

Reference: #16S900100

30 November 2017

Dexus Projects
Level 25, 264-278 George Street
SYDNEY NSW 2000

Attention: Mr. Mark Barrett

Dear Mark

RE: 12 FREDERICK STREET, ST LEONARDS (SSD 7543 AND 8499)
RESPONSE TO COUNCIL COMMENTS

The development at 12 Frederick Street, St Leonards is proposed to comprise hospital and ancillary medical uses. The development has been planned in two components and as such two separate State Significant Development Applications (SSDAs), being Tower A and podium (SSD 7543), and Tower B (SSD 8499). Subsequent to the lodgement of the two SSDAs and in response to the submissions received, some re-planning of the internal layout and uses has occurred for both towers, requiring updates to the traffic and parking assessment. As such, this letter has been prepared to provide:

- Revised traffic and parking assessment to reflect the current development scheme.
- Response to the Willoughby City Council (Council) submission to the Department of Planning and Environment (DPE) (letter dated 11 August 2017).

Revised Traffic and Parking Assessment

As part of the design refinement and establishment of tenant requirements, some re-planning of the internal layout and uses has occurred, as noted above. However, the overall floor-space-ratio (FSR) and GFA within remain unchanged. The revised scheme and uses for Tower A and B are summarised in Table 1.

Table 1: Revised land uses for Tower A and B

Building	Use	Number of rooms/ beds/GFA
Tower A	Private hospital	46 beds
	Medical consulting suites	82 rooms
	Ancillary retail	610 sq.m
Tower B	Medical consulting suites	76 rooms

Parking requirements

Parking requirements as per Willoughby City Council DCP 2006 (WDCP) have been reviewed for the proposed development and summarised in Table 2.

While the DCP land use of Health Consulting Rooms is closest to the proposed medical consulting suites, the definition of this is “*premises comprising one or more rooms within a dwelling house*”. As such, the Medical Centre land use has been used to calculate parking requirements, noting that there are very similar requirements for the two uses.

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Table 2: Revised parking requirements

Use	Type	Size	WDCP Parking Rate	WDCP Parking Requirement
Medical Centre	Staff Parking	○ 158 medical professionals ○ 53 support staff	○ 1 space per health care professional ○ 1 space per 2 other employees	185 spaces
	Patient Parking	○ 158 medical professionals	○ 1 space per health care professional	158 spaces
Private Hospital	-	○ 5 medical officers ○ 32 support staff ○ 46 beds	○ 1 space per medical officer ○ 1 space per 2 other employees ○ 1 space per 3 beds for visitors	36 spaces
Retail	-	○ 610 sq.m GFA	○ 1 space per 25 sq.m GFA	24 spaces
Total				403 spaces

It is noted that 2011 Census Journey to Work data for persons employed in the relevant Travel Zone indicates that approximately 58 per cent of employees travel by private vehicle. It is understood that leasing discussion for the proposed development indicates that the likely take-up of parking for medical professionals is going to be significantly less than one space per health care professional. Adopting the Journey to Work private car mode split of 58 per cent for the medical suites component of the development would reduce the parking requirement by 63 spaces.

Given the ancillary nature of the retail uses proposed, other than a minor potential tenant allocation (which can be accommodated within the overall parking supply), this floorspace would not generate additional parking demand. As such, the retail should be excluded from the parking calculations, resulting in a total on-site parking requirement (including the above reduction of 63 spaces) of **316 spaces**.

As a comparison with the neighbouring North Sydney DCP 2013, a St Leonards medical centre land use would have parking requirement of one space per 400m² and a Hospital land use would have a parking requirement of one space per six beds and one space per four staff. Based on an approximate floor area of 11,100m² for the medical suites (in addition to the above data, excluding retail), the proposed development would have a total parking requirement of 45 spaces. It is not proposed to adopt this number, however there is a clear justification for reducing parking supply on the basis of the available public transport, existing travel patterns and the relevant parking controls that apply to part of the St Leonards area.

In addition, the proposed development would incur a loss of 24 on-street parking spaces on Reserve Road and Westbourne Street due to driveway access placement. It is proposed that this loss in on-street parking is provided within the development thus resulting in a requirement of **340 parking spaces**. The nature of the current on-street parking along Reserve Road and Westbourne Street is paid parking. Therefore this replacement in parking provision would be effectively like-for-like in nature, assuming that car park pricing is consistent with the existing Royal North Shore Hospital multi-storey car parks. As such, the publicly accessible component of the proposed on-site car parking would effectively form part of the broader parking supply for the health precinct.

Traffic generation

Traffic generation for the proposed development has also been revised to understand the effects of the changes in the scheme. A review of available traffic survey data for hospitals and medical centres indicates vehicle trip generation rates as summarised in Table 3.

Table 3: Vehicle trip generation rates

Land Use	AM Peak	PM Peak
Medical centres ^[1]	1.4 trips per room	1.7 trips per room
Urban hospitals	0.34 trips per staff and 0.32 trips per bed	0.39 trips per staff and 0.33 trips per bed

[1] based on several medical centres with public transport accessibility similar to St Leonards

Based on the proposed land uses and vehicle trip generation rates, the revised scheme would generate 219 and 271 vehicle trips in the AM and PM peaks, respectively. As with the parking requirements, it is assumed that the retail component of the development would not generate any additional trips as these facilities would be ancillary to the hospital and medical consulting suites and therefore not attracting specific retail-only trips.

In addition to the revised traffic generation for the development, Council has requested that +10-year traffic forecast be assessed as part of the traffic impact assessment. GTA has adopted rates of 0.5% per annum for traffic volumes along Pacific Highway (as shown by analysis of RMS historical AADT data) and 2% per annum for traffic volumes on minor roads (industry accepted typical growth rate). Council was consulted with respect to the proposed traffic growth rates, however not specific feedback could be obtained (with Council requesting that DPE agree the relevant rates to be used).

Intersection analysis

The operation of the key intersections within the study area has been assessed using SIDRA INTERSECTION¹, a computer based modelling package which calculates intersection performance. Results for the 2026 base scenario and 2026 post-development scenario are summarised in Table 4 and Table 5, with full results in Attachment 1. The previous 2016 scenario has not been re-assessed.

Table 4: 2026 base year operating conditions

Intersection	Priority Type	Peak	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
Campbell St/ Pacific Hwy	Signalised	AM	0.94	23	203	B
		PM	0.75	17	110	B
Herbert St/ Cleg St	Signalised	AM	1.14	35	185	C
		PM	0.59	11	46	A
Herbert St/ Frederick St	Signalised	AM	1.19	85	414	F
		PM	1.05	41	240	C
Herbert St/ Pacific Hwy	Signalised	AM	0.92	32	320	C
		PM	0.9	29	232	C
		AM	0.86	29	179	C

¹ Program used under license from Akcelik & Associates Pty Ltd.

Intersection	Priority Type	Peak	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
Herbert St/ Westbourne St	Priority controlled	PM	0.51	23	9	B
Reserve Rd/ Campbell St	Signalised	AM	1.04	47	337	D
		PM	0.87	29	130	C
Reserve Rd/ Frederick St	Roundabout	AM	0.63	6	45	A
		PM	0.68	10	67	A

Table 5: 2026 post-development operating conditions

Intersection	Priority Type	Peak	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
Campbell St/ Pacific Hwy	Signalised	AM	0.95	24	207	B
		PM	0.53	25	173	B
Herbert St/ Cleg St	Signalised	AM	0.96	30	243	C
		PM	0.62	11	61	A
Herbert St/ Frederick St	Signalised	AM	1.03	59	276	E
		PM	0.98	35	180	C
Herbert St/ Pacific Hwy	Signalised	AM	0.76	35	235	C
		PM	0.73	33	234	C
Herbert St/ Westbourne St	Priority Controlled	AM	1.25	296	158	F
		PM	1.63	600	479	F
Reserve Rd/ Campbell St	Signalised	AM	1.01	43	302	D
		PM	0.92	34	162	C
Reserve Rd/ Frederick St	Roundabout	AM	0.64	6	49	A
		PM	0.73	11	80	A

As seen in Table 4, certain intersections would be at or above operational capacity in 2026 without the proposed development, given the degree of saturation (DoS) nearing or exceeding 1.0. Comparison of the results in Table 4 and Table 5 show overall intersection performance for most intersections would be generally similar between the base 2026 scenario and the 2026 post-development scenario. The analysis includes minor changes made to post-development signalised intersections to optimise signal phasing and timing (which have not been applied to the base 2026 scenario).

However, it is noted that traffic volumes at the Herbert Street/ Westbourne Street intersection would exceed the capacity of the existing layout (priority controlled (give-way) intersection) in the post-development scenario. Design of an appropriate intersection treatment is required to mitigate the development traffic impact and future traffic growth at this intersection, which would be further addressed as part of the Tower B development application (in consultation with Council and TfNSW/ RMS). This is considered appropriate given the concept plan nature of the Tower B SSD and that the Tower B traffic generation results in the intersection capacity issue. As such, this could be addressed through an appropriate condition of consent for the Tower B SSD (8499).

Possible improvement works for the Herbert Street/ Westbourne Street intersection could include the implementation of a southbound basic right turn treatment on Herbert Street (potentially with

separate left and right turn lanes on the Westbourne Street approach) or the implementation of a fully mountable roundabout. A right turn treatment would be less intrusive on the road environment however would disrupt the existing bicycle shoulder lane. Implementation of a roundabout would have a greater extent of physical works, however would provide additional traffic calming benefits.

It is understood that strategic planning investigations are currently underway for the St Leonards and Crows Nest Strategic Centre by DPE. The future Crows Nest Metro Station is also under planning and construction, and would provide another high quality public transport interchange within the local area. As such, traffic conditions within the St Leonards and Crows Nest area are expected to change, which would affect the road network in the immediate vicinity of the hospital precinct. Further assessment of road network performance and potential improvements will be required to address the likely infrastructure and development impacts of the Strategic Centre and Crows Nest Metro Station.

Revised basement and vehicle access design

A design compliance review and swept path assessment has been completed for the revised scheme, which includes some adjustments to the forecourt and loading dock to respond to Council comments and the internal building layout changes. The revised scheme provides better separation of the loading dock from the car park entry. Overall, the car park, loading dock and vehicle access points are capable of complying with AS2890 and can be conditioned accordingly.

Response to Willoughby City Council Submission

The relevant traffic and transport issues raised are reproduced below, with corresponding responses provided.

Green Travel Plan

Council Recommends that a Green Travel Plan is provided to Council that provides measures aimed at promoting sustainable travel and reducing reliance on the private car."

As documented in the TIAs prepared for both SSD 7543 and 8499, a green travel plan would be prepared for the development prior to occupation. This would include key objectives, site specific measures and a travel access guide.

Architectural Changes for Loading and Parking

Council recommends that the architectural plans be amended to address the issues identified with the loading vehicles prior to the determination of the application. The architectural plans should also be reviewed to reduce the number of on street car parking spaces lost by the proposed development, particularly disabled parking.

The project team has reviewed the proposed vehicle access locations and note that it would be difficult to materially reduce the overall on-street car parking impact without reducing sight lines and corresponding safety outcomes.

It is noted, however, that the proposed development would replace the on-street lost within the basement car park. Additional disabled parking would also be provided (noting also that the new Royal North Shore Hospital multi-storey car park has opened since the on-street disabled parking was implemented and provides further disabled parking). As previously noted, the publicly accessible component of the proposed on-site car parking would effectively form part of the broader parking supply for the health precinct. The complementary nature of the proposed uses within the development are likely to result in a proportion of linked trips associated with both the existing North Shore Private Hospital, Royal North Shore Hospital and ancillary facilities. As such, there would be no net impact on the existing on-street parking supply.

Travel Mode Surveys

Council recommends that a survey of the existing traffic volumes and transport mode split of the existing North Shore Private Hospital be undertaken to validate the traffic generation and travel mode assumptions on which the Traffic Impact Assessments are based prior to the determination of the Application.

Additional traffic and parking survey data has been sourced for the revised traffic and parking assessment, in lieu of conducting the recommended surveys and to best reflect the proposed uses. Given shared nature of parking facilities within the health precinct, interview surveys would be required to isolate North Shore Private Hospital activity, requiring access to private property and associated permissions.

In addition, 2011 Census Journey to Work data for persons employed in the relevant Travel Zone indicates that approximately 58% of employees travel by private vehicle. Based on the indicative 276 staff for the proposed development, 161 staff would commute by private vehicle. At an occupancy rate of 1.2 passengers per vehicle, this equates to approximately 134 vehicle trips. This is roughly in-line with the AM peak traffic generation estimates (noting peak period travel is predominantly staff), and as such the AM peak and PM peak generation rates adopted are

appropriate for the development. Given the cost of parking in the health precinct and the comprehensive on-street parking restrictions that have been implemented by Council, it is likely that a greater proportion of staff would arrive by public transport, with appropriate public transport and footpath capacity available to support this.

Car Parking

Council recommends that the car parking rates be revised to appropriately reflect the proximity to public transport and the nature of the proposed use (hospital worker, patient and visitor accommodation)

The proposed uses have been clarified as part of the revised scheme, with the relevant car parking rates from the Willoughby Council DCP 2016. This is addressed above in the revised traffic and parking assessment.

Traffic Impact Assessment

Council recommends that the traffic consultants be requested to amend their TIA to assess potential traffic impacts on the surrounding road network based on traffic volumes for at least the next 10 years prior to determination of the Application.

The revised traffic and parking assessment includes a 10-year estimated traffic growth forecast for the surrounding road network, noting that further information would be required to assess the likely changes to travel patterns and traffic conditions as part of the St Leonards and Crows Nest Strategic Centre planning and future Crows Nest Metro Station.

I trust the above provides the necessary additional information and clarifications requested. 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



Brett Maynard
Director

encl.

Attachment 1 - SIDRA Intersection analysis

Attachment 1

SIDRA Intersection analysis

MOVEMENT SUMMARY



Site: 101 [Campbell St/Pacific Hwy (2026 Base-AM)]

16S9001000 - 12 Frederick St, St Leonards

Signals - Fixed Time Isolated Cycle Time = 130 seconds (User-Given Phase Times)

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: Pacific Hwy - S											
2	T1	1108	4.6	0.373	4.5	LOS A	10.4	75.8	0.33	0.30	55.9
3	R2	312	4.1	0.942	105.7	LOS F	28.0	202.5	1.00	1.29	21.2
Approach		1420	4.4	0.942	26.7	LOS B	28.0	202.5	0.48	0.52	41.1
East: Campbell St - E											
4	L2	124	4.2	0.230	41.2	LOS C	5.9	42.7	0.79	0.75	33.2
6	R2	162	5.2	0.346	61.2	LOS E	4.8	35.0	0.95	0.77	28.1
Approach		286	4.8	0.346	52.5	LOS D	5.9	42.7	0.88	0.76	30.1
North: Pacific Hwy - N											
7	L2	174	4.8	0.532	19.7	LOS B	20.6	152.0	0.59	0.61	43.8
8	T1	1653	7.0	0.532	14.8	LOS B	21.7	161.0	0.61	0.57	48.0
Approach		1826	6.8	0.532	15.3	LOS B	21.7	161.0	0.61	0.58	47.6
All Vehicles		3533	5.7	0.942	22.9	LOS B	28.0	202.5	0.58	0.57	42.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	53	59.3	LOS E	0.2	0.2	0.96	0.96	
P2	East Full Crossing	53	13.9	LOS B	0.1	0.1	0.46	0.46	
All Pedestrians		105	36.6	LOS D			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: 101 [Campbell St/Pacific Hwy (2026 Base-PM)]

16S9001000 - 12 Frederick St, St Leonards

Signals - Fixed Time Isolated Cycle Time = 130 seconds (User-Given Phase Times)

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: Pacific Hwy - S											
2	T1	1426	3.7	0.477	5.1	LOS A	15.2	109.7	0.37	0.34	55.4
3	R2	161	5.9	0.415	22.0	LOS B	7.0	51.2	0.74	0.80	41.1
Approach		1587	3.9	0.477	6.8	LOS A	15.2	109.7	0.41	0.39	53.5
East: Campbell St - E											
4	L2	197	0.5	0.417	42.8	LOS D	9.7	68.5	0.83	0.78	32.8
6	R2	323	1.6	0.748	66.6	LOS E	11.6	82.5	1.00	0.87	27.0
Approach		520	1.2	0.748	57.6	LOS E	11.6	82.5	0.93	0.83	28.9
North: Pacific Hwy - N											
7	L2	84	2.5	0.407	18.4	LOS B	14.7	105.8	0.54	0.53	44.8
8	T1	1348	3.3	0.407	13.3	LOS A	15.2	109.7	0.55	0.50	49.1
Approach		1433	3.2	0.407	13.6	LOS A	15.2	109.7	0.55	0.51	48.8
All Vehicles		3540	3.2	0.748	17.0	LOS B	15.2	109.7	0.54	0.50	46.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	53	59.3	LOS E	0.2	0.2	0.96	0.96	
P2	East Full Crossing	53	13.9	LOS B	0.1	0.1	0.46	0.46	
All Pedestrians		105	36.6	LOS D			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.

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MOVEMENT SUMMARY



Site: 1 [Herbert St/Cleg St (2026 Base-AM)]

16S9001000 - 12 Frederick St, St Leonards

Signals - Fixed Time Coordinated Cycle Time = 60 seconds (User-Given Phase Times)

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: Herbert St - S											
1	L2	82	5.1	0.081	11.9	LOS A	1.1	7.9	0.48	0.68	48.9
2	T1	299	0.7	0.352	5.8	LOS A	3.6	25.7	0.40	0.38	54.4
3	R2	27	7.7	0.352	11.4	LOS A	3.6	25.7	0.40	0.38	52.8
Approach		408	2.1	0.352	7.4	LOS A	3.6	25.7	0.42	0.44	53.1
East: Cleg St - E											
4	L2	58	3.6	0.161	12.4	LOS A	0.9	6.2	0.68	0.68	49.5
5	T1	124	1.7	0.806	27.1	LOS B	6.0	42.5	0.93	0.91	40.3
6	R2	81	2.6	0.806	36.3	LOS C	6.0	42.5	0.97	0.95	38.1
Approach		263	2.4	0.806	26.7	LOS B	6.0	42.5	0.89	0.87	41.3
North: Herbert St - N											
7	L2	40	0.0	0.138	11.1	LOS A	2.0	13.9	0.46	0.46	52.5
8	T1	756	0.6	0.688	8.4	LOS A	14.5	102.0	0.69	0.65	52.2
9	R2	81	0.0	0.688	14.4	LOS A	14.5	102.0	0.73	0.68	50.7
Approach		877	0.5	0.688	9.1	LOS A	14.5	102.0	0.69	0.64	52.1
West: Cleg St - W											
10	L2	89	1.2	0.230	15.4	LOS B	2.0	14.2	0.72	0.70	47.7
11	T1	155	2.0	1.136	133.2	LOS F	25.7	184.9	0.94	1.65	18.3
12	R2	166	3.8	1.136	171.6	LOS F	25.7	184.9	1.00	1.91	15.5
Approach		411	2.6	1.136	123.1	LOS F	25.7	184.9	0.92	1.55	19.5
All Vehicles		1959	1.5	1.136	35.0	LOS C	25.7	184.9	0.71	0.82	37.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90	
P2	East Full Crossing	53	9.7	LOS A	0.1	0.1	0.57	0.57	
P3	North Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90	
P4	West Full Crossing	53	8.0	LOS A	0.0	0.0	0.52	0.52	
All Pedestrians		211	16.6	LOS B			0.72	0.72	

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: 1 [Herbert St/Cleg St (2026 Base-PM)]

16S9001000 - 12 Frederick St, St Leonards

Signals - Fixed Time Coordinated Cycle Time = 60 seconds (User-Given Phase Times)

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: Herbert St - S											
1	L2	122	3.4	0.119	12.1	LOS A	1.7	11.9	0.49	0.69	48.8
2	T1	555	0.9	0.548	4.7	LOS A	6.5	45.7	0.40	0.38	55.4
3	R2	37	0.0	0.548	10.2	LOS A	6.5	45.7	0.40	0.38	54.0
Approach		714	1.3	0.548	6.2	LOS A	6.5	45.7	0.41	0.43	54.1
East: Cleg St - E											
4	L2	47	2.2	0.114	12.4	LOS A	0.8	5.5	0.64	0.66	49.5
5	T1	125	3.4	0.570	21.8	LOS B	4.7	33.5	0.90	0.76	43.0
6	R2	60	0.0	0.570	29.1	LOS C	4.7	33.5	0.93	0.78	41.4
Approach		233	2.3	0.570	21.8	LOS B	4.7	33.5	0.85	0.75	43.8
North: Herbert St - N											
7	L2	18	0.0	0.084	10.9	LOS A	1.2	8.3	0.44	0.42	52.9
8	T1	386	0.8	0.421	7.1	LOS A	6.1	42.8	0.56	0.53	53.0
9	R2	63	0.0	0.421	13.1	LOS A	6.1	42.8	0.59	0.56	51.4
Approach		467	0.7	0.421	8.1	LOS A	6.1	42.8	0.56	0.53	52.8
West: Cleg St - W											
10	L2	89	1.2	0.120	7.5	LOS A	0.6	4.0	0.36	0.66	52.1
11	T1	99	2.1	0.591	25.1	LOS B	5.2	37.5	0.96	0.81	41.3
12	R2	84	5.0	0.591	30.7	LOS C	5.2	37.5	0.96	0.81	40.4
Approach		273	2.7	0.591	21.0	LOS B	5.2	37.5	0.76	0.76	44.0
All Vehicles		1686	1.5	0.591	11.3	LOS A	6.5	45.7	0.57	0.55	50.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90	
P2	East Full Crossing	53	9.7	LOS A	0.1	0.1	0.57	0.57	
P3	North Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90	
P4	West Full Crossing	53	8.0	LOS A	0.0	0.0	0.52	0.52	
All Pedestrians		211	16.6	LOS B			0.72	0.72	

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: 1 [Herbert St/Frederick St (2026 Base-AM)]

16S9001000 - 12 Frederick St, St Leonards

Signals - Fixed Time Isolated Cycle Time = 70 seconds (User-Given Phase Times)

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: Herbert St - S											
1	L2	311	6.8	0.245	9.3	LOS A	3.6	27.0	0.37	0.68	50.6
2	T1	381	1.4	0.519	17.3	LOS B	10.2	72.0	0.81	0.70	46.7
3	R2	7	0.0	0.519	22.9	LOS B	10.2	72.0	0.81	0.70	45.7
Approach		699	3.8	0.519	13.8	LOS A	10.2	72.0	0.61	0.69	48.3
East: Carpark Access - E											
4	L2	2	0.0	0.016	39.6	LOS C	0.1	0.5	0.95	0.61	35.8
5	T1	24	4.3	0.190	33.0	LOS C	1.2	8.5	0.95	0.70	38.2
6	R2	12	0.0	0.190	38.5	LOS C	1.2	8.5	0.95	0.70	37.5
Approach		38	2.8	0.190	35.0	LOS C	1.2	8.5	0.95	0.70	37.8
North: Herbert St - N											
7	L2	36	2.9	0.357	20.9	LOS B	6.7	47.1	0.73	0.64	46.4
8	T1	616	1.0	1.188	135.5	LOS F	58.4	414.5	0.89	1.64	18.3
9	R2	152	2.8	1.188	220.8	LOS F	58.4	414.5	1.00	2.30	12.9
Approach		803	1.4	1.188	146.5	LOS F	58.4	414.5	0.91	1.72	17.4
West: Frederick St - W											
10	L2	92	5.7	0.309	30.5	LOS C	3.7	26.5	0.87	0.75	39.8
11	T1	34	0.0	0.309	24.9	LOS B	3.7	26.5	0.87	0.75	40.7
12	R2	464	2.3	1.046	105.9	LOS F	32.5	231.9	1.00	1.40	21.5
Approach		589	2.7	1.046	89.5	LOS F	32.5	231.9	0.97	1.26	23.9
All Vehicles		2129	2.6	1.188	85.2	LOS F	58.4	414.5	0.83	1.24	24.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	53	29.3	LOS C	0.1	0.1	0.92	0.92	
P2	East Full Crossing	53	18.6	LOS B	0.1	0.1	0.73	0.73	
P3	North Full Crossing	53	28.4	LOS C	0.1	0.1	0.90	0.90	
P4	West Full Crossing	53	18.6	LOS B	0.1	0.1	0.73	0.73	
All Pedestrians		211	23.7	LOS C			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: 1 [Herbert St/Frederick St (2026 Base-PM)]

16S9001000 - 12 Frederick St, St Leonards

Signals - Fixed Time Isolated Cycle Time = 70 seconds (User-Given Phase Times)

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: Herbert St - S											
1	L2	414	4.8	0.323	9.6	LOS A	5.2	38.0	0.40	0.70	50.5
2	T1	427	0.7	0.541	16.8	LOS B	11.2	78.8	0.81	0.70	47.0
3	R2	2	0.0	0.541	22.4	LOS B	11.2	78.8	0.81	0.70	46.0
Approach		843	2.7	0.541	13.3	LOS A	11.2	78.8	0.61	0.70	48.6
East: Carpark Access - E											
4	L2	12	9.1	0.093	40.8	LOS C	0.4	3.0	0.96	0.67	35.2
5	T1	60	3.5	0.468	34.3	LOS C	3.1	21.8	0.98	0.76	37.7
6	R2	28	0.0	0.468	39.8	LOS C	3.1	21.8	0.98	0.76	37.0
Approach		100	3.2	0.468	36.6	LOS C	3.1	21.8	0.98	0.75	37.2
North: Herbert St - N											
7	L2	7	28.6	0.260	20.4	LOS B	4.7	33.0	0.69	0.58	46.4
8	T1	491	0.4	0.865	26.7	LOS B	15.6	110.7	0.87	0.87	41.3
9	R2	96	5.5	0.865	40.6	LOS C	15.6	110.7	0.98	1.06	36.8
Approach		594	1.6	0.865	28.8	LOS C	15.6	110.7	0.88	0.90	40.6
West: Frederick St - W											
10	L2	155	0.7	0.427	31.3	LOS C	5.2	36.7	0.90	0.79	39.1
11	T1	17	6.3	0.427	25.7	LOS B	5.2	36.7	0.90	0.79	39.9
12	R2	471	1.3	1.053	110.8	LOS F	33.8	239.7	1.00	1.42	20.9
Approach		642	1.3	1.053	89.4	LOS F	33.8	239.7	0.97	1.25	23.9
All Vehicles		2179	2.0	1.053	41.0	LOS C	33.8	239.7	0.81	0.92	35.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	53	29.3	LOS C	0.1	0.1	0.92	0.92	
P2	East Full Crossing	53	18.6	LOS B	0.1	0.1	0.73	0.73	
P3	North Full Crossing	53	28.4	LOS C	0.1	0.1	0.90	0.90	
P4	West Full Crossing	53	18.6	LOS B	0.1	0.1	0.73	0.73	
All Pedestrians		211	23.7	LOS C			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: 1 [Herbert St/Pacific Hwy (2026 Base-AM)]

16S9001000 - 12 Frederick St, St Leonards

Signals - Fixed Time Isolated Cycle Time = 130 seconds (User-Given Phase Times)

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 Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Pacific Highway - E											
5	T1	1515	3.8	0.532	20.1	LOS B	22.0	159.1	0.68	0.61	45.2
6	R2	456	2.1	0.655	57.4	LOS E	14.2	101.1	0.97	0.83	30.6
Approach		1971	3.4	0.655	28.7	LOS C	22.0	159.1	0.75	0.66	40.7
North: Herbert St - N											
7	L2	648	1.9	0.924	62.8	LOS E	44.9	319.9	0.96	0.97	29.1
9	R2	189	2.2	0.793	70.0	LOS E	12.5	89.5	1.00	0.89	27.8
Approach		838	2.0	0.924	64.4	LOS E	44.9	319.9	0.97	0.95	28.8
West: Pacific Highway - W											
10	L2	180	8.8	0.167	12.9	LOS A	3.7	28.1	0.45	0.69	48.1
11	T1	1654	5.3	0.577	20.8	LOS B	24.5	179.2	0.71	0.63	44.7
Approach		1834	5.6	0.577	20.0	LOS B	24.5	179.2	0.68	0.64	45.1
All Vehicles		4642	4.0	0.924	31.7	LOS C	44.9	319.9	0.76	0.70	39.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P3	North Full Crossing	53	19.4	LOS B	0.1	0.1	0.55	0.55	
P4	West Full Crossing	53	59.3	LOS E	0.2	0.2	0.96	0.96	
All Pedestrians		105	39.3	LOS D			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: 1 [Herbert St/Pacific Hwy (2026 Base-PM)]

16S9001000 - 12 Frederick St, St Leonards

Signals - Fixed Time Isolated Cycle Time = 130 seconds (User-Given Phase Times)

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
East: Pacific Highway - E											
5	T1	1779	3.7	0.617	21.4	LOS B	27.3	196.9	0.73	0.66	44.4
6	R2	364	0.6	0.518	55.7	LOS D	11.0	77.1	0.94	0.81	31.0
Approach		2143	3.1	0.617	27.2	LOS B	27.3	196.9	0.76	0.68	41.4
North: Herbert St - N											
7	L2	575	0.7	0.838	47.4	LOS D	33.0	232.4	0.92	0.89	33.2
9	R2	219	0.0	0.902	79.7	LOS F	15.9	111.4	1.00	0.99	25.9
Approach		794	0.5	0.902	56.3	LOS D	33.0	232.4	0.94	0.92	30.8
West: Pacific Highway - W											
10	L2	157	9.4	0.146	12.8	LOS A	3.2	24.3	0.45	0.68	48.2
11	T1	1486	2.4	0.505	19.8	LOS B	20.6	147.2	0.67	0.60	45.3
Approach		1643	3.1	0.505	19.1	LOS B	20.6	147.2	0.65	0.61	45.6
All Vehicles		4580	2.7	0.902	29.4	LOS C	33.0	232.4	0.75	0.70	40.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P3	North Full Crossing	53	19.4	LOS B	0.1	0.1	0.55	0.55	
P4	West Full Crossing	53	59.3	LOS E	0.2	0.2	0.96	0.96	
All Pedestrians		105	39.3	LOS D			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: 1 [Herbert St/Westbourne St (2026 Base-AM)]

16S9001000 - 12 Frederick St, St Leonards
Giveway / Yield (Two-Way)

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: Herbert St - S											
1	L2	144	0.0	0.446	5.9	LOS A	1.3	9.8	0.08	0.11	57.1
2	T1	635	7.5	0.446	0.1	LOS A	1.3	9.8	0.08	0.11	58.6
Approach		779	6.1	0.446	1.2	NA	1.3	9.8	0.08	0.11	58.3
North: Herbert St - N											
8	T1	737	1.7	0.858	9.6	LOS A	25.2	178.6	0.57	0.73	50.2
9	R2	101	0.0	0.858	28.5	LOS C	25.2	178.6	0.57	0.73	48.6
Approach		838	1.5	0.858	11.9	NA	25.2	178.6	0.57	0.73	50.0
West: Westbourne St - W											
10	L2	29	0.0	0.272	10.2	LOS A	0.5	3.8	0.76	0.92	45.8
12	R2	22	0.0	0.272	26.2	LOS B	0.5	3.8	0.76	0.92	45.5
Approach		52	0.0	0.272	17.1	LOS B	0.5	3.8	0.76	0.92	45.7
All Vehicles		1668	3.6	0.858	7.0	NA	25.2	178.6	0.35	0.45	53.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

▽ Site: 1 [Herbert St/Westbourne St (2026 Base-PM)]

16S9001000 - 12 Frederick St, St Leonards
Giveway / Yield (Two-Way)

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: Herbert St - S											
1	L2	32	3.3	0.323	5.9	LOS A	0.3	1.9	0.02	0.03	57.8
2	T1	571	3.1	0.323	0.0	LOS A	0.3	1.9	0.02	0.03	59.6
Approach		602	3.1	0.323	0.3	NA	0.3	1.9	0.02	0.03	59.5
North: Herbert St - N											
8	T1	752	0.6	0.756	4.8	LOS A	15.0	105.6	0.55	0.48	55.2
9	R2	35	0.0	0.756	17.2	LOS B	15.0	105.6	0.55	0.48	53.2
Approach		786	0.5	0.756	5.3	NA	15.0	105.6	0.55	0.48	55.1
West: Westbourne St - W											
10	L2	53	0.0	0.509	12.8	LOS A	1.3	8.8	0.75	0.99	44.8
12	R2	59	0.0	0.509	24.5	LOS B	1.3	8.8	0.75	0.99	44.4
Approach		112	0.0	0.509	19.0	LOS B	1.3	8.8	0.75	0.99	44.6
All Vehicles		1500	1.5	0.756	4.3	NA	15.0	105.6	0.35	0.34	55.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 1 [Reserve Rd/Campbell St (2026 Base-PM)]

16S9001000 - 12 Frederick St, St Leonards

Signals - Fixed Time Isolated Cycle Time = 65 seconds (Minimum Cycle Time)

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: Reserved Rd - S											
1	L2	335	4.7	0.867	30.8	LOS C	18.1	130.4	0.96	1.02	40.0
2	T1	689	2.3	0.867	28.3	LOS B	18.1	130.4	0.92	1.00	40.5
Approach		1024	3.1	0.867	29.1	LOS C	18.1	130.4	0.94	1.01	40.3
East: Bunning Access - E											
4	L2	47	0.0	0.255	37.3	LOS C	1.5	10.5	0.97	0.73	36.6
5	T1	58	0.0	0.665	34.3	LOS C	4.3	30.2	1.00	0.84	37.2
6	R2	68	0.0	0.665	39.8	LOS C	4.3	30.2	1.00	0.84	36.5
Approach		174	0.0	0.665	37.3	LOS C	4.3	30.2	0.99	0.81	36.7
North: Reserved Rd - N											
7	L2	58	0.0	0.218	16.9	LOS B	3.9	27.6	0.64	0.59	48.4
8	T1	335	3.1	0.816	21.9	LOS B	10.7	77.2	0.84	0.82	43.2
9	R2	121	4.3	0.816	35.5	LOS C	10.7	77.2	1.00	1.00	38.5
Approach		514	3.1	0.816	24.5	LOS B	10.7	77.2	0.86	0.84	42.5
West: Campbell St - W											
10	L2	122	10.3	0.265	27.7	LOS B	3.2	24.7	0.85	0.77	40.3
11	T1	46	0.0	0.451	26.8	LOS B	5.0	35.4	0.94	0.79	39.9
12	R2	121	2.6	0.451	32.3	LOS C	5.0	35.4	0.94	0.79	39.1
Approach		289	5.5	0.451	29.5	LOS C	5.0	35.4	0.90	0.78	39.7
All Vehicles		2001	3.2	0.867	28.7	LOS C	18.1	130.4	0.92	0.91	40.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P2	East Full Crossing	53	10.6	LOS B	0.1	0.1	0.65	0.65	
P3	North Full Crossing	53	22.5	LOS C	0.1	0.1	0.91	0.91	
P4	West Full Crossing	53	17.0	LOS B	0.1	0.1	0.80	0.80	
All Pedestrians		158	16.7	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: 1 [Reserve Rd/Campbell St (2026 Base-AM)]

16S9001000 - 12 Frederick St, St Leonards

Signals - Fixed Time Isolated Cycle Time = 65 seconds (Minimum Cycle Time)

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: Reserved Rd - S											
1	L2	175	11.4	0.290	13.9	LOS A	3.5	26.9	0.70	0.71	48.3
2	T1	263	4.8	0.290	15.0	LOS B	4.9	35.8	0.75	0.65	47.7
Approach		438	7.5	0.290	14.5	LOS B	4.9	35.8	0.73	0.68	47.9
East: Bunning Access - E											
4	L2	32	0.0	0.170	36.9	LOS C	1.0	6.9	0.96	0.72	36.7
5	T1	43	0.0	0.510	32.9	LOS C	3.2	22.3	1.00	0.77	37.7
6	R2	54	0.0	0.510	38.4	LOS C	3.2	22.3	1.00	0.77	36.9
Approach		128	0.0	0.510	36.2	LOS C	3.2	22.3	0.99	0.76	37.1
North: Reserved Rd - N											
7	L2	86	1.2	0.276	17.3	LOS B	5.1	35.9	0.66	0.62	47.9
8	T1	709	1.9	1.035	68.7	LOS E	46.7	336.6	0.92	1.37	27.1
9	R2	180	8.2	1.035	92.2	LOS F	46.7	336.6	1.00	1.61	23.4
Approach		976	3.0	1.035	68.5	LOS E	46.7	336.6	0.91	1.35	27.3
West: Campbell St - W											
10	L2	118	25.0	0.280	28.1	LOS B	3.2	26.9	0.86	0.77	39.8
11	T1	72	0.0	0.809	32.8	LOS C	9.4	67.6	1.00	0.97	37.4
12	R2	198	4.3	0.809	38.4	LOS C	9.4	67.6	1.00	0.97	36.7
Approach		387	9.8	0.809	34.2	LOS C	9.4	67.6	0.96	0.91	37.7
All Vehicles		1929	5.2	1.035	47.2	LOS D	46.7	336.6	0.88	1.07	32.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P2	East Full Crossing	53	10.6	LOS B	0.1	0.1	0.65	0.65	
P3	North Full Crossing	53	22.5	LOS C	0.1	0.1	0.91	0.91	
P4	West Full Crossing	53	17.0	LOS B	0.1	0.1	0.80	0.80	
All Pedestrians		158	16.7	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: 1 [Reserve Rd/Frederick St (2026 Base-AM)]**

16S9001000 - 12 Frederick St, St Leonards
Roundabout

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: Reserved Rd - S											
2	T1	113	2.8	0.125	5.6	LOS A	0.7	5.2	0.34	0.53	53.4
3	R2	31	0.0	0.125	8.9	LOS A	0.7	5.2	0.34	0.53	53.1
Approach		143	2.2	0.125	6.3	LOS A	0.7	5.2	0.34	0.53	53.4
East: Frederick St - E											
4	L2	151	0.7	0.271	7.2	LOS A	1.6	12.2	0.48	0.66	51.4
5	T1	9	0.0	0.271	7.4	LOS A	1.6	12.2	0.48	0.66	52.5
6	R2	88	28.6	0.271	11.6	LOS A	1.6	12.2	0.48	0.66	50.9
Approach		248	10.6	0.271	8.8	LOS A	1.6	12.2	0.48	0.66	51.3
North: Reserved Rd - N											
7	L2	566	2.2	0.626	4.9	LOS A	6.4	45.4	0.21	0.49	53.5
8	T1	351	0.0	0.626	5.1	LOS A	6.4	45.4	0.21	0.49	54.6
9	R2	35	15.2	0.626	8.6	LOS A	6.4	45.4	0.21	0.49	53.5
Approach		952	1.9	0.626	5.1	LOS A	6.4	45.4	0.21	0.49	53.9
West: Enterprise Centre - W											
10	L2	4	25.0	0.010	6.2	LOS A	0.1	0.4	0.39	0.52	51.7
11	T1	5	0.0	0.010	5.9	LOS A	0.1	0.4	0.39	0.52	53.7
12	R2	1	0.0	0.010	9.2	LOS A	0.1	0.4	0.39	0.52	53.3
Approach		11	10.0	0.010	6.3	LOS A	0.1	0.4	0.39	0.52	52.8
All Vehicles		1354	3.6	0.626	5.9	LOS A	6.4	45.4	0.28	0.53	53.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: \\gta.com.au\projectfiles\ProjectFilesSyd\16S9000-9099\16S9001000 12 Frederick Street, St Leonards- NSPH\Modelling\Response to Submissions\171120sid_16S9001000_2026 BASE CASE.sip7

MOVEMENT SUMMARY

 **Site: 1 [Reserve Rd/Frederick St (2026 Base-PM)]**

16S9001000 - 12 Frederick St, St Leonards
Roundabout

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: Reserved Rd - S											
1	L2	1	0.0	0.683	13.1	LOS A	9.5	66.9	0.93	0.91	47.5
2	T1	420	0.5	0.683	13.4	LOS A	9.5	66.9	0.93	0.91	48.3
3	R2	193	1.1	0.683	16.7	LOS B	9.5	66.9	0.93	0.91	48.0
Approach		614	0.7	0.683	14.4	LOS A	9.5	66.9	0.93	0.91	48.2
East: Frederick St - E											
4	L2	32	3.3	0.387	5.1	LOS A	2.7	20.0	0.26	0.61	51.2
5	T1	2	0.0	0.387	5.3	LOS A	2.7	20.0	0.26	0.61	52.2
6	R2	474	6.7	0.387	8.7	LOS A	2.7	20.0	0.26	0.61	51.6
Approach		507	6.4	0.387	8.4	LOS A	2.7	20.0	0.26	0.61	51.6
North: Reserved Rd - N											
7	L2	397	2.7	0.435	6.0	LOS A	3.0	21.5	0.45	0.60	52.9
8	T1	75	1.4	0.435	6.2	LOS A	3.0	21.5	0.45	0.60	54.0
9	R2	4	25.0	0.435	10.1	LOS A	3.0	21.5	0.45	0.60	52.5
Approach		476	2.7	0.435	6.0	LOS A	3.0	21.5	0.45	0.60	53.0
West: Enterprise Centre - W											
10	L2	21	5.0	0.065	17.2	LOS B	0.6	4.1	1.00	0.76	45.6
11	T1	5	0.0	0.065	17.1	LOS B	0.6	4.1	1.00	0.76	46.5
12	R2	1	0.0	0.065	20.4	LOS B	0.6	4.1	1.00	0.76	46.2
Approach		27	3.8	0.065	17.3	LOS B	0.6	4.1	1.00	0.76	45.8
All Vehicles		1624	3.1	0.683	10.2	LOS A	9.5	66.9	0.58	0.73	50.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101 [Campbell St/Pacific Hwy (2026PD-AM)]

16S9001000 - 12 Frederick St, St Leonards

Signals - Fixed Time Isolated Cycle Time = 130 seconds (User-Given Phase Times)

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: Pacific Hwy - S											
2	T1	1108	4.6	0.373	4.5	LOS A	10.4	75.8	0.33	0.30	55.9
3	R2	312	4.1	0.950	110.2	LOS F	28.6	206.8	1.00	1.30	20.7
Approach		1420	4.4	0.950	27.7	LOS B	28.6	206.8	0.48	0.52	40.7
East: Campbell St - E											
4	L2	124	4.2	0.230	41.2	LOS C	5.9	42.7	0.79	0.75	33.2
6	R2	186	4.5	0.396	61.7	LOS E	5.5	40.3	0.96	0.78	28.0
Approach		311	4.4	0.396	53.5	LOS D	5.9	42.7	0.89	0.77	29.9
North: Pacific Hwy - N											
7	L2	201	4.2	0.539	19.8	LOS B	21.0	155.0	0.60	0.62	43.6
8	T1	1653	7.0	0.539	14.9	LOS B	22.2	164.6	0.62	0.58	47.9
Approach		1854	6.7	0.539	15.5	LOS B	22.2	164.6	0.61	0.58	47.4
All Vehicles		3584	5.6	0.950	23.6	LOS B	28.6	206.8	0.58	0.57	42.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	53	59.3	LOS E	0.2	0.2	0.96	0.96	
P2	East Full Crossing	53	13.9	LOS B	0.1	0.1	0.46	0.46	
All Pedestrians		105	36.6	LOS D			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.

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MOVEMENT SUMMARY

Site: 101 [Campbell St/Pacific Hwy (2026PD-PM)]

16S9001000 - 12 Frederick St, St Leonards

Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time)

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: Pacific Hwy - S											
2	T1	1426	3.7	0.530	10.8	LOS A	23.8	172.2	0.51	0.47	51.0
3	R2	161	5.9	0.367	39.4	LOS C	10.0	73.2	0.89	0.86	34.4
Approach		1587	3.9	0.530	13.7	LOS A	23.8	172.2	0.55	0.51	48.6
East: Campbell St - E											
4	L2	197	0.5	0.262	33.0	LOS C	9.0	63.0	0.67	0.74	35.9
6	R2	362	1.5	0.515	60.2	LOS E	13.1	92.9	0.93	0.80	28.4
Approach		559	1.1	0.515	50.6	LOS D	13.1	92.9	0.84	0.78	30.6
North: Pacific Hwy - N											
7	L2	109	1.9	0.525	33.3	LOS C	23.6	169.7	0.73	0.69	37.8
8	T1	1348	3.3	0.525	27.9	LOS B	24.1	173.7	0.74	0.67	41.0
Approach		1458	3.2	0.525	28.3	LOS B	24.1	173.7	0.74	0.67	40.7
All Vehicles		3604	3.2	0.530	25.4	LOS B	24.1	173.7	0.67	0.62	41.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	53	60.9	LOS F	0.2	0.2	0.90	0.90	
P2	East Full Crossing	53	25.3	LOS C	0.1	0.1	0.58	0.58	
All Pedestrians		105	43.1	LOS E			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.

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MOVEMENT SUMMARY

Site: 1 [Herbert St/Cleg St (2026PD-AM)]

16S9001000 - 12 Frederick St, St Leonards

Signals - Fixed Time Coordinated Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

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: Herbert St - S											
1	L2	82	5.1	0.105	13.9	LOS A	1.4	10.1	0.53	0.66	48.1
2	T1	347	0.6	0.527	14.3	LOS A	7.4	52.1	0.72	0.63	48.3
3	R2	27	7.7	0.527	20.1	LOS B	7.4	52.1	0.72	0.63	46.9
Approach		457	1.8	0.527	14.5	LOS B	7.4	52.1	0.68	0.64	48.2
East: Cleg St - E											
4	L2	58	3.6	0.111	15.1	LOS B	1.1	8.1	0.68	0.68	47.4
5	T1	124	1.7	0.555	20.0	LOS B	5.0	35.9	0.87	0.75	43.9
6	R2	81	2.6	0.555	26.4	LOS B	5.0	35.9	0.89	0.76	42.6
Approach		263	2.4	0.555	20.9	LOS B	5.0	35.9	0.83	0.74	44.2
North: Herbert St - N											
7	L2	40	0.0	0.192	13.9	LOS A	3.0	20.8	0.57	0.53	50.6
8	T1	812	0.5	0.958	39.7	LOS C	34.6	243.0	0.92	1.20	36.1
9	R2	81	0.0	0.958	52.2	LOS D	34.6	243.0	1.00	1.35	33.3
Approach		933	0.5	0.958	39.6	LOS C	34.6	243.0	0.91	1.18	36.3
West: Cleg St - W											
10	L2	89	1.2	0.181	12.1	LOS A	1.3	9.5	0.67	0.69	49.7
11	T1	155	2.0	0.894	31.7	LOS C	10.9	78.5	0.92	1.04	38.1
12	R2	166	3.8	0.894	42.3	LOS C	10.9	78.5	0.97	1.12	35.6
Approach		411	2.6	0.894	31.8	LOS C	10.9	78.5	0.89	0.99	39.0
All Vehicles		2063	1.4	0.958	30.1	LOS C	34.6	243.0	0.85	0.97	39.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	53	22.6	LOS C	0.1	0.1	0.87	0.87	
P2	East Full Crossing	53	12.7	LOS B	0.1	0.1	0.65	0.65	
P3	North Full Crossing	53	23.5	LOS C	0.1	0.1	0.89	0.89	
P4	West Full Crossing	53	10.8	LOS B	0.1	0.1	0.60	0.60	
All Pedestrians		211	17.4	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: 1 [Herbert St/Cleg St (2026PD-PM)]

16S9001000 - 12 Frederick St, St Leonards

Signals - Fixed Time Coordinated Cycle Time = 60 seconds (User-Given Phase Times)

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: Herbert St - S											
1	L2	122	3.4	0.123	11.5	LOS A	1.6	11.8	0.46	0.67	49.4
2	T1	632	0.8	0.617	5.6	LOS A	8.6	60.7	0.47	0.44	54.7
3	R2	37	0.0	0.617	11.2	LOS A	8.6	60.7	0.47	0.44	53.3
Approach		791	1.2	0.617	6.8	LOS A	8.6	60.7	0.47	0.48	53.7
East: Cleg St - E											
4	L2	47	2.2	0.114	12.0	LOS A	0.7	5.0	0.64	0.66	49.7
5	T1	125	3.4	0.569	21.8	LOS B	4.7	33.5	0.90	0.76	43.0
6	R2	60	0.0	0.569	29.1	LOS C	4.7	33.5	0.93	0.78	41.4
Approach		233	2.3	0.569	21.7	LOS B	4.7	33.5	0.85	0.75	43.8
North: Herbert St - N											
7	L2	18	0.0	0.093	11.0	LOS A	1.3	9.2	0.45	0.41	53.0
8	T1	434	0.7	0.465	7.8	LOS A	7.1	50.2	0.59	0.55	52.6
9	R2	63	0.0	0.465	13.9	LOS A	7.1	50.2	0.63	0.59	50.9
Approach		515	0.6	0.465	8.6	LOS A	7.1	50.2	0.59	0.55	52.4
West: Cleg St - W											
10	L2	89	1.2	0.126	8.0	LOS A	0.7	4.7	0.40	0.67	51.7
11	T1	99	2.1	0.592	25.1	LOS B	5.2	37.5	0.96	0.81	41.3
12	R2	84	5.0	0.592	30.7	LOS C	5.2	37.5	0.96	0.81	40.3
Approach		273	2.7	0.592	21.2	LOS B	5.2	37.5	0.77	0.76	43.9
All Vehicles		1811	1.4	0.617	11.4	LOS A	8.6	60.7	0.60	0.58	50.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90	
P2	East Full Crossing	53	9.7	LOS A	0.1	0.1	0.57	0.57	
P3	North Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90	
P4	West Full Crossing	53	8.0	LOS A	0.0	0.0	0.52	0.52	
All Pedestrians		211	16.6	LOS B			0.72	0.72	

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: 1 [Herbert St/Frederick St (2026PD-AM)]

16S9001000 - 12 Frederick St, St Leonards

Signals - Fixed Time Isolated Cycle Time = 88 seconds (Optimum Cycle Time - Minimum Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

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: Herbert St - S											
1	L2	311	6.8	0.351	13.2	LOS A	4.9	36.2	0.64	0.75	48.0
2	T1	429	1.2	0.936	56.0	LOS D	24.5	173.5	1.00	1.18	31.3
3	R2	7	0.0	0.936	61.5	LOS E	24.5	173.5	1.00	1.18	30.8
Approach		747	3.5	0.936	38.3	LOS C	24.5	173.5	0.85	1.00	36.6
East: Carpark Access - E											
4	L2	2	0.0	0.033	53.3	LOS D	0.1	0.7	0.99	0.60	31.5
5	T1	24	4.3	0.334	46.5	LOS D	1.6	11.5	0.99	0.72	33.5
6	R2	12	0.0	0.334	52.1	LOS D	1.6	11.5	0.99	0.72	32.9
Approach		38	2.8	0.334	48.6	LOS D	1.6	11.5	0.99	0.71	33.2
North: Herbert St - N											
7	L2	36	2.9	0.309	20.1	LOS B	7.4	52.7	0.64	0.58	46.9
8	T1	672	0.9	1.029	53.1	LOS D	38.9	275.6	0.86	1.03	28.2
9	R2	152	2.8	1.029	82.1	LOS F	38.9	275.6	1.00	1.30	22.3
Approach		859	1.3	1.029	56.8	LOS E	38.9	275.6	0.88	1.06	27.4
West: Frederick St - W											
10	L2	92	5.7	0.215	28.6	LOS C	3.9	28.3	0.76	0.72	40.7
11	T1	34	0.0	0.215	23.0	LOS B	3.9	28.3	0.76	0.72	41.6
12	R2	492	2.1	1.028	103.4	LOS F	37.3	266.2	1.00	1.26	21.9
Approach		617	2.6	1.028	87.9	LOS F	37.3	266.2	0.95	1.15	24.2
All Vehicles		2261	2.4	1.029	59.0	LOS E	38.9	275.6	0.89	1.06	28.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	53	38.3	LOS D	0.1	0.1	0.93	0.93	
P2	East Full Crossing	53	38.3	LOS D	0.1	0.1	0.93	0.93	
P3	North Full Crossing	53	32.0	LOS D	0.1	0.1	0.85	0.85	
P4	West Full Crossing	53	32.0	LOS D	0.1	0.1	0.85	0.85	
All Pedestrians		211	35.2	LOS D			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: 1 [Herbert St/Frederick St (2026PD-PM)]

16S9001000 - 12 Frederick St, St Leonards

Signals - Fixed Time Isolated Cycle Time = 74 seconds (Optimum Cycle Time - Minimum Delay)

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: Herbert St - S											
1	L2	375	5.3	0.272	8.2	LOS A	3.9	28.5	0.31	0.67	51.4
2	T1	504	0.6	0.612	17.6	LOS B	14.2	100.1	0.83	0.73	46.6
3	R2	2	0.0	0.612	23.1	LOS B	14.2	100.1	0.83	0.73	45.6
Approach		881	2.6	0.612	13.6	LOS A	14.2	100.1	0.61	0.70	48.5
East: Carpark Access - E											
4	L2	12	9.1	0.164	46.8	LOS D	0.5	3.4	0.99	0.67	33.3
5	T1	60	3.5	0.692	40.9	LOS C	3.5	25.0	1.00	0.84	35.3
6	R2	28	0.0	0.692	46.4	LOS D	3.5	25.0	1.00	0.84	34.7
Approach		100	3.2	0.692	43.1	LOS D	3.5	25.0	1.00	0.82	34.9
North: Herbert St - N											
7	L2	7	28.6	0.293	20.6	LOS B	5.7	40.6	0.69	0.59	46.3
8	T1	538	0.4	0.977	44.1	LOS D	23.1	164.2	0.86	1.01	34.6
9	R2	96	5.5	0.977	72.8	LOS F	23.1	164.2	1.00	1.35	27.8
Approach		641	1.5	0.977	48.1	LOS D	23.1	164.2	0.88	1.06	33.5
West: Frederick St - W											
10	L2	155	0.7	0.357	29.6	LOS C	5.1	36.2	0.85	0.78	39.9
11	T1	17	6.3	0.357	24.0	LOS B	5.1	36.2	0.85	0.78	40.6
12	R2	496	1.3	0.949	58.3	LOS E	25.4	179.8	1.00	1.11	30.2
Approach		667	1.3	0.949	50.8	LOS D	25.4	179.8	0.96	1.03	32.2
All Vehicles		2289	1.9	0.977	35.4	LOS C	25.4	179.8	0.80	0.90	37.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	53	31.3	LOS D	0.1	0.1	0.92	0.92	
P2	East Full Crossing	53	18.3	LOS B	0.1	0.1	0.70	0.70	
P3	North Full Crossing	53	26.9	LOS C	0.1	0.1	0.85	0.85	
P4	West Full Crossing	53	18.3	LOS B	0.1	0.1	0.70	0.70	
All Pedestrians		211	23.7	LOS C			0.80	0.80	

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: 1 [Herbert St/Pacific Hwy (2026PD-AM)]

16S9001000 - 12 Frederick St, St Leonards

Signals - Fixed Time Isolated Cycle Time = 120 seconds (Optimum Cycle Time - Minimum Delay)

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
East: Pacific Highway - E											
5	T1	1515	3.8	0.657	28.9	LOS C	24.6	177.9	0.84	0.75	40.7
6	R2	456	2.1	0.605	51.4	LOS D	12.8	91.3	0.95	0.82	30.8
Approach		1971	3.4	0.657	34.1	LOS C	24.6	177.9	0.87	0.77	37.9
North: Herbert St - N											
7	L2	648	1.9	0.759	29.4	LOS C	27.8	198.2	0.80	0.82	37.2
9	R2	238	1.8	0.623	51.7	LOS D	12.8	91.3	0.96	0.83	30.5
Approach		886	1.9	0.759	35.4	LOS C	27.8	198.2	0.85	0.82	35.1
West: Pacific Highway - W											
10	L2	236	6.7	0.210	13.4	LOS A	5.1	37.9	0.45	0.69	45.0
11	T1	1654	5.3	0.748	30.4	LOS C	29.4	214.9	0.88	0.79	40.0
Approach		1889	5.5	0.748	28.3	LOS B	29.4	214.9	0.83	0.78	40.6
All Vehicles		4746	3.9	0.759	32.0	LOS C	29.4	214.9	0.85	0.78	38.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P3	North Full Crossing	53	26.7	LOS C	0.1	0.1	0.67	0.67	
P4	West Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95	
All Pedestrians		105	40.5	LOS E			0.81	0.81	

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: 1 [Herbert St/Pacific Hwy (2026PD-PM)]

16S9001000 - 12 Frederick St, St Leonards

Signals - Fixed Time Isolated Cycle Time = 121 seconds (Optimum Cycle Time - Minimum Delay)

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
East: Pacific Highway - E											
5	T1	1779	3.7	0.739	28.9	LOS C	30.4	219.3	0.87	0.78	40.7
6	R2	364	0.6	0.545	53.7	LOS D	10.4	73.0	0.95	0.81	31.5
Approach		2143	3.1	0.739	33.1	LOS C	30.4	219.3	0.88	0.79	38.8
North: Herbert St - N											
7	L2	575	0.7	0.574	31.3	LOS C	24.6	173.3	0.79	0.83	38.9
9	R2	296	0.0	0.741	55.5	LOS D	16.9	118.4	0.99	0.87	31.2
Approach		871	0.5	0.741	39.5	LOS C	24.6	173.3	0.86	0.84	35.9
West: Pacific Highway - W											
10	L2	206	7.1	0.177	12.1	LOS A	4.0	30.0	0.41	0.68	48.7
11	T1	1486	2.4	0.621	26.8	LOS B	23.8	170.0	0.81	0.71	41.7
Approach		1693	3.0	0.621	25.0	LOS B	23.8	170.0	0.76	0.71	42.4
All Vehicles		4706	2.6	0.741	31.4	LOS C	30.4	219.3	0.83	0.77	39.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P3	North Full Crossing	53	25.2	LOS C	0.1	0.1	0.65	0.65	
P4	West Full Crossing	53	54.8	LOS E	0.2	0.2	0.95	0.95	
All Pedestrians		105	40.0	LOS D			0.80	0.80	

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: 1 [Herbert St/Westbourne St (2026PD-AM)]

16S9001000 - 12 Frederick St, St Leonards
Giveway / Yield (Two-Way)

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: Herbert St - S											
1	L2	200	0.0	0.487	4.9	LOS A	2.1	15.2	0.11	0.13	43.8
2	T1	635	7.5	0.487	0.1	LOS A	2.1	15.2	0.11	0.13	48.9
Approach		835	5.7	0.487	1.3	NA	2.1	15.2	0.11	0.13	47.6
North: Herbert St - N											
8	T1	737	1.7	0.708	7.6	LOS A	10.7	75.7	1.00	0.25	44.1
9	R2	184	0.0	0.708	18.4	LOS B	10.7	75.7	1.00	0.25	39.6
Approach		921	1.4	0.708	9.7	NA	10.7	75.7	1.00	0.25	43.1
West: Westbourne St - W											
10	L2	78	0.0	1.254	269.0	LOS F	22.6	157.9	1.00	4.73	9.9
12	R2	71	0.0	1.254	296.2	LOS F	22.6	157.9	1.00	4.73	9.9
Approach		148	0.0	1.254	281.9	LOS F	22.6	157.9	1.00	4.73	9.9
All Vehicles		1904	3.2	1.254	27.2	NA	22.6	157.9	0.61	0.55	35.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

▽ Site: 1 [Herbert St/Westbourne St (2026PD-PM)]

16S9001000 - 12 Frederick St, St Leonards
 Giveway / Yield (Two-Way)

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: Herbert St - S											
1	L2	81	1.3	0.359	4.9	LOS A	0.8	5.4	0.05	0.07	44.2
2	T1	571	3.1	0.359	0.1	LOS A	0.8	5.4	0.05	0.07	49.5
Approach		652	2.9	0.359	0.7	NA	0.8	5.4	0.05	0.07	48.7
North: Herbert St - N											
8	T1	752	0.6	0.523	2.1	LOS A	3.1	22.1	0.35	0.10	47.8
9	R2	107	0.0	0.523	11.6	LOS A	3.1	22.1	0.35	0.10	42.5
Approach		859	0.5	0.523	3.3	NA	3.1	22.1	0.35	0.10	47.1
West: Westbourne St - W											
10	L2	129	0.0	1.630	585.2	LOS F	68.4	479.0	1.00	9.30	5.4
12	R2	136	0.0	1.630	599.7	LOS F	68.4	479.0	1.00	9.30	5.3
Approach		265	0.0	1.630	592.6	LOS F	68.4	479.0	1.00	9.30	5.3
All Vehicles		1776	1.3	1.630	90.4	NA	68.4	479.0	0.34	1.46	21.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 1 [Reserve Rd/Campbell St (2026PD-AM)]

16S9001000 - 12 Frederick St, St Leonards

Signals - Fixed Time Isolated Cycle Time = 89 seconds (Optimum Cycle Time - Minimum Delay)

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: Reserved Rd - S											
1	L2	199	10.1	0.791	32.6	LOS C	7.4	56.0	1.00	0.93	38.8
2	T1	263	4.8	0.791	41.0	LOS C	9.4	68.3	1.00	0.93	35.5
Approach		462	7.1	0.791	37.4	LOS C	9.4	68.3	1.00	0.93	36.9
East: Bunning Access - E											
4	L2	32	0.0	0.303	52.6	LOS D	1.4	10.0	0.99	0.72	31.7
5	T1	43	0.0	0.908	57.7	LOS E	5.1	35.4	1.00	1.00	30.0
6	R2	54	0.0	0.908	63.2	LOS E	5.1	35.4	1.00	1.00	29.6
Approach		128	0.0	0.908	58.7	LOS E	5.1	35.4	1.00	0.93	30.2
North: Reserved Rd - N											
7	L2	86	1.2	0.243	18.2	LOS B	5.6	39.9	0.59	0.58	47.3
8	T1	709	1.9	0.910	35.9	LOS C	32.1	231.1	0.91	1.10	37.2
9	R2	180	8.2	0.910	47.8	LOS D	32.1	231.1	1.00	1.23	34.3
Approach		976	3.0	0.910	36.5	LOS C	32.1	231.1	0.90	1.08	37.3
West: Campbell St - W											
10	L2	118	25.0	0.123	13.7	LOS A	2.2	18.3	0.45	0.68	47.2
11	T1	72	0.0	0.899	49.8	LOS D	15.1	108.2	0.98	1.05	31.8
12	R2	225	3.7	0.899	55.4	LOS D	15.1	108.2	0.98	1.05	31.3
Approach		415	9.1	0.899	42.6	LOS D	15.1	108.2	0.83	0.95	34.7
All Vehicles		1981	5.0	0.910	39.4	LOS C	32.1	231.1	0.91	1.01	36.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P2	East Full Crossing	53	14.1	LOS B	0.1	0.1	0.56	0.56	
P3	North Full Crossing	53	35.1	LOS D	0.1	0.1	0.89	0.89	
P4	West Full Crossing	53	38.8	LOS D	0.1	0.1	0.93	0.93	
All Pedestrians		158	29.3	LOS C			0.80	0.80	

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: 1 [Reserve Rd/Campbell St (2026PD-PM)]

16S9001000 - 12 Frederick St, St Leonards

Signals - Fixed Time Isolated Cycle Time = 69 seconds (Optimum Cycle Time - Minimum Delay)

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: Reserved Rd - S											
1	L2	374	4.2	0.865	30.5	LOS C	19.5	140.4	0.89	0.99	40.1
2	T1	689	2.3	0.865	27.3	LOS B	19.5	140.4	0.84	0.93	40.9
Approach		1063	3.0	0.865	28.4	LOS B	19.5	140.4	0.86	0.96	40.6
East: Bunning Access - E											
4	L2	47	0.0	0.352	41.3	LOS C	1.7	11.6	0.99	0.73	35.2
5	T1	58	0.0	0.918	47.1	LOS D	5.3	37.3	1.00	1.06	32.9
6	R2	68	0.0	0.918	52.6	LOS D	5.3	37.3	1.00	1.06	32.3
Approach		174	0.0	0.918	47.6	LOS D	5.3	37.3	1.00	0.97	33.3
North: Reserved Rd - N											
7	L2	58	0.0	0.197	13.9	LOS A	3.5	24.7	0.53	0.52	50.4
8	T1	335	3.1	0.738	17.6	LOS B	10.2	73.5	0.78	0.73	45.5
9	R2	121	4.3	0.738	30.5	LOS C	10.2	73.5	0.97	0.89	40.6
Approach		514	3.1	0.738	20.2	LOS B	10.2	73.5	0.80	0.75	44.7
West: Campbell St - W											
10	L2	122	10.3	0.287	29.0	LOS C	3.4	26.1	0.85	0.77	39.7
11	T1	46	0.0	0.928	48.2	LOS D	8.4	59.5	1.00	1.12	32.3
12	R2	146	2.2	0.928	53.8	LOS D	8.4	59.5	1.00	1.12	31.7
Approach		315	5.0	0.928	43.4	LOS D	8.4	59.5	0.94	0.99	34.5
All Vehicles		2065	3.1	0.928	30.3	LOS C	19.5	140.4	0.87	0.91	39.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P2	East Full Crossing	53	10.5	LOS B	0.1	0.1	0.55	0.55	
P3	North Full Crossing	53	28.8	LOS C	0.1	0.1	0.92	0.92	
P4	West Full Crossing	53	18.2	LOS B	0.1	0.1	0.73	0.73	
All Pedestrians		158	19.2	LOS B			0.73	0.73	

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: 1 [Reserve Rd/Frederick St (2026PD-AM)]**

16S9001000 - 12 Frederick St, St Leonards
Roundabout

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: Reserved Rd - S											
2	T1	137	2.3	0.142	5.4	LOS A	0.8	6.0	0.31	0.52	53.6
3	R2	31	0.0	0.142	8.7	LOS A	0.8	6.0	0.31	0.52	53.3
Approach		167	1.9	0.142	6.0	LOS A	0.8	6.0	0.31	0.52	53.5
East: Frederick St - E											
4	L2	151	0.7	0.246	7.1	LOS A	1.4	11.0	0.47	0.65	51.7
5	T1	9	0.0	0.246	7.3	LOS A	1.4	11.0	0.47	0.65	52.7
6	R2	64	39.3	0.246	11.9	LOS A	1.4	11.0	0.47	0.65	50.7
Approach		224	11.7	0.246	8.5	LOS A	1.4	11.0	0.47	0.65	51.4
North: Reserved Rd - N											
7	L2	594	2.1	0.643	4.9	LOS A	6.8	48.2	0.22	0.49	53.4
8	T1	351	0.0	0.643	5.1	LOS A	6.8	48.2	0.22	0.49	54.6
9	R2	35	15.2	0.643	8.6	LOS A	6.8	48.2	0.22	0.49	53.5
Approach		979	1.8	0.643	5.1	LOS A	6.8	48.2	0.22	0.49	53.9
West: Enterprise Centre - W											
10	L2	4	25.0	0.010	6.2	LOS A	0.1	0.4	0.40	0.52	51.7
11	T1	5	0.0	0.010	5.9	LOS A	0.1	0.4	0.40	0.52	53.7
12	R2	1	0.0	0.010	9.2	LOS A	0.1	0.4	0.40	0.52	53.3
Approach		11	10.0	0.010	6.3	LOS A	0.1	0.4	0.40	0.52	52.8
All Vehicles		1381	3.5	0.643	5.8	LOS A	6.8	48.2	0.27	0.52	53.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 1 [Reserve Rd/Frederick St (2026PD-PM)]**

16S9001000 - 12 Frederick St, St Leonards
Roundabout

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 Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Reserved Rd - S											
1	L2	1	0.0	0.725	14.6	LOS B	11.3	79.8	0.97	0.96	46.7
2	T1	459	0.5	0.725	14.9	LOS B	11.3	79.8	0.97	0.96	47.5
3	R2	193	1.1	0.725	18.2	LOS B	11.3	79.8	0.97	0.96	47.2
Approach		653	0.6	0.725	15.8	LOS B	11.3	79.8	0.97	0.96	47.4
East: Frederick St - E											
4	L2	32	3.3	0.387	5.1	LOS A	2.7	20.0	0.26	0.61	51.1
5	T1	2	0.0	0.387	5.3	LOS A	2.7	20.0	0.26	0.61	52.2
6	R2	474	6.7	0.387	8.7	LOS A	2.7	20.0	0.26	0.61	51.6
Approach		507	6.4	0.387	8.4	LOS A	2.7	20.0	0.26	0.61	51.6
North: Reserved Rd - N											
7	L2	422	2.5	0.457	6.0	LOS A	3.3	23.4	0.46	0.60	52.8
8	T1	75	1.4	0.457	6.2	LOS A	3.3	23.4	0.46	0.60	53.9
9	R2	4	25.0	0.457	10.2	LOS A	3.3	23.4	0.46	0.60	52.5
Approach		501	2.5	0.457	6.1	LOS A	3.3	23.4	0.46	0.60	53.0
West: Enterprise Centre - W											
10	L2	21	5.0	0.071	18.6	LOS B	0.6	4.6	1.00	0.76	44.8
11	T1	5	0.0	0.071	18.5	LOS B	0.6	4.6	1.00	0.76	45.7
12	R2	1	0.0	0.071	21.8	LOS B	0.6	4.6	1.00	0.76	45.4
Approach		27	3.8	0.071	18.7	LOS B	0.6	4.6	1.00	0.76	45.0
All Vehicles		1688	3.0	0.725	10.8	LOS A	11.3	79.8	0.60	0.75	50.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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 is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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