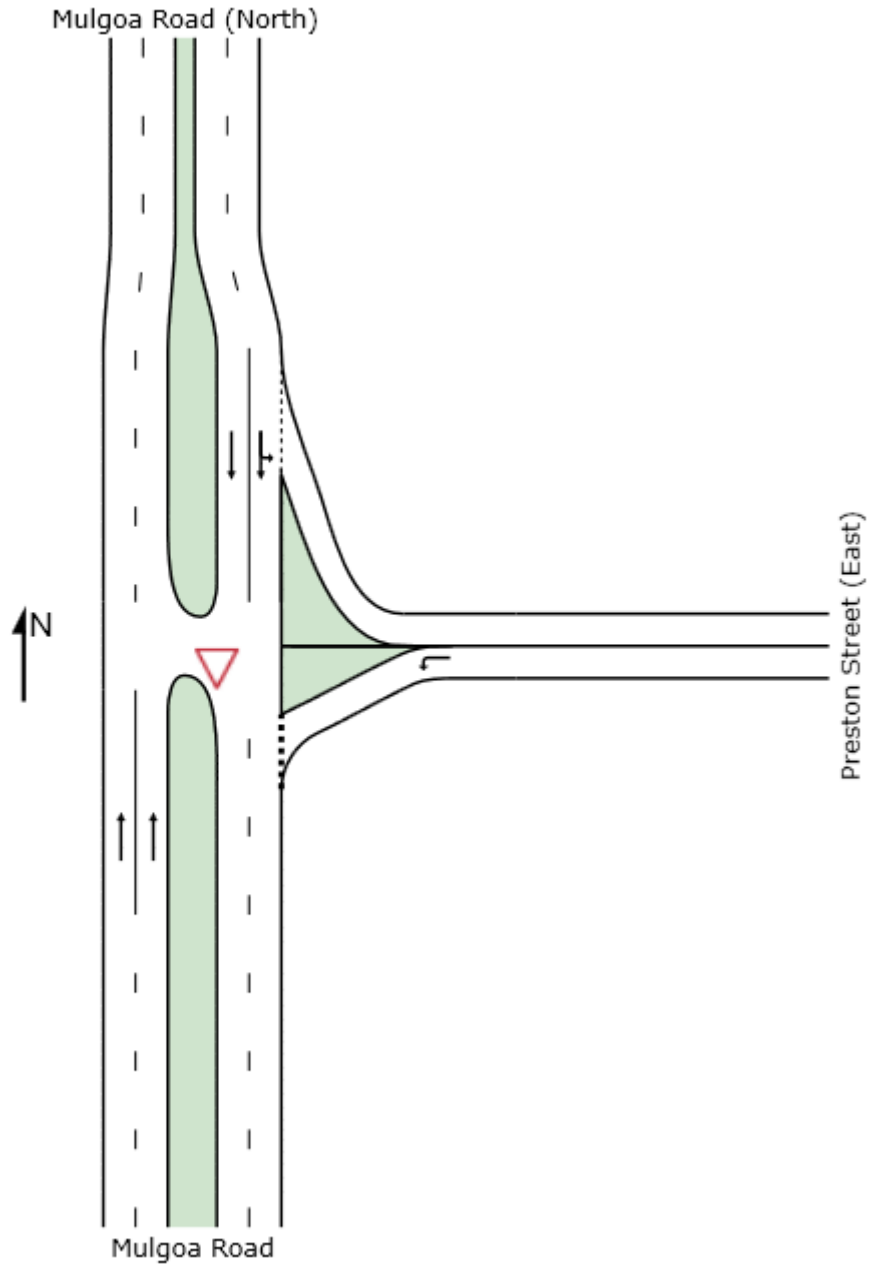


Figure 7: Priority intersection of Mulgoa Road with Preston Street (SIDRA)

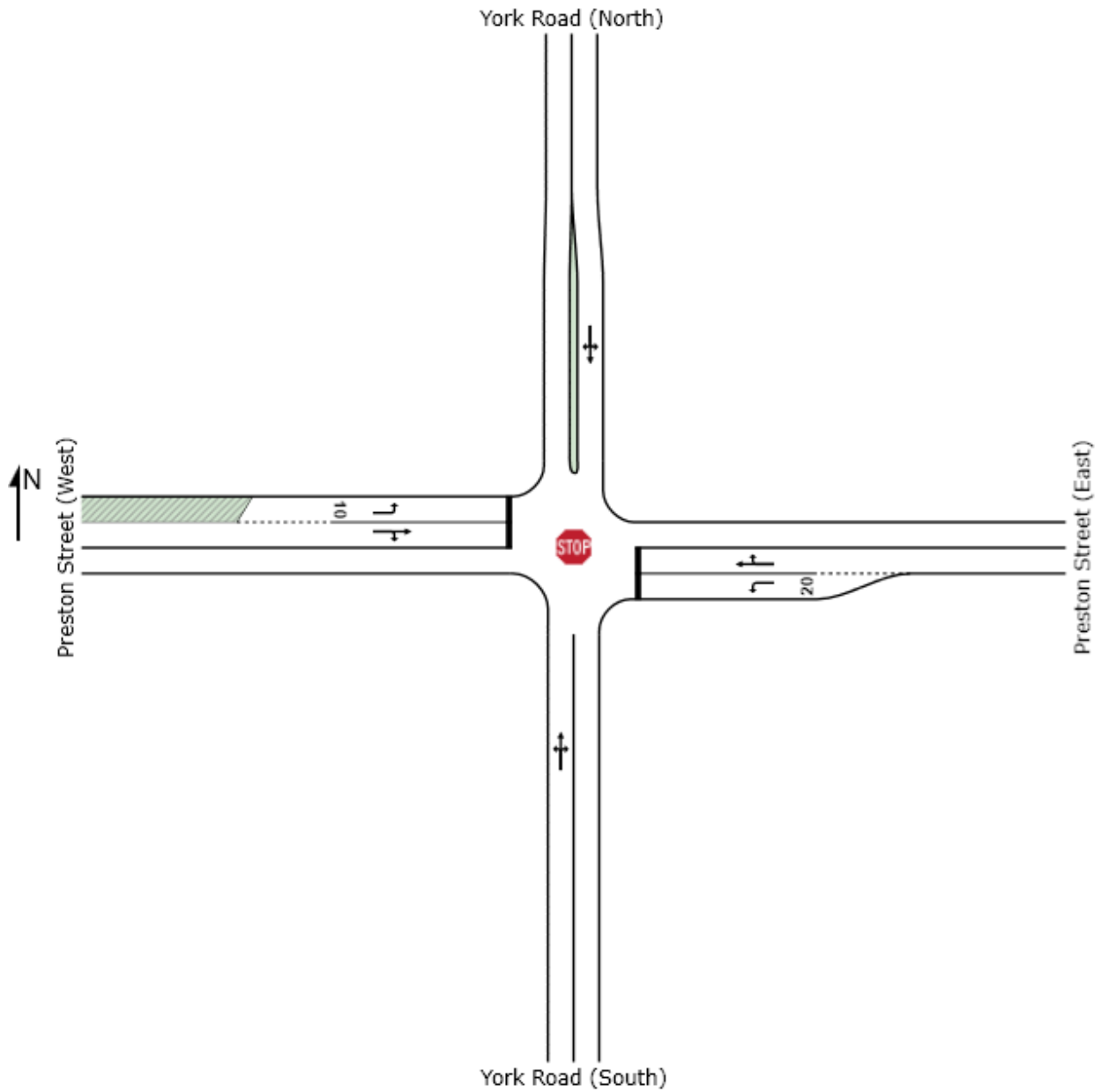


Figure 8: Stop-controlled intersection of York Road with Preston Street (SIDRA)

2.5 Existing Traffic Volumes

As part of the traffic assessment, traffic counts have been undertaken at the three intersections for the weekday PM period. The peak hours were 5pm to 6pm. The traffic surveys were undertaken on a weekday in October 2016.

The following Figure presents the traffic volumes in vehicles for the weekday peak hours.

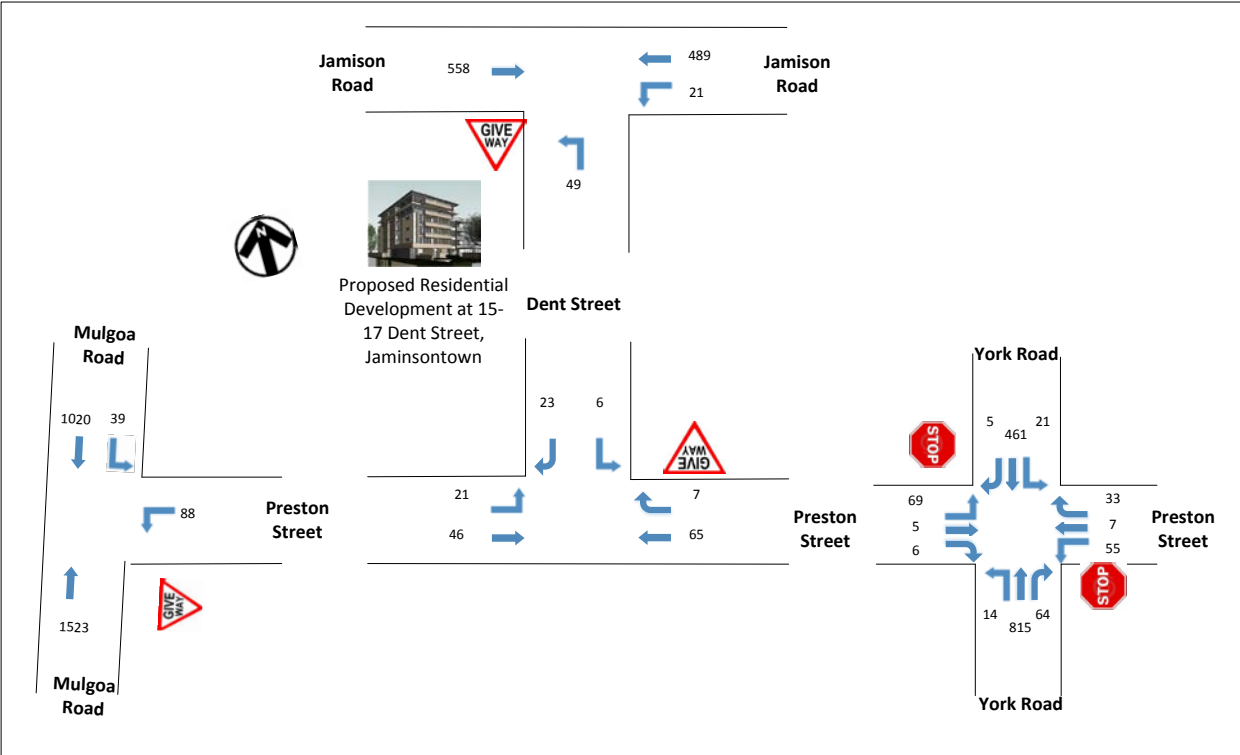
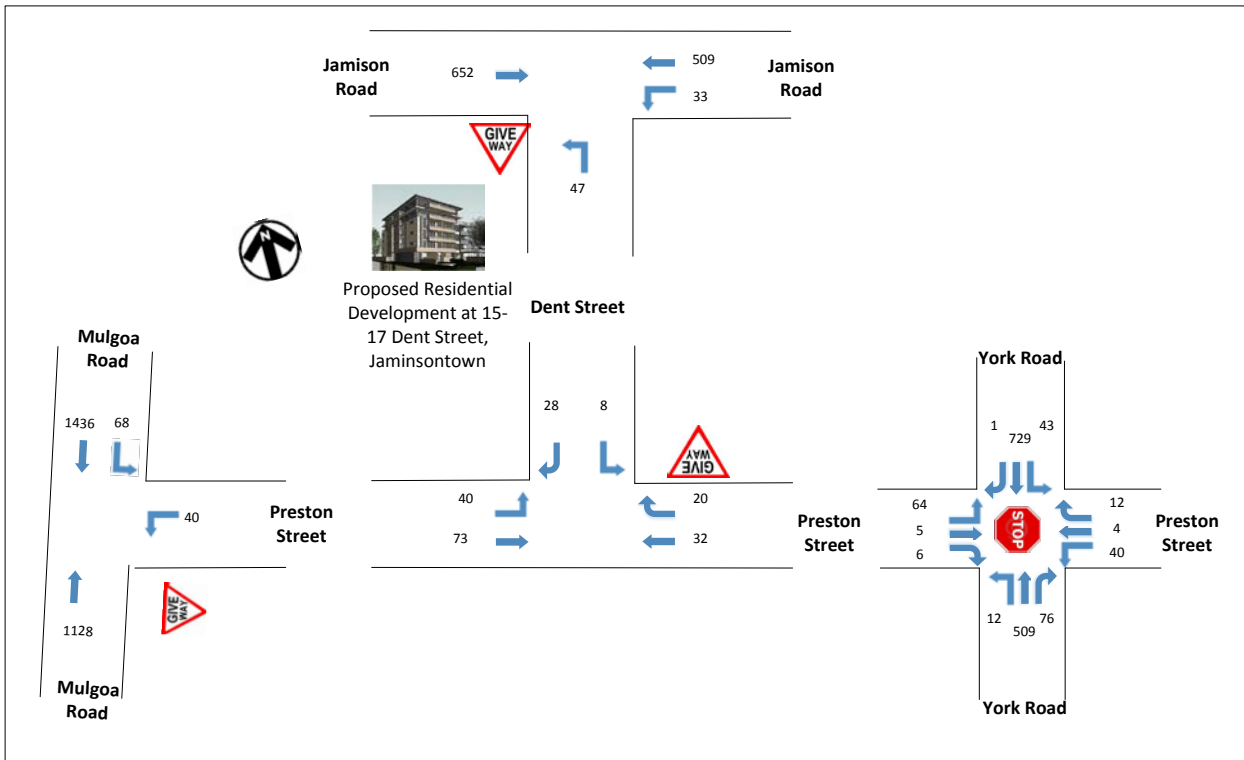


Figure 9: Existing Weekday Traffic Volumes AM Peak Hour



One clean

Figure 10: Existing Weekday Traffic Volumes PM Peak Hour

2.6 Intersection Assessment

An intersection assessment has been undertaken for the following surveyed intersections:

- Priority intersection of Jamison Road with Dent Street
- Priority intersection of Preston Street with Dent Street
- Priority intersection of Mulgoa Road with Preston Street
- Stop-controlled intersection of York Road with Preston Street

The existing intersection operating performance was assessed using the SIDRA software package (version 6) to determine the Degree of Saturation (DS), Average Delay (AVD in seconds) and Level of Service (LoS) at each intersection. The SIDRA program provides Level of Service Criteria Tables for various intersection types. The key indicator of intersection performance is Level of Service, where results are placed on a continuum from 'A' to 'F', as shown in Table 2.

LoS	Traffic Signal / Roundabout	Give Way / Stop Sign / T-Junction control
A	Good operation	Good operation
B	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	Satisfactory	Satisfactory, but accident study required
D	Operating near capacity	Near capacity & accident study required
E	At capacity, at signals incidents will cause excessive delays.	At capacity, requires other control mode
F	Unsatisfactory and requires additional capacity, Roundabouts require other control mode	At capacity, requires other control mode

Table 2: Intersection Level of Service

The Average Vehicle Delay (AVD) provides a measure of the operational performance of an intersection as indicated below, which relates AVD to LOS. The AVD's should be taken as a guide only as longer delays could be tolerated in some locations (i.e. inner city conditions) and on some roads (i.e. minor side street intersecting with a major arterial route). For traffic signals, the average delay over all movements should be taken. For roundabouts and priority control intersections (sign control) the critical movement for level of service assessment should be that movement with the highest average delay.

LoS	Average Delay per Vehicles (seconds/vehicle)
A	Less than 14
B	15 to 28
C	29 to 42
D	43 to 56
E	57 to 70
F	>70

Table 3: Intersection Average Delay (AVD)

The degree of saturation (DS) is another measure of the operational performance of individual intersections. For intersections controlled by traffic signals both queue

length and delay increase rapidly as DS approaches 1. It is usual to attempt to keep DS to less than 0.9. Degrees of Saturation in the order of 0.7 generally represent satisfactory intersection operation. When DS exceed 0.9 queues can be anticipated.

The results of the intersection analysis are as follows:

Priority intersection of Jamison Road with Dent Street:

- All turn movements have a LoS A or B for both peak hours
- There is spare capacity at this intersection

Priority intersection of Preston Street with Dent Street:

- All turn movements have a LoS A or B for both peak hours
- There is spare capacity at this intersection

Priority intersection of Mulgoa Road with Preston Street:

- All turn movements have a LoS A or B for both peak hours
- There is spare capacity at this intersection

Stop-controlled intersection of York Road with Preston Street:

- All turn movements have a LoS A or B for both peak hours
- There is spare capacity at this intersection

The full Sidra results are presented in Appendix A.

2.7 Public Transport

A bus stop is located with 300 metres from the proposed development site on Jamison Road and is serviced by route 793 that goes to Penrith and the bus corridor along Station Street.

Figure 11 shows the proximity of the site to public transport services.

Overall the site has good access to public transport.

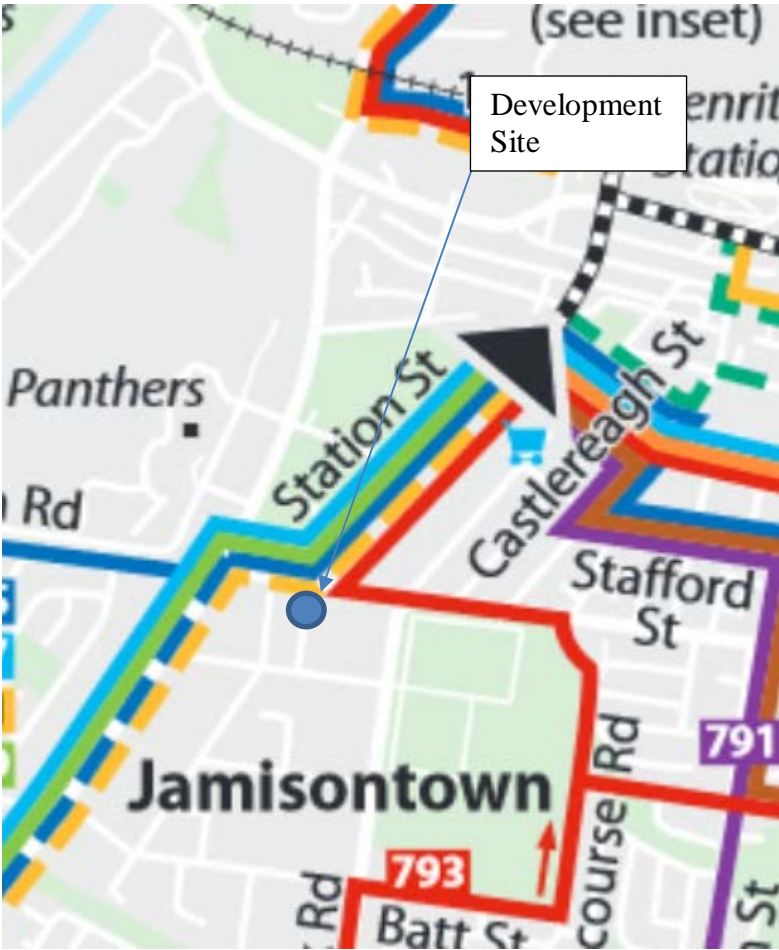


Figure 11: Public Transport Services Nearby

2.8 Conclusions on the Existing Conditions

The proposed development is located in an area where there are a reasonable number of vacant car spaces on a weekday on Dent Street and Preston Street

The nearby intersection performs well with sufficient spare capacity to accommodate additional traffic.

The site has good access to public transport.

3. PROPOSED MIXED USE DEVELOPMENT

The landuses for the proposed residential development are as follows in the following:

- Two studio/one-bedroom apartments
- Twenty-five two-bedroom apartments
- A total of twenty-seven apartments

Vehicle access and egress is via Dent Street with will all turn movements out of the driveway permitted

The car parking is provided on two basement levels:

- Total of 33 car spaces

A full scaled plan of the proposed development is provided as part of the Development Application. Scaled measurements should use these plans.

4. CAR PARKING CONSIDERATIONS

4.1 Penrith Council Planning Scheme

The car parking requirements for mixed use apartments are presented in *Penrith City Council's Development Control Plan* with the car parking rates as follows as it applies to the proposed development:

Residential

- 1 car space for one and two bedroom apartments
- 1 car space per 5 apartments for visitors

Table 4 summarises the car parking requirements for the residential apartments.

The proposed development meets Council's car parking requirements.

RESIDENTIAL				
Apartment s	Number	Car Parking Rate per Apartment	Car Spaces Required	Car Spaces Provided
1 Bedroom	2	1	2	33
2 Bedroom	25	1	25	
Visitors	27	1 space per 5 Units	5.4	
TOTAL			33	33

Table 4: Summary of Car Parking Requirements and Provision

4.2 Adequacy of Car Parking Provision

The proposed development complies with the Penrith City Council residential car parking provisions.

There are ample parking opportunities along Dent Street and Preston Street to accommodate for additional visitor car parking requirements.

5. VEHICLE TRAFFIC IMPACT CONSIDERATIONS

5.1 Traffic Generation

The RTA Guide to Traffic Generating Developments Updated Traffic Surveys August 2013 provides average weekday AM and PM peak hour trip generation rates for high density residential flat buildings as follows:

- 0.65 trips per dwelling for the weekday peak hour

The existing trip generation of the single dwelling houses that currently occupy the site are as follows:

Dwelling houses:

- 0.85 trips per dwelling for the weekday peak hour

Table 5 summarises the proposed trip generation for the respective landuses.

Table 6 summarises the trip distribution for the proposed and existing to obtain the net trip generation. The existing trips are from the site observations. The proposed development is a low trip generator.

Proposed Residential			
Apartments	Number	Trip Rate per Apartment	Trips
One-Bedroom	2	0.65	18
Two-Bedroom	25		
Existing			
Component / Use	Number	Trip Rate (per sq. metre)	Trips
Single dwelling house	2	0.85	1.7
			<i>Net Trips</i>
			16

Table 5: Summary of Trip Generation for the Proposed Development

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Net			
Weekday Rates	Origin	Destination	Total
AM Peak Hour	14	2	16
PM Peak Hour	2	14	16

Table 6: Net Trip Distribution for the Proposed Development

5.2 Traffic Volumes

The additional development trips are assigned onto the local traffic network. The followings Figures present the existing with the development trips (in red for origin trips and blue for destination trips) for the weekday peak hours.

The additional development trips represent a small proportion of the existing traffic volumes.

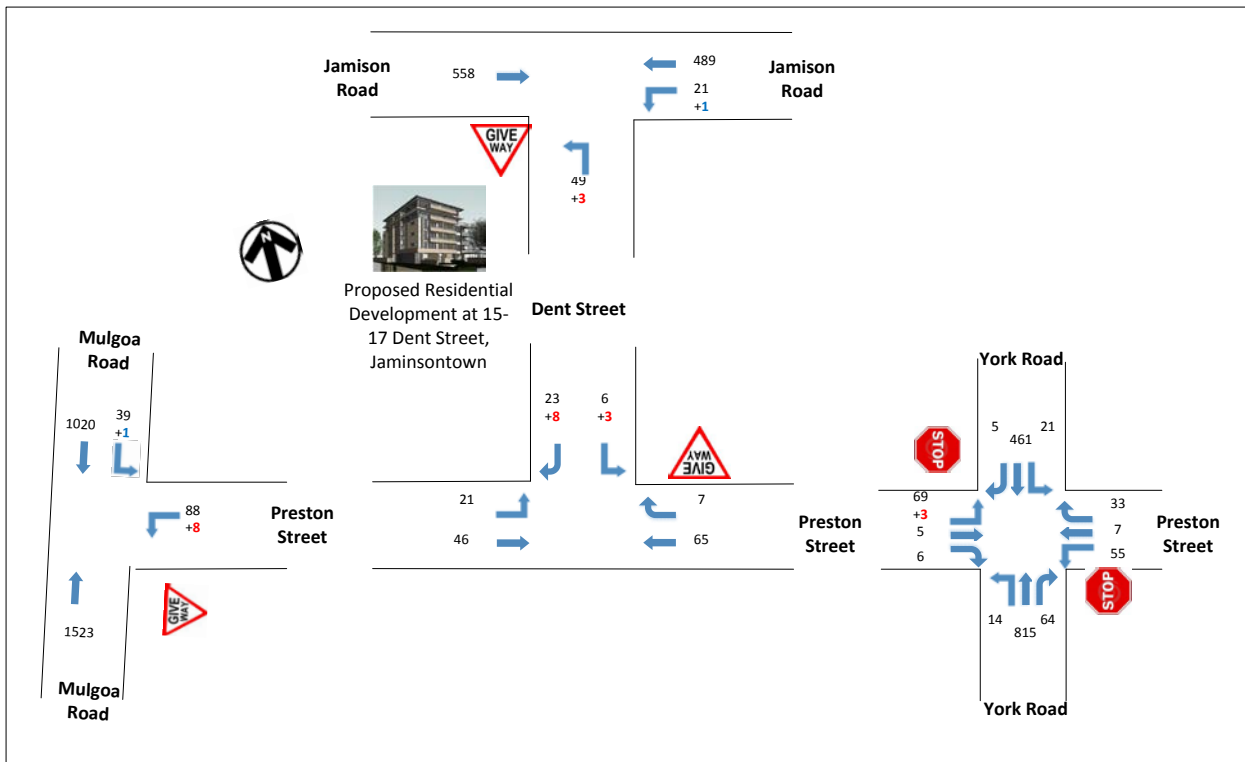


Figure 12: Weekday AM Peak Hour Traffic Volumes with Apartment Traffic (Development Origin Trips in Red and Destination Trips in Blue)

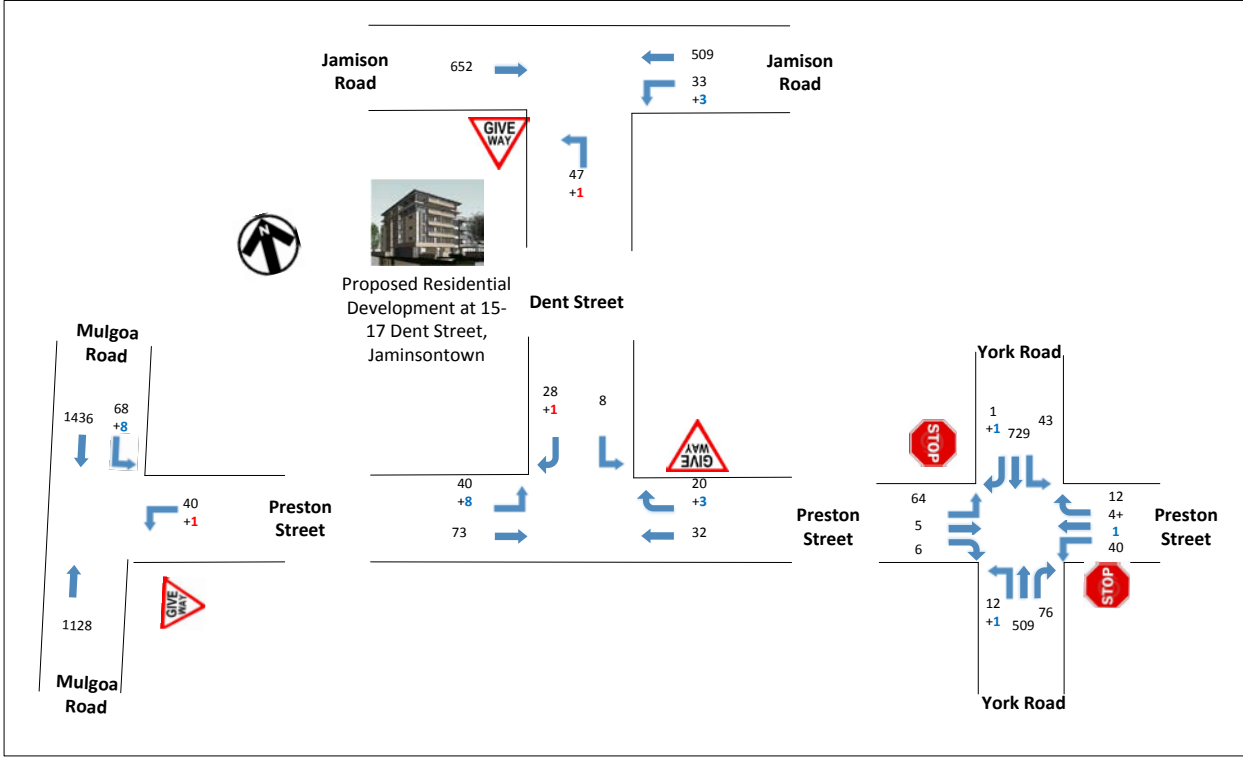


Figure 13: Weekday PM Peak Hour Traffic Volumes (Development Origin Trips in Red and Destination Trips in Blue)

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5.3 Intersection Assessment

An intersection assessment has been undertaken for the four nearby intersections.

The results of the intersection analysis are as follows for the PM peak hour:

Priority intersection of Jamison Road with Dent Street:

- All turn movements have a LoS A or B for both peak hours
- The additional development trips do not change the turn movement LoS for the peak hours

Priority intersection of Preston Street with Dent Street:

- All turn movements have a LoS A or B for both peak hours
- The additional development trips do not change the turn movement LoS for the peak hours

Priority intersection of Mulgoa Road with Preston Street:

- All turn movements have a LoS A or B for both peak hours
- The additional development trips do not change the turn movement LoS for the peak hours
-

Stop-controlled intersection of York Road with Preston Street:

- All turn movements have a LoS A or B for both peak hours
- The additional development trips do not change the turn movement LoS for the peak hours

The full Sidra results with the development traffic are presented in Appendix B. The existing conditions are presented in Appendix A.

6. CONCLUSIONS

Based on the considerations presented in this report, it is considered that:

Parking

- The proposed development complies Council's residential car parking requirements
- There are ample on-street parking opportunities to accommodate for any additional visitor car parking requirements

Traffic

- The proposed development is a low trip generator for the weekday PM
- The additional trips from the proposed development can be accommodated at the nearby intersections and road network without noticeably affecting intersection performance, delays or queues.
- There are no traffic engineering reasons why a planning consent for the proposed mixed use development at 15-17 Dent Street, Jamisontown should be refused.

APPENDIX A

SIDRA Intersection Results for Existing Traffic Conditions

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Dent Street											
1	L2	49	0.0	0.046	5.5	LOS A	0.2	1.1	0.31	0.55	49.0
Approach		49	0.0	0.046	5.5	LOS A	0.2	1.1	0.31	0.55	49.0
East: Jamison Road (East)											
4	L2	21	0.0	0.131	5.6	LOS A	0.0	0.0	0.00	0.05	57.9
5	T1	489	0.0	0.131	0.0	LOS A	0.0	0.0	0.00	0.02	59.8
Approach		510	0.0	0.131	0.2	NA	0.0	0.0	0.00	0.02	59.7
West: Jamison Road (West)											
11	T1	558	0.0	0.143	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		558	0.0	0.143	0.0	NA	0.0	0.0	0.00	0.00	60.0
All Vehicles		1117	0.0	0.143	0.4	NA	0.2	1.1	0.01	0.04	59.3

Table A1: Weekday Priority Intersection Performance of Jamison Road with Dent Street AM Peak Hour

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Preston Street (East)											
5	T1	65	0.0	0.039	0.0	LOS A	0.0	0.3	0.04	0.05	49.6
6	R2	7	0.0	0.039	4.8	LOS A	0.0	0.3	0.04	0.05	48.9
Approach		72	0.0	0.039	0.5	NA	0.0	0.3	0.04	0.05	49.5
North: Dent Street											
7	L2	6	0.0	0.004	4.7	LOS A	0.0	0.1	0.12	0.49	46.4
9	R2	23	0.0	0.022	5.2	LOS A	0.1	0.6	0.25	0.52	45.9
Approach		29	0.0	0.022	5.1	LOS A	0.1	0.6	0.22	0.51	46.0
West: Preston Street (West)											
10	L2	21	0.0	0.011	4.6	LOS A	0.0	0.0	0.00	0.53	46.6
11	T1	46	0.0	0.024	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		67	0.0	0.024	1.4	NA	0.0	0.0	0.00	0.17	48.9
All Vehicles		168	0.0	0.039	1.7	NA	0.1	0.6	0.05	0.18	48.6

Table A2: Weekday Priority Intersection Performance of Preston Street with Dent Street AM Peak Hour

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
		Total veh/h	HV %									
South: Mulgoa Road												
2	T1	1523	0.0	0.391	0.1	LOS A	0.0	0.0	0.00	0.00	59.9	
Approach		1523	0.0	0.391	0.1	NA	0.0	0.0	0.00	0.00	59.9	
East: Preston Street (East)												
4	L2	88	0.0	0.111	8.2	LOS A	0.4	2.8	0.49	0.71	48.9	
Approach		88	0.0	0.111	8.2	LOS A	0.4	2.8	0.49	0.71	48.9	
North: Mulgoa Road (North)												
7	L2	39	0.0	0.272	5.6	LOS A	0.0	0.0	0.00	0.04	59.5	
8	T1	1020	0.0	0.272	0.0	LOS A	0.0	0.0	0.00	0.02	59.7	
Approach		1059	0.0	0.272	0.2	NA	0.0	0.0	0.00	0.02	59.7	
All Vehicles		2670	0.0	0.391	0.4	NA	0.4	2.8	0.02	0.03	59.4	

Table A3: Weekday Priority Intersection Performance of Mulgoa Road with Preston Street AM Peak Hour

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
		Total veh/h	HV %									
South: York Road (South)												
1	L2	14	0.0	0.485	8.0	LOS A	1.5	10.2	0.15	0.05	48.7	
2	T1	815	0.0	0.485	0.6	LOS A	1.5	10.2	0.15	0.05	49.1	
3	R2	64	0.0	0.485	8.3	LOS A	1.5	10.2	0.15	0.05	48.5	
Approach		893	0.0	0.485	1.3	NA	1.5	10.2	0.15	0.05	49.1	
East: Preston Street (East)												
4	L2	55	0.0	0.063	9.7	LOS A	0.2	1.7	0.48	0.90	44.3	
5	T1	7	0.0	0.376	39.5	LOS C	1.2	8.2	0.93	1.05	30.6	
6	R2	33	0.0	0.376	48.3	LOS D	1.2	8.2	0.93	1.05	30.5	
Approach		95	0.0	0.376	25.3	LOS B	1.2	8.2	0.67	0.96	37.2	
North: York Road (North)												
7	L2	21	0.0	0.255	6.6	LOS A	0.2	1.2	0.04	0.03	49.1	
8	T1	461	0.0	0.255	0.2	LOS A	0.2	1.2	0.04	0.03	49.6	
9	R2	5	0.0	0.255	11.0	LOS A	0.2	1.2	0.04	0.03	48.9	
Approach		487	0.0	0.255	0.6	NA	0.2	1.2	0.04	0.03	49.6	
West: Preston Street (West)												
10	L2	69	0.0	0.141	13.8	LOS A	0.5	3.4	0.69	1.00	42.4	
11	T1	5	0.0	0.094	31.3	LOS C	0.3	1.8	0.90	1.00	33.8	
12	R2	6	0.0	0.094	38.9	LOS C	0.3	1.8	0.90	1.00	33.7	
Approach		80	0.0	0.141	16.8	LOS B	0.5	3.4	0.72	1.00	41.0	
All Vehicles		1555	0.0	0.485	3.3	NA	1.5	10.2	0.18	0.15	47.8	

Table A4: Weekday Priority Intersection Performance of York Road with Preston Street AM Peak Hour

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
South: Dent Street												
1	L2	47	0.0	0.044	5.5	LOS A	0.2	1.1	0.31	0.55	49.0	
Approach		47	0.0	0.044	5.5	LOS A	0.2	1.1	0.31	0.55	49.0	
East: Jamison Road (East)												
4	L2	33	0.0	0.139	5.6	LOS A	0.0	0.0	0.00	0.07	57.7	
5	T1	509	0.0	0.139	0.0	LOS A	0.0	0.0	0.00	0.03	59.7	
Approach		542	0.0	0.139	0.4	NA	0.0	0.0	0.00	0.04	59.5	
West: Jamison Road (West)												
11	T1	652	0.0	0.167	0.0	LOS A	0.0	0.0	0.00	0.00	60.0	
Approach		652	0.0	0.167	0.0	NA	0.0	0.0	0.00	0.00	60.0	
All Vehicles		1241	0.0	0.167	0.4	NA	0.2	1.1	0.01	0.04	59.3	

Table A5: Weekday Priority Intersection Performance of Jamison Road with Dent Street PM Peak Hour

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
East: Preston Street (East)												
5	T1	32	0.0	0.032	0.2	LOS A	0.1	0.8	0.16	0.20	48.4	
6	R2	20	0.0	0.032	5.0	LOS A	0.1	0.8	0.16	0.20	47.7	
Approach		52	0.0	0.032	2.1	NA	0.1	0.8	0.16	0.20	48.1	
North: Dent Street												
7	L2	8	0.0	0.005	4.8	LOS A	0.0	0.1	0.15	0.49	46.3	
9	R2	28	0.0	0.027	5.3	LOS A	0.1	0.7	0.27	0.53	45.8	
Approach		36	0.0	0.027	5.2	LOS A	0.1	0.7	0.24	0.52	45.9	
West: Preston Street (West)												
10	L2	40	0.0	0.022	4.6	LOS A	0.0	0.0	0.00	0.53	46.6	
11	T1	73	0.0	0.037	0.0	LOS A	0.0	0.0	0.00	0.00	50.0	
Approach		113	0.0	0.037	1.6	NA	0.0	0.0	0.00	0.19	48.7	
All Vehicles		201	0.0	0.037	2.4	NA	0.1	0.8	0.08	0.25	48.1	

Table A6: Weekday Priority Intersection Performance of Preston Street with Dent Street PM Peak Hour

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
South: Mulgoa Road											
2	T1	1128	0.0	0.289	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		1128	0.0	0.289	0.0	NA	0.0	0.0	0.00	0.00	59.9
East: Preston Street (East)											
4	L2	40	0.0	0.067	9.8	LOS A	0.2	1.6	0.57	0.78	47.8
Approach		40	0.0	0.067	9.8	LOS A	0.2	1.6	0.57	0.78	47.8
North: Mulgoa Road (North)											
7	L2	68	0.0	0.387	5.7	LOS A	0.0	0.0	0.00	0.05	59.3
8	T1	1436	0.0	0.387	0.1	LOS A	0.0	0.0	0.00	0.02	59.7
Approach		1504	0.0	0.387	0.3	NA	0.0	0.0	0.00	0.03	59.6
All Vehicles		2672	0.0	0.387	0.3	NA	0.2	1.6	0.01	0.03	59.5

Table A7: Weekday Priority Intersection Performance of Mulgoa Road with Preston Street PM Peak Hour

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
South: York Road (South)											
1	L2	12	0.0	0.373	10.6	LOS A	1.9	13.5	0.33	0.10	47.4
2	T1	509	0.0	0.373	1.9	LOS A	1.9	13.5	0.33	0.10	47.9
3	R2	76	0.0	0.373	10.9	LOS A	1.9	13.5	0.33	0.10	47.2
Approach		597	0.0	0.373	3.2	NA	1.9	13.5	0.33	0.10	47.8
East: Preston Street (East)											
4	L2	40	0.0	0.070	12.3	LOS A	0.2	1.7	0.62	0.99	43.1
5	T1	4	0.0	0.128	28.2	LOS B	0.4	2.5	0.90	1.00	34.3
6	R2	12	0.0	0.128	35.8	LOS C	0.4	2.5	0.90	1.00	34.2
Approach		56	0.0	0.128	18.5	LOS B	0.4	2.5	0.70	0.99	40.1
North: York Road (North)											
7	L2	43	0.0	0.398	4.7	LOS A	0.0	0.2	0.00	0.03	49.3
8	T1	729	0.0	0.398	0.0	LOS A	0.0	0.2	0.00	0.03	49.8
9	R2	1	0.0	0.398	8.2	LOS A	0.0	0.2	0.00	0.03	49.1
Approach		773	0.0	0.398	0.3	NA	0.0	0.2	0.00	0.03	49.8
West: Preston Street (West)											
10	L2	64	0.0	0.079	10.1	LOS A	0.3	2.1	0.51	0.93	44.1
11	T1	5	0.0	0.080	28.9	LOS C	0.2	1.6	0.88	1.01	35.2
12	R2	6	0.0	0.080	33.1	LOS C	0.2	1.6	0.88	1.01	35.1
Approach		75	0.0	0.080	13.2	LOS A	0.3	2.1	0.56	0.94	42.5
All Vehicles		1501	0.0	0.398	2.8	NA	1.9	13.5	0.19	0.14	48.1

Table A8: Weekday Priority Intersection Performance of York Road with Preston Street PM Peak Hour

APPENDIX B

SIDRA Intersection Results for Existing and Apartment Traffic Conditions

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
South: Dent Street												
1	L2	52	0.0	0.049	5.5	LOS A	0.2	1.2	0.31	0.55	49.0	
Approach		52	0.0	0.049	5.5	LOS A	0.2	1.2	0.31	0.55	49.0	
East: Jamison Road (East)												
4	L2	21	0.0	0.131	5.6	LOS A	0.0	0.0	0.00	0.05	57.9	
5	T1	489	0.0	0.131	0.0	LOS A	0.0	0.0	0.00	0.02	59.8	
Approach		510	0.0	0.131	0.2	NA	0.0	0.0	0.00	0.02	59.7	
West: Jamison Road (West)												
11	T1	558	0.0	0.143	0.0	LOS A	0.0	0.0	0.00	0.00	60.0	
Approach		558	0.0	0.143	0.0	NA	0.0	0.0	0.00	0.00	60.0	
All Vehicles		1120	0.0	0.143	0.4	NA	0.2	1.2	0.01	0.04	59.2	

Table B1: Weekday Priority Intersection Performance of Jamison Road with Dent Street AM Peak Hour with Apartment Traffic

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
East: Preston Street (East)												
5	T1	65	0.0	0.039	0.0	LOS A	0.0	0.3	0.04	0.05	49.6	
6	R2	7	0.0	0.039	4.8	LOS A	0.0	0.3	0.04	0.05	48.9	
Approach		72	0.0	0.039	0.5	NA	0.0	0.3	0.04	0.05	49.5	
North: Dent Street												
7	L2	9	0.0	0.006	4.7	LOS A	0.0	0.2	0.12	0.49	46.4	
9	R2	31	0.0	0.030	5.2	LOS A	0.1	0.8	0.25	0.52	45.9	
Approach		40	0.0	0.030	5.1	LOS A	0.1	0.8	0.22	0.52	46.0	
West: Preston Street (West)												
10	L2	21	0.0	0.011	4.6	LOS A	0.0	0.0	0.00	0.53	46.6	
11	T1	46	0.0	0.024	0.0	LOS A	0.0	0.0	0.00	0.00	50.0	
Approach		67	0.0	0.024	1.4	NA	0.0	0.0	0.00	0.17	48.9	
All Vehicles		179	0.0	0.039	1.9	NA	0.1	0.8	0.06	0.20	48.5	

Table B2: Weekday Priority Intersection Performance of Preston Street with Dent Street AM Peak Hour with Apartment Traffic

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
		Total veh/h	HV %									
South: Mulgoa Road												
2	T1	1523	0.0	0.391	0.1	LOS A	0.0	0.0	0.00	0.00	59.9	
Approach		1523	0.0	0.391	0.1	NA	0.0	0.0	0.00	0.00	59.9	
East: Preston Street (East)												
4	L2	96	0.0	0.121	8.2	LOS A	0.4	3.0	0.49	0.72	48.9	
Approach		96	0.0	0.121	8.2	LOS A	0.4	3.0	0.49	0.72	48.9	
North: Mulgoa Road (North)												
7	L2	40	0.0	0.272	5.6	LOS A	0.0	0.0	0.00	0.04	59.5	
8	T1	1020	0.0	0.272	0.0	LOS A	0.0	0.0	0.00	0.02	59.7	
Approach		1060	0.0	0.272	0.2	NA	0.0	0.0	0.00	0.02	59.7	
All Vehicles		2679	0.0	0.391	0.4	NA	0.4	3.0	0.02	0.03	59.3	

Table B3: Weekday Priority Intersection Performance of Mulgoa Road with Preston Street AM Peak Hour with Apartment Traffic

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
		Total veh/h	HV %									
South: York Road (South)												
1	L2	14	0.0	0.485	8.0	LOS A	1.5	10.2	0.15	0.05	48.7	
2	T1	815	0.0	0.485	0.6	LOS A	1.5	10.2	0.15	0.05	49.1	
3	R2	64	0.0	0.485	8.3	LOS A	1.5	10.2	0.15	0.05	48.5	
Approach		893	0.0	0.485	1.3	NA	1.5	10.2	0.15	0.05	49.1	
East: Preston Street (East)												
4	L2	55	0.0	0.063	9.7	LOS A	0.2	1.7	0.48	0.90	44.3	
5	T1	7	0.0	0.377	39.6	LOS C	1.2	8.2	0.93	1.05	30.5	
6	R2	33	0.0	0.377	48.6	LOS D	1.2	8.2	0.93	1.05	30.5	
Approach		95	0.0	0.377	25.4	LOS B	1.2	8.2	0.67	0.96	37.2	
North: York Road (North)												
7	L2	21	0.0	0.255	6.6	LOS A	0.2	1.2	0.04	0.03	49.1	
8	T1	461	0.0	0.255	0.2	LOS A	0.2	1.2	0.04	0.03	49.6	
9	R2	5	0.0	0.255	11.0	LOS A	0.2	1.2	0.04	0.03	48.9	
Approach		487	0.0	0.255	0.6	NA	0.2	1.2	0.04	0.03	49.6	
West: Preston Street (West)												
10	L2	72	0.0	0.147	13.8	LOS A	0.5	3.6	0.70	1.00	42.4	
11	T1	5	0.0	0.094	31.3	LOS C	0.3	1.8	0.90	1.00	33.8	
12	R2	6	0.0	0.094	38.9	LOS C	0.3	1.8	0.90	1.00	33.7	
Approach		83	0.0	0.147	16.7	LOS B	0.5	3.6	0.72	1.00	41.0	
All Vehicles		1558	0.0	0.485	3.3	NA	1.5	10.2	0.18	0.15	47.8	

Table B4: Weekday Priority Intersection Performance of York Road with Preston Street AM Peak Hour with Apartment Traffic

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
South: Dent Street												
1	L2	48	0.0	0.045	5.5	LOS A	0.2	1.1	0.31	0.55	49.0	
Approach		48	0.0	0.045	5.5	LOS A	0.2	1.1	0.31	0.55	49.0	
East: Jamison Road (East)												
4	L2	36	0.0	0.140	5.6	LOS A	0.0	0.0	0.00	0.08	57.7	
5	T1	509	0.0	0.140	0.0	LOS A	0.0	0.0	0.00	0.04	59.6	
Approach		545	0.0	0.140	0.4	NA	0.0	0.0	0.00	0.04	59.5	
West: Jamison Road (West)												
11	T1	652	0.0	0.167	0.0	LOS A	0.0	0.0	0.00	0.00	60.0	
Approach		652	0.0	0.167	0.0	NA	0.0	0.0	0.00	0.00	60.0	
All Vehicles		1245	0.0	0.167	0.4	NA	0.2	1.1	0.01	0.04	59.2	

Table B5: Weekday Priority Intersection Performance of Jamison Road with Dent Street PM Peak Hour with Apartment Traffic

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
East: Preston Street (East)												
5	T1	32	0.0	0.035	0.3	LOS A	0.1	0.9	0.18	0.22	48.3	
6	R2	23	0.0	0.035	5.0	LOS A	0.1	0.9	0.18	0.22	47.6	
Approach		55	0.0	0.035	2.3	NA	0.1	0.9	0.18	0.22	48.0	
North: Dent Street												
7	L2	8	0.0	0.005	4.8	LOS A	0.0	0.1	0.15	0.49	46.3	
9	R2	29	0.0	0.029	5.3	LOS A	0.1	0.8	0.27	0.53	45.8	
Approach		37	0.0	0.029	5.2	LOS A	0.1	0.8	0.25	0.52	45.9	
West: Preston Street (West)												
10	L2	48	0.0	0.026	4.6	LOS A	0.0	0.0	0.00	0.53	46.6	
11	T1	73	0.0	0.037	0.0	LOS A	0.0	0.0	0.00	0.00	50.0	
Approach		121	0.0	0.037	1.8	NA	0.0	0.0	0.00	0.21	48.6	
All Vehicles		213	0.0	0.037	2.5	NA	0.1	0.9	0.09	0.27	48.0	

Table B6: Weekday Priority Intersection Performance of Preston Street with Dent Street PM Peak Hour with Apartment Traffic

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Mulgoa Road											
2	T1	1128	0.0	0.289	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		1128	0.0	0.289	0.0	NA	0.0	0.0	0.00	0.00	59.9
East: Preston Street (East)											
4	L2	41	0.0	0.068	9.8	LOS A	0.2	1.6	0.57	0.78	47.8
Approach		41	0.0	0.068	9.8	LOS A	0.2	1.6	0.57	0.78	47.8
North: Mulgoa Road (North)											
7	L2	68	0.0	0.387	5.7	LOS A	0.0	0.0	0.00	0.05	59.3
8	T1	1436	0.0	0.387	0.1	LOS A	0.0	0.0	0.00	0.02	59.7
Approach		1504	0.0	0.387	0.3	NA	0.0	0.0	0.00	0.03	59.6
All Vehicles		2673	0.0	0.387	0.3	NA	0.2	1.6	0.01	0.03	59.5

Table B7: Weekday Priority Intersection Performance of Mulgoa Road with Preston Street PM Peak Hour with Apartment Traffic

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: York Road (South)											
1	L2	13	0.0	0.374	10.6	LOS A	1.9	13.6	0.33	0.10	47.4
2	T1	509	0.0	0.374	1.9	LOS A	1.9	13.6	0.33	0.10	47.9
3	R2	76	0.0	0.374	10.9	LOS A	1.9	13.6	0.33	0.10	47.2
Approach		598	0.0	0.374	3.2	NA	1.9	13.6	0.33	0.10	47.8
East: Preston Street (East)											
4	L2	41	0.0	0.071	12.3	LOS A	0.2	1.7	0.62	0.99	43.1
5	T1	4	0.0	0.129	28.3	LOS B	0.4	2.6	0.90	1.00	34.3
6	R2	12	0.0	0.129	35.9	LOS C	0.4	2.6	0.90	1.00	34.2
Approach		57	0.0	0.129	18.4	LOS B	0.4	2.6	0.70	0.99	40.2
North: York Road (North)											
7	L2	43	0.0	0.399	4.8	LOS A	0.1	0.4	0.01	0.03	49.3
8	T1	729	0.0	0.399	0.0	LOS A	0.1	0.4	0.01	0.03	49.8
9	R2	2	0.0	0.399	8.2	LOS A	0.1	0.4	0.01	0.03	49.1
Approach		774	0.0	0.399	0.3	NA	0.1	0.4	0.01	0.03	49.8
West: Preston Street (West)											
10	L2	64	0.0	0.079	10.1	LOS A	0.3	2.1	0.51	0.93	44.1
11	T1	5	0.0	0.080	28.9	LOS C	0.2	1.6	0.88	1.01	35.2
12	R2	6	0.0	0.080	33.2	LOS C	0.2	1.6	0.88	1.01	35.1
Approach		75	0.0	0.080	13.2	LOS A	0.3	2.1	0.56	0.94	42.5
All Vehicles		1504	0.0	0.399	2.8	NA	1.9	13.6	0.19	0.14	48.1

Table B8: Weekday Priority Intersection Performance of York Road with Preston Street PM Peak Hour with Apartment Traffic