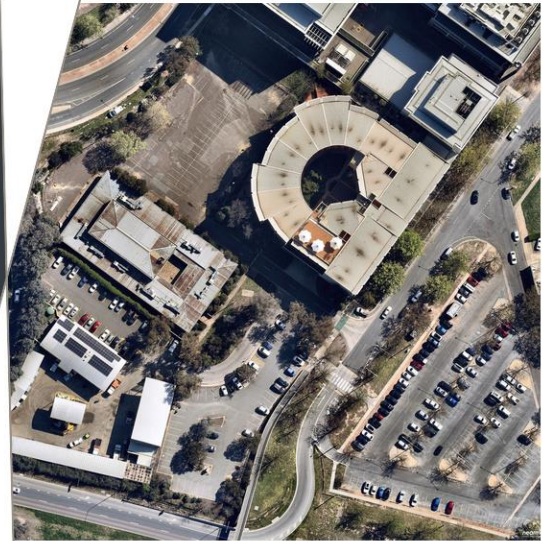


70 Allara Street

Traffic Impact Assessment

50521039



Prepared for
Geocon Group Pty Ltd

28 March 2022

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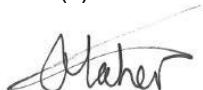
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Executive Summary

This report identifies the measures and outcomes of a Transport Impact Assessment for the proposed development of a multi-unit residential building upon Block 16, Section 10 Canberra City. The report follows the Transport Impact Assessment guidelines set out by TCCS.

The site is zoned as DES: Designated Land as per the Territory Plan and is governed by the National Capital Authority. The proposed development will consist of 356 residential dwellings and will incorporate an active ground floor accommodating approximately 297m² of commercial retail space. The development will maintain 2 basements and lower ground floor for parking and storage. Vehicular basement access will be gained via Allara Street in addition to service/waste access. The access driveway allows for internal separation between these two vehicle types.

Existing Traffic Network

Under direction from TCCS Transport and Assessment Planning, the following intersections were selected to be analysed, based on the proximity and significant redevelopment works likely to occur in the local network over the coming years.

1. Parkes Way / Commonwealth Ave Free left turn;
2. Parkes Way / Allara Street Free left turn;
3. London Circuit / Constitution Avenue Signalised Intersection;
4. Allara Street / Constitution Avenue Signalised Intersection;
5. Coranderrk Street / Constitution Avenue Signalised Intersection.

Analysis of the above intersections were undertaken utilising the Canberra City Precinct Inner North Reference Traffic Model (CINRM). This model was developed using *AIMSUN Next version 8.4.2* and comprises of 2.5-hour AM and PM peak hour periods. The model peak hours were 8:00 – 9:00 am and 16:45 – 17:45 pm.

This model provided turn movement data from the above-mentioned study area to determine the base performance metrics (total traffic count, average delay and max queue length).

Assumptions and Trip Generation

Land use trip generation assumptions were used in accordance with the relevant TCCS and RMS standards and were applied to incorporate both residential and commercial yields. This resulted in a total generation of 145 peak hour trips, in which once split across in and out direction results in less than 2 vehicles per minute across the major directions flows.

The directional split was determined in accordance with ABS Journey to Work data with the total peak hour 'in' and 'out' trips listed in the table below:

With Development Demand Data Origin / Destination Split

With Development Data (10140-B)			
Period	Direction	Split	Trips
AM	Destination (In)	20%	29
	Origin (Out)	80%	116
PM	Destination (In)	70%	102
	Origin (Out)	30%	44

Parking and Queuing Analysis

Cardno have reviewed the parking schedules listed in the above sections and conclude that total car and bicycle parks proposed for this development meet the minimum requirements for the designated site as set out in the *National Capital Plan Precinct Code for Constitution Avenue and Anzac Parade*. Where certain provisions are not made clear in the *National Capital Plan General Code*, the *ACT Parking and Vehicular Access General Code (2018)* and the *ACT Bicycle Parking General Code 2013* was used to guide appropriate allocation rates.

Bicycle parking provisions for the proposed development were determined utilising TCCS guidelines. Based upon analysis, the development requires 385 spaces. The proposed development has provisions for 356 storage cages across the lower ground floor and basements with sufficient additional visitor bicycle parking spaces allocated within a central bike hub upon ground floor.

Car parking provisions required 453 spaces be provided onsite directly adjacent to the site. The proposed development has provisions for 409 car spaces to be provided on site, with the remaining 44 spaces to be provided within the surrounding Allara Street, Constitution Ave and on road public car parks. A parking utilisation analysis was undertaken for the surrounding carparks. Results from this analysis indicate sufficient availability to accommodate the outstanding parking demands.

The proposed vehicle queuing demand during morning peak was calculated in accordance with *TCCS Engineering Advisory Note (EAN) 6* and *AS 2890.1:2004 – Parking Facilities: Off Street Parking*. The required internal queue length is 48m from the control point to the property boundary.

A review of the architectural plans has identified that this requirement is achievable. Additionally, the property boundary is setback from Allara Street approximately 50m, meaning no queuing will spill out onto Allara Street causing safety concerns.

Traffic Network Performance Analysis

Analysis of the existing local network was undertaken 'with' and 'without' the additional traffic generated as a result of the proposed development. Analysis of the key intersection performance metrics across all intersection approach legs, including level of service, assisted in understanding the net impact of the development upon the local network. All key performance modelling outputs are listed in **Tables 7-2** and **7-3** of this report.

The legs which experienced the greatest impact the level of service across the immediate Allara St / Constitution Ave intersection are listed in the table below:

Summary of Affected Legs within the Allara St / Constitution Ave Intersection

2021 Summary									
Allara St / Constitution Ave Intersection									
Peak Hour	Affected Leg	Number of Vehicles		Ave Delay (sec)		Level of Service		Max Queue (veh)	
		Existing	With Dev	Existing	With Dev	Existing	With Dev	Existing	With Dev
AM	South	278	394	41.8	56.4	LOS C	LOS D	9	21
PM	East	311	264	34.7	45.4	LOS C	LOS D	10	17

Level of Service (LOS) Definitions

- > LOS A – Good operation with an average delay <14 seconds;
- > LOS B – Good operation with acceptable delays and spare capacity, average delay 15 to 28 seconds;
- > LOS C – Satisfactory operation with an average delay of 29 to 42 seconds;
- > LOS D – Operating near capacity with an average delay of 43 to 56 seconds;
- > LOS E – Operating at capacity, at signals incidents will cause excessive delays. Average delay of 57 to 70 seconds;
- > LOS F – Operating over capacity, requires investigation of other control modes. Average delay >70 seconds.

It is noted that the above legs experience a decline in level of service from LOS C to LOS D in both south and east legs in the respective AM and PM peak hour periods. This decline is a result of the increase load within the network, with the additional vehicles trips as a result of the proposed development. The resultant LOS D level of service is within acceptable levels prescribed within the TCCS Guidelines for Transport Impact Assessment and as such meets the relevant impact requirements.

Conclusions and Recommendations

The traffic and parking analysis provided within this Transport Impact Assessment indicates that the proposed development does not pose a significant impact to the local traffic and parking network.

Across all intersection, the key performance metrics including the level of service remains below capacity, and within the requirements set out within the TCCS Guidelines for Transport Impact Assessment.

The report also does not indicate any issues regarding individual movement performance relating to the safety of the pedestrian and traffic network.

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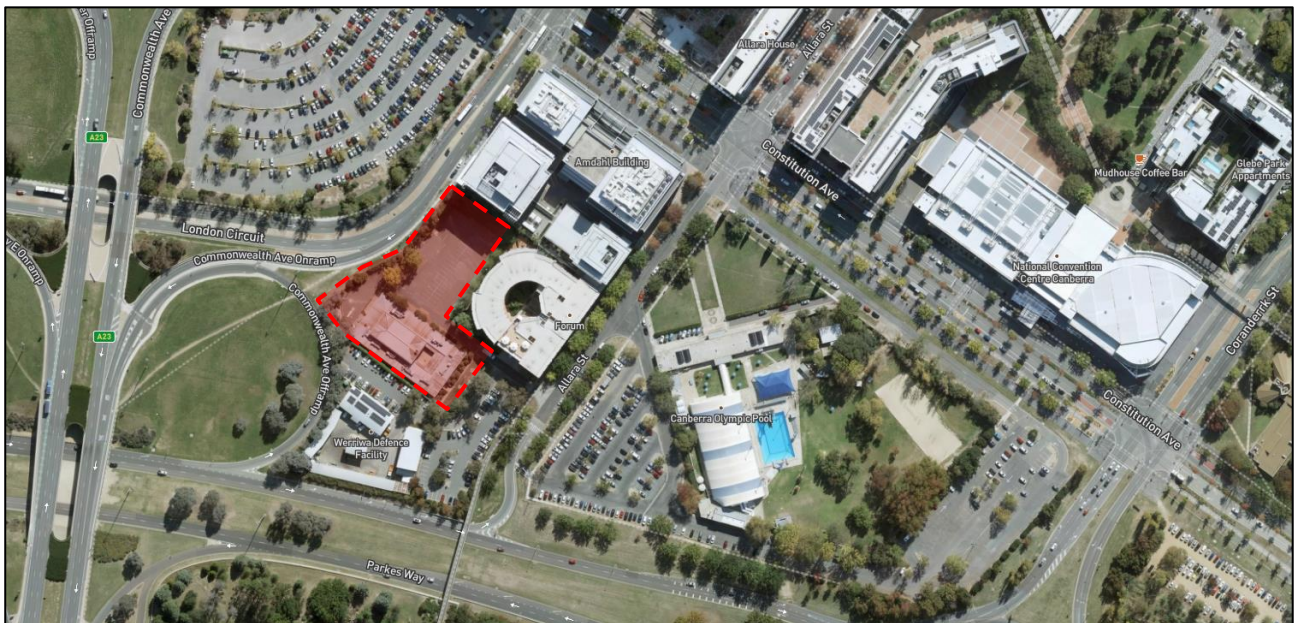
1 Introduction

1.1 Background

Cardno was engaged by Geocon to undertake a Traffic Engineering Assessment for a multi-unit residential development at 70 Allara Street on Block 16 Section 10, Canberra City illustrated in **Figure 1-1** below. The development will have an ultimate yield of 356 units.

The subject site fronts both London Circuit and Allara Street. The proposed development will allow for pedestrian access via London Circuit. The active frontage extent is yet to be determined and is subject to wider design developments in relation to light rail stage 2a and the London Cct / Commonwealth Avenue interface. All vehicular access to the development will to be gained via Allara Street.

Figure 1-1 Subject Site (Source: MetroMap)



1.2 Project Objective

The purpose of this report is to assess the current operation of the existing traffic network and to determine the effect the ultimate development yield will have on the existing road network. This is to achieve in-principal support from TCCS confirming that the proposed development will not have a significant detrimental impact on the external road network.

1.3 Study Area

Cardno engaged in discussions with TCCS in order to determine an appropriate scope for assessment. In agreement with TCCS, the following intersections were selected based on the proximity and significant redevelopment works likely to occur in the local network over the coming years.

1. Parkes Way / Commonwealth Ave Free left turn;
2. Parkes Way / Allara Street Free left turn;
3. London Circuit / Constitution Avenue Signalised Intersection;
4. Allara Street / Constitution Avenue Signalised Intersection;
5. Coranderrk Street / Constitution Avenue Signalised Intersection.

Figure 1-2 Study Area (Source: Nearthmap)



2 Proposed development

Geocon propose to develop a high-density multi-unit residential building upon Block 16, Section 10 Canberra City. The site is currently zoned as DES: Designated Land as per the Territory Plan and is governed by the National Capital Authority. The proposed development will consist of the following key facilities:

- > Total of 356 Residential dwellings including:
 - 219 one-bedroom apartments
 - 134 two-bedroom apartments
 - 3 three-bedroom apartments;
- > Ground floor Commercial Retail space (297m²);
- > Lower ground floor including commercial, residential, parking and storage; and
- > 2 basements for parking and storage;

Vehicular basement access will be gained via Allara Street in addition to service/waste access. The access driveway allows for separation between these two vehicle types.

3 Existing Road Network

3.1 Road Hierarchy Classification and Capacity

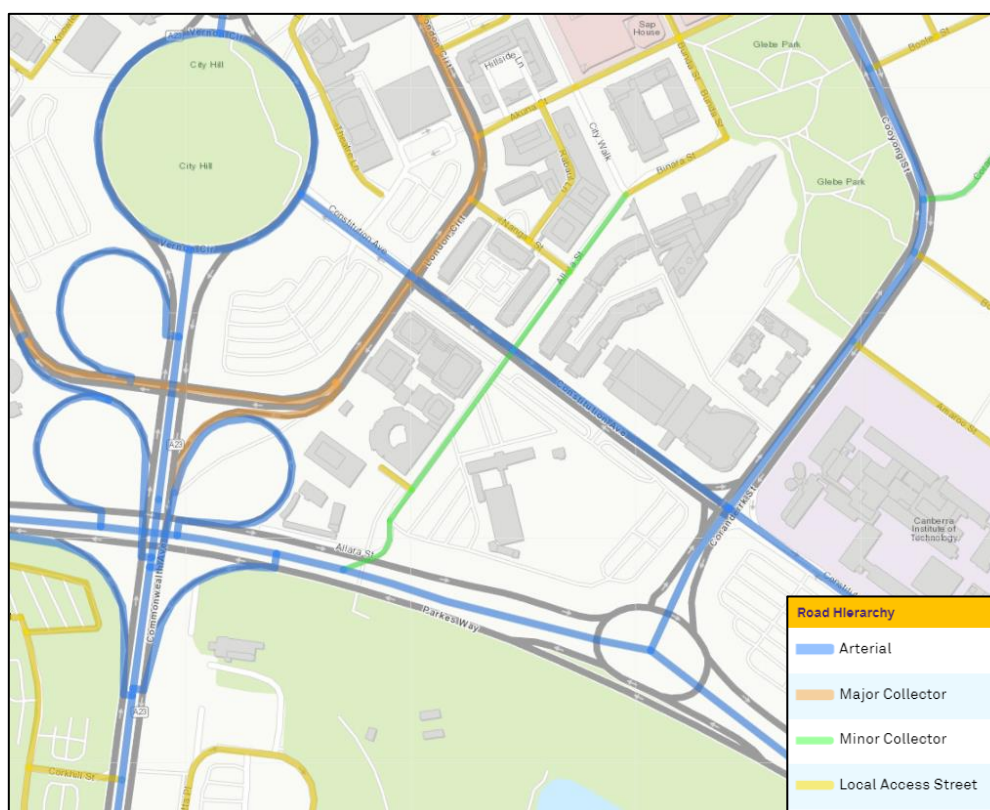
The classification of the surrounding road network is defined by the *ACT Estate Development Code (May 2018)*, which defines the minimum requirements for roads based on the zoned location and number of vehicles that utilise the road each day. Table 2A: Street Network Requirements- All Estates except in Industrial Zones, extracted from the *ACT Estate Development Code (May 2018)*. An extract of the relevant information from the ACT Estate Development Code is located in **Table 3-1** below.

Table 3-1 Street Network Requirements

Facility Type	Access Street A	Access Street B	Minor Collector	Major Collector
Traffic volume range (vpd)	0-300	301-1000	1001-3000	3001-6000
Design speed (km/h)	50	60	60	70
Minimum carriageway width (m)	5.5	7	10	10
Minimum verge width	5.5	6.25	6.25	6.25
On Street Parking	Assumed on one side of carriageway only	Assumed staggered on both side of the carriageway only	Assumed on both side of the carriageway only	Assumed on one side of the carriageway only
Minimum share path requirement	1.5m wide share path on one side only	2.0m wide on one side only	2.5m wide shared path on both sides and aligned at least 1.5m away from the kerb	2.5m wide shared path on both sides and aligned at least 1.5m away from the kerb

Figure 3-1 below provides an extract of the current *ACT Road Hierarchy Plan*, which is used to identify the classification of the road surrounding the proposed development.

Figure 3-1 Road Hierarchy Plan (Source: Active Travel Practitioner Tool)



In order to assess the provided AM peak values in terms of vehicles per day (vpd), *TCCS Design Standard 6-Pavement Design, Section 6.4.3* specifies that peak hour values may be adapted to Annual Average Daily Traffic (AADT) by assuming that the peak hour volumes are representative of approximately 10-12% of the AADT.

For this study a value of 10% was adopted and applied to the traffic volumes during the AM peak. Refer to **Table 3-2** for AADT volumes within the road network.

In accordance with the ACT Road Hierarchy Plan, the classification of the roads surrounding the network are as indicated within **Table 3-2** below.

The capacity of the arterial road was determined in accordance with the degree of saturation identified within EMME modelling. Utilising the peak hour traffic volumes within the EMME model, and estimation for the daily vehicle capacity of the road can be obtained.

Table 3-2 Current Road Volumes

Road Name	ACT Road Classification	Capacity (veh)	Existing Volume (veh)
Parkes Way	Arterial	6001+	33630
Commonwealth Ave	Arterial	6001+	75050
Constitution Ave	Arterial	6001+	8560
Coranderrk St	Arterial	6001+	21760
London Cct	Major Collector	6000	7400
Allara St	Minor Collector	3000	4990

3.2 Surrounding Road Environment

3.2.1 Parkes Way / Commonwealth Ave Free left turn

This intersection is classified as a free left turn and provides a single lane connection for southeast bound commuters from Parkes Way onto Commonwealth Ave. The approach speed limit for this ramp is 80km/h and reduces to 70km/h at the exit onto Commonwealth Ave. This intersection becomes congested throughout the AM peak hour as commuters from the north west of Canberra head towards inner south commercial suburbs of Barton and Parkes. This exit lane does not allow for pedestrian crossings or bike lanes.

3.2.2 Parkes Way / Allara Street Free left turn

This intersection is classified as a free left turn and provides a single lane connection for southeast bound commuters from Parkes Way into the City's East. The approach speed limit for this exit is 80km/h and reduces to 40km/h before the pedestrian priority crossing across Allara St. This connection provides relief to the congested downstream Parkes Way / Coranderrk St Roundabout. This exit lane does not have provisions for bicycle, however it does meet a major pedestrian shared path crossing approximately 60m from the exit from Parkes Way.

3.2.3 London Circuit / Constitution Avenue Signalised Intersection

This major four leg intersection connects the city's east and west districts through signalisation. The majority of traffic flows from both southern and northern legs which facilitates the rapid bus routes heading to and from the city interchange along resulting in significant traffic flows across both AM and PM peak periods. The intersection has four-way signalised pedestrian crossing and operates under a double diamond signal phase operation.

3.2.4 Allara Street / Constitution Avenue Signalised Intersection

This minor four leg intersection provides access to the Civic Pool and public car park along Allara St. The majority of traffic flows with the commuter peak (inbound in the AM and outbound in the PM). The intersection witnesses queuing in the PM peak within the southern approach, as vehicles seek to exit the public carpark onto Constitution Ave. The intersection has four-way signalised pedestrian crossing and operates under a counter-clockwise signal phase operation.

3.2.5 Coranderrk Street / Constitution Avenue Signalised Intersection

This major four leg intersection contains vehicles travelling from Canberra's inner north to the inner south with multilane four-way intersection. The majority of traffic flows from both southern and northern legs resulting in significant traffic flows across both AM and PM peak periods. The AM sees significant queuing within the southern approach, and the PM see the reverse with queuing spilling into the intersection from the downstream Parkes Way / Coranderrk St Roundabout north approach. The intersection has four-way signalised pedestrian crossing and operates under a double diamond signal phase operation.

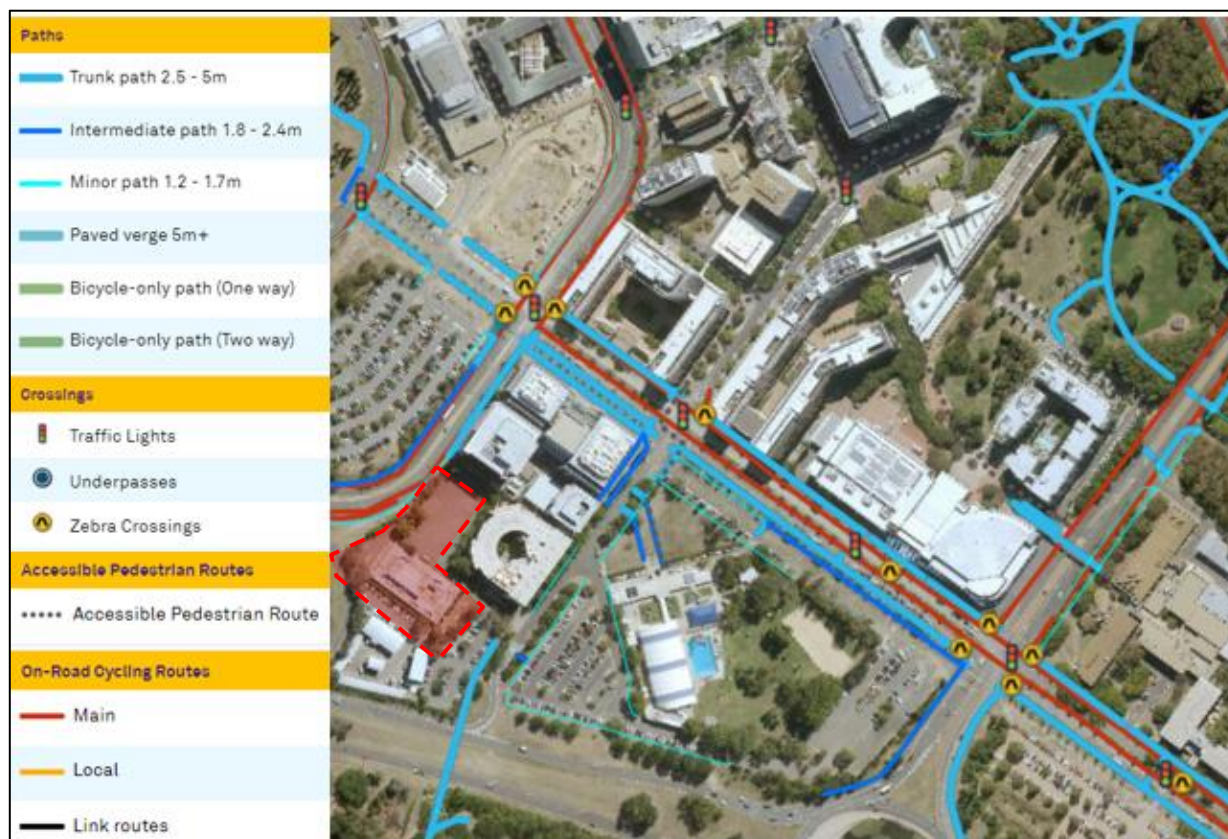
3.2.6 Allara Street / Southern Access Street

This intersection provides vehicle access to all blocks within Section 10 of the City, including the Forum Apartments. The intersection contains a trunk pedestrian and cyclist path within the northern verge which connects the City's east to Commonwealth Park. Existing conditions for the crossing of the access street allows for cyclist priority. However, with an increase in vehicular trips on this access street, generated by the proposed development, it is suggested that existing conditions be addressed by TCCS to ensure all safety measures are provided.

3.3 Active Travel

The key existing Active travel routes within proximity of the proposed development are highlighted in **Figure 3-2** below:

Figure 3-2 Existing Active Travel Infrastructure within City East (Source: Active Travel Infrastructure Practitioner Tool)



The subject site is bounded by two trunk community paths to the east and west of the property boundary. The proposed Allara Street development will allow for a link between the two footpaths to connect Allara St and Constitution Ave. This link will allow for greater permeability within the eastern town centre further promoting Active Travel.

The subject site is within close proximity (less than 400m) to all major Transport Canberra Rapid bus route platforms. These routes are highlighted in **Figures 3-3** and **3-4** on the following page. The city interchange is less than 1km walk (directly north) for access to all other major public transport services including light rail. The community paths which connect the proposed Allara Street development to these platforms are linked with pram ramps and pedestrian signalisation allowing for safe passage inclusive for all users in line with the Disabilities Discrimination Act 1992. Further details of this infrastructure are displayed in **Figure 3-5**.

Future plans for the Canberra Metro light rail stage 2A have earmarked a new platform upon the intersection of London Cct and Commonwealth Ave. Significant works are planned by the ACT Government to raise the grade of London Cct (west of the subject site) to meet with the Commonwealth Ave Bridge. The construction of this platform will greatly improve the Active Travel opportunities for residents and visitors of the proposed Allara Street development.

Figure 3-3 Bus Route Region Map Inner South (Source Transport Canberra)

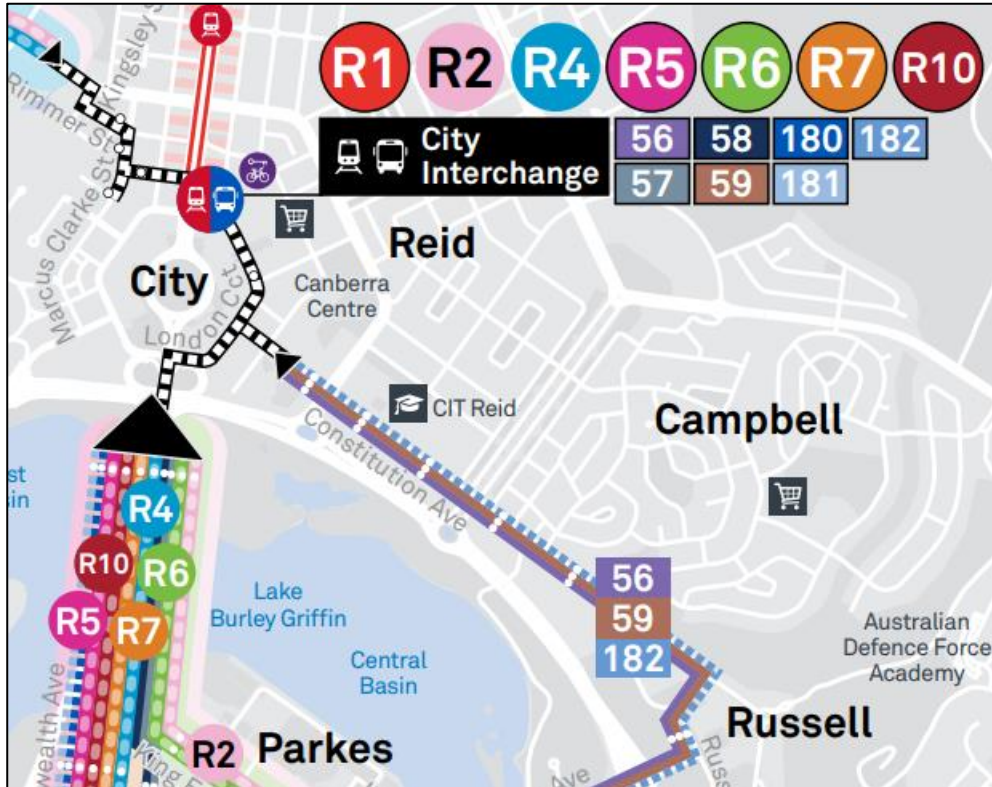


Figure 3-4 Bus Route Region Map Inner North (Source Transport Canberra)

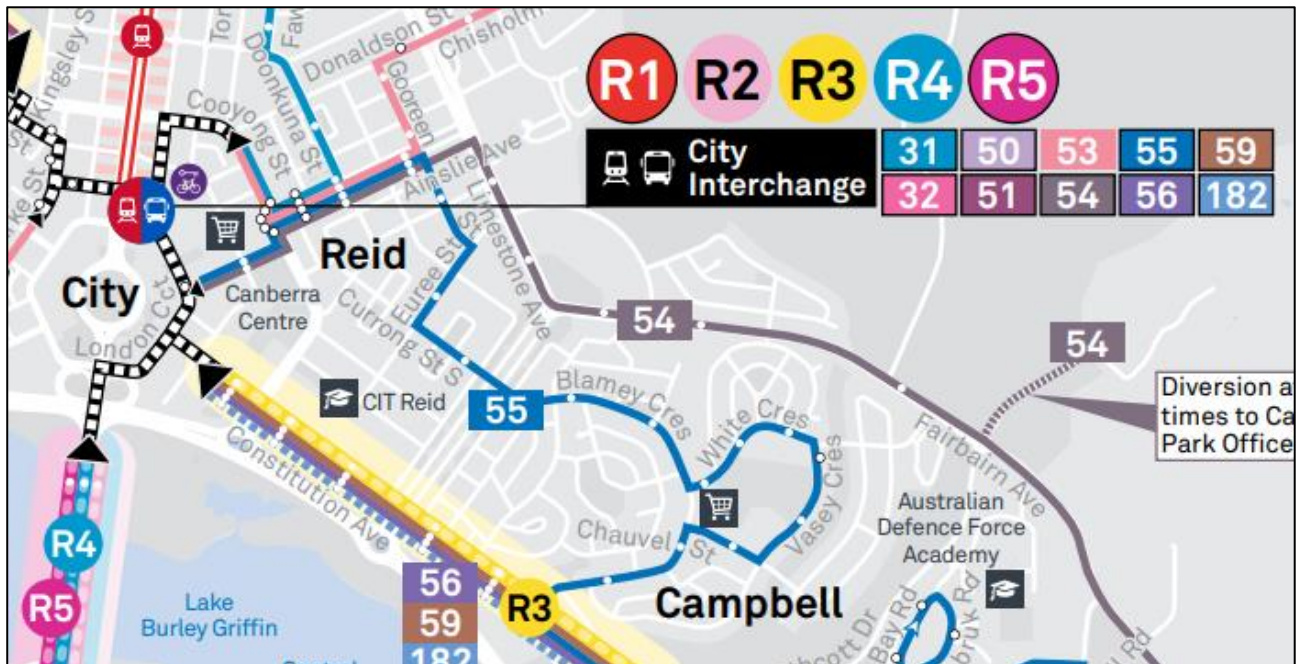
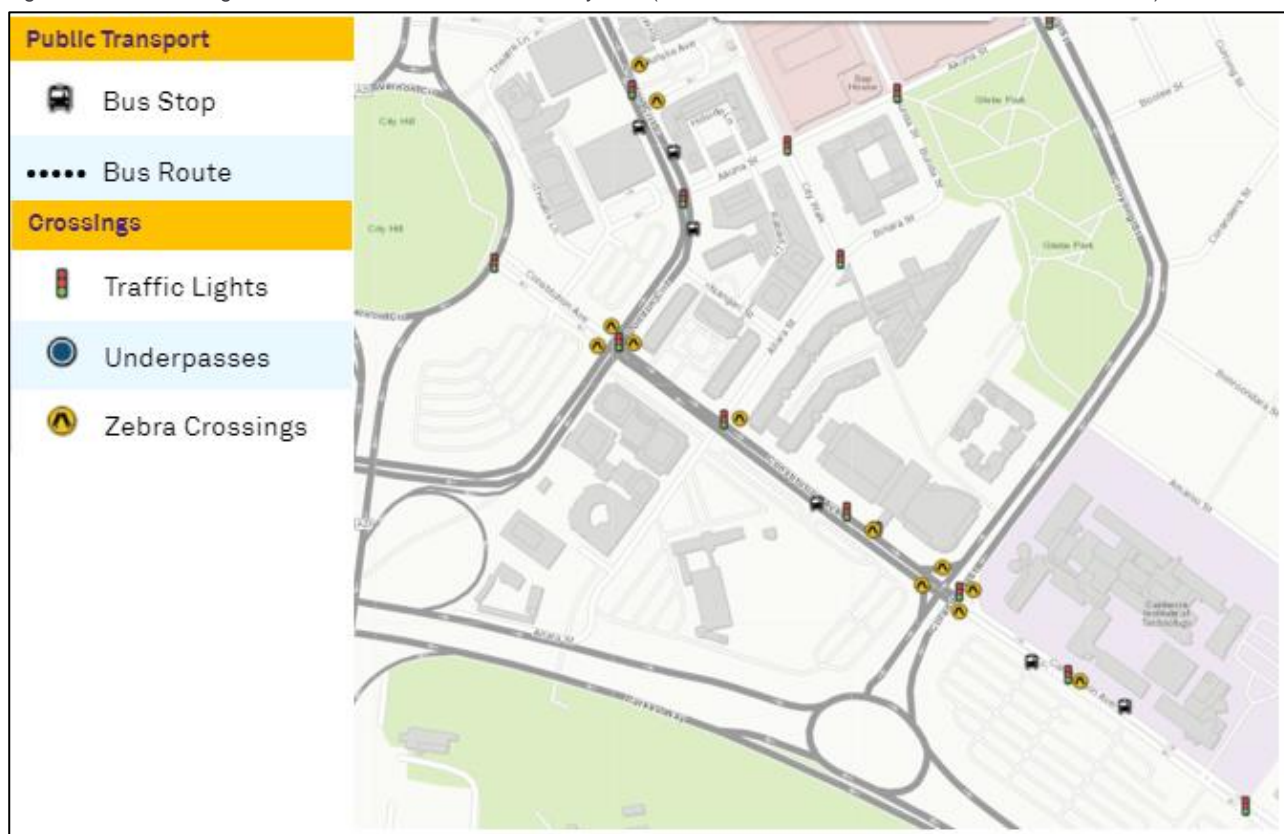


Figure 3-5 Existing Active Travel Infrastructure within City East (Source: Active Travel Infrastructure Practitioner Tool)



3.4 Road Safety

3.4.1 Crash Data

Cardno was provided with crash data from ACT Roads Safety. The crash data was taken over a period of 5 years from 01 January 2015 to 31 December 2019. The total number of crashes during this period was 86. Of the 86 crashes, 9 involved Injury and the remaining 77 resulted in property damage. Due to the high levels of congestion along Parkes Way during peak hours, and the low speed limits across Constitution Ave and Allara St, the majority of incidents were minor collisions. A breakdown of the crashes by location is displayed in **Table 3-3** on the following page.

The majority of these incidence occurred during approach, which suggests rear end collision, which is a common observation throughout most major signalised intersections within the ACT during peak hours. Further Details are provided in **Appendix C**.

Pursuant to the outcomes of the ACT Government inquiry into vulnerable road users, the development has been reviewed in the context of road safety and possible issues arising from the development. The review considered existing transport infrastructure surrounding the site, as well as the proposed interfaces of new connections to be constructed.

Based on the review of available information, the proposed development is unlikely to have an adverse impact on the safety and operability of the road network surrounding the site. It is noted that the proposed development is located within the city centre and safety concerns are atypical of this type of environment.

Table 3-3 Nearby Crashes by Location

Location of Crash	Total Crashes	Total Crash Percentage (%)
Parkes Way (Commonwealth Ave Exit Ramp)	2	2.3
Parkes Way (Commonwealth Ave Exit Ramp - Allara St Exit Lane)	5	5.8
Parkes Way (Allara St Exit Lane)	1	1.2
Constitution Ave / London Cct Intersection	16	18.6
Constitution Ave (London Cct – Allara St)	3	3.5
Allara St / Constitution Ave Intersection	13	15.1
Constitution Ave (Allara St – Coranderrk St)	14	16.3
Constitution Ave / Coranderrk St	32	37.2
Total	86	

4 Parking

4.1.1 Car parking requirements

As the proposed development is zoned as designated land (DES), car parking requirements are to comply with the National Capital Plan.

National Capital Plan Precinct Code for Constitution Avenue and Anzac Parade stipulates that, for residential buildings, 1 parking space per dwelling is required for units designed for single accommodation and 1 visitor space per four dwellings is required. As such, the parking requirements set out in **Table 4-1** below detail a combination of provisions taken from both the *National Capital Plan Precinct Code for Constitution Avenue and Anzac Parade*.

The *National Capital Plan Precinct Code for Constitution Avenue and Anzac Parade* does not have provisions for DDA Parking, however, in accordance with the PVAGC, 3% of the total required parking places will need to be DDA accessible parks, in this case, 13 parking spaces. Furthermore, in accordance with AS 2890.1:2004, the parking spaces for the development are required to be Class 1A parking.

The *National Capital Plan Precinct Code for Parkes Way and Anzac Parade* states that the location of the required parking in relation to the development shall be on site for long stay and on-site or off-site immediately adjacent to the site for short stay / visitor parking. For this study, only parking directly adjacent to the site was considered. Refer to **Figure 4-1** for the radius imagery.

The current plans of the proposed development allow for 409 car parks to be provided on-site, with 174 paid parking spaces available directly adjacent the development within Allara Street, 8 of which are DDA accessible, a breakdown of off-site parking is displayed within **Table 4-2** on the following page. Preliminary Imagery analysis of this major public car park was undertaken. Analysis was undertaken between August 2014 and December 2021 to determine the following approximate weekday utilisation ratios:

- > Allara Street Public Car Park (east of the proposed development) ≈ 75% full.

Further information is provided in **Appendix D – Off-Site Parking Analysis**.

Table 4-1 Proposed Development Parking Requirements

Land Use	Yield	Rate	Spaces
Residential	356 units (1, 2 & 3 BR)	1 space per unit	356
Residential Visitors	356 units	0.25 spaces per unit	89
Commercial Retail (shops)	297 m ²	2.5 spaces per 100m ²	8
		Total	453

Table 4-2 Off-Site Parking Availability

Street	Type	Available Spaces
Allara St	Public Car Park	164
	On street	10
Total		174

Figure 4-1 Off-site parking within 200m radius (Source: Nearmap)



4.1.2 Bicycle parking requirement

The National Capital Plan does not make any provisions for bicycle parking in Designated Zones. As such, the following provisions were determined through the *ACT Bicycle Parking General Code 2013*.

Table 4-3 Bicycle Parking Space Requirements

Land Use	Yield	Employees and Residents		Visitors and Guests	
		Spaces required (Class 1,2)	Total	Spaces required (Class 3)	Total
Residential Units (Class 1,2)	356 units	1 per unit	356	1 per 12 after 1 st 12 units	29
Commercial Retail	297 m ² GFA	1 per 500m ² after 1 st 500m ²	0	1 per 300m ² after 1 st 300m ²	0
		Employee and Residents Total	356	Visitors and Guests Total	29
				Overall total	385

Section 3.2 of the Bicycle Parking General Code (October 2013) notes that where suitable storage space is allocated, dedicated residential bicycle parking is not required. The proposed development contains allocated individual basement storage cages. The dimensions of these spaces listed in **Table 4-4** below meet the requirements under Section 3.2.3 – Standards.

Table 4-4 Secure Storage Space Dimension Requirements

Type	Length (mm)	Width (mm)	Height (mm)
Minimum requirement dimensions	1800	700	1100
Residential Basement Storage Cage 1	2100	1000	2000
Residential Basement Storage Cage 2	2700	800	2000

The proposed development has provisions for 356 storage cages across the lower ground floor and basements.

Additional visitor bicycle parking spaces have been allocated upon the ground floor bike hub. Further details of this has been provided within the architectural design submission.

4.1.3 Motorcycle Parking

The National Capital Plan does not make any provisions for motorcycle parking in Designated Zones. As such, the following provisions were considered through the *ACT Parking and Vehicular Access General Code (2018)* which states that 3% of the total proposed parking spaces are to be allocated for motorcycles. As the proposed development is primarily residential, all residential motorcycle parks are to be designated within the standard car spaces allocated to each unit. For visitors, a total of 4 spaces are required. These spaces are to be accounted for off-site within the Allara St Car park to the west of the site, where unrestricted free motorcycle parking is available.

4.1.4 Parking Summary

Cardno have reviewed the parking schedules listed in the above sections and conclude that total parks proposed for this development meet the minimum requirements for designated sites as set out in *for Constitution Avenue and Anzac Parade*. Where certain provisions are not made clear in *the National Capital Plan General Code*, the *ACT Parking and Vehicular Access General Code (2018)* was used to guide appropriate allocation rates.

4.1.5 Vehicle queuing

The proposed vehicle queuing demand during morning peak was calculated in accordance with *TCCS Engineering Advisory Note (EAN) 6* and *AS 2890.1:2004 – Parking Facilities: Off Street Parking*. The required internal queue length is 48m from the control point. Refer to **Table 4-5** below.

Table 4-5 Vehicle Queuing Demand

Capacity of car park	Peak hourly in-flow of traffic	Queue Length (cars)	Queue Length (m)
More than 100 cars	0-100 cars (3% of capacity)	3	18
	100-200 cars (2% of capacity)	2	12
	200+ cars (1% of capacity)	3	18
Total required		8	48

A review of the architectural plans has identified that an approximate queue length of 37.5 m from the property boundaries from the proposed access point is achievable. As the property boundary is setback from Allara Street approximately 50m, it is unlikely that queuing will spill out onto the road reserve causing safety concerns.

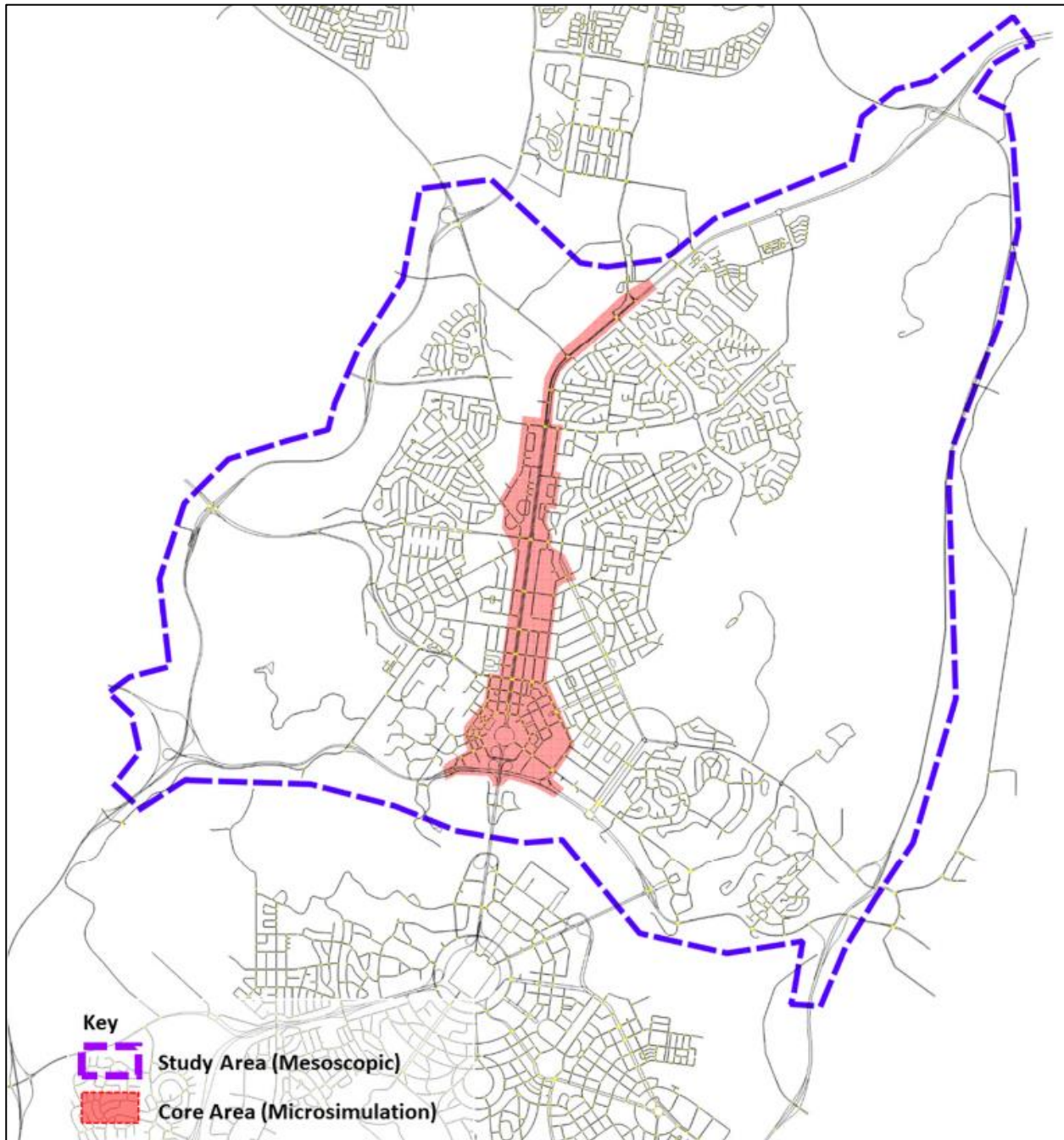
Further to the assessment above, it is noted that the basement access will utilise the Axess Pro Series 3100 Industrial Shutter Opener, which provides safe, fast and reliable automatic operation. Appropriate sensor technology will be utilised to prevent the shutters closing when obstructed to comply with relevant access standards. In peak times, this access configuration will eliminate queuing and permit 'piggy backing' of vehicles into the basement.

5 Base Model Development

The base model was developed by Jacobs Australia Pty Limited in 2020 as part of the Canberra City Precinct Inner North Reference Traffic Model (CINRM). The model was developed using *AIMSUN Next version 8.4.2* and comprises of 2.5-hour AM and PM peak hour periods. The model peak hours were 8:00 – 9:00 am and 16:45 – 17:45 pm. **Table 5-1** on the following page details the model inclusions and parameters. Further details including assumptions and methods adopted in developing this reference model are listed within the Jacobs base report document in **Appendix E - Canberra CINRM Base Calibration REV E (Jacobs, 2020)**.

The CINRM study area is listed in **Figure 5-1** on the following page.

Figure 5-1 CINRM Study Area (Source: Canberra CINRM Base Calibration Report, REV E, Jacobs, 2020)



Under the direction of the TCCS Transport Assessment and Planning team, Cardno were authorised to access to this model to extract the turn movement data across the study area to determine the base performance metrics (total traffic count, average delay and max queue length). From this a base level of service was allocated to each turn movement across the following intersections:

1. Parkes Way / Commonwealth Ave Free left turn;
2. Parkes Way / Allara Street Free left turn;
3. London Circuit / Constitution Avenue Signalised Intersection;
4. Allara Street / Constitution Avenue Signalised Intersection;
5. Coranderrk Street / Constitution Avenue Signalised Intersection.

Further details related to turn movement summaries are listed in **Section 7** of this report.

Table 5-1 Model Inclusions and Parameters (Source: Canberra CINRM Base Calibration Report, REV E, Jacobs, 2020)

Item / Element	Parameter
Duration	<ul style="list-style-type: none"> 2-hour AM and PM model periods with 15 minutes warm-up and cool-down periods, 30-minute peak shoulders and a one hour calibrated peak period within each.
Reaction times	<ul style="list-style-type: none"> Aimsun defaults to be applied. Any deviations from default to be documented in the model development report.
Vehicle Classes	<ul style="list-style-type: none"> Car, truck, bus, light rail.
Pedestrians	<ul style="list-style-type: none"> Represented as a delay to vehicles at signalised intersections, based on counts of pedestrian volumes at key intersections.
Cost Functions	<ul style="list-style-type: none"> Bespoke functions adopted based on previous C2W model and Jacobs experience with other similar models.
Road Capacities and speeds	<ul style="list-style-type: none"> Capacities aligned to CSTM. Posted speeds adopted. Any variation from posted speed to be documented in model development report.
Clear zones / special lanes	<ul style="list-style-type: none"> Coded into the base model and removed using Aimsun's traffic management measures feature to reflect time of day operation.
School zones	<ul style="list-style-type: none"> Coded using traffic management measures to reflect time of day operation.
Bus /light rail stops	<ul style="list-style-type: none"> Coded with unique GTFS stop ID and minimum distance of 20m. All stops on single lane roads coded as indented (assumes lane width sufficient for cars to go around stopped buses). Assumed 15s dwell time and 0s deviation at bus stops. Assumed 15s dwell time and 0s deviation at light rail stops.
Bus routes / timetable	<ul style="list-style-type: none"> Coded from GTFS and then manually reviewed/corrected.
Traffic signals	<ul style="list-style-type: none"> Times sourced from SCATS HIS files and normalised for coordination. Coordination offsets taken from SCATS LX files. 6s Intergreens adopted unless the average phase time is less than 12s in which case 50% of phase time is coded as Intergreen.
Estimation methodology	<ul style="list-style-type: none"> Step 1 - static adjustment at hourly level. Step 2 - departure adjustment using constraint matrix. Step 3 - DUE network assignment. Step 4 - targeted manual matrix adjustments. Step 5 - DUE network assignment (as per step 3).
Estimation constraints	<ul style="list-style-type: none"> 400%.
Calibration data set	<ul style="list-style-type: none"> December 2019 Manual Traffic Counts.
Validation data set	<ul style="list-style-type: none"> Travel time surveys (Google Data Analytics).

6 Model Inputs and Assumptions

6.1 Base model assumptions

Cardno have utilised all base model assumptions provided in the 2021 reference case model presented in Canberra CIMRM – Base Year Model Development Report (Jacobs, 2021). The model duration comprises of 2.5-hour peak periods for both AM and PM, which includes warm-up and cool-down periods. These assumptions were maintained throughout this assessment.

In order to identify the proposed developments net impact upon the local traffic network, Cardno undertook the modelling exercise to display the existing local intersection performances alongside outputs scenarios with the proposed development yield included.

This was achieved through factoring the original Origin/Destination (O/D) demand figures within Centroid 10140-B Origin / Destination Matrix for both AM and PM.

Cardno appreciates that Centroid 10140-B utilises movement assumptions for multiple blocks within Section 10 Canberra City. As such, this modelling exercise will provide a generic movement assessment typical to the City.

Based upon existing 2021 AM and PM demand data extracted from Scenario 5 within the AIMSUN model, the following Origin / Destination split assumptions were developed.

Table 6-1 Existing Demand Data Origin / Destination Split

Existing Demand Data (10140-B)			
Period	Direction	Split	Trips
AM	Destination (In)	79%	342
	Origin (Out)	21%	92
PM	Destination (In)	42%	258
	Origin (Out)	58%	358

Cardno have utilised different Origin / Destination splits for the “With Development” analysis below as the Centroid 10140-B has a majority of land use is primarily designated as commercial.

6.2 With Development Inputs

With reference the *Engineering Advisory Notice 14 - ACT Traffic Generation Rates for High Density Residential Development (HDRD) in the Vicinity of Town Centres and Northbourne Avenue Corridor*. Cardno have developed trip distribution inputs based upon an ultimate development yield of 356 units, 297m² commercial GFA. A total of 145 additional peak hour trips were determined as part of this analysis. As the model incorporates peak shoulder and warm up periods, the trip generation volumes for these periods were factored according to the ratio between the existing peak hour volumes and the ‘with development’ generation volumes.

Table 6-2 With Development Demand Data Origin / Destination Split

With Development Data (10140-B)			
Period	Direction	Split	Trips
AM	Destination (In)	20%	29
	Origin (Out)	80%	116
PM	Destination (In)	70%	102
	Origin (Out)	30%	44

An additional car was created in the within the 2021 traffic demand profile to incorporate a standalone “With Development” demand for both AM and PM periods. Both Scenario's 5 and 6 within the Canberra CINRM Model utilised this demand profile. The following factors were developed to create an additional demand within the network. Additional details for how these factors were calculated are listed in **Appendix B**.

Table 6-3 Origin Demand Factors

Origin (outbound)			
Period	Existing Trips	Development Trips	Factor
AM Peak	38	116	3.078734956
AM Shoulder	54	166	3.078734956
PM Peak	221	44	0.198234895
PM Shoulder	137	27	0.198234895

Table 6-4 Destination Demand Factors

Destination (inbound)			
Period	Existing Trips	Development Trips	Factor
AM Peak	178	29	0.164436913
AM Shoulder	165	27	0.164436913
PM Peak	164	102	0.623474866
PM Shoulder	94	58	0.623474866

7 Modelling Summary

Level of Service (LOS) is determined by the average delay for each vehicle (RMS NSW method). The range definitions for LOS are indicated in **Table 7-1** below.

Table 7-1 Level of Service Definition Table

Level of Service	Average Delay / Vehicle (sec/veh)	Traffic Signals, Roundabouts	Give Way and Stop Signs
LOS A	>14	Good operation	Good operation
LOS B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
LOS C	29 to 42	Satisfactory	Satisfactory, accident study required
LOS D	43 to 56	Operating near capacity	Near capacity, accident study required
LOS E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode.
LOS F	>70	Over capacity requires investigation of other control modes.	Over capacity, requires other control mode.

Tables 7-2 and **7-3** in the following pages presents the CINRM AIMSUN Hybrid One-shot microsimulation results for both AM and PM ‘existing base’ and ‘with development’ scenarios. The key performance metrics extracted from the model included the number of vehicles, average delay and the max queue length. The level of service was also determined based upon the average delay. From this the net impact of the proposed development can be determined. **Figure 7-1** on the following page provides an overview of the network layout including the intersections within this assessment.

Figure 7-2 AIMSUN Study Area

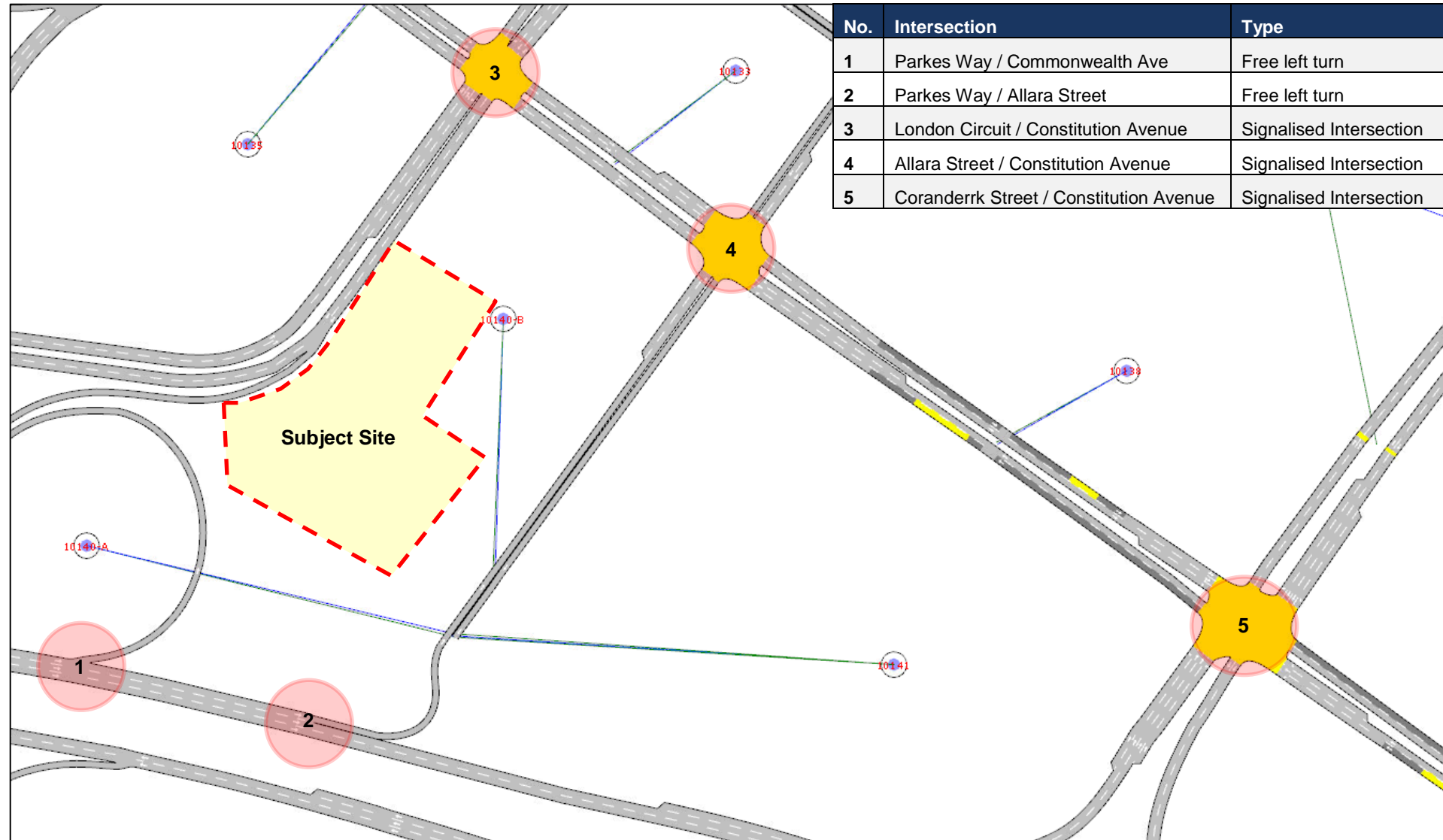


Table 7-2 2021 AM CINRM Modelling Summary

2021 AM Summary								
Allara Street / Constitution Ave Intersection								
Leg	Number of Vehicles		Ave Delay (sec)		Level of Service		Max Queue (veh)	
	Existing	With Development	Existing	With Development	Existing	With Development	Existing	With Development
North	320	319	33.6	30.2	LOS C	LOS C	4	4
East	370	444	29.2	30.5	LOS C	LOS C	10	13
South	278	394	41.8	56.4	LOS C	LOS D	9	21
West	537	517	24.0	35.2	LOS B	LOS C	7	7
Intersection	1505	1674	30.6	37.9	LOS C	LOS C	10	12
Coranderrk / Constitution Ave Intersection								
Leg	Number of Vehicles		Ave Delay (sec)		Level of Service		Max Queue (veh)	
	Existing	With Development	Existing	With Development	Existing	With Development	Existing	With Development
North	765	867	38.8	49.4	LOS C	LOS D	11.5	13
East	62	100	49.8	48.4	LOS D	LOS D	4	5
South	1068	1070	28.6	24.7	LOS C	LOS B	7	7
West	424	466	24.6	28.5	LOS B	LOS C	6	6
Intersection	2319	2524	31.8	34.9	LOS C	LOS C	12.5	13
London Circuit / Constitution Ave Intersection								
Leg	Number of Vehicles		Ave Delay (sec)		Level of Service		Max Queue (veh)	
	Existing	With Development	Existing	With Development	Existing	With Development	Existing	With Development
North	170	269	44.3	67.7	LOS D	LOS E	7	9
East	432	461	13.5	15.0	LOS A	LOS B	6	7
South	669	766	31.2	36.2	LOS C	LOS C	16	17
West	87	150	41.2	44.9	LOS C	LOS D	3	7
Intersection	1358	1646	27.8	36.2	LOS B	LOS C	9.5	17
Parkes Way / Allara St Free Left Turn								
Leg	Number of Vehicles		Ave Delay (sec)		Level of Service		Max Queue (veh)	
	Existing	With Development	Existing	With Development	Existing	With Development	Existing	With Development
East	2018	1678	12.0	0.4	LOS A	LOS A	14	2.5
Parkes Way / Commonwealth Ave Free Left Turn								
Leg	Number of Vehicles		Ave Delay (sec)		Level of Service		Max Queue (veh)	
	Existing	With Development	Existing	With Development	Existing	With Development	Existing	With Development
East	3686	3495	15.6	12.2	LOS B	LOS A	20	13

Table 7-3 2021 PM CINRM Modelling Summary

2021 PM Summary								
Allara Street / Constitution Ave Intersection								
Leg	Number of Vehicles		Ave Delay (sec)		Level of Service		Max Queue (veh)	
	Existing	With Development	Existing	With Development	Existing	With Development	Existing	With Development
North	291	306	36.3	40.4	LOS C	LOS C	4	4
East	311	264	34.7	45.4	LOS C	LOS D	10	17
South	259	342	21.5	24.5	LOS B	LOS B	5	7
West	344	350	20.5	23.6	LOS B	LOS B	4.5	6.5
Intersection	1205	1262	28.2	32.5	LOS B	LOS C	10	17
Coranderrk / Constitution Ave Intersection								
Leg	Number of Vehicles		Ave Delay (sec)		Level of Service		Max Queue (veh)	
	Existing	With Development	Existing	With Development	Existing	With Development	Existing	With Development
North	938	908	46.7	42.3	LOS D	LOS C	14	13.5
East	176	158	56.5	48.0	LOS D	LOS D	8	8
South	842	1019	22.8	25.8	LOS B	LOS B	7	7
West	489	590	31.8	37.2	LOS C	LOS C	8	8
Intersection	2445	2768	36.2	35.2	LOS C	LOS C	14	13.5
London Circuit / Constitution Ave Intersection								
Leg	Number of Vehicles		Ave Delay (sec)		Level of Service		Max Queue (veh)	
	Existing	With Development	Existing	With Development	Existing	With Development	Existing	With Development
North	244	403	28.1	29.6	LOS B	LOS C	5	8
East	572	572	23.4	42.2	LOS B	LOS C	8	8
South	454	383	30.4	33.3	LOS C	LOS C	6	5
West	111	142	39.5	39.9	LOS C	LOS C	5	6
Intersection	1381	1386	27.8	37.9	LOS B	LOS C	8	8
Parkes Way / Allara St Free Left Turn								
Leg	Number of Vehicles		Ave Delay (sec)		Level of Service		Max Queue (veh)	
	Existing	With Development	Existing	With Development	Existing	With Development	Existing	With Development
East	1360	1318	0.1	0.2	LOS A	LOS A	0	0
Parkes Way / Commonwealth Ave Free Left Turn								
Leg	Number of Vehicles		Ave Delay (sec)		Level of Service		Max Queue (veh)	
	Existing	With Development	Existing	With Development	Existing	With Development	Existing	With Development
East	2484	2313	1.1	1.2	LOS A	LOS A	0	0

8 Summary and Conclusions

8.1 Detailed intersection Summary

A microsimulation assessment was undertaken to determine the net impact of the proposed 70 Allara Street development upon the local traffic network with the City East. **Tables 7-1** and **7-2** in the previous section describe the net change in number of vehicles, average delay and maximum queue as a result of the proposed development. Within these tables the level of service (LOS) is presented for each approach across all both 'existing' and 'with development' scenarios providing a key metric for analysing intersection performance.

The intersection performance information detailing all AIMSUN movement outputs are attached in **Appendix A**.

8.1.1 Parkes Way / Commonwealth Ave Free left turn

This intersection does not see any significant impact to the key performance metrics as a result of the proposed Allara Street development. The level of service changes from LOS B to LOS A as a result of the microsimulation iteration reduced total 'with development' volume of vehicles approaching this exit in the AM peak hour period.

The PM peak hour period witnesses no change in level of service as the total 'with development' volume remains similar to the 'existing' volume. The maximum queue length remains unchanged at zero vehicles for both AM and PM 'existing' and 'with development' scenarios. Overall the intersection operates at a good level of service across all scenarios.

8.1.2 Parkes Way / Allara Street Free left turn

This intersection does not see any significant impact to the key performance metrics as a result of the proposed Allara Street development. The level of service remains unchanged (LOS A) across both AM and PM peak hour periods and sees no change in level of service as the total 'with development' volume remains similar to the 'existing' volume. The maximum queue length remains unchanged at zero vehicles for both AM and PM 'existing' and 'with development' scenarios. Overall the intersection operates at a good level of service across all scenarios.

8.1.3 London Circuit / Constitution Avenue Signalised Intersection

The London Circuit / Constitution Avenue intersection experiences a slight increase in total vehicle trips as a result of the proposed Allara Street development. The proposed development attributes an increase in total traffic volume to the eastern approach as a result of the additional 117 vehicle trips generated during the AM peak hour period. This increase sees a slight decline in average delay from 13.5 seconds (LOS A) to 15.0 seconds (LOS B) during the 'with development' scenario. The northern approach shows a sharp increase in average delay from 44.3 seconds (LOS D) to 67.7 seconds (LOS E) as a result of an increase in total vehicle volume during the 'with development' scenario, however, as this is due to an increase in southbound vehicles heading towards Commonwealth Avenue it is unrelated to the proposed development outbound split and is a result of differing iterations between the two models. The total intersection level of service increases from LOS B to LOS C as a result of the proposed development scenario.

The PM peak hour period does not see any significant change across the entire intersection with all four legs operating at either good with acceptable delays and spare capacity (LOS B) during the 'existing' scenario and satisfactory (LOS C) during the 'with development' scenario.

Overall the proposed development is shown to have a minor impact on the intersections performance in both AM and PM scenario, with both AM and PM 'with development' scenarios increasing from good with acceptable delays and spare capacity (LOS B) to satisfactory (LOS C) as a result of the proposed development.

8.1.4 Allara Street / Constitution Avenue Signalised Intersection

The Allara Street / Constitution Avenue intersection experiences an increase in total vehicle trips as a result of the proposed Allara Street development. An additional 117 vehicle trips utilise the southern approach during the AM peak hour and 44 vehicle trips in the PM. This increase results in a slight decline in the average delay of across the southern approach from 41.8 seconds (LOS C) to 56.4 seconds (LOS D) in the AM peak hour period. The maximum queue length also sees an increase from 3 vehicles to 7 vehicles. This increase does not significantly hinder the southern approach's performance. No significant change is witnessed across the other three approach legs during the AM peak hour.

The PM peak hour period does not see any significant change across the majority of the intersection, with exception to the eastern approach leg. This leg sees an increase in the total vehicle volume across the intersection due to

the inbound increase of 102 vehicle trips as a result of the proposed development. These trips are concentrated within the eastern approach leg, which results in an overall increase in average delay from 34.7 seconds (LOS C) in the 'existing' scenario to 45.4 seconds (LOS D) in the 'with development' scenario. In addition to this, the maximum queue length also increases from 10 vehicles in the 'existing' scenario to 17 vehicles in the 'with development' scenario as a result of the proposed development.

Overall the proposed development does not significantly impact the intersections performance in both AM and PM scenario, as both operate at a satisfactory level of service (LOS C) in the 'with development scenario'.

8.1.5 Coranderrk Street / Constitution Avenue Signalised Intersection

The Coranderrk Street / Constitution Avenue intersection experiences an increase in total vehicle trips as a result of the proposed Allara Street development. Additional vehicle trips utilise the western approach during both AM and PM peak hour periods. This increase results in a slight decline in the average delay performance across the western approach from 24.0 seconds (LOS B) to 35.2 seconds (LOS C) in the AM peak hour period. The maximum queue length however, does not increase. This does not significantly hinder the western approach leg's performance. The southern approach leg experiences an increase in average delay and maximum queue length during the 'with development' scenario, however, this is a result of an increase in northbound vehicles related the change in iterations within the microsimulation and is unrelated the proposed development.

The PM peak hour period does not see any significant change with all four intersection legs remaining unchanged from the 'existing' scenario through to the 'with development' scenario.

Overall the proposed development does not significantly impact the intersections performance in both AM and PM scenarios, as both operate at a satisfactory level of service (LOS C) in the 'with development' scenario.

APPENDIX

A

AIMSUN TURN MOVEMENT OUTPUTS

AIMSUN Table Outputs - 2021 AM Existing

Allara Street / Constitution Ave Intersection

Count - All - ~06 2021 AM Hybrid oneshot														
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	Total	Split	
North Approach	Right	528064	TCS98t1	6	10	24	53	19	24	50	15	146	46%	
	Through	528065	TCS98t2	2	7	13	8	13	7	11	8	39	12%	
	Left	528066	TCS98t3	32	23	25	19	35	40	41	41	135	42%	
West Approach	Left	528067	TCS98t12	10	20	54	83	72	76	63	63	294	55%	
	Right	528068	TCS98t10	12	21	18	12	1	14	9	7	36	7%	
	Through	528069	TCS98t11	32	39	57	60	39	62	46	60	207	39%	
South Approach	Through	528070	TCS98t8	33	40	47	25	15	15	38	54	93	33%	
	Left	528071	TCS98t9	24	25	23	35	10	25	29	29	99	36%	
	Right	528072	TCS98t7	18	21	1	13	25	20	28	49	86	31%	
East Approach	Right	528073	TCS98t4	15	11	18	21	41	30	28	18	120	32%	
	Through	528074	TCS98t5	18	28	25	16	42	54	67	35	179	48%	
	Left	528075	TCS98t6	5	10	10	5	13	20	33	16	71	19%	
Delay Time - All - Link - ~06 2021 AM Hybrid oneshot														
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	Total	Ave Leg Delay (sec)	Total Ave Delay (sec)
North Approach	Right	528064	TCS98t1	25.3939	29.1757	21.1981	28.2383	37.9092	24.4766	33.9224	32.8579	31.13663	33.63390586	30.63937544
	Through	528065	TCS98t2	22.4925	27.8718	23.6698	37.9186	38.3048	32.4455	13.3781	11.0723	30.51175		
	Left	528066	TCS98t3	36.3889	34.3871	33.2992	47.4363	31.7614	36.936	32.8128	32.1417	37.23663		
West Approach	Left	528067	TCS98t12	10.6366	8.88968	16.0826	13.2283	18.4635	14.8482	17.2373	31.5179	15.94433	24.02709595	
	Right	528068	TCS98t10	42.242	42.9827	46.7367	53.2587	56.8867	54.864	47.3398	48.5347	53.0873		
	Through	528069	TCS98t11	30.729	34.1045	48.7541	46.8356	20.7467	23.3665	30.8633	34.439	30.45303		
South Approach	Through	528070	TCS98t8	25.6819	33.1837	34.3213	44.3615	27.2376	51.9755	75.7538	111.353	49.8321	41.84744424	
	Left	528071	TCS98t9	16.1839	17.0817	17.8407	22.934	17.02	15.5786	35.9812	98.7609	22.87845		
	Right	528072	TCS98t7	37.5754	42.8002	23.7388	46.6417	51.6379	44.5443	77.3732	114.185	55.04928		
East Approach	Right	528073	TCS98t4	25.6289	20.5123	28.6278	22.5812	30.6137	23.9951	22.8357	30.6859	25.00643	29.22505443	
	Through	528074	TCS98t5	30.8351	32.8927	35.952	51.4254	31.6707	33.6536	36.8061	57.7595	38.38895		
	Left	528075	TCS98t6	12.9515	17.8503	24.4519	2.14505	8.13021	21.1618	21.5701	15.7603	13.25179		
Max. Queue - All - Link - ~06 2021 AM Hybrid oneshot														
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15		Max Queue (m)	
North Approach	Right	528064	TCS98t1	2	2	3	4	4	3	4	2	4	10.0	
	Through	528065	TCS98t2	1	1	3	3	3	1	1	2			
	Left	528066	TCS98t3	4	3	4	3	3	4	4	4			
West Approach	Left	528067	TCS98t12	3	2	4	6	6	7	6	8	7		
	Right	528068	TCS98t10	3	4	3	3	1	4	3	2			
	Through	528069	TCS98t11	2.5	3.5	4.5	5	3	4.5	3.5	5			
South Approach	Through	528070	TCS98t8	5	8	8	5	3	4	9	12	9		
	Left	528071	TCS98t9	2	4	3	5	3	3	6	7			
	Right	528072	TCS98t7	3	5	1	4	5	6	9	10			
East Approach	Right	528073	TCS98t4	3	2	4	3	9	6	5	6	10		
	Through	528074	TCS98t5	4	4	5	4	9	8	10	13			
	Left	528075	TCS98t6	2	2	3	1	2	4	7	4			

AIMSUN Table Outputs - 2021 AM Existing

Coranderk / Constitution Ave Intersection

Count - All - ~06 2021 AM Hybrid oneshot

Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	Total	Split
North Approach	Right	528042	TCS6t1	11	26	34	21	25	28	35	37	109	14%
	Through	528040	TCS6t2	102	111	82	115	142	170	152	159	579	76%
	Left	2512	TCS6t3	8	8	21	28	20	10	19	12	77	10%
East Approach	Right	528046	TCS6t4	2	0	4	6	7	2	2	31	17	27%
	Through	528048	TCS6t5	1	4	4	6	5	4	12	4	27	44%
	Left	2511	TCS6t6	5	4	0	4	7	5	2	3	18	29%
South Approach	Right	528044	TCS6t7	9	15	3	5	17	9	7	2	38	4%
	Through	528043	TCS6t8	123	119	163	174	147	189	218	220	728	68%
	Left	2510	TCS6t9	44	60	54	53	74	94	81	65	302	28%
West Approach	Right	528050	TCS6t10	56	54	33	22	27	44	28	62	121	29%
	Through	528051	TCS6t11	10	18	24	34	38	39	21	20	132	31%
	Left	2513	TCS6t12	12	14	24	38	30	44	59	41	171	40%

Delay Time - All - Link - ~06 2021 AM Hybrid oneshot

Direction	Movement			7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	Total	Ave Leg Delay (sec)	Total Ave Delay (sec)
North Approach	Right	528042	TCS6t1	51.2204	51.5057	73.8594	58.3298	59.8477	64.785	48.8787	145.587	57.9603	38.80612304	31.81172105
	Through	528040	TCS6t2	29.6553	30.7115	30.7431	36.1911	36.3381	35.7385	45.5562	33.025	38.45598		
	Left	2512	TCS6t3	14.2247	7.21292	5.11588	10.0987	13.8719	10.6332	22.695	7.32609	14.3247		
East Approach	Right	528046	TCS6t4	36.448	-1	34.1408	56.1147	59.3484	63.0506	60.6016	35.7056	59.77883	49.82588105	
	Through	528048	TCS6t5	0.927085	19.8584	1.24728	41.1741	26.2449	26.6996	45.2088	39.6583	34.83185		
	Left	2511	TCS6t6	40.0477	40.7455	-1	63.9409	62.2951	62.6354	62.7963	61.3448	62.91693		
South Approach	Right	528044	TCS6t7	48.929	54.1994	56.066	81.7108	55.8729	61.607	74.9614	67.8269	68.53803	28.61506929	
	Through	528043	TCS6t8	30.0308	29.2701	27.2932	32.7087	32.485	34.3639	28.8484	26.8642	32.1015		
	Left	2510	TCS6t9	8.13273	9.89976	13.565	17.2801	14.8194	13.707	14.9426	16.1243	15.18728		
West Approach	Right	528050	TCS6t10	35.0508	39.3839	37.2178	34.317	28.5316	29.6844	23.0973	37.5461	28.90758	24.60990183	
	Through	528051	TCS6t11	37.4987	35.6107	33.2947	27.1985	27.9215	15.2295	15.6898	33.8382	21.50983		
	Left	2513	TCS6t12	21.115	23.6645	35.0946	25.3367	30.191	21.1941	19.1258	36.1625	23.9619		

Max. Queue - All - Link - ~06 2021 AM Hybrid oneshot

Direction	Movement			7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15		Max Queue (m)
North Approach	Right	528042	TCS6t1	3	5	7	4	8	6	6	13	11.5	11.5
	Through	528040	TCS6t2	6.5	6.5	7	7.5	9.5	11.5	11.5	10		
	Left	2512	TCS6t3	2	1	2	3	2	2	3	2		
East Approach	Right	528046	TCS6t4	1	0	1	2	3	2	1	10	4	
	Through	528048	TCS6t5	0	1	0	3	2	2	4	2		
	Left	2511	TCS6t6	2	1	0	3	2	2	1	2		
South Approach	Right	528044	TCS6t7	3	5	1	2	4	2	2	1	7	
	Through	528043	TCS6t8	6.5	6	7	6.5	7	6.5	6.5	7		
	Left	2510	TCS6t9	5	5	5	7	6	6	5	6		
West Approach	Right	528050	TCS6t10	4	5.5	3	2.5	4.5	4	2	4.5	6	
	Through	528051	TCS6t11	1.5	3	1.5	2.5	3	2.5	2.5	1.5		
	Left	2513	TCS6t12	2	3	4	4	6	5	5	6		

AIMSUN Table Outputs - 2021 AM Existing

London Circuit / Constitution Ave Intersection

Count - All - ~06 2021 AM Hybrid oneshot														
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	Total	Split	
North Approach	Left	527791	TCS97t3	17	21	38	31	13	7	10	23	61	36%	
	Through	527792	TCS97t2	25	42	51	25	14	26	24	34	89	52%	
	Right	559828	TCS97t1	0	0	2	11	4	0	5	1	20	12%	
West Approach	Left	559830	TCS97t12	0	0	7	11	6	10	0	0	27	31%	
	Through	559831	TCS97t11	7	27	20	10	2	17	10	13	39	45%	
	Right	559832	TCS97t10	0	0	7	15	1	4	1	4	21	24%	
South Approach	Left	559829	TCS97t9	20	38	41	41	52	53	30	42	176	26%	
	Through	527795	TCS97t8	6	10	23	12	26	18	15	21	71	11%	
	Right	527796	TCS97t7	24	35	73	94	94	121	113	85	422	63%	
East Approach	Left	527794	TCS97t6	13	24	36	72	43	66	117	46	298	69%	
	Through	559856	TCS97t5	5	7	6	2	11	13	14	11	40	9%	
	Right	527793	TCS97t4	19	23	22	15	21	23	35	24	94	22%	
Delay Time - All - Link - ~06 2021 AM Hybrid oneshot														
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	Total	Ave Leg Delay (sec)	Total Ave Delay (sec)
North Approach	Left	527791	TCS97t3	21.5676	15.8958	25.7855	29.7248	31.9367	38.4503	21.7502	32.1116	30.4655	44.30037985	27.83551387
	Through	527792	TCS97t2	23.6993	32.8144	34.9937	51.4428	55.9157	59.2475	61.9447	31.205	57.13768		
	Right	559828	TCS97t1	-1	-1	49.992	27.1445	45.4164	-1	45.9223	0.017495	29.3708		
West Approach	Left	559830	TCS97t12	-1	-1	23.4287	56.3438	32.5563	68.3158	-1	-1	39.05398	41.20104052	
	Through	559831	TCS97t11	36.6741	44.5813	43.9715	45.3343	46.097	49.2392	42.0275	49.2547	45.6745		
	Right	559832	TCS97t10	-1	-1	25.8279	32.6978	9.8333	64.0466	36.0371	64.1052	35.6537		
South Approach	Left	559829	TCS97t9	22.8229	32.6643	23.0788	37.3322	41.5835	30.4782	33.1807	27.2677	35.64365	31.15515482	
	Through	527795	TCS97t8	23.9516	29.4593	21.8646	40.6172	52.7819	29.4663	40.3617	20.7263	40.80678		
	Right	527796	TCS97t7	31.6016	32.0897	27.3101	26.7479	30.8795	23.6663	29.3436	22.1893	27.65933		
East Approach	Left	527794	TCS97t6	12.9411	9.33552	8.10113	2.41695	6.67048	6.71716	6.56349	11.8242	5.59202	13.52378278	
	Through	559856	TCS97t5	33.7377	37.2394	18.0621	47.3824	13.7934	16.8831	49.2891	30.4097	31.837		
	Right	527793	TCS97t4	28.2091	29.8849	25.3949	36.1943	21.4139	31.3177	34.5793	41.2004	30.8763		
Max. Queue - All - Link - ~06 2021 AM Hybrid oneshot														
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15		Max Queue (Cars)	
North Approach	Left	527791	TCS97t3	3	3	7	5	2	1	7	7	7	7	16
	Through	527792	TCS97t2	2	3.5	4	3.5	3	3.5	2.5	2			
	Right	559828	TCS97t1	1	0	1	2	1	0	1	0			
West Approach	Left	559830	TCS97t12	0	0	2	3	3	3	0	0	3		
	Through	559831	TCS97t11	1	2	1.5	1	1	2	1	2			
	Right	559832	TCS97t10	0	0	2	3	1	1	1	3			
South Approach	Left	559829	TCS97t9	6	7	6	7	16	11	7	8	16		
	Through	527795	TCS97t8	1	1	2	1.5	4	1	1.5	1			
	Right	527796	TCS97t7	2	4	5.5	6	6	6.5	8	5.5			
East Approach	Left	527794	TCS97t6	3	2	2	2	3	3	6	3	6		
	Through	559856	TCS97t5	2	3	2	1	1	1	2	2			
	Right	527793	TCS97t4	3	3	3	3	3	4	4	4			

AIMSUN Table Outputs - 2021 AM Existing
Parkes Way / Allara St Free Left Turn

Count - All - ~06 2021 AM Hybrid oneshot													
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	Total	Split
East Approach	Left	2509	u1132t12	74	85	78	77	58	54	139	107	328	16%
	Through	457183	u1132t11	512	631	541	470	453	403	364	367	1690	84%
Delay Time - All - Link - ~06 2021 AM Hybrid oneshot													
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	Total	
East Approach	Left	2509	u1132t12	0.53175	0.521369	0.968083	0.762415	3.0205	1.8873	0.756336	0.747244	1.606638	1.60663775
	Through	457183	u1132t11	0.191159	0.470367	6.89395	0.29411	39.2291	16.428	0.182526	0.181232	14.03343	14.033434
Max. Queue - All - Link - ~06 2021 AM Hybrid oneshot													
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15		
East Approach	Left	2509	u1132t12	0	0	0	0	0	0	0	0	14	14
	Through	457183	u1132t11	0	0	12.5	0	14	12.5	0	0		

Parkes Way / Commonwealth Ave Free Left Turn

Count - All - ~06 2021 AM Hybrid oneshot													
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	Total	Split
East Approach	Left	457167	u1014t7t11	584	718	620	550	529	434	503	473	2016	55%
	Through	457168	u1014t10	427	381	423	470	291	461	448	359	1670	45%
Delay Time - All - Link - ~06 2021 AM Hybrid oneshot													
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	Total	
East Approach	Left	457167	u1014t7t11	0.876472	1.03952	2.58128	4.12789	41.7778	9.56966	5.54958	4.11078	15.25623	15.2562325
	Through	457168	u1014t10	2.72314	2.5501	6.95029	14.1837	18.3085	19.1916	12.7546	11.7772	16.1096	16.1096
Max. Queue - All - Link - ~06 2021 AM Hybrid oneshot													
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15		
East Approach	Left	457167	u1014t7t11	0	0	0.666667	0	16	1.33333	0.333333	0	20	20
	Through	457168	u1014t10	0	0	3	4	20	7	1	1		

AIMSUN Table Outputs - 2021 PM Existing
Allara Street / Constitution Ave Intersection

Count - All - ~06 2021 PM Hybrid oneshot														
Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Total	Split	
North Approach	Right	528064	TCS98t1	15	15	37	39	50	43	38	20	169	58%	
	Through	528065	TCS98t2	9	3	4	4	3	0	4	3	11	4%	
	Left	528066	TCS98t3	45	32	28	32	36	15	32	29	111	38%	
West Approach	Left	528067	TCS98t12	30	27	29	37	35	38	49	21	139	40%	
	Right	528068	TCS98t10	6	1	3	11	26	20	12	1	60	17%	
	Through	528069	TCS98t11	43	38	32	37	49	27	38	45	145	42%	
South Approach	Through	528070	TCS98t8	7	4	12	22	7	14	13	12	55	21%	
	Left	528071	TCS98t9	23	25	38	40	29	55	23	18	162	63%	
	Right	528072	TCS98t7	12	7	12	14	7	9	19	19	42	16%	
East Approach	Right	528073	TCS98t4	36	38	26	22	18	24	16	9	90	29%	
	Through	528074	TCS98t5	29	20	46	45	61	36	32	28	188	60%	
	Left	528075	TCS98t6	9	6	9	2	15	7	7	6	33	11%	
Delay Time - All - Link - ~06 2021 PM Hybrid oneshot														
Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Total	Ave Leg Delay	Total Ave Delay
North Approach	Right	528064	TCS98t1	33.4858	37.2975	38.1073	34.2565	36.6452	33.1527	28.0404	36.4744	35.540425	36.26193497	28.17838596
	Through	528065	TCS98t2	23.7222	34.1726	32.1557	20.2882	48.4995	-1	21.181	36.3151	24.98585		
	Left	528066	TCS98t3	31.84	35.3864	27.1197	37.5679	44.4482	44.7758	38.2493	30.7975	38.4779		
West Approach	Left	528067	TCS98t12	18.4357	23.4824	9.86543	10.0077	11.8634	12.9369	12.957	15.9295	11.168358	20.47205892	
	Right	528068	TCS98t10	42.5753	83.3209	37.6313	1.72533	19.8033	11.7475	16.9318	13.6905	17.726858		
	Through	528069	TCS98t11	49.6422	29.2505	34.4146	28.8125	30.7542	28.1256	32.7682	42.196	30.526725		
South Approach	Through	528070	TCS98t8	33.5456	67.5553	28.907	27.3629	28.0244	33.4495	50.1299	35.8908	29.43595	21.53109479	
	Left	528071	TCS98t9	14.7895	13.8976	11.3907	23.9639	18.2375	15.1302	16.0159	24.6121	17.180575		
	Right	528072	TCS98t7	49.0718	49.7484	39.3592	34.1438	21.0473	17.29	33.391	35.9523	27.960075		
East Approach	Right	528073	TCS98t4	32.2163	32.3235	37.2458	31.3952	36.2036	32.3515	49.3411	31.3402	34.299025	34.67456651	
	Through	528074	TCS98t5	40.8146	27.4812	46.8873	35.9995	35.1142	35.0856	32.5033	52.386	38.27165		
	Left	528075	TCS98t6	19.0831	16.0743	6.24328	15.9118	15.5989	23.0712	14.6838	6.98843	15.206295		
Max. Queue - All - Link - ~06 2021 PM Hybrid oneshot														
Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15		Max Queue (m)	
North Approach	Right	528064	TCS98t1	3	3	3	4	4	3	4	4	4	4	
	Through	528065	TCS98t2	2	1	1	1	1	0	1	1	1		
	Left	528066	TCS98t3	4	3	3	4	4	2	3	3	3		
West Approach	Left	528067	TCS98t12	4	3	3	2	3	4	5	2	2	4.5	
	Right	528068	TCS98t10	3	1	1	1	3	2	2	1	1		
	Through	528069	TCS98t11	4.5	3	2.5	4.5	4.5	2	3.5	3.5	3.5		
South Approach	Through	528070	TCS98t8	3	1	3	5	3	5	3	2	2	5	
	Left	528071	TCS98t9	4	3	3	4	4	5	3	4	4		
	Right	528072	TCS98t7	4	2	2	3	2	1	5	5	5		
East Approach	Right	528073	TCS98t4	6	5	7	4	4	4	4	2	2	10	
	Through	528074	TCS98t5	4	4	9	10	8	7	6	9	9		
	Left	528075	TCS98t6	2	2	1	1	2	3	1	1	1		

AIMSUN Table Outputs - 2021 PM Existing
Coranderrk / Constitution Ave Intersection
Count - All - ~06 2021 PM Hybrid oneshot

Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Total	Split
North Approach	Right	528042	TCS6t1	3	1	6	10	28	15	8	1	61	7%
	Through	528040	TCS6t2	213	211	209	238	246	197	173	176	854	91%
	Left	2512	TCS6t3	1	2	5	1	2	18	2	4	23	2%
East Approach	Right	528046	TCS6t4	21	12	30	14	12	9	17	25	52	30%
	Through	528048	TCS6t5	10	28	14	20	8	13	21	11	62	35%
	Left	2511	TCS6t6	6	24	41	9	6	11	36	69	62	35%
South Approach	Right	528044	TCS6t7	3	3	20	0	1	0	4	1	5	1%
	Through	528043	TCS6t8	205	177	193	207	155	138	153	199	653	78%
	Left	2510	TCS6t9	90	56	61	62	61	36	25	29	184	22%
West Approach	Right	528050	TCS6t10	67	70	47	54	68	40	76	77	238	49%
	Through	528051	TCS6t11	5	6	5	13	9	19	4	6	45	9%
	Left	2513	TCS6t12	76	52	60	82	46	30	48	42	206	42%

Delay Time - All - Link - ~06 2021 PM Hybrid oneshot

Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Total	Ave Leg Delay (sec)	Total Ave Delay (sec)
North Approach	Right	528042	TCS6t1	109.094	63.5277	45.7373	63.4433	167.539	60.5417	108.687	17.2691	100.05275	46.68982471	36.18110823
	Through	528040	TCS6t2	45.079	41.8741	36.8184	46.2339	61.2842	34.5528	31.3478	27.346	43.354675		
	Left	2512	TCS6t3	13.569	41.1328	25.6621	38.8194	35.0956	14.2503	27.8252	19.8463	28.997625		
East Approach	Right	528046	TCS6t4	53.8194	72.0727	54.4655	58.4609	49.3467	53.6829	52.1582	49.398	53.412175	56.45511563	22.80102315
	Through	528048	TCS6t5	47.8363	45.3683	47.8148	48.6177	75.1644	70.921	49.8359	71.9112	61.13475		
	Left	2511	TCS6t6	86.7384	84.1824	35.8269	44.1299	71.3886	30.3466	71.4454	71.0797	54.327625		
South Approach	Right	528044	TCS6t7	46.0737	34.295	97.1789	-1	15.6646	-1	56.9731	63.2191	17.659425	22.80102315	31.76521925
	Through	528043	TCS6t8	29.6775	30.5666	27.0039	27.6231	28.9652	29.3647	19.4047	25.3579	26.339425		
	Left	2510	TCS6t9	8.67571	9.58944	10.4761	9.92265	9.55259	11.4941	10.5637	9.53911	10.38326		
West Approach	Right	528050	TCS6t10	29.8195	46.7591	39.1042	38.346	40.7137	41.9942	22.8614	23.6576	35.978825	31.76521925	25.6955
	Through	528051	TCS6t11	29.0172	31.0146	27.1086	47.3119	54.9161	39.3559	7.47911	6.91788	37.265753		
	Left	2513	TCS6t12	27.3853	24.6201	24.7881	28.788	26.6224	25.5861	21.7855	17.1013	25.6955		

Max. Queue - All - Link - ~06 2021 PM Hybrid oneshot

Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Max Queue (m)
North Approach	Right	528042	TCS6t1	2	1	2	4	11	3	4	1	14
	Through	528040	TCS6t2	13	13.5	12.5	13.5	14	13	8.5	9	
	Left	2512	TCS6t3	1	1	2	1	1	2	1	1	
East Approach	Right	528046	TCS6t4	5	4	6	5	3	3	4	6	8
	Through	528048	TCS6t5	3	8	4	4	6	5	5	4	
	Left	2511	TCS6t6	3	7	8	3	3	4	9	13	
South Approach	Right	528044	TCS6t7	1	2	7	1	1	0	2	1	7
	Through	528043	TCS6t8	6.5	7	7	6.5	6.5	6.5	5.5	7	
	Left	2510	TCS6t9	6	6	5	6	6	5	2	4	
West Approach	Right	528050	TCS6t10	6	6	4.5	3.5	5.5	5	6	6	8
	Through	528051	TCS6t11	1	1	1	2	1.5	2	0.5	0.5	
	Left	2513	TCS6t12	8	6	7	8	6	3	9	5	

AIMSUN Table Outputs - 2021 PM Existing

London Circuit / Constitution Ave Intersection

Count - All - ~06 2021 PM Hybrid oneshot

Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Total	Split
North Approach	Left	527791	TCS97t3	37	23	28	19	12	12	19	30	62	25%
	Through	527792	TCS97t2	45	33	40	45	36	36	48	30	165	68%
	Right	559828	TCS97t1	0	4	10	5	2	2	8	2	17	7%
West Approach	Left	559830	TCS97t12	6	5	2	1	7	7	2	0	17	15%
	Through	559831	TCS97t11	7	11	7	13	16	16	10	18	55	50%
	Right	559832	TCS97t10	2	2	36	20	9	9	1	6	39	35%
South Approach	Left	559829	TCS97t9	4	6	29	17	8	8	10	0	43	9%
	Through	527795	TCS97t8	40	24	26	28	20	20	26	28	94	21%
	Right	527796	TCS97t7	67	37	26	63	93	93	68	37	317	70%
East Approach	Left	527794	TCS97t6	93	57	100	108	119	119	115	80	461	81%
	Through	559856	TCS97t5	1	0	0	0	0	0	5	1	5	1%
	Right	527793	TCS97t4	12	9	30	38	24	24	20	15	106	19%

Delay Time - All - Link - ~06 2021 PM Hybrid oneshot

Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Total	Ave Leg Delay (sec)	Total Ave Delay (sec)
North Approach	Left	527791	TCS97t3	20.2049	11.6887	22.4683	23.6667	23.0189	23.0189	20.9498	13.3617	22.663575	28.13441195	27.80921513
	Through	527792	TCS97t2	35.994	31.4674	30.8356	28.0348	32.5	32.5	29.0242	30.0041	30.51475		
	Right	559828	TCS97t1	-1	55.4832	40.5048	24.1606	7.51569	7.51569	60.7424	13.8326	24.983595		
West Approach	Left	559830	TCS97t12	47.3597	60.1448	27.7558	10.0576	45.3459	45.3459	67.4105	-1	42.039975	39.48986171	
	Through	559831	TCS97t11	43.4898	34.034	24.0919	26.855	35.4739	35.4739	45.2646	46.8441	35.76685		
	Right	559832	TCS97t10	13.3227	0.029507	36.8489	29.0615	38.4635	38.4635	68.5262	34.7766	43.628675		
South Approach	Left	559829	TCS97t9	23.2715	23.4288	26.963	18.8608	12.7695	12.7695	11.9059	-1	14.076425	30.36482434	
	Through	527795	TCS97t8	46.5661	31.7327	33.2954	21.2252	25.4715	25.4715	28.8428	36.6236	25.25275		
	Right	527796	TCS97t7	85.4893	47.7049	29.67	28.7654	31.0367	31.0367	45.5219	47.9141	34.090175		
East Approach	Left	527794	TCS97t6	28.1274	18.7478	14.1251	14.3497	21.2664	21.2664	29.9758	34.6676	21.714575	23.37539279	
	Through	559856	TCS97t5	40.2509	-1	-1	-1	-1	-1	26.661	1.98536	5.91525		
	Right	527793	TCS97t4	11.0545	16.5054	31.7386	38.2865	31.4425	31.4425	24.5164	22.6671	31.421975		

Max. Queue - All - Link - ~06 2021 PM Hybrid oneshot

Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Max Queue (Cars)
North Approach	Left	527791	TCS97t3	4	2	5	4	3	3	4	3	5
	Through	527792	TCS97t2	5.5	3.5	3.5	3	2.5	2.5	4	2.5	
	Right	559828	TCS97t1	0	1	2	2	1	1	4	1	
West Approach	Left	559830	TCS97t12	2	2	1	1	1	1	1	0	5
	Through	559831	TCS97t11	1	1.5	1	2	1.5	1.5	1	1.5	
	Right	559832	TCS97t10	1	0	5	3	2	2	1	2	
South Approach	Left	559829	TCS97t9	3	1	5	3	2	2	2	0	6
	Through	527795	TCS97t8	3.5	2.5	2.5	2	2	2	2	2.5	
	Right	527796	TCS97t7	6.5	4.5	2	3.5	6	6	6	3.5	
East Approach	Left	527794	TCS97t6	8	7	8	7	8	8	8	8	8
	Through	559856	TCS97t5	1	0	0	0	0	0	2	0	
	Right	527793	TCS97t4	2	2	7	6	4	4	3	3	

Parkes Way / Allara St Free Left Turn															
Count - All - ~06 2021 PM Hybrid oneshot															
Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Total	Split		
East	Left	2509	u1132t12	31	24	31	31	29	29	34	31	123	9%		
Approach	Through	457183	u1132t11	328	323	454	396	316	242	283	290				
Delay Time - All - Link - ~06 2021 PM Hybrid oneshot															
Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Total	Ave Leg Delay (sec)		Total Ave Delay (sec)
East	Left	2509	u1132t12	0.386356	0.344197	0.330643	0.40515	0.341138	0.381739	0.384839	0.353857	0.3782165	0.3782165		0.146917056
Approach	Through	457183	u1132t11	0.119656	0.151349	0.234886	0.143006	0.141536	0.094037	0.117093	0.125513	0.123918	0.123918		
Max. Queue - All - Link - ~06 2021 PM Hybrid oneshot															
Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Max Queue (Cars)			
East	Left	2509	u1132t12	0	0	0	0	0	0	0	0	0	0		
Approach	Through	457183	u1132t11	0	0	0	0	0	0	0	0				

[illegible]

AIMSUN Table Outputs - 2021 AM With Allara Street Development

Allara Street / Constitution Ave Intersection

Count - All - ~06 2021 AM Hybrid oneshot													
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	Total	Split
North Approach	Right	528064	TCS98t1	9	16	27	43	39	26	32	19	140	44%
	Through	528065	TCS98t2	3	5	14	7	15	8	10	12	40	13%
	Left	528066	TCS98t3	28	20	26	17	23	43	56	23	139	44%
West Approach	Left	528067	TCS98t12	4	20	37	40	54	65	54	69	213	41%
	Right	528068	TCS98t10	14	23	22	18	4	23	18	9	63	12%
	Through	528069	TCS98t11	31	39	54	68	46	71	56	69	241	47%
South Approach	Through	528070	TCS98t8	39	44	56	45	31	42	65	57	183	46%
	Left	528071	TCS98t9	40	42	35	50	29	27	17	25	123	31%
	Right	528072	TCS98t7	28	45	2	14	37	21	16	36	88	22%
East Approach	Right	528073	TCS98t4	19	15	17	24	54	41	45	22	164	37%
	Through	528074	TCS98t5	24	27	31	28	42	54	72	58	196	44%
	Left	528075	TCS98t6	6	10	11	12	20	18	34	17	84	19%

Delay Time - All - Link - ~06 2021 AM Hybrid oneshot														
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	Total	Ave Leg Delay (sec)	Total Ave Delay (sec)
North Approach	Right	528064	TCS98t1	35.9954	23.5246	31.1529	27.3726	23.7562	18.5105	29.0454	26.7749	24.67118	30.17892304	37.96314501
	Through	528065	TCS98t2	36.758	38.3273	29.7622	13.2234	32.581	41.3866	42.7716	14.3165	32.49065		
	Left	528066	TCS98t3	32.7843	39.8172	34.9592	33.4954	36.5751	36.4556	33.7181	41.3078	35.06105		
West Approach	Left	528067	TCS98t12	18.9643	8.65172	13.5905	16.889	20.8618	18.7377	23.1282	27.85	19.90418	35.15517606	
	Right	528068	TCS98t10	43.0842	45.3081	56.0511	59.9103	61.4916	56.2015	67.9384	60.1495	61.38545		
	Through	528069	TCS98t11	36.2937	38.0689	48.8175	50.3163	41.3524	33.8279	41.613	43.008	41.7774		
South Approach	Through	528070	TCS98t8	43.1847	69.5905	41.3155	56.0158	52.534	47.4673	92.3591	77.1384	62.09405	56.40867151	
	Left	528071	TCS98t9	18.6774	62.4518	26.8336	26.9795	39.2178	24.9875	70.8371	55.1033	40.50548		
	Right	528072	TCS98t7	39.0234	83.7196	33.632	49.5099	63.7933	47.9968	105.956	73.1764	66.814		
East Approach	Right	528073	TCS98t4	36.1863	25.4025	31.1548	17.1058	35.1588	24.9794	37.651	27.8371	28.72375	30.45717498	
	Through	528074	TCS98t5	33.8589	31.5656	27.6853	45.8446	38.0077	37.2238	36.8799	41.1485	39.489		
	Left	528075	TCS98t6	7.95682	15.5568	22.836	3.18079	12.1442	18.6572	17.0867	16.435	12.76722		

Max. Queue - All - Link - ~06 2021 AM Hybrid oneshot													
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15		Max Queue (m)
North Approach	Right	528064	TCS98t1	2	2	2	4	3	2	3	2	4	21.0
	Through	528065	TCS98t2	1	2	2	1	3	2	2	2		
	Left	528066	TCS98t3	4	3	4	3	3	3	4	5		
West Approach	Left	528067	TCS98t12	2	3	4	3	7	6	6	8	7	
	Right	528068	TCS98t10	3	4	6	5	2	5	4	3		
	Through	528069	TCS98t11	3	3.5	4	6.5	4.5	5	4.5	4.5		
South Approach	Through	528070	TCS98t8	6	9	10	12	9	9	21	16	21	
	Left	528071	TCS98t9	4	10	6	9	5	4	3	7		
	Right	528072	TCS98t7	5	10	2	4	7	4	7	7		
East Approach	Right	528073	TCS98t4	4	6	3	4	13	8	8	4	13	
	Through	528074	TCS98t5	5	4	5	7	8	11	11	12		
	Left	528075	TCS98t6	1	4	3	1	3	3	7	2		

AIMSUN Table Outputs - 2021 AM With Allara Street Development

Coranderk / Constitution Ave Intersection

Count - All - ~06 2021 AM Hybrid oneshot

Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	Total	Split
North Approach	Right	528042	TCS6t1	11	26	32	21	20	22	44	37	107	12%
	Through	528040	TCS6t2	115	105	110	152	167	225	157	172	701	81%
	Left	2512	TCS6t3	9	10	11	17	15	12	15	7	59	7%
East Approach	Right	528046	TCS6t4	7	5	8	9	14	10	14	34	47	47%
	Through	528048	TCS6t5	1	6	4	7	8	5	11	4	31	31%
	Left	2511	TCS6t6	5	4	1	4	8	6	4	8	22	22%
South Approach	Right	528044	TCS6t7	9	16	10	4	10	9	4	1	27	3%
	Through	528043	TCS6t8	121	115	149	167	146	160	187	227	660	62%
	Left	2510	TCS6t9	56	60	59	78	91	111	103	117	383	36%
West Approach	Right	528050	TCS6t10	62	66	55	43	33	57	65	71	198	42%
	Through	528051	TCS6t11	11	16	13	21	33	29	21	28	104	22%
	Left	2513	TCS6t12	12	10	22	38	32	45	49	23	164	35%

Delay Time - All - Link - ~06 2021 AM Hybrid oneshot

Direction	Movement			7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	Total	Ave Leg Delay (sec)	Total Ave Delay (sec)
North Approach	Right	528042	TCS6t1	41.4612	49.52	74.8436	41.9713	79.6717	70.0007	66.5783	158.331	64.5555	49.37574086	34.88992521
	Through	528040	TCS6t2	31.4866	33.1497	33.2402	34.3988	65.8928	50.8648	46.7701	39.2958	49.48163		
	Left	2512	TCS6t3	11.4003	9.648	3.4616	12.7769	26.5865	27.1723	15.8175	15.0651	20.5883		
East Approach	Right	528046	TCS6t4	31.7626	30.5096	28.7669	50.9643	52.9476	45.5421	50.6467	34.0366	50.02518	48.3816895	
	Through	528048	TCS6t5	0.927085	21.5301	1.24728	43.3118	29.8003	28.4557	44.4729	27.5263	36.51018		
	Left	2511	TCS6t6	40.4981	41.5568	38.9669	63.9409	61.2857	62.2448	58.9232	63.6691	61.59865		
South Approach	Right	528044	TCS6t7	51.8999	54.8214	50.3143	62.6799	41.5647	61.641	26.7977	30.5074	48.17083	24.65524329	
	Through	528043	TCS6t8	26.5968	26.1468	27.5407	30.6957	23.3113	33.3034	32.0486	25.9914	29.83975		
	Left	2510	TCS6t9	7.81024	10.1256	11.188	14.8875	14.2506	13.657	13.4583	19.944	14.06335		
West Approach	Right	528050	TCS6t10	34.431	36.4795	66.4304	29.886	52.8257	32.4462	26.4737	76.669	35.4079	28.54385451	
	Through	528051	TCS6t11	34.644	26.1437	53.9445	21.4895	33.2903	16.3386	29.1525	43.6851	25.06773		
	Left	2513	TCS6t12	21.152	21.4265	24.459	18.241	32.9759	18.6708	19.9569	39.2245	22.46115		

Max. Queue - All - Link - ~06 2021 AM Hybrid oneshot

Direction	Movement			7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15		Max Queue (m)
North Approach	Right	528042	TCS6t1	2	7	7	4	7	6	7	12	13	13
	Through	528040	TCS6t2	11.5	7.5	7	10	13	13	11	9.5		
	Left	2512	TCS6t3	2	2	1	3	5	2	3	3		
East Approach	Right	528046	TCS6t4	2	2	2	3	5	3	3	7	5	
	Through	528048	TCS6t5	0	1	0	3	3	2	3	2		
	Left	2511	TCS6t6	2	1	1	3	3	2	1	4		
South Approach	Right	528044	TCS6t7	2	4	4	2	3	3	2	1	7	
	Through	528043	TCS6t8	6.5	6	6.5	6.5	6	6.5	7	7		
	Left	2510	TCS6t9	5	5	6	6	7	7	6	7		
West Approach	Right	528050	TCS6t10	4.5	5	5.5	3.5	3.5	3.5	4.5	6	6	
	Through	528051	TCS6t11	1.5	2.5	2.5	1.5	3.5	2	1.5	2.5		
	Left	2513	TCS6t12	2	2	3	4	6	4	4	5		

AIMSUN Table Outputs - 2021 AM With Allara Street Development
London Circuit / Constitution Ave Intersection

Count - All - ~06 2021 AM Hybrid oneshot														
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	Total	Split	
North Approach	Left	527791	TCS97t3	14	22	34	32	20	8	12	36	72	72	27%
	Through	527792	TCS97t2	29	52	64	56	27	45	41	39	169	169	64%
	Right	559828	TCS97t1	1	0	2	12	7	0	6	1	25	25	9%
West Approach	Left	559830	TCS97t12	0	0	7	11	6	10	0	0	27	27	18%
	Through	559831	TCS97t11	20	37	34	28	21	39	20	21	108	108	72%
	Right	559832	TCS97t10	0	0	0	0	1	10	4	0	15	15	10%
South Approach	Left	559829	TCS97t9	17	51	55	57	89	86	49	96	281	281	37%
	Through	527795	TCS97t8	5	16	29	38	37	46	45	41	166	166	22%
	Right	527796	TCS97t7	13	28	49	48	64	108	99	79	319	319	42%
East Approach	Left	527794	TCS97t6	28	41	56	75	65	71	94	62	305	305	66%
	Through	559856	TCS97t5	6	10	9	6	12	13	16	15	47	47	10%
	Right	527793	TCS97t4	28	24	24	28	30	28	23	25	109	109	24%
Delay Time - All - Link - ~06 2021 AM Hybrid oneshot														
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	Total	Ave Leg Delay (sec)	Total Ave Delay (sec)
North Approach	Left	527791	TCS97t3	19.7593	18.8646	28.019	75.4498	66.3009	72.907	64.9245	20.8501	69.8956	67.732914	36.16710396
	Through	527792	TCS97t2	26.147	35.0231	35.1122	77.9485	76.1908	61.2685	72.2281	34.1279	71.909		
	Right	559828	TCS97t1	34.6717	-1	53.0928	49.54	34.7268	-1	49.8306	66.1321	33.2744		
West Approach	Left	559830	TCS97t12	-1	-1	37.4147	57.3111	33.8125	70.0688	-1	-1	40.0481	44.890107	
	Through	559831	TCS97t11	40.8322	47.0725	49.7696	62.1291	25.5364	59.4762	45.1816	58.345	48.0808		
	Right	559832	TCS97t10	-1	-1	-1	-1	25.4647	69.2872	28.7783	-1	30.6326		
South Approach	Left	559829	TCS97t9	20.0779	25.8129	23.6524	37.1415	42.019	41.3161	38.2118	36.4097	39.6721	36.2470221	
	Through	527795	TCS97t8	28.0466	28.0645	29.9963	39.5621	43.8235	38.4577	46.6199	35.242	42.1158		
	Right	527796	TCS97t7	30.0309	28.4518	34.895	30.1584	26.2974	34.0437	30.2044	44.8515	30.176		
East Approach	Left	527794	TCS97t6	20.0593	15.5874	15.8975	6.10752	4.3452	7.68748	7.29254	16.2141	6.35819	14.98234642	
	Through	559856	TCS97t5	33.3264	30.1588	34.1846	30.8303	31.5717	32.8399	19.5001	35.9704	28.6855		
	Right	527793	TCS97t4	18.4802	28.0962	25.5783	27.7534	40.6906	32.7806	31.5973	40.1695	33.2055		
Max. Queue - All - Link - ~06 2021 AM Hybrid oneshot														
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15		Max Queue (Cars)	
North Approach	Left	527791	TCS97t3	2	5	6	9	4	3	4	6	9	17	
	Through	527792	TCS97t2	4	3.5	5.5	5	4	4	5	2.5			
	Right	559828	TCS97t1	1	0	1	3	1	2	2	1			
West Approach	Left	559830	TCS97t12	0	0	2	3	4	3	0	0	5		
	Through	559831	TCS97t11	2	3	4	2.5	1.5	4.5	2	2.5			
	Right	559832	TCS97t10	0	0	0	0	1	5	1	0			
South Approach	Left	559829	TCS97t9	4	7	6	10	17	12	7	11	17		
	Through	527795	TCS97t8	0.5	2	3.5	3.5	4	4	4.5	3.5			
	Right	527796	TCS97t7	1.5	2.5	4	4	4	10.5	6.5	7			
East Approach	Left	527794	TCS97t6	4	5	6	5	3	4	7	6	7		
	Through	559856	TCS97t5	1	2	2	2	2	3	1	4			
	Right	527793	TCS97t4	3	4	4	5	5	5	4	5			

Parkes Way / Allara St Free Left Turn														
Count - All - ~06 2021 AM Hybrid oneshot														
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	Total	Split	
East Approach	Left	2509	u1132t12	78	85	82	88	69	62	99	68	318	19%	
	Through	457183	u1132t11	464	585	478	416	373	212	359	448		1360	81%
Delay Time - All - Link - ~06 2021 AM Hybrid oneshot														
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	Total	Ave Leg Delay (sec)	Total Ave Delay (sec)
East Approach	Left	2509	u1132t12	0.454819	0.479979	1.55428	0.806643	1.10149	0.978454	0.831074	0.478611	0.929415	0.92941525	0.443181412
	Through	457183	u1132t11	0.154508	0.524231	13.5516	0.223109	0.791175	0.134921	0.168749	0.961279	0.329489	0.3294885	
Max. Queue - All - Link - ~06 2021 AM Hybrid oneshot														
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15		Max Queue (Cars)	
East Approach	Left	2509	u1132t12	0	0	0	0	0	0	0	0	2.5	2.5	
	Through	457183	u1132t11	0	0	14	0	2.5	0	0	3.5			

Count - All - ~06 2021 AM Hybrid oneshot														
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	Total	Split	
East Approach	Left	457167	u1014t7t11	542	670	558	507	440	275	461	513	1683	48%	
	Through	457168	u1014t10	392	373	432	466	469	452	425	221	1812	52%	
Delay Time - All - Link - ~06 2021 AM Hybrid oneshot														
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	Total	Ave Leg Delay (sec)	Total Ave Delay (sec)
East Approach	Left	457167	u1014t7t11	0.677951	0.793598	7.09307	5.29318	5.18604	9.06354	4.85515	0.79598	6.099478	6.0994775	12.15614453
	Through	457168	u1014t10	2.17513	2.44301	10.1017	16.8971	16.5689	24.6342	13.0263	1.22606	17.78163	17.781625	
Max. Queue - All - Link - ~06 2021 AM Hybrid oneshot														
Direction	Movement	ID	External ID	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15		Max Queue (Cars)	
East Approach	Left	457167	u1014t7t11	0	0	3.66667	1.33333	0.66667	1.66667	1.66667	0	13		
	Through	457168	u1014t10	0	0	1	7	6	13	7	0		13	

AIMSUN Table Outputs - 2021 PM With Allara Street Development

Allara Street / Constitution Ave Intersection

Count - All - ~06 2021 PM Hybrid oneshot

Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Total	Split
North Approach	Right	528064	TCS98t1	12	22	51	31	21	29	6	17	132	43%
	Through	528065	TCS98t2	7	2	5	10	4	0	1	6	19	6%
	Left	528066	TCS98t3	43	30	35	35	50	35	44	23	155	51%
West Approach	Left	528067	TCS98t12	15	25	26	39	24	21	21	12	110	31%
	Right	528068	TCS98t10	41	46	40	51	68	54	35	42	213	61%
	Through	528069	TCS98t11	11	7	4	6	12	5	7	10	27	8%
South Approach	Through	528070	TCS98t8	17	10	29	27	18	11	27	29	85	25%
	Left	528071	TCS98t9	30	22	47	45	32	81	44	31	205	60%
	Right	528072	TCS98t7	13	11	16	16	15	5	16	8	52	15%
East Approach	Right	528073	TCS98t4	29	21	18	15	15	24	21	16	72	27%
	Through	528074	TCS98t5	33	23	40	39	54	28	79	46	161	61%
	Left	528075	TCS98t6	8	6	7	3	11	10	20	21	31	12%

Delay Time - All - Link - ~06 2021 PM Hybrid oneshot

Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Total	Ave Leg Delay	Total Ave Delay
North Approach	Right	528064	TCS98t1	29.8375	40.2683	32.0619	34.8454	54.572	43.8498	47.8492	27.041	41.332275	40.43328039	32.46735117
	Through	528065	TCS98t2	36.706	11.4432	28.8214	16.5289	50.2657	-1	30.1079	41.0477	23.654		
	Left	528066	TCS98t3	34.4639	39.8939	34.0002	34.6295	51.7633	46.505	37.0481	38.4114	41.7245		
West Approach	Left	528067	TCS98t12	26.9091	17.2852	14.9894	15.7479	16.3057	10.7331	21.2132	22.9222	14.444025	23.58889114	
	Right	528068	TCS98t10	54.6069	35.6711	23.2498	24.0491	32.2687	31.1542	36.1535	47.1407	27.68045		
	Through	528069	TCS98t11	34.8545	45.7562	36.8427	8.5272	22.0645	46.8372	33.6892	28.3744	28.5679		
South Approach	Through	528070	TCS98t8	37.1069	40.6144	32.6283	34.3444	35.8401	31.9377	25.9611	37.8162	33.687625	24.46383275	
	Left	528071	TCS98t9	12.6361	15.8076	12.3506	20.4579	20.8461	19.4965	27.2302	18.6768	18.287775		
	Right	528072	TCS98t7	43.912	60.5465	40.0301	35.5898	29.0891	30.2286	27.7902	37.5817	33.7344		
East Approach	Right	528073	TCS98t4	37.546	41.0701	39.5151	37.2253	32.4059	52.3059	112.761	84.8088	40.36305	45.37299498	
	Through	528074	TCS98t5	41.749	35.5941	37.7022	30.4637	38.2374	96.1934	179.325	88.8839	50.649175		
	Left	528075	TCS98t6	19.117	15.2764	25.3984	35.6247	19.2585	38.146	85.5026	63.3652	29.6069		

Max. Queue - All - Link - ~06 2021 PM Hybrid oneshot

Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15		Max Queue (m)
North Approach	Right	528064	TCS98t1	2	3	3	3	3	4	2	3	4	27.0
	Through	528065	TCS98t2	3	1	1	2	2	0	1	2		
	Left	528066	TCS98t3	5	3	4	4	4	3	4	3		
West Approach	Left	528067	TCS98t12	3	5	3	4	4	3	4	3	6.5	
	Right	528068	TCS98t10	3.5	4.5	3.5	3.5	6.5	3.5	3.5	2.5		
	Through	528069	TCS98t11	3	2	1	1	2	2	4	3		
South Approach	Through	528070	TCS98t8	3	2	5	5	3	1	5	5	7	
	Left	528071	TCS98t9	4	4	4	6	3	7	6	6		
	Right	528072	TCS98t7	4	5	3	4	2	2	3	2		
East Approach	Right	528073	TCS98t4	5	4	4	3	3	5	9	6	17	
	Through	528074	TCS98t5	6	4	7	6	9	17	18	14		
	Left	528075	TCS98t6	2	1	2	2	3	4	9	8		

AIMSUN Table Outputs - 2021 PM With Allara Street Development

Coranderrk / Constitution Ave Intersection

Count - All - ~06 2021 PM Hybrid oneshot

Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Total	Split
North Approach	Right	528042	TCS6t1	3	2	4	9	26	16	10	7	55	6%
	Through	528040	TCS6t2	227	214	220	201	203	210	153	177	834	98%
	Left	2512	TCS6t3	0	2	5	2	1	11	5	1	19	2%
East Approach	Right	528046	TCS6t4	25	15	30	12	7	14	16	20	63	47%
	Through	528048	TCS6t5	14	9	7	14	4	4	4	4	29	21%
	Left	2511	TCS6t6	7	24	42	10	7	7	36	47	66	49%
South Approach	Right	528044	TCS6t7	3	9	27	3	9	1	3	1	40	4%
	Through	528043	TCS6t8	231	215	187	201	177	181	194	195	746	71%
	Left	2510	TCS6t9	79	55	51	50	62	70	107	43	233	22%
West Approach	Right	528050	TCS6t10	75	92	63	84	120	102	96	78	369	61%
	Through	528051	TCS6t11	5	6	8	22	9	17	5	10	56	9%
	Left	2513	TCS6t12	60	39	52	59	28	26	37	22	165	27%

Delay Time - All - Link - ~06 2021 PM Hybrid oneshot

Direction	Movement			16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Total	Ave Leg Delay (sec)	Total Ave Delay (sec)
North Approach	Right	528042	TCS6t1	47.6608	38.8334	42.1364	43.5945	184.115	61.2091	134.672	86.8001	82.76375	42.32097479	35.24541993
	Through	528040	TCS6t2	58.1535	44.1213	46.9671	32.1826	45.4841	36.802	31.2569	29.1957	40.35895		
	Left	2512	TCS6t3	-1	32.4568	23.3365	5.92043	4.11235	12.1201	11.0684	18.1946	11.372345		
East Approach	Right	528046	TCS6t4	58.1849	73.5571	53.9437	70.2464	65.9078	43.9625	59.1962	40.462	58.5151	47.95886867	
	Through	528048	TCS6t5	46.3296	52.0787	31.6673	34.3808	65.0978	81.6495	43.5246	40.864	53.19885		
	Left	2511	TCS6t6	85.9462	84.1798	36.852	31.5415	30.2934	43.6333	73.1962	69.5643	35.58005		
South Approach	Right	528044	TCS6t7	66.3301	52.1967	130.676	60.3646	73.6683	18.9124	50.3174	85.5091	70.905325	25.83221686	
	Through	528043	TCS6t8	27.4355	29.2036	28.0853	26.3017	29.9409	28.4041	27.0577	23.5934	28.183		
	Left	2510	TCS6t9	12.0762	13.5329	12.2377	13.2631	9.25517	7.51524	33.6243	8.93087	10.567803		
West Approach	Right	528050	TCS6t10	37.0254	43.1684	35.3516	41.4374	45.7286	44.5115	27.5003	23.3188	41.757275	37.20936097	
	Through	528051	TCS6t11	31.0162	35.1015	36.9483	36.2817	55.776	49.9825	8.8694	20.3773	44.747125		
	Left	2513	TCS6t12	23.9742	25.6515	22.6096	22.4982	28.1282	24.6852	17.0519	22.4139	24.4803		

Max. Queue - All - Link - ~06 2021 PM Hybrid oneshot

Direction	Movement			16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15		Max Queue (m)
North Approach	Right	528042	TCS6t1	1	1	1	5	11	4	4	3	13.5	13.5
	Through	528040	TCS6t2	13.5	13	13	10	13.5	13	10	12.5		
	Left	2512	TCS6t3	2	1	2	1	0	2	2	1		
East Approach	Right	528046	TCS6t4	5	4	6	3	3	4	4	4	8	
	Through	528048	TCS6t5	3	3	1	3	3	1	1	1		
	Left	2511	TCS6t6	4	7	8	2	3	3	7	12		
South Approach	Right	528044	TCS6t7	3	3	7	3	3	1	1	1	7	
	Through	528043	TCS6t8	6.5	7	6.5	7	7	6.5	6.5	7		
	Left	2510	TCS6t9	5	6	5	7	5	6	8	6		
West Approach	Right	528050	TCS6t10	6	6	5	5	6.5	6	6	6	8	
	Through	528051	TCS6t11	1	0.5	1.5	2	1	1.5	0.5	1		
	Left	2513	TCS6t12	7	4	7	8	6	3	5	3		

AIMSUN Table Outputs - 2021 PM With Allara Street Development

London Circuit / Constitution Ave Intersection

Count - All - ~06 2021 PM Hybrid oneshot

Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Total	Split
North Approach	Left	527791	TCS97t3	26	21	11	12	35	26	19	23	92	23%
	Through	527792	TCS97t2	54	49	57	60	64	91	65	56	280	69%
	Right	559828	TCS97t1	0	4	10	14	7	5	5	1	31	8%
West Approach	Left	559830	TCS97t12	6	11	6	8	17	9	4	5	38	27%
	Through	559831	TCS97t11	18	21	12	23	24	25	16	28	88	62%
	Right	559832	TCS97t10	5	7	5	0	7	3	6	9	16	11%
South Approach	Left	559829	TCS97t9	12	8	39	21	21	32	20	12	94	25%
	Through	527795	TCS97t8	45	33	31	40	21	12	17	23	90	23%
	Right	527796	TCS97t7	53	49	56	66	65	44	24	32	199	52%
East Approach	Left	527794	TCS97t6	86	59	100	91	81	65	105	72	342	60%
	Through	559856	TCS97t5	16	8	13	18	22	27	47	27	114	20%
	Right	527793	TCS97t4	13	11	37	37	23	36	20	20	116	20%

Delay Time - All - Link - ~06 2021 PM Hybrid oneshot

Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Total	Ave Leg Delay (sec)	Total Ave Delay (sec)
North Approach	Left	527791	TCS97t3	17.081	17.9619	17.9824	16.5168	25.841	28.3077	25.9012	20.8747	24.141675	29.61187364	36.31176007
	Through	527792	TCS97t2	33.0632	27.1831	29.5649	28.6948	32.6725	31.1839	28.9962	20.8652	30.38685		
	Right	559828	TCS97t1	-1	55.4576	40.2211	43.5942	33.1009	31.8157	46.8741	21.5698	38.846225		
West Approach	Left	559830	TCS97t12	47.3597	50.7723	21.2066	23.4286	43.2337	38.8984	59.8957	49.9239	41.3641	39.92429859	
	Through	559831	TCS97t11	45.7582	37.8744	23.3605	36.5825	33.5664	40.546	47.5218	43.8379	39.554175		
	Right	559832	TCS97t10	35.795	37.4014	42.1036	-1	40.219	60.3687	54.5741	49.5826	38.54045		
South Approach	Left	559829	TCS97t9	32.596	25.6185	18.7975	30.071	21.5572	29.2193	32.6874	17.2549	28.383725	33.25477108	
	Through	527795	TCS97t8	50.6188	42.9982	25.54	36.3709	31.4539	29.0487	37.5991	37.0192	33.61815		
	Right	527796	TCS97t7	66.0644	58.5242	35.1723	40.5744	33.2863	24.2756	43.429	43.0038	35.391325		
East Approach	Left	527794	TCS97t6	24.0714	22.6581	15.1228	16.7062	25.5636	32.9657	39.3827	30.1151	28.65455	42.18221556	
	Through	559856	TCS97t5	22.6279	22.2127	32.1289	67.015	51.2239	75.7223	53.289	53.2528	61.81255		
	Right	527793	TCS97t4	11.7311	19.0305	38.2148	60.393	51.584	71.373	67.7445	54.6591	62.773625		

Max. Queue - All - Link - ~06 2021 PM Hybrid oneshot

Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Max Queue (Cars)
North Approach	Left	527791	TCS97t3	3	2	2	2	8	5	4	3	8
	Through	527792	TCS97t2	3.5	4	3.5	4.5	4.5	6	4.5	3	
	Right	559828	TCS97t1	0	1	2	4	2	1	2	1	
West Approach	Left	559830	TCS97t12	2	2	1	3	5	2	1	1	5
	Through	559831	TCS97t11	3.5	3.5	1	2.5	2.5	2.5	3.5	2	
	Right	559832	TCS97t10	2	2	3	0	2	2	2	2	
South Approach	Left	559829	TCS97t9	4	2	5	4	4	6	4	2	6
	Through	527795	TCS97t8	4	3.5	3	3	2.5	1	1.5	2	
	Right	527796	TCS97t7	6.5	5	4.5	4	4.5	3.5	4	2.5	
East Approach	Left	527794	TCS97t6	8	7	8	7	7	6	8	7	8
	Through	559856	TCS97t5	5	2	2	4	5	6	7	5	
	Right	527793	TCS97t4	2	2	7	6	5	7	7	3	

AIMSUN Table Outputs - 2021 PM With Allara Street Development

Parkes Way / Allara St Free Left Turn

Count - All - ~06 2021 PM Hybrid oneshot													
Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Total	Split
East	Left	2509	u1132t12	47	45	53	60	85	62	62	45		269
Approach	Through	457183	u1132t11	301	251	340	259	254	266	270	195	1049	80%
Delay Time - All - Link - ~06 2021 PM Hybrid oneshot													
Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Total	
East	Left	2509	u1132t12	0.42935	0.38812	0.55303	0.46129	0.53483	0.4663	0.33115	0.36239	0.4483928	0.44839275
Approach	Through	457183	u1132t11	0.28601	0.10088	0.12206	0.08557	0.10616	0.11103	0.13888	0.0889	0.1104084	0.110408375
Max. Queue - All - Link - ~06 2021 PM Hybrid oneshot													
Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15		Max Queue (Cars)
East	Left	2509	u1132t12	0	0	0	0	0	0	0	0	0	0
Approach	Through	457183	u1132t11	0	0	0	0	0	0	0	0	0	0

Total Ave Delay (sec)

0.179390011

Parkes Way / Commonwealth Ave Free Left Turn

Count - All - ~06 2021 PM Hybrid oneshot													
Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Total	Split
East	Left	457167	u1014t7t11	347	298	392	319	339	330	329	243	1317	57%
Approach	Through	457168	u1014t10	225	271	280	258	275	227	236	208	996	43%
Delay Time - All - Link - ~06 2021 PM Hybrid oneshot													
Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	Total	
East	Left	457167	u1014t7t11	0.87861	0.89754	1.15176	1.02903	1.2135	0.93305	0.99059	0.83317	1.041542	1.041542
Approach	Through	457168	u1014t10	1.28436	1.29664	1.58489	1.44187	1.50544	1.25913	1.13893	1.1525	1.3363425	1.3363425
Max. Queue - All - Link - ~06 2021 PM Hybrid oneshot													
Direction	Movement	ID	External ID	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15		Max Queue (Cars)
East	Left	457167	u1014t7t11	0	0	0	0	0	0	0	0	0	0
Approach	Through	457168	u1014t10	0	0	0	0	0	0	0	0	0	0

Ave Leg Delay (sec)

Total Ave Delay (sec)

1.168485925

Max Queue (Cars)

0

APPENDIX

B

O/D MATRIX FACTORING

70 Allara Street OD Matrix Factoring

Origin							
2021 AM	Existing Trips	Split	Development Trips	Factor	Trip Generation		
7:15 - 7:30	10.97	20%	33.780	3.0787		Existing	Development
7:30 - 7:45	17.26	32%	53.133	3.0787	Peak	38	146
7:45 - 8:00	7.69	14%	23.661	3.0787	Shoulder	54	208
8:00 - 8:15	8.56	23%	26.340	3.079			
8:15 - 8:30	7.20	19%	22.174	3.079			
8:30 - 8:45	10.85	29%	33.413	3.079			
8:45 - 9:00	11.33	30%	34.873	3.079			
9:00 - 9:15	18.02	33%	55.494	3.0787			
Total	92		283				

Origin							
2021 PM	Existing Trips	Split	Development Trips	Factor	Trip Generation		
16:15 - 16:30	28.34	21%	5.62	0.1982		Existing	Development
16:30 - 16:45	27.00	20%	5.35	0.1982	Peak	221	146
16:45 - 17:00	62.51	28%	12.39	0.1982	Shoulder	137	90
17:00 - 17:15	51.68	23%	10.24	0.1982			
17:15 - 17:30	37.30	17%	7.39	0.1982			
17:30 - 17:45	69.46	31%	13.77	0.1982			
17:45 - 18:00	48.06	35%	9.53	0.1982			
18:00 - 18:15	33.36	24%	6.61	0.1982			
Total	358		71				

Existing			
Peak	Direction	Split	Trips
AM	Origin	21%	92
	Destination	79%	342
PM	Origin	58%	358
	Destination	42%	258

Total Trips
145

Destination							
2021 AM	Existing Trips	Split	Development Trips	Factor	Trip Generation		
7:15 - 7:30	32.43	20%	5.33	0.1644		Existing	Development
7:30 - 7:45	50.06	30%	8.23	0.1644	Peak	178	146
7:45 - 8:00	50.27	31%	8.27	0.1644	Shoulder	165	135
8:00 - 8:15	33.77	19%	5.55	0.1644			
8:15 - 8:30	53.78	30%	8.84	0.1644			
8:30 - 8:45	47.62	27%	7.83	0.1644			
8:45 - 9:00	42.41	24%	6.97	0.1644			
9:00 - 9:15	31.89	19%	5.24	0.1644			
Total	342		56				

Destination							
2021 PM	Existing Trips	Split	Development Trips	Factor	Trip Generation		
16:15 - 16:30	35.80	38%	22.3	0.6235		Existing	Development
16:30 - 16:45	17.95	19%	11.2	0.6235	Peak	164	146
16:45 - 17:00	32.58	20%	20.3	0.6235	Shoulder	94	84
17:00 - 17:15	28.69	18%	17.9	0.6235			
17:15 - 17:30	60.50	37%	37.7	0.6235			
17:30 - 17:45	42.15	26%	26.3	0.6235			
17:45 - 18:00	27.56	29%	17.2	0.6235			
18:00 - 18:15	12.93	14%	8.1	0.6235			
Total	258		161				

Development			
Peak	Direction	Split	Trips
AM	Origin	80%	116
	Destination	20%	29
PM	Origin	30%	44
	Destination	70%	102

Total Trips
145

APPENDIX

C

CRASH HISTORY DATA

STREET REPORT**History Location: CONSTITUTION AVENUE - showing Intersections and Midblocks****Report Date Range: 01/01/2015 12:00:00 AM -> 31/12/2019 11:59:59 PM**

Location Type Intersection
Location Unique 5961
Location Description CONSTITUTION/LONDON

Location : Chainage	Police Reference	Date/Time Direction	Severity Lane	Injury Type Position	Crash Type Movement	Number of Casualties Visibility	Number of Vehicles	Road Surface	Weather	Rum Code
CONSTITUTION/LONDON	2015-1139575	2/06/2015 8:49	Property Damage Only			6		2 Good dry surface	Fine	301
	Vehicle 1	North bound	2nd lane	Approaching intersection	Straight ahead	Glare or dazzle				
	Vehicle 2	North bound	2nd lane	Approaching intersection	Straight ahead	Glare or dazzle				
CONSTITUTION/LONDON	2015-1146276	7/08/2015 9:55	Property Damage Only			3		2 Good dry surface	Cloudy or	305
	Vehicle 1	South bound	2nd lane	Approaching intersection	Straight ahead	Not obstructed				
	Vehicle 2	South bound	1st (kerb or left) lane	Within intersection	Left turn	Not obstructed				
CONSTITUTION/LONDON	2015-1148088	17/08/2015 13:00	Property Damage Only			6		2 Wet surface	Light rain	301
	Vehicle 1	West bound	2nd lane	Within intersection	Straight ahead	Not obstructed				
	Vehicle 2	West bound	2nd lane	Within intersection	Straight ahead	Not obstructed				
CONSTITUTION/LONDON	2016-1229851	20/08/2016 21:55	Property Damage Only			6		2 Wet surface	Fine	303
	Vehicle 1	East bound	Right turn lane	Within intersection	Right turn	Not obstructed				
	Vehicle 2	East bound	Right turn lane	Within intersection	Right turn	Not obstructed				
CONSTITUTION/LONDON	2016-1182856_2	1/12/2016 14:00	Property Damage Only			3		2 Good dry surface	Fine	309
	Vehicle 1	West bound	1st (kerb or left) lane	Within intersection	Left turn	Not obstructed				
	Vehicle 2	West bound	2nd lane	Within intersection	Left turn	Not obstructed				
CONSTITUTION/LONDON	2017-1194553	10/02/2017 17:40	Property Damage Only			3		2 Good dry surface	Fine	305
	Vehicle 1	South bound	2nd lane	Within intersection	Straight ahead	Not obstructed				
	Vehicle 2	South bound	1st (kerb or left) lane	Within intersection	Straight ahead	Not obstructed				
CONSTITUTION/LONDON	2017-1217796	5/03/2017 16:35	Property Damage Only			3		2 Good dry surface	Fine	305
	Vehicle 1	South bound	Left turn lane	Within intersection	Left turn	Not obstructed				
	Vehicle 2	South bound	2nd lane	Approaching intersection	Right turn	Not obstructed				
CONSTITUTION/LONDON	2017-1198802	7/03/2017 14:40	Property Damage Only			6		2 Good dry surface	Fine	301
	Vehicle 1	South bound	2nd lane	Approaching intersection	Straight ahead	Not obstructed				
	Vehicle 2	South bound	2nd lane	Approaching intersection	Overtaking right side	Not obstructed				
CONSTITUTION/LONDON	2017-1086108	11/04/2017 7:40	Property Damage Only			6		2 Good dry surface	Fine	301
	Vehicle 1	West bound	Left turn lane	Approaching intersection	Straight ahead	Not obstructed				

	Vehicle 2	West bound	Left turn lane	Approaching intersection	Straight ahead	Not obstructed						
CONSTITUTION/LONDON	2017-1084499	22/06/2017 12:15	Property Damage Only			6		2	Good dry surface	Fine	301	
	Vehicle 1	West bound	1st (kerb or left) lane	Within intersection	Left turn	Not obstructed						
	Vehicle 2	West bound	1st (kerb or left) lane	Within intersection	Straight ahead	Not obstructed						
CONSTITUTION/LONDON	2017-1083930	13/12/2017 17:15	Property Damage Only			6		2	Good dry surface	Fine	301	
	Vehicle 1	East bound	1st (kerb or left) lane	Within intersection	Straight ahead	Not obstructed						
	Vehicle 2	East bound	1st (kerb or left) lane	Within intersection	Overtaking right side	Not obstructed						
CONSTITUTION/LONDON	2018-1182018	7/03/2018 17:30	Property Damage Only			6		2	Good dry surface	Fine	301	
	Vehicle 1	North bound	Right turn lane	Approaching intersection	Straight ahead	Not obstructed						
	Vehicle 2	North bound	Right turn lane	Approaching intersection	Straight ahead	Not obstructed						
CONSTITUTION/LONDON	2019-2101334	10/01/2019 12:50	Injury		Received medical treatment		9	1	2	Good dry surface	Fine	408
	Vehicle 1	Unknown	Footpath	Within intersection	Straight ahead	Not known						
	Vehicle 2	Unknown	1st (kerb or left) lane	Within intersection	Left turn	Not known						
CONSTITUTION/LONDON	2019-1101768	13/09/2019 8:00	Property Damage Only			3		2	Good dry surface	Fine	305	
	Vehicle 1	North bound	Right turn lane	Within intersection	Right turn	Not obstructed						
	Vehicle 2	North bound	2nd lane	Approaching intersection	Straight ahead	Not obstructed						
CONSTITUTION/LONDON	2019-1135900	8/11/2019 13:30	Property Damage Only			6		2	Good dry surface	Fine	302	
	Vehicle 1	West bound	1st (kerb or left) lane	Within intersection	Left turn	Not obstructed						
	Vehicle 2	West bound	1st (kerb or left) lane	Within intersection	Left turn	Not known						
CONSTITUTION/LONDON	2019-1214140	23/12/2019 8:40	Property Damage Only			8		2	Good dry surface	Fine	404	
	Vehicle 1	North bound	Right turn lane	Approaching intersection	Straight ahead	Not obstructed						
	Vehicle 2	North bound	Right turn lane	Approaching intersection	Backing	Not known						

Crashes = 16

Location Type Mid Block
Location Unique 7391
Location Description CONSTITUTION AVENUE (LONDON -> ALLARA)

Location : Chainage	Police Reference	Date/Time Direction	Severity Lane	Injury Type Position	Crash Type Movement	Number of Casualties Vehicles Road Surface Weather Code	Number of Casualties Vehicles Road Surface Weather Code	Number of Casualties Vehicles Road Surface Weather Code	Number of Casualties Vehicles Road Surface Weather Code	
CONSTITUTION AVENUE (LOND	2016-1195939	31/08/2016 16:45	Property Damage Only			3		2 Good dry surface	Fine	306
	Vehicle 1	West bound	1st (kerb or left) lane	Not related to intersection	Straight ahead	Not obstructed				
	Vehicle 2	West bound	2nd lane	Not related to intersection	Straight ahead	Not obstructed				
CONSTITUTION AVENUE (LOND	2017-1125076	8/06/2017 16:20	Property Damage Only			3		2 Good dry surface	Fine	306
	Vehicle 1	West bound	1st (kerb or left) lane	Approaching intersection	Straight ahead	Not obstructed				
	Vehicle 2	West bound	2nd lane	Approaching intersection	Straight ahead	Other				
CONSTITUTION AVENUE (LOND	2019-1216811	12/11/2019 17:40	Property Damage Only			6		2 Good dry surface	Fine	301

	Vehicle 1	West bound	Right turn lane	Approaching intersection	Straight ahead	Not obstructed
	Vehicle 2	West bound	Right turn lane	Approaching intersection	Straight ahead	Not known

Crashes = 3

Location Type
Location Unique
Location Description

Intersection
5976
ALLARA/CONSTITUTION

Location : Chainage	Police Reference	Date/Time Direction	Severity Lane	Injury Type Position	Crash Type Movement	Number of Casualties Visibility	Number of Vehicles	Road Surface	Weather	Rum Code
ALLARA/CONSTITUTION	2015-1236097	22/06/2015 8:45	Property Damage Only			3		2 Good dry surface	Fine	305
	Vehicle 1	South bound	1st (kerb or left) lane	Within intersection	Left turn	Not obstructed				
	Vehicle 2	South bound	1st (kerb or left) lane	Approaching intersection	Overtaking right side	Not obstructed				
ALLARA/CONSTITUTION	2016-1187502	4/02/2016 13:50	Property Damage Only			3		2 Good dry surface	Fine	305
	Vehicle 1	West bound	1st (kerb or left) lane	Within intersection	Straight ahead	Not obstructed				
	Vehicle 2	West bound	2nd lane	Within intersection	Straight ahead	Not obstructed				
ALLARA/CONSTITUTION	2017-1182682	20/06/2017 16:01	Property Damage Only			3		2 Good dry surface	Fine	305
	Vehicle 1	West bound	Right turn lane	Within intersection	Right turn	Not obstructed				
	Vehicle 2	West bound	1st (kerb or left) lane	Within intersection	Straight ahead	Not obstructed				
ALLARA/CONSTITUTION	2017-1136429	21/06/2017 7:20	Property Damage Only			3		2 Good dry surface	Fog	308
	Vehicle 1	West bound	Right turn lane	Within intersection	Right turn	Not known				
	Vehicle 2	West bound	2nd lane	Within intersection	Right turn	Windscreen, fog, etc				
ALLARA/CONSTITUTION	2017-1158059	11/07/2017 10:45	Property Damage Only			3		2 Good dry surface	Fine	305
	Vehicle 1	East bound	2nd lane	Within intersection	Straight ahead	Not obstructed				
	Vehicle 2	East bound	Right turn lane	Within intersection	U turn	Not obstructed				
ALLARA/CONSTITUTION	2017-2162800	20/08/2017 0:17	Property Damage Only			2		2 Good dry surface	Fine	102
	Vehicle 1	North bound	2nd lane	Within intersection	Right turn	Not obstructed				
	Vehicle 2	East bound	2nd lane	Within intersection	Straight ahead	Not obstructed				
ALLARA/CONSTITUTION	2017-1126194	31/08/2017 8:10	Property Damage Only			3		2 Good dry surface	Fine	305
	Vehicle 1	West bound	2nd lane	Within intersection	Straight ahead	Not obstructed				
	Vehicle 2	West bound	Right turn lane	Within intersection	Right turn	Not obstructed				
ALLARA/CONSTITUTION	2017-1135278	7/09/2017 18:25	Property Damage Only			6		2 Wet surface	Light rain	302
	Vehicle 1	South bound	1st (kerb or left) lane	Within intersection	Left turn	Not obstructed				
	Vehicle 2	South bound	1st (kerb or left) lane	Within intersection	Left turn	Not known				
ALLARA/CONSTITUTION	2017-1123254	16/09/2017 11:30	Property Damage Only			6		2 Wet surface	Light rain	302
	Vehicle 1	South bound	Left turn lane	Within intersection	Left turn	Not obstructed				
	Vehicle 2	South bound	Left turn lane	Within intersection	Left turn	Not obstructed				

ALLARA/CONSTITUTION	2018-1130695	22/03/2018 13:03 Property Damage Only				3		2 Good dry surface	Fine	305
	Vehicle 1	West bound	2nd lane	Approaching intersection	Straight ahead	Not obstructed				
	Vehicle 2	West bound	Right turn lane	Within intersection	Right turn	Not known				
ALLARA/CONSTITUTION	2018-1095615	2/05/2018 18:20 Property Damage Only				6		2 Good dry surface	Fine	301
	Vehicle 1	Unknown	2nd lane	Approaching intersection	Straight ahead	Not obstructed				
	Vehicle 2	Unknown	2nd lane	Approaching intersection	Straight ahead	Not known				
ALLARA/CONSTITUTION	2018-1080646	26/06/2018 7:50 Property Damage Only				3		2 Snow or ice	Fine	307
	Vehicle 1	West bound	2nd lane	Approaching intersection	Straight ahead	Not obstructed				
	Vehicle 2	West bound	Right turn lane	Approaching intersection	Straight ahead	Not obstructed				
ALLARA/CONSTITUTION	2019-2082411	11/01/2019 5:45 Property Damage Only				19		1 Good dry surface	Fine	704
	Vehicle 1	East bound	2nd lane	Within intersection	Straight ahead	Not known				
Crashes = 13										
Location Type	Mid Block									
Location Unique	9445702									
Location Description	CONSTITUTION AVENUE (ALLARA -> CORANDERRK)									

Location : Chainage	Police Reference	Date/Time	Severity	Injury Type	Crash Type	Number of Casualties	Number of Vehicles	Road Surface	Weather	Rum Code
		Direction	Lane	Position	Movement	Visibility				
CONSTITUTION AVENUE (ALLAR 2015-1107396		28/05/2015 17:40 Property Damage Only				6		2 Good dry surface	Fine	301
	Vehicle 1	West bound	2nd lane	Not related to intersection	Straight ahead	Not obstructed				
	Vehicle 2	West bound	2nd lane	Not related to intersection	Straight ahead	Not obstructed				
CONSTITUTION AVENUE (ALLAR 2015-1114809		25/09/2015 18:20 Property Damage Only				9		2 Good dry surface	Fine	406
	Vehicle 1	West bound	1st (kerb or left) lane	Not related to intersection	Straight ahead	Not obstructed				
	Vehicle 2	South bound	Other	Out of driveway	Left turn	Not obstructed				
CONSTITUTION AVENUE (ALLAR 2015-1099185		20/10/2015 16:50 Property Damage Only				6		2 Good dry surface	Fine	301
	Vehicle 1	East bound	1st (kerb or left) lane	Approaching intersection	Straight ahead	Not obstructed				
	Vehicle 2	East bound	1st (kerb or left) lane	Approaching intersection	Straight ahead	Not obstructed				
CONSTITUTION AVENUE (ALLAR 2015-1114603		12/11/2015 7:50 Property Damage Only				9		2 Wet surface	Cloudy or	505
	Vehicle 1	West bound	1st (kerb or left) lane	Not related to intersection	Overtaking right side	Not obstructed				
	Vehicle 2	West bound	1st (kerb or left) lane	Not related to intersection	Straight ahead	Not obstructed				
CONSTITUTION AVENUE (ALLAR 2017-1189134		31/10/2017 18:00 Property Damage Only				6		2 Good dry surface	Cloudy or	301
	Vehicle 1	West bound	2nd lane	Approaching intersection	Straight ahead	Not obstructed				
	Vehicle 2	West bound	2nd lane	Approaching intersection	Straight ahead	Not obstructed				
CONSTITUTION AVENUE (ALLAR 2017-2174191		6/12/2017 18:48 Injury		Received medical treatme		3	1	2 Good dry surface	Fine	307
	Vehicle 1	East bound	1st (kerb or left) lane	Not related to intersection	Straight ahead	Not obstructed				
	Vehicle 2	East bound	2nd lane	Not related to intersection	Overtaking left side	Not obstructed				

CONSTITUTION AVENUE (ALLAR 2018-1194397)		26/06/2018 7:54 Property Damage Only				6		2 Snow or ice	Fine	301
	Vehicle 1	West bound	2nd lane	Approaching intersection	Straight ahead	Not obstructed				
	Vehicle 2	West bound	2nd lane	Approaching intersection	Straight ahead	Not obstructed				
CONSTITUTION AVENUE (ALLAR 2018-2239089)		25/07/2018 8:20 Property Damage Only				3		2 Good dry surface	Fine	305
	Vehicle 1	West bound	Unknown	Approaching intersection	Straight ahead	Not known				
	Vehicle 2	West bound	Unknown	Approaching intersection	Straight ahead	Not obstructed				
CONSTITUTION AVENUE (ALLAR 2018-1104771)		16/10/2018 17:30 Property Damage Only				6		3 Good dry surface	Fine	301
	Vehicle 1	East bound	2nd lane	Not related to intersection	Straight ahead	Not obstructed				
	Vehicle 2	East bound	2nd lane	Not related to intersection	Straight ahead	Not obstructed				
	Vehicle 3	East bound	2nd lane	Not related to intersection	Straight ahead	Not obstructed				
CONSTITUTION AVENUE (ALLAR 2019-1189497)		20/02/2019 16:45 Property Damage Only				9		2 Good dry surface	Fine	406
	Vehicle 1	South bound	Other	Out of driveway	Straight ahead	Not obstructed				
	Vehicle 2	East bound	1st (kerb or left) lane	Not related to intersection	Straight ahead	Not obstructed				
CONSTITUTION AVENUE (ALLAR 2019-1033778)		29/06/2019 0:24 Property Damage Only				9		2 Good dry surface	Fine	406
	Vehicle 1	South bound	Other	Out of driveway	Straight ahead	Not obstructed				
	Vehicle 2	South bound	Other	Out of driveway	Backing	Not obstructed				
CONSTITUTION AVENUE (ALLAR 2019-2083618)		17/07/2019 8:45 Injury		Received medical treatment		6	1	2 Good dry surface	Fine	301
	Vehicle 1	East bound	1st (kerb or left) lane	Not related to intersection	Straight ahead	Not obstructed				
	Vehicle 2	East bound	1st (kerb or left) lane	Not related to intersection	Straight ahead	Not obstructed				
CONSTITUTION AVENUE (ALLAR 2019-1191262)		15/10/2019 17:30 Property Damage Only				6		2 Good dry surface	Fine	301
	Vehicle 1	East bound	2nd lane	Approaching intersection	Straight ahead	Not obstructed				
	Vehicle 2	East bound	2nd lane	Approaching intersection	Straight ahead	Not obstructed				
CONSTITUTION AVENUE (ALLAR 2019-1101202)		21/10/2019 9:30 Injury		Received medical treatment		16	1	1 Good dry surface	Fine	8
	Vehicle 1	West bound	Footpath	Not related to intersection	Overtaking left side	Not obstructed				
	Pedestrian 2									

Crashes = 14

Location Type Intersection
Location Unique 6019
Location Description CONSTITUTION/CORANDERRK

Location : Chainage	Police Reference	Date/Time Direction	Severity Lane	Injury Type Position	Crash Type Movement	Number of Casualties Visibility	Number of Vehicles	Road Surface	Weather	Rum Code
CONSTITUTION/CORANDERRK	2015-2221853	23/02/2015 15:30 Injury		Admitted to hospital		9	1	2 Good dry surface	Fine	408
	Vehicle 1	West bound	Other	Within intersection	Straight ahead	Not obstructed				
	Vehicle 2	South bound	1st (kerb or left) lane	Within intersection	Straight ahead	Not obstructed				
CONSTITUTION/CORANDERRK	2015-1202553	31/03/2015 8:20 Property Damage Only				6		2 Good dry surface	Fine	302
	Vehicle 1	South bound	Left turn lane	Within intersection	Left turn	Other				

	Vehicle 2	South bound	Left turn lane	Within intersection	Left turn	Not obstructed				
CONSTITUTION/CORANDERRK	2015-1183298	28/04/2015 8:30 Property Damage Only				9		2 Good dry surface	Fine	203
	Vehicle 1	North bound	Right turn lane	Within intersection	Right turn	Not obstructed				
	Vehicle 2	South bound	Left turn lane	Within intersection	Left turn	Not obstructed				
CONSTITUTION/CORANDERRK	2015-1230793	11/05/2015 17:40 Property Damage Only				1		2 Good dry surface	Fine	202
	Vehicle 1	North bound	Right turn lane	Within intersection	Right turn	Fence, pole, etc				
	Vehicle 2	South bound	1st (kerb or left) lane	Within intersection	Straight ahead	Not obstructed				
CONSTITUTION/CORANDERRK	2015-2156678	21/06/2015 6:30 Injury		Received medical treatment		6	1	2 Good dry surface	Fine	301
	Vehicle 1	East bound	1st (kerb or left) lane	Approaching intersection	Straight ahead	Not obstructed				
	Vehicle 2	East bound	1st (kerb or left) lane	Approaching intersection	Straight ahead	Not obstructed				
CONSTITUTION/CORANDERRK	2015-2162598	14/08/2015 15:26 Injury		Admitted to hospital		2	2	3 Good dry surface	Fine	101
	Vehicle 1	North bound	2nd lane	Within intersection	Straight ahead	Not obstructed				
	Vehicle 2	East bound	1st (kerb or left) lane	Within intersection	Straight ahead	Not obstructed				
	Vehicle 3	South bound	Right turn lane	Approaching intersection	Right turn	Not obstructed				
CONSTITUTION/CORANDERRK	2015-1148086	14/08/2015 17:15 Property Damage Only				6		2 Good dry surface	Fine	302
	Vehicle 1	South bound	Left turn lane	Within intersection	Left turn	Not obstructed				
	Vehicle 2	South bound	Left turn lane	Within intersection	Left turn	Not obstructed				
CONSTITUTION/CORANDERRK	2015-2071253	28/08/2015 15:12 Property Damage Only				2		2 Wet surface	Light rain	104
	Vehicle 1	East bound	1st (kerb or left) lane	Within intersection	Right turn	Not obstructed				
	Vehicle 2	North bound	2nd lane	Within intersection	Straight ahead	Not obstructed				
CONSTITUTION/CORANDERRK	2015-2134785	25/09/2015 9:40 Injury		Received medical treatment		2	2	2 Good dry surface	Fine	104
	Vehicle 1	North bound	1st (kerb or left) lane	Within intersection	Straight ahead	Not obstructed				
	Vehicle 2	East bound	Right turn lane	Within intersection	Right turn	Not obstructed				
CONSTITUTION/CORANDERRK	2015-1142281	7/11/2015 13:00 Property Damage Only				6		2 Good dry surface	Fine	302
	Vehicle 1	East bound	Left turn lane	Within intersection	Left turn	Not obstructed				
	Vehicle 2	East bound	Left turn lane	Within intersection	Left turn	Not obstructed				
CONSTITUTION/CORANDERRK	2015-1147669	23/11/2015 8:20 Property Damage Only				6		2 Good dry surface	Fine	302
	Vehicle 1	South bound	Left turn lane	Within intersection	Left turn	Not obstructed				
	Vehicle 2	South bound	Left turn lane	Within intersection	Left turn	Not obstructed				
CONSTITUTION/CORANDERRK	2015-1093102	17/12/2015 9:20 Property Damage Only				6		2 Good dry surface	Fine	301
	Vehicle 1	North bound	2nd lane	Approaching intersection	Straight ahead	Not obstructed				
	Vehicle 2	North bound	2nd lane	Approaching intersection	Straight ahead	Not obstructed				
CONSTITUTION/CORANDERRK	2016-1183631	7/05/2016 18:00 Property Damage Only				2		2 Good dry surface	Fine	101
	Vehicle 1	West bound	1st (kerb or left) lane	Within intersection	Straight ahead	Not obstructed				
	Vehicle 2	South bound	2nd lane	Within intersection	Straight ahead	Not obstructed				
CONSTITUTION/CORANDERRK	2016-1115188	1/07/2016 9:15 Property Damage Only				6		2 Good dry surface	Fine	301
	Vehicle 1	South bound	1st (kerb or left) lane	Approaching intersection	Straight ahead	Not obstructed				
	Vehicle 2	South bound	1st (kerb or left) lane	Within intersection	Straight ahead	Not obstructed				

CONSTITUTION/CORANDERRK	2016-1153235	24/12/2016 16:15 Property Damage Only				1	2 Good dry surface	Cloudy or	202
	Vehicle 1	North bound	2nd lane	Within intersection	Straight ahead	Not obstructed			
	Vehicle 2	South bound	Unknown	Within intersection	Straight ahead				
CONSTITUTION/CORANDERRK	2017-1142481	25/01/2017 9:45 Property Damage Only				6	2 Good dry surface	Fine	301
	Vehicle 1	North bound	2nd lane	Within intersection	Straight ahead	Not obstructed			
	Vehicle 2	North bound	2nd lane	Within intersection	Straight ahead	Not obstructed			
CONSTITUTION/CORANDERRK	2017-1215227	3/04/2017 17:45 Property Damage Only				6	3 Good dry surface	Fine	301
	Vehicle 1	North bound	1st (kerb or left) lane	Approaching intersection	Straight ahead	Not obstructed			
	Vehicle 2	North bound	1st (kerb or left) lane	Approaching intersection	Straight ahead	Not obstructed			
	Vehicle 3	North bound	1st (kerb or left) lane	Approaching intersection	Straight ahead	Not obstructed			
CONSTITUTION/CORANDERRK	2017-1199824	12/05/2017 18:30 Property Damage Only				6	2 Good dry surface	Fine	301
	Vehicle 1	North bound	2nd lane	Within intersection	Straight ahead	Not obstructed			
	Vehicle 2	North bound	2nd lane	Approaching intersection	Straight ahead	Not obstructed			
CONSTITUTION/CORANDERRK	2017-1124633	23/07/2017 14:45 Property Damage Only				6	2 Good dry surface	Fine	301
	Vehicle 1	East bound	2nd lane	Within intersection	Straight ahead	Not obstructed			
	Vehicle 2	East bound	2nd lane	Within intersection	Straight ahead	Not obstructed			
CONSTITUTION/CORANDERRK	2017-1203611	6/10/2017 19:45 Property Damage Only				15	1 Good dry surface	Fine	610
	Vehicle 1	South bound	1st (kerb or left) lane	Within intersection	Straight ahead	Not obstructed			
CONSTITUTION/CORANDERRK	2017-1143372	12/11/2017 11:00 Property Damage Only				8	2 Good dry surface	Fine	404
	Vehicle 1	North bound	1st (kerb or left) lane	Approaching intersection	Straight ahead	Not obstructed			
	Vehicle 2	North bound	1st (kerb or left) lane	Approaching intersection	Backing	Not obstructed			
CONSTITUTION/CORANDERRK	2017-1108447	22/11/2017 8:40 Property Damage Only				6	2 Good dry surface	Fine	301
	Vehicle 1	South bound	2nd lane	Approaching intersection	Straight ahead	Not obstructed			
	Vehicle 2	South bound	2nd lane	Approaching intersection	Straight ahead	Not obstructed			
CONSTITUTION/CORANDERRK	2017-1163485	20/12/2017 14:30 Property Damage Only				6	2 Good dry surface	Cloudy or	301
	Vehicle 1	North bound	2nd lane	Approaching intersection	Straight ahead	Not obstructed			
	Vehicle 2	North bound	2nd lane	Approaching intersection	Straight ahead	Not obstructed			
CONSTITUTION/CORANDERRK	2018-1172837	9/04/2018 16:55 Property Damage Only				6	2 Good dry surface	Fine	301
	Vehicle 1	South bound	2nd lane	Approaching intersection	Straight ahead	Not obstructed			
	Vehicle 2	South bound	2nd lane	Approaching intersection	Straight ahead	Not known			
CONSTITUTION/CORANDERRK	2018-1107985	6/06/2018 17:30 Property Damage Only				6	2 Good dry surface	Fine	303
	Vehicle 1	East bound	Right turn lane	Within intersection	Right turn	Not obstructed			
	Vehicle 2	East bound	Right turn lane	Within intersection	Right turn	Not obstructed			
CONSTITUTION/CORANDERRK	2018-1096738	26/07/2018 9:55 Property Damage Only				6	2 Good dry surface	Fine	301
	Vehicle 1	South bound	1st (kerb or left) lane	Within intersection	Straight ahead	Not obstructed			
	Vehicle 2	South bound	1st (kerb or left) lane	Within intersection	Straight ahead	Not obstructed			
CONSTITUTION/CORANDERRK	2019-1090153	16/03/2019 22:10 Property Damage Only				6	2 Good dry surface	Fine	301

	Vehicle 1	West bound	1st (kerb or left) lane	Approaching intersection	Straight ahead	Not obstructed				
	Vehicle 2	West bound	1st (kerb or left) lane	Approaching intersection	Straight ahead	Not obstructed				
CONSTITUTION/CORANDERRK	2019-1204939	17/05/2019 20:05 Property Damage Only				6		2 Good dry surface	Fine	301
	Vehicle 1	North bound	1st (kerb or left) lane	Approaching intersection	Straight ahead	Not obstructed				
	Vehicle 2	North bound	1st (kerb or left) lane	Approaching intersection	Straight ahead	Not obstructed				
CONSTITUTION/CORANDERRK	2019-1121274	7/06/2019 15:40 Property Damage Only				10		1 Good dry surface	Fine	1
	Vehicle 1	North bound	1st (kerb or left) lane	Within intersection	Left turn	Not obstructed				
	Pedestrian 2									
CONSTITUTION/CORANDERRK	2019-1182544	13/08/2019 18:10 Property Damage Only				6		2 Good dry surface	Fine	301
	Vehicle 1	South bound	2nd lane	Approaching intersection	Straight ahead	Not obstructed				
	Vehicle 2	South bound	2nd lane	Approaching intersection	Straight ahead	Not obstructed				
CONSTITUTION/CORANDERRK	2019-2109251	18/10/2019 15:20 Injury		Received medical treatment		10	1	1 Good dry surface	Fine	3
	Vehicle 1	North bound	3rd lane	Within intersection	Straight ahead	Other				
	Pedestrian 2									
CONSTITUTION/CORANDERRK	2019-1162453	30/10/2019 16:05 Property Damage Only				3		2 Good dry surface	Fine	305
	Vehicle 1	East bound	Right turn lane	Within intersection	Right turn	Not obstructed				
	Vehicle 2	East bound	Right turn lane	Approaching intersection	Straight ahead	Not known				

Crashes = 32

		100		200		300		400		500		600		700		800		900
001	1	101	2	201		301	30	401		501		601		701		801		901
002		102	1	202	2	302	7	402		502		602		702		802		902
003	1	103		203	1	303	2	403		503		603		703		803		903
004		104	2	204		304		404	2	504		604		704	1	804		904
005		105		205		305	12	405		505	1	605		705		805		905
006		106		206		306	2	406	3	506		606		706		806		906
007		107		207		307	2	407		507		607		707		807		907
008	1	108		208		308	1	408	2	508		608		708		808		908
009		109		209		309	1	409		509		609		709		809		909
												610	1					

000a

001	1		
003	1		INJ
008	1		
101	2		INJ
102	1		
104	2		
202	2		
203	1		
301	30		INJ
302	7		
303	2		
305	12		
306	2		
307	2		INJ
308	1		
309	1		
404	2		
406	3		
408	2		INJ
610	1		
505	1		

704

1 [REDACTED]

Total	PDO	69
Total	INJ	9

Each ramp is defined by the first 4 letters of the road it comes from and the direction travelling plus the first 4 letters of the road the ramp connects to and the direction travelling

SITE REPORT

History Location: PARKECOMMSRM/PARKES

Report Date Range: 01/01/2015 12:00:00 AM -> 31/12/2019 11:59:59 PM

Location : Chainage	Police Reference	Date/Time Direction	Severity Lane	Injury Type Position	Crash Type Movement	Number of Casualties Visibility	Number of Vehicles	Road Surface	Weather	Rum Code
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SITE REPORT

History Location: PARKES WAY (PARKECOMMSRM -> PARKWCOMMSRM)

Report Date Range: 01/01/2015 12:00:00 AM -> 31/12/2019 11:59:59 PM

Location : Chainage	Police Reference	Date/Time Direction	Severity Lane	Injury Type Position	Crash Type Movement	Number of Casualties Visibility	Number of Vehicles	Road Surface	Weather	Rum Code
PARKES WAY (PARKECOMMSRM 2015-2143353		29/08/2015 6:16	Property Damage Only			19		1 Good dry surface	Fine	704
Vehicle 1		West bound	2nd lane	Not related to intersection	Straight ahead					
PARKES WAY (PARKECOMMSRM 2019-1179208_2		15/05/2019 11:45	Property Damage Only			3		2 Good dry surface	Fine	306
Vehicle 1		East bound	3rd lane	Not related to intersection	Straight ahead	Not obstructed				
Vehicle 2		East bound	2nd lane	Not related to intersection	Overtaking right side	Not known				

SITE REPORT

History Location: PARKES/PARKWCOMMSRM

Report Date Range: 01/01/2015 12:00:00 AM -> 31/12/2019 11:59:59 PM

Location : Chainage	Police Reference	Date/Time Direction	Severity Lane	Injury Type Position	Crash Type Movement	Number of Casualties Visibility	Number of Vehicles	Road Surface	Weather	Rum Code
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SITE REPORT

History Location: PARKES WAY (PARKWCOMMSRM -> PARKEALLANRM)

Report Date Range: 01/01/2015 12:00:00 AM -> 31/12/2019 11:59:59 PM

Location : Chainage	Police Reference	Date/Time Direction	Severity Lane	Injury Type Position	Crash Type Movement	Number of Casualties Visibility	Number of Vehicles	Road Surface	Weather	Rum Code
PARKES WAY (PARKWCOMMSR 2017-1225513		23/02/2017 8:20	Property Damage Only			6		2 Good dry surface	Fine	301
Vehicle 1		West bound	1st (kerb or left) lane	Not related to intersection	Straight ahead	Not obstructed				
Vehicle 2		West bound	1st (kerb or left) lane	Not related to intersection	Straight ahead	Not obstructed				

PARKES WAY (PARKWCOMMSR 2017-1151664)	Vehicle 1	25/10/2017 9:30	Property Damage Only	East bound	3rd lane	Not related to intersection	Straight ahead	6	Not obstructed	2	Good dry surface	Fine	301
	Vehicle 2			East bound	3rd lane	Not related to intersection	Overtaking left side		Not known				
PARKES WAY (PARKWCOMMSR 2017-1084962)	Vehicle 1	6/12/2017 7:20	Property Damage Only	East bound	3rd lane	Not related to intersection	Straight ahead	3	Not obstructed	2	Good dry surface	Cloudy or	305
	Vehicle 2			East bound	2nd lane	Not related to intersection	Straight ahead		Not obstructed				
PARKES WAY (PARKWCOMMSR 2018-1113793)	Vehicle 1	24/05/2018 7:55	Property Damage Only	East bound	3rd lane	Not related to intersection	Straight ahead	3	Not obstructed	2	Good dry surface	Fine	307
	Vehicle 2			East bound	Other	Not related to intersection	Straight ahead		Not obstructed				
PARKES WAY (PARKWCOMMSR 2019-1158521)	Vehicle 1	20/11/2019 8:50	Property Damage Only	East bound	1st (kerb or left) lane	Approaching intersection	Straight ahead	6	Not obstructed	2	Good dry surface	Fine	301
	Vehicle 2			East bound	1st (kerb or left) lane	Approaching intersection	Straight ahead		Not obstructed				

SITE REPORT

History Location: PARKES/PARKEALLAN


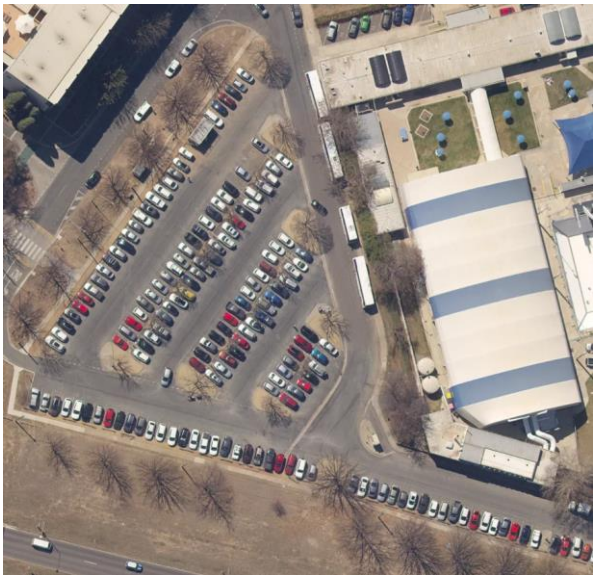

Report Date Range: 01/01/2015 12:00:00 AM -> 31/12/2019 11:59:59 PM




Location : Chainage	Police Reference	Date/Time	Severity	Injury Type	Crash Type	Number of Casualties	Number of Vehicles	Road Surface	Weather	Rum Code	
		Direction	Lane	Position	Movement	Visibility					
PARKES/PARKEALLAN : 0	2018-1159320	20/12/2018 17:30	Property Damage Only			6		2	Good dry surface	Fine	301
	Vehicle 1	East bound	1st (kerb or left) lane	Approaching intersection	Straight ahead	Not obstructed					
	Vehicle 2	East bound	1st (kerb or left) lane	Approaching intersection	Straight ahead	Not obstructed					

APPENDIX

D

OFF-SITE PARKING ANALYSIS

Date	Source	Spaces Available	Utilisation (%)	Screenshot
14 th August 2014 (Thursday)	MetroMap	174	145 used (83.3% utilised)	
27 th September 2018 (Thursday)	MetroMap	174	162 used (93.1% utilised)	
15 th May 2019 (Wednesday)	MetroMap	174	138 used (78.7% utilised)	

<p>2nd March 2021 (Tuesday)</p>	<p>MetroMap</p>	<p>174</p>	<p>131 used (75.3% utilised)</p>	
<p>19th April 2021 (Monday)</p>	<p>MetroMap</p>	<p>174</p>	<p>128 used (73.6% utilised)</p>	
<p>21st December 2021 (Tuesday)</p>	<p>MetroMap</p>	<p>174</p>	<p>77 used (44.3% utilised)</p>	

the inbound increase of 102 vehicle trips as a result of the proposed development. These trips are concentrated within the eastern approach leg, which results in an overall increase in average delay from 34.7 seconds (LOS C) in the 'existing' scenario to 45.4 seconds (LOS D) in the 'with development' scenario. In addition to this, the maximum queue length also increases from 10 vehicles in the 'existing' scenario to 17 vehicles in the 'with development' scenario as a result of the proposed development.

Overall the proposed development does not significantly impact the intersections performance in both AM and PM scenario, as both operate at a satisfactory level of service (LOS C) in the 'with development scenario'.

8.1.5 Coranderrk Street / Constitution Avenue Signalised Intersection

The Coranderrk Street / Constitution Avenue intersection experiences an increase in total vehicle trips as a result of the proposed Allara Street development. Additional vehicle trips utilise the western approach during both AM and PM peak hour periods. This increase results in a slight decline in the average delay performance across the western approach from 24.0 seconds (LOS B) to 35.2 seconds (LOS C) in the AM peak hour period. The maximum queue length however, does not increase. This does not significantly hinder the western approach leg's performance. The southern approach leg experiences an increase in average delay and maximum queue length during the 'with development' scenario, however, this is a result of an increase in northbound vehicles related the change in iterations within the microsimulation and is unrelated the proposed development.

The PM peak hour period does not see any significant change with all four intersection legs remaining unchanged from the 'existing' scenario through to the 'with development' scenario.

Overall the proposed development does not significantly impact the intersections performance in both AM and PM scenarios, as both operate at a satisfactory level of service (LOS C) in the 'with development' scenario.