



Cohen Street Extension

Intersection Analysis

ACT Procurement Solutions

30 October 2007

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Cohen Street Extension

Prepared for

ACT Procurement Solutions

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Executive Summary

Background

Maunsell was commissioned by the ACT Procurement Solutions to conduct a technical appraisal of the traffic issues relating to the proposed Cohen Street Extension in Belconnen. This report specifically looks at the required configurations of intersections between Lathlain St and Benjamin Way (inclusive) as preliminary work for the PSP design.

This study builds on Maunsell's earlier work in the Belconnen Town Centre Planning Study, as well as the previous intersection analysis work undertaken by Maunsell in July 2007 (including the Westfield bus lounge).

The study focuses on the assessment of the future intersection requirements for the corridor in the likelihood that the bus lounge does not occur, noting that the design recommended can be easily converted in the event that the bus lounge does become operational.

Traffic Redistribution

The proposed Cohen Street Extension will be one of four east / west routes that could be used by motorists within the Belconnen Town Centre. Therefore it could be assumed that constraining the capacity for general traffic in order to maximise efficiency of the road for buses, will not have a major impact on general traffic movements within the Town Centre.

This philosophy has been adopted in this study. Maunsell has assumed that this section of Cohen Street would primarily be used by motorists accessing the Westfield shopping centre and that most of the 'through' movements would be redistributed to other routes, due to the capacity constraints at the intersections on Lathlain St and Benjamin Way. Traffic forecasts were subsequently produced for the future years of 2015 and 2025.

For this assessment it has been assumed that the Westfield bus lounge will not be operational and all buses travelling westbound on the Cohen St extension will turn right onto Lathlain St (north). For eastbound services, the reverse will occur, with buses turning left off Lathlain St (north) onto Cohen St (east). It was assumed that up to 70 buses would undertake these manoeuvres each peak hour (35 in each direction).

Intersection Requirements

Lathlain Street / Cohen Street

As part of the extension to Cohen St, the intersection of Lathlain St / Cohen St will be converted to a 4-way signalised intersection. The recommended layout is shown in Figure 1 and Appendix B. If the proposed Westfield bus lounge is not constructed, this intersection will be fundamental in the operation of the bus services through the Cohen St corridor.

Key attributes of the recommended intersection configuration include:

- A 'bus only' lane to be provided eastbound on Cohen St (east of the intersection).
- There will be no dedicated bus priority at the intersection:
 - Eastbound buses will be required to turn left from Lathlain St (north) into Cohen St (east) via a shared general traffic turning lane. Buses will be able to immediately enter the bus only lane, while other vehicles will be restricted to the general eastbound traffic lane on Cohen St.
 - Westbound buses will be required to turn right from Cohen St (east) into Lathlain St (north) via a shared general traffic turning lane.

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- Queuing on the northern Lathlain St approach is expected to extend to around 80m, with the southern approach of Lathlain St expecting queues of approximately 120m.
- Queuing on the Cohen St east approach (the extension) is expected to extend almost 60m, which can be accommodated on the flatter section of Cohen St (2% grade) before it descends down to meet the levels required for the carpark entry point and Benjamin Way.
- The overall intersection performance for the future PM peak is expected to be Level of Service 'C'

Sensitivity tests identified that the intersection configuration recommended has spare capacity and can accommodate additional peak hour traffic (eg. 150-200 additional vehicles per hour on Cohen St) without significant impact to its levels of performance.

Benjamin Way / Cohen Street Extension

As part of the recommended intersection configuration, both directions of Cohen St will have a dedicated 'bus only' lane along part of its length (kerb-side). However, there will be no formal bus priority at the intersection (ie. no dedicated bus phase), with buses sharing a lane with the left-turning vehicles from Cohen St. The recommended intersection configuration is shown diagrammatically in Figure 2 and Appendix B.

Key attributes of the recommended intersection configuration include:

- A dedicated bus only lane on both the eastbound and westbound carriageways of Cohen St (kerb-side).
- A shared section of lane on both the Cohen St approaches, in which buses go straight through the intersection and general traffic turn left. This removes the opportunity for dedicated bus phasing at the intersection, as buses are mixed in with other vehicles in the kerb-side lane.
- Queuing on the western Cohen St approach is expected to be approximately 65m in length (2025), but will not interfere with the Westfield carpark entry point which is approximately 120m from Benjamin Way.
- Queuing is also expected to extend back approximately 60m on the eastern approach of Cohen St, but will not interfere with the ABS bus stop as the kerbside lane will be designated for buses.
- The overall intersection performance for the PM peak is predicted to be Level of Service 'C'.

Sensitivity tests identified that the intersection configuration recommended has spare capacity and can accommodate additional peak hour traffic (eg. 150-200 additional vehicles per hour on Cohen St) without significant impact to its levels of performance.

Cohen Street Extension / Westfield Carpark

Access to the Westfield carpark will be maintained as part of the Cohen Street Extension design. The recommended configuration is shown in Figure 3.

Key attributes of this intersection:

- A give-way controlled T-intersection. A 'seagull' type treatment is recommended for the right turning vehicles out of the carpark.
- Approaching the intersection from the west will be one bus only lane and one general traffic lane. This bus only lane will cease before the entry point to the carpark to allow for left turning vehicles into the carpark – a short 'shared zone' will therefore be created. The eastbound bus only lane will begin again directly after the carpark access point.
- Approaching the intersection from the east will be one bus only lane and one general traffic lane.
- The overall intersection performance for the PM peak is predicted to be Level of Service 'A'.

A sensitivity test for the Cohen St / Westfield carpark intersection identified that the recommended configuration has significant spare capacity and can easily accommodate additional volumes within the Cohen St corridor.

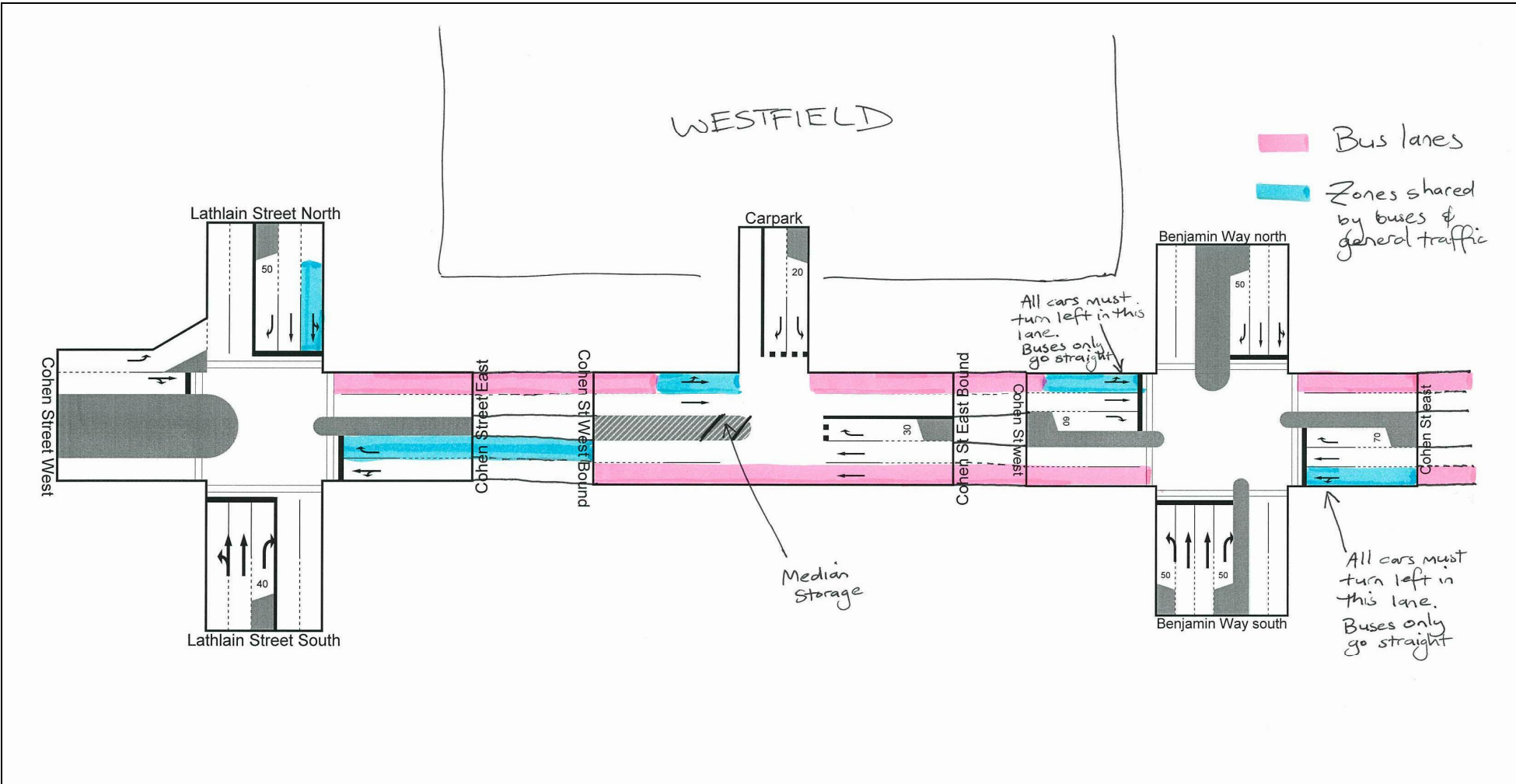


Figure A Cohen Street Corridor – conceptual layout

1.0 Introduction

1.1 Purpose of Report

Maunsell was commissioned by the ACT Procurement Solutions to conduct a technical appraisal of the traffic issues relating to the proposed Cohen Street Extension in Belconnen. This report specifically looks at the required configurations of intersections between Lathlain St and Benjamin Way (inclusive) as preliminary work for the PSP design.

McCormack Rankin Cagney (MRC) has recently undertaken VISSIM modelling for the Cohen St corridor for the AM peak period. Given the nearby Westfield shopping centre, this section of the Cohen St is influenced significantly in the PM peak by shopping related traffic. This report focuses on the PM peak and assumes that all work done to date by MRC is suitable for AM purposes.

This study builds on Maunsell's earlier work in the Belconnen Town Centre Planning Study, as well as the previous intersection analysis work undertaken by Maunsell in July 2007 (including the Westfield bus lounge). This study focuses on the assessment of the future intersection requirements for the corridor in the likelihood that the bus lounge does not occur, noting that the design recommended can be easily converted in the event that the bus lounge does become operational.

The intersection analysis software SIDRA3 was used to determine performance at the following key intersections within the corridor:

- Lathlain St / Cohen St
- Benjamin Way / Cohen St Extension
- Cohen St Extension / Westfield Carpark

1.2 Structure of Report

This report has been structured into the following chapters:

- **Chapter 2** provides a description of the revised traffic distribution assumed for the assessment;
- **Chapter 3** describes the intersection analysis undertaken and gives recommended configurations for each of the three (3) key intersections within the corridor.
- **Appendix A** includes all the SIDRA results.
- **Appendix B** shows a conceptual layout of the Cohen St corridor, in the event that the Westfield Bus Lounge is not constructed.

2.0 Revised Traffic Distribution

The earlier work undertaken by Maunsell on this corridor, as part of the Belconnen Town Centre Planning Study, utilised the future volumes from a larger strategic type model that allowed for two general traffic lanes in both directions. As a result, Cohen Street was expected to accommodate large traffic volumes in both peak hours. However, one of the issues associated with using a strategic model in a closely spaced urban network, is its inability to accurately account for intersection delays (essential to urban network performance). Therefore these models tend to overestimate 'through' volumes, based on the midblock capacities and not the capacities of the surrounding intersections.

The proposed Cohen Street Extension will be one of four east / west routes that could be used by motorists within the Belconnen Town Centre. Therefore it could be assumed that constraining the capacity for general traffic in order to maximise efficiency of the road for buses, will not have a major impact on general traffic movements within the Town Centre.

This philosophy has been adopted in this study. Maunsell has assumed that this section of Cohen Street would primarily be used by motorists accessing the Westfield shopping centre and that most of the 'through' movements would be redistributed to other routes, due to the capacity constraints at the intersections on Lathlain St and Benjamin Way.

Traffic forecasts were produced for the future year of 2025. It was found that by removing most of the 'through' movements the PM peak hour volumes on this section of Cohen St reduced significantly. Volumes of less than 700 vehicles (two-way) could be expected in 2025, which negated the need for two general traffic lanes in each direction. However, a strategic decision has been made to provide a second lane in each direction that will be used exclusively by buses (except for shared left turn lanes at the Benjamin Way and carpark intersections). These volumes were then used in the intersection assessment outlined in Section 3.0.

For this assessment it has been assumed that the Westfield bus lounge will not be operational and all buses travelling westbound on the Cohen St extension will turn right onto Lathlain St (north). For eastbound services, the reverse will occur, with buses turning left off Lathlain St (north) onto Cohen St (east). It was assumed that up to 70 buses would undertake these manoeuvres each peak hour (35 in each direction).

3.0 Intersection Analysis

The three key intersections within the Cohen St corridor were assessed for their PM peak hour performance under expected future traffic demands (2025) using SIDRA3. The intersection configurations recommended in the MRC report were used as a starting point for the assessment, with adjustments made where necessary.

It should be noted that the AM performance was not tested as it was assumed that the assessment undertaken in the McCormick Rankin Cagney report (Feb 2007) was satisfactory.

The SIDRA results for all intersections are included in the Appendix A, with the overall conceptual layout for the corridor in the event that the Westfield bus lounge does not occur included in Appendix B.

For this assessment the intersections of Lathlain St / bus lounge and Cohen St / bus lounge have not been re-assessed, as it is assumed they are not required. The performance and configuration of two intersections (if required) are documented in the earlier Maunsell report dated July 2007.

3.1 Lathlain Street / Cohen Street

As part of the extension to Cohen St, the intersection of Lathlain St / Cohen St will be converted to a 4-way signalised intersection. The recommended layout as a result of the SIDRA analysis is shown in Figure 1.

Although, there will be no formal bus priority at this intersection (ie. no dedicated bus phase), there will be a 'bus only' lane eastbound on Cohen St.

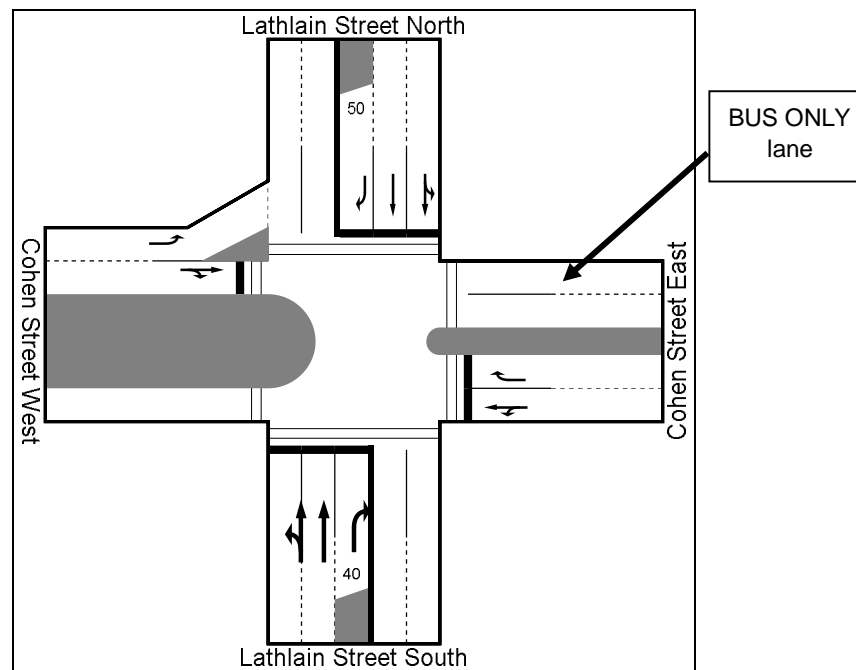


Figure 1 Lathlain St / Cohen St intersection – conceptual layout

The SIDRA analysis identified that this configuration is capable of accommodating anticipated 2025 traffic and bus volumes without significant delays or queuing. The intersection is expected to operate at an overall Level of Service (LoS) 'C' in the PM peak.

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If the proposed Westfield bus lounge is not constructed, this intersection will be fundamental in the operation of the bus services through the Cohen St corridor. Descriptions of the key attributes of the intersection are detailed below:

- Lane configurations as per Figure 1, with a bus only lane eastbound on Cohen St (east of the intersection).
- There will be no dedicated bus priority at the intersection:
 - Eastbound buses will be required to turn left from Lathlain St (north) into Cohen St (east) via a shared general traffic turning lane. Buses will be able to immediately enter the bus only lane, while other vehicles will be restricted to the general eastbound traffic lane on Cohen St.
 - Westbound buses will be required to turn right from Cohen St (east) into Lathlain St (north) via a shared general traffic turning lane.
- Queuing on the northern Lathlain St approach is expected to extend to around 80m, with the southern approach of Lathlain St expecting queues of approximately 120m.
- The western Cohen St approach is expected to experience queues of around 70m, with an average delay to all vehicles of less than 40 seconds.
- Queuing on the Cohen St east approach (the extension) is expected to extend almost 60m, which can be accommodated on the flatter section of Cohen St (2% grade) before it descends down to meet the levels required for the carpark entry point and Benjamin Way.

3.1.1 Sensitivity Test

A sensitivity test was conducted on the Lathlain St / Cohen St intersection to determine its future levels of performance if more than the anticipated general traffic volumes were to use the Cohen St corridor. For the analysis it was assumed that an additional 150-200 vehicles per peak hour would use the corridor (two-way).

The key findings of the assessment include:

- The intersection will operate at an overall Level of Service (LoS) of 'C' in the PM peak, with spare capacity.
- The additional traffic is likely to extend the queuing on the Cohen St west approach by 30m (100m in total).
- A similar increase is forecast for the eastern approach, with queues expected to extend almost 100m (previously assessed as 60m).
- Both Lathlain St approaches were shown to be only marginally impacted by the additional Cohen St traffic.

Overall, the sensitivity test identified that the intersection configuration recommended in Figure 1 has spare capacity and can accommodate additional peak hour traffic without significant impact to its levels of performance.

3.2 Benjamin Way / Cohen Street Extension

For the purposes of this assessment it has been assumed that the Belconnen Bus Interchange is removed and the full Cohen St extension has been completed through to Emu Bank. As a result, this intersection will accommodate general traffic on all approaches.

Both directions of Cohen St will have a dedicated 'bus only' lane along part of its length (kerb-side). However, there will be no formal bus priority at the intersection (ie. no dedicated bus phase), with buses sharing a lane with the left-turning vehicles from Cohen St.

The recommended layout as a result of the SIDRA analysis is shown in Figure 2.

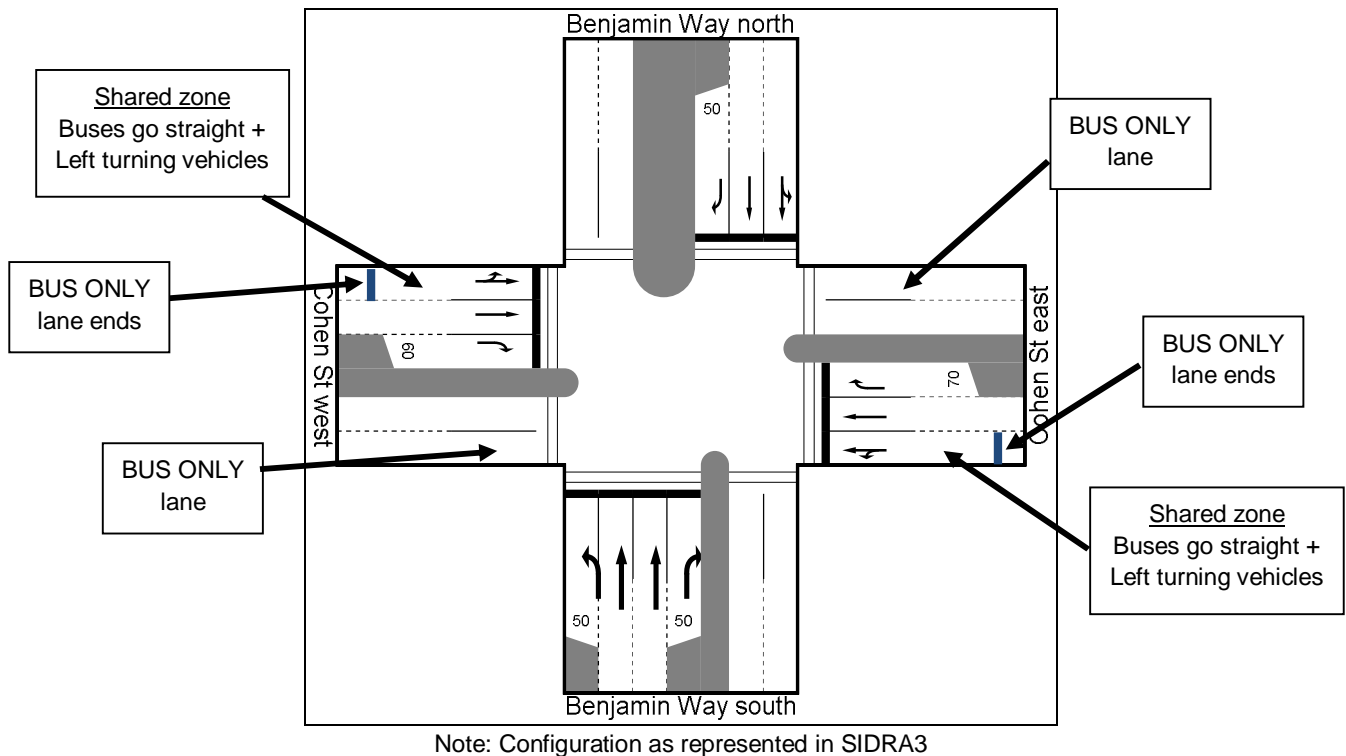


Figure 2 Benjamin Way / Cohen St Extension intersection – conceptual layout

The SIDRA analysis identified that this intersection is capable of accommodating anticipated future traffic and bus volumes without significant delays or queuing. Even with 2025 traffic volumes this intersection is expected to operate at an overall Level of Service (LoS) 'C' in the PM peak.

Key attributes of the recommended intersection configuration include:

- Lane configuration as shown in Figure 2.
- The Belconnen Bus Interchange to be removed and Cohen St to be opened to general traffic.
- A dedicated bus only lane on both the eastbound and westbound carriageways of Cohen St (kerb-side).
- A shared section of lane on both the Cohen St approaches, in which buses go straight through the intersection and general traffic turn left. This removes the opportunity for dedicated bus phasing at the intersection, as buses are mixed in with other vehicles in the kerb-side lane.
- Queuing on the western Cohen St approach is expected to be approximately 65m in length (2025), but will not interfere with the Westfield carpark entry point which is approximately 120m from Benjamin Way.
- Queuing is also expected to extend back approximately 60m on the eastern approach of Cohen St, but will not interfere with the ABS bus stop as the kerbside lane will be designated for buses.

3.2.1 Sensitivity Test

A sensitivity test was also conducted on the Benjamin Way / Cohen St intersection that assumed an additional 150-200 vehicles using the corridor (two-way) in the PM peak hour.

The key findings of the assessment include:

- The intersection will operate at an overall Level of Service (LoS) of 'C' in the PM peak, with spare capacity.
- The additional traffic is likely to extend the queuing on the Cohen St west approach by 35m (100m in total).

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- A similar increase is forecast for the eastern approach, with queues expected to extend almost 100m (previously assessed as 60m).
- Both Benjamin Way approaches were shown to be only marginally impacted by the additional Cohen St traffic.

Overall, the sensitivity test identified that the intersection configuration recommended in Figure 2 has spare capacity and can accommodate additional peak hour traffic without significant impact to its levels of performance.

3.3 Cohen Street Extension / Westfield Carpark

Access to the Westfield carpark will be maintained as part of the Cohen Street Extension design. The recommended configuration is shown in Figure 3.

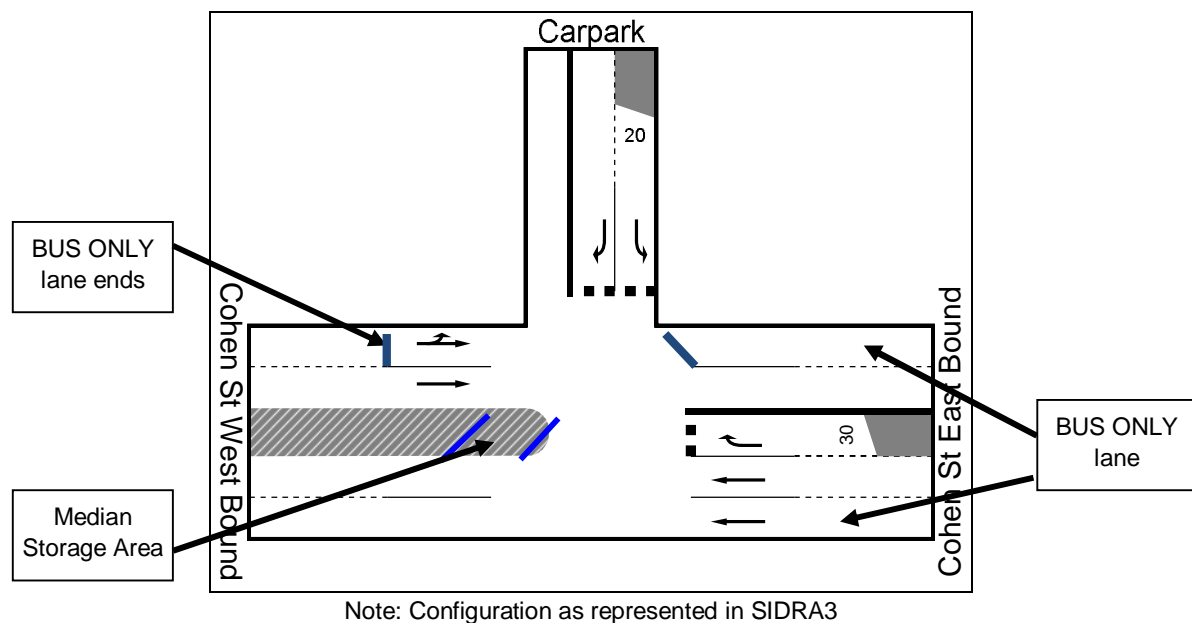


Figure 3 Cohen St / Carpark access point – conceptual layout

The SIDRA analysis for this intersection identified that it is capable of accommodating anticipated 2025 volumes without significant delays or queuing. Even with 2025 traffic volumes this intersection is expected to operate at an overall Level of Service (LoS) 'A' in the PM peak.

Key attributes of this intersection:

- A give-way controlled T-intersection with lane configurations as shown in Figure 3.
- A 'seagull' type treatment is recommended for the right turning vehicles out of the carpark. This additional median storage area will reduce delays and queues within the entry by providing allowing the right turn onto Cohen St to be done in two movements.
- Approaching the intersection from the west will be one bus only lane and one general traffic lane. This bus only lane will cease before the entry point to the carpark to allow for left turning vehicles into the carpark – a short 'shared zone' will therefore be created. The eastbound bus only lane will begin again directly after the carpark access point.
- Approaching the intersection from the east will be one bus only lane and one general traffic lane.
- Pay parking is enforced within the Westfield carparks, therefore to enter this carpark vehicles must take a parking ticket from a boom gate system. Maintaining its current location this boom gate will be situated approximately 30m from the future intersection with Cohen St. Earlier analysis of this boom gate process (July 2007 report) showed that expected PM peak volumes can be accommodated without queuing extending into the Cohen St intersection (30m).

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3.3.1 Sensitivity Test

A sensitivity test for the Cohen St / Westfield carpark intersection identified that the recommended configuration (shown in Figure 3) has significant spare capacity and can easily accommodate additional volumes within the Cohen St corridor.

3.4 Cohen Street Corridor

In order to better represent the recommended intersection configurations, a conceptual layout of the Cohen St corridor was compiled. This concept is shown in Appendix B.

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Appendix A SIDRA Results



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Lathlain Street / Cohen Street Extension

2025 PM

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Lathlain Street South										
1	L	129	0.0	0.870	54.2	LOS D	118	1.00	1.02	24.1
2	T	628	1.7	0.870	45.9	LOS D	120	1.00	1.02	26.5
3	R	76	0.0	0.311	48.4	LOS D	26	0.95	0.76	25.7
Approach		834	1.3	0.870	47.4	LOS D	120	1.00	0.99	26.0
Cohen Street East										
4	L	53	0.0	0.478	43.2	LOS D	56	0.89	0.80	27.4
5	T	142	3.5	0.478	35.0	LOS C	56	0.89	0.73	30.6
6	R	168	21.9	0.488	44.1	LOS D	59	0.89	0.80	27.4
Approach		364	11.5	0.489	40.4	LOS C	59	0.89	0.77	28.6
Lathlain Street North										
7	L	158	23.4	0.697	39.3	LOS C	84	0.91	0.84	29.1
8	T	417	2.6	0.697	30.1	LOS C	82	0.91	0.78	32.8
9	R	192	2.6	0.796	49.2	LOS D	63	1.00	0.87	25.5
Approach		766	6.9	0.796	36.8	LOS C	84	0.93	0.81	29.9
Cohen Street West										
10	L	262	1.9	0.232	13.7	LOS A	36	0.48	0.72	43.7
11	T	138	0.0	0.611	36.1	LOS C	71	0.96	0.80	30.1
12	R	113	0.0	0.611	44.2	LOS D	71	0.96	0.82	27.1
Approach		513	1.0	0.611	26.5	LOS B	71	0.72	0.76	34.8
All Vehicles		2477	4.5	0.870	38.8	LOS C	120	0.90	0.86	29.1

2025 PM (Sensitivity Test)

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Lathlain Street South										
1	L	129	0.0	0.870	54.2	LOS D	118	1.00	1.02	24.1
2	T	628	1.7	0.870	45.9	LOS D	120	1.00	1.02	26.5
3	R	76	0.0	0.311	48.4	LOS D	26	0.95	0.76	25.7
Approach		834	1.3	0.870	47.4	LOS D	120	1.00	0.99	26.0
Cohen Street East										
4	L	105	0.0	0.785	48.1	LOS D	93	0.98	0.90	25.8
5	T	216	2.3	0.784	39.9	LOS C	93	0.98	0.89	28.6
6	R	247	14.9	0.686	46.2	LOS D	81	0.95	0.85	26.6
Approach		569	7.4	0.785	44.1	LOS D	93	0.97	0.87	27.2
Lathlain Street North										
7	L	158	23.4	0.697	39.3	LOS C	84	0.91	0.84	29.1
8	T	417	2.6	0.697	30.1	LOS C	82	0.91	0.78	32.8
9	R	192	2.6	0.796	49.2	LOS D	63	1.00	0.87	25.5
Approach		766	6.9	0.796	36.8	LOS C	84	0.93	0.81	29.9
Cohen Street West										
10	L	262	1.9	0.244	15.5	LOS B	41	0.53	0.73	42.2
11	T	211	0.0	0.785	40.6	LOS C	95	1.00	0.92	28.4
12	R	113	0.0	0.785	48.7	LOS D	95	1.00	0.92	25.6
Approach		586	0.9	0.785	30.9	LOS C	95	0.79	0.84	32.5
All Vehicles		2755	4.0	0.870	40.3	LOS C	120	0.93	0.89	28.5

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Cohen Street Extension / Benjamin Way

2025 PM – (Bus Interchange removed)

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Benjamin Way south										
1	L	131	1.5	0.438	36.6	LOS C	43	0.83	0.78	29.9
2	T	325	1.5	0.316	28.7	LOS C	52	0.84	0.69	33.5
3	R	12	0.0	0.097	52.8	LOS D	6	0.97	0.68	24.5
Approach		467	1.5	0.438	31.5	LOS C	52	0.84	0.71	32.1
Cohen St east										
4	L	144	1.4	0.380	39.2	LOS C	58	0.88	0.80	28.8
5	T	185	20.0	0.380	31.1	LOS C	58	0.88	0.72	32.4
6	R	152	1.3	0.528	47.0	LOS D	57	0.97	0.80	26.2
Approach		480	8.5	0.528	38.5	LOS C	62	0.91	0.77	29.2
Benjamin Way north										
7	L	162	1.2	0.514	38.9	LOS C	80	0.90	0.82	29.0
8	T	360	1.4	0.514	30.6	LOS C	82	0.90	0.76	32.6
9	R	43	4.7	0.359	54.7	LOS D	21	0.99	0.73	24.1
Approach		565	1.6	0.514	34.8	LOS C	82	0.91	0.77	30.7
Cohen St west										
10	L	136	1.5	0.429	39.7	LOS C	65	0.89	0.81	28.7
11	T	241	15.4	0.429	31.5	LOS C	65	0.89	0.74	32.2
12	R	111	1.8	0.386	45.9	LOS D	43	0.94	0.78	26.6
Approach		487	8.4	0.429	37.0	LOS C	69	0.90	0.77	29.8
All Vehicles		1999	4.9	0.528	35.5	LOS C	82	0.89	0.76	30.4

2025 PM (Sensitivity Test)

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Benjamin Way south										
1	L	131	1.5	0.451	38.4	LOS C	44	0.86	0.78	29.2
2	T	325	1.5	0.344	30.6	LOS C	54	0.87	0.71	32.6
3	R	12	0.0	0.097	52.8	LOS D	6	0.97	0.68	24.5
Approach		467	1.5	0.451	33.3	LOS C	54	0.87	0.73	31.3
Cohen St east										
4	L	144	1.4	0.282	35.9	LOS C	47	0.83	0.79	30.2
5	T	300	12.3	0.598	30.8	LOS C	101	0.92	0.78	32.5
6	R	152	1.3	0.568	48.2	LOS D	57	0.98	0.80	25.9
Approach		595	6.9	0.598	36.5	LOS C	101	0.91	0.79	30.0
Benjamin Way north										
7	L	162	1.2	0.561	40.9	LOS C	83	0.93	0.83	28.2
8	T	360	1.4	0.561	32.6	LOS C	85	0.93	0.78	31.6
9	R	43	4.7	0.359	54.7	LOS D	21	0.99	0.73	24.1
Approach		565	1.6	0.561	36.7	LOS C	85	0.93	0.79	29.9
Cohen St west										
10	L	136	1.5	0.266	35.8	LOS C	44	0.82	0.78	30.2
11	T	300	12.3	0.598	30.8	LOS C	101	0.92	0.78	32.5
12	R	111	1.8	0.415	47.0	LOS D	43	0.95	0.78	26.3
Approach		546	7.5	0.598	35.3	LOS C	101	0.90	0.78	30.5
All Vehicles		2173	4.5	0.598	35.6	LOS C	101	0.91	0.77	30.4

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Cohen St Extension / Westfield Carpark access point

2025 PM

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Cohen St East Bound										
5	T	297	12.5	0.132	0.0	LOS A	0	0.00	0.00	60.0
6	R	164	0.0	0.166	9.5	LOS A	6	0.40	0.69	47.2
Approach		461	8.0	0.166	3.4	LOS A	6	0.14	0.24	54.7
Median Storage										
25	T	141	0.0	0.189	8.6	LOS A	2	0.39	0.68	48.5
Approach		141	0.0	0.188	8.6	LOS A	2	0.39	0.68	48.5
Carpark										
7	L	212	0.0	0.297	10.4	LOS A	9	0.46	0.75	46.6
9	R	141	0.0	0.243	12.4	LOS A	8	0.53	0.86	44.7
Approach		353	0.0	0.297	11.2	LOS A	9	0.49	0.79	45.8
Cohen St West Bound										
10	L	109	0.0	0.059	8.2	LOS A	0	0.00	0.67	49.0
11	T	261	14.2	0.146	0.0	LOS A	0	0.00	0.00	60.0
Approach		370	10.0	0.146	2.4	LOS A		0.00	0.20	56.3
All Vehicles		1325	5.6	0.297	5.8	Not Applicable	9	0.22	0.42	51.8

2025 PM (Sensitivity Test)

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Cohen St East Bound										
5	T	427	9.8	0.190	0.0	LOS A	0	0.00	0.00	60.0
6	R	164	0.0	0.165	10.0	LOS A	6	0.45	0.72	47.0
Approach		591	7.1	0.190	2.8	LOS A	6	0.12	0.20	55.7
Median Storage										
25	T	141	0.0	0.218	9.7	LOS A	2	0.47	0.76	47.4
Approach		141	0.0	0.218	9.7	LOS A	2	0.47	0.76	47.4
Carpark										
7	L	212	0.0	0.307	11.2	LOS A	11	0.51	0.81	45.9
9	R	141	0.0	0.266	13.5	LOS A	9	0.57	0.88	43.7
Approach		353	0.0	0.307	12.1	LOS A	11	0.53	0.84	45.0
Cohen St West Bound										
10	L	109	0.0	0.059	8.2	LOS A	0	0.00	0.67	49.0
11	T	335	11.0	0.184	0.0	LOS A	0	0.00	0.00	60.0
Approach		444	8.3	0.184	2.0	LOS A		0.00	0.16	56.9
All Vehicles		1529	5.2	0.307	5.3	Not Applicable	11	0.21	0.39	52.3

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Appendix B Cohen Street Extension Conceptual Layout



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Cohen Street Corridor – conceptual layout

