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Traffic Impact Assessment Report

50 Morisset Street, Queanbeyan

Proposed Mixed-Use Development

30/01/2025

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Document Control

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Executive Summary

Quantum Traffic have been engaged by Lockbridge to undertake a Traffic Impact Assessment for the proposed mixed-use development at 50 Morisset Street, Queanbeyan. This report summarises the various transport planning assessments undertaken in relation to the proposed development.

Existing Conditions

Subject Site

The subject site is located on the west corner of the Collett Street / Morisset Street intersection, within Queanbeyan CBD. The subject site has an area of 5,978m^2 and is zoned as B3: Commercial Core under the *Queanbeyan LEP*.

The subject site currently accommodates a surface carpark (of approximately 198 car spaces), with vehicle access via:

- Collett Street (all movements), in the north corner of the site,
- Morisset Street (left-in, left-out only), in the south corner of the site, and
- Woolworths Carpark (all movements), in the west corner of the site.

Active Travel and Public Transport Networks

Active travel infrastructure in the vicinity of the site comprises an existing network of footpaths, which parallel the road network. This path network provides pedestrian connections between the subject site and the surrounding land uses. Bicycle infrastructure, in the vicinity of the subject site, is limited to the shared path which parallels the Queanbeyan River and comprises the C2: Canberra City – Queanbeyan cycling route.

The subject site is located adjacent to the Queanbeyan (Bus) Interchange, which is served by nine (9) public bus routes.

Intersection Performance

Intersection performance analysis indicates that the existing traffic volumes at the Collett Street / Morisset Street roundabout and the Crawford Street / Morisset Street signalised intersection, during peak hours on a typical weekday, are well within the practical capacity of these intersections, subject to the efficient allocation of green time at the Crawford Street / Morisset Street intersection.

Parking Conditions

A series of car parking surveys identified that the existing supply of public car parking within approximately 200m of the subject site (excluding the Woolworths carpark, at Council's request) significantly exceeds the existing car parking demands throughout the course of both a typical weekday and a Saturday.

Proposed Development

The proposal is to develop the site to accommodate a 10-storey mixed-use development comprising:

- 624m^2 GFA of commercial space (assumed to be a combination of business premises and health services facilities), across eight (8) tenancies,
- 160 apartments, comprising:
  - 80 apartments with one (1) bedroom, and
  - 80 apartments with two (2) bedrooms.
- 212 on-site car parking spaces.

Vehicle access to and egress from the subject site is proposed to remain via Morisset Street (left-in, left-out only). The existing vehicle accesses to the subject site via Collett Street and the Woolworths Carpark are to be closed as part of the proposed development.

Anticipated Traffic Demands

The proposed development is expected to generate traffic demands in the order of 56-66 vehicle movement during the morning and evening peak hours on a typical weekday.

Design Review

A design review has been undertaken to assess the design of the proposed on-site parking and vehicle access arrangements against the relevant statutory requirements. This design review found that the proposed parking and vehicle access arrangements accords with the relevant requirements, including:

- Design of parking modules,
- Design of circulation roadways and ramps,
- Access facilities and queuing areas, and
- Additional requirements for car parking structures.

Parking Assessments

Parking assessments have been undertaken in accordance with the relevant state and local government requirements, including:

- *Queanbeyan Development Control Plan 2012*,
- *State Environmental Planning Policy (Housing) 2021*,
- *NSW Planning & Environment's Apartment Design Guide*, and
- *Guide to Traffic Generating Developments: Issue 2.2*.

Overall Car Parking

The proposed development has a requirement for 163 car parking spaces, comprising 120 car parking spaces for residents, 32 car parking spaces for residential visitors and 11 car parking spaces for the commercial component.

The proposed development includes a total of 212 on-site car parking spaces, comprising 189 car spaces to be allocated to residents, 11 car spaces to be allocated to staff and visitors of the commercial component and 12 car spaces available for use by the public (i.e. visitors of the residential and commercial components).

On this basis, the proposed development satisfies the requirements for overall carparking across the development as a whole, as well as for the resident user group and commercial component. The proposed development represents a shortfall of 20 car parking spaces associated with residential visitors.

Accessible Car Parking

The proposed development has a requirement for 17 accessible car parking spaces, comprising 16 accessible spaces for residents and one (1) accessible car parking space for the commercial component.

The proposed development includes a total of 19 accessible car parking spaces, comprising 16 accessible spaces for residents, one (1) accessible space for the commercial component and two (2) accessible spaces for use by the public (i.e. visitors of the residential and commercial components).

On this basis, the proposed development satisfies the requirements for accessible car parking.

Service Vehicle Parking

The proposed development has a requirement for five (5) service vehicle parking spaces, including three (3) of which are to be suitable for trucks. It is extremely unlikely that regular demands for service vehicle parking associated with the proposed development would be high enough to justify these requirements.

The proposed development includes one (1) dedicated service vehicle parking space, which is suitable for use by the 10m waste truck, along with removalist trucks and larger delivery trucks serving the commercial component. Furthermore, it is noted that smaller service vehicles can utilise the 12 public car parking spaces, including the four (4) parallel parking spaces, on the subject site. This provision is considered to be appropriate to accommodate the anticipated regular demands for truck parking associated with the proposed development (i.e. weekly waste collection and irregular removalist use).

Electric Vehicle Parking

The proposed development has a requirement for 190 electric vehicle parking spaces, comprising 189 electric vehicle spaces for residents and one (1) electric vehicle parking space for the commercial component.

It is recommended that the proposed development include sufficient electrical and switchboard capacity to accommodate these 190 electric vehicle parking spaces.

Post-Development Conditions

Intersection Performance

Intersection analysis found that the proposed development is not expected to noticeably impact the performance of the analysed intersections. The anticipated post-development traffic demands are expected to remain well within the practical capacity of the Collett Street / Morisset Street roundabout and the Crawford Street / Morisset Street signalised intersections, subject to the efficient allocation of green time at the Crawford Street / Morisset Street intersection.

Parking Conditions

There is sufficient existing public car parking located within 200m walking distance of the site (excluding the Woolworths carpark, at Council's request) to accommodate even conservatively high estimates of:

- Car parking demands redistributed from the existing surface carpark on the subject site, and
- The overflow of car parking demands from the subject site, associated with residential visitors to the proposed development.

Conclusion

On this basis, there are no traffic engineering reasons why the proposed development should not be approved, subject to appropriate conditions.

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Tables

1 Introduction

Quantum Traffic have been engaged by Lockbridge to undertake a Traffic Impact Assessment (TIA) in relation to a proposed mixed-use development at 50 Morisset Street, Queanbeyan. This report summarises the various traffic engineering and transport planning assessments undertaken in relation to the proposed development.

2 Existing Conditions

2.1 Subject Site

The subject site is located on the west corner of the Collett Street / Morisset Street intersection, within Queanbeyan CBD. The subject site has an area of 5,978m^2 and is zoned as B3: Commercial Core under the *Queanbeyan LEP*. Land uses surrounding the site are predominantly commercial, with some public open space to the southeast and some residential to the north. Figure 1 below presents the land use zoning of the subject site and surrounds.

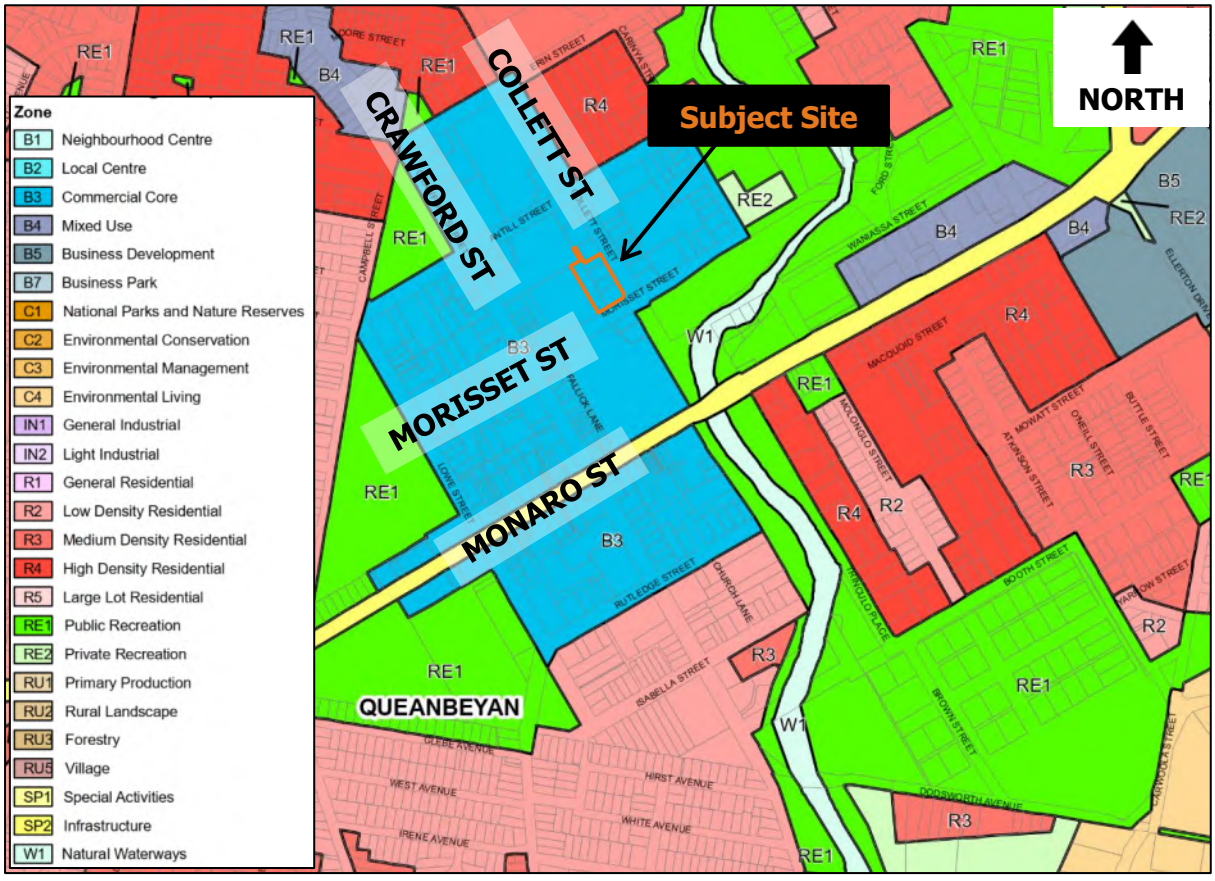


Figure 1: Locality Plan (source: Queanbeyan LEP)

The aerial photograph at Figure 2 below, shows that the subject site currently accommodates a surface carpark (comprising approximately 198 car spaces), with vehicle access via:

- Collett Street (all movements), in the north corner of the site,
- Morisset Street (left-in, left-out only), in the south corner of the site, and
- Woolworths Carpark (all movements), in the west corner of the site.

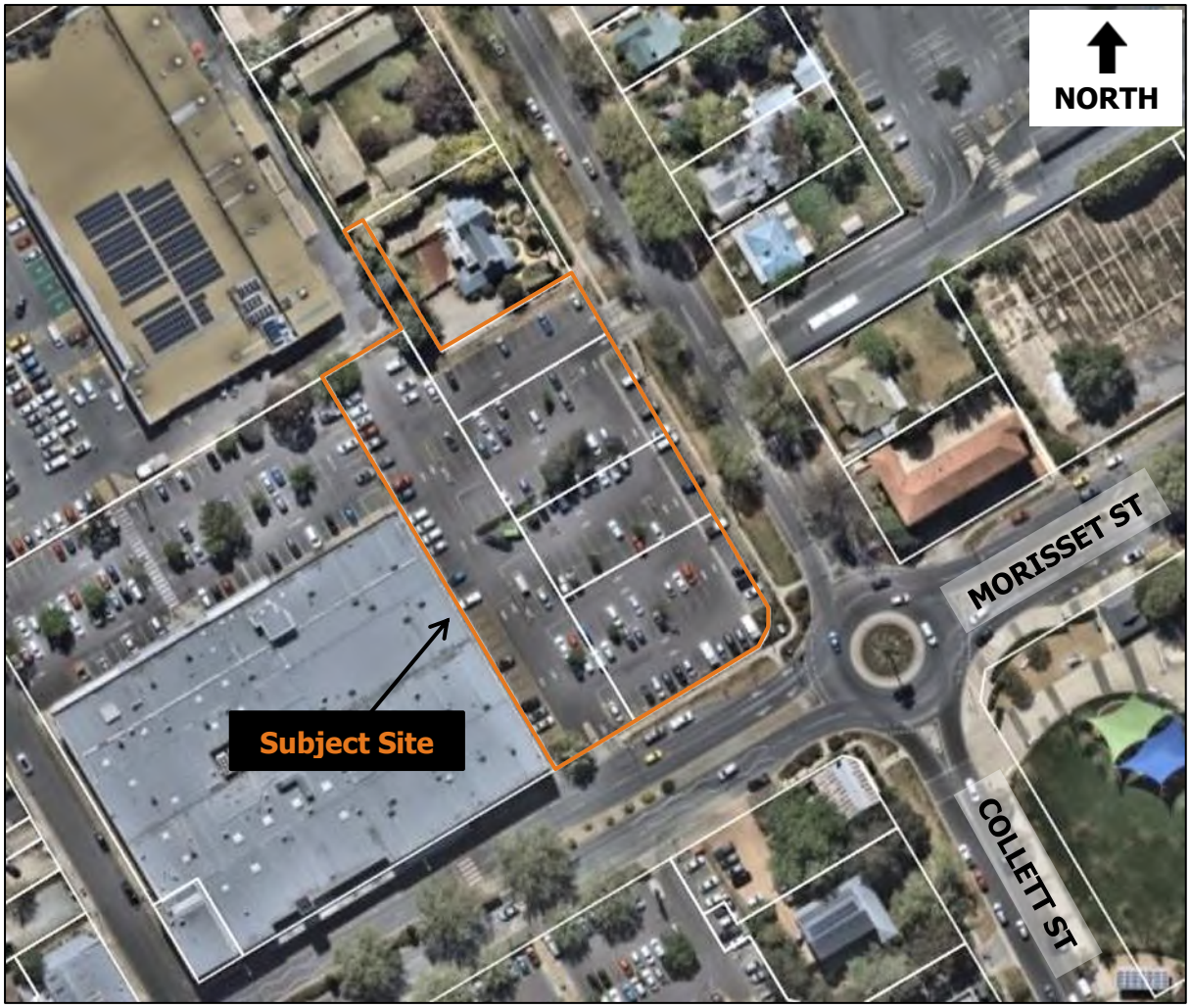


Figure 2: Aerial Image (source: Nearmap)

2.2 Active Travel Network

Active travel infrastructure in the vicinity of the site comprises an existing network of footpaths, which parallel the road network. This path network provides pedestrian connections between the subject site and the surrounding land uses.

Bicycle infrastructure, in the vicinity of the subject site, is limited to the shared path which parallels the Queanbeyan River and comprises the C2: Canberra City – Queanbeyan cycling route.

2.3 Public Transport Network

The subject site is located adjacent to the Queanbeyan (Bus) Interchange. As shown at Figure 3 below, Queanbeyan Interchange is served by nine (9) public bus routes.

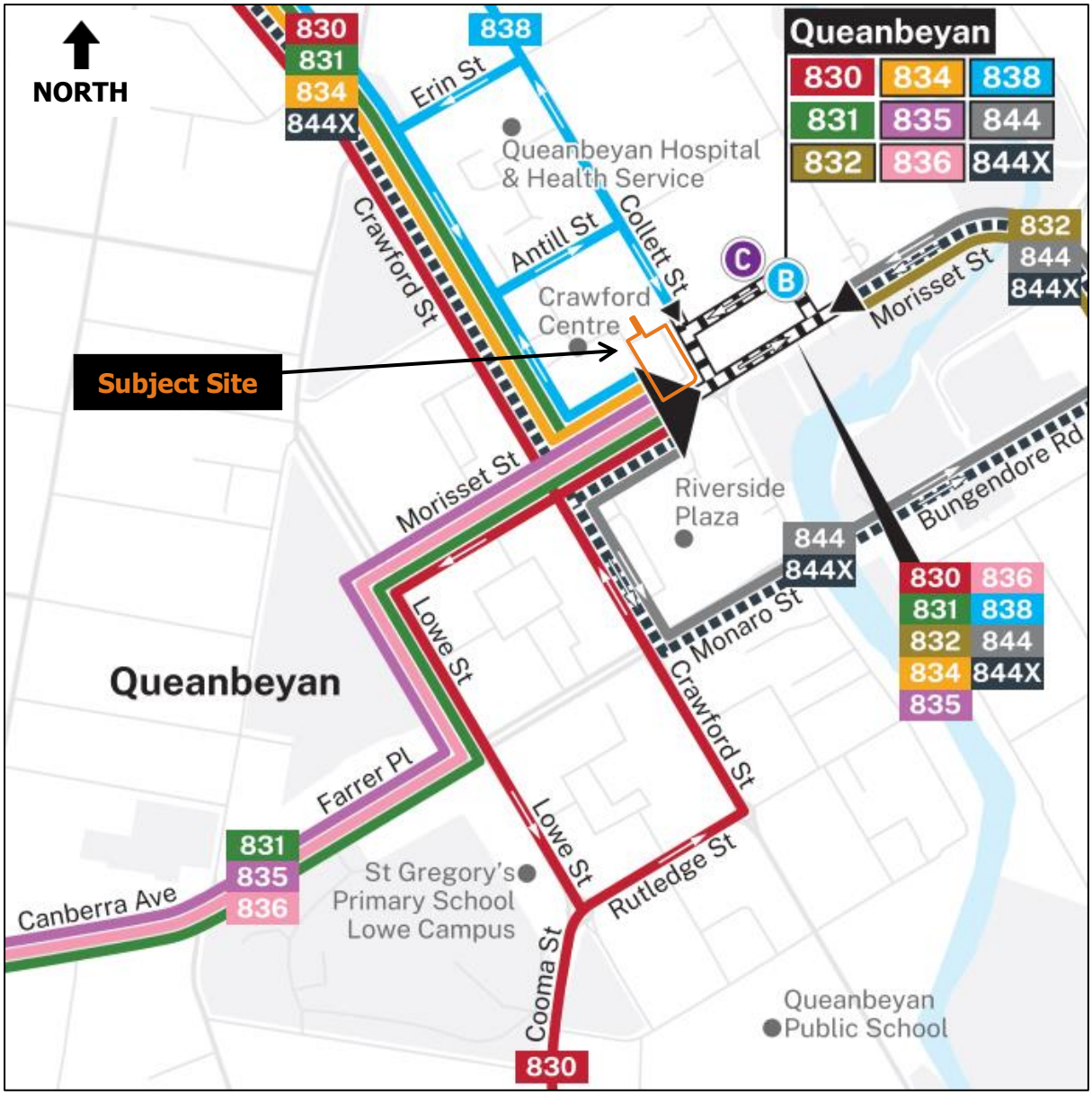


Figure 3: Public Transport Network (source: Transport Canberra)

2.4 Road Network

Collett Street is a local street which extends approximately 1.6km from Crawford Street in the northwest to Isabella Street in the southeast. Adjacent to the subject site, Collett Street comprises a single carriageway of approximately 14m width which accommodates a kerbside parallel parking lane and a single traffic lane in each direction. On-street parking is generally 'unrestricted' on the southwest side of Collett Street, with 'No Parking 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat' restrictions in-place on the northeast side of the carriageway. Pedestrian facilities on Collett Street comprise 1.2m wide footpaths on both sides of the road reserve, with a pedestrian priority ('zebra') crossing located 40m northwest of Morisset Street. There is no dedicated cycling infrastructure along Collett Street. The 50km/h area speed limit which applies to Collett Street exceeds the safe system speed for collisions between vehicles and pedestrians or cyclists.

Morisset Street is a local street which extends approximately 1km from Lowe Street in the southwest to Waniassa Street in the northwest. Adjacent to the subject site, Morisset Street

comprises dual carriageways, separated by a raised concrete median of approximately 2.7m width. Both carriageways support a kerbside parallel parking lane and two (2) traffic lanes. On-street parking is subject to '1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat' restrictions on both sides of Morisset Street. Pedestrian facilities on Morisset Street, adjacent to the subject site, comprise a 1.2m wide footpath on the northwest side and a 1.5m wide footpath along the southeast side of the road reserve. Southwest of the subject site, paved verges of between 3.5m-4m width are provided on both sides of the road reserve. A raised pedestrian priority ('wombat') crossing is located approximately 85m southwest of Collett Street. There is no dedicated cycling infrastructure along Morisset. The 50km/h area speed limit which applies to Morisset Street exceeds the safe system speed for collisions between vehicles and pedestrians or cyclists.

2.4.1 Existing Traffic Conditions

Classified turning movement counts were undertaken at the Collett Street / Morisset Street and Crawford Street / Morisset Street intersections on Wednesday, 11 October 2023, to quantify the existing traffic volumes in the vicinity of the subject site. These intersections, outlined in red at Figure 4 below, represent the study area for the intersection performance analysis.

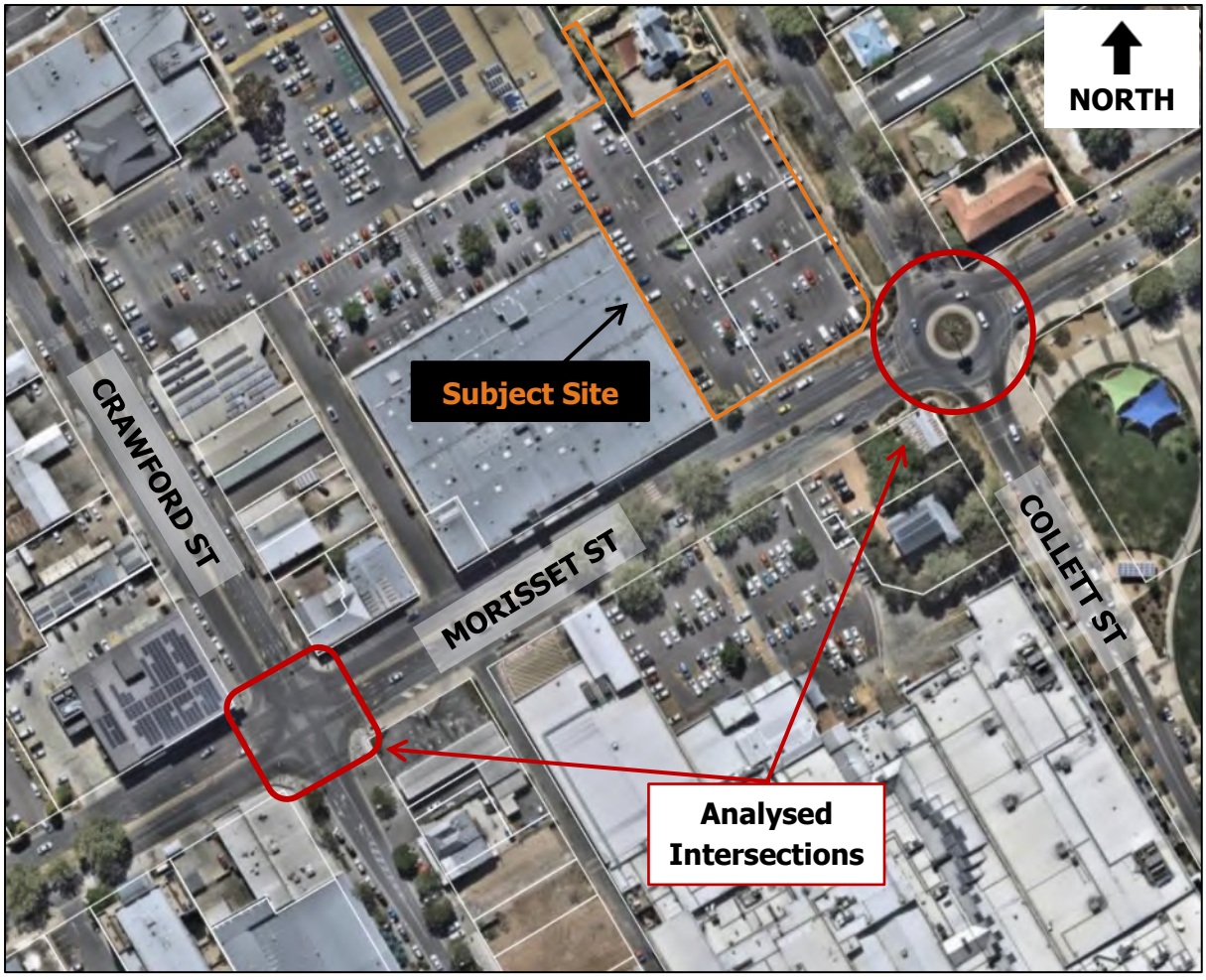


Figure 4: Intersection Performance Analysis Study Area (source: Nearmap)

This data collection identified the following peak hours:

- Morning peak hour between 8:15am-9:15am, and

- Evening peak hour between 4:15pm-5:15pm.

Intersection Performance

The performance of these intersections has been assessed using the SIDRA Intersection 8 software package. The SIDRA software quantifies intersection performance using the following four (4) measures:

- Degree of Saturation (DOS), which represents the ratio of traffic demands to theoretical intersection capacity,
- Average delay, in seconds, experienced by vehicles at the intersection,
- Level of Service (LOS), which converts average delay to a letter grade, and
- 95th percentile queue length, in metres, which reflects the length of queueing that has a 5% chance of being exceeded.

The *RMS Traffic Modelling Guidelines* specify that the maximum practical DOS of signalised and unsignalised intersections are 0.90 and 0.80, respectively. Beyond these values, traffic flows can become unstable, with minor flow disruptions likely to cause long delays and queue lengths.

The *RMS Guide to Traffic Generating Developments (2002)* defines the LOS criteria as presented at Table 1 below.

Table 1: LOS Criteria for Intersections

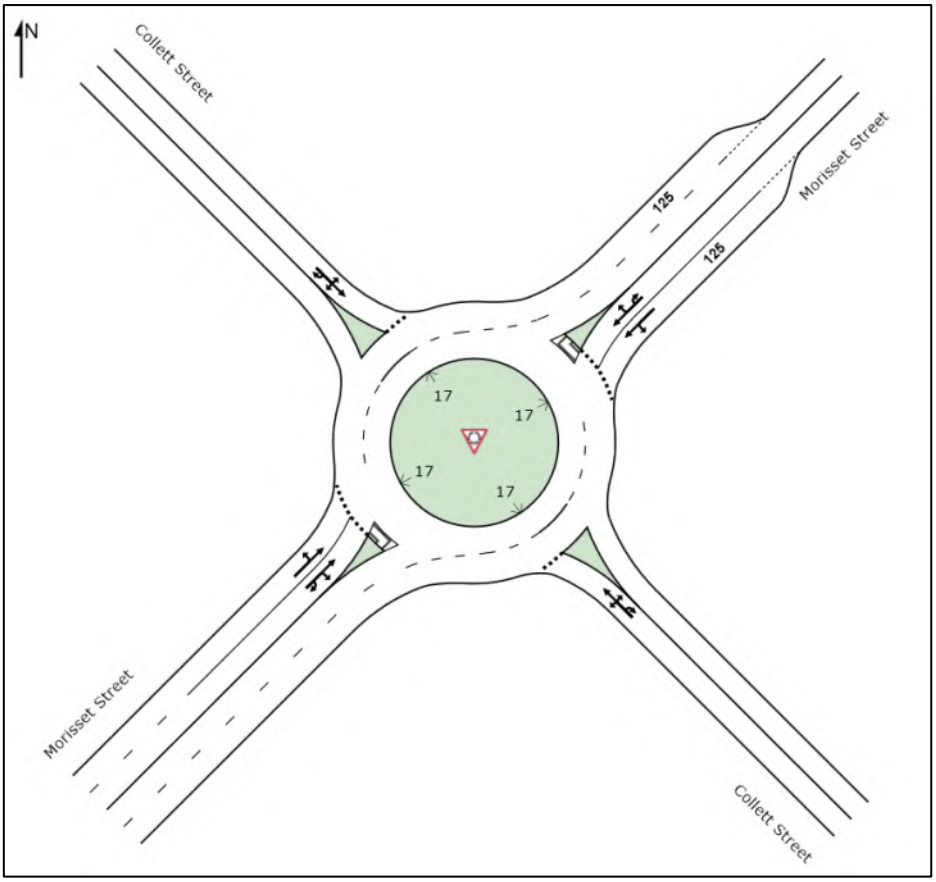
Level of Service	Average Delay
A	≤ 14s
B	15s – 28s
C	29s – 42s
D	43s – 56s
E	57s – 70s
F	> 70s

The 95th percentile queue lengths have been assessed against the available storage length within each respective lane.

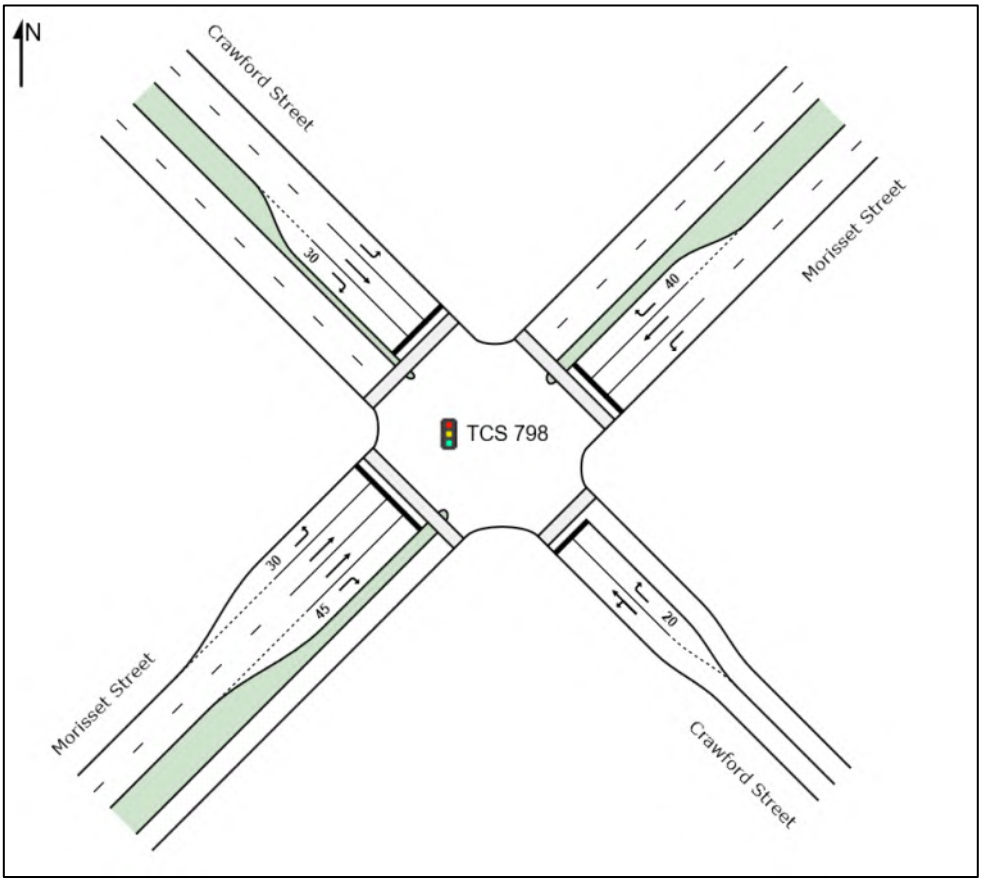
It is noted that these measures consider the performance of the intersections, only from the perspective of motor vehicles.

Model Geometry

Figure 5 below presents the modelled geometry of the two (2) analysed intersections.



a) Collett Street / Morisset Street

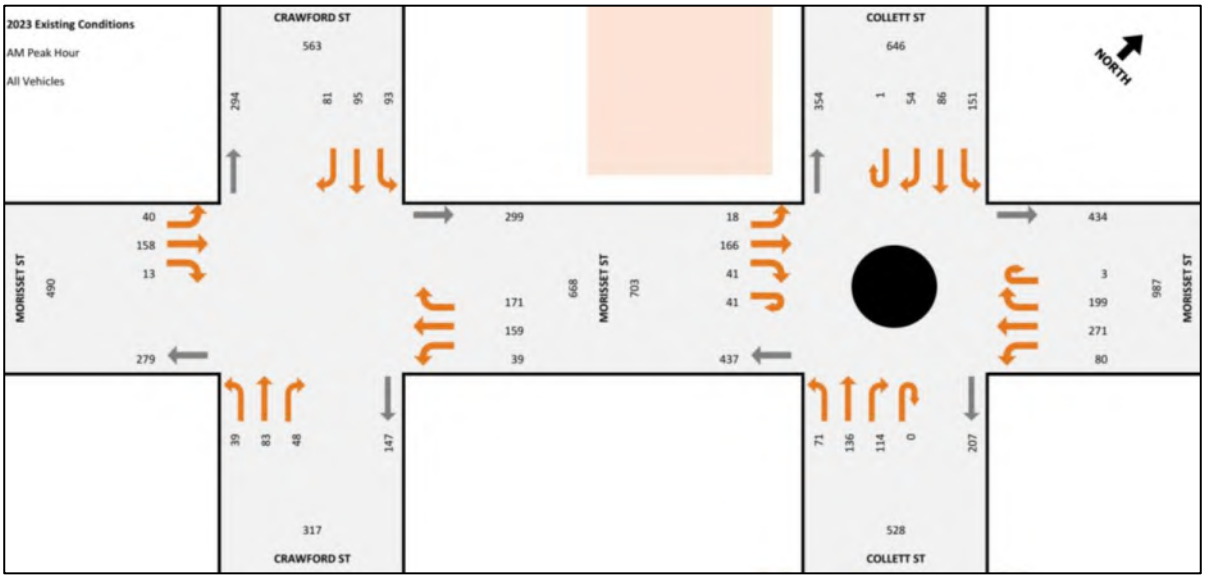


b) Crawford Street / Morisset Street

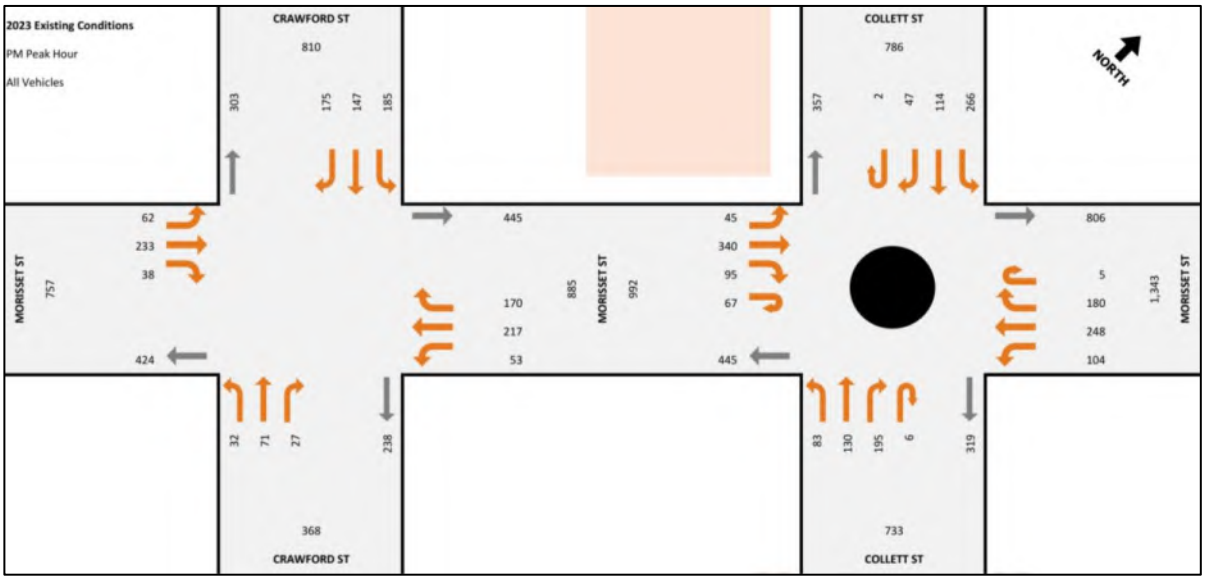
Figure 5: Modelled Intersection Geometry – Existing Conditions

Traffic Volumes

Figure 6 below, presents the observed turning movements at these intersections, during the identified morning and evening peak hours. More detailed breakdowns of the peak hour traffic volumes, under the existing conditions, are provided at Appendix A.



a) AM Peak Hour



b) PM Peak Hour

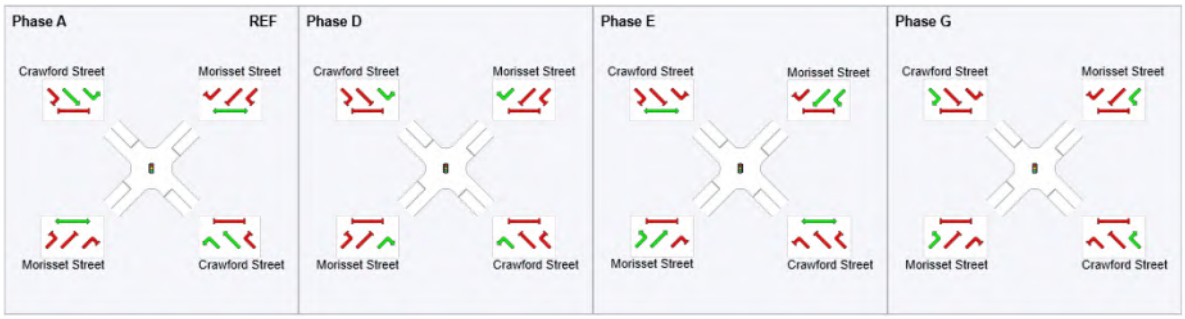
Figure 6: Peak Hour Traffic Volumes – Existing Conditions

Traffic Signal Operation

The operation of the traffic signals at the Crawford Street / Morisset Street intersection has been derived from historical SCATS data, from Wednesday, 11 October 2023 and provided by TfNSW.

The Crawford Street / Morisset Street traffic signals operate with double diamond overlap phasing during both the morning and evening peak hours. Noting that the SIDRA software is unable to replicate this type of variable signal phasing under user specified phase timings, the Crawford Street / Morisset Street has been analysed under two (2) scenarios, as follows:

- A simplified leading right-turn signal phasing (Figure 7a) with user-given phase times (Table 2), and
- A realistic double diamond overlap signal phasing (Figure 7b) with user-given cycle times (Table 2).



a) Leading Right-Turns

b) Double Diamond Overlap

Figure 7: Traffic Signal Phasing – Existing Conditions

Table 2: Traffic Signal Timings – Existing Conditions

Peak Hour	Phase Times								Cycle Times
	A	D	D1	D2	E	G	G1	G2	
User-Given Phase Times (from SCATS Data)									
AM Peak Hour	28s	15s	-	-	50s	16s	-	-	**109s**
PM Peak Hour	31s	18s	-	-	61s	24s	-	-	**134s**
User-Given Cycle Times (SIDRA Optimised Phase Times)									
AM Peak Hour	28s	12s	28s	-	20s	21s	-	-	**109s**
PM Peak Hour	24s	14s	25s	-	26s	16s	29s	-	**134s**

Intersection Performance

Table 3 below summarises the performance of the road network under the 2023 existing conditions traffic volumes. Full details of the intersection performance analysis, under existing conditions, are provided at Appendix B.

Table 3: Intersection Performance Summary – 2023 Existing Conditions

Approach	AM Peak Hour			PM Peak Hour		
	DOS	Delay (LOS)	Queue	DOS	Delay (LOS)	Queue
Collett Street / Morisset Street						
SE: Collett St	0.41	8s (A)	15m	0.53	9s (A)	24m
NE: Morisset St	0.23	6s (A)	10m	0.24	6s (A)	11m
NW: Collett St	0.35	6s (A)	14m	0.61	10s (A)	35m
SW: Morisset St	0.16	7s (A)	6m	0.33	8s (A)	15m
Total	**0.41**	**7s (A)**	**-**	**0.61**	**8s (A)**	**-**
Crawford Street / Morisset Street (Leading Right-Turn Signal Phasing)						
SE: Collett St	0.35	45s (D)	41m	0.31	53s (D)	43m
NE: Morisset St	1.15	106s (F)	163m	1.19	111s (F)	186m
NW: Collett St	0.46	42s I	33m	0.98	6I(E)	110m
SW: Morisset St	0.11	23s (B)	20m	0.24	29s (C)	36m
Total	**1.15**	**62s (E)**	**-**	**1.19**	**70s (E)**	**-**
Crawford Street / Morisset Street (Double Diamond Overlap Signal Phasing)						
SE: Collett St	0.34	44s (D)	41m	0.43	61s (E)	46m
NE: Morisset St	0.34	29s (C)	57m	0.44	40s (C)	81m
NW: Collett St	0.33	35s (C)	33m	0.41	30s (C)	67m
SW: Morisset St	0.35	46s (D)	31m	0.43	52s (D)	53m
Total	**0.35**	**36s (C)**	**-**	**0.44**	**41s (C)**	**-**

The intersection performance analysis indicates that the existing conditions traffic volumes are well within the practical capacity of the Collett Street / Morisset Street roundabout and as a result, delays and queue lengths are minimal.

The analysis indicates that when operating under the user-given (SCATS) phase times, the existing conditions traffic volumes for the right-turn from the northeast approach (Morisset Street) to the Crawford Street / Morisset Street intersection, exceed the theoretical capacity. Noting that the simplified leading right-turn signal phasing allows this right-turn to operate in every signal cycle, the analysis indicates that a discrepancy exists between the observed traffic volumes and the provided signal timings. In any case, the performance of the other approaches to the Crawford Street / Morisset Street intersection suggests that the intersection itself has sufficient capacity to accommodate the existing traffic demands and that it is the signal timings which inefficiently allocate this capacity.

This is supported by the performance of the intersection under the double diamond overlap signal phasing (with SIDRA optimised phase times). Under these conditions, the existing traffic volumes are comfortably below the practical capacity of the intersection, resulting in minimal delays and queue lengths.

Existing Development Traffic Volumes

It is noted that the observed traffic volumes, provided at Appendix A and considered in the existing conditions intersection performance analysis, include vehicle trips associated with the existing carpark on the subject site.

2.4.2 Existing Parking Conditions

A series of car parking surveys were undertaken on Wednesday, 11 October 2023 and Saturday, 18 January 2025 to quantify the existing car parking demands within approximately

200m walking distance of the subject site, as shown at Figure 8 below. It is noted that this analysis included all on-street parking spaces and the following off-street carparks:

- Woolworths carpark (surveyed but excluded from this analysis at Council's request),
- Collett carpark,
- Riverside Plaza South carpark, and
- Riverside Plaza North carpark (the subject site).

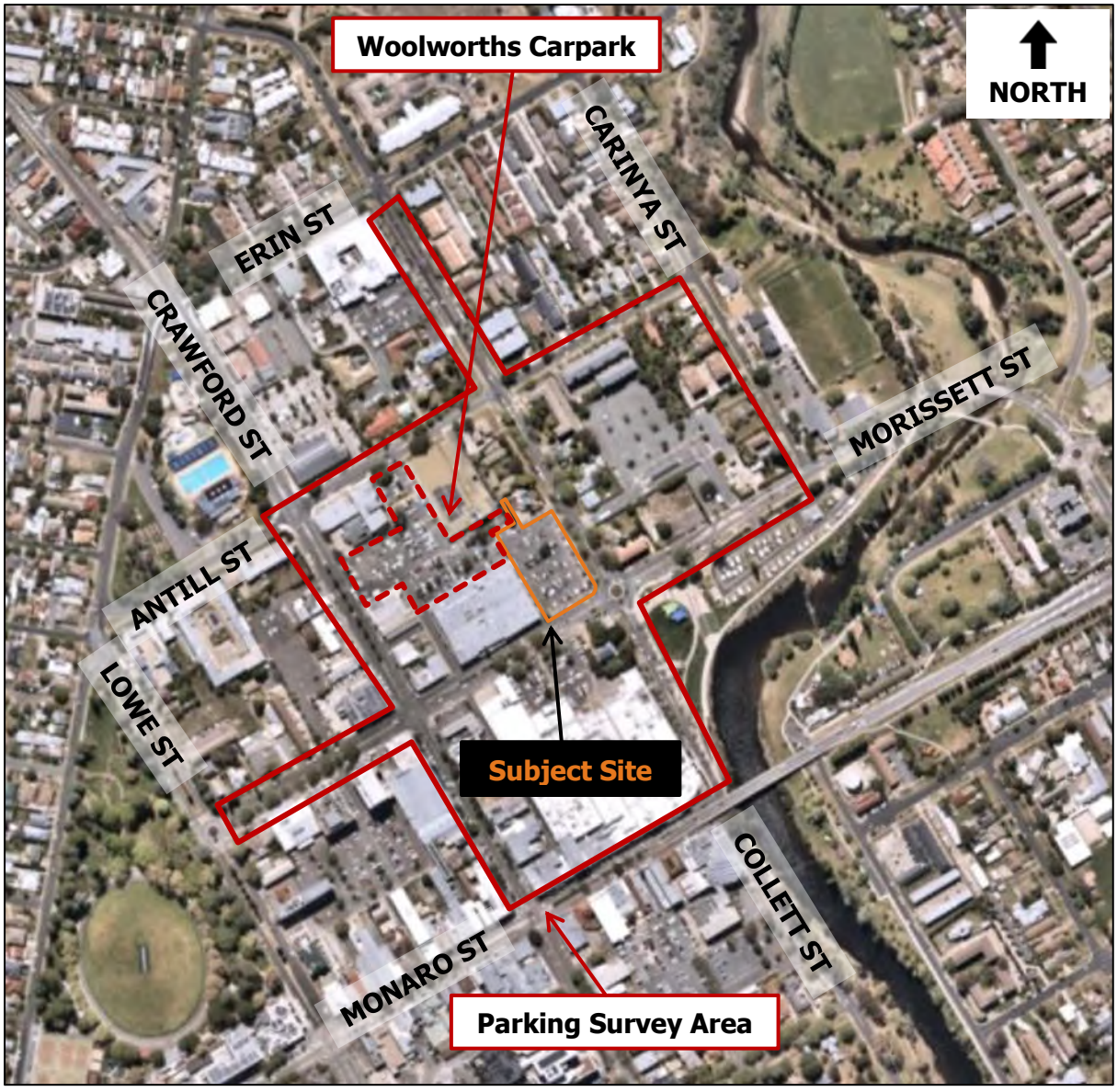
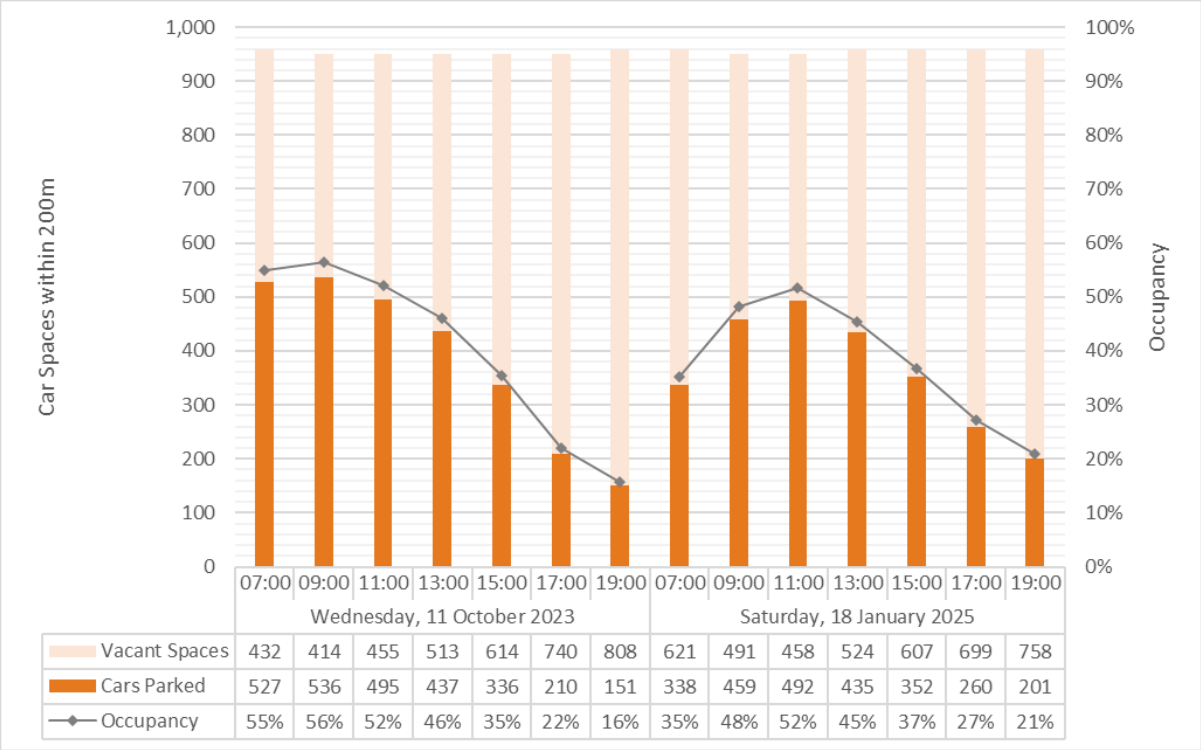


Figure 8: On-Street Car Parking Survey Area (source: Nearmap)

These surveys captured existing car parking demands at 2-hourly intervals between 7am and 7pm on both days, as presented at Figure 9 below. Full details are provided at Appendix C.

The car parking surveys identified 950-959 public car parking spaces (depending on the parking restrictions which apply at any given time) located within approximately 200m walking distance of the subject site. These spaces experienced moderate demands during both Wednesday and Saturday mornings (up to 56% and 52% occupancy, respectively), with demands decreasing throughout the afternoon and evening on both days.

Furthermore, it is noted that, under the existing conditions, the 198 car parking spaces on the subject site, accommodate demands for up to 117 car parking spaces on the Wednesday and up to 151 car parking spaces on the Saturday.



	07:00	09:00	11:00	13:00	15:00	17:00	19:00	07:00	09:00	11:00	13:00	15:00	17:00	19:00
Vacant Spaces	432	414	455	513	614	740	808	621	491	458	524	607	699	758
Cars Parked	527	536	495	437	336	210	151	338	459	492	435	352	260	201
Occupancy	55%	56%	52%	46%	35%	22%	16%	35%	48%	52%	45%	37%	27%	21%

Figure 9: Existing Car Parking Conditions – Within 200m of Subject Site

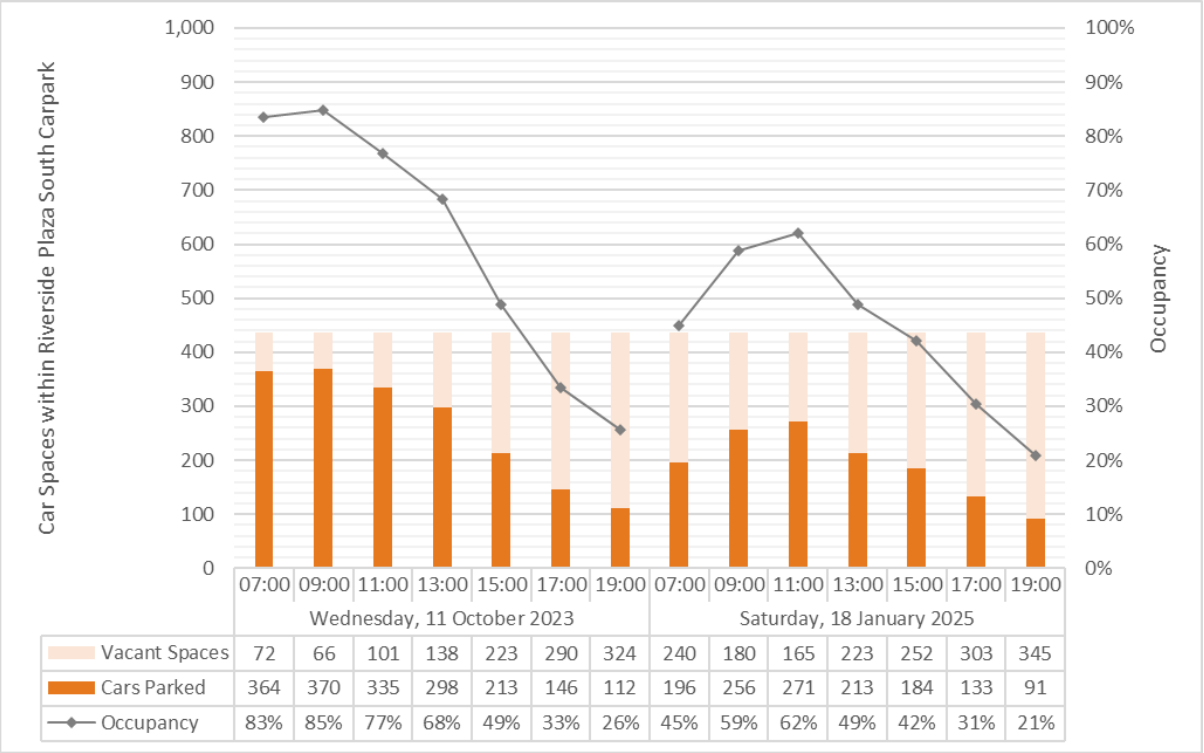
Riverside Plaza

It is understood that Council hold concerns related to the impacts of the proposed development on car parking associated with Riverside Plaza, primarily due to the proposed closure of 198 car parking spaces on the subject site. This additional analysis seeks to quantify the car parking demands associated with Riverside Plaza, under a pair of Riverside Plaza land use scenarios, in order to identify what impacts the proposed development is expected to have, specifically, on car parking associated with Riverside Plaza.

Existing Land Uses

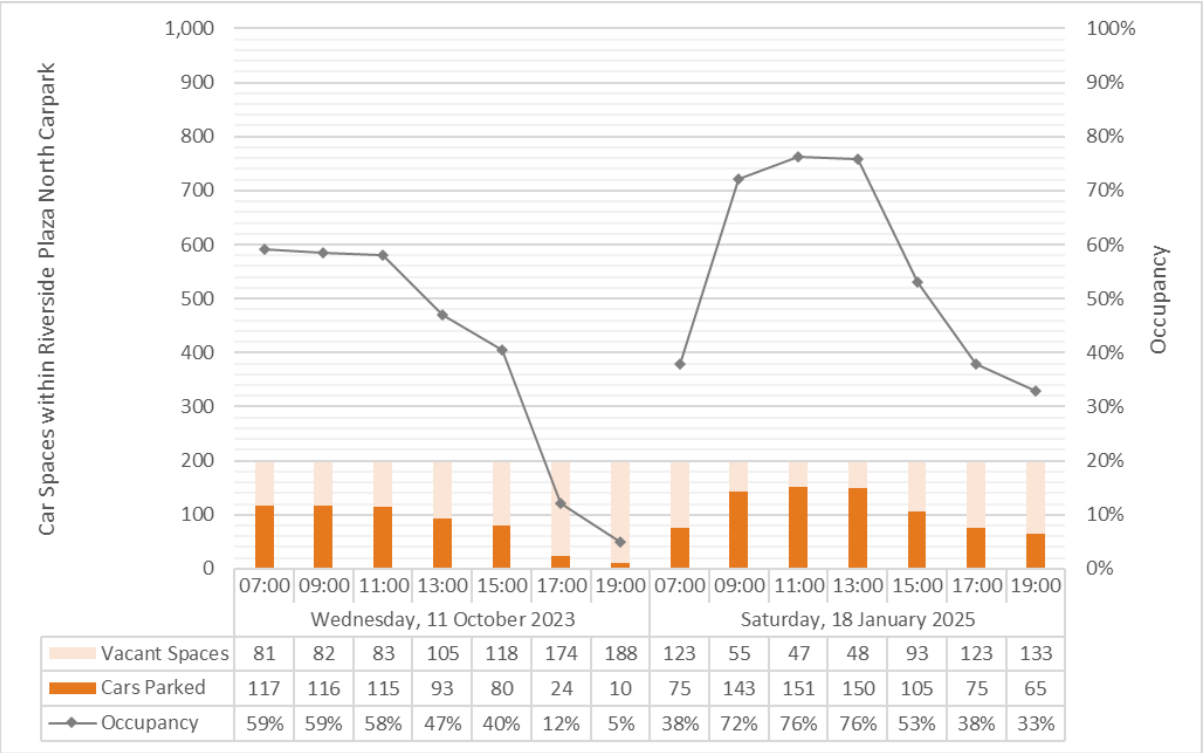
It is understood that Riverside Plaza accommodated 4,732m^2 GLFA of office and 16,790m^2 GLFA of shop at the time of both the Wednesday and Saturday parking surveys.

The car parking occupancy surveys identified a total of 634 car parking spaces within the Riverside Plaza carparks, including 436 spaces within the Riverside Plaza South carpark and 198 spaces within the Riverside Plaza North carpark on the subject site. As shown at Figure 10 below, the demand for spaces within the Riverside Plaza South carpark peaked at 9am during the Wednesday surveys (370 spaces occupied, 85% occupancy) and 11am during the Saturday surveys (271 spaces occupied, 62% occupancy). Alternatively, the demand for spaces within the Riverside Plaza North carpark peaked at 11am during the Saturday surveys (151 spaces occupied, 76% occupancy) and 7am during the Wednesday surveys (117 spaces occupied, 59% occupancy).



Vacant Spaces	72	66	101	138	223	290	324	240	180	165	223	252	303	345
Cars Parked	364	370	335	298	213	146	112	196	256	271	213	184	133	91
Occupancy	83%	85%	77%	68%	49%	33%	26%	45%	59%	62%	49%	42%	31%	21%

a) Riverside Plaza South



Vacant Spaces	81	82	83	105	118	174	188	123	55	47	48	93	123	133
Cars Parked	117	116	115	93	80	24	10	75	143	151	150	105	75	65
Occupancy	59%	59%	58%	47%	40%	12%	5%	38%	72%	76%	76%	53%	38%	33%

b) Riverside Plaza North

Figure 10: Existing Car Parking Conditions – Riverside Plaza Carparks

Noting the relative proximities of the Riverside Plaza carparks to the shopping centre, it is expected that Riverside Plaza patrons would prefer to park within the (more proximate) Riverside Plaza South carpark and would utilise the (more distant) Riverside Plaza North carpark when the South carpark is at, or close to, capacity. On this basis, the car parking demands observed within the Riverside Plaza North carpark are considered to be associated with patrons of both Riverside Plaza and other nearby land uses. Acknowledging the above,

this analysis conservatively assumes that all car parking demands within the Riverside Plaza South carpark and half of car parking demands within the Riverside Plaza North carpark are associated with Riverside Plaza. On this basis, Riverside Plaza is assumed to have generated demands for up to 428 car parking spaces at 9am during the Wednesday surveys and up to 347 car parking spaces at 11am during the Saturday surveys. Such car parking demands could be comfortably accommodated within the Riverside Plaza carparks (up to 68% and 55% occupancy, respectively).

Alternate Land Uses

The alternate land use scenario assumes that the 4,732m^2 GLFA of office uses within Riverside Plaza are converted to shop uses (i.e. 21,522m^2 GLFA of shop uses). Noting that any such changes in land uses would require planning approval independent of the proposed development, this scenario is considered here solely as a sensitivity test.

Assuming that the office component generated negligible car parking demands during the Saturday surveys, this analysis estimates that all of the Riverside Plaza car parking demands during the Saturday surveys were associated with the shop component. As such, the shop component is estimated to have generated car parking demands at a rate of up to 2.07 car parking spaces per 100m^2 GLFA during the Saturday surveys (up to 347 car spaces occupied and 16,790m^2 GLFA of shop).

Acknowledging that similar shopping centres typically generate greater car parking demands on Saturdays, than on weekdays (particularly Wednesdays), this analysis conservatively assumes that the shop component generated a similar level of car parking demands at the peak time during the Wednesday surveys, as at the peak time during the Saturday surveys (347 car parking spaces, 2.07 car parking spaces per 100m^2 GLFA of shop). As such, the remaining demand for 81 car parking spaces at the peak time during the Wednesday surveys (demand for 428 total car parking spaces, minus demands for 347 car parking spaces associated with shop component), are considered to be associated with the office component. This leads to the office component generating car parking demands at a rate of 1.71 car parking spaces per 100m^2 GLFA at 9am on the Wednesday (81 car parking spaces occupied and 4,732m^2 GLFA of office). Therefore, in the case that the office component within Riverside Plaza was to be replaced with shop uses, as set out at Table 4 below, Riverside Plaza would be expected to generate car parking demands for up to 445 car parking spaces on both weekdays and Saturdays. Such car parking demands could be comfortably accommodated within the Riverside Plaza carparks (up to 70% occupancy).

Table 4: Riverside Plaza Car Parking Analysis

Land Use	Size / Number	Car Parking Demand (Car Parking Demand Rate)	
		9am Wednesday	11am Saturday
Existing Land Uses			
Office	4,732m^2 GLFA	81 spaces (1.71 spaces per 100m^2 GLFA)	Negligible (N/A)
Shop	16,790m^2 GLFA	347 spaces (2.07 spaces per 100m^2 GLFA)	347 spaces (2.07 spaces per 100m^2 GLFA)
Total	**21,522m^2 GLFA**	**428 spaces**	**347 spaces**

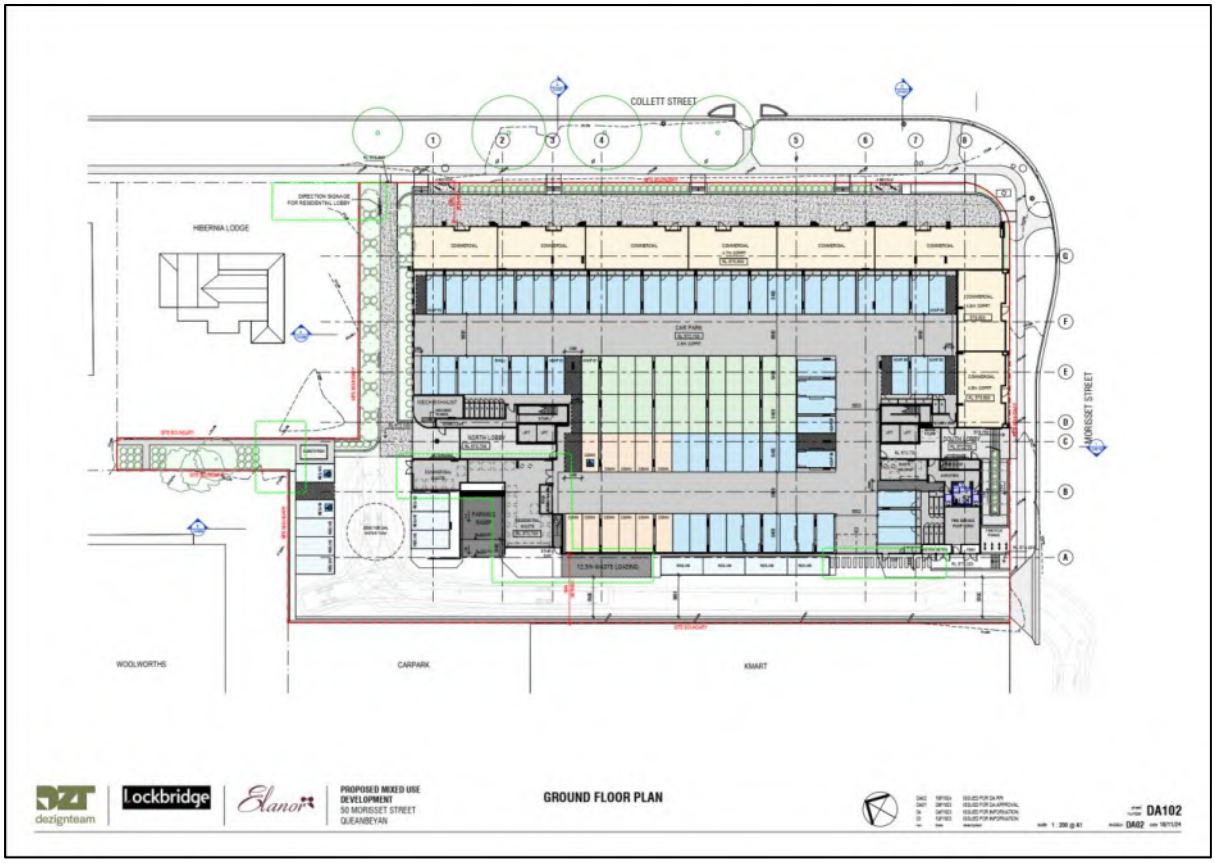
Land Use	Size / Number	Car Parking Demand (Car Parking Demand Rate)	
		9am Wednesday	11am Saturday
Alternate Land Uses (100% Shop)			
Shop	21,522m^2 GLFA	445 spaces (2.07 spaces per 100m^2 GLFA)	445 spaces (2.07 spaces per 100m^2 GLFA)
Total	**21,522m^2 GLFA**	**445 spaces**	**445 spaces**

3 Proposed Development

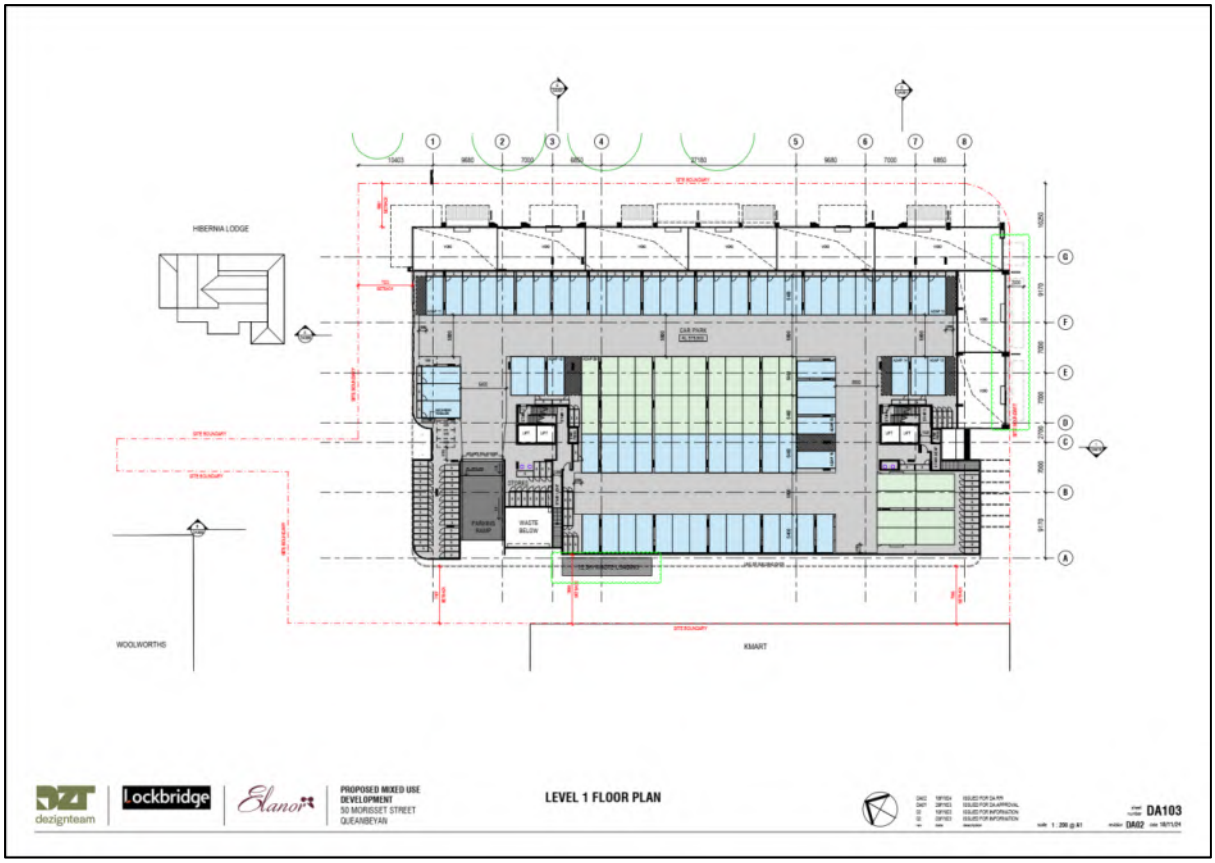
The proposal is to develop the site to accommodate a 10-storey mixed-use development comprising:

- 624m^2 GFA of commercial space (assumed to be a combination of business premises and health services facilities), across eight (8) tenancies,
- 160 apartments, comprising:
  - 80 apartments with one (1) bedroom, and
  - 80 apartments with two (2) bedrooms.
- 212 on-site car parking spaces.

Figure 11 below, presents an overview of the ground and first floors of the proposed development. A full set of the plans is provided at Appendix D.



a) Ground Floor



b) Level 1

Figure 11: Proposed Development

Vehicle access to and egress from the subject site is proposed via the south corner of the site, directly southwest of the existing vehicle access to Morisset Street. The other two (2) existing vehicle accesses to the site (via Collett Street in the north corner of the site and via the Woolworths carpark in the west corner of the site) will both be closed as part of the proposed development.

3.1 Traffic Demands

The following sections set out the key elements of the anticipated traffic demands associated with the proposed development.

3.1.1 Traffic Generation

Commercial Component

Acknowledging that Council's definition for commercial premises expressly includes business premises (i.e. banks, hairdressers, etc), office premises and retail premises (i.e. food and drink premises, shops, etc) and noting the limited empirical data available for business premises, this analysis conservatively adopts an evening peak hour traffic generation rate adopted for commercial component which reflects the rate published for specialty shops during the Thursday evening peak hour in Roads & Traffic Authority (RTA)'s *Trip Generation and Parking Demand Surveys of Shopping Centres: Analysis Report*. It is noted that this published rate (presented as a rate per 1m^2 GLFA) has been converted to a more standard rate (per 100m^2 GFA), by assuming that 75m^2 GLFA is equivalent to 100m^2 GFA. This dataset (published in RTA's *Trip Generation and Parking Demand Surveys of Shopping Centres: Data Report*)

indicates that the morning peak hour traffic demands at shopping centres are typically 43% the scale of the evening peak hour traffic demands. On this basis, the traffic generation rates presented at Table 5 below have been adopted for the commercial component of the proposed development.

Table 5: Commercial Component – Traffic Generation Rates

Time Period	Traffic Generation Rates
AM Peak Hour	1.03 vehicle trips per 100m^2 GFA per hour
PM Peak Hour	2.40 vehicle trips per 100m^2 GFA per hour

This dataset has also been used to derive the in/out directional splits for specialty shops. Table 6 below presents the adopted in/out splits for the commercial component.

Table 6: Commercial Component – In/Out Splits

Time Period	In Percentage
AM Peak Hour	78% of trips towards the site
PM Peak Hour	49% of trips towards the site

Residential Component

Surveys undertaken in 2017, on behalf of Roads & Maritime Services New South Wales (RMS), recorded the traffic demands associated with 11 car-dependant, high-density residential developments in regional locations. Figure 12 below presents the identified peak hour traffic generation rates at these sites.

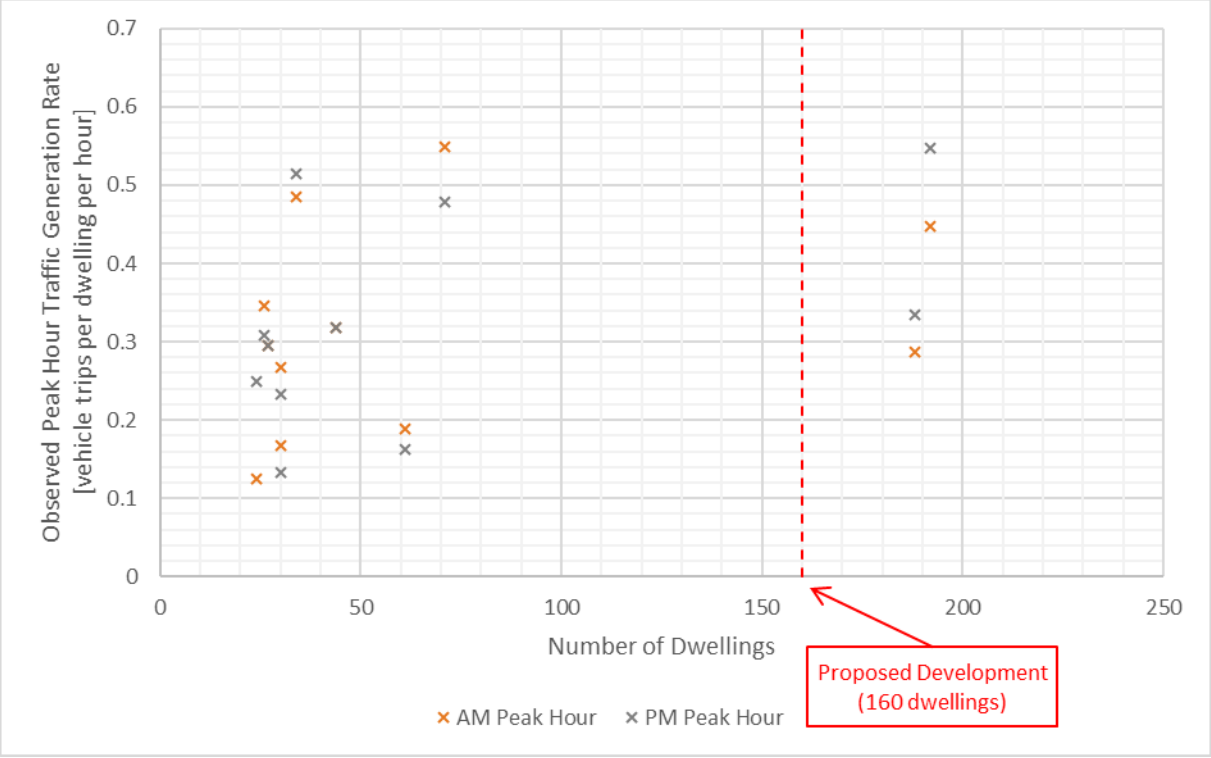


Figure 12: Observed Traffic Generation Rates – RMS Surveys

While no statistically significant relationships were found for the traffic demands associated with developments of a similar scale to that proposed, this dataset did identify peak hour traffic generation rates in the ranges of 0.13-0.55 vehicle trips per dwelling during both the morning and evening peak hours. Noting the substantial active travel and public transport

infrastructure in the vicinity of the site, this analysis assumes the average traffic generation rates of 0.31 vehicle trips per dwelling during the morning peak hour and 0.32 vehicle trips per dwelling per hour during the evening peak hour, for the proposed development. On this basis, the traffic generation rates presented at Table 7 below have been adopted for the residential component of the proposed development.

Table 7: Residential Component – Traffic Generation Rates

Time Period	Traffic Generation Rates
AM Peak Hour	0.31 vehicle trips per dwelling per hour
PM Peak Hour	0.32 vehicle trips per dwelling per hour

As the directional distribution of these vehicle trips was not captured in the 2017 surveys, this analysis adopts directional distributions as observed during surveys of less car-dependant sites in 2012. Table 8 below presents the adopted in/out splits for the residential component.

Table 8: Residential Component – In/Out Splits

Time Period	In Percentage
AM Peak Hour	29% of trips towards the site
PM Peak Hour	65% of trips towards the site

Summary

As such, the proposed development is expected to generate approximately 56 vehicle trips during the morning peak hour and approximately 66 vehicle trips during the evening peak hour, as set out at Table 9 below.

Table 9: Proposed Development – Traffic Demands

Land Use	Size / Number	Total Rate	Total Trips	In Percentage	In Trips	Out Trips
AM Peak Hour						
Commercial	624m^2 GFA	1.03 vte per 100m^2 GFA per hour	6 vte per hour	78%	5 vte per hour	1 vte per hour
Residential	160 dwellings	0.31 vte per dwelling per hour	50 vte per hour	29%	14 vte per hour	35 vte per hour
Total	**-**	**-**	**56 vte per hour**	**-**	**19 vte per hour**	**37 vte per hour**
PM Peak Hour						
Commercial	624m^2 GFA	2.40 vte per 100m^2 GFA per hour	15 vte per hour	49%	7 vte per hour	8 vte per hour
Residential	160 dwellings	0.32 vte per dwelling per hour	51 vte per hour	65%	33 vte per hour	18 vte per hour
Total	**-**	**-**	**66 vte per hour**	**-**	**41 vte per hour**	**26 vte per hour**

Note:
vte = vehicle trip ends, a measure of the number of vehicle trips.

3.1.2 Traffic Distribution

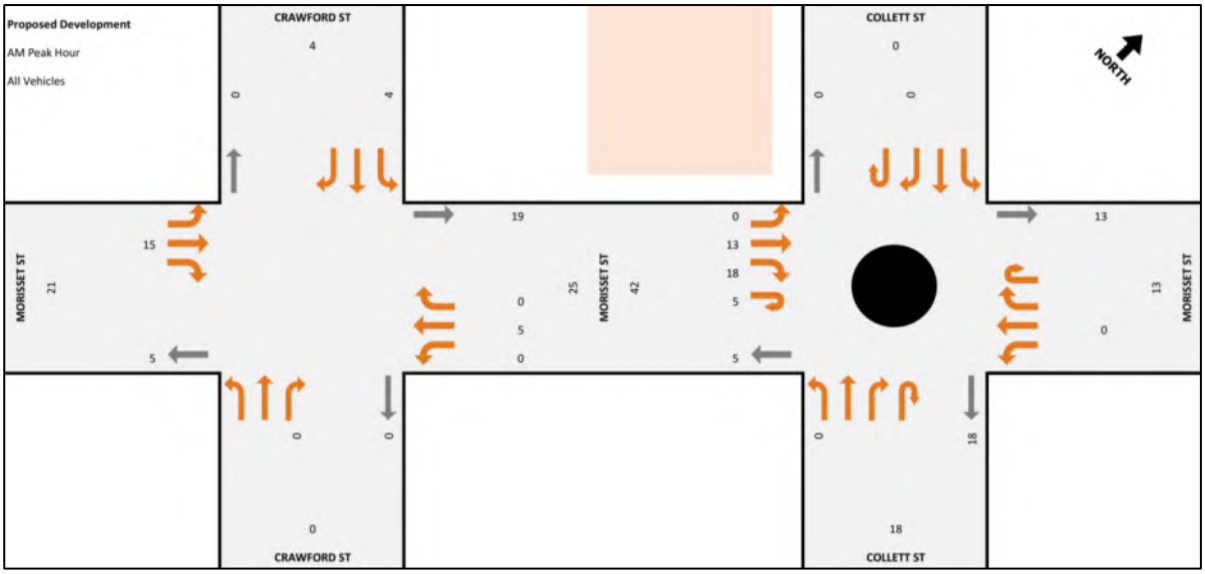
The directional traffic distribution of the proposed development has been adopted based on a review of the journey-to-work data collected at the 2021 Australian Census. Table 10 below presents the adopted directional splits.

Table 10: Traffic Distribution

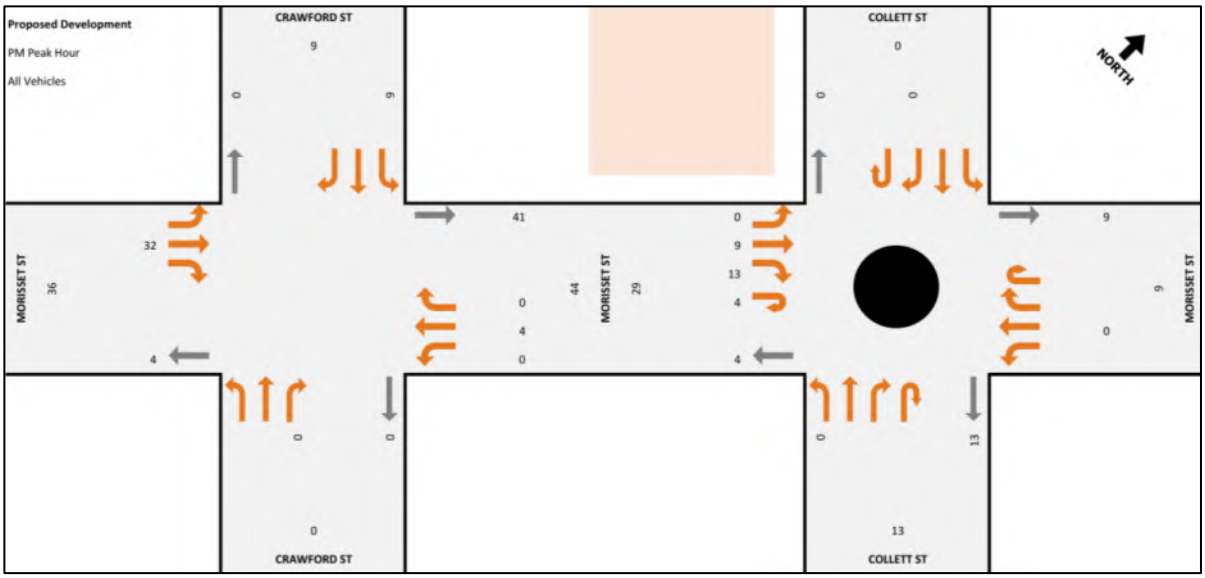
Direction	Commercial		Residential	
	Inbound	Outbound	Inbound	Outbound
SE: Crawford St	-	-	-	-
SE: Collett St	-	47%	-	50%
NE: Morisset St	-	37%	-	36%
NW: Collett St	-	-	-	-
NW: Crawford St	11%	-	23%	-
SW: Morisset St	89%	16%	77%	14%

3.1.3 Summary

Figure 13 below, presents the anticipated development traffic demands at the Collett Street / Morisset Street and Crawford Street / Morisset Street intersections, during the morning and evening peak hours. More detailed breakdowns of these anticipated peak hour development traffic demands are provided at Appendix E.



a) AM Peak Hour



b) PM Peak Hour

Figure 13: Peak Hour Traffic Demands – Proposed Development

3.2 Design Review

The following sections summarise the design review that has been undertaken on development plans prepared by Dezign Team on 18 November 2024.

3.2.1 Design of Parking Modules

Parking Space Dimensions

The 12 car parking spaces located on-site but external to the proposed development are proposed to remain unreserved for use by visitors of the residential and commercial components. As such, the class 3 dimensions (2.6m wide by 5.4m long spaces, perpendicular to a 5.8m wide aisle or 2.6m wide by 5.9m long spaces, located parallel to a 5.8m wide two-way aisle) of these spaces satisfy the requirements of *Australian Standard 2890 Part 1: Off-street car parking* (*AS2890.1*).

The 200 on-site car parking spaces located within the proposed development are proposed to be allocated for use by residents or commercial staff. As such, the typically class 1A dimensions (2.4m wide by 5.4m long spaces, located perpendicular to a 5.8m wide aisle) of these spaces satisfy the requirements of *AS2890.1*. It is noted that one (1) of these parking spaces has dimensions of 2.3m width by 5.4m length and as such is designated as a small car space.

Blind Aisles

As all car parking spaces within the proposed development are proposed to be allocated to residents or commercial staff. As such, turning bays are not required.

Alternately, the length of the blind aisle of unreserved parking spaces in the western corner of the site is limited to the width of six (6) parking spaces. This length does not require the provision of a turning bay under *AS2890.1*.

Gradients of Parking Spaces

From a vehicle access perspective, all parking spaces on the subject site are proposed to be located on a horizontal gradient. Noting that some grades will be implemented at the detailed design stage in order to support drainage of the car parking spaces, these grades are considered to satisfy the relevant requirements of *AS2890.1*.

3.2.2 Design of Circulation Roadways and Ramps

Accessway Widths

The main vehicle entry/exit via Morisset Street is proposed to have a width of 5.5m between kerbs. These dimensions are suitable to accommodate two-way traffic flow in accordance with *AS2890.1*.

The accessway which provides access to the car parking spaces within the ground and first floors of the proposed development are proposed to have widths of 5.5m between kerbs and 6.1m between walls. While these dimensions are suitable to accommodate two-way traffic flows, they are not wide enough to also accommodate a boomgate, swipecard reader or intercom located within a median. Access management via remote control and roller door is considered to be appropriate.

Ramp Grades

All vehicle ramps throughout the proposed development accord with the requirements of *AS2890.1* and *Australian Standard 2890 Part 2: Off-street commercial vehicle facilities* (*AS2890.1*). This includes maximum ramp grades of 25% (1-in-4) for the private access ramp to the carpark on the first floor and 11.3% (1-in-8.9) within the public section of the main accessway. Grade transitions have been designed in order to accommodate the B99 design vehicle accessing the first-floor carpark and the HRV design vehicle travelling along the main accessway.

3.2.3 Access Facilities and Queuing Areas

Pedestrian Sight Triangles

There are no obstructions to visibility proposed to be located within the pedestrian sight triangle (extending 2.0m along the property boundary and 2.5m into the site) on the northeast side of the vehicle accessway at the property boundary.

Driveway Grades

There is sufficient length between the property boundary and the entrance to the internal ground floor carpark to provide a 1:20 gradient for 6.85m from the property boundary. This will satisfy the requirements set out in *AS2890.2* for the HRV design vehicle.

Queuing Areas

The 41 vehicle trips expected to enter the site during a typical weekday evening peak hour, represents the critical arrival rate for the proposed development. Further, assuming remote control access to the resident carpark through a roller door (conservative service rate of 250 vehicles per hour), the 98th percentile queue of vehicles entering the site is expected to be less than two (2) vehicles in length (i.e. up to 12m).

The first access control (to the internal ground floor carpark) is proposed to be located approximately 20m from the property boundary, enough to accommodate three (3) queued vehicles. On this basis, the proposed development is considered to provide sufficient on-site queue capacity to satisfy the requirements of *AS2890.1*.

3.2.4 Additional Requirements for Car Parking Structures

Headroom

The levels of the proposed development which accommodate car parking, each have floor-to-floor heights of at least 2.8m. This allows 0.3m thickness above accessible car parking spaces (and associated shared areas, where 2.5m headroom clearance is required) and 0.6m thickness throughout the remainder of the carpark (where 2.2m headroom clearance is required) to accommodate the floor slab and any suspended services.

4 Parking Assessments

The following sections set out the parking requirements and the proposed parking provisions associated with the development.

These assessments have been undertaken in accordance with the parking requirements as set out in the following documents:

- *Queanbeyan Development Control Plan 2012* (*DCP*),
- *State Environmental Planning Policy (Housing) 2021* (*Housing SEPP*),
- *NSW Planning & Environment's Apartment Design Guide* (*ADG*), and
- *Guide to Traffic Generating Developments: Issue 2.2* (*GtTGD 2002*).

4.1 Overall Car Parking

4.1.1 Overall Car Parking Requirements

Commercial Component

Table 1 of the *DCP* specifies that commercial premises (as well as health services facilities) located within Queanbeyan CBD have a requirement for one (1) car parking space per 60m^2 GFA.

On this basis, the commercial component of the proposed development has a requirement for a minimum of 11 car parking spaces.

Residential Component

Clause 148 of the *Housing SEPP* specifies non-discretionary development standards for residential apartment developments, which, *"if complied with, prevent the consent authority from requiring more onerous standards"*. As such, the following car parking rates are applicable to the residential component of the proposed development irrespective of the rates specified in Council's *DCP*:

- Residents:
  - Minimum 0.6 car parking spaces per dwelling with one (1) bedroom, and
  - Minimum 0.9 car parking spaces per dwelling with two (2) bedrooms.
- Visitors:
  - A minimum of one (1) car parking space for every five (5) dwellings.

On this basis, the residential component of the proposed development has requirements for a minimum of 120 car spaces for residents and a minimum of 32 car spaces for residential visitors under clause 148 of the *Housing SEPP*.

Summary

As set out above and at Table 11 below, the proposed development has a requirement for a minimum of 163 car parking spaces, comprising 11 spaces for the commercial component, 120 spaces for residents and 32 spaces for residential visitors.

4.1.2 Proposed Car Parking Provision

The proposed development includes a total of 212 on-site car parking spaces, comprising 189 car spaces to be allocated to residents, 11 car spaces to be allocated to staff and visitors of

the commercial component and 12 car spaces available for use by the public (i.e. visitors to the residential and commercial components).

It is further noted that each of the 28 pairs of tandem car parking spaces (56 total spaces) are proposed to be allocated to individual dwellings. This allocation will leave a total of 133 single car parking spaces, to be allocated across 132 dwellings.

4.1.3 Summary

The proposed provision of 212 car spaces on the subject site accords with the overall requirement for a minimum of 163 car parking spaces associated with the proposed development. It is noted that the proposed allocation of 189 car parking spaces to residents and 11 spaces to staff of the commercial component satisfy the respective requirements for at least 120 car spaces for residents and 11 spaces for the commercial component. The provision of 12 unallocated car parking spaces on the subject site represents a shortfall of 20 car parking spaces compared to the minimum requirements associated with residential visitors. Given the number of public car parking spaces located in close proximity to the subject site and the dynamic nature of car parking demands, this shortfall is considered to be acceptable.

Table 11 below summarises the overall car parking assessment for the proposed development.

Table 11: Overall Car Parking Assessment

User Group	Size / Number	Overall Car Parking		Proposed Provision	Surplus (+) / Shortfall (-)
		Rate	Requirement		
Commercial Component					
Commercial Staff & Visitors	624m^2 GFA	Min. 1.0 car space per 60m^2 GFA	11 car spaces	11 car spaces	-
Residential Component					
Residents	80 1br dwellings	Min. 0.6 car spaces per 1br dwelling	48 car spaces	189 car spaces	+69 car spaces
	80 2br dwellings	Min. 0.9 car spaces per 2br dwelling	72 car spaces		
Visitors	160 dwellings	Min. 1.0 car space per 5 dwellings	32 car spaces	12 car spaces	-20 car spaces

4.2 Accessible Car Parking

4.2.1 Accessible Car Parking Requirements

Commercial Component

Table 3 of the *Queanbeyan DCP* specifies that commercial premises require accessible car parking at a rate of 1% to 2% of the total number of car parking spaces.

Clause D4D6 in volume 1 of the *NCC 2022* specifies that commercial (class 5 or 6) buildings with fewer than 1,000 car parking spaces require accessible car parking at rates of one (1) accessible car parking space per 50 to 100 car spaces or part thereof.

On this basis, the commercial component of the proposed development has a requirement for one (1) accessible car parking space under both the *Queanbeyan DCP* and the *NCC 2022*.

Residential Component

Table 3 of the *Queanbeyan DCP* specifies that the residential component of the proposed development requires accessible car parking at a rate of one (1) accessible car parking space per accessible dwelling.

Australian Standard 4299: Adaptable Housing (*AS4299*) also requires accessible car parking be provided at a rate of one (1) accessible car parking space per accessible dwelling.

It is noted that the *National Construction Code 2022* (*NCC 2022*) does not specify any accessible car parking requirement associated with class 2 buildings.

On this basis, the 16 adaptable dwellings have a requirement for 16 accessible car parking spaces for residents under both the *Queanbeyan DCP* and *AS4299*.

4.2.2 Accessible Car Parking Provision

The proposed development contains a total of 19 accessible car parking spaces, including 16 adaptable car parking spaces for residents, one (1) accessible car parking space for staff of the commercial tenancies and two (2) unallocated accessible car parking spaces available for use by visitors to the residential and commercial components. This provision satisfies the relevant requirements for accessible car parking, as set out at Table 12 below.

4.3 Service Vehicle Parking

4.3.1 Service Vehicle Parking Requirements

Commercial Component

Table 2 of the *Queanbeyan DCP* specifies that commercial premises up to 20,000m^2 GFA, have a requirement for one (1) service vehicle space per 4,000m^2 GFA (50% of which are suitable for trucks).

On this basis, the commercial component of the proposed development has a requirement for one (1) service vehicle space, which is suitable for trucks.

Residential Component

Table 2 of the *Queanbeyan DCP* specifies that the residential component of the proposed development has a requirement for one (1) service vehicle space per 50 dwellings (including 50% of service vehicle spaces suitable for trucks).

On this basis, the residential component of the proposed development has a requirement for four (4) service vehicle spaces, including two (2) service vehicle spaces for trucks.

Summary

As set out above and at Table 13 below, the proposed development requires a total of five (5) service vehicle parking spaces, including three (3) spaces suitable for trucks, under the *Queanbeyan DCP*.

It is extremely unlikely that regular demands for service vehicle parking associated with the proposed development would be high enough to justify these requirements. A more reasonable provision is considered to be in the order of one (1) dedicated truck space (for waste collection and removalists) and the shared use of the public car parking spaces (for deliveries associated with the commercial component) for a development of this scale.

4.3.2 Service Vehicle Parking Provision

The proposed development contains a single dedicated service vehicle space with dimensions suitable to accommodate a 10m truck. This space is considered to be sufficient to satisfy the once weekly waste collection and anticipated removalist demands (assumed to be approximately once weekly based on residents living on-site for an average duration of three (3) years). It is further noted that the 12 unallocated car parking spaces (including the four (4) contiguous parallel spaces) could be utilised by smaller delivery vehicles serving the commercial component.

4.4 Electric Vehicle Parking

4.4.1 Electric Vehicle Parking Requirements

Commercial Component

Clause D4D6 in volume 1 of the *NCC 2022* specifies that commercial (class 5 or 6) buildings require electric vehicle parking at a rate of 10% of car parking spaces associated with commercial uses.

On this basis, the commercial component of the proposed development has a requirement for one (1) electric vehicle parking space under the *NCC 2022*.

Residential Component

Clause D4D6 in volume 1 of the *NCC 2022* specifies that residential (class 2) buildings require electric vehicle parking at a rate of 100% of car parking spaces associated with residential uses.

On this basis, the residential component of the proposed development has a requirement for 189 electric vehicle parking spaces under the *NCC 2022*.

Summary

As set out above and at Table 13 below, the proposed development requires a total of 190 electric vehicle parking spaces, comprising one (1) space for the commercial component and 189 spaces for residents.

4.4.2 Electric Vehicle Parking Provision

The proposed development plans do not show any specific electric vehicle parking spaces. This is not unusual as *NCC 2022* does not require any infrastructure to be installed adjacent to individual parking spaces, but rather requires that the building as a whole have sufficient electrical and switchboard capacity. On this basis, it is recommended that the proposed development include sufficient electrical capacity to accommodate the demands associated with 190 electric vehicle parking spaces, as set out at Table 14 below.

Table 12: Accessible Car Parking Assessment

User Group	Size / Number	Accessible Car Parking		Proposed Provision	Surplus (+) / Shortfall (-)
		Rate	Requirement		
Commercial Component					
Staff & Visitors	11 car spaces	1.0 car space per 50-100 overall car spaces, or part thereof	1 car space	1 car space	-
Residential Component					
Residents	16 accessible dwellings	1.0 car space per accessible dwelling	16 car spaces	16 car spaces	-
Visitors	12 car spaces	No requirement	-	2 car spaces	2 car spaces

Table 13: Service Vehicle Parking Assessment

User Group	Size / Number	Service Vehicle Parking		Proposed Provision	Surplus (+) / Shortfall (-)
		Rate	Requirement		
Commercial Component					
Staff	624m^2 GFA	1.0 space per 4,000m^2 GFA (incl. 50% of spaces for trucks)	1 space (incl. 1 truck space)	-	-1 space (incl. -1 truck space)
Residential Component					
Residents	160 dwellings	1.0 space per 50 dwellings (incl. 50% of spaces for trucks)	4 spaces (incl. 2 truck spaces)	3 spaces (incl. 1 truck space)	-1 spaces (incl. -1 truck space)

Table 14: Electric Vehicle Parking Assessment

User Group	Size / Number	Accessible Car Parking		Recommended Provision	Surplus (+) / Shortfall (-)
		Rate	Requirement		
Commercial Component					
Staff & Visitors	11 car spaces	10% of car spaces	1 car space	1 car space	-
Residential Component					
Residents	189 car spaces	100% of car spaces	189 car spaces	189 car spaces	-
Visitors	12 car spaces	No requirement[1]	-	-	-

Notes:
[1] Car parking space for residential visitors are proposed to be located outside of the building.

4.5 Bicycle Parking

4.5.1 Bicycle Parking Requirements

The *Queanbeyan DCP* does not include any specific requirements for bicycle parking associated with the proposed development, as set out at Table 15 below.

4.5.2 Proposed Bicycle Parking Provision

The proposed development includes a total of 168 secure bicycle parking spaces, comprising 160 secure storage cages for residents and space to informally, but securely, store one (1) bicycle within each of the eight (8) commercial tenancies. Additionally, the proposed development includes a total of 15 convenient bicycle spaces, suitable for use by visitors to the residential and commercial components.

4.6 End-Of-Trip Facilities

4.6.1 End-Of-Trip Facility Requirement

The *Queanbeyan DCP* does not include any specific requirements for end-of-trip facilities associated with the proposed development.

4.6.2 End-Of-Trip Facility Provision

In order to support commercial staff trips by active travel modes (i.e. walking and cycling) the proposed development includes a single shower and change facility, as set out at Table 16 below.

Table 15: Bicycle Parking Assessment

User Group	Size / Number	Bicycle Parking		Proposed Provision	Surplus (+) / Shortfall (-)
		Rate	Requirement		
Commercial Component					
Staff	624m^2 GFA	No requirement	-	8 secure spaces[1]	8 secure spaces[1]
Visitors		No requirement	-	7 convenient spaces[2]	7 convenient spaces[2]
Residential Component					
Residents	160 dwellings	No requirement	-	160 secure spaces[3]	160 secure spaces[3]
Visitors		No requirement	-	8 convenient spaces[2]	8 convenient spaces[2]

Notes:
[1] Assumes one (1) bicycle can be informally securely stored within each commercial tenancy.
[2] 15 convenient bicycle spaces shared between visitors to the residential and commercial components.
[3] 160 storage cages, each with dimensions suitable to accommodate a bicycle.

Table 16: End-Of-Trip Facility Assessment

User Group	Size / Number	End-of-Trip Facility		Proposed Provision	Surplus (+) / Shortfall (-)
		Rate	Requirement		
Commercial Component					
Staff	-	No requirement	-	1 shower	1 shower
Visitors	-	No requirement	-	-	-
Residential Component					
Residents	-	No requirement	-	-	-
Visitors	-	No requirement	-	-	-

5 Post-Development Conditions

The following sections consider the likely future conditions on the road network as they relate to the proposed development.

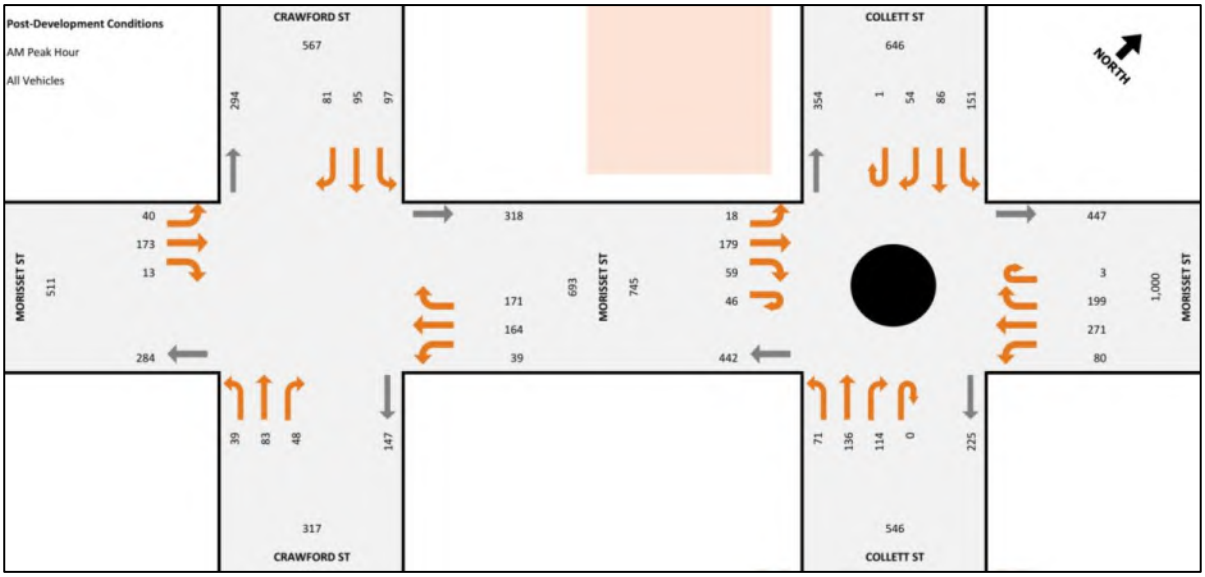
5.1 Future Traffic Conditions

5.1.1 Model Geometry

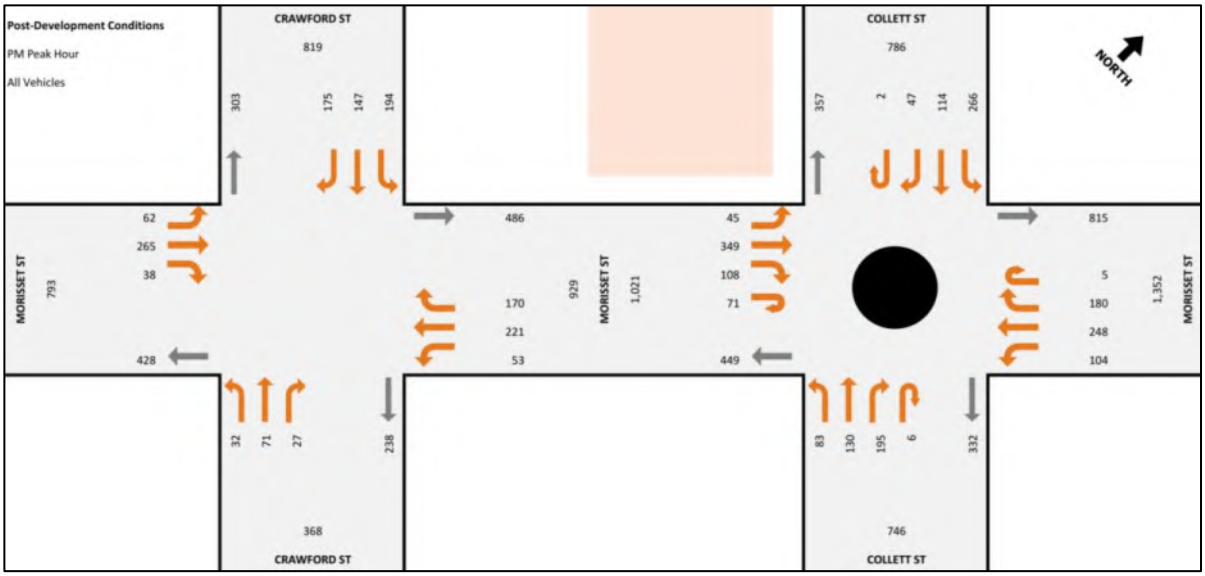
No changes have been made to the geometry of the analysed intersections within the study area, from that adopted for the existing conditions intersection analysis (Figure 5, page 6).

5.1.2 Traffic Volumes

Figure 14 below, presents the anticipated post-development traffic demands at the Collett Street / Morisset Street and Crawford Street / Morisset Street intersections, during the morning and evening peak hours. More detailed breakdowns of these anticipated peak hour traffic demands, under the post-development conditions, are provided at Appendix F.



a) AM Peak Hour



b) PM Peak Hour

Figure 14: Peak Hour Traffic Demands – Post-Development Conditions

5.1.3 Traffic Signal Operation

No changes have been made to the traffic signal phasing at the Crawford Street / Morisset Street intersection (as set out at Figure 7, page 8), in association with the proposed development. However, it is noted that the SIDRA software has been allowed to further optimise the signal phase timings under the Double Diamond Overlap scenario (whilst maintaining the user-given cycle time) as set out at Table 17 below.

Table 17: Traffic Signal Timings – Post-Development Conditions

Peak Hour	Phase Times								Cycle Times
	A	D	D1	D2	E	G	G1	G2	
User-Given Cycle Times (SIDRA Optimised Phase Times)									
AM Peak Hour	28s	12s	27s	-	21s	21s	-	-	**109s**
PM Peak Hour	24s	13s	26s	-	29s	15s	27s	-	**134s**

5.1.4 Intersection Performance

Table 18 below summarises the performance of the road network under the post-development conditions traffic demands. Full details of the intersection performance analysis, under existing conditions, are provided at Appendix G.

Table 18: Intersection Performance Summary – Post-Development Conditions

Approach	AM Peak Hour			PM Peak Hour		
	DOS	Delay (LOS)	Queue	DOS	Delay (LOS)	Queue
Collett Street / Morisset Street						
SE: Collett St	0.41	8s (A)	15m	0.53	9s (A)	24m
NE: Morisset St	0.23	6s (A)	11m	0.24	6s (A)	12m
NW: Collett St	0.36	6s (A)	15m	0.62	10s (A)	36m
SW: Morisset St	0.18	7s (A)	7m	0.35	8s (A)	15m
Total	**0.41**	**7s (A)**	**-**	**0.62**	**8s (A)**	**-**
Crawford Street / Morisset Street (Leading Right-Turn Signal Phasing)						
SE: Collett St	0.35	45s (D)	41m	0.31	53s (D)	43m
NE: Morisset St	1.15	105s (F)	163m	1.19	110s (F)	186m
NW: Collett St	0.46	42s (C)	33m	0.98	65s (E)	110m
SW: Morisset St	0.12	23s (B)	22m	0.24	29s (C)	41m
Total	**1.15**	**61s (E)**	**-**	**1.19**	**69s (E)**	**-**
Crawford Street / Morisset Street (Double Diamond Overlap Signal Phasing)						
SE: Collett St	0.34	44s (D)	41m	0.43	61s (E)	46m
NE: Morisset St	0.35	29s (C)	58m	0.44	38s (C)	79m
NW: Collett St	0.34	35s (C)	33m	0.45	32s (C)	69m
SW: Morisset St	0.35	45s (D)	33m	0.44	51s (D)	61m
Total	**0.35**	**36s (C)**	**-**	**0.45**	**41s (C)**	**-**

The intersection performance analysis indicates that the anticipated post-development traffic demands are expected to remain well within the practical capacity of the Collett Street / Morisset Street roundabout. As a result, this roundabout is expected to continue to operate with minimal delays and queue lengths.

The analysis indicates that when operating under the user-given (SCATS) phase times, the post-development traffic demands for the right-turn from the northeast approach (Morisset Street) to the Crawford Street / Morisset Street intersection, will continue to exceed the theoretical capacity. As under the existing conditions traffic demands, the performance of the other approaches to the Crawford Street / Morisset Street intersection suggests that the intersection itself has sufficient capacity to accommodate the anticipated traffic demands and that it is the signal timings which inefficiently allocate this capacity.

This is again supported by the performance of the intersection under the double diamond overlap signal phasing (with SIDRA optimised phase times). Under these conditions, the analysis indicates that the post-development traffic demands are comfortably below the practical capacity of the intersection, resulting in minimal delays and queue lengths.

Ultimately, the traffic demands associated with the proposed development are not expected to significantly impact the performance of the road network.

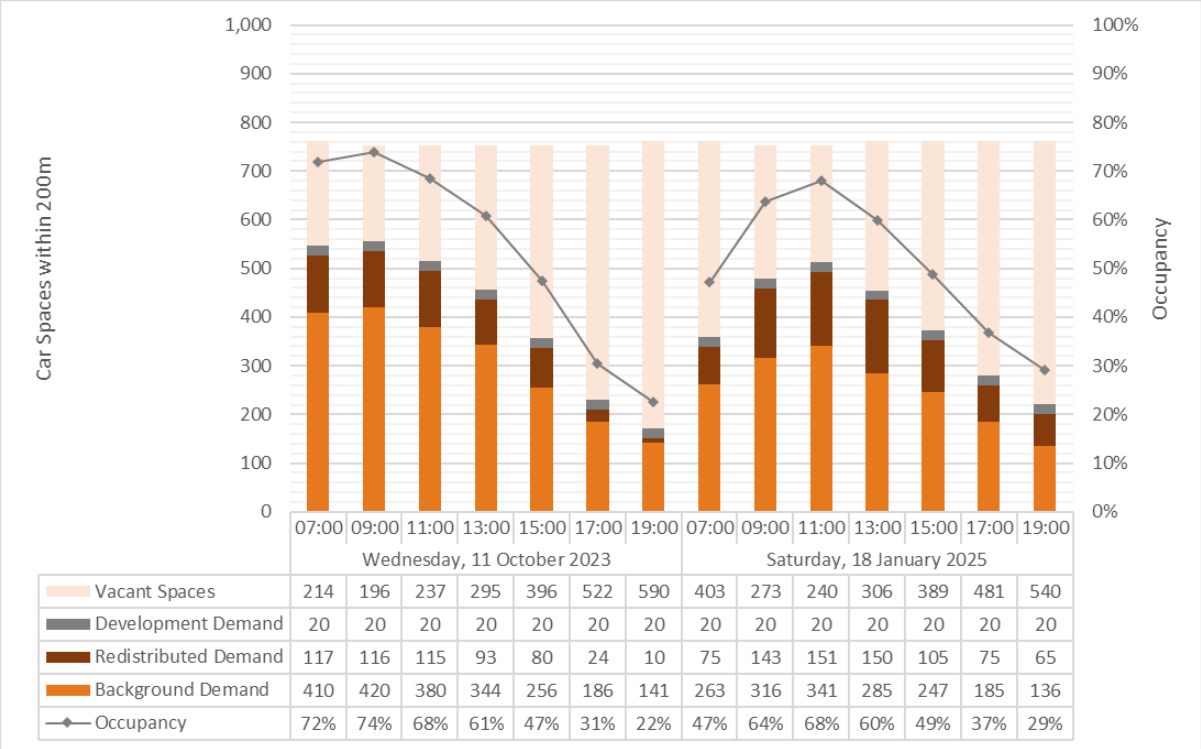
5.2 Future Parking Conditions

As set out in section 4.1 (page 24), the proposed on-site car parking provision satisfies the relative statutory car parking requirements associated with residents and the commercial component. On this basis, it is only the shortfall of 20 on-site visitor car parking spaces that are expected to impact the car parking conditions in the vicinity of the site.

This car parking demand analysis conservatively assumes that residential visitors to the proposed development generate an overflow of demands for 20 car parking spaces, throughout the day.

Furthermore, this analysis conservatively assumes that the car parking demands observed on the subject site under the existing conditions respond statically and are redistributed in their entirety, within the supply of public car parking within approximately 200m of the site (excluding the Woolworths carpark).

Even under this worst-case scenario, the analysis indicates that there is sufficient public car parking within approximately 200m of the subject site to accommodate the redistribution and overflow car parking demands associated with the proposed development, as set out at Figure 15 below.



Vacant Spaces	214	196	237	295	396	522	590	403	273	240	306	389	481	540
Development Demand	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Redistributed Demand	117	116	115	93	80	24	10	75	143	151	150	105	75	65
Background Demand	410	420	380	344	256	186	141	263	316	341	285	247	185	136
Occupancy	72%	74%	68%	61%	47%	31%	22%	47%	64%	68%	60%	49%	37%	29%

Figure 15: Post-Development Car Parking Conditions

5.2.1 Riverside Plaza

Existing Land Uses

As aforementioned (section 2.4.2, page 9), the existing land uses within Riverside Plaza are assumed to have generated demands for up to 428 car parking spaces at 9am during the Wednesday surveys and up to 347 car parking spaces at 11am during the Saturday surveys. After the closure of the Riverside Plaza North carpark to accommodate the proposed development, such car parking demands could be accommodated solely within the Riverside Plaza South carpark (up to 98% and 80% occupancy, respectively).

Alternate Land Uses

Under the alternate land use scenario, Riverside Plaza would be expected to generate car parking demands for up to 445 car parking spaces on both weekdays and Saturdays. After the closure of the Riverside Plaza North carpark to accommodate the proposed development, such car parking demands would represent a shortfall of up to nine (9) car parking spaces from the Riverside Plaza South carpark. These demands would be expected to overflow from the Riverside Plaza South carpark and be accommodated within the existing supply of public (on-street and off-street) car parking within close proximity of Riverside Plaza.

6 Conclusions

Quantum Traffic have been engaged by Lockbridge to undertake a TIA in relation to a proposed mixed-use development at 50 Morisset Street, Queanbeyan. As part of this assessment, it has been concluded that:

a) The subject site is located within Queanbeyan CBD, is zoned as B3: Commercial Core under the *Queanbeyan LEP* and currently accommodates a surface carpark (comprising approximately 198 car spaces),

b) Under existing conditions, vehicle access to the subject site is via:
   - Collett Street (all movements) in the north corner of the site,
   - Morisset Street (left-in, left-out only) in the south corner of the site, and
   - Woolworths Carpark (all movements) in the west corner of the site.

c) There is an extensive pedestrian path network and limited bicycle infrastructure in the vicinity of the subject site,

d) The subject site is located adjacent to the Queanbeyan (Bus) Interchange, which is served by nine (9) public bus routes,

e) Under existing conditions, intersection analysis found that the existing traffic demands are well within the capacity of the Collett Street / Morisset Street roundabout and the Crawford Street / Morisset Street signalised intersection during both peak hours, and subject to the efficient allocation of green time at the Crawford Street / Morisset Street intersection,

f) Car parking surveys identified that the existing supply of public car parking spaces within approximately 200m walking distance of the site (excluding the Woolworths carpark at Council's request) significantly exceed the existing car parking demands over the course of both a typical weekday and a Saturday,

g) The proposal is to develop the site to accommodate a 10-storey mixed-use development comprising:
   - 624m^2 GFA of commercial space (assumed to be a combination of business premises and health services facilities), across eight (8) tenancies,
   - 160 apartments, comprising:
     - 80 apartments with one (1) bedroom, and
     - 80 apartments with two (2) bedrooms.
   - 212 on-site car parking spaces.

h) Vehicle access is proposed to remain via Morisset Street (left-in, left-out only) in the south corner of the site. The existing vehicle accesses via Collett Street and the Woolworths Carpark will be closed as part of the proposed development,

i) The proposed development is expected to generate traffic demands in the order of 56-66 vehicle trips during the morning and evening peak hours on a typical weekday,

j) The design of the on-site parking and vehicle access arrangements have been reviewed against the requirements of the relevant standards. The design review found that the proposed development accords with the relevant design requirements,

k) Parking assessments have been undertaken in accordance with the relevant state and local government requirements. These assessments found that:

- The proposed development, when considered as a whole, satisfies the requirements for overall car parking. However, when each user group is considered independently, the proposed development represents a shortfall of 20 car parking spaces associated with residential visitors,
- The proposed development satisfies the requirements for accessible car parking,
- The proposed development represents a technical shortfall of two (2) truck spaces associated with service vehicles. It is noted that the requirements for service vehicle parking are considered to be excessive and the proposed on-site service vehicle provision is expected to be sufficient to accommodate the typical regular demands, and
- It is recommended that the proposed development include sufficient electrical and switchboard capacity to accommodate the demands associated with 190 electric vehicle parking spaces.

l) Intersection analysis found that the proposed development is not expected to significantly impact the performance of the analysed intersections, the post-development traffic demands at which are expected to remain well within their practical capacities, subject to the efficient allocation of green time at the Crawford Street / Morisset Street intersection, and

m) There is sufficient public car parking within 200m walking distance of the site (excluding the Woolworths carpark at Council's request) to accommodate even conservatively high estimates of:
   - Car parking demands redistributed from the existing surface carpark on the subject site, and
   - The overflow of car parking demands from the subject site associated with residential visitors to the proposed development.

On this basis, there are no traffic engineering reasons why the proposed development should not be approved, subject to appropriate conditions.

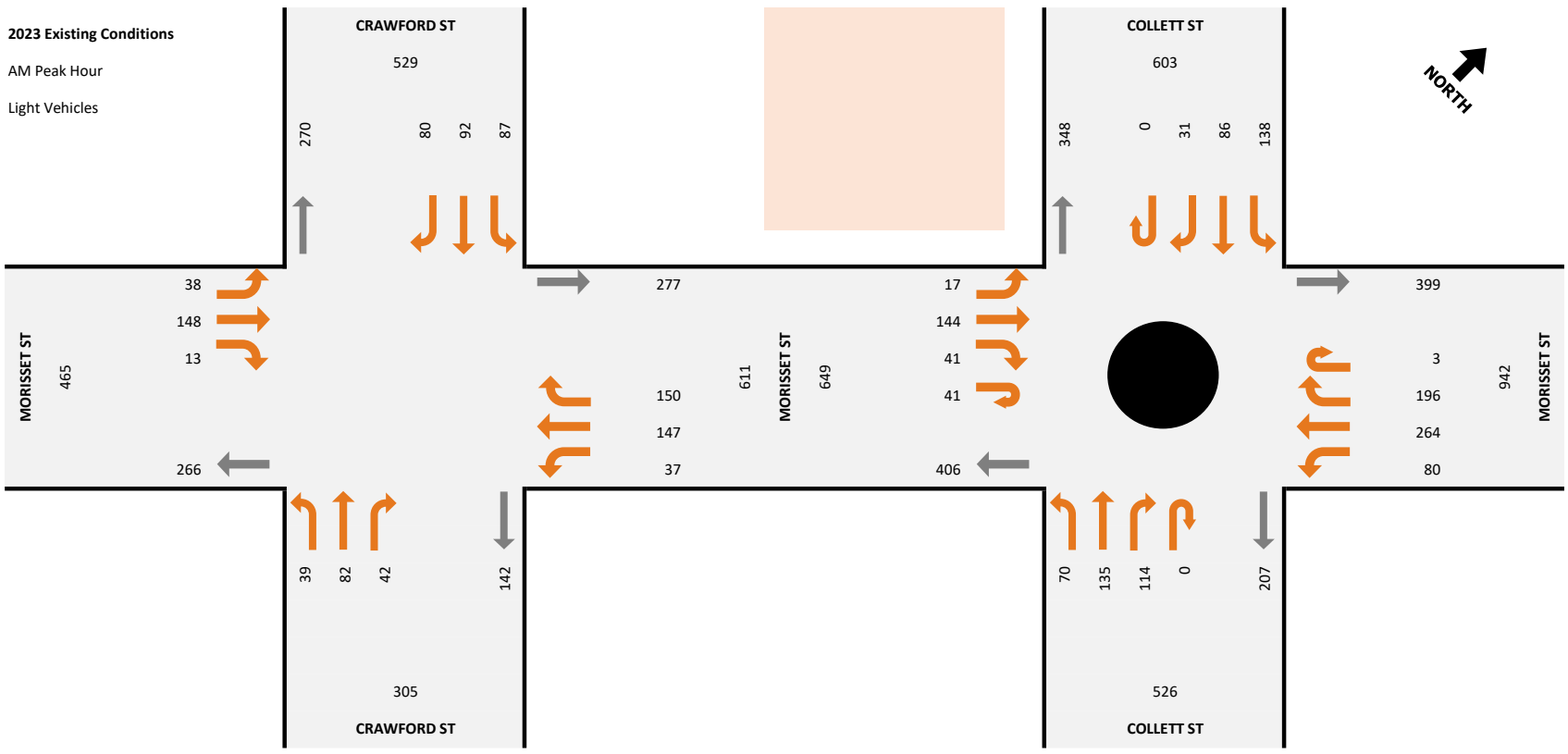
Appendix A:

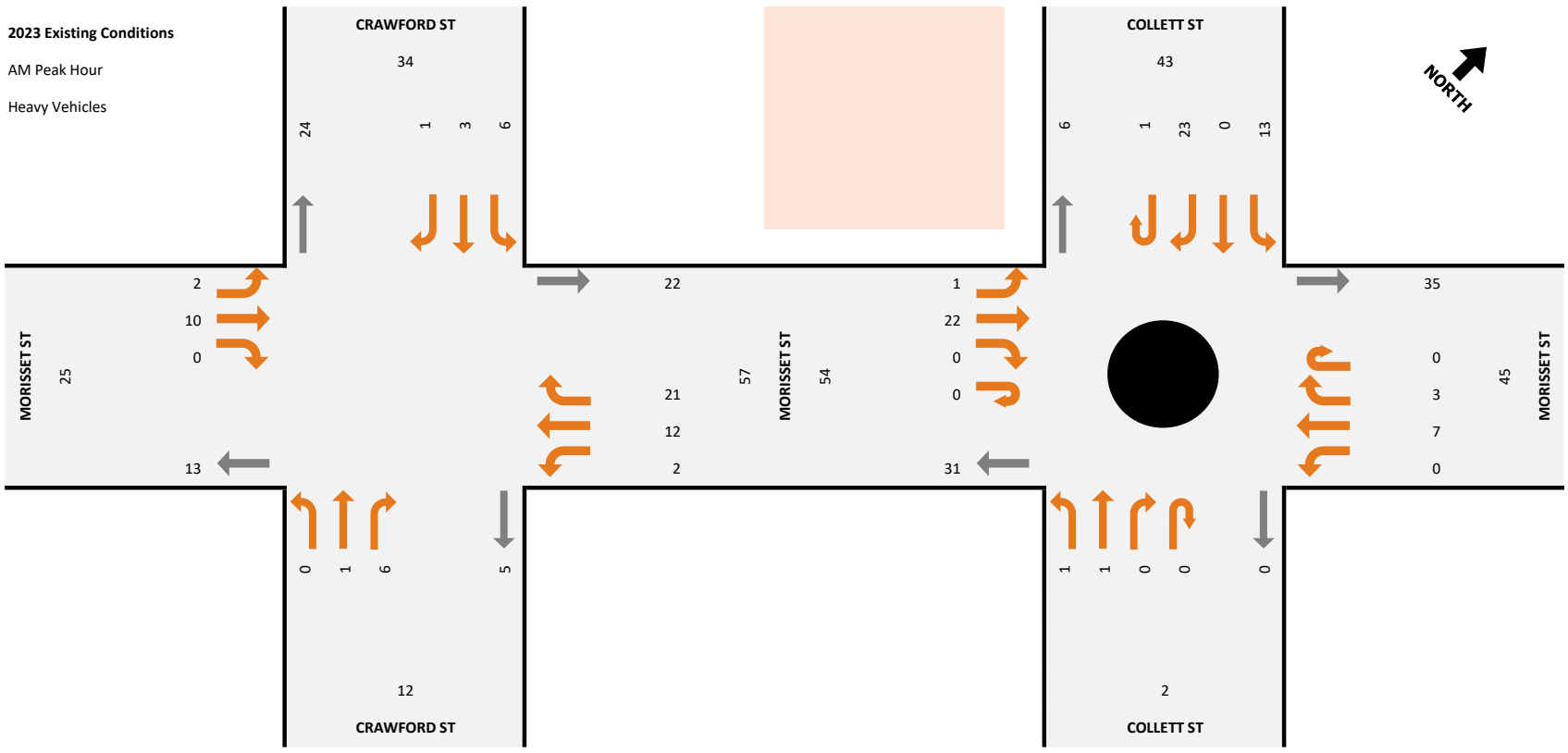
Peak Hour Traffic Volumes – Existing Conditions

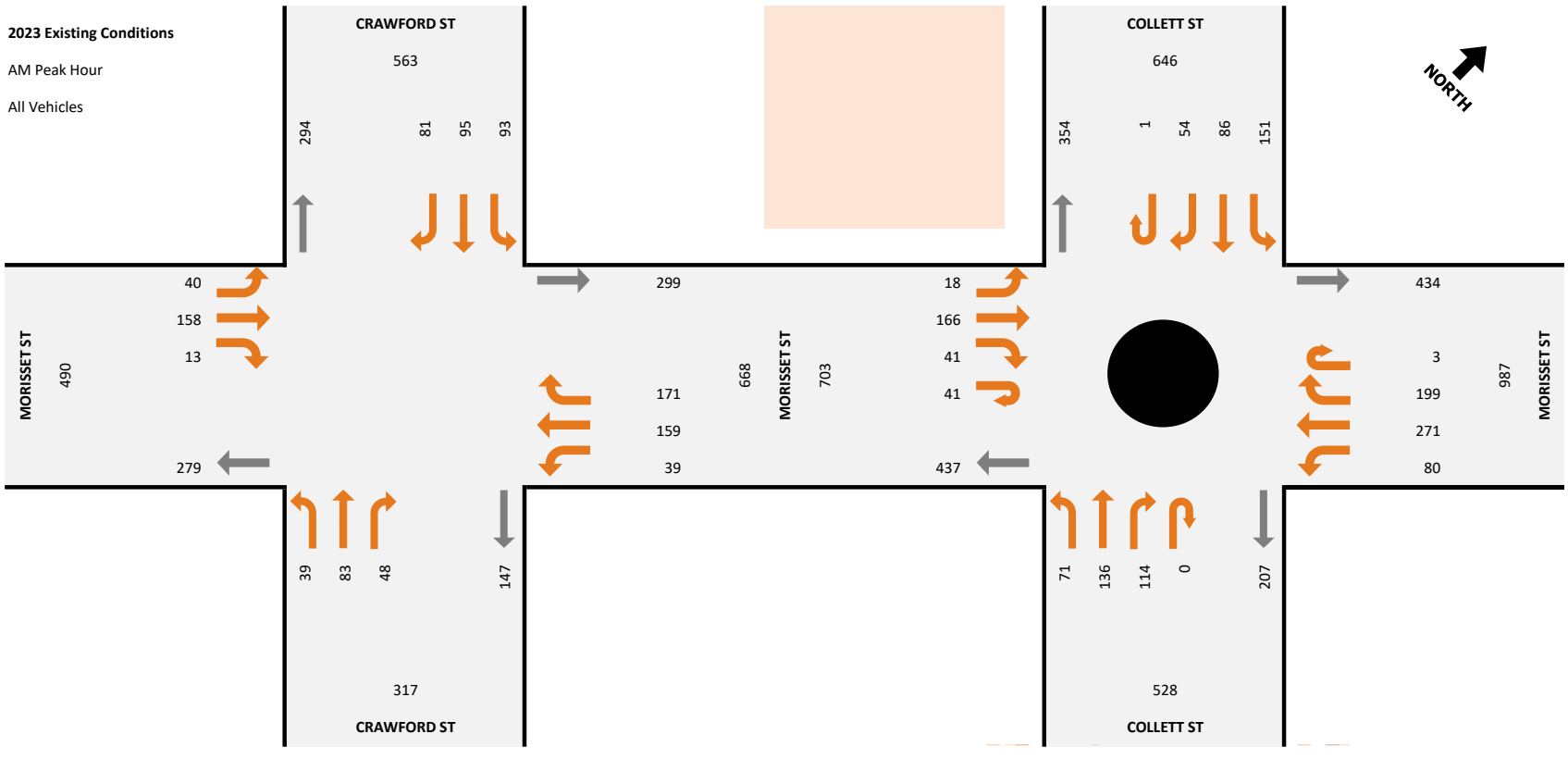
22-0106: 50 Morisset Street, Queanbeyan

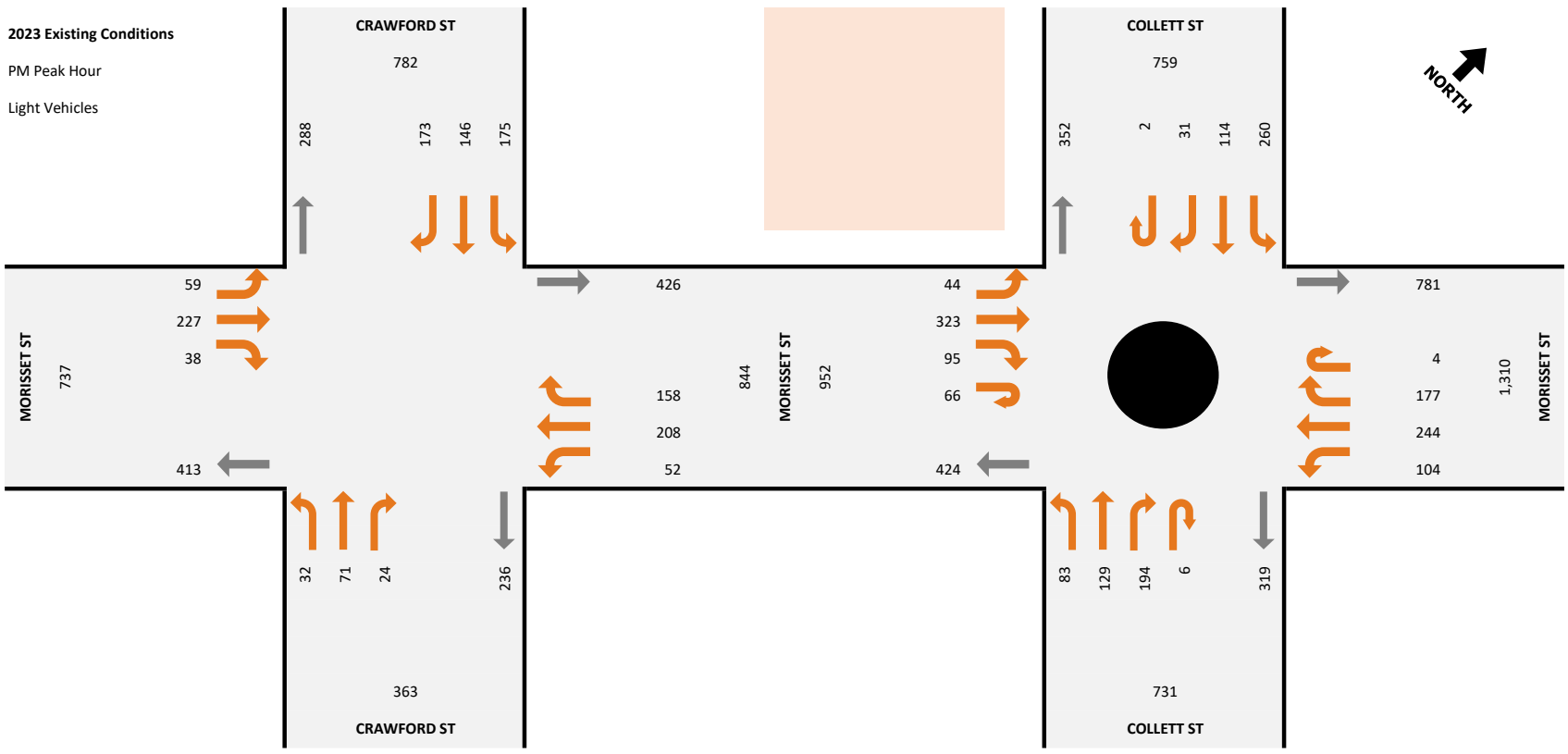
Peak Hour Traffic Volumes

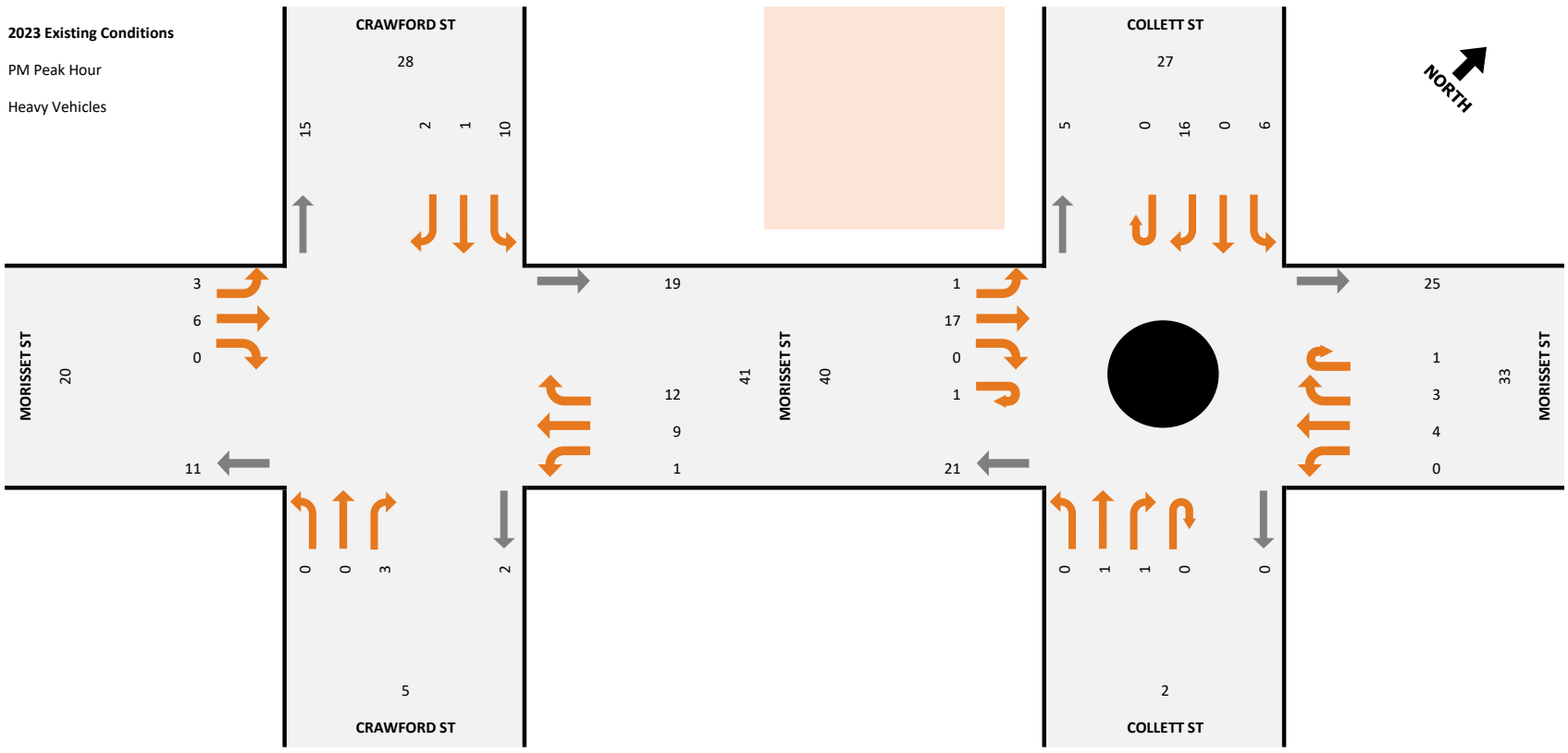
QuantumTraffic

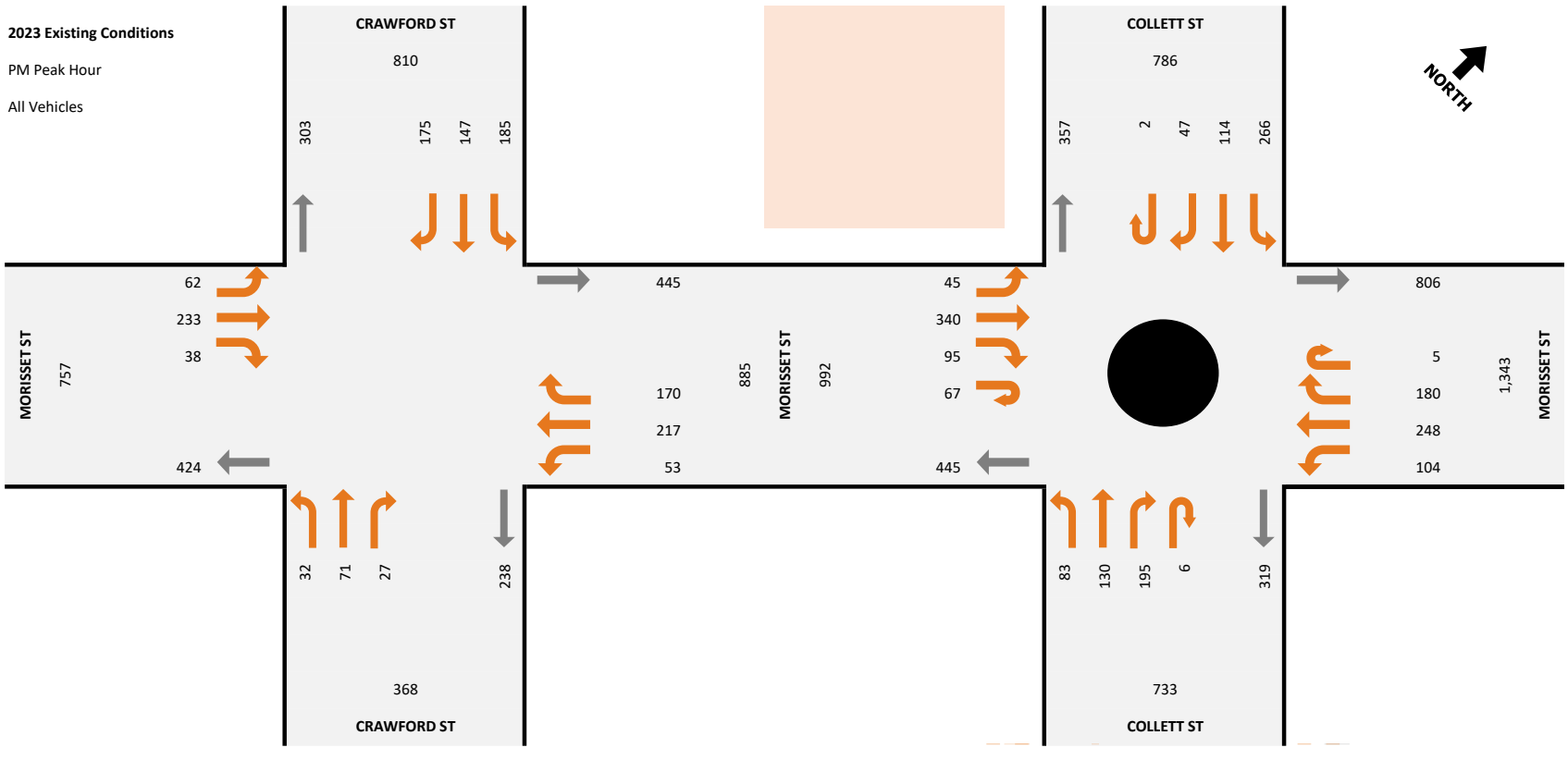







2023 Existing Conditions
PM Peak Hour
Light Vehicles
CRAWFORD ST
782
288
173
146
175
COLLETT ST
759
352
2
31
114
260
NORTH
MORISSET ST
737
59
227
38
413
426
158
208
52
844
MORISSET ST
952
44
323
95
66
424
781
4
177
244
104
1,310
MORISSET ST
32
71
24
236
363
CRAWFORD ST
83
129
194
6
319
731
COLLETT ST


2023 Existing Conditions
PM Peak Hour
Heavy Vehicles
CRAWFORD ST
28
15
2
1
10
COLLETT ST
27
5
0
16
0
6
NORTH
MORISSET ST
20
3
6
0
11
19
12
9
1
41
MORISSET ST
40
1
17
0
1
21
25
1
3
4
0
33
MORISSET ST
0
0
3
2
5
CRAWFORD ST
0
1
1
0
0
2
COLLETT ST


2023 Existing Conditions
PM Peak Hour
All Vehicles
CRAWFORD ST
810
303
175
147
185
COLLETT ST
786
357
2
47
114
266
NORTH
MORISSET ST
757
62
233
38
424
445
170
217
53
885
MORISSET ST
992
45
340
95
67
445
806
5
180
248
104
1,343
MORISSET ST
32
71
27
238
368
CRAWFORD ST
83
130
195
6
319
733
COLLETT ST

Appendix B:

Intersection Performance Summary – Existing Conditions

USER REPORT FOR SITE

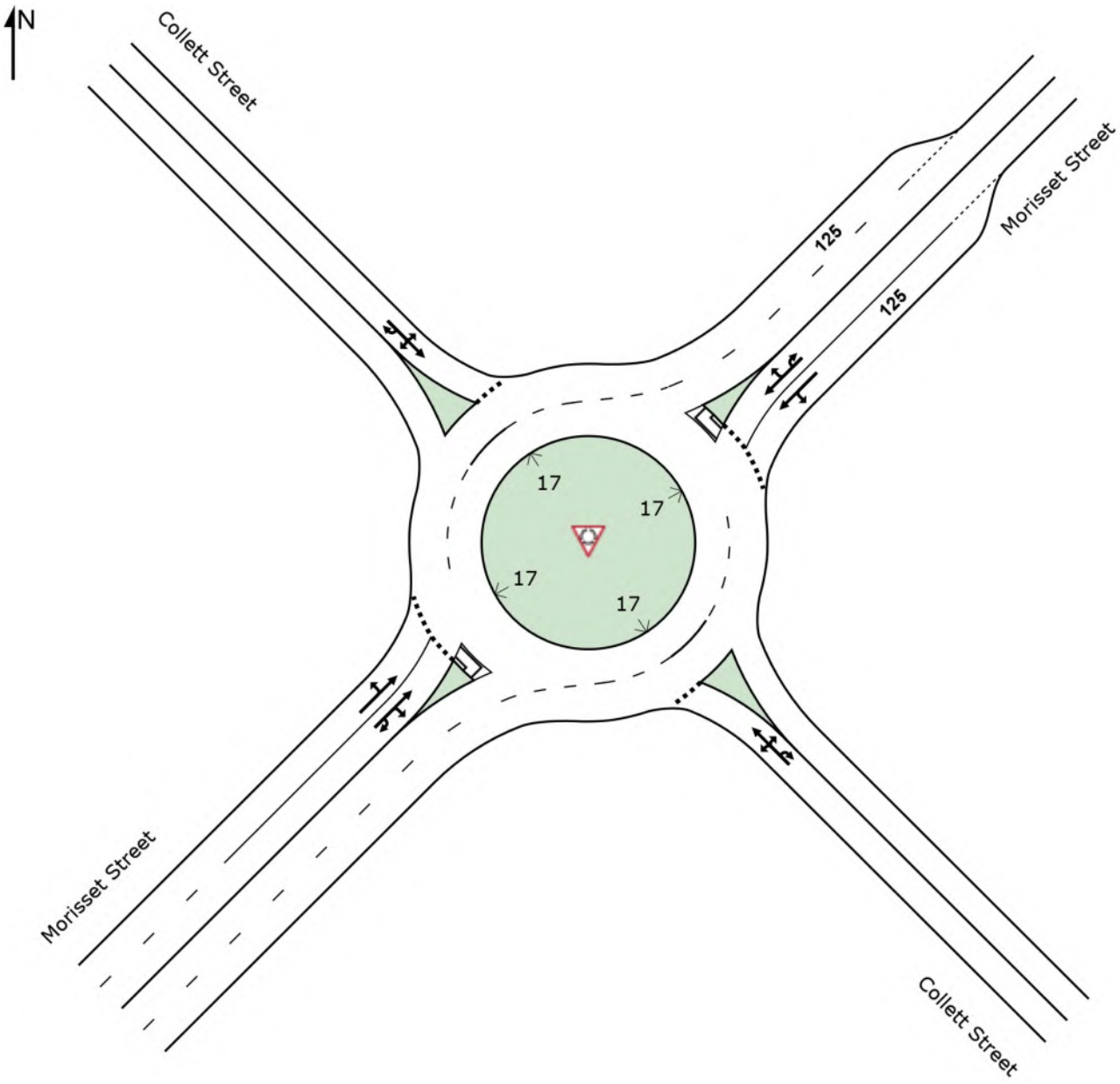
Project: 22-0106_20231107

Template: Default Site User Report

Site: [ExCond AM: Collett-Morisset]

Collett Street / Morisset Street
Existing Unsignalised Roundabout
Site Category: 2023 Existing Conditions - AM Peak Hour
Roundabout

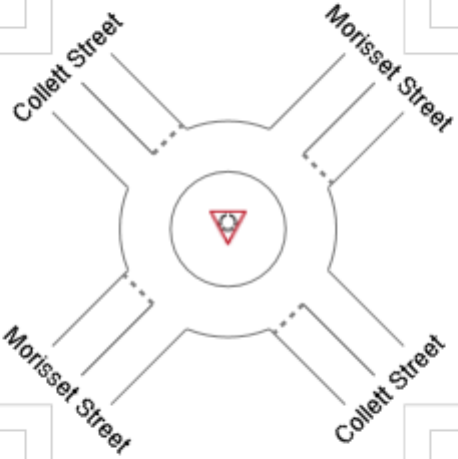
Site Layout

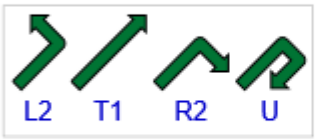


OD Demand Flows

	U	R2	T1	L2
Tot	1	57	91	159
LV	0	33	91	145
HV	1	24	0	14

	U	R2	T1	L2
Tot	3	209	285	84
LV	3	206	278	84
HV	0	3	7	0





	L2	T1	R2	U
Tot	19	175	43	43
LV	18	152	43	43
HV	1	23	0	0

	L2	T1	R2	U
Tot	75	143	120	0
LV	74	142	120	0
HV	1	1	0	0

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Collett Street	338	336	2
NE: Morisset Street	582	572	11
NW: Collett Street	307	269	39
SW: Morisset Street	280	256	24
Total	1508	1432	76

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Collett Street												
1	L2	75	1.4	0.410	6.1	LOS A	2.1	14.9	0.63	0.79	0.66	45.3
2	T1	143	0.7	0.410	6.1	LOS A	2.1	14.9	0.63	0.79	0.66	46.3
3	R2	120	0.0	0.410	10.3	LOS A	2.1	14.9	0.63	0.79	0.66	47.1
3u	U	0	0.0	0.410	12.1	LOS A	2.1	14.9	0.63	0.79	0.66	48.2
Approach		338	0.6	0.410	7.6	LOS A	2.1	14.9	0.63	0.79	0.66	46.4
NorthEast: Morisset Street												
4	L2	84	0.0	0.228	4.4	LOS A	1.4	10.3	0.44	0.47	0.44	47.2
5	T1	285	2.6	0.228	4.1	LOS A	1.4	10.3	0.44	0.50	0.44	46.2
6	R2	209	1.5	0.228	8.5	LOS A	1.4	10.0	0.46	0.62	0.46	44.6
6u	U	3	0.0	0.228	10.3	LOS A	1.4	10.0	0.46	0.62	0.46	46.9
Approach		582	1.8	0.228	5.8	LOS A	1.4	10.3	0.45	0.54	0.45	45.9
NorthWest: Collett Street												
7	L2	159	8.6	0.351	5.2	LOS A	1.8	14.1	0.54	0.65	0.54	44.7
8	T1	91	0.0	0.351	5.0	LOS A	1.8	14.1	0.54	0.65	0.54	47.3
9	R2	57	42.6	0.351	10.4	LOS A	1.8	14.1	0.54	0.65	0.54	42.9
9u	U	1	90.9	0.351	13.7	LOS A	1.8	14.1	0.54	0.65	0.54	34.5
Approach		307	12.7	0.351	6.1	LOS A	1.8	14.1	0.54	0.65	0.54	45.5
SouthWest: Morisset Street												
10	L2	19	5.6	0.120	6.0	LOS A	0.6	4.3	0.47	0.55	0.47	41.8
11	T1	175	13.3	0.155	5.6	LOS A	0.8	5.9	0.47	0.59	0.47	45.4
12	R2	43	0.0	0.155	9.2	LOS A	0.8	5.9	0.46	0.63	0.46	46.3
12u	U	43	0.0	0.155	11.0	LOS A	0.8	5.9	0.46	0.63	0.46	43.5
Approach		280	8.6	0.155	7.0	LOS A	0.8	5.9	0.46	0.60	0.46	45.3
All Vehicles		1508	5.0	0.410	6.5	LOS A	2.1	14.9	0.51	0.63	0.52	45.9

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.
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.

Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Collett Street													
Lane 1[d]	338	0.6	824	0.410	100	7.6	LOS A	2.1	14.9	Full	825	0.0	0.0
Approach	338	0.6		0.410		7.6	LOS A	2.1	14.9				
NorthEast: Morisset Street													
Lane 1[d]	313	1.9	1371	0.228	100	4.2	LOS A	1.4	10.3	Short	125	0.0	NA
Lane 2	269	1.7	1180	0.228	100	7.7	LOS A	1.4	10.0	Full	500	0.0	0.0
Approach	582	1.8		0.228		5.8	LOS A	1.4	10.3				
NorthWest: Collett Street													
Lane 1[d]	307	12.7	876	0.351	100	6.1	LOS A	1.8	14.1	Full	205	0.0	0.0
Approach	307	12.7		0.351		6.1	LOS A	1.8	14.1				
SouthWest: Morisset Street													
Lane 1	104	11.9	867	0.120	77[6]	5.9	LOS A	0.6	4.3	Full	200	0.0	0.0
Lane 2[d]	176	6.8	1136	0.155	100	7.6	LOS A	0.8	5.9	Full	200	0.0	0.0
Approach	280	8.6		0.155		7.0	LOS A	0.8	5.9				
Intersection	1508	5.0		0.410		6.5	LOS A	2.1	14.9				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

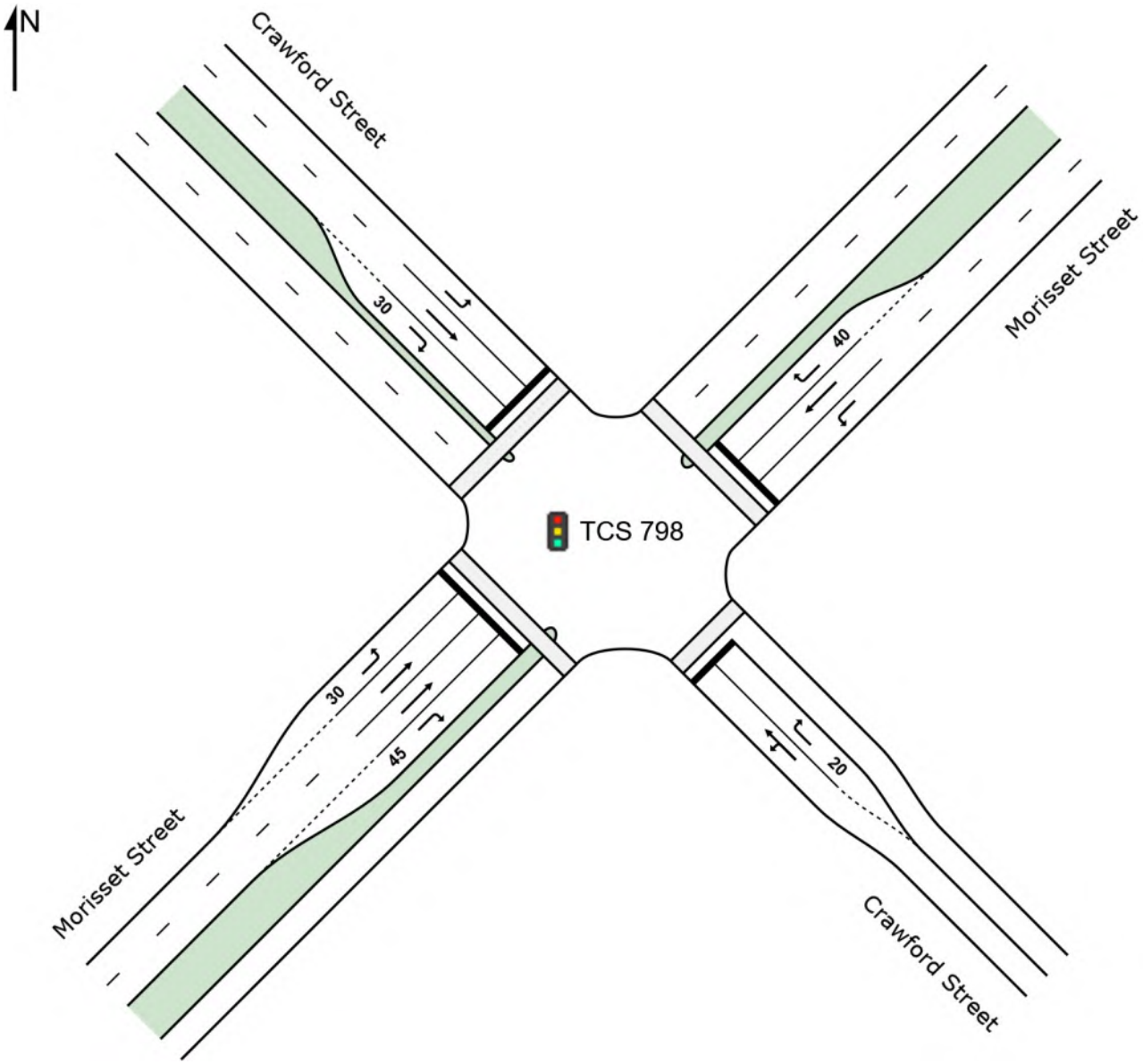
6 Lane under-utilisation due to downstream effects
d Dominant lane on roundabout approach

Site: TCS 798 [ExCond AM: Crawford-Morisset - LRT]

Crawford Street / Morisset Street
Existing Signalised Cross-Intersection
Site Category: 2023 Existing Conditions - AM Peak Hour
Signals - Fixed Time Isolated Cycle Time = 109 seconds (Site User-Given Phase Times)

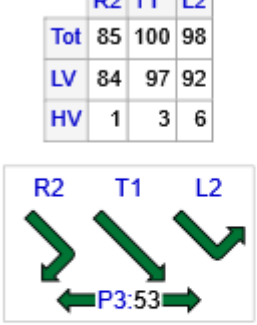
Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: SCATS_AM-LRT
Reference Phase: Phase A
Input Phase Sequence: A, D, E, G
Output Phase Sequence: A, D, E, G

Site Layout

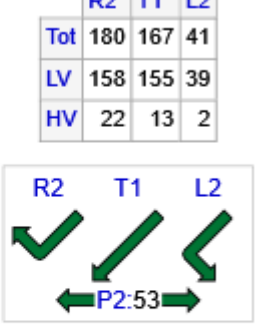


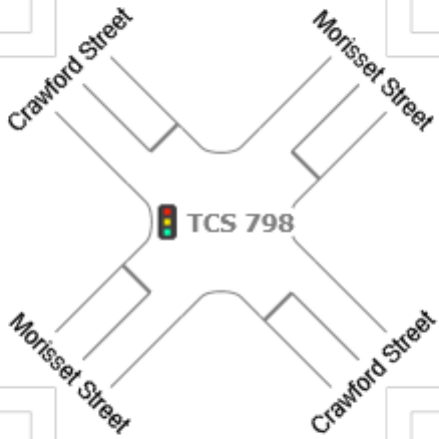
OD Demand Flows

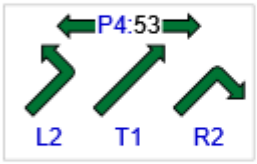
	R2	T1	L2
Tot	85	100	98
LV	84	97	92
HV	1	3	6



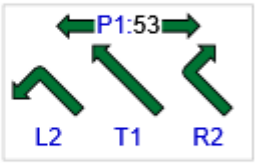
	R2	T1	L2
Tot	180	167	41
LV	158	155	39
HV	22	13	2







	L2	T1	R2
Tot	42	166	14
LV	40	156	14
HV	2	11	0



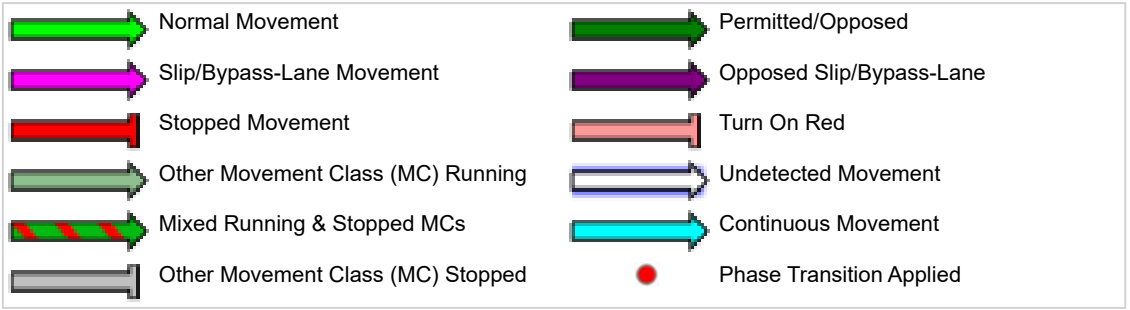
	L2	T1	R2
Tot	41	87	51
LV	41	86	44
HV	0	1	6

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Crawford Street	179	172	7
NE: Morisset Street	388	352	37
NW: Crawford Street	283	273	11
SW: Morisset Street	222	209	13
Total	1073	1005	67

Input Phase Sequence

Movement Class: All Movement Classes

REF: Reference Phase
VAR: Variable Phase



Phase Timing Summary

Phase	A	D	E	G
Phase Change Time (sec)	0	27	43	92
Green Time (sec)	22	10	44	11
Phase Time (sec)	28	15	50	16
Phase Split	26%	14%	46%	15%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Crawford Street												
1	L2	41	0.0	0.347	44.1	LOS D	5.8	41.2	0.89	0.73	0.89	21.0
2	T1	87	1.2	0.347	39.6	LOS C	5.8	41.2	0.89	0.73	0.89	39.8
3	R2	51	12.5	0.294	55.7	LOS D	2.6	20.1	0.96	0.74	0.96	17.3
Approach		179	4.1	0.347	45.2	LOS D	5.8	41.2	0.91	0.74	0.91	33.6
NorthEast: Morisset Street												
4	L2	41	5.1	0.041	16.0	LOS B	1.0	7.0	0.47	0.64	0.47	32.0
5	T1	167	7.5	0.223	22.7	LOS B	5.8	43.1	0.69	0.58	0.69	28.6
6	R2	180	12.3	1.149	203.6	LOS F	21.1	162.9	1.00	1.59	2.56	21.5
Approach		388	9.5	1.149	105.8	LOS F	21.1	162.9	0.81	1.05	1.54	22.6
NorthWest: Crawford Street												
7	L2	98	6.5	0.158	30.8	LOS C	3.6	26.3	0.73	0.73	0.73	41.7
8	T1	100	3.2	0.259	39.8	LOS C	4.5	32.5	0.88	0.70	0.88	40.0
9	R2	85	1.2	0.459	56.5	LOS D	4.5	31.6	0.99	0.77	0.99	36.9
Approach		283	3.7	0.459	41.7	LOS C	4.5	32.5	0.86	0.73	0.86	39.6
SouthWest: Morisset Street												
10	L2	42	5.0	0.042	16.0	LOS B	1.0	7.2	0.47	0.64	0.47	45.2
11	T1	166	6.3	0.110	21.5	LOS B	2.7	20.1	0.66	0.52	0.66	29.2
12	R2	14	0.0	0.080	54.7	LOS D	0.7	4.8	0.94	0.68	0.94	17.4
Approach		222	5.7	0.110	22.5	LOS B	2.7	20.1	0.64	0.55	0.64	35.3
All Vehicles		1073	6.3	1.149	61.5	LOS E	21.1	162.9	0.81	0.81	1.07	30.9

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.

Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Crawford Street													
Lane 1	128	0.8	370[1]	0.347	100	41.0	LOS C	5.8	41.2	Full	200	0.0	0.0
Lane 2	51	12.5	172	0.294	100	55.7	LOS D	2.6	20.1	Short	20	0.0	NA
Approach	179	4.1		0.347		45.2	LOS D	5.8	41.2				
NorthEast: Morisset Street													
Lane 1	41	5.1	1003	0.041	100	16.0	LOS B	1.0	7.0	Full	200	0.0	0.0
Lane 2	167	7.5	750	0.223	100	22.7	LOS B	5.8	43.1	Full	200	0.0	0.0
Lane 3	180	12.3	157	1.149	100	203.6	LOS F	21.1	162.9	Short	40	0.0	NA
Approach	388	9.5		1.149		105.8	LOS F	21.1	162.9				
NorthWest: Crawford Street													
Lane 1	98	6.5	619	0.158	100	30.8	LOS C	3.6	26.3	Full	2000	0.0	0.0
Lane 2	100	3.2	386	0.259	100	39.8	LOS C	4.5	32.5	Full	2000	0.0	0.0
Lane 3	85	1.2	186	0.459	100	56.5	LOS D	4.5	31.6	Short	30	0.0	NA
Approach	283	3.7		0.459		41.7	LOS C	4.5	32.5				
SouthWest: Morisset Street													
Lane 1	42	5.0	1004	0.042	100	16.0	LOS B	1.0	7.2	Short	30	0.0	NA
Lane 2	83	6.3	756	0.110	100	21.5	LOS B	2.7	20.1	Full	200	0.0	0.0
Lane 3	83	6.3	756	0.110	100	21.5	LOS B	2.7	20.1	Full	200	0.0	0.0
Lane 4	14	0.0	170	0.080	100	54.7	LOS D	0.7	4.8	Short	45	0.0	NA
Approach	222	5.7		0.110		22.5	LOS B	2.7	20.1				
Intersection	1073	6.3		1.149		61.5	LOS E	21.1	162.9				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

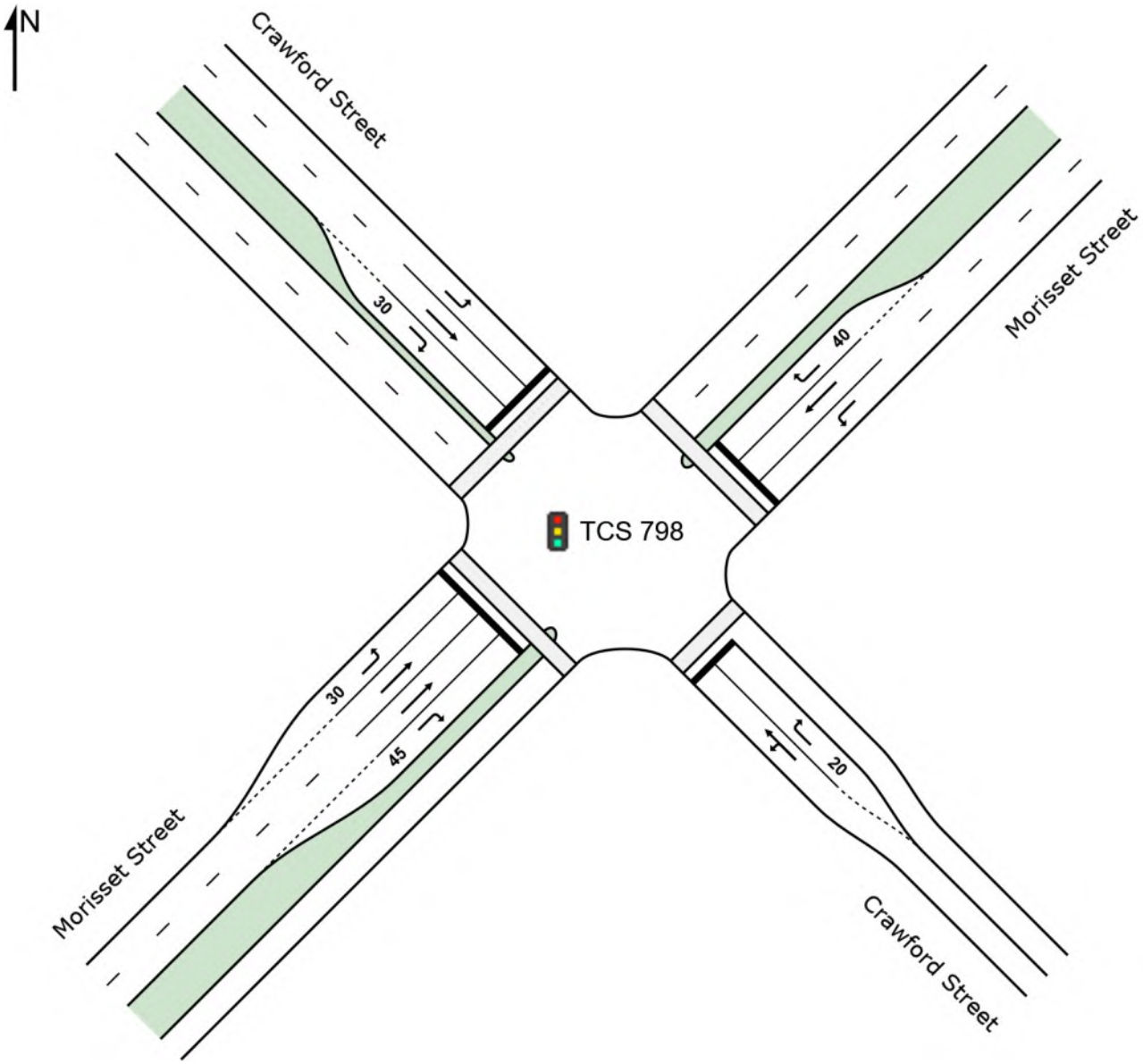
1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

Site: TCS 798 [ExCond AM: Crawford-Morisset - DDO]

Crawford Street / Morisset Street
Existing Signalised Cross-Intersection
Site Category: 2023 Existing Conditions - AM Peak Hour
Signals - Fixed Time Isolated Cycle Time = 109 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

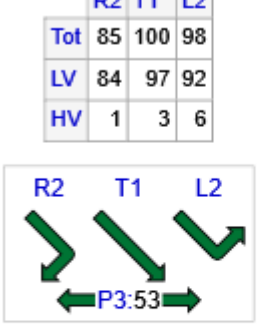
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: SCATS_AM-DDO
Reference Phase: Phase A
Input Phase Sequence: A, D, D1*, D2*, E, G, G1*, G2*
Output Phase Sequence: A, D, D1*, E, G
(* Variable Phase)

Site Layout

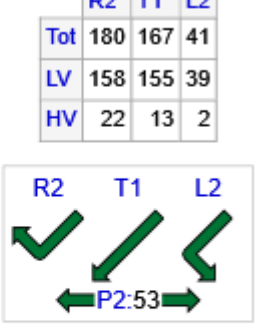


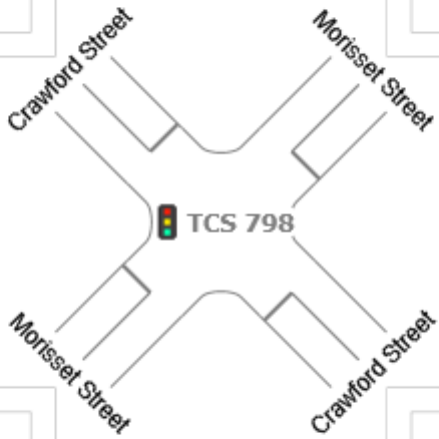
OD Demand Flows

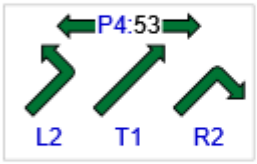
	R2	T1	L2
Tot	85	100	98
LV	84	97	92
HV	1	3	6



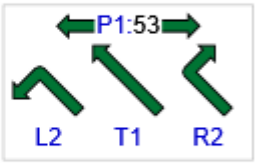
	R2	T1	L2
Tot	180	167	41
LV	158	155	39
HV	22	13	2







	L2	T1	R2
Tot	42	166	14
LV	40	156	14
HV	2	11	0



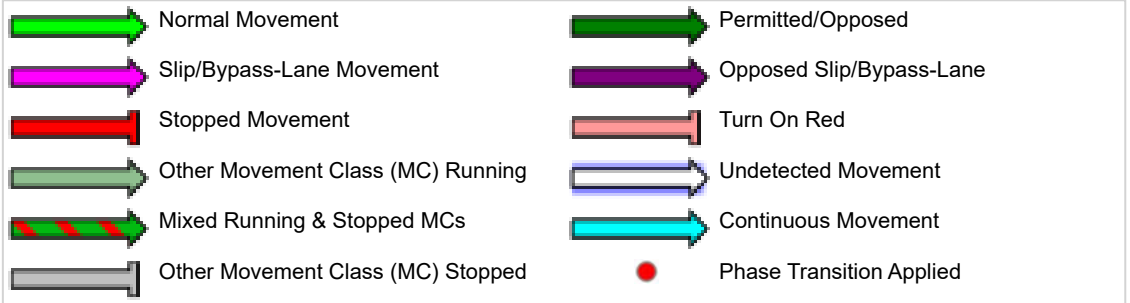
	L2	T1	R2
Tot	41	87	51
LV	41	86	44
HV	0	1	6

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Crawford Street	179	172	7
NE: Morisset Street	388	352	37
NW: Crawford Street	283	273	11
SW: Morisset Street	222	209	13
Total	1073	1005	67

Input Phase Sequence

Movement Class: All Movement Classes

REF: Reference Phase
VAR: Variable Phase



Phase Timing Summary

Phase	A	D	D1	E	G
Phase Change Time (sec)	0	28	40	68	88
Green Time (sec)	22	6	22	14	15
Phase Time (sec)	28	12	28	20	21
Phase Split	26%	11%	26%	18%	19%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Crawford Street												
1	L2	41	0.0	0.343	44.1	LOS D	5.8	41.2	0.89	0.73	0.89	21.0
2	T1	87	1.2	0.343	39.6	LOS C	5.8	41.2	0.89	0.73	0.89	39.8
3	R2	51	12.5	0.215	50.8	LOS D	2.5	19.0	0.93	0.74	0.93	18.4
Approach		179	4.1	0.343	43.8	LOS D	5.8	41.2	0.90	0.74	0.90	33.9
NorthEast: Morisset Street												
4	L2	41	5.1	0.040	15.0	LOS B	0.9	6.7	0.45	0.64	0.45	32.7
5	T1	167	7.5	0.234	24.2	LOS B	6.0	44.4	0.72	0.59	0.72	27.8
6	R2	180	12.3	0.338	35.8	LOS C	7.4	57.1	0.81	0.77	0.81	40.7
Approach		388	9.5	0.338	28.6	LOS C	7.4	57.1	0.73	0.68	0.73	37.9
NorthWest: Crawford Street												
7	L2	98	6.5	0.097	15.9	LOS B	2.3	17.2	0.48	0.66	0.48	45.3
8	T1	100	3.2	0.259	39.8	LOS C	4.5	32.5	0.88	0.70	0.88	40.0
9	R2	85	1.2	0.337	51.5	LOS D	4.2	29.8	0.95	0.76	0.95	37.8
Approach		283	3.7	0.337	35.1	LOS C	4.5	32.5	0.76	0.71	0.76	40.9
SouthWest: Morisset Street												
10	L2	42	5.0	0.073	32.0	LOS C	1.5	11.3	0.73	0.70	0.73	41.5
11	T1	166	6.3	0.346	48.0	LOS D	4.2	30.7	0.95	0.74	0.95	19.3
12	R2	14	0.0	0.134	60.4	LOS E	0.7	5.1	0.98	0.68	0.98	16.3
Approach		222	5.7	0.346	45.8	LOS D	4.2	30.7	0.91	0.73	0.91	27.2
All Vehicles		1073	6.3	0.346	36.4	LOS C	7.4	57.1	0.81	0.71	0.81	36.7

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.

Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Crawford Street													
Lane 1	128	0.8	374[1]	0.343	100	41.0	LOS C	5.8	41.2	Full	200	0.0	0.0
Lane 2	51	12.5	235	0.215	100	50.8	LOS D	2.5	19.0	Short	20	0.0	NA
Approach	179	4.1		0.343		43.8	LOS D	5.8	41.2				
NorthEast: Morisset Street													
Lane 1	41	5.1	1036	0.040	100	15.0	LOS B	0.9	6.7	Full	200	0.0	0.0
Lane 2	167	7.5	716	0.234	100	24.2	LOS B	6.0	44.4	Full	200	0.0	0.0
Lane 3	180	12.3	533	0.338	100	35.8	LOS C	7.4	57.1	Short	40	0.0	NA
Approach	388	9.5		0.338		28.6	LOS C	7.4	57.1				
NorthWest: Crawford Street													
Lane 1	98	6.5	1010	0.097	100	15.9	LOS B	2.3	17.2	Full	2000	0.0	0.0
Lane 2	100	3.2	386	0.259	100	39.8	LOS C	4.5	32.5	Full	2000	0.0	0.0
Lane 3	85	1.2	253	0.337	100	51.5	LOS D	4.2	29.8	Short	30	0.0	NA
Approach	283	3.7		0.337		35.1	LOS C	4.5	32.5				
SouthWest: Morisset Street													
Lane 1	42	5.0	576	0.073	100	32.0	LOS C	1.5	11.3	Short	30	0.0	NA
Lane 2	83	6.3	241	0.346	100	48.0	LOS D	4.2	30.7	Full	200	0.0	0.0
Lane 3	83	6.3	241	0.346	100	48.0	LOS D	4.2	30.7	Full	200	0.0	0.0
Lane 4	14	0.0	102	0.134	100	60.4	LOS E	0.7	5.1	Short	45	0.0	NA
Approach	222	5.7		0.346		45.8	LOS D	4.2	30.7				
Intersection	1073	6.3		0.346		36.4	LOS C	7.4	57.1				

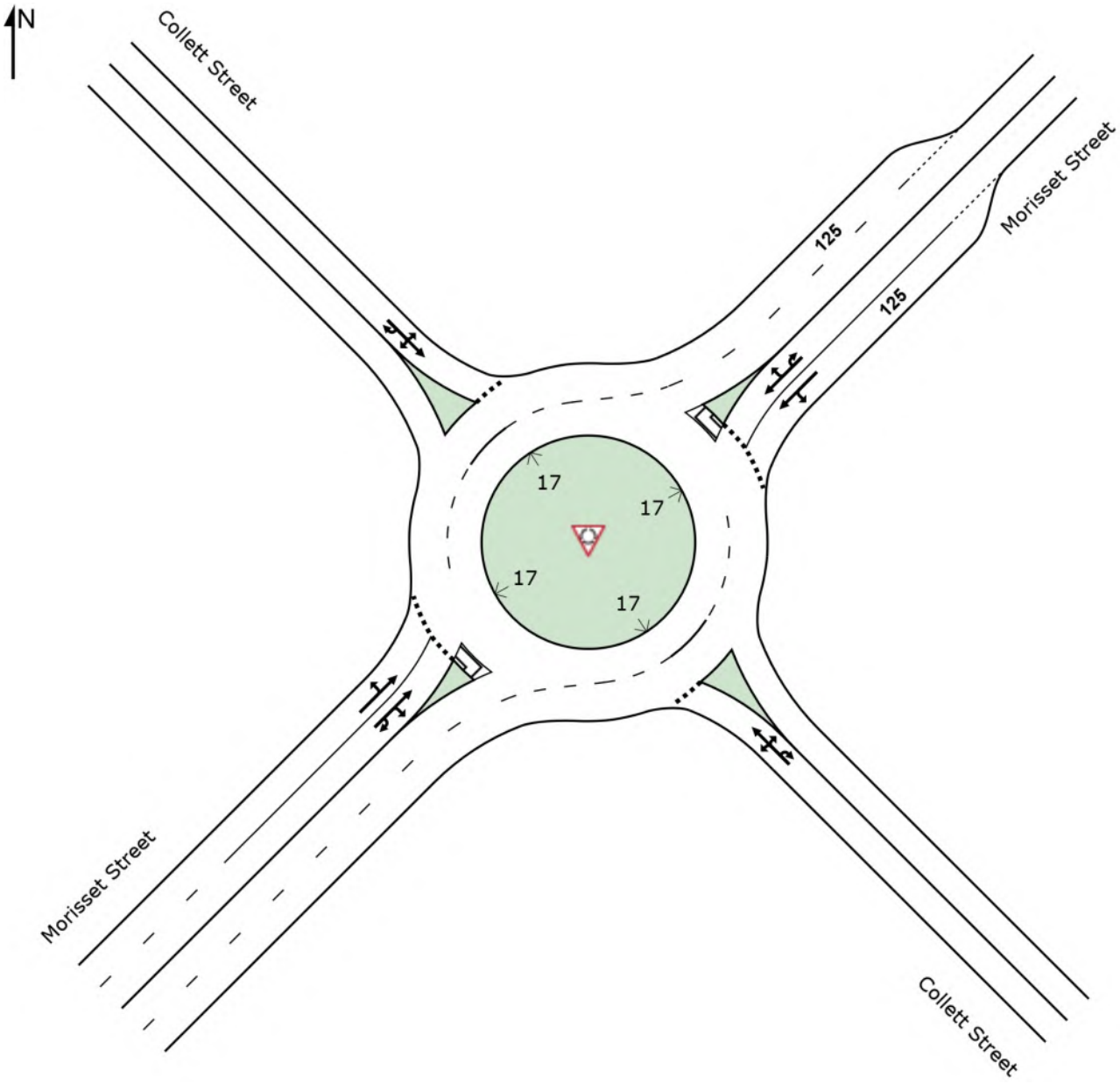
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control 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.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

Site: [ExCond PM: Collett-Morisset]

Collett Street / Morisset Street
Existing Unsignalised Roundabout
Site Category: 2023 Existing Conditions - PM Peak Hour
Roundabout

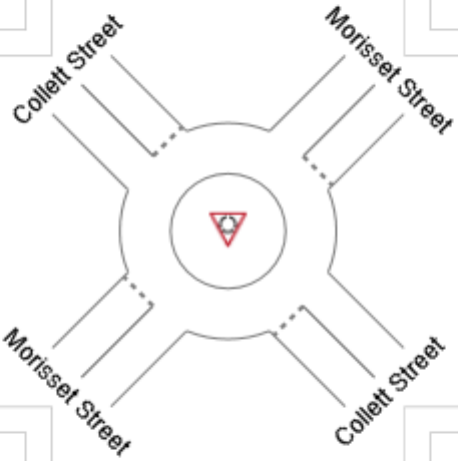
Site Layout

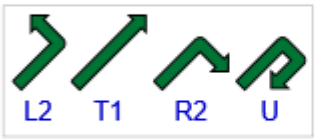


OD Demand Flows

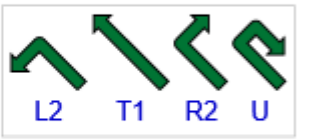
	U	R2	T1	L2
Tot	2	49	120	280
LV	2	33	120	274
HV	0	17	0	6

	U	R2	T1	L2
Tot	5	189	261	109
LV	4	186	257	109
HV	1	3	4	0





	L2	T1	R2	U
Tot	47	358	100	71
LV	46	340	100	69
HV	1	18	0	1



	L2	T1	R2	U
Tot	87	137	205	6
LV	87	136	204	6
HV	0	1	1	0

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Collett Street	436	434	2
NE: Morisset Street	565	557	8
NW: Collett Street	452	428	23
SW: Morisset Street	576	556	20
Total	2028	1975	54

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Collett Street												
1	L2	87	0.0	0.529	6.9	LOS A	3.3	23.5	0.69	0.89	0.80	44.7
2	T1	137	0.8	0.529	7.0	LOS A	3.3	23.5	0.69	0.89	0.80	45.7
3	R2	205	0.5	0.529	11.2	LOS A	3.3	23.5	0.69	0.89	0.80	46.6
3u	U	6	0.0	0.529	12.9	LOS A	3.3	23.5	0.69	0.89	0.80	47.7
Approach		436	0.5	0.529	9.0	LOS A	3.3	23.5	0.69	0.89	0.80	46.0
NorthEast: Morisset Street												
4	L2	109	0.0	0.242	4.9	LOS A	1.6	11.4	0.54	0.54	0.54	47.0
5	T1	261	1.6	0.242	4.7	LOS A	1.6	11.4	0.55	0.57	0.55	45.7
6	R2	189	1.7	0.242	9.2	LOS A	1.5	11.0	0.56	0.66	0.56	44.4
6u	U	5	20.0	0.242	11.5	LOS A	1.5	11.0	0.56	0.66	0.56	46.4
Approach		565	1.5	0.242	6.3	LOS A	1.6	11.4	0.55	0.59	0.55	45.7
NorthWest: Collett Street												
7	L2	280	2.3	0.611	9.4	LOS A	4.8	35.2	0.80	0.99	1.03	42.0
8	T1	120	0.0	0.611	9.4	LOS A	4.8	35.2	0.80	0.99	1.03	45.2
9	R2	49	34.0	0.611	15.1	LOS B	4.8	35.2	0.80	0.99	1.03	38.9
9u	U	2	0.0	0.611	15.4	LOS B	4.8	35.2	0.80	0.99	1.03	41.3
Approach		452	5.1	0.611	10.1	LOS A	4.8	35.2	0.80	0.99	1.03	42.9
SouthWest: Morisset Street												
10	L2	47	2.2	0.256	6.7	LOS A	1.4	9.9	0.54	0.63	0.54	41.1
11	T1	358	5.0	0.331	6.1	LOS A	2.0	14.6	0.55	0.66	0.55	45.1
12	R2	100	0.0	0.331	9.9	LOS A	2.0	14.6	0.56	0.68	0.56	46.1
12u	U	71	1.5	0.331	11.8	LOS A	2.0	14.6	0.56	0.68	0.56	42.9
Approach		576	3.5	0.331	7.5	LOS A	2.0	14.6	0.55	0.66	0.55	44.9
All Vehicles		2028	2.6	0.611	8.1	LOS A	4.8	35.2	0.64	0.76	0.71	45.0

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.
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.

Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Collett Street													
Lane 1[d]	436	0.5	824	0.529	100	9.0	LOS A	3.3	23.5	Full	825	0.0	0.0
Approach	436	0.5		0.529		9.0	LOS A	3.3	23.5				
NorthEast: Morisset Street													
Lane 1[d]	308	1.0	1274	0.242	100	4.7	LOS A	1.6	11.4	Short	125	0.0	NA
Lane 2	257	2.0	1066	0.242	100	8.2	LOS A	1.5	11.0	Full	500	0.0	0.0
Approach	565	1.5		0.242		6.3	LOS A	1.6	11.4				
NorthWest: Collett Street													
Lane 1[d]	452	5.1	740	0.611	100	10.1	LOS A	4.8	35.2	Full	205	0.0	0.0
Approach	452	5.1		0.611		10.1	LOS A	4.8	35.2				
SouthWest: Morisset Street													
Lane 1	216	4.4	842	0.256	77[6]	6.5	LOS A	1.4	9.9	Full	200	0.0	0.0
Lane 2[d]	360	2.9	1088	0.331	100	8.1	LOS A	2.0	14.6	Full	200	0.0	0.0
Approach	576	3.5		0.331		7.5	LOS A	2.0	14.6				
Intersection	2028	2.6		0.611		8.1	LOS A	4.8	35.2				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

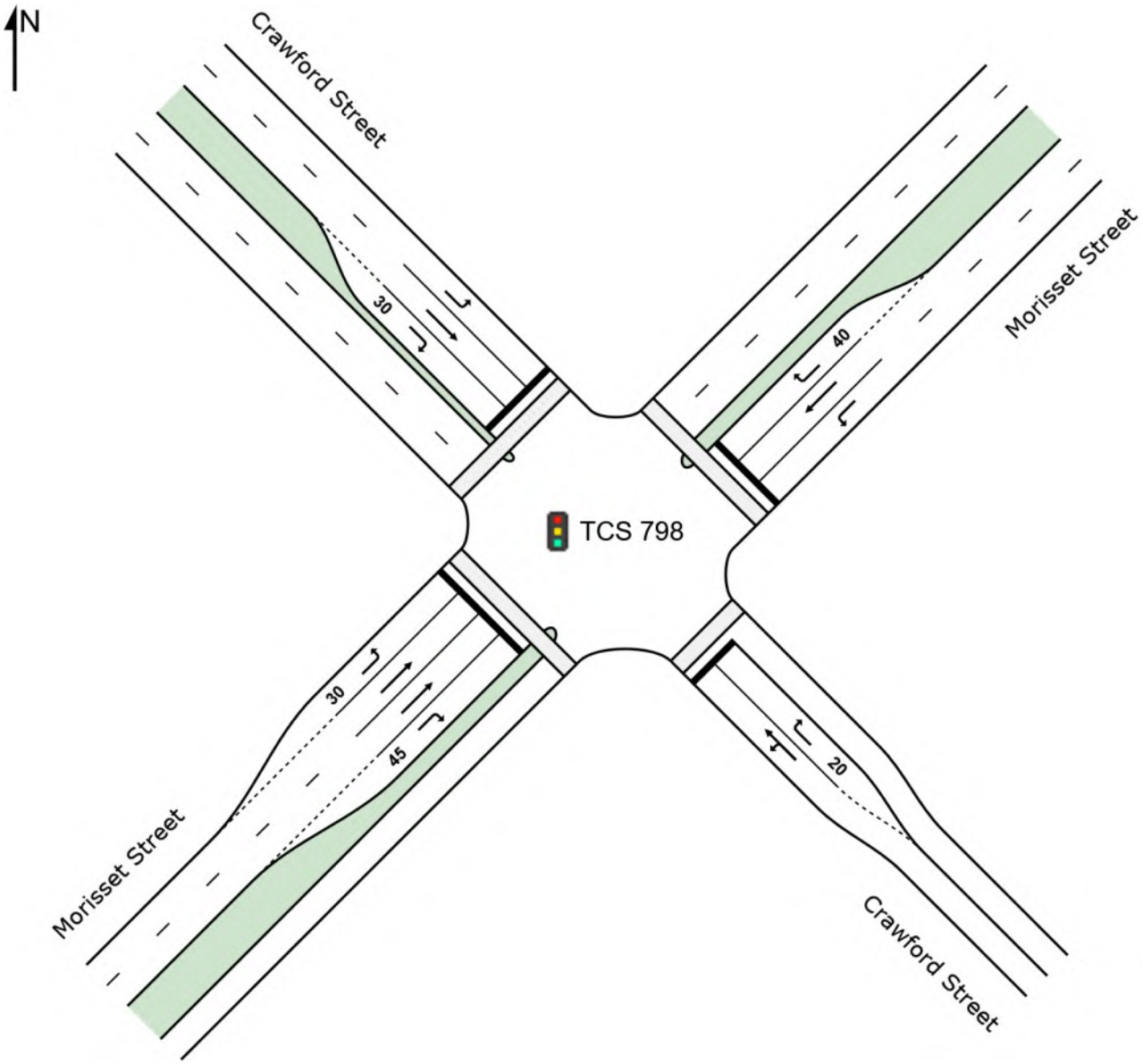
6 Lane under-utilisation due to downstream effects
d Dominant lane on roundabout approach

Site: TCS 798 [ExCond PM: Crawford-Morisset - LRT]

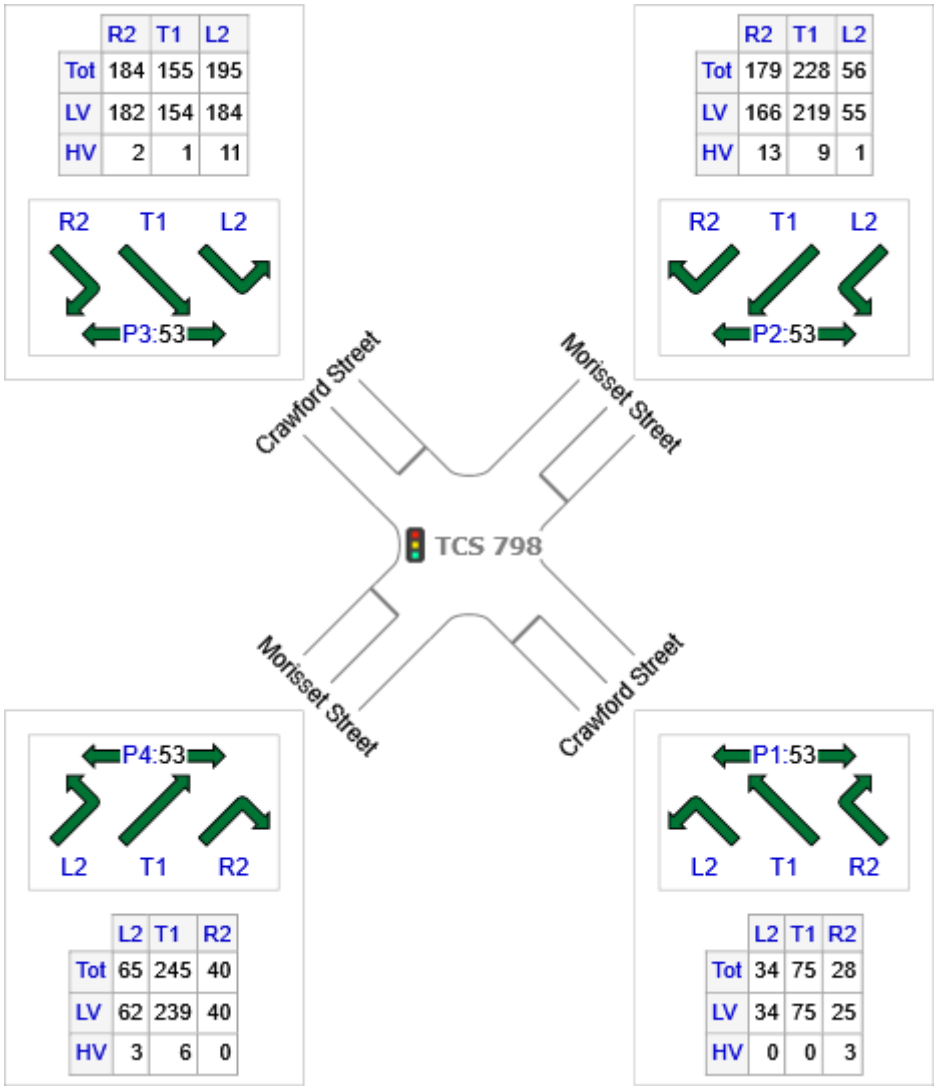
Crawford Street / Morisset Street
Existing Signalised Cross-Intersection
Site Category: 2023 Existing Conditions - PM Peak Hour
Signals - Fixed Time Isolated Cycle Time = 134 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: SCATS_PM-LRT
Reference Phase: Phase A
Input Phase Sequence: A, D, E, G
Output Phase Sequence: A, D, E, G

Site Layout



OD Demand Flows

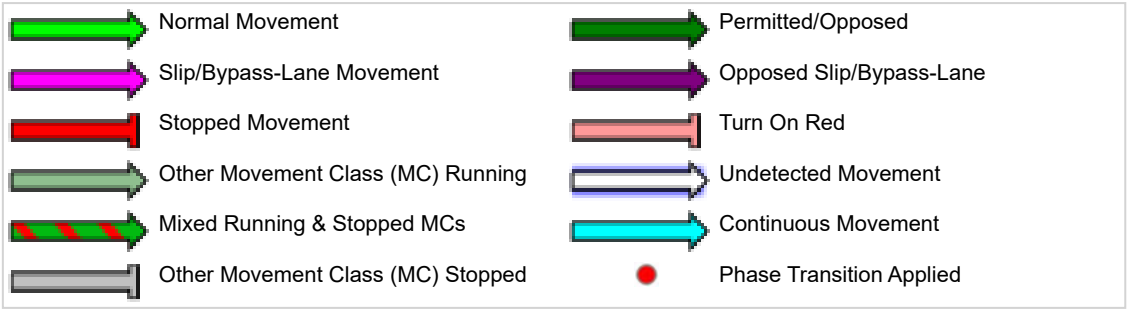


	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Crawford Street	137	134	3
NE: Morisset Street	463	440	23
NW: Crawford Street	534	520	14
SW: Morisset Street	351	341	9
Total	1484	1435	49

Input Phase Sequence

Movement Class: All Movement Classes

REF: Reference Phase
VAR: Variable Phase



Phase Timing Summary

Phase	A	D	E	G
Phase Change Time (sec)	0	31	49	110
Green Time (sec)	25	12	55	18
Phase Time (sec)	31	18	61	24
Phase Split	23%	13%	46%	18%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Crawford Street												
1	L2	34	0.0	0.309	54.4	LOS D	6.1	42.6	0.90	0.73	0.90	18.3
2	T1	75	0.0	0.309	49.9	LOS D	6.1	42.6	0.90	0.73	0.90	37.8
3	R2	28	11.1	0.123	60.3	LOS E	1.7	12.7	0.91	0.72	0.91	16.5
Approach		137	2.3	0.309	53.2	LOS D	6.1	42.6	0.90	0.73	0.90	32.7
NorthEast: Morisset Street												
4	L2	56	1.9	0.052	16.7	LOS B	1.5	10.7	0.44	0.64	0.44	31.6
5	T1	228	4.1	0.344	28.1	LOS B	9.9	71.5	0.71	0.60	0.71	25.9
6	R2	179	7.1	1.185	245.1	LOS F	25.0	185.9	1.00	1.53	2.44	19.2
Approach		463	5.0	1.185	110.5	LOS F	25.0	185.9	0.79	0.96	1.35	20.5
NorthWest: Crawford Street												
7	L2	195	5.4	0.339	41.7	LOS C	9.6	70.6	0.81	0.78	0.81	39.5
8	T1	155	0.7	0.532	52.2	LOS D	9.0	63.4	0.93	0.76	0.93	37.7
9	R2	184	1.1	0.976	102.1	LOS F	15.6	110.0	1.00	1.14	1.63	30.5
Approach		534	2.6	0.976	65.6	LOS E	15.6	110.0	0.91	0.90	1.13	35.4
SouthWest: Morisset Street												
10	L2	65	4.8	0.062	16.9	LOS B	1.8	12.9	0.45	0.65	0.45	45.0
11	T1	245	2.6	0.156	26.3	LOS B	5.0	35.5	0.67	0.54	0.67	26.7
12	R2	40	0.0	0.241	67.5	LOS E	2.5	17.6	0.97	0.73	0.97	15.1
Approach		351	2.7	0.241	29.2	LOS C	5.0	35.5	0.66	0.58	0.66	32.4
All Vehicles		1484	3.3	1.185	69.9	LOS E	25.0	185.9	0.81	0.83	1.07	29.7

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.

Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Crawford Street													
Lane 1	108	0.0	351[1]	0.309	100	51.3	LOS D	6.1	42.6	Full	200	0.0	0.0
Lane 2	28	11.1	231	0.123	100	60.3	LOS E	1.7	12.7	Short	20	0.0	NA
Approach	137	2.3		0.309		53.2	LOS D	6.1	42.6				
NorthEast: Morisset Street													
Lane 1	56	1.9	1080	0.052	100	16.7	LOS B	1.5	10.7	Full	200	0.0	0.0
Lane 2	228	4.1	664[1]	0.344	100	28.1	LOS B	9.9	71.5	Full	200	0.0	0.0
Lane 3	179	7.1	151[1]	1.185	100	245.1	LOS F	25.0	185.9	Short	40	0.0	NA
Approach	463	5.0		1.185		110.5	LOS F	25.0	185.9				
NorthWest: Crawford Street													
Lane 1	195	5.4	574	0.339	100	41.7	LOS C	9.6	70.6	Full	2000	0.0	0.0
Lane 2	155	0.7	291[1]	0.532	100	52.2	LOS D	9.0	63.4	Full	2000	0.0	0.0
Lane 3	184	1.1	189[1]	0.976	100	102.1	LOS F	15.6	110.0	Short	30	0.0	NA
Approach	534	2.6		0.976		65.6	LOS E	15.6	110.0				
SouthWest: Morisset Street													
Lane 1	65	4.8	1058	0.062	100	16.9	LOS B	1.8	12.9	Short	30	0.0	NA
Lane 2	123	2.6	787	0.156	100	26.3	LOS B	5.0	35.5	Full	200	0.0	0.0
Lane 3	123	2.6	787	0.156	100	26.3	LOS B	5.0	35.5	Full	200	0.0	0.0
Lane 4	40	0.0	166	0.241	100	67.5	LOS E	2.5	17.6	Short	45	0.0	NA
Approach	351	2.7		0.241		29.2	LOS C	5.0	35.5				
Intersection	1484	3.3		1.185		69.9	LOS E	25.0	185.9				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

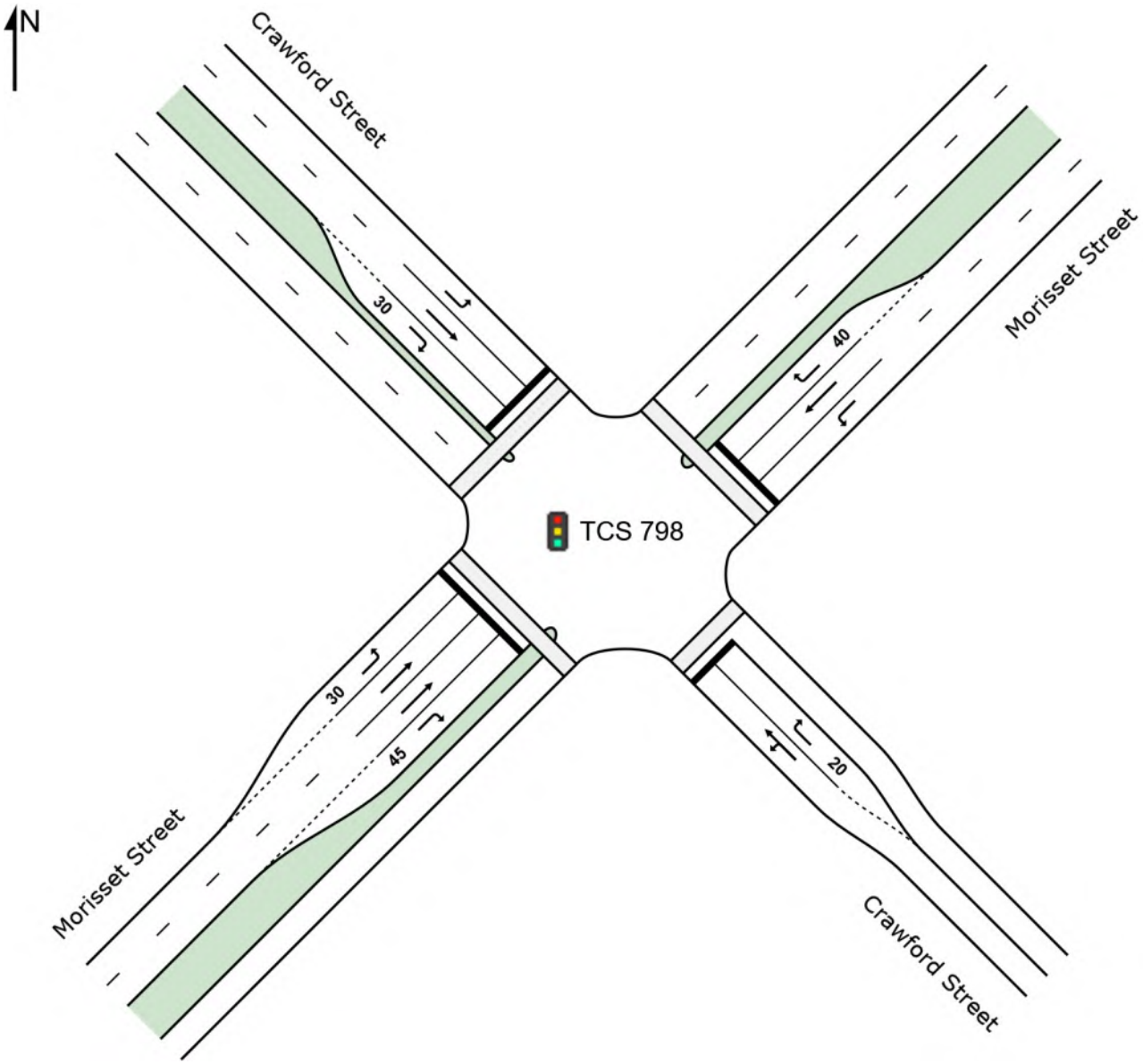
1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

Site: TCS 798 [ExCond PM: Crawford-Morisset - DDO]

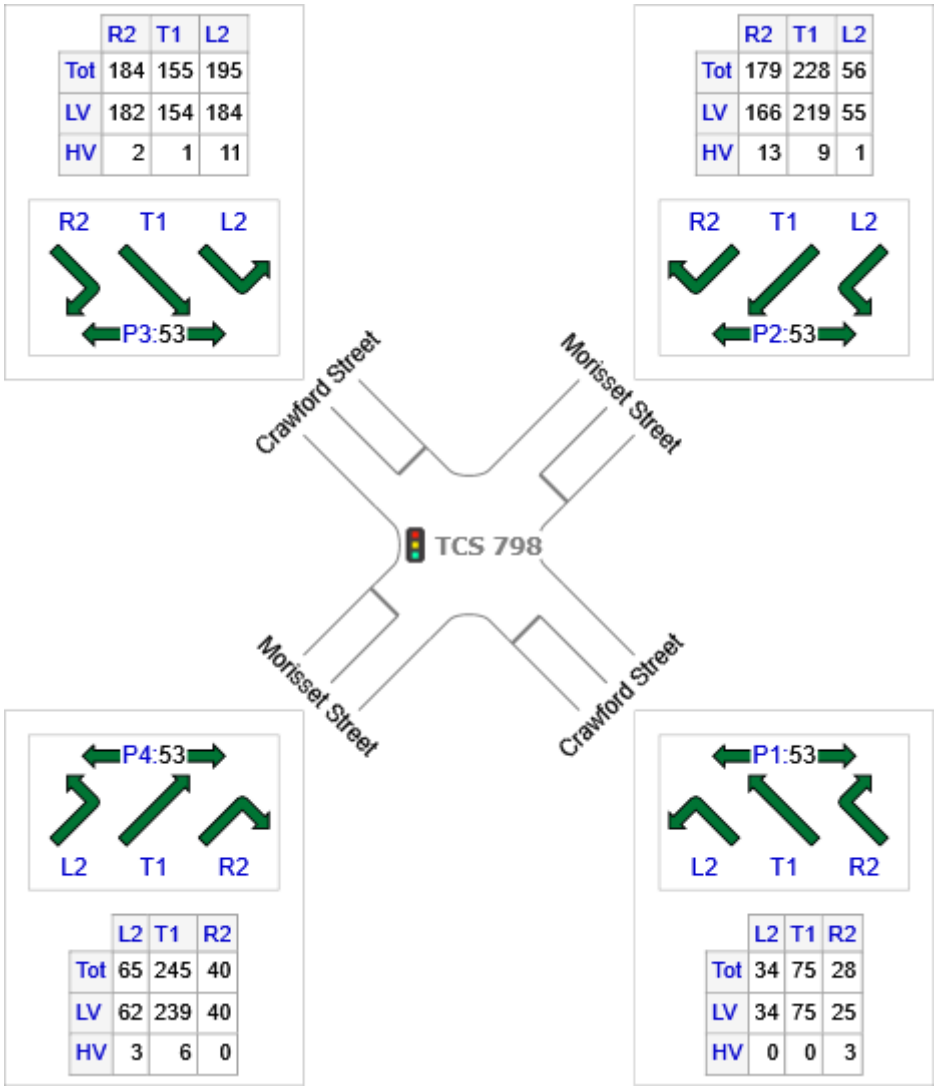
Crawford Street / Morisset Street
Existing Signalised Cross-Intersection
Site Category: 2023 Existing Conditions - PM Peak Hour
Signals - Fixed Time Isolated Cycle Time = 134 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: SCATS_PM-DDO
Reference Phase: Phase A
Input Phase Sequence: A, D, D1*, D2*, E, G, G1*, G2*
Output Phase Sequence: A, D, D1*, E, G, G1*
(* Variable Phase)

Site Layout



OD Demand Flows

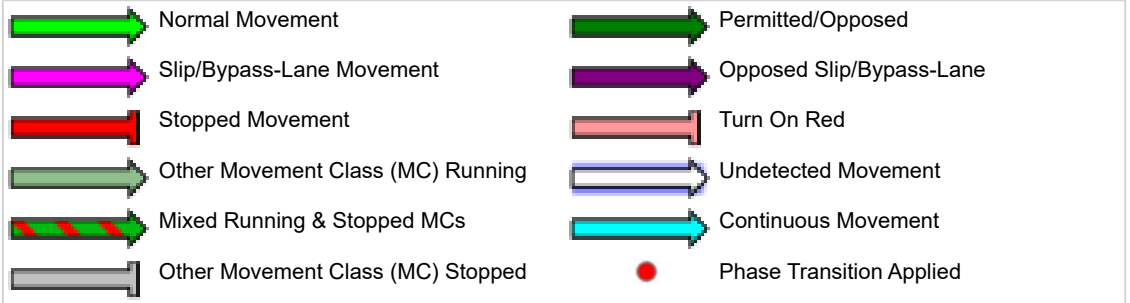


	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Crawford Street	137	134	3
NE: Morisset Street	463	440	23
NW: Crawford Street	534	520	14
SW: Morisset Street	351	341	9
Total	1484	1435	49

Input Phase Sequence

Movement Class: All Movement Classes

REF: Reference Phase
VAR: Variable Phase



Phase Timing Summary

Phase	A	D	D1	E	G	G1
Phase Change Time (sec)	0	24	38	63	89	105
Green Time (sec)	18	8	19	20	10	23
Phase Time (sec)	24	14	25	26	16	29
Phase Split	18%	10%	19%	19%	12%	22%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Crawford Street												
1	L2	34	0.0	0.431	61.8	LOS E	6.6	45.9	0.96	0.76	0.96	16.8
2	T1	75	0.0	0.431	57.3	LOS E	6.6	45.9	0.96	0.76	0.96	36.6
3	R2	28	11.1	0.221	70.1	LOS E	1.8	14.0	0.97	0.72	0.97	14.9
Approach		137	2.3	0.431	61.1	LOS E	6.6	45.9	0.96	0.76	0.96	31.1
NorthEast: Morisset Street												
4	L2	56	1.9	0.067	26.1	LOS B	2.0	14.2	0.59	0.68	0.59	26.3
5	T1	228	4.1	0.414	35.8	LOS C	11.2	81.0	0.80	0.68	0.80	22.9
6	R2	179	7.1	0.436	50.3	LOS D	9.8	73.0	0.89	0.79	0.89	37.9
Approach		463	5.0	0.436	40.3	LOS C	11.2	81.0	0.81	0.72	0.81	33.2
NorthWest: Crawford Street												
7	L2	195	5.4	0.170	14.7	LOS B	5.0	36.5	0.43	0.66	0.43	45.6
8	T1	155	0.7	0.227	32.6	LOS C	7.0	49.6	0.75	0.62	0.75	41.5
9	R2	184	1.1	0.408	44.6	LOS D	9.4	66.7	0.83	0.78	0.83	39.1
Approach		534	2.6	0.408	30.2	LOS C	9.4	66.7	0.66	0.69	0.66	42.0
SouthWest: Morisset Street												
10	L2	65	4.8	0.075	24.0	LOS B	2.2	16.2	0.56	0.68	0.56	43.3
11	T1	245	2.6	0.428	56.6	LOS E	7.4	52.9	0.96	0.76	0.96	17.4
12	R2	40	0.0	0.361	73.2	LOS F	2.6	18.5	1.00	0.73	1.00	14.3
Approach		351	2.7	0.428	52.4	LOS D	7.4	52.9	0.89	0.74	0.89	25.4
All Vehicles		1484	3.3	0.436	41.4	LOS C	11.2	81.0	0.79	0.72	0.79	35.7

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.

Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Crawford Street													
Lane 1	108	0.0	252[1]	0.431	100	58.7	LOS E	6.6	45.9	Full	200	0.0	0.0
Lane 2	28	11.1	128	0.221	100	70.1	LOS E	1.8	14.0	Short	20	0.0	NA
Approach	137	2.3		0.431		61.1	LOS E	6.6	45.9				
NorthEast: Morisset Street													
Lane 1	56	1.9	834	0.067	100	26.1	LOS B	2.0	14.2	Full	200	0.0	0.0
Lane 2	228	4.1	552[1]	0.414	100	35.8	LOS C	11.2	81.0	Full	200	0.0	0.0
Lane 3	179	7.1	410[1]	0.436	100	50.3	LOS D	9.8	73.0	Short	40	0.0	NA
Approach	463	5.0		0.436		40.3	LOS C	11.2	81.0				
NorthWest: Crawford Street													
Lane 1	195	5.4	1148	0.170	100	14.7	LOS B	5.0	36.5	Full	2000	0.0	0.0
Lane 2	155	0.7	681	0.227	100	32.6	LOS C	7.0	49.6	Full	2000	0.0	0.0
Lane 3	184	1.1	451[1]	0.408	100	44.6	LOS D	9.4	66.7	Short	30	0.0	NA
Approach	534	2.6		0.408		30.2	LOS C	9.4	66.7				
SouthWest: Morisset Street													
Lane 1	65	4.8	871	0.075	100	24.0	LOS B	2.2	16.2	Short	30	0.0	NA
Lane 2	123	2.6	286	0.428	100	56.6	LOS E	7.4	52.9	Full	200	0.0	0.0
Lane 3	123	2.6	286	0.428	100	56.6	LOS E	7.4	52.9	Full	200	0.0	0.0
Lane 4	40	0.0	111	0.361	100	73.2	LOS F	2.6	18.5	Short	45	0.0	NA
Approach	351	2.7		0.428		52.4	LOS D	7.4	52.9				
Intersection	1484	3.3		0.436		41.4	LOS C	11.2	81.0				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

Appendix C:

Observed Car Parking Demands – Existing Conditions

2022-0106: 50 Morisset Street, Queanbeyan

Existing Conditions Car Parking Data

QuantumTraffic

Street	Side	Section	Walking Distance Zone	Restriction	Capacity	Cars Parked						
						Wednesday, 11 October 2023						
						07:00	09:00	11:00	13:00	15:00	17:00	19:00
Morisset Street	Northwest	Lowe Street to Crawford Street	200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	5	3	3	2	2	3	4	2
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	5	3	3	2	3	3	2	3
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	3	2	2	1	2	1	2	3
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	2	1	1	1	1	1	1	1
			100m-200m	No Stopping	-	0	0	0	0	0	0	0
		Crawford Street to Collett Street	100m-200m	No Stopping	-	0	0	0	0	0	0	0
			100m-200m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	4	3	4	4	3	4	3	2
			<100m	Taxi Zone	6	0	0	0	0	0	0	0
			<100m	No Stopping	-	0	0	0	0	0	0	0
			<100m	Bus Zone	1	0	0	0	0	0	0	0
			<100m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	2	1	0	0	1	2	1	0
			<100m	No Stopping	-	0	0	0	0	0	0	0
		Collett Street to Carinya Street	<100m	No Stopping	-	0	0	0	0	0	0	0
			<100m	Unrestricted	7	2	4	5	2	2	3	1
			100m-200m	No Stopping	-	0	0	0	0	0	0	0
	Southeast	Opp. Carinya Street to Collett Street	100m-200m	No Stopping	-	0	0	0	0	0	0	0
			100m-200m	2P	8	2	4	1	3	1	2	2
			100m-200m	Unrestricted (Parents with Prams)	2	0	0	0	0	0	0	0
			<100m	P Disabled Only	2	0	0	0	0	0	0	0
			<100m	No Stopping	-	0	0	0	0	0	0	0
		Collett Street to Crawford Street	<100m	No Stopping	-	0	0	0	0	0	0	0
			<100m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	1	1	0	0	1	1	1	0
			<100m	No Stopping	-	0	0	0	0	0	0	0
			<100m	Bus Zone	2	0	0	0	0	0	0	0
			100m-200m	No Stopping	-	0	0	0	0	0	0	0
			100m-200m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	1	0	0	0	1	1	1	0
			100m-200m	No Stopping	-	0	0	0	0	0	0	0
		Crawford Street to Lowe Street	200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	Bus Zone	2	0	0	0	0	0	0	0
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	14	7	7	6	4	3	4	2
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	2	0	1	0	1	1	2	2
			200m-400m	No Stopping	-	0	0	0	0	0	0	0

2022-0106: 50 Morisset Street, Queanbeyan

Existing Conditions Car Parking Data

QuantumTraffic

Street	Side	Section	Walking Distance Zone	Restriction	Capacity	Cars Parked						
						Wednesday, 11 October 2023						
						07:00	09:00	11:00	13:00	15:00	17:00	19:00
Antill Street	Northwest	Crawford Street to Collett Street	200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	9	9	8	8	6	9	5	4
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	Bus Zone	1	0	0	0	0	0	0	0
			100m-200m	No Stopping	-	0	0	0	0	0	0	0
		Collett Street to Carinya Street	200m-400m	No Stopping	-	0	0	0	0	0	0	0
	Southeast	Carinya Street to Collett Street	200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	Unrestricted	25	5	8	8	5	6	8	3
			100m-200m	No Stopping	-	0	0	0	0	0	0	0
		Collett Street to Crawford Street	100m-200m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	1/4P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	1	1	1	1	1	1	0	0
			200m-400m	P Disabled Only	2	1	1	1	2	1	2	2
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
Crawford Street	Northeast	Antill Street to Morisset Street	200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	1/4P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	2	2	2	2	1	2	1	0
			200m-400m	No Parking	2	0	0	0	0	0	0	0
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	Bus Zone	1	0	0	0	0	0	0	0
			200m-400m	2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	3	2	3	3	2	2	2	0
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	9	4	6	7	4	5	6	2
			100m-200m	No Stopping	-	0	0	0	0	0	0	0
		Morisset Street to Monaro Street	100m-200m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	2	2	2	2	2	2	2	2
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	6	5	5	4	6	5	4	6
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	3	3	3	2	3	2	3	3
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
	Southwest	Monaro Street to Morisset Street	200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	6	5	5	4	5	4	5	6
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	P Disabled Only	1	1	1	1	1	1	1	1
			200m-400m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	4	4	4	3	4	3	4	4
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	8	7	6	5	7	6	7	4
			200m-400m	P Disabled Only	1	1	1	1	1	1	0	0
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
		Morisset Street to Antill Street	100m-200m	No Stopping	-	0	0	0	0	0	0	0
			100m-200m	2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	6	3	5	3	5	4	3	3
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	5	5	4	4	2	3	3	0
			200m-400m	No Stopping	-	0	0	0	0	0	0	0

2022-0106: 50 Morisset Street, Queanbeyan

Existing Conditions Car Parking Data

QuantumTraffic

Street	Side	Section	Walking Distance Zone	Restriction	Capacity	Cars Parked Wednesday, 11 October 2023						
						07:00	09:00	11:00	13:00	15:00	17:00	19:00
Collett Street	Northeast	Erin Street to Antill Street	200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	Unrestricted	4	4	4	4	4	4	3	1
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	Unrestricted	12	3	4	4	7	5	6	4
			100m-200m	No Stopping	-	0	0	0	0	0	0	0
		Antill Street to Morisset Street	100m-200m	No Stopping	-	0	0	0	0	0	0	0
			<100m	No Parking 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	9	0	0	0	0	0	0	0
			<100m	No Stopping	-	0	0	0	0	0	0	0
		Morisset Street to Monaro Street	<100m	No Stopping	-	0	0	0	0	0	0	0
			100m-200m	2P 7am-6pm Mon-Sun	6	2	3	4	2	3	1	0
			100m-200m	No Stopping	-	0	0	0	0	0	0	0
			100m-200m	2P 7am-6pm Mon-Sun	3	3	3	2	3	1	2	1
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
	Southwest	Monaro Street to Morisset Street	100m-200m	No Stopping	-	0	0	0	0	0	0	0
			<100m	2P 7am-6pm Mon-Sun	2	0	0	1	1	0	0	0
			<100m	No Stopping	-	0	0	0	0	0	0	0
		Morisset Street to Antill Street	<100m	No Stopping	-	0	0	0	0	0	0	0
			<100m	Unrestricted	11	8	5	6	6	7	9	10
			100m-200m	No Stopping	-	0	0	0	0	0	0	0
		Antill Street to Erin Street	100m-200m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	Unrestricted	16	16	16	16	16	14	9	4
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	Unrestricted	4	4	4	4	3	4	2	1
			200m-400m	Bus Zone	1	0	0	0	0	0	0	0
			200m-400m	Unrestricted	2	2	2	1	1	2	1	1
			200m-400m	P Disabled Only	1	1	1	0	1	1	0	0
			200m-400m	Unrestricted	2	1	1	1	1	1	1	0
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
Woolworths Carpark				Unrestricted (Private)	303	240	260	263	230	204	180	140
Riverside Plaza North Carpark (Subject Site)			On-Site	Unrestricted (Private)	198	117	116	115	93	80	24	10
Collett Carpark			100m-200m	Unrestricted	261	21	22	19	18	17	14	10
Riverside Plaza South Carpark		Ground Level	<100m	Unrestricted (Private)	136	124	120	110	98	63	26	12
		Underground	100m-200m	Unrestricted (Private)	300	240	250	225	200	150	120	100
On-Site	**Capacity**					**198**	**198**	**198**	**198**	**198**	**198**	**198**
	Cars Parked					**117**	**116**	**115**	**93**	**80**	**24**	**10**
	Vacant Spaces					**81**	**82**	**83**	**105**	**118**	**174**	**188**
	Occupancy					**59%**	**59%**	**58%**	**47%**	**40%**	**12%**	**5%**
<200m	**Capacity**					**959**	**950**	**950**	**950**	**950**	**950**	**959**
	Cars Parked					**527**	**536**	**495**	**437**	**336**	**210**	**151**
	Vacant Spaces					**432**	**414**	**455**	**513**	**614**	**740**	**808**
	Occupancy					**55%**	**56%**	**52%**	**46%**	**35%**	**22%**	**16%**
Total	**Capacity**					**1,421**	**1,412**	**1,412**	**1,412**	**1,412**	**1,412**	**1,421**
	Cars Parked					**871**	**905**	**856**	**765**	**636**	**480**	**352**
	Vacant Spaces					**550**	**507**	**556**	**647**	**776**	**932**	**1,069**
	Occupancy					**61%**	**64%**	**61%**	**54%**	**45%**	**34%**	**25%**

2022-0106: 50 Morisset Street, Queanbeyan

Existing Conditions Car Parking Data

QuantumTraffic

Street	Side	Section	Walking Distance Zone	Restriction	Capacity	Cars Parked Saturday, 18 January 2025						
						07:00	09:00	11:00	13:00	15:00	17:00	19:00
Morisset Street	Northwest	Lowe Street to Crawford Street	200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	5	3	4	3	3	2	4	3
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	5	3	3	3	4	3	2	2
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	3	3	3	2	2	3	2	2
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	2	1	1	1	1	1	1	1
			100m-200m	No Stopping	-	0	0	0	0	0	0	0
		Crawford Street to Collett Street	100m-200m	No Stopping	-	0	0	0	0	0	0	0
			100m-200m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	4	4	3	3	4	3	2	2
			<100m	Taxi Zone	6	0	0	0	0	0	0	0
			<100m	No Stopping	-	0	0	0	0	0	0	0
			<100m	Bus Zone	1	0	0	0	0	0	0	0
			<100m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	2	2	1	2	1	1	2	2
			<100m	No Stopping	-	0	0	0	0	0	0	0
		Collett Street to Carinya Street	<100m	No Stopping	-	0	0	0	0	0	0	0
			<100m	Unrestricted	7	2	2	4	5	5	4	1
			100m-200m	No Stopping	-	0	0	0	0	0	0	0
	Southeast	Opp. Carinya Street to Collett Street	100m-200m	No Stopping	-	0	0	0	0	0	0	0
			100m-200m	2P	8	5	5	4	5	3	2	2
			100m-200m	Unrestricted (Parents with Prams)	2	0	0	0	0	0	0	0
			<100m	P Disabled Only	2	0	0	0	0	0	0	0
			<100m	No Stopping	-	0	0	0	0	0	0	0
		Collett Street to Crawford Street	<100m	No Stopping	-	0	0	0	0	0	0	0
			<100m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	1	1	1	1	0	1	1	0
			<100m	No Stopping	-	0	0	0	0	0	0	0
			<100m	Bus Zone	2	0	0	0	0	0	0	0
			100m-200m	No Stopping	-	0	0	0	0	0	0	0
			100m-200m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	1	1	0	1	1	0	1	1
			100m-200m	No Stopping	-	0	0	0	0	0	0	0
		Crawford Street to Lowe Street	200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	Bus Zone	2	0	0	0	0	0	0	0
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	14	8	7	7	7	8	5	3
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	2	1	1	2	2	2	1	2
			200m-400m	No Stopping	-	0	0	0	0	0	0	0

2022-0106: 50 Morisset Street, Queanbeyan

Existing Conditions Car Parking Data

QuantumTraffic

Street	Side	Section	Walking Distance Zone	Restriction	Capacity	Cars Parked Saturday, 18 January 2025						
						07:00	09:00	11:00	13:00	15:00	17:00	19:00
Antill Street	Northwest	Crawford Street to Collett Street	200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	1/2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	9	9	8	9	9	7	8	8
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	Bus Zone	1	0	0	0	0	0	0	0
			100m-200m	No Stopping	-	0	0	0	0	0	0	0
		Collett Street to Carinya Street	200m-400m	No Stopping	-	0	0	0	0	0	0	0
	Southeast	Carinya Street to Collett Street	200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	Unrestricted	25	6	11	10	9	9	7	6
			100m-200m	No Stopping	-	0	0	0	0	0	0	0
		Collett Street to Crawford Street	100m-200m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	1/4P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	1	1	1	1	1	1	1	1
			200m-400m	P Disabled Only	2	2	2	1	1	2	2	1
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
Crawford Street	Northeast	Antill Street to Morisset Street	200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	1/4P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	2	2	1	2	2	2	2	1
			200m-400m	No Parking	2	0	0	0	0	0	0	0
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	Bus Zone	1	0	0	0	0	0	0	0
			200m-400m	2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	3	3	2	3	3	3	2	1
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	9	5	4	6	8	7	6	3
			100m-200m	No Stopping	-	0	0	0	0	0	0	0
		Morisset Street to Monaro Street	100m-200m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	2	2	2	1	2	2	2	1
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	6	4	5	6	6	5	5	4
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	3	2	2	1	2	2	1	1
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
	Southwest	Monaro Street to Morisset Street	200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	6	4	6	5	4	4	5	5
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	P Disabled Only	1	0	1	1	1	0	1	1
			200m-400m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	4	4	4	3	3	3	3	4
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	1P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	8	8	7	6	6	6	7	5
			200m-400m	P Disabled Only	1	0	1	1	0	1	0	1
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
		Morisset Street to Antill Street	100m-200m	No Stopping	-	0	0	0	0	0	0	0
			100m-200m	2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	6	4	5	5	5	3	4	3
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	2P 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	5	4	4	5	5	3	2	1
			200m-400m	No Stopping	-	0	0	0	0	0	0	0

2022-0106: 50 Morisset Street, Queanbeyan

Existing Conditions Car Parking Data

QuantumTraffic

Street	Side	Section	Walking Distance Zone	Restriction	Capacity	Cars Parked Saturday, 18 January 2025						
						07:00	09:00	11:00	13:00	15:00	17:00	19:00
Collett Street	Northeast	Erin Street to Antill Street	200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	Unrestricted	4	3	3	4	4	3	3	0
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	Unrestricted	12	4	4	3	8	7	5	5
			100m-200m	No Stopping	-	0	0	0	0	0	0	0
		Antill Street to Morisset Street	100m-200m	No Stopping	-	0	0	0	0	0	0	0
			<100m	No Parking 8:30am-6pm Mon-Fri, 8:30am-12:30pm Sat	9	0	0	0	0	0	0	0
			<100m	No Stopping	-	0	0	0	0	0	0	0
		Morisset Street to Monaro Street	<100m	No Stopping	-	0	0	0	0	0	0	0
			100m-200m	2P 7am-6pm Mon-Sun	6	4	3	4	3	2	2	0
			100m-200m	No Stopping	-	0	0	0	0	0	0	0
			100m-200m	2P 7am-6pm Mon-Sun	3	2	3	3	2	1	2	1
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
	Southwest	Monaro Street to Morisset Street	100m-200m	No Stopping	-	0	0	0	0	0	0	0
			<100m	2P 7am-6pm Mon-Sun	2	1	0	1	1	1	0	0
			<100m	No Stopping	-	0	0	0	0	0	0	0
		Morisset Street to Antill Street	<100m	No Stopping	-	0	0	0	0	0	0	0
			<100m	Unrestricted	11	9	7	7	6	5	9	10
			100m-200m	No Stopping	-	0	0	0	0	0	0	0
		Antill Street to Erin Street	100m-200m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	Unrestricted	16	14	15	16	16	13	8	5
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
			200m-400m	Unrestricted	4	3	2	3	2	3	2	1
			200m-400m	Bus Zone	1	0	0	0	0	0	0	0
			200m-400m	Unrestricted	2	1	2	2	2	1	1	1
			200m-400m	P Disabled Only	1	0	1	1	1	1	1	0
			200m-400m	Unrestricted	2	1	1	2	2	1	1	0
			200m-400m	No Stopping	-	0	0	0	0	0	0	0
Woolworths Carpark				Unrestricted (Private)	303	111	195	251	258	219	189	175
Riverside Plaza North Carpark (Subject Site)			On-Site	Unrestricted (Private)	198	75	143	151	150	105	75	65
Collett Carpark			100m-200m	Unrestricted	261	32	30	35	39	38	23	23
Riverside Plaza South Carpark		Ground Level	<100m	Unrestricted (Private)	136	68	74	75	65	58	31	15
		Underground	100m-200m	Unrestricted (Private)	300	128	182	196	148	126	102	76
On-Site	**Capacity**					**198**	**198**	**198**	**198**	**198**	**198**	**198**
	Cars Parked					**75**	**143**	**151**	**150**	**105**	**75**	**65**
	Vacant Spaces					**123**	**55**	**47**	**48**	**93**	**123**	**133**
	Occupancy					**38%**	**72%**	**76%**	**76%**	**53%**	**38%**	**33%**
<200m	**Capacity**					**959**	**950**	**950**	**959**	**959**	**959**	**959**
	Cars Parked					**338**	**459**	**492**	**435**	**352**	**260**	**201**
	Vacant Spaces					**621**	**491**	**458**	**524**	**607**	**699**	**758**
	Occupancy					**35%**	**48%**	**52%**	**45%**	**37%**	**27%**	**21%**
Total	**Capacity**					**1,421**	**1,412**	**1,412**	**1,421**	**1,421**	**1,421**	**1,421**
	Cars Parked					**550**	**762**	**853**	**809**	**676**	**539**	**445**
	Vacant Spaces					**871**	**650**	**559**	**612**	**745**	**882**	**976**
	Occupancy					**39%**	**54%**	**60%**	**57%**	**48%**	**38%**	**31%**

Appendix D:

Proposed Development Plans

1142.QUE

PROPOSED MIXED USE DEVELOPMENT
50 MORISSET STREET QUEANBEYAN NSW

SUMMARY OF AREAS & UNITS	
AREA SUMMARY	
SITE	5940 m²

FSR SCHEDULE	
REFER AREA PLAN	
GROUND	981 m²
LEVEL 1	241 m²
LEVEL 2	1563 m²
LEVEL 3	1563 m²
LEVEL 4	1563 m²
LEVEL 5	1563 m²
LEVEL 6	1563 m²
LEVEL 7	1563 m²
LEVEL 8	1563 m²
LEVEL 9	1563 m²
TOTAL FSR	**13729 m²**
FSR = 2.3:1	

UNITS	
BEDROOM SUMMARY	
1 BED	80
2 BED	80
TOTAL UNITS	**160**

UNIT TYPE SUMMARY	
1A	16
1B	32
1C	16
1D	16
2A-1	16
2A-2	16
2B-1	16
2B-2	16
2C	16
TOTAL UNITS	**160**

STORE SUMMARY	
GROUND	54
LEVEL 1	106
TOTAL STORES	**160**

PARKING CALCULATIONS	
VEHICULAR PARKING SUMMARY	
RESIDENTS SINGLE	133
RESIDENTS TANDEM	56
TOTAL SPACES	**189**
RESIDENTS VISITOR	12
RETAIL	11
TOTAL CARPARKS	212
MOTOR BIKE	4

15 BICYCLE PARKS PROVIDED IN AROUND FOYERS AND COMMERCIAL SPACES ON GROUND FLOOR

PARKING GENERATION

1 BED UNITS = 0.6 x 80 = 48 SPACES
2 BED UNITS = 0.9 x 80 = 72 SPACES
TOTAL = 120 SPACES
189 PROVIDED

VISITORS = 1 SPACE PER 5 UNITS
160 UNITS / 5 = 32 SPACES
12 PROVIDED incl 2 ACCESSIBLE

COMMERCIAL =

11 PROVIDED

BASIX COMMITMENTS

BASIX WATER
- Dwellings: 4 star showerheads (>4.5 but <6L/min); 4 star toilets; 5 star taps
- Common area tap: 4 star Achievable
- 20kL central water tank, collected from 200m2 roof area and used for common area lawn/garden

BASIX ENERGY
VENTILATION
- Common (undercover carparks – ventilation exhaust only with carbon monoxide monitor + VSD fan); ventilation (supply & exhaust) in Garbage rooms and no mechanical ventilation in service room; continuous ventilation supply only in lobby's
- Dwelling – bathroom/kitchen/laundry individual fan exhausted to façade/roof

HEATING/COOLING
- Common: nil systems Correct
- Dwellings: 5-star 1-phase non ducted air conditioning to living and bedrooms

Gearless traction lifts (>1001kg but < 1500kg) with VVVF motors and regenerative drives
Fire sprinkler systems to have test water stored within a closed system

LIGHTING - LED throughout with energy efficiency measures
- Lifts: connected to lift call button
- Carpark: daylight sensor and motion sensors
- Garbage rooms: motion sensors
- Service room: manual on:off
- Lobby's: daylight sensors

Dwelling – induction COOKTOP/oven
Central Renewable energy system - 20kW PV system

BASIX THERMAL COMFORT
GLAZING
As per NatHERS:
[64%] Maximum U-value 4.8 SHGC 0.29 - 0.33 (awning) SHGC 0.24 - 0.26 (sliding/fixed)
[49%] Maximum U-value 2.9 SHGC 0.48-0.54 (sliding/fixed) Max U-value 2.91 SHGC 0.42-0.46 (awning)
[4%] Maximum U-value 4.1 SHGC 0.45 – 0.49 (sliding/fixed) 0.49-0.55 (awning)
Double clear glaze skylights Maximum U-value 4.22 SHGC 0.68 – 0.76

INSULATION
Minimum R5 insulation to be installed to ceiling with reflective foil
Minimum R2 insulation to be installed to external walls
Minimum (60mm) rigid reflective insulation (R2.75) to be installed to suspended slab below L2 units

LIGHTING
Any downlights to be LED, IC-F compliant so as to allow full coverage of insulation

VENTILATION
Exhaust fans to be sealed

SHADING
Miniature louvres to awning window as per NatHERS to units 208, 209, 308, 309, 319, 409, 419, 509, 519, 609, 619, 709, 617, 909, 910, 918

CEILING FANS
Minimum 1200mm to bedroom/living rooms in units 306, 316, 317, 318, 416, 417, 603, 703, 803, 817, 903, 909, 910, 917

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PROPOSED MIXED USE DEVELOPMENT
50 MORISSET STREET
QUEANBEYAN

COVER PAGE

rev	date	description
DA02	18/11/24	ISSUED FOR DA RFI
DA01	29/11/23	ISSUED FOR DA APPROVAL
04	24/11/23	ISSUED FOR INFORMATION
03	10/11/23	ISSUED FOR INFORMATION

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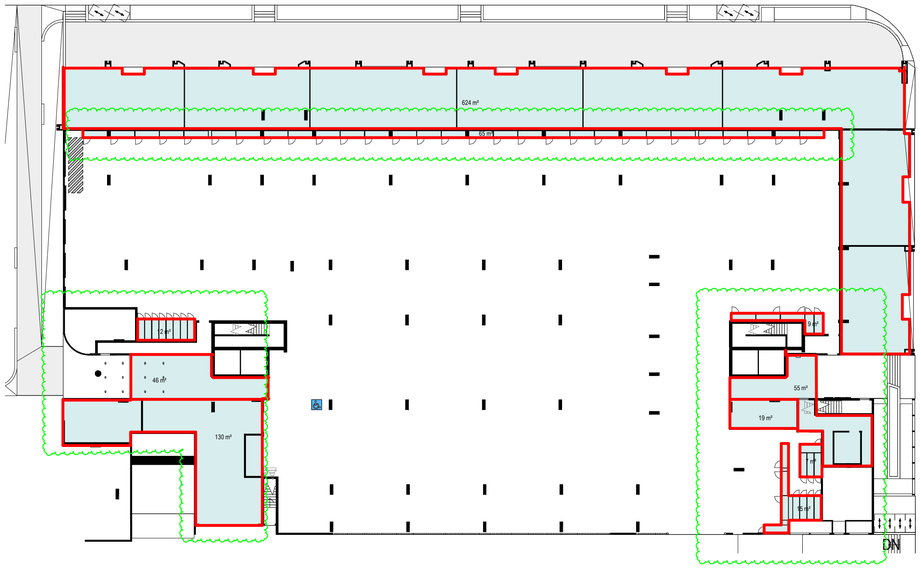
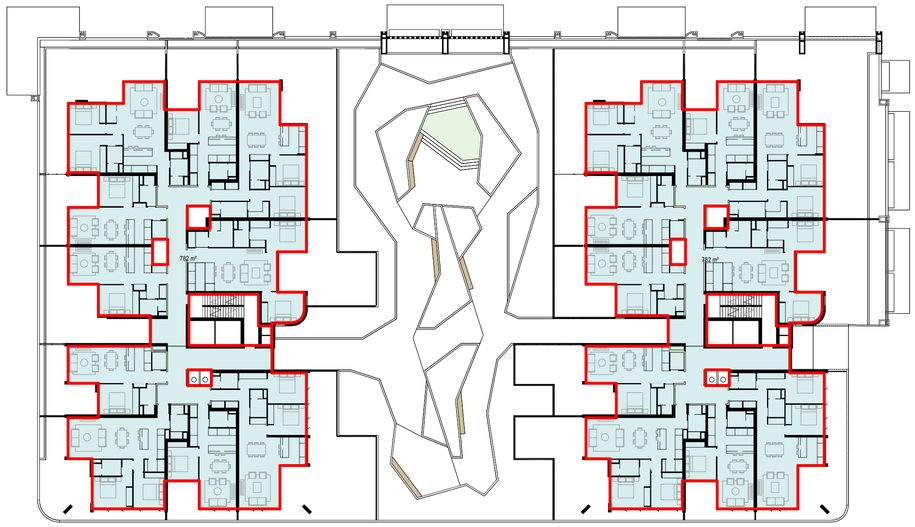
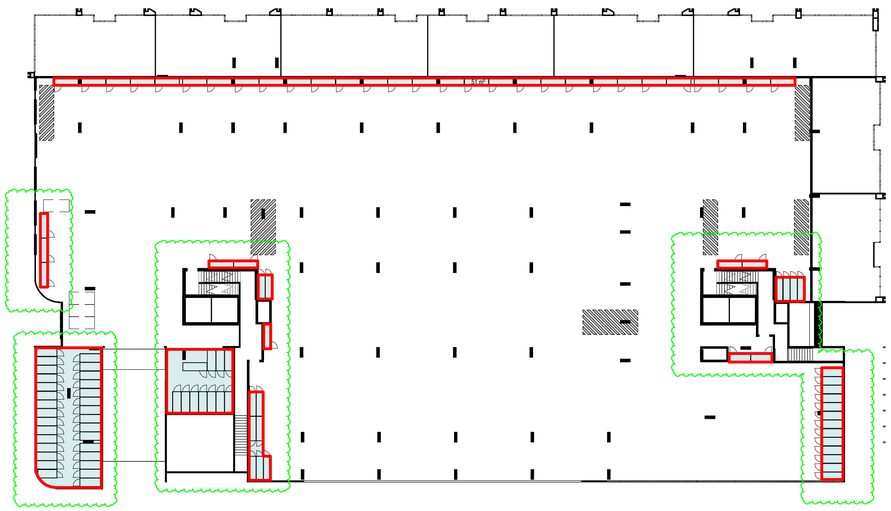
sheet number **DA000**
revision **DA02** date **18/11/24**



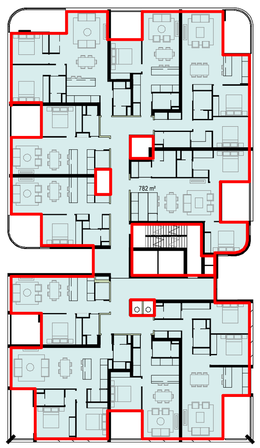
GROUND



LEVEL 2



LEVEL 1



TYPICAL LEVEL 3-9

AREA - GFA

Level	Name	GFA
GROUND	COMMERCIAL	624 m²
GROUND	LOBBY	101 m²
GROUND	SERVICES	142 m²
GROUND	STORAGE	114 m²
		981 m²
LEVEL 1	STORAGE	241 m²
		241 m²
LEVEL 2	RESIDENTIAL - NORTH TOWER	782 m²
LEVEL 2	RESIDENTIAL - SOUTH TOWER	782 m²
		1563 m²
LEVEL 3	RESIDENTIAL - NORTH TOWER	782 m²
LEVEL 3	RESIDENTIAL - SOUTH TOWER	782 m²
		1563 m²
LEVEL 4	RESIDENTIAL - NORTH TOWER	782 m²
LEVEL 4	RESIDENTIAL - SOUTH TOWER	782 m²
		1563 m²
LEVEL 5	RESIDENTIAL - NORTH TOWER	782 m²
LEVEL 5	RESIDENTIAL - SOUTH TOWER	782 m²
		1563 m²
LEVEL 6	RESIDENTIAL - NORTH TOWER	782 m²
LEVEL 6	RESIDENTIAL - SOUTH TOWER	782 m²
		1563 m²
LEVEL 7	RESIDENTIAL - NORTH TOWER	782 m²
LEVEL 7	RESIDENTIAL - SOUTH TOWER	782 m²
		1563 m²
LEVEL 8	RESIDENTIAL - NORTH TOWER	782 m²
LEVEL 8	RESIDENTIAL - SOUTH TOWER	782 m²
		1563 m²
LEVEL 9	RESIDENTIAL - NORTH TOWER	782 m²
LEVEL 9	RESIDENTIAL - SOUTH TOWER	782 m²
		1563 m²
TOTAL		13729 m²

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PROPOSED MIXED USE DEVELOPMENT
50 MORISSET STREET
QUEANBEYAN

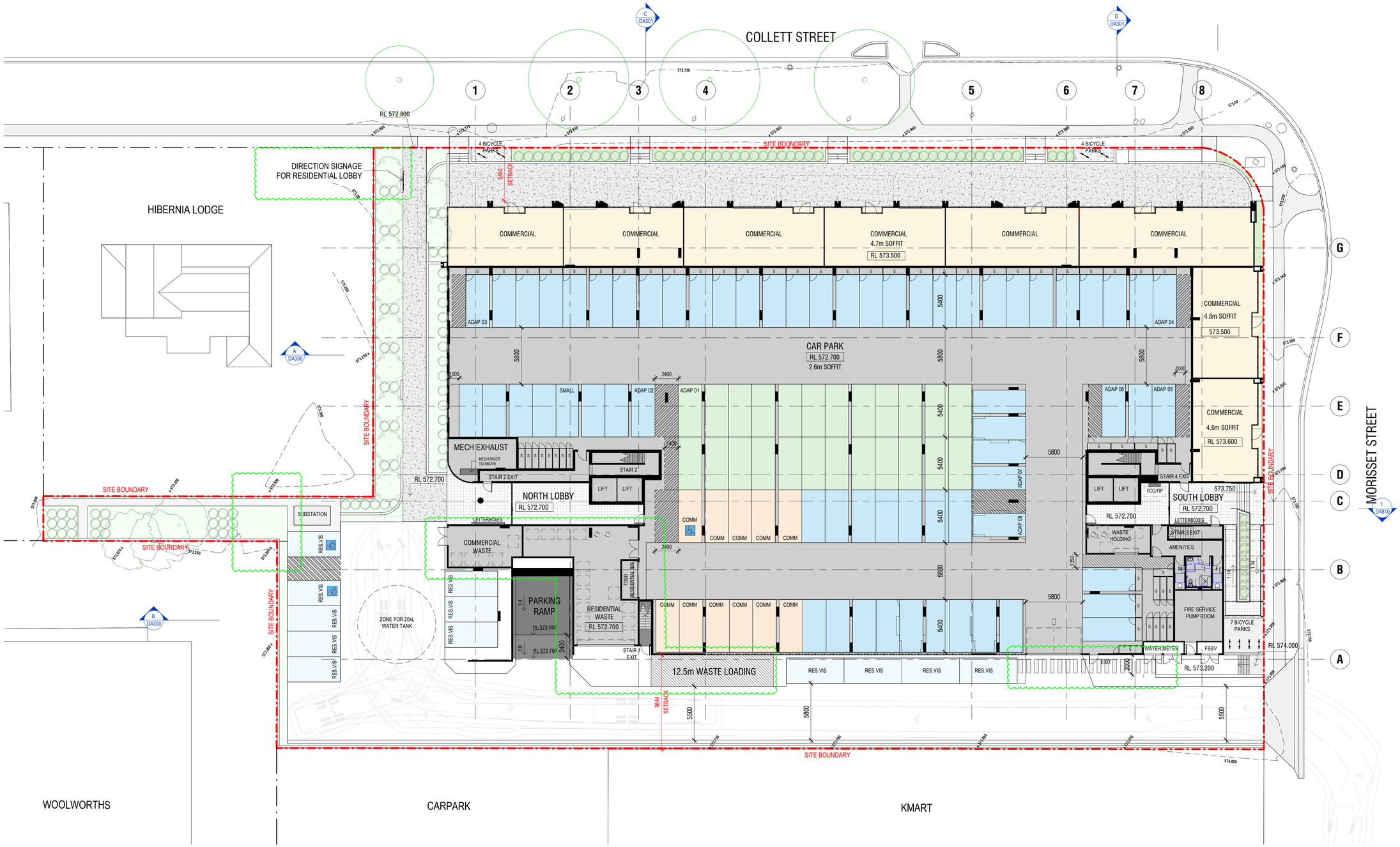
AREA PLANS

rev	date	description
DA02	18/11/24	ISSUED FOR DA RFI
DA01	29/11/23	ISSUED FOR DA APPROVAL
03	10/11/23	ISSUED FOR INFORMATION
02	03/11/23	ISSUED FOR INFORMATION

scale **1 : 300 @ A1**

sheet number **DA015**

revision **DA02** date **18/11/24**



PROPOSED MIXED USE DEVELOPMENT
50 MORISSET STREET
QUEANBEYAN

GROUND FLOOR PLAN

rev	date	description
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DA01	29/11/23	ISSUED FOR DA APPROVAL
04	24/11/23	ISSUED FOR INFORMATION
03	10/11/23	ISSUED FOR INFORMATION

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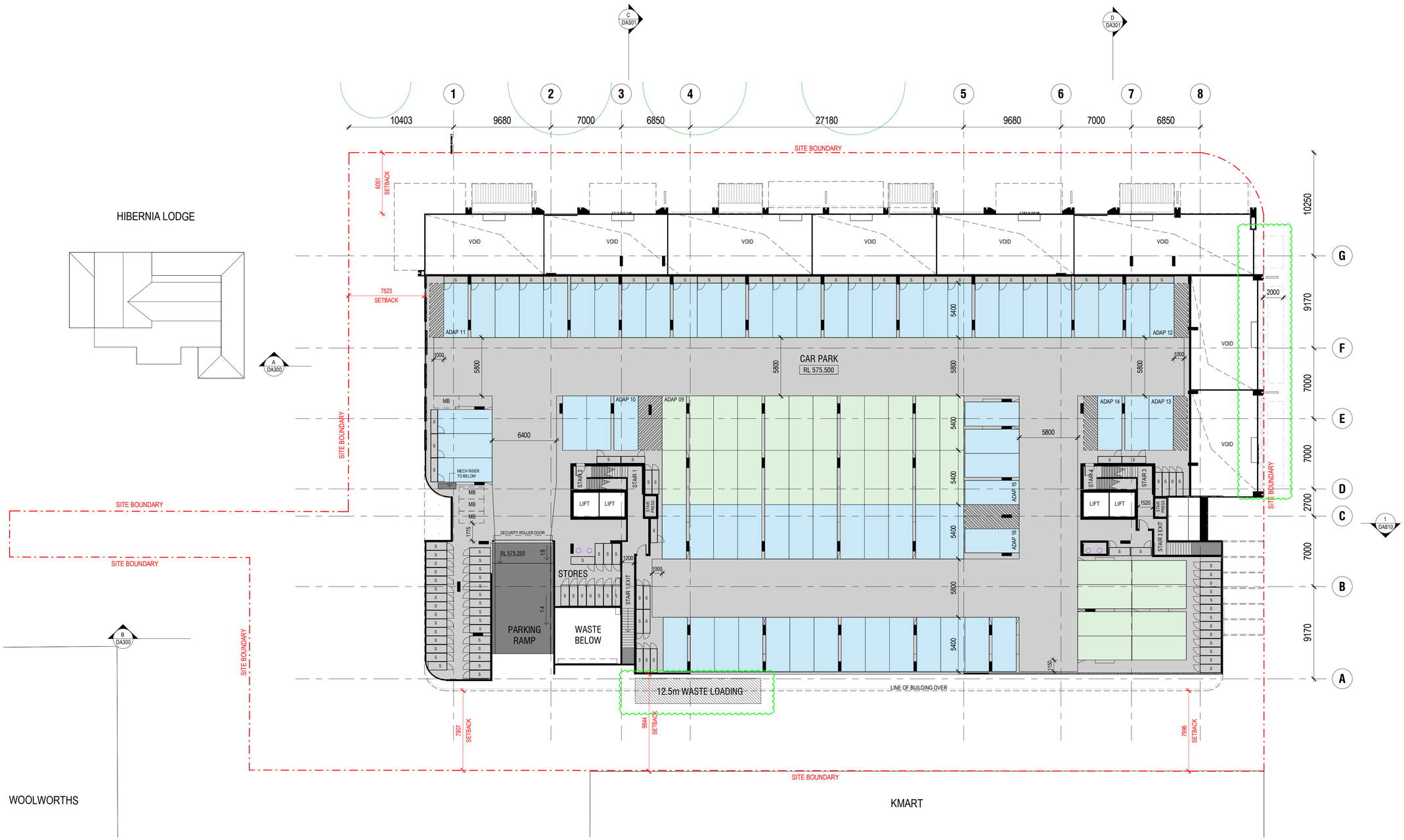
sheet number **DA102**
revision **DA02** date **18/11/24**



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PROPOSED MIXED USE DEVELOPMENT
50 MORISSET STREET
QUEANBEYAN

LEVEL 1 FLOOR PLAN

rev	date	description
DA02	18/11/24	ISSUED FOR DA RFI
DA01	29/11/23	ISSUED FOR DA APPROVAL
03	10/11/23	ISSUED FOR INFORMATION
02	03/11/23	ISSUED FOR INFORMATION

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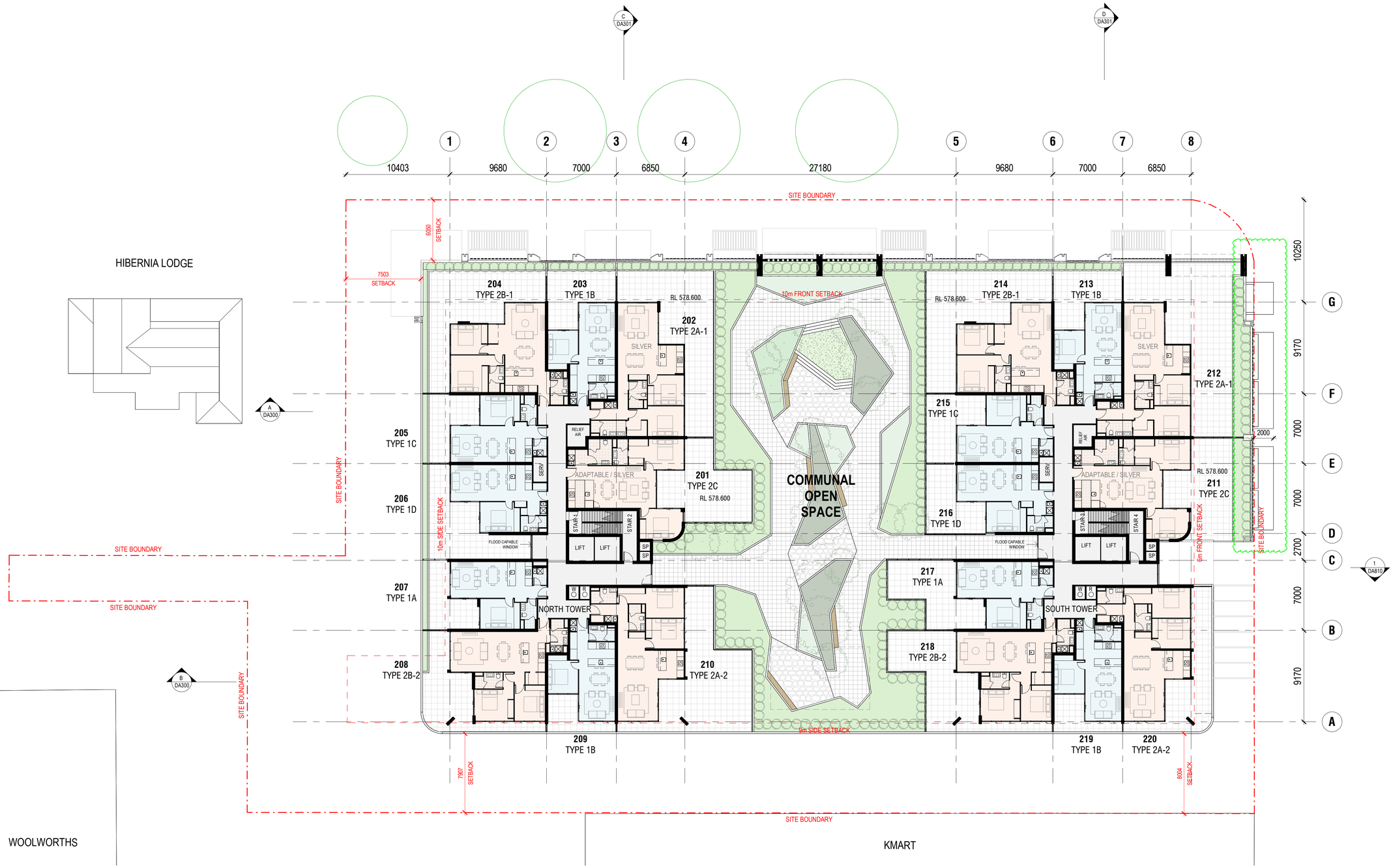
sheet number **DA103**
revision **DA02** date **18/11/24**



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PROPOSED MIXED USE DEVELOPMENT
50 MORISSET STREET
QUEANBEYAN

LEVEL 2 FLOOR PLAN

rev	date	description
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DA01	29/11/23	ISSUED FOR DA APPROVAL
04	24/11/23	ISSUED FOR INFORMATION
03	10/11/23	ISSUED FOR INFORMATION

scale **1 : 200 @ A1**

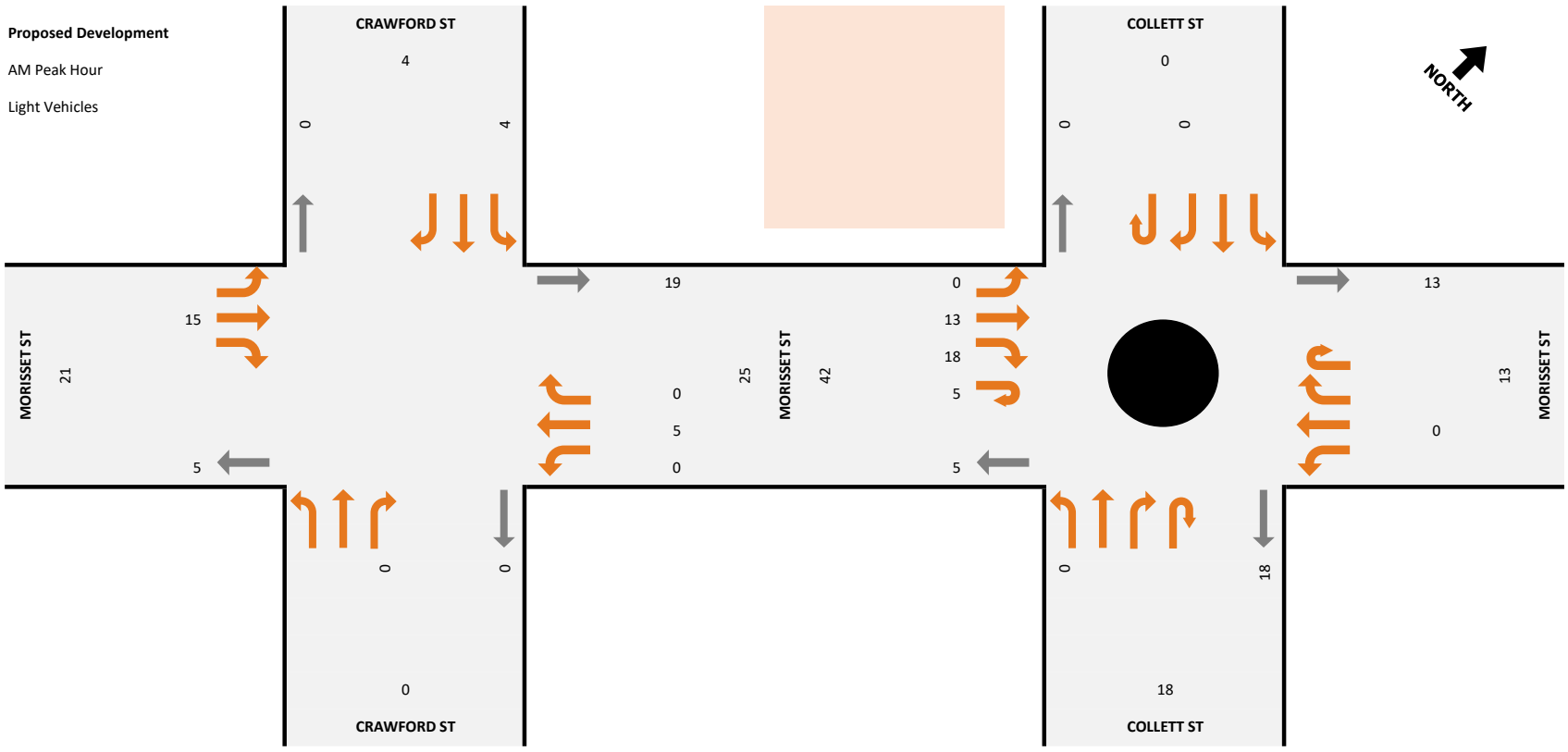
sheet number **DA104**
revision **DA02** date **18/11/24**

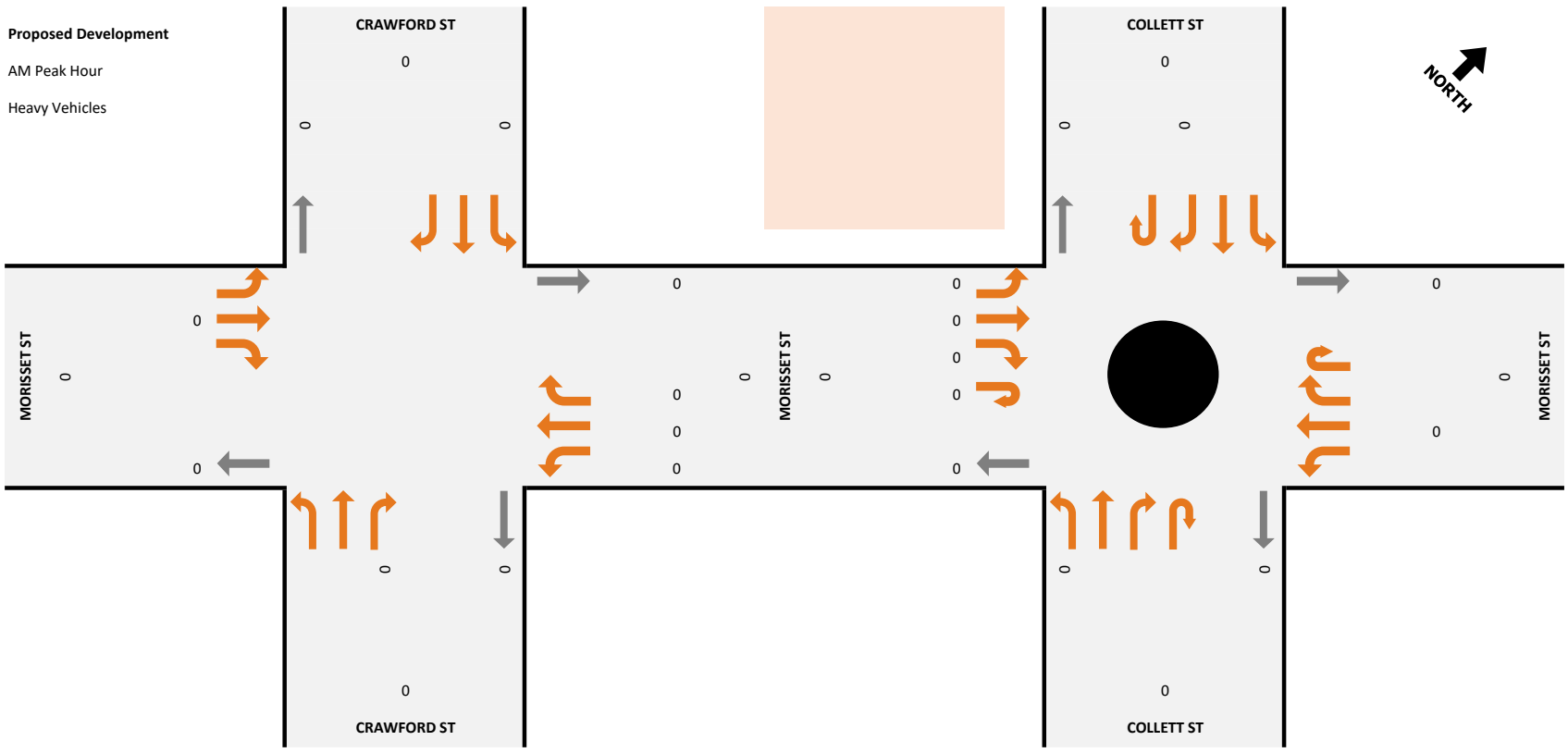
Appendix E:

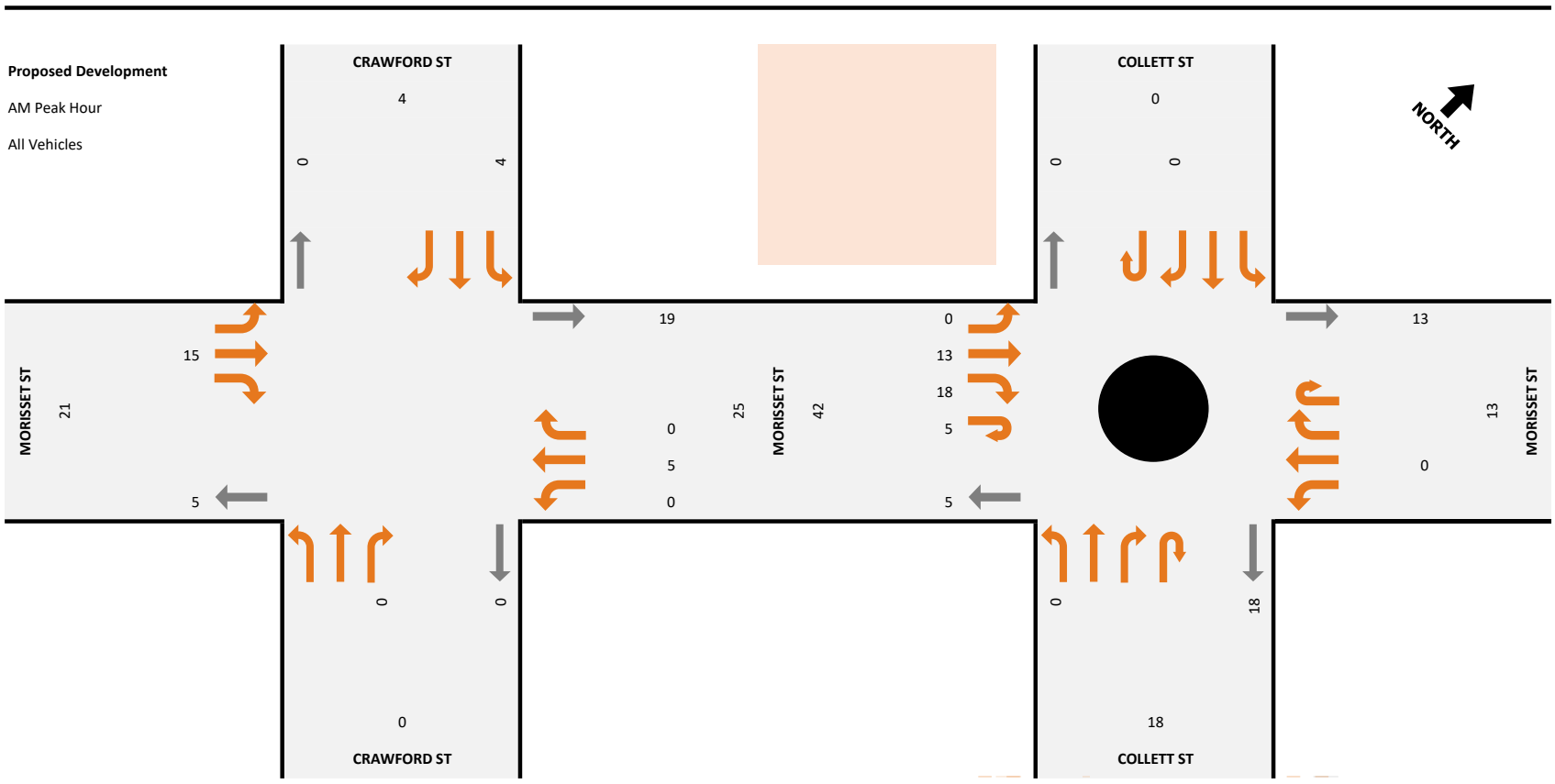
Peak Hour Traffic Demands – Proposed Development

22-0106: 50 Morisset Street, Queanbeyan

Peak Hour Traffic Volumes



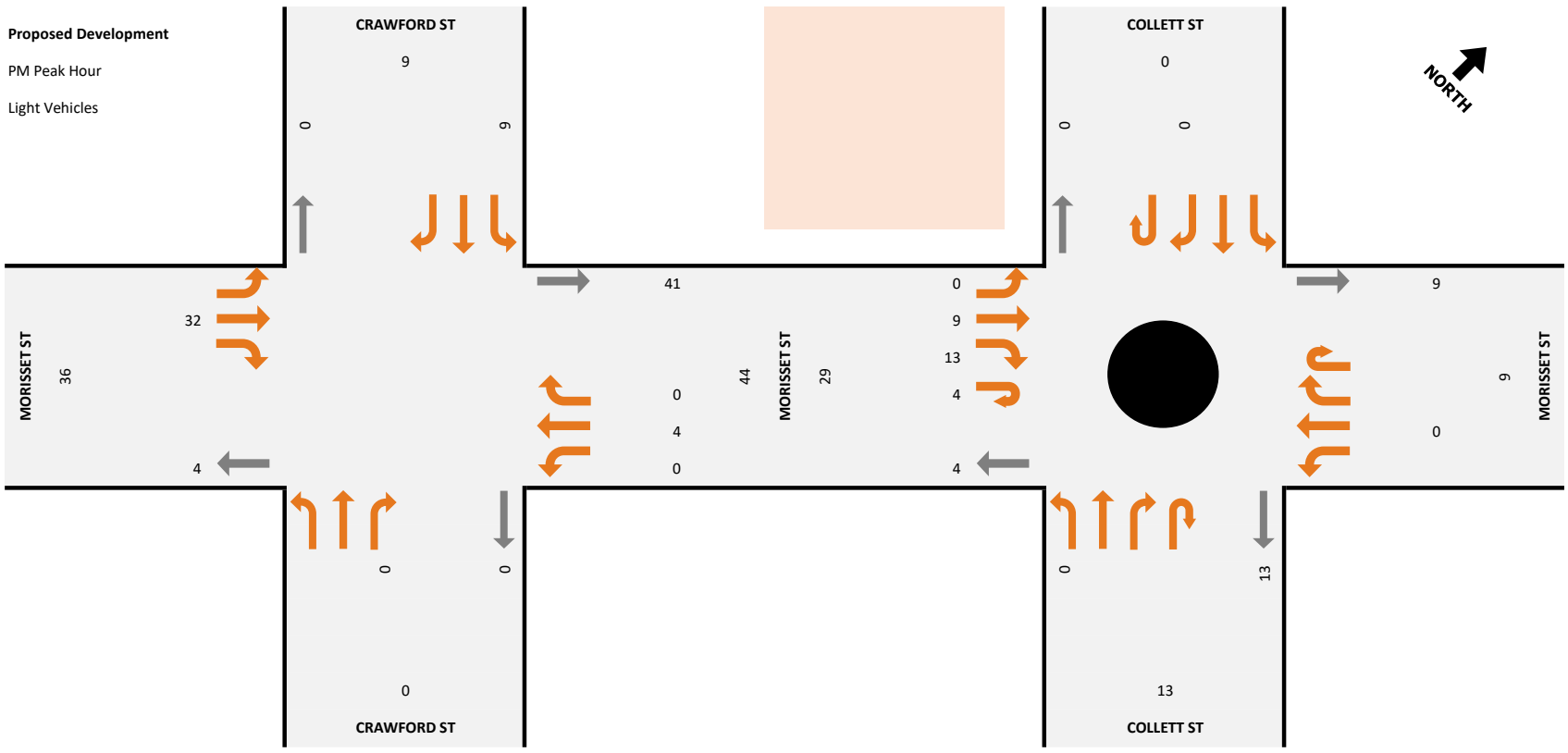


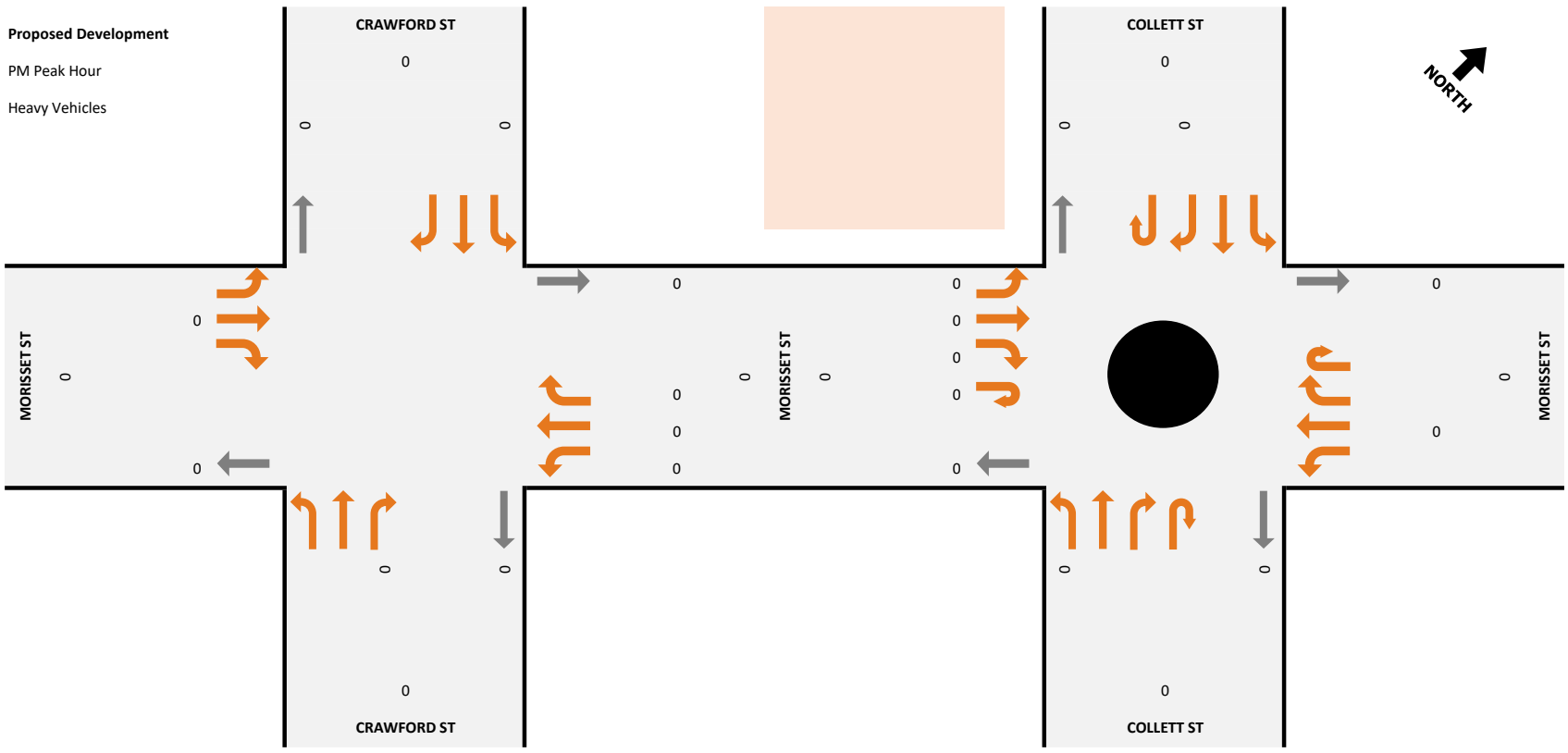


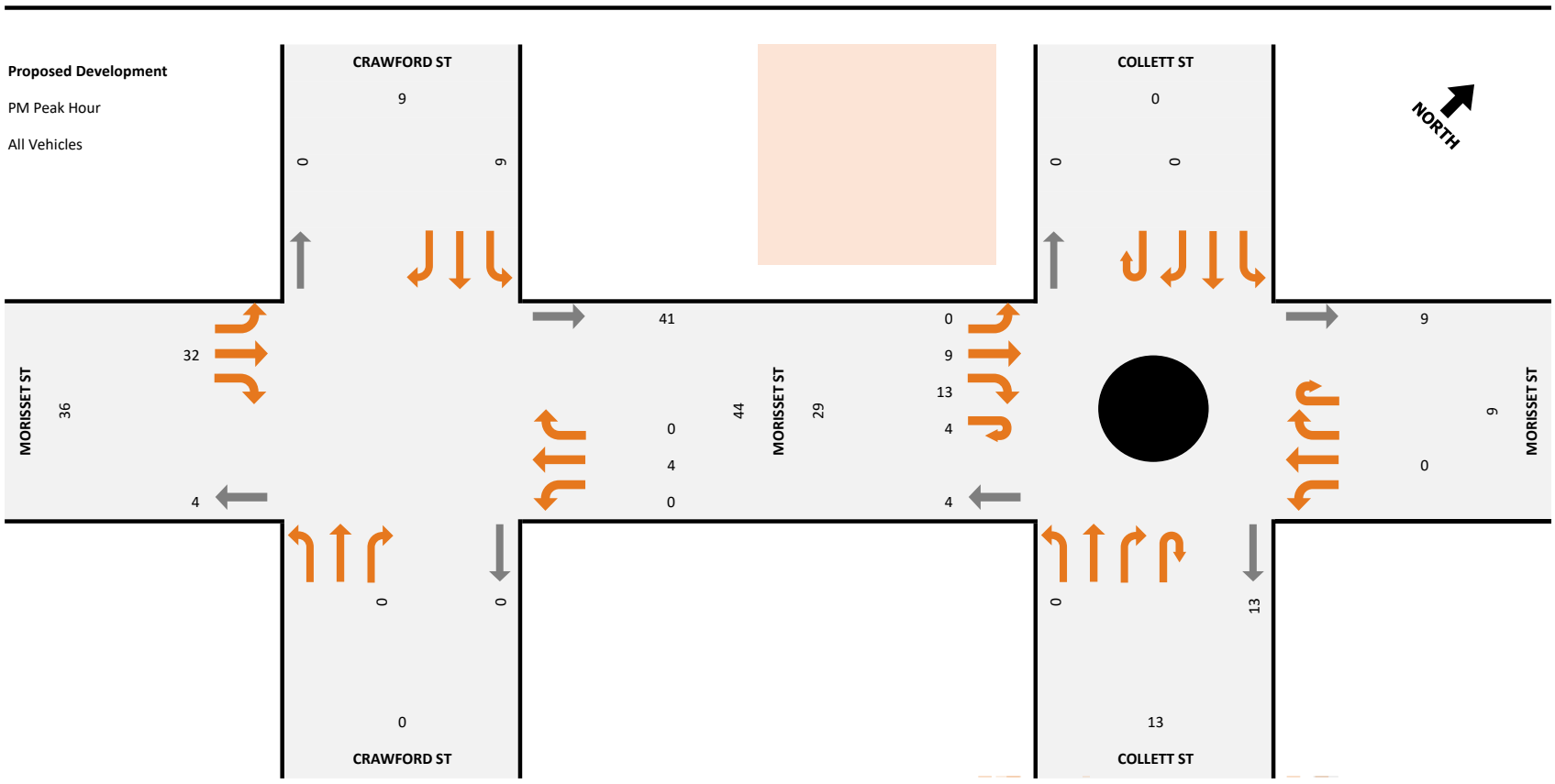
22-0106: 50 Morisset Street, Queanbeyan

Peak Hour Traffic Volumes

QuantumTraffic





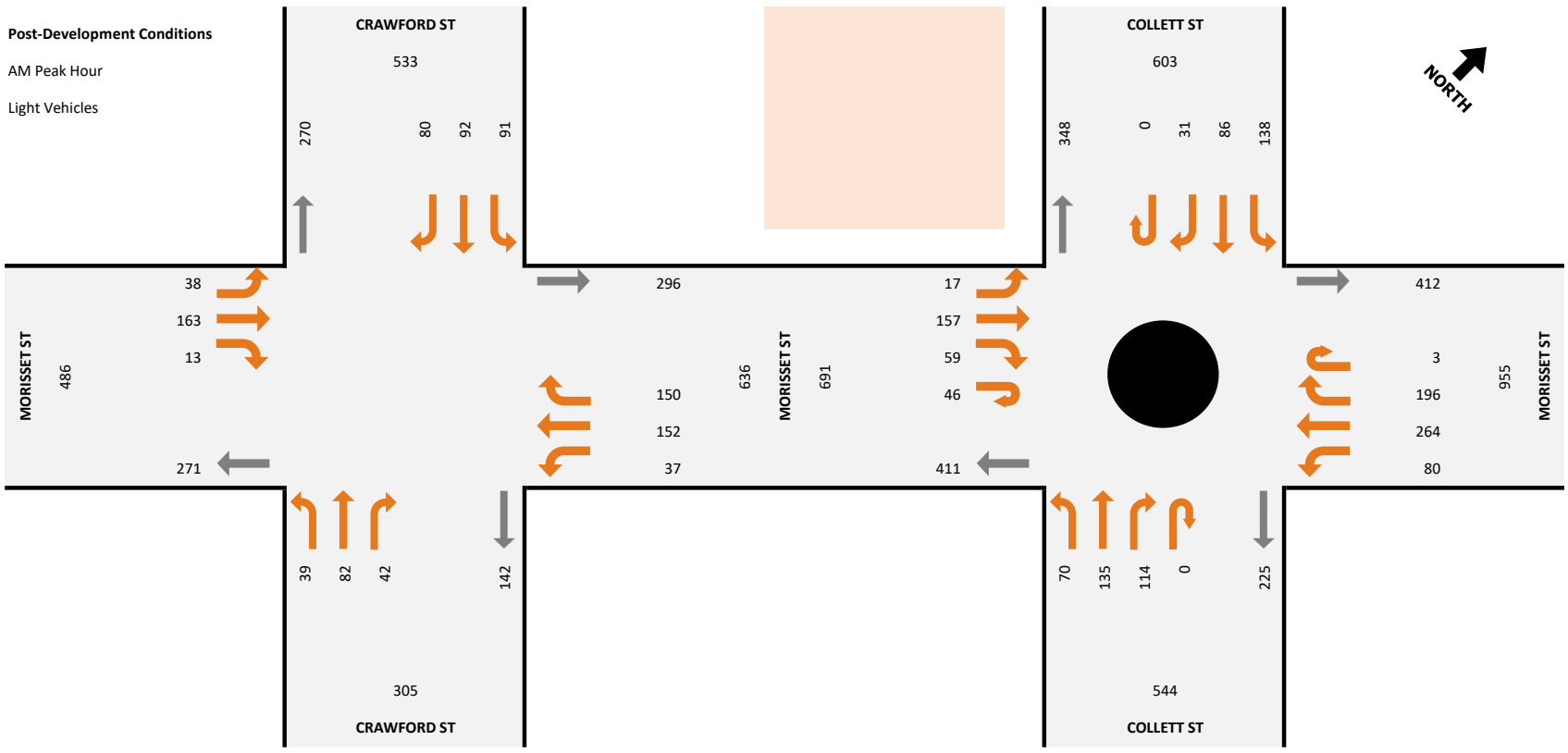


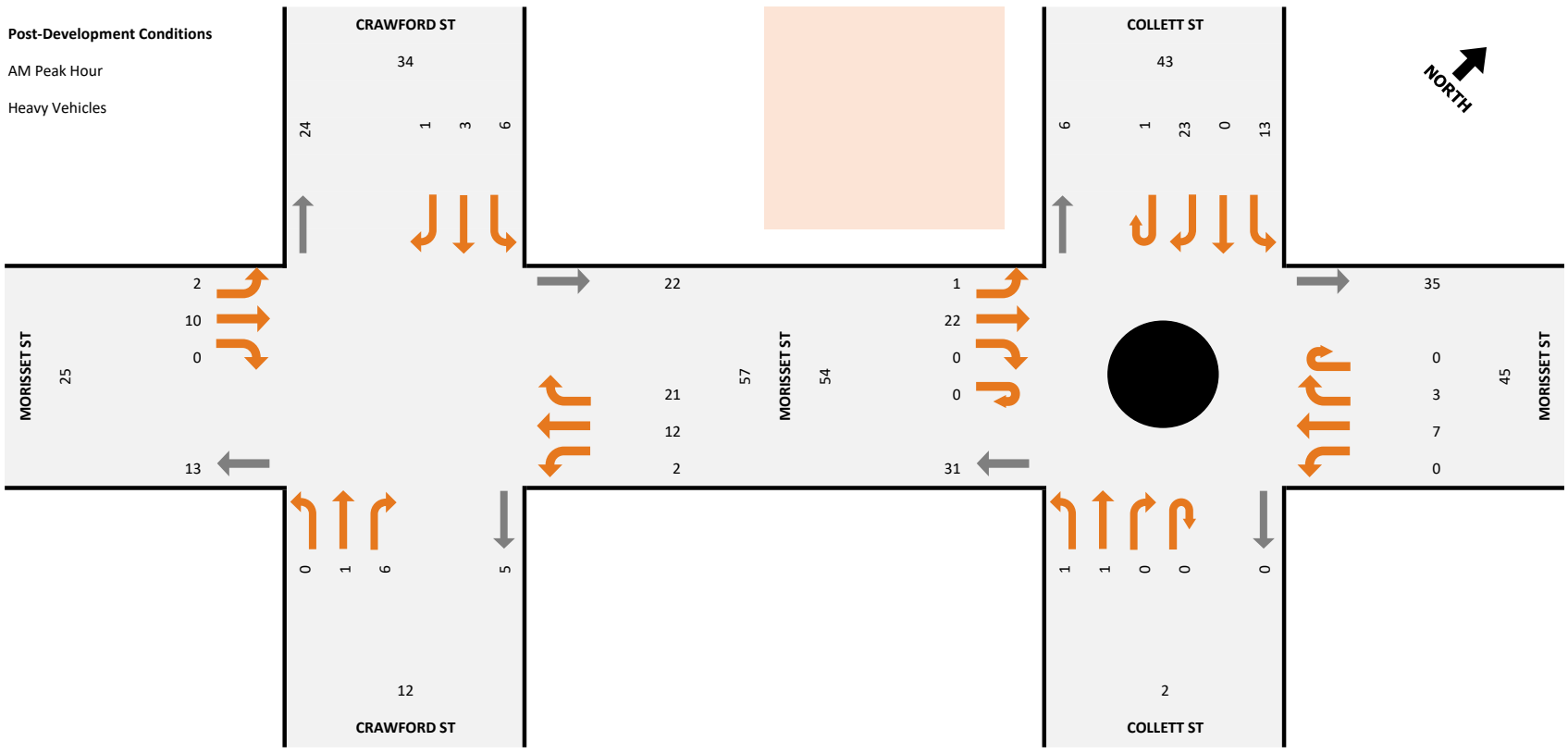
Appendix F:

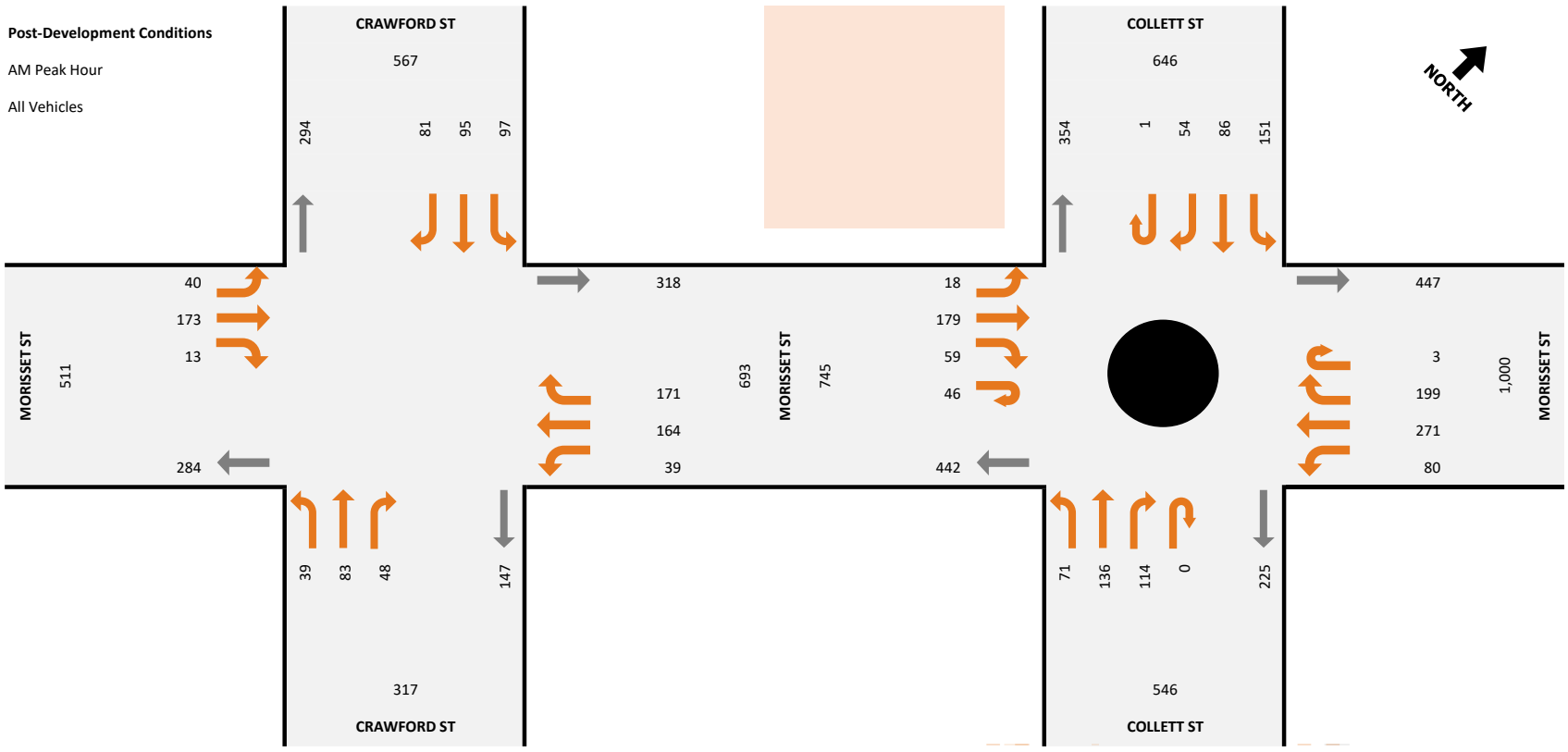
Peak Hour Traffic Demands – Post-Development Conditions

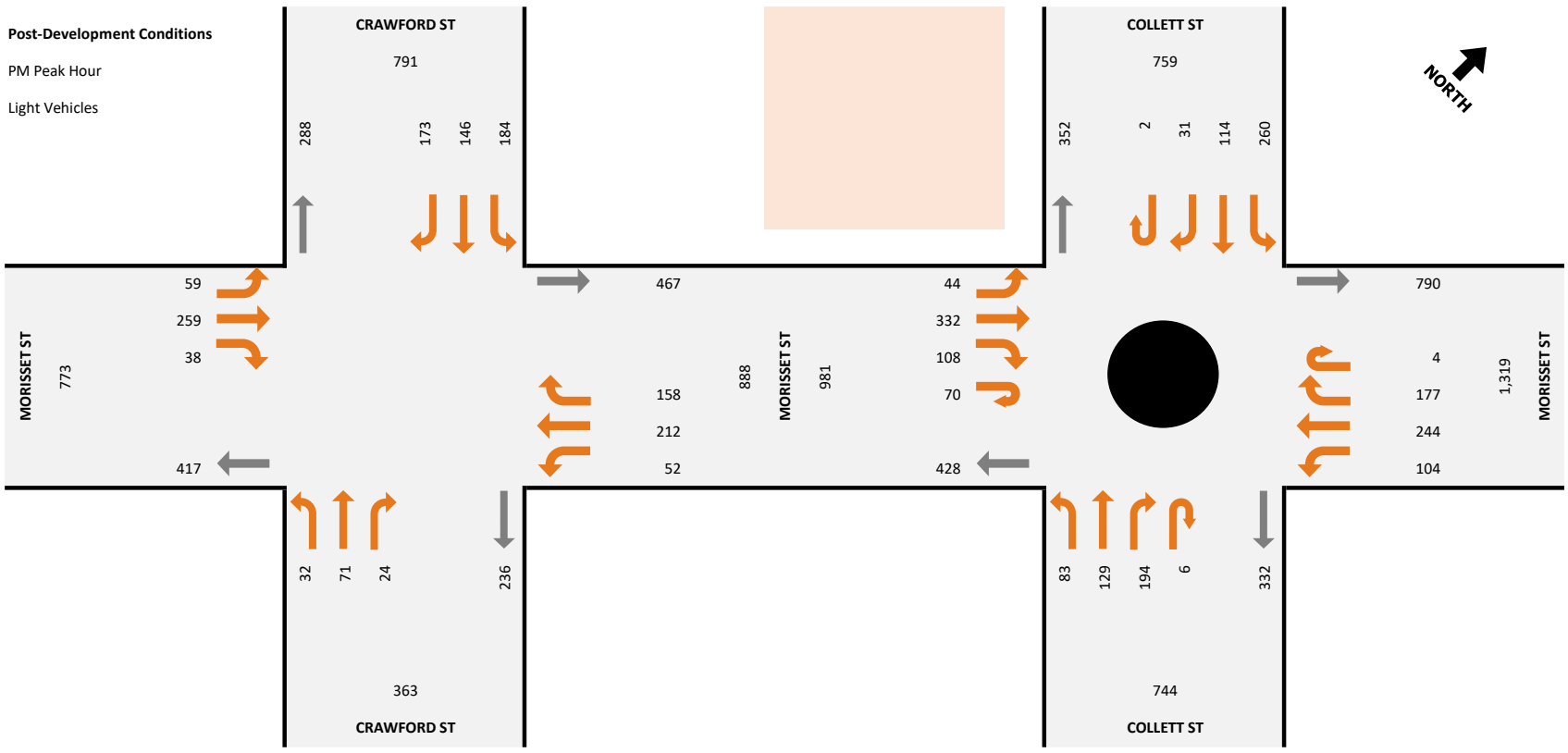
22-0106: 50 Morisset Street, Queanbeyan

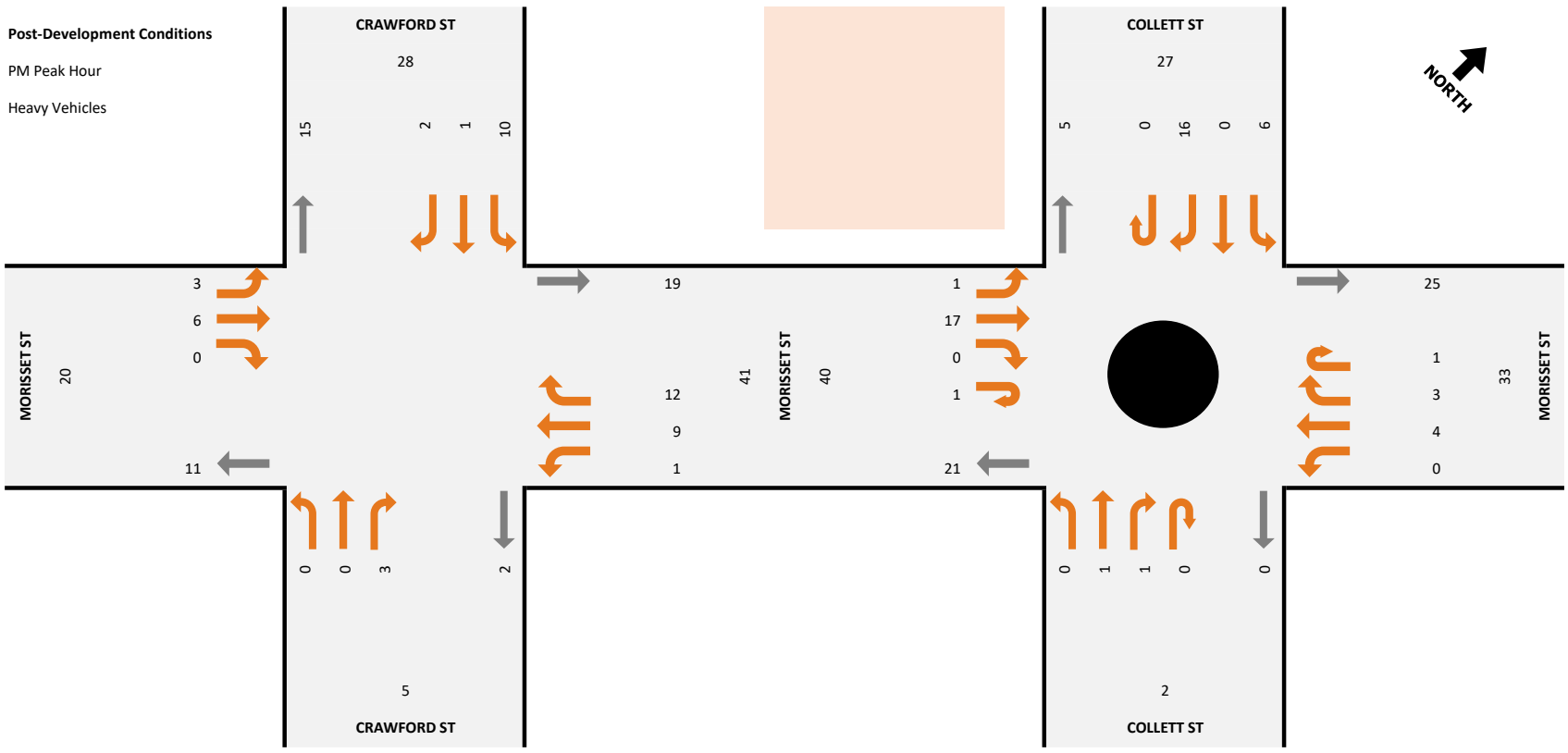
Peak Hour Traffic Volumes

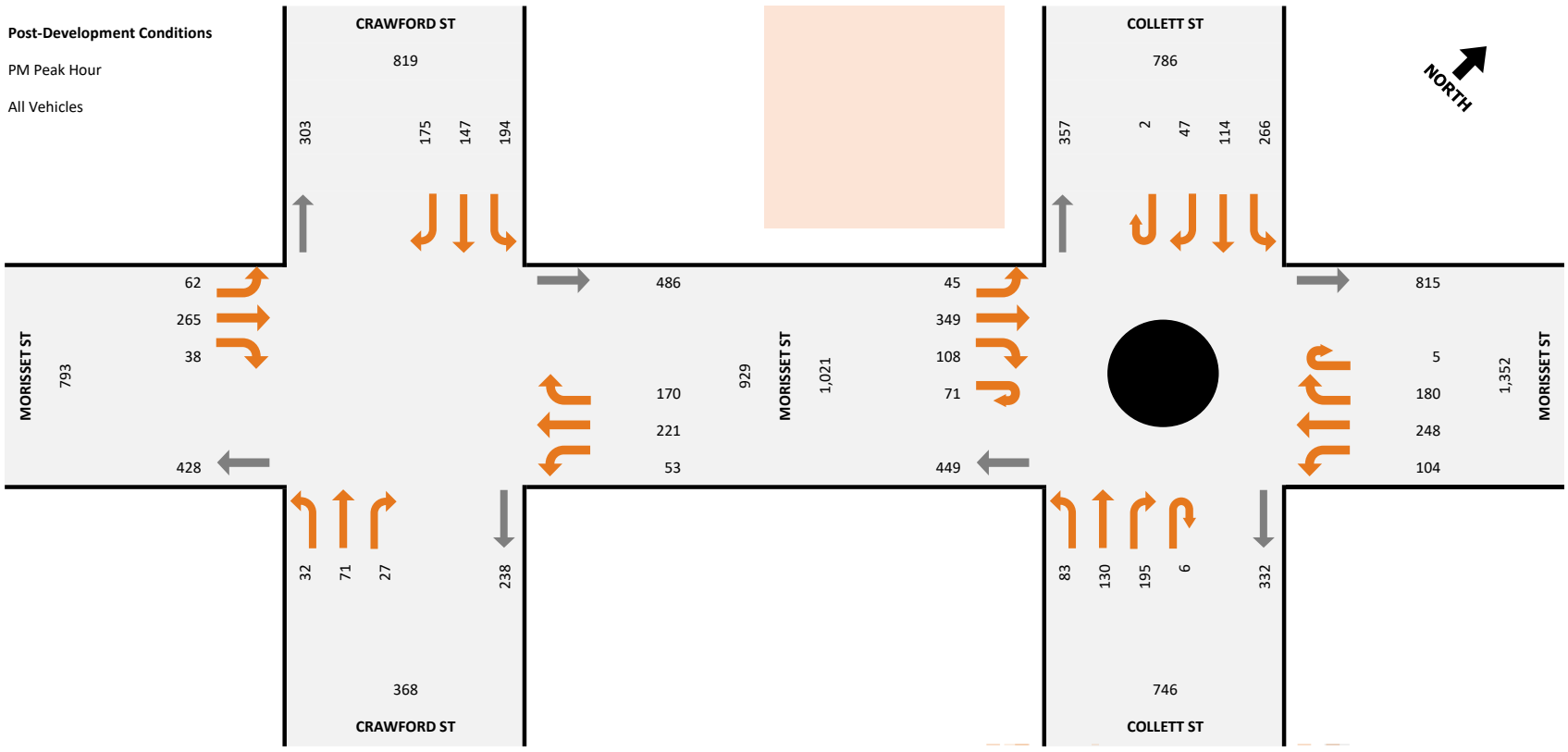







Post-Development Conditions
PM Peak Hour
Light Vehicles
CRAWFORD ST
791
288
173
146
184
COLLETT ST
759
352
2
31
114
260
NORTH
MORISSET ST
773
59
259
38
417
467
158
212
52
888
MORISSET ST
981
44
332
108
70
428
790
4
177
244
104
1,319
MORISSET ST
32
71
24
236
363
CRAWFORD ST
83
129
194
6
332
744
COLLETT ST


Post-Development Conditions
PM Peak Hour
Heavy Vehicles
CRAWFORD ST
28
15
2
1
10
COLLETT ST
27
5
0
16
0
6
NORTH
MORISSET ST
20
3
6
0
11
19
12
9
1
41
MORISSET ST
40
1
17
0
1
21
25
1
3
4
0
33
MORISSET ST
0
0
3
2
5
CRAWFORD ST
0
1
1
0
0
2
COLLETT ST


Post-Development Conditions
PM Peak Hour
All Vehicles
CRAWFORD ST
819
303
175
147
194
COLLETT ST
786
357
2
47
114
266
NORTH
MORISSET ST
793
62
265
38
428
486
170
221
53
929
MORISSET ST
1,021
45
349
108
71
449
815
5
180
248
104
1,352
MORISSET ST
32
71
27
238
368
CRAWFORD ST
83
130
195
6
332
746
COLLETT ST

Appendix G:

Intersection Performance Summary – Post-Development Conditions

USER REPORT FOR SITE

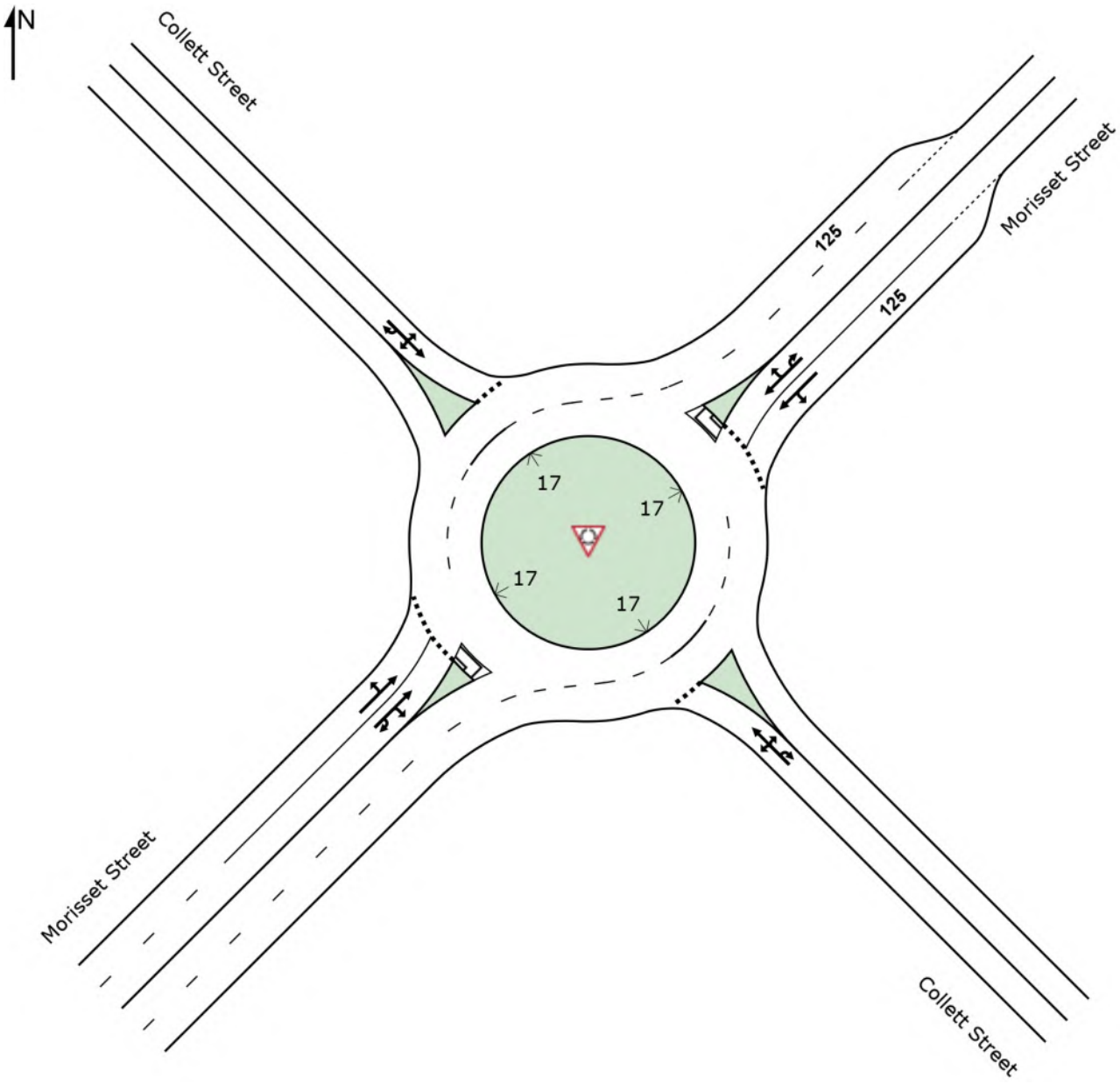
Project: 22-0106_20231107

Template: Default Site User Report

Site: [PostDev AM: Collett-Morisset]

Collett Street / Morisset Street
Existing Unsignalised Roundabout
Site Category: Post-Development Conditions - AM Peak Hour
Roundabout

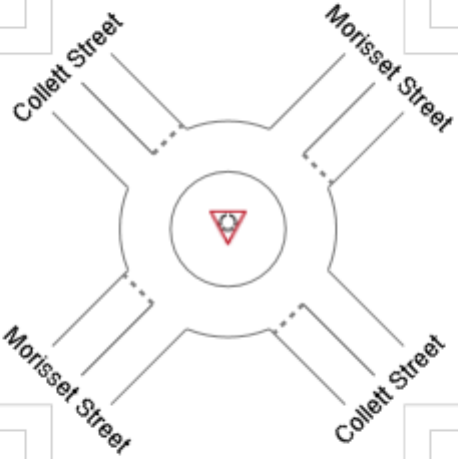
Site Layout

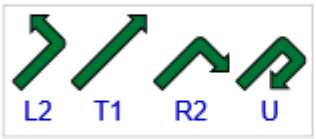


OD Demand Flows

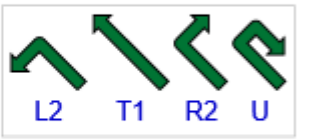
	U	R2	T1	L2
Tot	1	57	91	159
LV	0	33	91	145
HV	1	24	0	14

	U	R2	T1	L2
Tot	3	209	285	84
LV	3	206	278	84
HV	0	3	7	0





	L2	T1	R2	U
Tot	19	188	62	48
LV	18	165	62	48
HV	1	23	0	0



	L2	T1	R2	U
Tot	75	143	120	0
LV	74	142	120	0
HV	1	1	0	0

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Collett Street	338	336	2
NE: Morisset Street	582	572	11
NW: Collett Street	307	269	39
SW: Morisset Street	318	294	24
Total	1545	1470	76

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Collett Street												
1	L2	75	1.4	0.412	6.1	LOS A	2.1	15.0	0.63	0.79	0.67	45.3
2	T1	143	0.7	0.412	6.1	LOS A	2.1	15.0	0.63	0.79	0.67	46.3
3	R2	120	0.0	0.412	10.3	LOS A	2.1	15.0	0.63	0.79	0.67	47.1
3u	U	0	0.0	0.412	12.1	LOS A	2.1	15.0	0.63	0.79	0.67	48.2
Approach		338	0.6	0.412	7.6	LOS A	2.1	15.0	0.63	0.79	0.67	46.4
NorthEast: Morisset Street												
4	L2	84	0.0	0.232	4.5	LOS A	1.5	10.6	0.46	0.49	0.46	47.2
5	T1	285	2.6	0.232	4.3	LOS A	1.5	10.6	0.47	0.51	0.47	46.1
6	R2	209	1.5	0.232	8.7	LOS A	1.4	10.2	0.48	0.63	0.48	44.6
6u	U	3	0.0	0.232	10.5	LOS A	1.4	10.2	0.48	0.63	0.48	46.8
Approach		582	1.8	0.232	5.9	LOS A	1.5	10.6	0.47	0.55	0.47	45.8
NorthWest: Collett Street												
7	L2	159	8.6	0.359	5.3	LOS A	1.9	14.5	0.56	0.67	0.56	44.6
8	T1	91	0.0	0.359	5.1	LOS A	1.9	14.5	0.56	0.67	0.56	47.2
9	R2	57	42.6	0.359	10.6	LOS A	1.9	14.5	0.56	0.67	0.56	42.7
9u	U	1	90.9	0.359	14.1	LOS A	1.9	14.5	0.56	0.67	0.56	34.4
Approach		307	12.7	0.359	6.3	LOS A	1.9	14.5	0.56	0.67	0.56	45.4
SouthWest: Morisset Street												
10	L2	19	5.6	0.135	6.0	LOS A	0.6	4.9	0.47	0.56	0.47	41.8
11	T1	188	12.3	0.175	5.6	LOS A	0.9	6.7	0.47	0.60	0.47	45.4
12	R2	62	0.0	0.175	9.2	LOS A	0.9	6.7	0.47	0.64	0.47	46.2
12u	U	48	0.0	0.175	11.0	LOS A	0.9	6.7	0.47	0.64	0.47	43.3
Approach		318	7.6	0.175	7.2	LOS A	0.9	6.7	0.47	0.61	0.47	45.3
All Vehicles		1545	4.9	0.412	6.6	LOS A	2.1	15.0	0.52	0.64	0.53	45.8

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.
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.

Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Collett Street													
Lane 1[d]	338	0.6	820	0.412	100	7.6	LOS A	2.1	15.0	Full	825	0.0	0.0
Approach	338	0.6		0.412		7.6	LOS A	2.1	15.0				
NorthEast: Morisset Street													
Lane 1[d]	313	1.9	1351	0.232	100	4.3	LOS A	1.5	10.6	Short	125	0.0	NA
Lane 2	269	1.7	1159	0.232	100	7.8	LOS A	1.4	10.2	Full	500	0.0	0.0
Approach	582	1.8		0.232		5.9	LOS A	1.5	10.6				
NorthWest: Collett Street													
Lane 1[d]	307	12.7	857	0.359	100	6.3	LOS A	1.9	14.5	Full	205	0.0	0.0
Approach	307	12.7		0.359		6.3	LOS A	1.9	14.5				
SouthWest: Morisset Street													
Lane 1	118	11.2	870	0.135	77[6]	5.9	LOS A	0.6	4.9	Full	200	0.0	0.0
Lane 2[d]	200	5.5	1145	0.175	100	7.9	LOS A	0.9	6.7	Full	200	0.0	0.0
Approach	318	7.6		0.175		7.2	LOS A	0.9	6.7				
Intersection	1545	4.9		0.412		6.6	LOS A	2.1	15.0				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

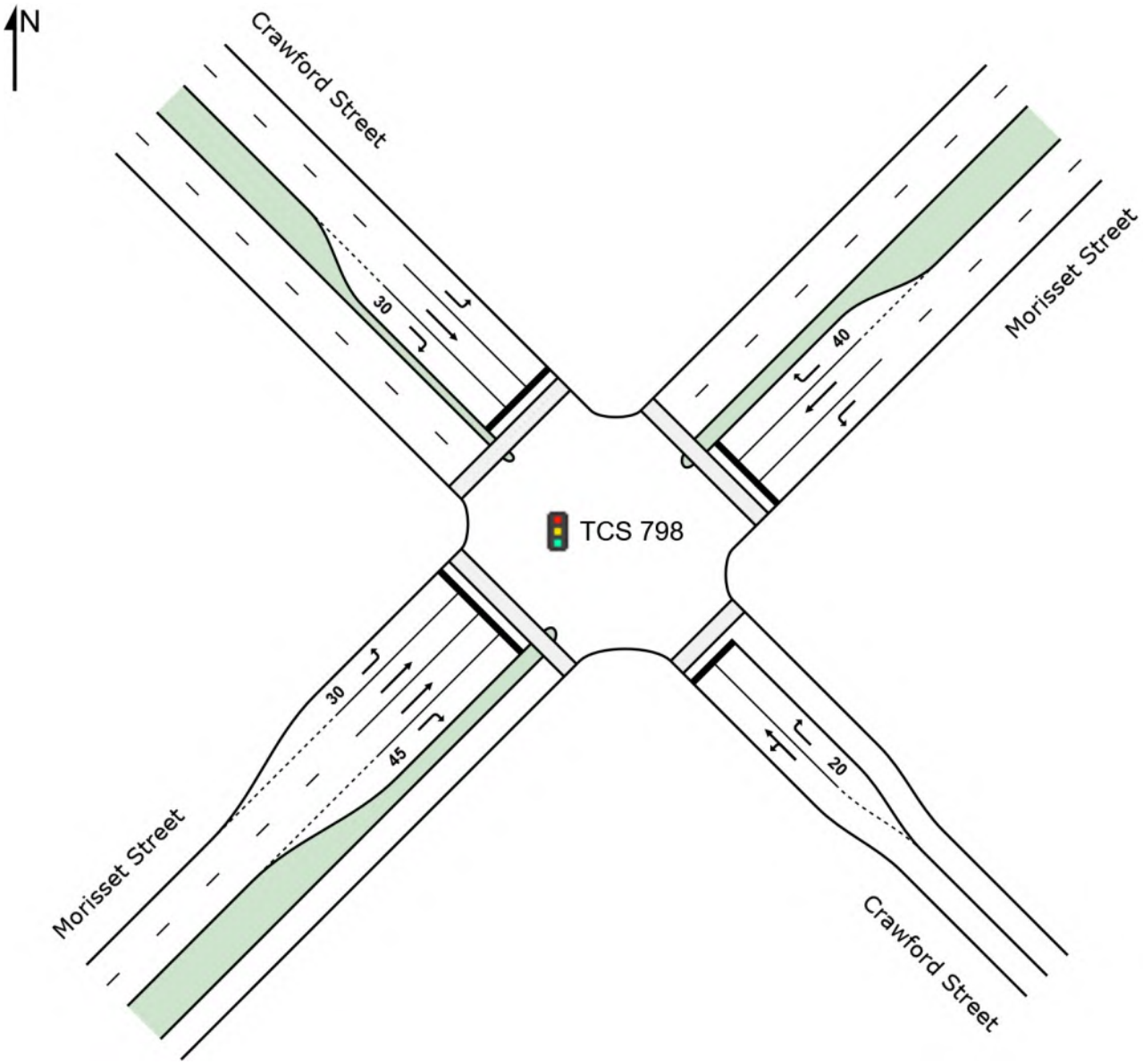
6 Lane under-utilisation due to downstream effects
d Dominant lane on roundabout approach

Site: TCS 798 [PostDev AM: Crawford-Morisset - LRT]

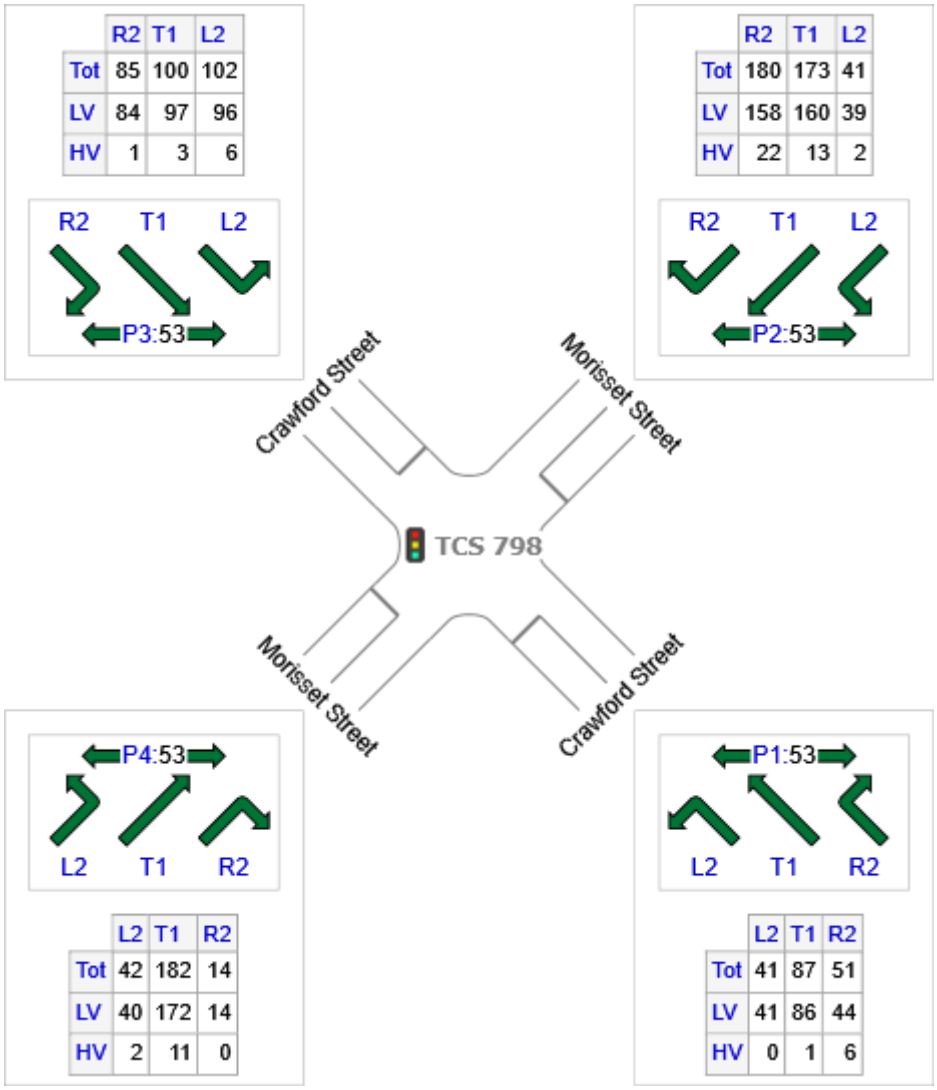
Crawford Street / Morisset Street
Existing Signalised Cross-Intersection
Site Category: Post-Development Conditions - AM Peak Hour
Signals - Fixed Time Isolated Cycle Time = 109 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: SCATS_AM-LRT
Reference Phase: Phase A
Input Phase Sequence: A, D, E, G
Output Phase Sequence: A, D, E, G

Site Layout



OD Demand Flows

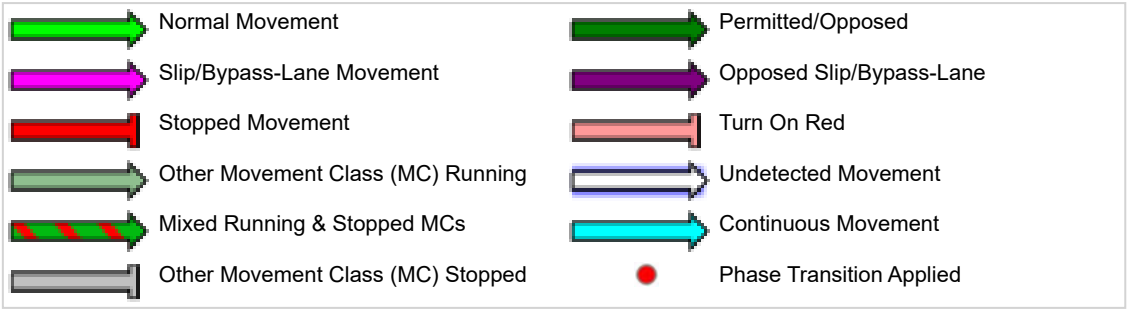


	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Crawford Street	179	172	7
NE: Morisset Street	394	357	37
NW: Crawford Street	287	277	11
SW: Morisset Street	238	225	13
Total	1098	1031	67

Input Phase Sequence

Movement Class: All Movement Classes

REF: Reference Phase
VAR: Variable Phase



Phase Timing Summary

Phase	A	D	E	G
Phase Change Time (sec)	0	27	43	92
Green Time (sec)	22	10	44	11
Phase Time (sec)	28	15	50	16
Phase Split	26%	14%	46%	15%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Crawford Street												
1	L2	41	0.0	0.347	44.1	LOS D	5.8	41.2	0.89	0.73	0.89	21.0
2	T1	87	1.2	0.347	39.6	LOS C	5.8	41.2	0.89	0.73	0.89	39.8
3	R2	51	12.5	0.294	55.7	LOS D	2.6	20.1	0.96	0.74	0.96	17.3
Approach		179	4.1	0.347	45.2	LOS D	5.8	41.2	0.91	0.74	0.91	33.6
NorthEast: Morisset Street												
4	L2	41	5.1	0.041	16.0	LOS B	1.0	7.0	0.47	0.64	0.47	32.0
5	T1	173	7.3	0.230	22.8	LOS B	6.0	44.5	0.70	0.58	0.70	28.5
6	R2	180	12.3	1.149	203.6	LOS F	21.1	162.9	1.00	1.59	2.56	21.5
Approach		394	9.4	1.149	104.7	LOS F	21.1	162.9	0.81	1.05	1.53	22.6
NorthWest: Crawford Street												
7	L2	102	6.2	0.165	30.9	LOS C	3.7	27.5	0.73	0.73	0.73	41.7
8	T1	100	3.2	0.259	39.8	LOS C	4.5	32.5	0.88	0.70	0.88	40.0
9	R2	85	1.2	0.459	56.5	LOS D	4.5	31.6	0.99	0.77	0.99	36.9
Approach		287	3.7	0.459	41.6	LOS C	4.5	32.5	0.86	0.73	0.86	39.6
SouthWest: Morisset Street												
10	L2	42	5.0	0.042	16.0	LOS B	1.0	7.2	0.47	0.64	0.47	45.2
11	T1	182	5.8	0.120	21.6	LOS B	3.0	22.0	0.66	0.53	0.66	29.1
12	R2	14	0.0	0.080	54.7	LOS D	0.7	4.8	0.94	0.68	0.94	17.4
Approach		238	5.3	0.120	22.5	LOS B	3.0	22.0	0.64	0.56	0.64	35.0
All Vehicles		1098	6.1	1.149	60.7	LOS E	21.1	162.9	0.80	0.81	1.06	30.9

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.

Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Crawford Street													
Lane 1	128	0.8	370[1]	0.347	100	41.0	LOS C	5.8	41.2	Full	200	0.0	0.0
Lane 2	51	12.5	172	0.294	100	55.7	LOS D	2.6	20.1	Short	20	0.0	NA
Approach	179	4.1		0.347		45.2	LOS D	5.8	41.2				
NorthEast: Morisset Street													
Lane 1	41	5.1	1003	0.041	100	16.0	LOS B	1.0	7.0	Full	200	0.0	0.0
Lane 2	173	7.3	751	0.230	100	22.8	LOS B	6.0	44.5	Full	200	0.0	0.0
Lane 3	180	12.3	157	1.149	100	203.6	LOS F	21.1	162.9	Short	40	0.0	NA
Approach	394	9.4		1.149		104.7	LOS F	21.1	162.9				
NorthWest: Crawford Street													
Lane 1	102	6.2	620	0.165	100	30.9	LOS C	3.7	27.5	Full	2000	0.0	0.0
Lane 2	100	3.2	386	0.259	100	39.8	LOS C	4.5	32.5	Full	2000	0.0	0.0
Lane 3	85	1.2	186	0.459	100	56.5	LOS D	4.5	31.6	Short	30	0.0	NA
Approach	287	3.7		0.459		41.6	LOS C	4.5	32.5				
SouthWest: Morisset Street													
Lane 1	42	5.0	1004	0.042	100	16.0	LOS B	1.0	7.2	Short	30	0.0	NA
Lane 2	91	5.8	759	0.120	100	21.6	LOS B	3.0	22.0	Full	200	0.0	0.0
Lane 3	91	5.8	759	0.120	100	21.6	LOS B	3.0	22.0	Full	200	0.0	0.0
Lane 4	14	0.0	170	0.080	100	54.7	LOS D	0.7	4.8	Short	45	0.0	NA
Approach	238	5.3		0.120		22.5	LOS B	3.0	22.0				
Intersection	1098	6.1		1.149		60.7	LOS E	21.1	162.9				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

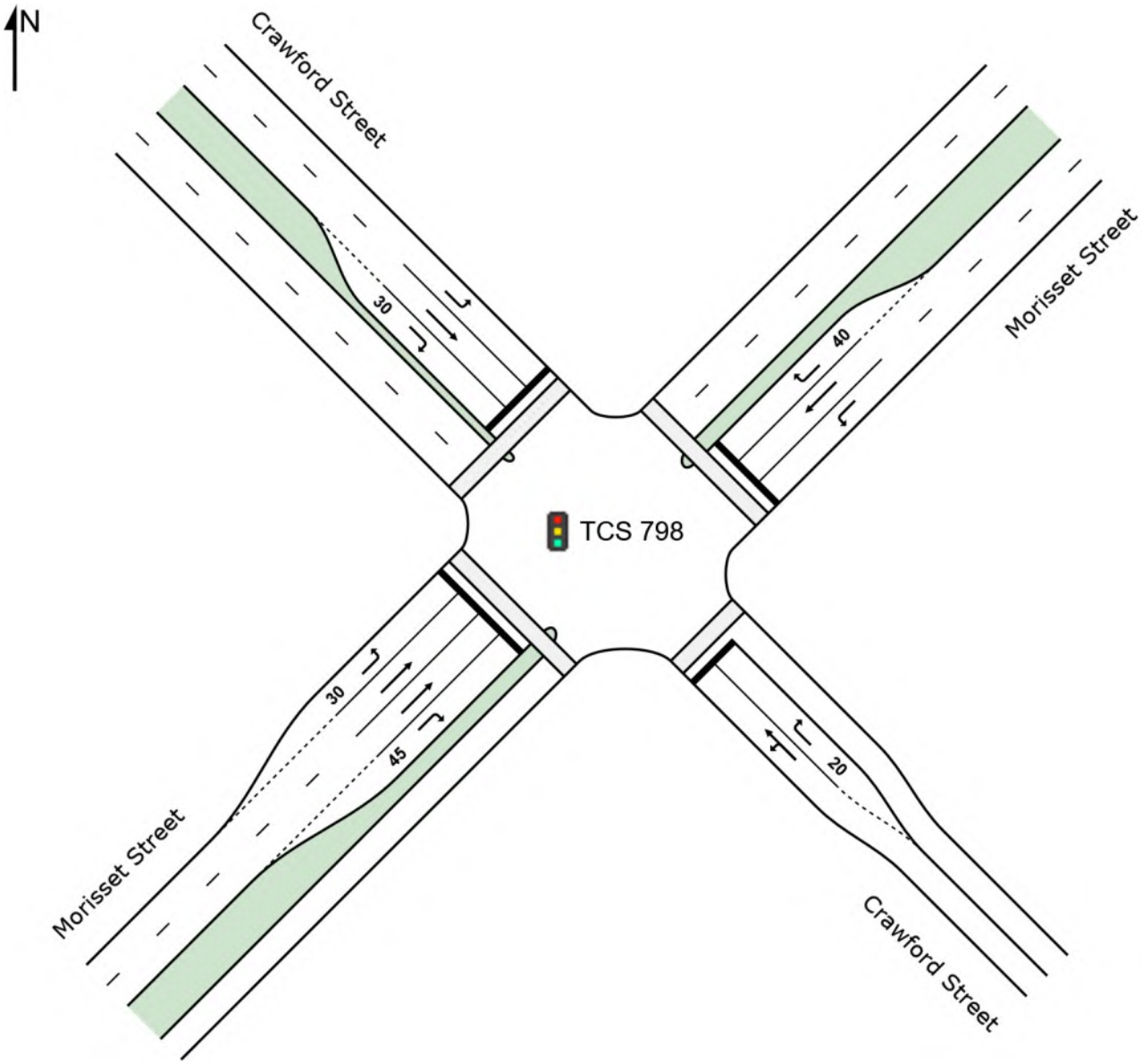
1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

Site: TCS 798 [PostDev AM: Crawford-Morisset - DDO]

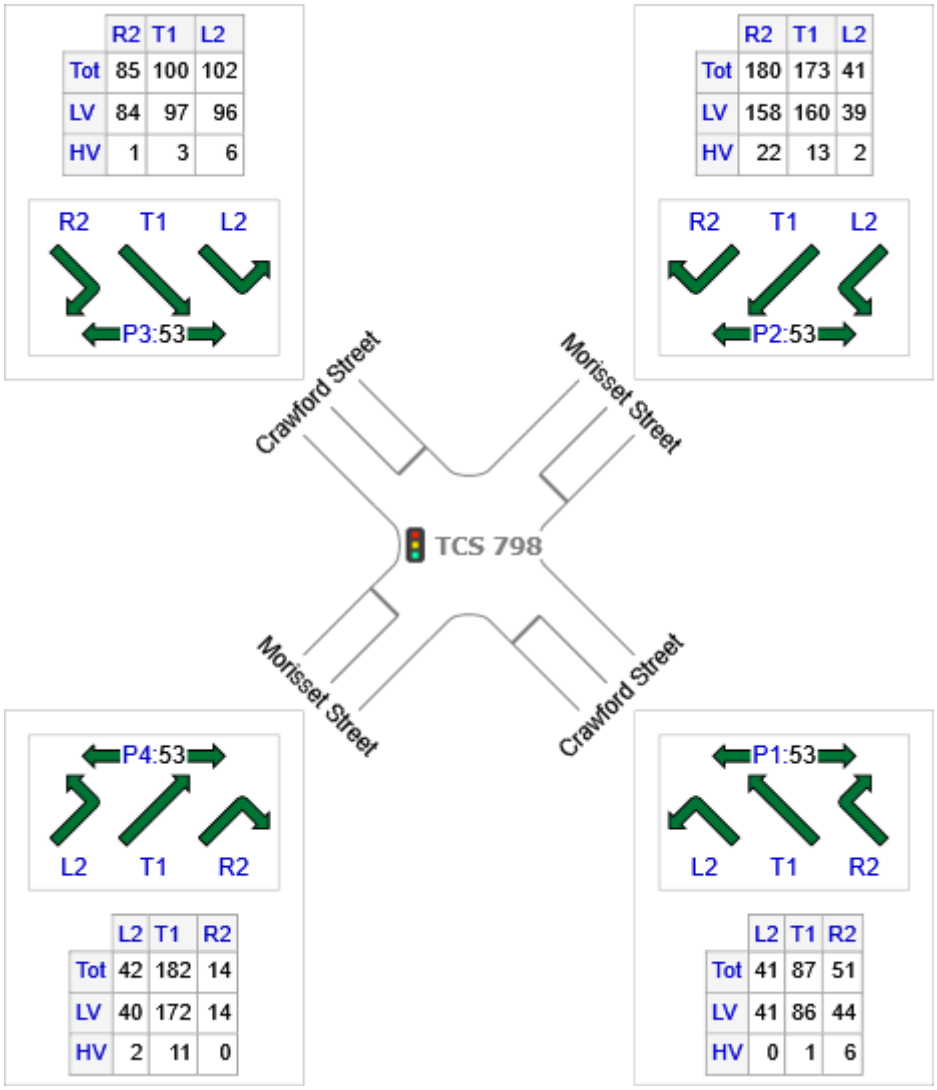
Crawford Street / Morisset Street
Existing Signalised Cross-Intersection
Site Category: Post-Development Conditions - AM Peak Hour
Signals - Fixed Time Isolated Cycle Time = 109 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: SCATS_AM-DDO
Reference Phase: Phase A
Input Phase Sequence: A, D, D1*, D2*, E, G, G1*, G2*
Output Phase Sequence: A, D, D1*, E, G
(* Variable Phase)

Site Layout



OD Demand Flows

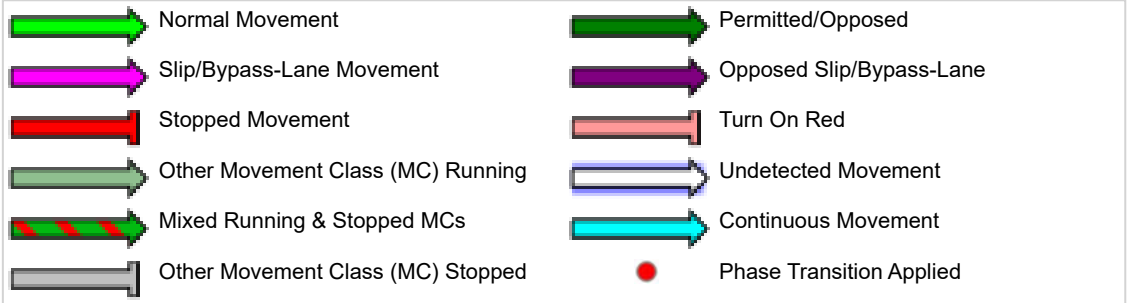


	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Crawford Street	179	172	7
NE: Morisset Street	394	357	37
NW: Crawford Street	287	277	11
SW: Morisset Street	238	225	13
Total	1098	1031	67

Input Phase Sequence

Movement Class: All Movement Classes

REF: Reference Phase
VAR: Variable Phase



Phase Timing Summary

Phase	A	D	D1	E	G
Phase Change Time (sec)	0	28	40	67	88
Green Time (sec)	22	6	21	15	15
Phase Time (sec)	28	12	27	21	21
Phase Split	26%	11%	25%	19%	19%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Crawford Street												
1	L2	41	0.0	0.343	44.1	LOS D	5.8	41.2	0.89	0.73	0.89	21.0
2	T1	87	1.2	0.343	39.6	LOS C	5.8	41.2	0.89	0.73	0.89	39.8
3	R2	51	12.5	0.215	50.8	LOS D	2.5	19.0	0.93	0.74	0.93	18.4
Approach		179	4.1	0.343	43.8	LOS D	5.8	41.2	0.90	0.74	0.90	33.9
NorthEast: Morisset Street												
4	L2	41	5.1	0.040	15.0	LOS B	0.9	6.7	0.45	0.64	0.45	32.7
5	T1	173	7.3	0.241	24.2	LOS B	6.2	45.9	0.72	0.60	0.72	27.8
6	R2	180	12.3	0.348	36.7	LOS C	7.5	58.0	0.83	0.78	0.83	40.5
Approach		394	9.4	0.348	29.0	LOS C	7.5	58.0	0.74	0.68	0.74	37.7
NorthWest: Crawford Street												
7	L2	102	6.2	0.103	16.4	LOS B	2.5	18.3	0.49	0.67	0.49	45.1
8	T1	100	3.2	0.259	39.8	LOS C	4.5	32.5	0.88	0.70	0.88	40.0
9	R2	85	1.2	0.337	51.5	LOS D	4.2	29.8	0.95	0.76	0.95	37.8
Approach		287	3.7	0.337	35.0	LOS C	4.5	32.5	0.76	0.71	0.76	41.0
SouthWest: Morisset Street												
10	L2	42	5.0	0.071	31.3	LOS C	1.5	11.1	0.72	0.69	0.72	41.6
11	T1	182	5.8	0.352	47.1	LOS D	4.5	33.1	0.95	0.74	0.95	19.5
12	R2	14	0.0	0.134	60.4	LOS E	0.7	5.1	0.98	0.68	0.98	16.3
Approach		238	5.3	0.352	45.1	LOS D	4.5	33.1	0.91	0.73	0.91	27.0
All Vehicles		1098	6.1	0.352	36.4	LOS C	7.5	58.0	0.81	0.71	0.81	36.6

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.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
SouthEast: Crawford Street													
Lane 1	128	0.8	374[1]	0.343	100	41.0	LOS C	5.8	41.2	Full	200	0.0	0.0
Lane 2	51	12.5	235	0.215	100	50.8	LOS D	2.5	19.0	Short	20	0.0	NA
Approach	179	4.1		0.343		43.8	LOS D	5.8	41.2				
NorthEast: Morisset Street													
Lane 1	41	5.1	1036	0.040	100	15.0	LOS B	0.9	6.7	Full	200	0.0	0.0
Lane 2	173	7.3	717	0.241	100	24.2	LOS B	6.2	45.9	Full	200	0.0	0.0
Lane 3	180	12.3	517	0.348	100	36.7	LOS C	7.5	58.0	Short	40	0.0	NA
Approach	394	9.4		0.348		29.0	LOS C	7.5	58.0				
NorthWest: Crawford Street													
Lane 1	102	6.2	995	0.103	100	16.4	LOS B	2.5	18.3	Full	2000	0.0	0.0
Lane 2	100	3.2	386	0.259	100	39.8	LOS C	4.5	32.5	Full	2000	0.0	0.0
Lane 3	85	1.2	253	0.337	100	51.5	LOS D	4.2	29.8	Short	30	0.0	NA
Approach	287	3.7		0.337		35.0	LOS C	4.5	32.5				
SouthWest: Morisset Street													
Lane 1	42	5.0	592	0.071	100	31.3	LOS C	1.5	11.1	Short	30	0.0	NA
Lane 2	91	5.8	259	0.352	100	47.1	LOS D	4.5	33.1	Full	200	0.0	0.0
Lane 3	91	5.8	259	0.352	100	47.1	LOS D	4.5	33.1	Full	200	0.0	0.0
Lane 4	14	0.0	102	0.134	100	60.4	LOS E	0.7	5.1	Short	45	0.0	NA
Approach	238	5.3		0.352		45.1	LOS D	4.5	33.1				
Intersection	1098	6.1		0.352		36.4	LOS C	7.5	58.0				

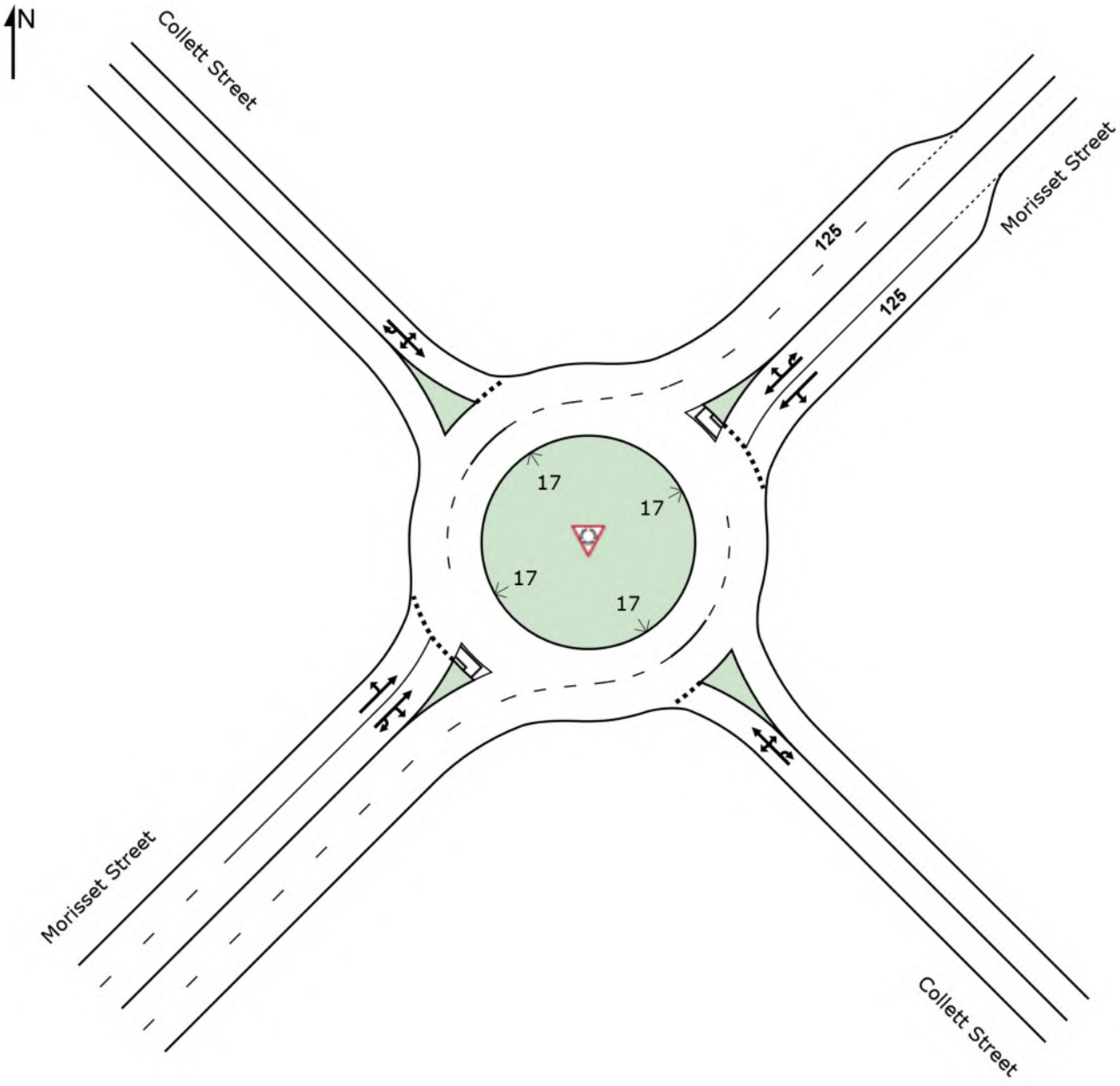
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control 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.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

Site: [PostDev PM: Collett-Morisset]

Collett Street / Morisset Street
Existing Unsignalised Roundabout
Site Category: Post-Development Conditions - PM Peak Hour
Roundabout

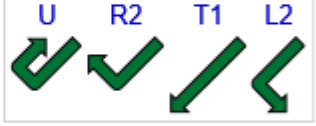
Site Layout

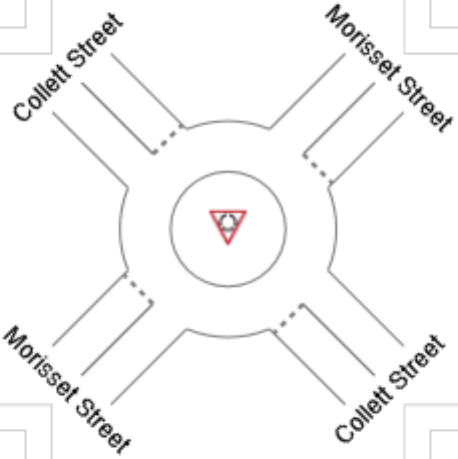


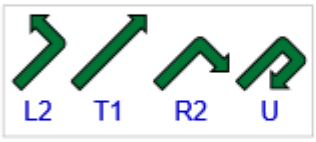
OD Demand Flows

	U	R2	T1	L2
Tot	2	49	120	280
LV	2	33	120	274
HV	0	17	0	6

	U	R2	T1	L2
Tot	5	189	261	109
LV	4	186	257	109
HV	1	3	4	0







	L2	T1	R2	U
Tot	47	367	114	75
LV	46	349	114	74
HV	1	18	0	1

	L2	T1	R2	U
Tot	87	137	205	6
LV	87	136	204	6
HV	0	1	1	0

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Collett Street	436	434	2
NE: Morisset Street	565	557	8
NW: Collett Street	452	428	23
SW: Morisset Street	603	583	20
Total	2056	2002	54

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Collett Street												
1	L2	87	0.0	0.530	6.9	LOS A	3.4	23.7	0.69	0.90	0.80	44.7
2	T1	137	0.8	0.530	7.0	LOS A	3.4	23.7	0.69	0.90	0.80	45.6
3	R2	205	0.5	0.530	11.2	LOS A	3.4	23.7	0.69	0.90	0.80	46.6
3u	U	6	0.0	0.530	13.0	LOS A	3.4	23.7	0.69	0.90	0.80	47.7
Approach		436	0.5	0.530	9.1	LOS A	3.4	23.7	0.69	0.90	0.80	46.0
NorthEast: Morisset Street												
4	L2	109	0.0	0.244	5.0	LOS A	1.6	11.7	0.55	0.55	0.55	47.0
5	T1	261	1.6	0.244	4.8	LOS A	1.6	11.7	0.56	0.58	0.56	45.7
6	R2	189	1.7	0.244	9.3	LOS A	1.6	11.1	0.57	0.67	0.57	44.4
6u	U	5	20.0	0.244	11.6	LOS A	1.6	11.1	0.57	0.67	0.57	46.4
Approach		565	1.5	0.244	6.4	LOS A	1.6	11.7	0.56	0.60	0.56	45.7
NorthWest: Collett Street												
7	L2	280	2.3	0.620	9.8	LOS A	5.0	36.4	0.82	1.00	1.06	41.8
8	T1	120	0.0	0.620	9.7	LOS A	5.0	36.4	0.82	1.00	1.06	45.0
9	R2	49	34.0	0.620	15.5	LOS B	5.0	36.4	0.82	1.00	1.06	38.6
9u	U	2	0.0	0.620	15.7	LOS B	5.0	36.4	0.82	1.00	1.06	40.9
Approach		452	5.1	0.620	10.4	LOS A	5.0	36.4	0.82	1.00	1.06	42.7
SouthWest: Morisset Street												
10	L2	47	2.2	0.268	6.7	LOS A	1.4	10.4	0.55	0.63	0.55	41.1
11	T1	367	4.9	0.346	6.2	LOS A	2.2	15.4	0.55	0.66	0.55	45.0
12	R2	114	0.0	0.346	10.0	LOS A	2.2	15.4	0.56	0.69	0.56	46.0
12u	U	75	1.4	0.346	11.8	LOS A	2.2	15.4	0.56	0.69	0.56	42.7
Approach		603	3.3	0.346	7.6	LOS A	2.2	15.4	0.56	0.67	0.56	44.9
All Vehicles		2056	2.6	0.620	8.2	LOS A	5.0	36.4	0.64	0.77	0.72	45.0

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.
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.

Lane Use and Performance													
	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
SouthEast: Collett Street													
Lane 1[d]	436	0.5	822	0.530	100	9.1	LOS A	3.4	23.7	Full	825	0.0	0.0
Approach	436	0.5		0.530		9.1	LOS A	3.4	23.7				
NorthEast: Morisset Street													
Lane 1[d]	308	1.0	1261	0.244	100	4.8	LOS A	1.6	11.7	Short	125	0.0	NA
Lane 2	257	2.0	1052	0.244	100	8.3	LOS A	1.6	11.1	Full	500	0.0	0.0
Approach	565	1.5		0.244		6.4	LOS A	1.6	11.7				
NorthWest: Collett Street													
Lane 1[d]	452	5.1	728	0.620	100	10.4	LOS A	5.0	36.4	Full	205	0.0	0.0
Approach	452	5.1		0.620		10.4	LOS A	5.0	36.4				
SouthWest: Morisset Street													
Lane 1	226	4.3	843	0.268	77[6]	6.6	LOS A	1.4	10.4	Full	200	0.0	0.0
Lane 2[d]	377	2.7	1089	0.346	100	8.3	LOS A	2.2	15.4	Full	200	0.0	0.0
Approach	603	3.3		0.346		7.6	LOS A	2.2	15.4				
Intersection	2056	2.6		0.620		8.2	LOS A	5.0	36.4				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

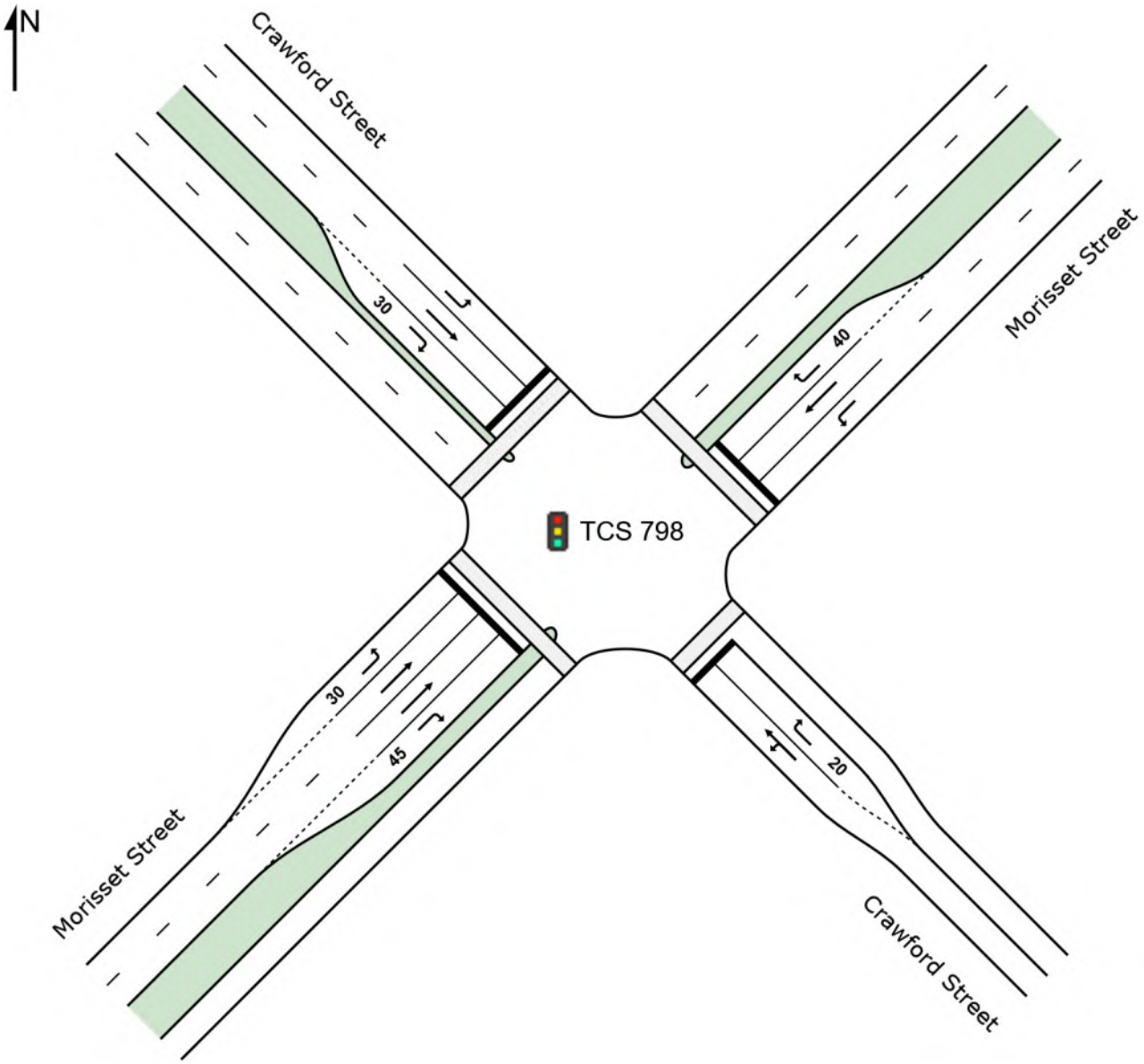
6 Lane under-utilisation due to downstream effects
d Dominant lane on roundabout approach

Site: TCS 798 [PostDev PM: Crawford-Morisset - LRT]

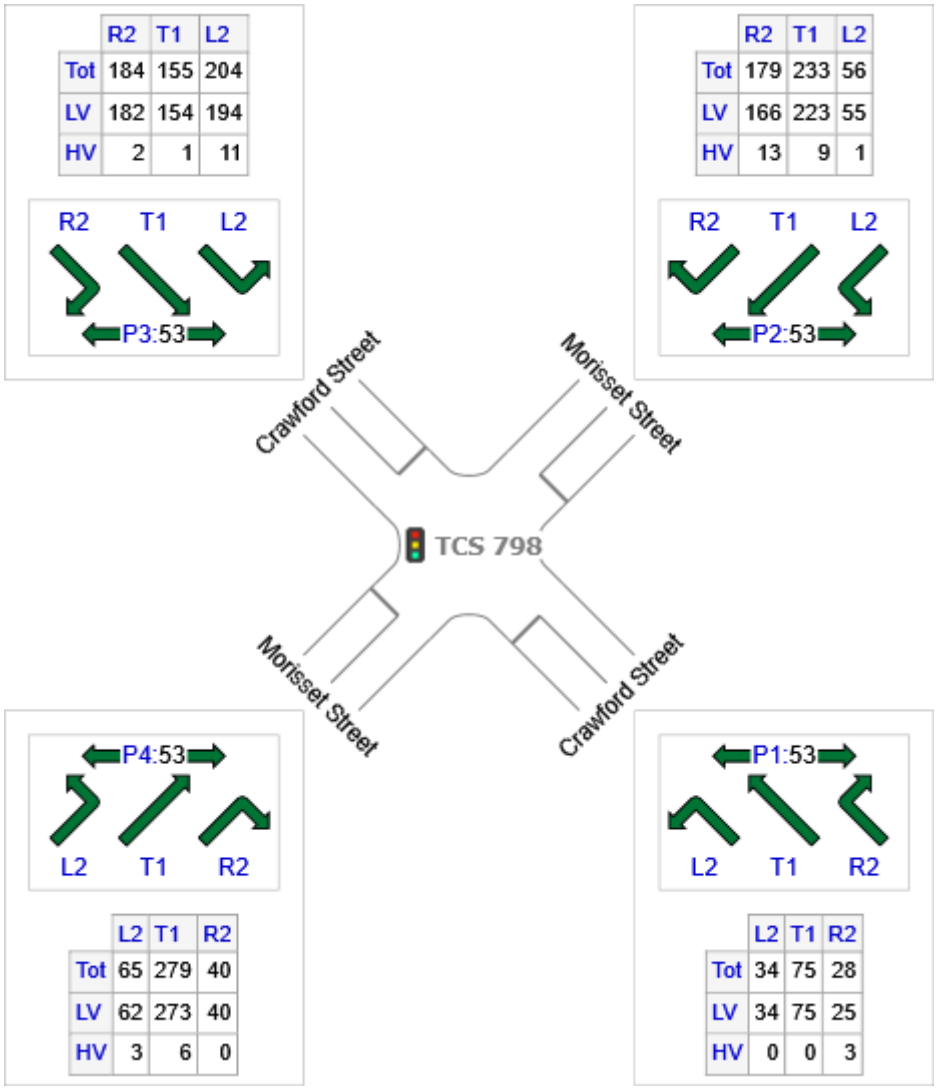
Crawford Street / Morisset Street
Existing Signalised Cross-Intersection
Site Category: Post-Development Conditions - PM Peak Hour
Signals - Fixed Time Isolated Cycle Time = 134 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times specified by the user
Phase Sequence: SCATS_PM-LRT
Reference Phase: Phase A
Input Phase Sequence: A, D, E, G
Output Phase Sequence: A, D, E, G

Site Layout



OD Demand Flows

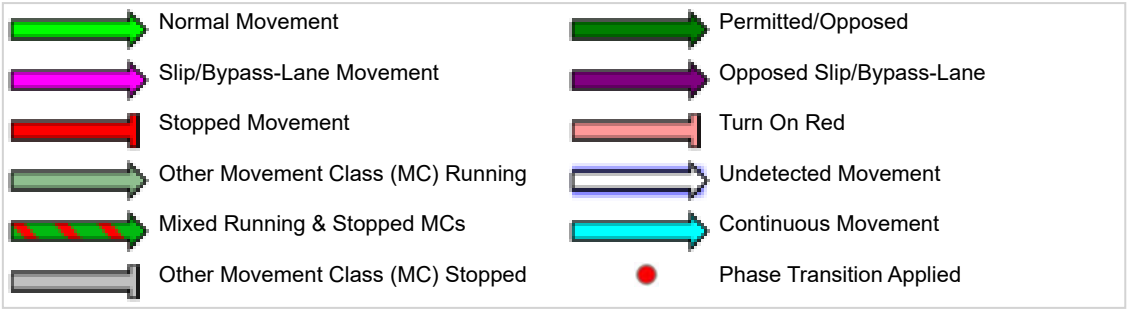


	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Crawford Street	137	134	3
NE: Morisset Street	467	444	23
NW: Crawford Street	543	529	14
SW: Morisset Street	384	375	9
Total	1532	1482	49

Input Phase Sequence

Movement Class: All Movement Classes

REF: Reference Phase
VAR: Variable Phase



Phase Timing Summary

Phase	A	D	E	G
Phase Change Time (sec)	0	31	49	110
Green Time (sec)	25	12	55	18
Phase Time (sec)	31	18	61	24
Phase Split	23%	13%	46%	18%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Crawford Street												
1	L2	34	0.0	0.309	54.4	LOS D	6.1	42.6	0.90	0.73	0.90	18.3
2	T1	75	0.0	0.309	49.9	LOS D	6.1	42.6	0.90	0.73	0.90	37.8
3	R2	28	11.1	0.123	60.3	LOS E	1.7	12.7	0.91	0.72	0.91	16.5
Approach		137	2.3	0.309	53.2	LOS D	6.1	42.6	0.90	0.73	0.90	32.7
NorthEast: Morisset Street												
4	L2	56	1.9	0.052	16.7	LOS B	1.5	10.7	0.44	0.64	0.44	31.6
5	T1	233	4.1	0.374	28.1	LOS B	10.1	72.9	0.72	0.60	0.72	25.9
6	R2	179	7.1	1.186	245.5	LOS F	25.1	186.0	1.00	1.53	2.45	19.2
Approach		467	5.0	1.186	110.0	LOS F	25.1	186.0	0.79	0.96	1.35	20.5
NorthWest: Crawford Street												
7	L2	204	5.2	0.355	41.9	LOS C	10.2	74.3	0.81	0.78	0.81	39.4
8	T1	155	0.7	0.532	52.2	LOS D	9.0	63.4	0.93	0.76	0.93	37.7
9	R2	184	1.1	0.976	102.1	LOS F	15.6	110.0	1.00	1.14	1.63	30.5
Approach		543	2.5	0.976	65.3	LOS E	15.6	110.0	0.91	0.90	1.12	35.4
SouthWest: Morisset Street												
10	L2	65	4.8	0.062	16.9	LOS B	1.8	12.9	0.45	0.65	0.45	45.0
11	T1	279	2.3	0.177	26.5	LOS B	5.7	40.6	0.67	0.55	0.67	26.6
12	R2	40	0.0	0.241	67.5	LOS E	2.5	17.6	0.97	0.73	0.97	15.1
Approach		384	2.5	0.241	29.2	LOS C	5.7	40.6	0.67	0.59	0.67	32.0
All Vehicles		1532	3.2	1.186	68.8	LOS E	25.1	186.0	0.81	0.82	1.06	29.7

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.

Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Crawford Street													
Lane 1	108	0.0	351[1]	0.309	100	51.3	LOS D	6.1	42.6	Full	200	0.0	0.0
Lane 2	28	11.1	231	0.123	100	60.3	LOS E	1.7	12.7	Short	20	0.0	NA
Approach	137	2.3		0.309		53.2	LOS D	6.1	42.6				
NorthEast: Morisset Street													
Lane 1	56	1.9	1080	0.052	100	16.7	LOS B	1.5	10.7	Full	200	0.0	0.0
Lane 2	233	4.1	623[1]	0.374	100	28.1	LOS B	10.1	72.9	Full	200	0.0	0.0
Lane 3	179	7.1	151[1]	1.186	100	245.5	LOS F	25.1	186.0	Short	40	0.0	NA
Approach	467	5.0		1.186		110.0	LOS F	25.1	186.0				
NorthWest: Crawford Street													
Lane 1	204	5.2	575	0.355	100	41.9	LOS C	10.2	74.3	Full	2000	0.0	0.0
Lane 2	155	0.7	291[1]	0.532	100	52.2	LOS D	9.0	63.4	Full	2000	0.0	0.0
Lane 3	184	1.1	189[1]	0.976	100	102.1	LOS F	15.6	110.0	Short	30	0.0	NA
Approach	543	2.5		0.976		65.3	LOS E	15.6	110.0				
SouthWest: Morisset Street													
Lane 1	65	4.8	1058	0.062	100	16.9	LOS B	1.8	12.9	Short	30	0.0	NA
Lane 2	139	2.3	789	0.177	100	26.5	LOS B	5.7	40.6	Full	200	0.0	0.0
Lane 3	139	2.3	789	0.177	100	26.5	LOS B	5.7	40.6	Full	200	0.0	0.0
Lane 4	40	0.0	166	0.241	100	67.5	LOS E	2.5	17.6	Short	45	0.0	NA
Approach	384	2.5		0.241		29.2	LOS C	5.7	40.6				
Intersection	1532	3.2		1.186		68.8	LOS E	25.1	186.0				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

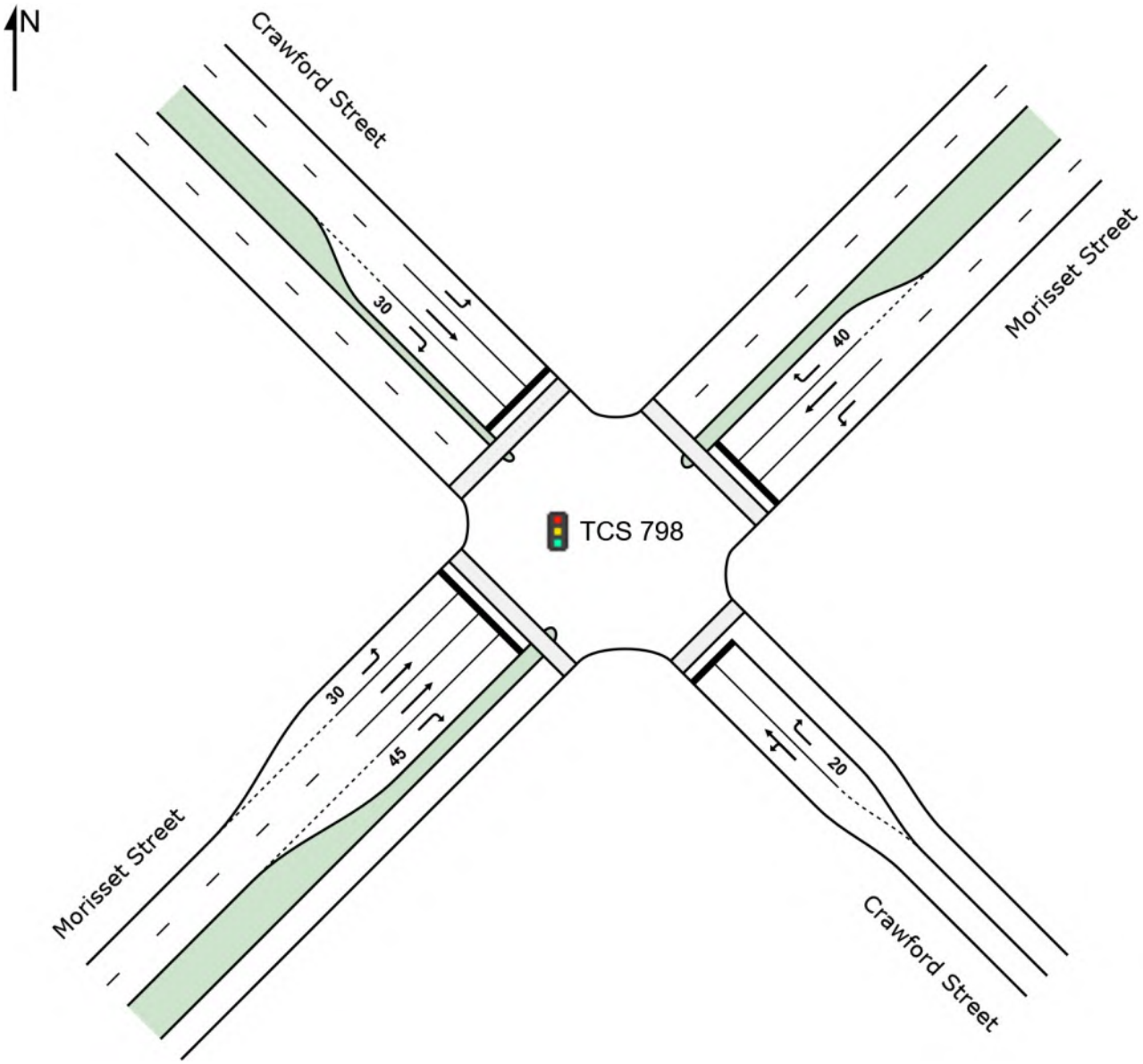
1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

Site: TCS 798 [PostDev PM: Crawford-Morisset - DDO]

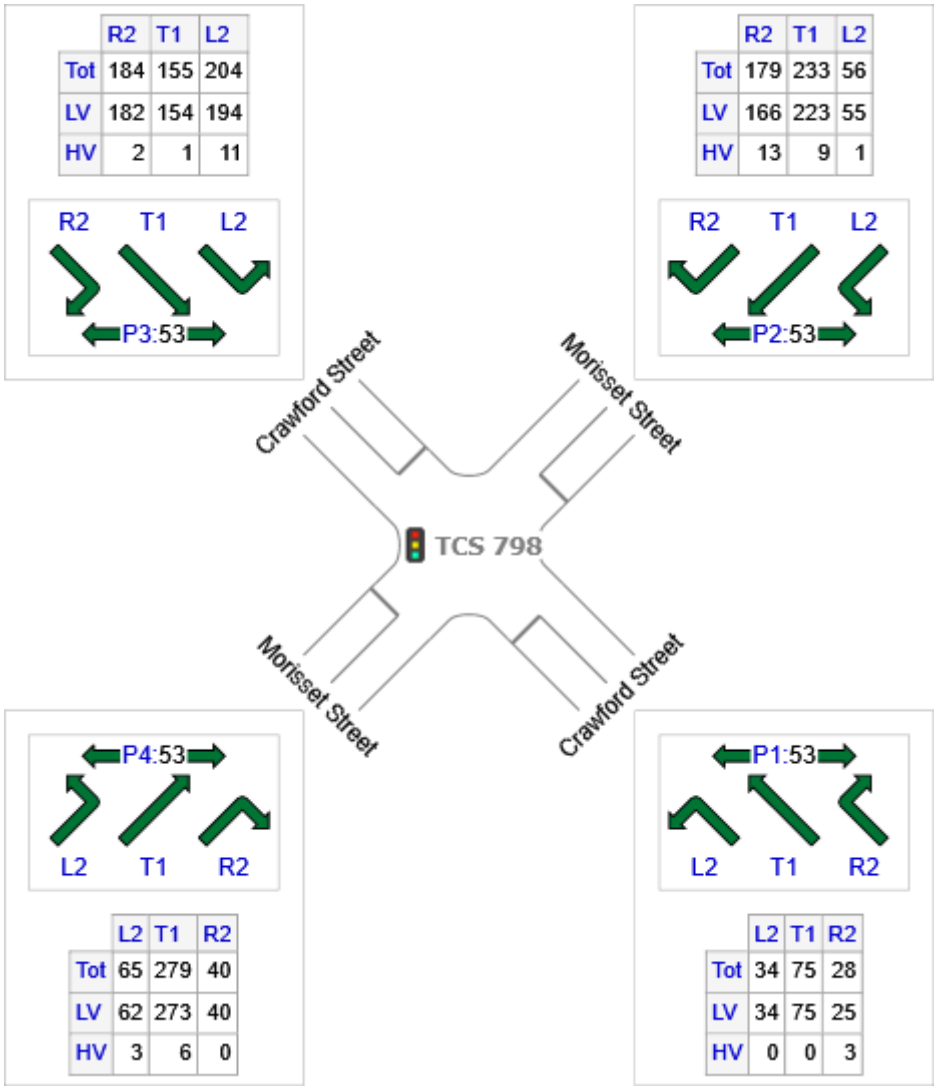
Crawford Street / Morisset Street
Existing Signalised Cross-Intersection
Site Category: Post-Development Conditions - PM Peak Hour
Signals - Fixed Time Isolated Cycle Time = 134 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: SCATS_PM-DDO
Reference Phase: Phase A
Input Phase Sequence: A, D, D1*, D2*, E, G, G1*, G2*
Output Phase Sequence: A, D, D1*, E, G, G1*
(* Variable Phase)

Site Layout



OD Demand Flows

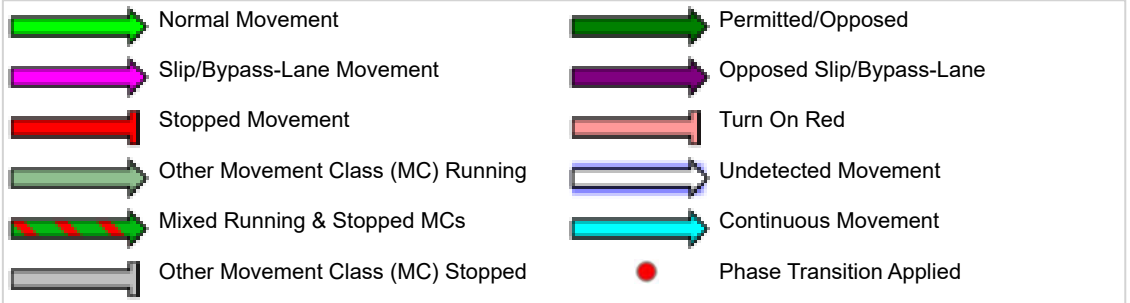


	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Crawford Street	137	134	3
NE: Morisset Street	467	444	23
NW: Crawford Street	543	529	14
SW: Morisset Street	384	375	9
Total	1532	1482	49

Input Phase Sequence

Movement Class: All Movement Classes

REF: Reference Phase
VAR: Variable Phase



Phase Timing Summary

Phase	A	D	D1	E	G	G1
Phase Change Time (sec)	0	24	37	63	92	107
Green Time (sec)	18	7	20	23	9	21
Phase Time (sec)	24	13	26	29	15	27
Phase Split	18%	10%	19%	22%	11%	20%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Crawford Street												
1	L2	34	0.0	0.432	61.8	LOS E	6.6	45.9	0.96	0.76	0.96	16.8
2	T1	75	0.0	0.432	57.3	LOS E	6.6	45.9	0.96	0.76	0.96	36.6
3	R2	28	11.1	0.246	71.5	LOS F	1.8	14.2	0.98	0.72	0.98	14.7
Approach		137	2.3	0.432	61.4	LOS E	6.6	45.9	0.96	0.76	0.96	31.0
NorthEast: Morisset Street												
4	L2	56	1.9	0.064	24.4	LOS B	1.9	13.6	0.57	0.67	0.57	27.2
5	T1	233	4.1	0.383	32.7	LOS C	10.9	78.7	0.77	0.65	0.77	24.0
6	R2	179	7.1	0.439	50.3	LOS D	9.8	73.0	0.89	0.79	0.89	37.9
Approach		467	5.0	0.439	38.4	LOS C	10.9	78.7	0.79	0.71	0.79	33.7
NorthWest: Crawford Street												
7	L2	204	5.2	0.182	15.7	LOS B	5.5	40.1	0.45	0.67	0.45	45.3
8	T1	155	0.7	0.237	34.1	LOS C	7.2	50.8	0.76	0.63	0.76	41.2
9	R2	184	1.1	0.450	47.3	LOS D	9.8	69.0	0.86	0.78	0.86	38.6
Approach		543	2.5	0.450	31.7	LOS C	9.8	69.0	0.68	0.70	0.68	41.7
SouthWest: Morisset Street												
10	L2	65	4.8	0.075	24.0	LOS B	2.2	16.2	0.56	0.68	0.56	43.3
11	T1	279	2.3	0.435	53.9	LOS D	8.5	60.5	0.94	0.76	0.94	18.0
12	R2	40	0.0	0.412	74.9	LOS F	2.7	18.8	1.00	0.73	1.00	14.1
Approach		384	2.5	0.435	51.0	LOS D	8.5	60.5	0.88	0.74	0.88	25.2
All Vehicles		1532	3.2	0.450	41.2	LOS C	10.9	78.7	0.79	0.72	0.79	35.6

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.

Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Crawford Street													
Lane 1	108	0.0	251[1]	0.432	100	58.7	LOS E	6.6	45.9	Full	200	0.0	0.0
Lane 2	28	11.1	116	0.246	100	71.5	LOS F	1.8	14.2	Short	20	0.0	NA
Approach	137	2.3		0.432		61.4	LOS E	6.6	45.9				
NorthEast: Morisset Street													
Lane 1	56	1.9	875	0.064	100	24.4	LOS B	1.9	13.6	Full	200	0.0	0.0
Lane 2	233	4.1	608[1]	0.383	100	32.7	LOS C	10.9	78.7	Full	200	0.0	0.0
Lane 3	179	7.1	408[1]	0.439	100	50.3	LOS D	9.8	73.0	Short	40	0.0	NA
Approach	467	5.0		0.439		38.4	LOS C	10.9	78.7				
NorthWest: Crawford Street													
Lane 1	204	5.2	1123	0.182	100	15.7	LOS B	5.5	40.1	Full	2000	0.0	0.0
Lane 2	155	0.7	652	0.237	100	34.1	LOS C	7.2	50.8	Full	2000	0.0	0.0
Lane 3	184	1.1	409[1]	0.450	100	47.3	LOS D	9.8	69.0	Short	30	0.0	NA
Approach	543	2.5		0.450		31.7	LOS C	9.8	69.0				
SouthWest: Morisset Street													
Lane 1	65	4.8	871	0.075	100	24.0	LOS B	2.2	16.2	Short	30	0.0	NA
Lane 2	136	2.3	312[1]	0.435	100	53.8	LOS D	8.0	57.0	Full	200	0.0	0.0
Lane 3	143	2.3	330	0.435	100	54.1	LOS D	8.5	60.5	Full	200	0.0	0.0
Lane 4	40	0.0	97	0.412	100	74.9	LOS F	2.7	18.8	Short	45	0.0	NA
Approach	384	2.5		0.435		51.0	LOS D	8.5	60.5				
Intersection	1532	3.2		0.450		41.2	LOS C	10.9	78.7				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.