



## **WAVERLEY TRAFFIC COMMITTEE MEETING**

A meeting of the WAVERLEY TRAFFIC COMMITTEE will be held by video conference at:

**10.00 AM, THURSDAY 27 MAY 2021**

Waverley Council  
PO Box 9  
Bondi Junction NSW 1355  
DX 12006 Bondi Junction  
Tel. 9083 8000  
E-mail: [info@waverley.nsw.gov.au](mailto:info@waverley.nsw.gov.au)

## AGENDA

### Apologies

### Declarations of Interests

### Adoption of Previous Minutes by Council - 22 April 2021..... 10

The recommendations contained in Part 1 – Matters Proposing that Council Exercise its Delegated Functions – of the minutes of the Waverley Traffic Committee meeting held on 22 April 2021 are scheduled to be adopted by Council at its meeting on 25 May 2021.

### PART 1 – MATTERS PROPOSING THAT COUNCIL EXERCISE ITS DELEGATED FUNCTIONS

**NOTE: The matters listed under this part of the agenda propose that Council either does or does not exercise the traffic related functions delegated to it by TfNSW. The recommendations made by the Committee under this part of the agenda will be submitted to Council for adoption.**

#### TC/C      STATE ELECTORATE OF COOGEE

#### TC/C.01/21.05      40 km/h Speed Limit Changes - Traffic Control Devices - Park Parade and Dickson Street at Birrell Street, Bondi (A18/0579)..... 23

#### COUNCIL OFFICER'S PROPOSAL:

That Council:

1. Installs a centre line marking with kerb extensions at the intersection of Park Parade and Birrell Street, Bondi, as shown in Figure 9 of the report.
2. Installs a pedestrian refuge island with kerb extensions at the intersection of Dickson Street and Birrell Street, Bondi, as shown in Figure 10 of the report.
3. Installs 'Do not queue across intersection' signs at the intersections of Birrell Street with Park Parade and Dickson Street.
4. Delegates authority to the Executive Manager, Infrastructure Services, to modify the designs should on-site circumstances warrant changes.



**TC/C.02/21.05            Boonara Avenue, Bondi - Right Turn Ban into Bondi Road (A21/0178) ..... 33****COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Does not support banning the right turn from Boonara Avenue into Bondi Road, Bondi.
2. Does not support the alternative option of banning the right turn from Boonara Avenue plus the through movement from Boonara Avenue to Castlefield Street.
3. Does not support alternative options of banning the right turn out of Boonara Avenue plus Imperial Avenue.
4. Advises residents who were surveyed of the decision.

**TC/C.03/21.05            York Road and Darley Road Intersection, Queens Park - Slip Lane Closure (A21/0105) ..... 42****COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Supports the removal of the left turn slip lane from Darley Road eastbound into York Road northbound, Queens Park, subject to Transport for NSW (TfNSW) approval.
2. Refers the concept plan attached to the report (Attachment 1) to TfNSW for assessment.
3. Advises Randwick Council of the proposal.

**TC/C.04/21.05            Queens Park Road, Queens Park - Bus Zone Modifications (SF21/1704) ..... 121****COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Removes the existing bus zone, tombstone (bus stop sign) and tactile ground surface indicators.
2. Installs a 18.5 metre bus zone east of the existing 'No Stopping' restriction.
3. Installs a J-stem pole, tombstone and tactile ground surface indicators 12.5 metres east of the existing 'No Stopping' restriction.

**TC/C.05/21.05            7 Brae Street, Bronte - 'P Disability Only' Zone - Review (A20/0534)..... 126****COUNCIL OFFICER'S PROPOSAL:**

That Council reduces the length of the existing 'P Disability Only' parking zone in front of 7 Brae Street, Bronte, by 7 metres from 13 metres to 6 metres.

**TC/C.06/21.05            Mason Lane, Bondi - 'No Parking' Zones (SF21/1703) ..... 129****COUNCIL OFFICER'S PROPOSAL:**

That Council installs:

1. A 23 metre 'No Parking' zone on the northern side of Mason Lane (east), Bondi.
2. A 20 metre 'No Parking' zone on the northern side of Mason Lane (west), Bondi.

**TC/C.07/21.05            Albert Street and St Thomas Street Intersection, Bronte - 'No Stopping' Zones (A14/0145) ..... 133****COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Installs a 'No Stopping' zone at the intersection of St Thomas Street and Albert Street for:
  - (a) 8 metres on the western side of St Thomas Street, north of Albert Street.
  - (b) 8 metres on the northern side of Albert Street, west of St Thomas Street.
2. Installs unbroken yellow C3 lines along the 'No Stopping' zone.

**TC/C.08/21.05            Turner Street, Bronte - 'No Stopping' Zone - Removal (A02/0637) ..... 138****COUNCIL OFFICER'S PROPOSAL:**

That Council removes the 7 metre 'No Stopping' zone at the access to 24 Darling Street in Turner Street, Bronte.

**TC/C.09/21.05            Brown Street and Palmerston Avenue Intersection, Bronte - 'No Stopping' Zone - Review (A14/0145) ..... 141****COUNCIL OFFICER'S PROPOSAL:**

That Council reduces the length of the 'No Stopping' restrictions on the south-east corner of the intersection of Brown Street and Palmerston Avenue, Bronte, to 10 metres.

**TC/C.10/21.05            191 Birrell Street, Waverley - 'No Stopping' Zone (SF21/1701)..... 144****COUNCIL OFFICER'S PROPOSAL:**

That Council installs a 10 metre 'No Stopping' zone on the eastern side of Langlee Avenue adjacent to 191 Birrell Street, Waverley.

**TC/C.11/21.05            278-282 Birrell Street, Bondi - Construction Zone (A03/2514-04)..... 147****COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Installs a 30 metre 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Saturday Council Authorised Vehicles Excepted' construction zone along the frontage of 278–282 Birrell Street, Bondi.
2. Delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of, or remove, the construction zone, as necessary.

**TC/C.12/21.05            13 Calga Avenue, Bronte - Construction Zone (A03/2514-04)..... 151****COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Installs a 15 metre 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Saturday Council Authorised Vehicles Excepted' construction zone along the frontage of 13 Calga Avenue, Bronte.
2. Delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of, or remove, the construction zone, as necessary.

**TC/C.13/21.05            55 Hewlett Street, Bronte - Construction Zone (A03/2514-04)..... 155****COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Installs a 9 metre 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Saturday Council Authorised Vehicles Excepted' construction zone along the frontage of 55 Hewlett Street, Bronte.
2. Delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of, or remove, the construction zone, as necessary.

**TC/V        STATE ELECTORATE OF VAUCLUSE****TC/V.01/21.05        Bondi Festival Ferris Wheel and Ice Rink - Special Event (A20/0172) ..... 159****COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Approves the temporary traffic and parking changes for the Bondi Festival at Queen Elizabeth Drive and Park Drive South, Bondi Beach, as outlined in the Traffic Control Plans shown in Figures 2 and Figure 3 of the report, subject to the event organisers:
  - (a) Obtaining NSW Police approval.
  - (b) Notifying the State Transit Authority, NSW Ambulance Service and NSW Fire and Rescue (Bondi, Woollahra and Randwick fire stations) seven days prior to the event.
  - (c) Notifying local residents and businesses seven days prior to the event.
  - (d) Considering all other impacts on the surrounding environment.
2. Issues a schedule of conditions, with any additional conditions to be imposed by NSW Police and Transport for NSW.
3. Delegates authority to the Executive Manager, Infrastructure Services, to modify the Traffic Control Plans should on-site circumstances warrant changes.

**TC/V.02/21.05        43-45 Hall Street, Bondi Beach - Partial Road Closure for Tower Crane Installation (A02/0617-07) ..... 165****COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Approves the temporary partial closure of Hall Street, Bondi Beach, between Consett Avenue and Jaques Avenue, from 6.00 am to 6.00 pm on Monday, 28 June 2021, subject to the applicant:
  - (a) Obtaining approval from NSW Police.
  - (b) Notifying the State Transit Authority, NSW Ambulance Service and NSW Fire and Rescue.
  - (c) Notifying affected residents and businesses of the changes in traffic in writing prior to implementation of the road and footpath closure.
  - (d) Using traffic controllers accredited by Transport for NSW.
  - (e) Covering all costs associated with closing the road, including traffic control and permit fees.
2. Delegates authority to the Executive Manager, Infrastructure Services to adjust the length and duration of the partial road closure, or approve any backup date and times, if required.

**TC/V.03/21.05 Murrivier Road, North Bondi - Bus Stop Improvements (A20/0076)..... 169****COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Approves the location and time restrictions for bus stops and bus zones as set out in the report at the following locations in Murrivier Road, North Bondi:
  - (a) Intersection of Murrivier Road and Shaw Street.
  - (b) Intersection of Old South Head Road and Murrivier Road.
  - (c) Adjacent to Justus Street.
  - (d) Opposite Justus Street.
  - (e) Adjacent to Nancy Street.
  - (f) Opposite Nancy Street.
  - (g) Adjacent to Hardy Street.
2. Notifies the residents of Murrivier Road between Old South Head Road and Midelton Avenue of the changes to parking arrangements.

**TC/V.04/21.05 Ethel Street and Kimberley Street Intersection, Vaucluse - 'No Stopping' Zones (SF21/1707)..... 180****COUNCIL OFFICER'S PROPOSAL:**

That Council installs 10 metre 'No Stopping' zones on the south-eastern and south-western corners of the intersection of Ethel Street and Kimberley Street, Vaucluse.

**TC/V.05/21.05 Diamond Bay Road and Isabel Avenue Intersection, Vaucluse - 'No Stopping' Zone - Review (A14/0145) ..... 182****COUNCIL OFFICER'S PROPOSAL:**

That Council reduces the length of the 'No Stopping' zone on the inner bend of the connection of Diamond Bay Road to Isabel Avenue, Vaucluse, from 26 metres to 19 metres, as shown in Figure 2 of the report.

**TC/V.06/21.05 Warners Avenue, Bondi Beach - 15 Minute Parking (A03/0042-04)..... 185****COUNCIL OFFICER'S PROPOSAL:**

That Council converts the existing 14 metres of '2P, 8 am–10 pm, Permit Holders Excepted, Area B' parking restriction on the southern kerb line of Warners Avenue east of Glenayr Avenue, Bondi Beach, to 'P 15

mins, 8 am–2 pm’ and ‘2P 2 pm–10 pm, Permit Holders Excepted, Area B’, as shown in Figure 1 of the report.

**TC/V.07/21.05            55 Murriverie Road North Bondi - 'P Disability Only' Zone (A20/0534)..... 188**

**COUNCIL OFFICER’S PROPOSAL:**

That Council installs a 5.4 metre ‘P Disability Only’ parking zone outside 53 Murriverie Road, North Bondi.

**TC/V.08/21.05            68 Blair Street, North Bondi - 'P Disability Only' Zone - Removal  
(A20/0534) ..... 191**

**COUNCIL OFFICER’S PROPOSAL:**

That Council removes the 6 metre ‘P Disability Only’ parking zone outside 68 Blair Street, North Bondi.

**TC/V.09/21.05            114 Warners Avenue, Bondi Beach - Construction Zone (A03/2514-04) ..... 193**

**COUNCIL OFFICER’S PROPOSAL:**

That Council:

1. Installs a 10 metre ‘No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Saturday Council Authorised Vehicles Excepted’ construction zone along the frontage of 114 Warners Avenue, Bondi Beach.
2. Delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of, or remove, the construction zone, as necessary.

**TC/CV            ELECTORATES OF COOGEE AND VAUCLUSE**

**TC/CV.01/21.05            Guide for Assessment of Motor Bike Parking between Driveways  
(A21/0065) ..... 197**

**COUNCIL OFFICER’S PROPOSAL:**

That Council:

1. Endorses the process in the report for the assessment of motor bike parking zones between driveways.
2. Endorses the customised single sign ‘Motor Bikes Only Between Driveways’ for motor bike parking between driveways for a 12-month trial.
3. Endorses the ‘Motor Bike Parking Warrants’ attached to the report.

**PART 2 – TRAFFIC ENGINEERING ADVICE**

***NOTE: The matters listed under this part of the agenda seek the advice of the WTC only and do not propose that Council exercise its delegated functions at this point in time (though they may or may not require it in the future).***

**TC/TEAC    STATE ELECTORATE OF COOGEE**

Nil.

**TC/TEAV    STATE ELECTORATE OF VAUCLUSE**

Nil.

**TC/TEACV    ELECTORATES OF COOGEE AND VAUCLUSE**

Nil.

**MINUTES OF THE WAVERLEY TRAFFIC COMMITTEE  
MEETING HELD BY VIDEO CONFERENCE ON  
THURSDAY, 22 APRIL 2021**



**Voting Members Present:**

Cr P Masselos	Waverley Council – Chair
Sgt L Barrett	NSW Police – Eastern Suburbs Police Area Command – Traffic Services
Mr M Carruthers	Transport for NSW – Network and Safety Officer
Mr P Pearce	Representing Marjorie O’Neill, MP, Member for Coogee
Ms J Zin	Representing Gabrielle Upton, MP, Member for Vaucluse

**Also Present:**

Cr T Kay	Waverley Council – Alternate Chair
Cr Wy Kanak	Waverley Council
Mr D Joannides	Waverley Council – Executive Manager, Infrastructure Services
Mr C Hutcheson	Waverley Council – Service Manager, Traffic and Transport
Ms J Elijah	Waverley Council – Development Assessment Officer
Mr B Gidiess	State Transit – Traffic and Services Manager (Eastern Region)

---

*At the commencement of proceedings at 10.00 am, those present were as listed above, with the exception of Ms J Zin and Mr B Giddies who arrived at 10.04 am.*

*Mr P Pearce left the meeting at 10.22 am at the conclusion of the Coogee matters.*

**Apologies**

There were no apologies.

**Declarations of Pecuniary and Non-Pecuniary Interests**

The Chair called for declarations of interest and none were received.



**Adoption of Previous Minutes by Council - 25 March 2021**

The recommendations contained in Part 1 – Matters Proposing that Council Exercise its Delegated Functions – of the minutes of the Waverley Traffic Committee meeting held on 25 March 2021 were adopted by Council at its meeting on 20 April 2021 with the following changes:

1. TC/V.05/21.03 – Barracluff Avenue, Bondi Beach - Traffic Calming Scheme.

Council adopted the recommendation of the Traffic Committee subject to it being amended to read as follows:

That Council:

1. Approves the traffic calming scheme for Barracluff Avenue as shown in Attachment 1 as a one-year trial.
  2. Officers monitor traffic speeds and movement in Barracluff Avenue post-installation of the traffic calming scheme.
  3. Delegates authority to the Executive Manager, Infrastructure Services, to modify the designs should on-site circumstances warrant changes without substantial reduction in the landscaping and greening elements of the scheme.
2. TC/C.03/21.03 – 40 km/h Speed Limit Changes – Traffic Control Devices – Park Parade and Dickson Street at Birrell Street, Bondi.

Council did not adopt the recommendation of the Traffic Committee and made the following decision:

That Council defers this item for a schema and commentary on the consequences of the following proposed changes relative to the Traffic Committee's recommendation:

1. Approves the installation of centre line marking with kerb extensions at the intersection of Park Parade and Birrell Street as shown in Figure 2, subject to deletion of the kerb extension on the eastern corner to retain two exit lanes from Park Parade and consideration of increasing the proposed kerb extension on the western corner for improved pedestrian safety.
2. Approves the installation of a pedestrian refuge island with kerb extensions at the intersection of Dickson Street and Birrell Street as shown in Figure 3, subject to deletion of the kerb extension on the western corner to retain two exit lanes from Dickson Street and consideration of removing or minimising the proposed kerb reduction on the eastern corner for improved pedestrian safety.
3. Installs 'Do not queue across intersection' sign (sign G9-237) on the southern side of Birrell Street at the Park Parade intersection.
4. Installs 'Do not queue across intersection' sign (sign G9-237) on the southern side of Birrell Street at the Dickson Street intersection.
5. Delegates authority to the Executive Manager, Infrastructure Services, to modify the designs should on-site circumstances warrant changes.
6. Investigates the addition of kerb blisters and line markings within the regulatory No Stopping zones in Birrell Street at each intersection to improve line of sight for exiting vehicles.

**ITEMS BY EXCEPTION**

The following items on the agenda were dealt with together and the Council Officer's Proposal for each item was unanimously supported by the Committee:

TC/C.03/21.04	Intersection of Adelaide Street and Grafton Lane, Bondi Junction - Removal of Traffic Island and Bike Refuge.
TC/C.04/21.04	65 Mackenzie Street, Bondi Junction - Removal of 'P Disability Only' Zone.
TC/C.05/21.04	Belgrave Lane, Bronte - No Parking Signage Opposite Garage of 70B Read Street.
TC/C.06/21.04	8 Grove Street, Bondi - 'P Disability Only' Zone.
TC/C.08/21.04	13 Palmerston Avenue, Bronte - 'P Disability Only' Zone.
TC/V.03/21.04	31 Hall Street, Bondi Beach - Relocation of '1/4 P' Zone from Jacques Street to Hall Street.
TC/V.04/21.04	Roscoe Street, Bondi Beach - Kerb Blisters at Wellington Street.
TC/V.06/21.04	2/165 Hastings Parade, North Bondi - 'P Disability Only' Zone.
TC/V.07/21.04	27 Beaumont Street, Rose Bay - 'P Disability Only' Zone.
TC/V.08/21.04	Wairoa Avenue, Bondi Beach - Extension of Council Authorised Vehicle Parking Zone.
TC/V.09/21.04	21 Barracluff Avenue, Bondi Beach - Construction Zone.

**PART 1 – MATTERS PROPOSING THAT COUNCIL EXERCISE ITS DELEGATED FUNCTIONS**

***NOTE: The matters listed under this part of the agenda propose that Council either does or does not exercise the traffic related functions delegated to it by TfNSW. The recommendations made by the Committee under this part of the agenda will be submitted to Council for adoption.***

**TC/C      STATE ELECTORATE OF COOGEE****TC/C.01/21.04      Bayview Street, Bronte - Parking Arrangements (SF21/1548)****COUNCIL OFFICER'S PROPOSAL:**

That Council makes the following changes to signage and parking arrangements in Bayview Street, Bronte, as set out in Attachment 3 of the report:

1. Extends the existing 'No Stopping' restriction that is between the driveway across 29 and 27 Bayview Street east for an extra 5 metres.
2. Shortens the 'No Parking' restriction around the bend of the cul-de-sac on the park side to allow 10 metres of extra space for unrestricted parking.
3. Replaces the two 'No Through Road' signs with orange fluorescent colour signs enabling better

visibility for motorists.

4. Installs a 'No Stopping (R)' sign at the light pole in front of 11 Bayview Street.
5. Signposts and line marks the space in front of the median island at the intersection of Bayview Street and Bronte Marine Drive to serve as a 'Pick Up/Drop Off' zone for two vehicles.
6. Relocates the existing 'One Way' sign at the intersection to reinforce the no through road advisory message for motorists.

**WTC RECOMMENDATION (UNANIMOUS SUPPORT):**

That the Council Officer's Proposal be adopted subject to additional wording being added to the end of clause 5, such that the recommendation now reads as follows:

That Council makes the following changes to signage and parking arrangements in Bayview Street, Bronte, as set out in Attachment 3 of the report:

1. Extends the existing 'No Stopping' restriction that is between the driveway across 29 and 27 Bayview Street east for an extra 5 metres.
2. Shortens the 'No Parking' restriction around the bend of the cul-de-sac on the park side to allow 10 metres of extra space for unrestricted parking.
3. Replaces the two 'No Through Road' signs with orange fluorescent colour signs enabling better visibility for motorists.
4. Installs a 'No Stopping (R)' sign at the light pole in front of 11 Bayview Street.
5. Signposts and line marks the space in front of the median island at the intersection of Bayview Street and Bronte Marine Drive to serve as a 'Pick Up/Drop Off' zone for two vehicles less than 6m only and 'No Stopping' restrictions be installed north and south of the Pick Up/Drop Off zone.
6. Relocates the existing 'One Way' sign at the intersection to reinforce the no through road advisory message for motorists.

*Voting members present for this item: Representative of the Member for Coogee, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).*

**TC/C.02/21.04          York Road, Queens Park - Elsholz Concrete Kerb Median on Bend (A20/0069)**

**COUNCIL OFFICER'S PROPOSAL:**

That Council installs an elsholz kerb on the median and south-western side of the bend in York Road, Queens Park, between Baronga Avenue and Darley Road in accordance with the plans attached to the report (Attachment 1).

**WTC RECOMMENDATION (UNANIMOUS SUPPORT):**

That the Council Officer's Proposal be adopted subject to additional wording being added to the end of the clause, such that the recommendation now reads as follows:

That Council installs an elsholz kerb on the median and south-western side of the bend in York Road, Queens Park, between Baronga Avenue and Darley Road in accordance with the plans attached to the report (Attachment 1) subject to Council officers liaising with TfNSW in relation to installing an updated re-directive kerb profile.

*Voting members present for this item: Representative of the Member for Coogee, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).*

**TC/C.03/21.04                      Intersection of Adelaide Street and Grafton Lane, Bondi Junction - Removal of Traffic Island and Bike Refuge (SF21/1486)**

**COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Removes a concrete traffic island on Adelaide Street at the intersection of Adelaide Street and Grafton Lane, Bondi Junction.
2. Removes a marked cyclist holding bay adjacent to the traffic island on Adelaide Street.

**WTC RECOMMENDATION (UNANIMOUS SUPPORT):**

That the Council Officer's Proposal be adopted.

*Voting members present for this item: Representative of the Member for Coogee, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).*

**TC/C.04/21.04                      65 Mackenzie Street, Bondi Junction - Removal of 'P Disability Only' Zone (A20/0534)**

**COUNCIL OFFICER'S PROPOSAL:**

That Council removes the 6 metre 'P Disability Only' zone outside 65 Mackenzie Street, Bondi Junction, and reinstates the existing '2P 8 am–3 pm, 1/2 P 3 pm–8 pm Permit Holders Excepted Area 21 and 22' parking in its place.

**WTC RECOMMENDATION (UNANIMOUS SUPPORT):**

That the Council Officer's Proposal be adopted.

*Voting members present for this item: Representative of the Member for Coogee, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).*

**TC/C.05/21.04                    Belgrave Lane, Bronte - No Parking Signage Opposite Garage of 70B Read Street (SF21/1521)****COUNCIL OFFICER'S PROPOSAL:**

That Council installs a 'No Parking' zone on the northern side of Belgrave Lane between two driveway splays opposite the garage of 70B Read Street, Bronte.

**WTC RECOMMENDATION (UNANIMOUS SUPPORT):**

That the Council Officer's Proposal be adopted.

*Voting members present for this item: Representative of the Member for Coogee, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).*

**TC/C.06/21.04                    8 Grove Street, Bondi - 'P Disability Only' Zone (A20/0534)****COUNCIL OFFICER'S PROPOSAL:**

That Council installs a 2.8 metre wide 'P Disability Only' space in a '60 degree Angle Parking Front to Kerb, Vehicles Under 6 metre Only' area outside 8 Grove Street, Bondi.

**WTC RECOMMENDATION (UNANIMOUS SUPPORT):**

That the Council Officer's Proposal be adopted.

*Voting members present for this item: Representative of the Member for Coogee, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).*

**TC/C.07/21.04                    Tamarama Surf Life Saving Club, Pacific Avenue, Tamarama - Construction Zone (A03/2514-04)****COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Installs a 25 metre 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Saturday Council Authorised Vehicles Excepted' construction zone on the southern side of Pacific Avenue, opposite 1 Pacific Avenue, Tamarama.
2. Delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of, or remove, the construction zone, as necessary.

**WTC RECOMMENDATION (UNANIMOUS SUPPORT):**

That the Council Officer's Proposal be adopted subject to the addition of a new clause, such that the recommendation now reads as follows:

That:

1. Council installs a 25 metre 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Saturday Council Authorised Vehicles Excepted' construction zone on the southern side of Pacific Avenue, opposite 1 Pacific Avenue, Tamarama.
2. All vegetation is to be protected during the construction phase.
3. Council delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of, or remove, the construction zone, as necessary.

*Voting members present for this item: Representative of the Member for Coogee, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).*

**TC/C.08/21.04            13 Palmerston Avenue, Bronte - 'P Disability Only' Zone (A20/0534)**

**COUNCIL OFFICER'S PROPOSAL:**

That Council installs a 6 metre 'P Disability Only' parking zone outside 13 Palmerston Avenue, Bronte.

**WTC RECOMMENDATION (UNANIMOUS SUPPORT):**

That the Council Officer's Proposal be adopted.

*Voting members present for this item: Representative of the Member for Coogee, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).*

**TC/V            STATE ELECTORATE OF VAUCLUSE**

**TC/V.01/21.04            Anglesea Street, Bondi - Resident Parking Scheme Area 26 - Expansion (A02/0750)**

**COUNCIL OFFICER'S PROPOSAL:**

That Council expands the '2P 8 am–6 pm Monday–Saturday, permit holders excepted, Area 26' resident parking scheme to include Anglesea Street, Bondi, from Bondi Road to Orr Street.

**WTC RECOMMENDATION (UNANIMOUS SUPPORT):**

That the Council Officer's Proposal be adopted subject to additional wording being added to the end of the clause, such that the recommendation now reads as follows:

That Council expands the '2P 8 am–6 pm Monday–Saturday, permit holders excepted, Area 26' resident parking scheme to include Anglesea Street, Bondi, from Bondi Road to Orr Street excluding the currently signposted 'No Stopping' areas.

*Voting members present for this item: Representative of the Member for Vaucluse, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).*

**TC/V.02/21.04            Notts Avenue, Bondi Beach - No Stopping and Loading Zone (SF21/1549)****COUNCIL OFFICER'S PROPOSAL:**

That Council makes the following changes to parking restrictions in Notts Avenue as set out in Attachment 1 of the report:

1. Installs 14 'No Stopping' signs on the northern side of Notts Avenue and around the cul-de-sac at the end.
2. Installs 13.5 metre loading/parking zone on the northern side of Notts Avenue adjacent to the Bondi Icebergs building.
3. Converts 15.3 metre loading/parking zone on the southern side of Notts Avenue to two 6 metre parking bays and a 3.3 metre 'Motor Bikes Only' zone.

**WTC RECOMMENDATION (UNANIMOUS SUPPORT):**

That the Council Officer's Proposal be adopted subject to an amendment to clause 2, such that the recommendation now reads as follows:

That Council makes the following changes to parking restrictions in Notts Avenue as set out in Attachment 1 of the report:

1. Installs 14 'No Stopping' signs on the northern side of Notts Avenue and around the cul-de-sac at the end.
2. Installs 13.5 metre loading/parking zone on the northern side of Notts Avenue adjacent to the Bondi Icebergs building between 8 am and 1 pm, 7 days per week and 2-hour parking from 1 pm to 10 pm, permit holders excepted.
3. Converts 15.3 metre loading/parking zone on the southern side of Notts Avenue to two 6 metre parking bays and a 3.3 metre 'Motor Bikes Only' zone.

*Voting members present for this item: Representative of the Member for Vacluse, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).*

**TC/V.03/21.04            31 Hall Street, Bondi Beach - Relocation of '1/4 P' Zone from Jacques Street to Hall Street (A20/0281)****COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Installs a 9.5 metre '1/4 P 8 am–6 pm and 3P Meter Registration 6 pm–9 pm' zone in Hall Street immediately to the north-west of the motor bike zone fronting 27 Hall Street.
2. Installs 12 metres of '2P 8 am–6 pm Meter Registration Permit Holders Excepted Area 8' parking in Jacques Avenue outside 20–24 Hall Street, Bondi Beach.
3. Removes 'No Parking' signposted restrictions currently across the driveway to the old Australia Post office in Jacques Avenue.

**WTC RECOMMENDATION (UNANIMOUS SUPPORT):**

That the Council Officer's Proposal be adopted.

*Voting members present for this item: Representative of the Member for Vacluse, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).*

**TC/V.04/21.04          Roscoe Street, Bondi Beach - Kerb Blisters at Wellington Street (SF21/1412)****COUNCIL OFFICER'S PROPOSAL:**

That Council installs a kerb blister and associated works and signage in Roscoe Street at its intersection with Wellington Street, Bondi Beach, in accordance with Drawings DAC2710, DAC2904, and DAC2117 (Rev 02) attached to the report.

**WTC RECOMMENDATION (UNANIMOUS SUPPORT):**

That the Council Officer's Proposal be adopted.

*Voting members present for this item: Representative of the Member for Vacluse, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).*

**TC/V.05/21.04          Bon Accord Avenue, Bondi Junction - Temporary Road Closure (Bon Accord Lane to Flood Lane) (SF21/1416)****COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Treats the attachments to this report as confidential in accordance with section 11(3) of the *Local Government Act 1993*, as they relate to a matter specified in section 10A(2)(e) of the *Local Government Act 1993*. The attachments contain information that would, if disclosed, prejudice the maintenance of law.
2. Liaises with NSW Police and other security or safety enforcement agencies in relation to safety precautions or provisions associated with this event.
3. Delegates authority to the Executive Manager, Infrastructure Services, to amend security provisions and traffic control arrangements as necessary prior to, and during, the event.
4. Approves the temporary closure of Bon Accord Avenue, Bondi Junction, as per the Transport Management Plan (TMP) and Traffic Control Plan (TCP) attached to this report, subject to the following being carried out:
  - (a) Closures are to take place for 2021 only during the following days and times:
    - (i) Tuesday, 7 September          8.15 am–2.00 pm.
    - (ii) Wednesday, 8 September      8.15 am–2.00 pm.



- (iii) Wednesday, 15 September 4.30 pm–9.30 pm.
- (iv) Thursday, 16 September 8.15 am–7.15 pm.
- (b) The footpath along Old South Head Road to remain accessible to all people with a minimum clear width of 2.0 metres.
- (c) A safe crossing shall be provided at all times for pedestrians and cyclists crossing Bon Accord Avenue at Old South Head Road.
- (d) The Event Organiser must:
  - (i) Engage a traffic control company approved by the Executive Manager, Infrastructure Services, to implement the TMP.
  - (ii) Facilitate access to residential properties affected by barriers for residents and visitors.
  - (iii) Provide public liability insurance for the event.
  - (iv) Obtain NSW Police approval.
  - (v) Cover all costs associated with traffic control.
- (e) Council will:
  - (i) Issue a schedule of conditions with any additional conditions that may be imposed by the NSW Police, Transport for NSW (TfNSW) and the Executive Manager, Infrastructure Services.
  - (ii) Submit the TMP to TfNSW for approval by the Transport Management Centre.

**WTC RECOMMENDATION (UNANIMOUS SUPPORT):**

That the Council Officer's Proposal be adopted.

*Voting members present for this item: Representative of the Member for Vacluse, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).*

**TC/V.06/21.04 2/165 Hastings Parade, North Bondi - 'P Disability Only' Zone (A20/0534)****COUNCIL OFFICER'S PROPOSAL:**

That Council installs a 5.4 metre long 'P Disability Only' parking zone outside 2/165 Hastings Parade, North Bondi.

**WTC RECOMMENDATION (UNANIMOUS SUPPORT):**

That the Council Officer's Proposal be adopted.

*Voting members present for this item: Representative of the Member for Vacluse, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).*

**TC/V.07/21.04            27 Beaumont Street, Rose Bay - 'P Disability Only' Zone (A20/0534)****COUNCIL OFFICER'S PROPOSAL:**

That Council installs a 5.4 metre long 'P Disability Only' parking zone outside 27 Beaumont Street, Rose Bay.

**WTC RECOMMENDATION (UNANIMOUS SUPPORT):**

That the Council Officer's Proposal be adopted.

*Voting members present for this item: Representative of the Member for Vacluse, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).*

**TC/V.08/21.04            Wairoa Avenue, Bondi Beach - Extension of Council Authorised Vehicle Parking Zone (A14/0145)****COUNCIL OFFICER'S PROPOSAL:**

That Council extends the existing 12 metre long 'No Parking Council Authorised Vehicles Excepted' zone outside 63A Wairoa Avenue, Bondi Beach, north by 8 metres resulting in a 20 metre zone.

**WTC RECOMMENDATION (UNANIMOUS SUPPORT):**

That the Council Officer's Proposal be adopted.

*Voting members present for this item: Representative of the Member for Vacluse, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).*

**TC/V.09/21.04            21 Barracluff Avenue, Bondi Beach - Construction Zone (A03/2514-04)****COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Installs a 9 metre 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Saturday Council Authorised Vehicles Excepted' construction zone in front of 21 Barracluff Avenue, Bondi Beach.
2. Delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of, or remove, the construction zone, as necessary.

**WTC RECOMMENDATION (UNANIMOUS SUPPORT):**

That the Council Officer's Proposal be adopted.

*Voting members present for this item: Representative of the Member for Vacluse, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).*

**TC/CV      ELECTORATES OF COOGEE AND VAUCLUSE**

Nil.

**PART 2 – TRAFFIC ENGINEERING ADVICE**

**NOTE:** *The matters listed under this part of the agenda seek the advice of the WTC only and do not propose that Council exercise its delegated functions at this point in time (though they may or may not require it in the future).*

**TC/TEAC      STATE ELECTORATE OF COOGEE**

Nil.

**TC/TEAV      STATE ELECTORATE OF VAUCLUSE**

**TC/TEAV.01/21.04      12 Hall Street, Bondi Beach - Development Application for Change of Use to a Woolworths Metro Supermarket (DA-392/2020)**

**COUNCIL OFFICER'S PROPOSAL:**

That the Traffic Committee advises that in relation to the proposed supermarket at 10 Hall Street, Bondi Beach:

1. The proposed extension of the loading zone in Hall Street to accommodate 10 metre trucks is not supported. This is due to conflicts with pedestrians that will occur, the proposed loading zone being too short to accommodate an 8.9 metre long truck, and the loss of on-street parking.
2. The use of electronic pallet jacks to transport goods from trucks parked in Hall Street to the site is not supported due to conflicts with pedestrians that will occur.

**WTC RECOMMENDATION (UNANIMOUS SUPPORT):**

That the Council Officer's Proposal be adopted.

*Voting members present for this item: Representative of the Member for Vaucluse, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).*

**TC/TEACV      ELECTORATES OF COOGEE AND VAUCLUSE**

Nil.

**THE MEETING CLOSED AT 10.56 AM**

.....  
**SIGNED AND CONFIRMED**  
**MAYOR**  
**25 MAY 2021**

**REPORT**  
**TC/C.01/21.05**

**Subject:** 40 km/h Speed Limit Changes - Traffic Control Devices -  
Park Parade and Dickson Street at Birrell Street, Bondi

**TRIM No:** A18/0579

**Author:** Malik Almuhanha, Senior Traffic Engineer  
Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

---

**COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Installs a centre line marking with kerb extensions at the intersection of Park Parade and Birrell Street, Bondi, as shown in Figure 9 of the report.
2. Installs a pedestrian refuge island with kerb extensions at the intersection of Dickson Street and Birrell Street, Bondi, as shown in Figure 10 of the report.
3. Installs 'Do not queue across intersection' signs at the intersections of Birrell Street with Park Parade and Dickson Street.
4. Delegates authority to the Executive Manager, Infrastructure Services, to modify the designs should on-site circumstances warrant changes.

**1. Executive Summary**

Council at its April meeting resolved that the designs for the intersections of Park Parade and Dickson Street with Birrell Street be investigated to include two exit lanes.

The results of the investigation of the possibility of including two exit lanes to Birrell Street are as follows.

**Park Parade/Birrell Street**

The addition of an extra exit lane at this location will require a 0.9 metre indentation of the kerb to create a safe travel lane needed for dual exit lanes. This is not practically possible (see Figure 2). Moreover, pedestrians will have to cross three lanes at once to get to the other side of Park Parade. This currently occurs with drivers southbound squeezing through to turn left. It is a serious safety concern, especially given that high pedestrian activity in the area as it is near Waverley College and Waverley Oval.

**Dickson Street/Birrell Street**

The addition of an extra exit lane at this location will require the complete removal of the proposed kerb extensions (see Figure 3). This means that pedestrians will not be provided a shorter crossing distance and will have to cross two lanes to get to the refuge island and another lane to complete the crossing.

Beside the critical road safety issues of providing two exit lanes, there remains the issue of fit. Given the results of the investigation, it is recommended that the designs previously presented to the March Traffic Committee and the April Council meeting are approved (see Figures 9 and 10).



Figure 1. Park Parade and Dickson Street intersections with Birrell Street.

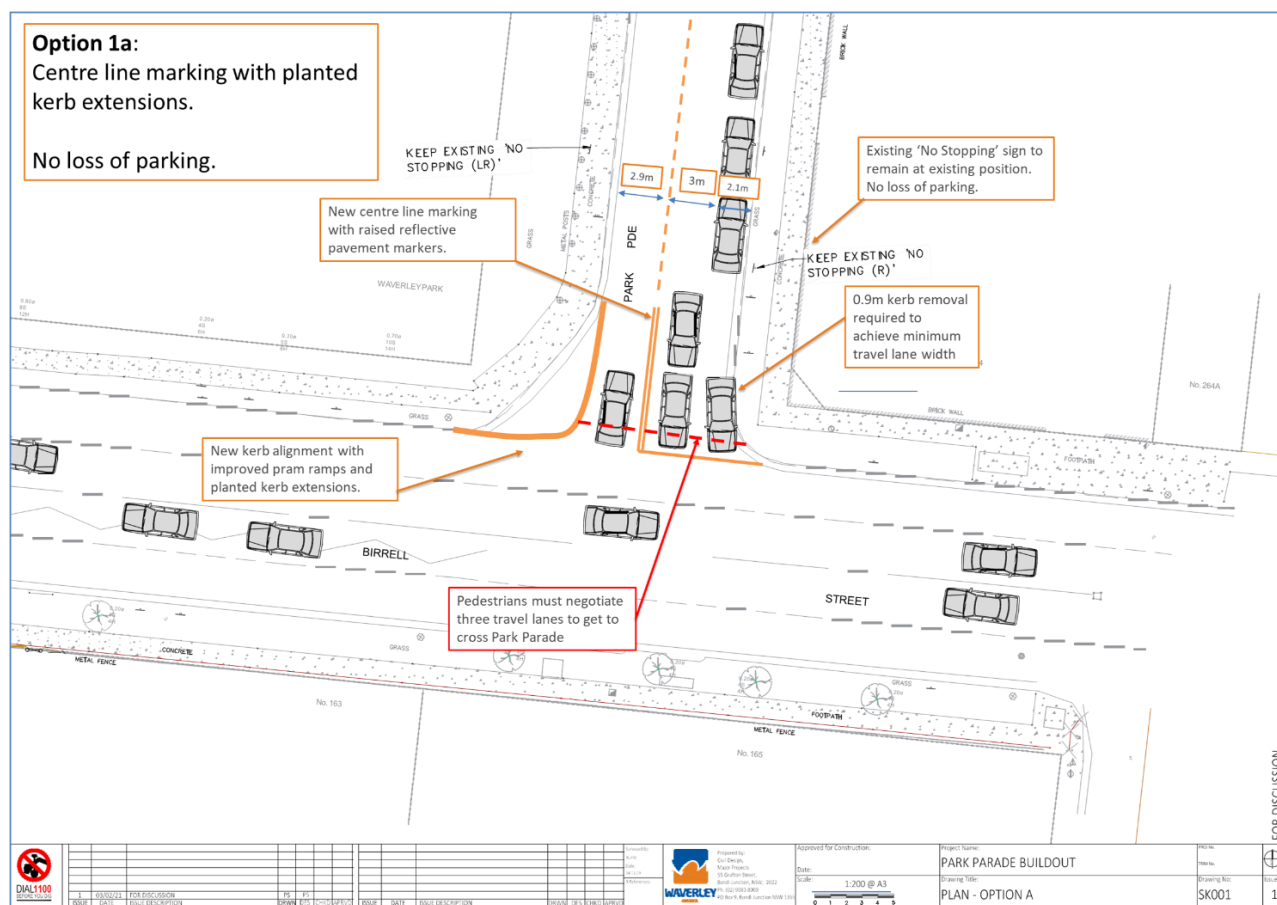


Figure 2. Two exit lanes investigation at Park Parade intersection with Birrell Street.

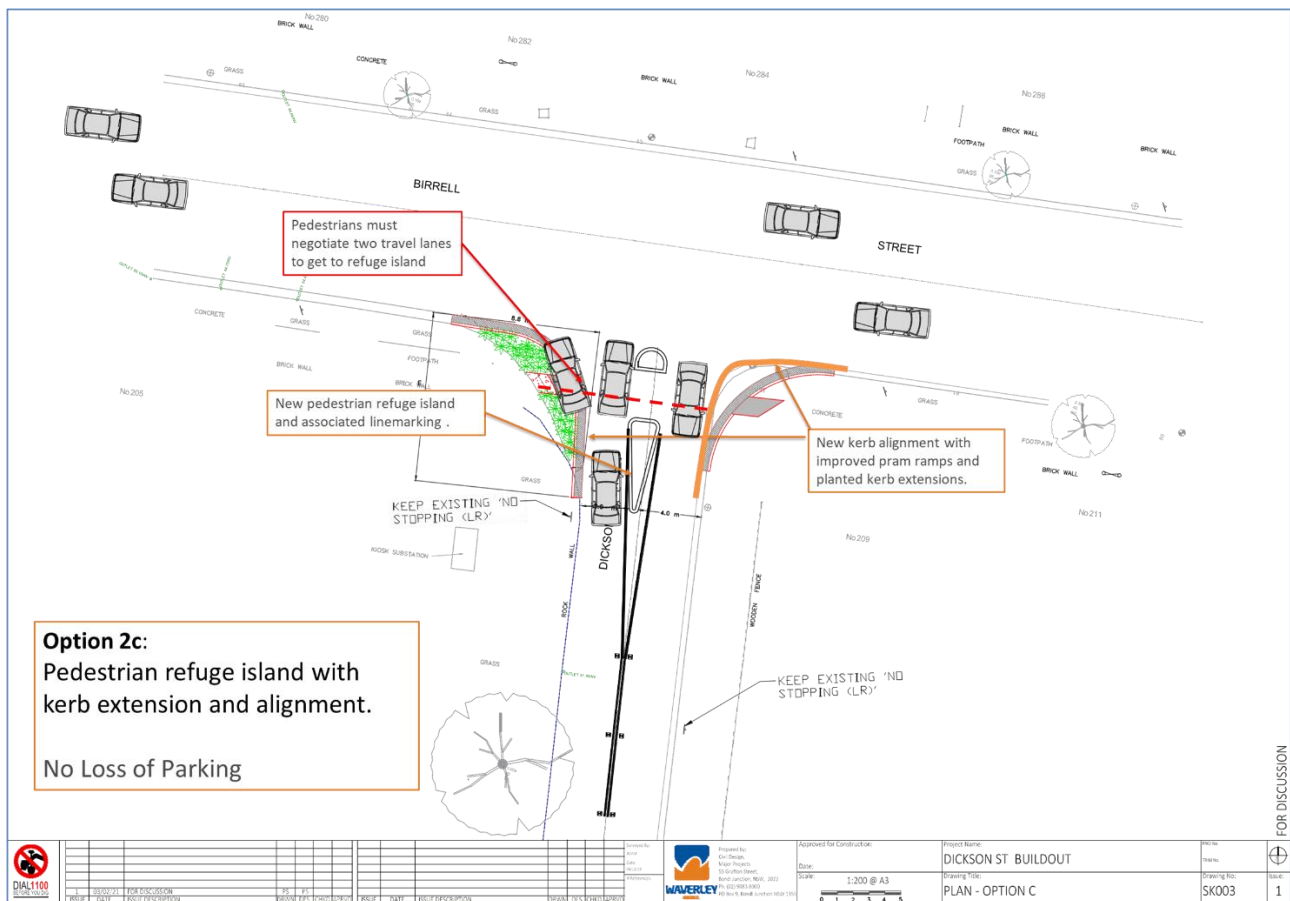


Figure 3. Two exit lanes investigation at Dickson Street intersection with Birrell Street.

## 2. Introduction/Background

Park Parade and Dickson Street currently have sufficient room for a driver turning left into Birrell Street to pass a stationary vehicle waiting to turn right into Birrell Street. This is due to the carriageways of Park Parade and Dickson Street widening on the approach to Birrell Street. The left turning drivers squeeze by in the parking lane which is narrower than a standard lane. This manoeuvre results in sight lines for a driver turning left to a pedestrians crossing the road from the right being restricted. This is a significant safety issue.

Designs presented to the March 2021 Traffic Committee meeting removed the widening in order to reduce pedestrian crossing distances/times across Park Parade and Dickson Street. This results in significant safety improvements for pedestrians at these two locations.

The potential of applying a similar design to that which is currently in place at the intersection of Wellington Street with Bondi Road has been examined and found to be unsafe as well as not possible physically.

### Consultation

The designs are in response to community consultation via letterbox drop to occupants of 1,420 dwellings in the vicinity of the works. Figure 4 shows the consultation area.



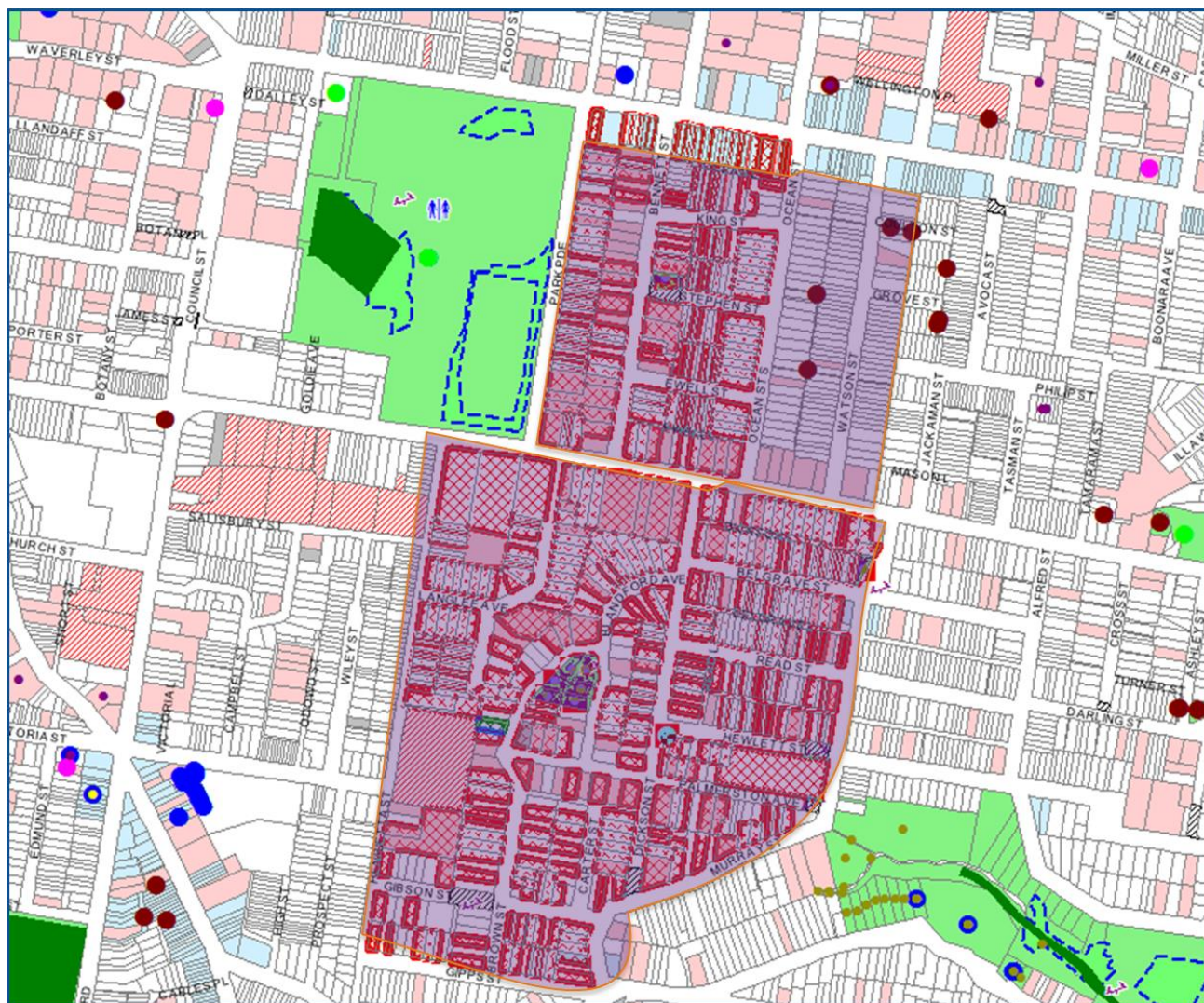


Figure 4. Park Parade and Dickson Street consultation area.

#### Intersection options

The options for intersection treatments that were delivered to residents are presented in Figures 5 and 6.



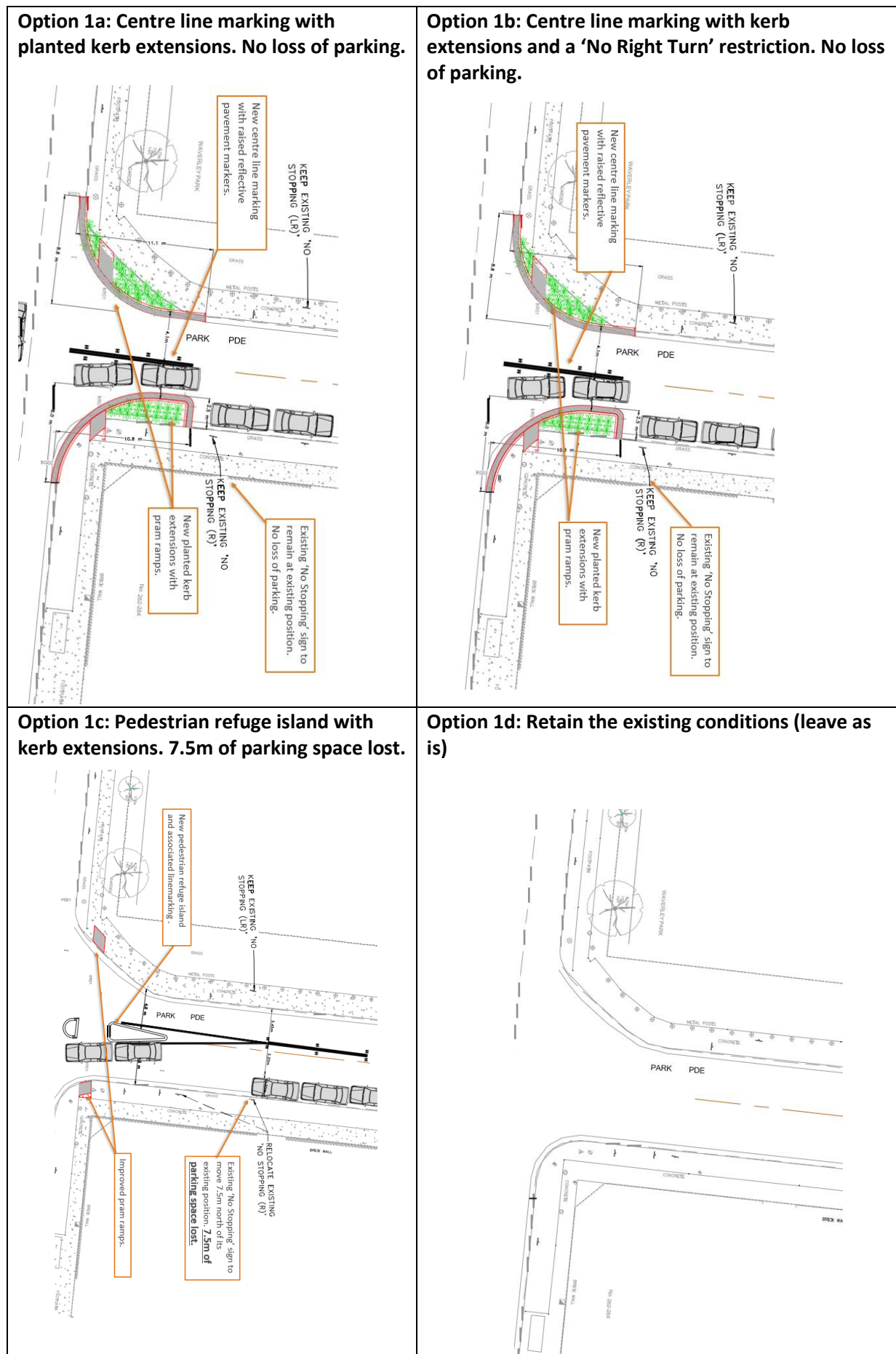


Figure 5. Park Parade/Birrell Street options presented to residents.

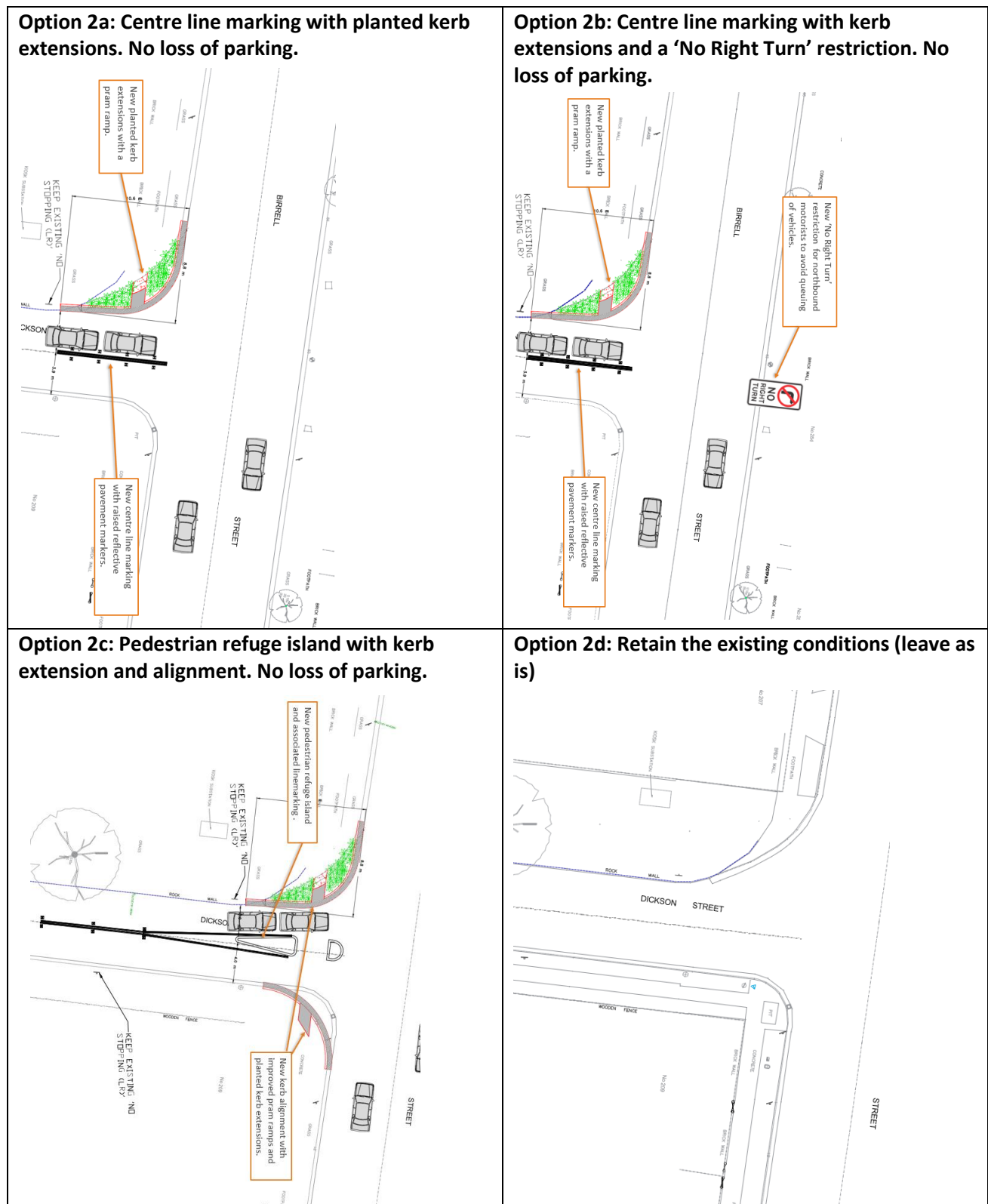


Figure 6. Dickson Street/Birrell Street options presented to residents.

### 3. Technical Analysis

#### Proposed designs

The proposed intersection treatments will provide a safer crossing experience for pedestrians whilst reducing speeds. The kerb extensions will minimise crossing distances for pedestrians in both Park Parade and Dickson Street intersections with Birrell Street.

The traffic devices will also act as entry threshold treatments that will provide traffic calming. This is especially suitable when transitioning from a local to a non-local street, which is the case here.

The proposed designs for Park Parade intersection with Birrell Street and Dickson Street intersection with Birrell Street are not expected to have an impact on existing kerbside parking. The intersection treatments will have little to no traffic noise generation, which is desirable in local areas.

#### Road safety analysis (two exit lanes)

Provision of two exit lanes has safety issues at both Park Parade/Birrell Street and Dickson Street/Birrell Street intersections. The safety issues include:

##### *Park Parade/Birrell Street*

The addition of an extra exit lane at this location will require a 0.9 metre indentation of the kerb to create a safe travel lane needed for dual exit lanes. This is not practically possible (see Figure 2). Moreover, pedestrians will have to cross three lanes at once to get to the other side of Park Parade. This currently occurs with drivers southbound squeezing through to turn left. It is a serious safety concern, especially given that high pedestrian activity in the area as it is near Waverley College and Waverley Oval.

##### *Dickson Street/Birrell Street*

The addition of an extra exit lane at this location will require the complete removal of the proposed kerb extensions (see Figure 3). This means that pedestrians will not get a shorter crossing distance and will have to cross two lanes to get to the refuge island and another lane to complete the crossing.

Council has consulted Transport for NSW (TfNSW) regarding traffic conditions at a similar intersection at Bondi Road with Wellington Street. There have been three crashes in recent years involving a vehicle turning right out Wellington Street into Bondi Road. One of these crashes involved a motor cyclist who was severely injured.

TfNSW has advised that it has received numerous representations for improvements to this intersection, not only to address the safety of the right turn out of Wellington Street but also the safety for pedestrians crossing Wellington Street. The central median island installed by Council in 2011 has provided temporary relief. However, more is required to address safety issues.

Pedestrians crossing Wellington Street must negotiate two southbound lanes (on left turn and one right turn lane) between the centre island and the southern side of Wellington Street. This can result in motorists moving in one lane not seeing a pedestrian who is crossing within the adjacent lane. In traffic engineering terms, pedestrian crossing points are not encouraged where they clash with two lanes of traffic traveling in the same direction as is the case here.

There are a number of options for improving conditions at the intersection of Wellington Street and Bondi Road. These range from turn restrictions to signalisation. TfNSW is currently investigation the intersection and will advise preferred modifications once the investigation is complete.

## Community feedback analysis

1,420 households were consulted via letterbox drop, and 151 responses were received (Figure 4 shows the consultation area).

### Park Parade intersection

Figure 7 presents a summary of the feedback on the Park Parade options.

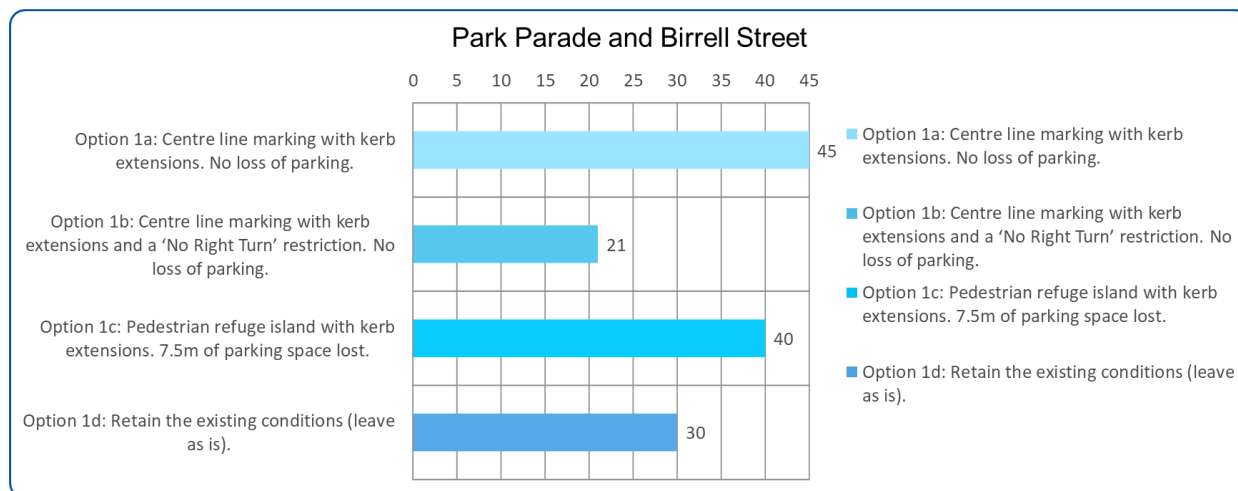


Figure 7. Community feedback on Park Parade intersection with Birrell Street treatment design.

45 votes were in favour of option 1a, with option 1c being a close second with 40 votes.

Option 1c is expected to be the most effective in providing a safer crossing for pedestrians and reducing speeds around the intersection. However, the 7.5m loss of kerbside parking was not supported. It is recommended that option 1a as shown in Figure 2 is adopted.

It is also recommended that an addition of a 'No Right Turn, 8 am–9.30 am and 2.30 pm–4 pm, Mon–Fri' restriction for southbound motorists is approved to avoid queuing of vehicles at peak hours. This is derived from community concerns raised during the consultation period.

### Dickson Street intersection

Figure 8 presents a summary of the feedback on the Dickson Street options.

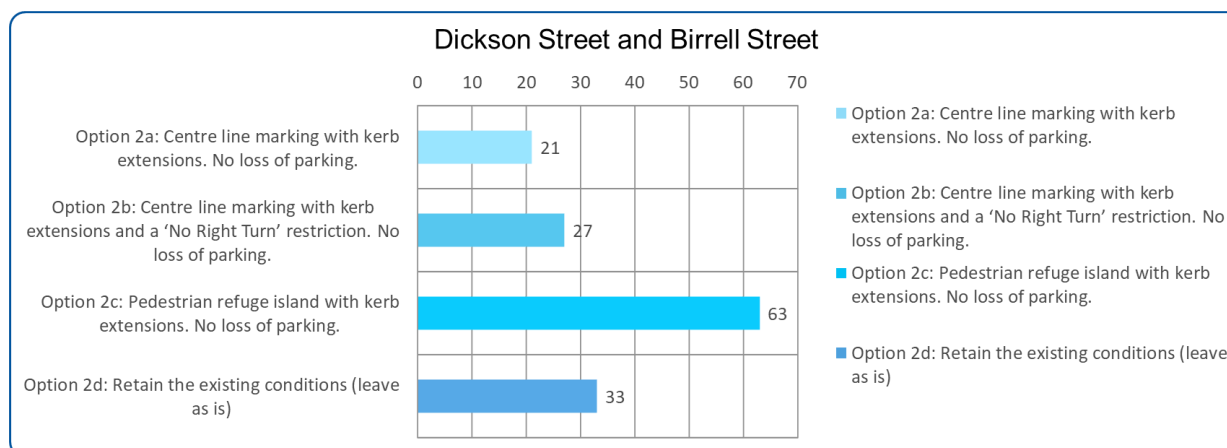


Figure 8. Community feedback on Dickson Street intersection with Birrell Street treatment design.

Option 2c received 63 votes. Option 2c is expected to be the most effective in providing a safer crossing for pedestrians and reducing speeds around the intersection. It is recommended that option 2c as shown in Figure 3 is adopted.

It is also recommended that an addition of a 'No Right Turn, 8 am–9.30 am and 2.30 pm–4 pm, Mon–Fri' restriction for northbound motorists is approved to avoid queuing of vehicles at peak hours. This is derived from community concern during the consultation period.

### Recommended designs

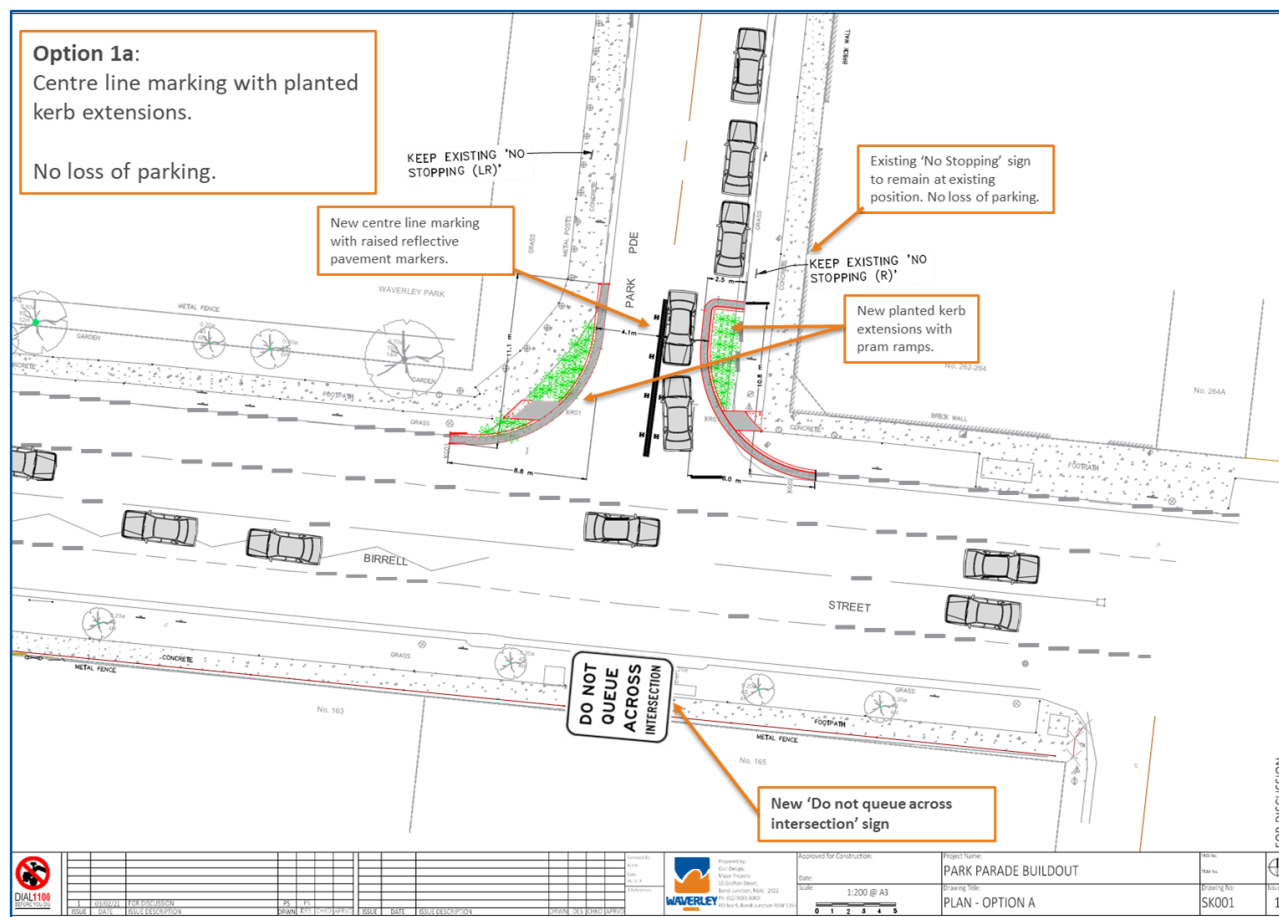


Figure 9. Park Parade intersection with Birrell Street – Recommended treatment design.

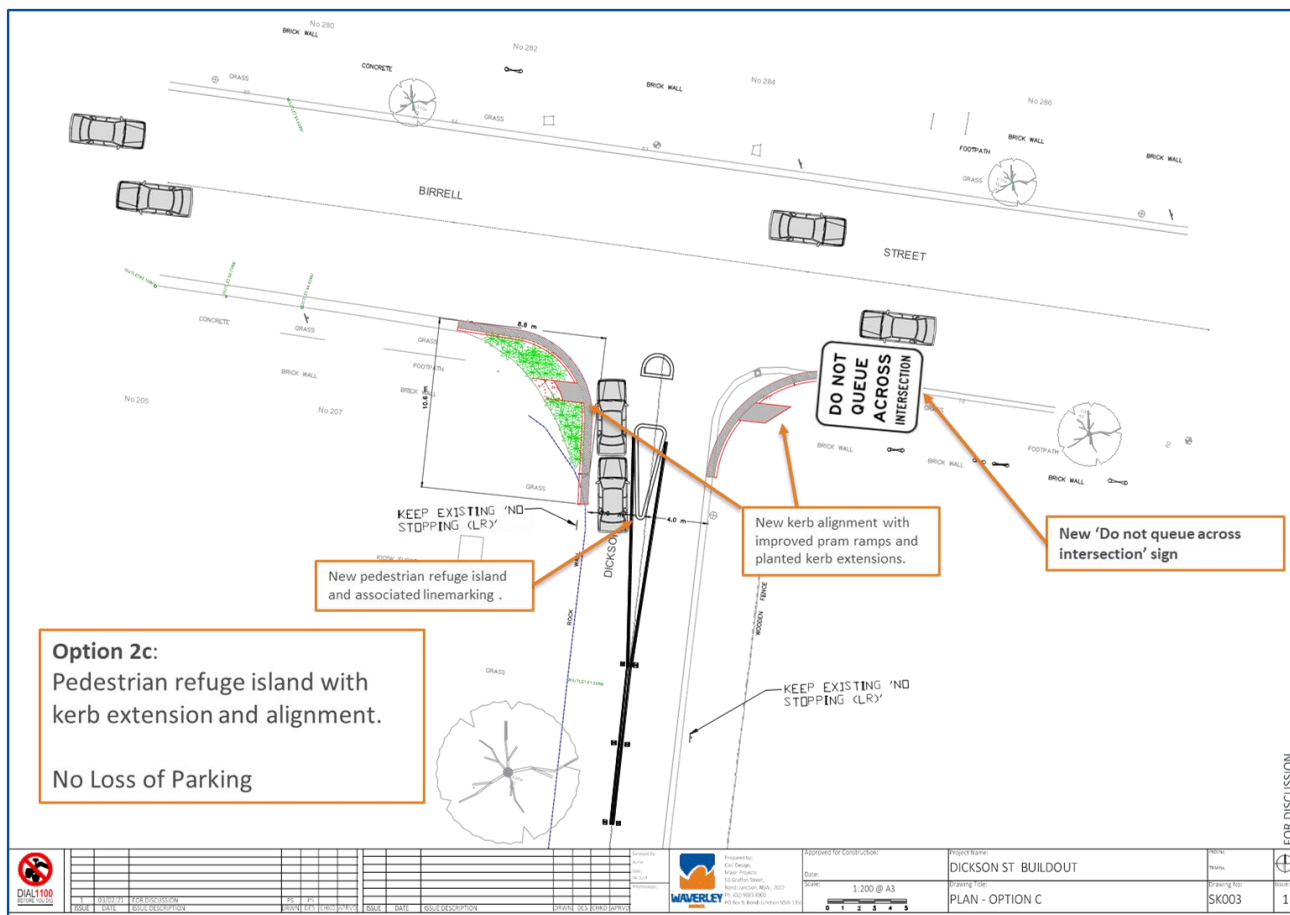


Figure 10. Dickson Street intersection with Birrell Street – Recommended treatment design.

#### 4. Financial Information for Council's Consideration

Council has received a commitment of \$1 million for construction from the TfNSW Safe Speeds in High Pedestrian Activity and Local Area program. The \$1 million is required to be spent or committed by 30 June 2021.

#### 5. Attachments

Nil.

**REPORT**  
**TC/C.02/21.05**

**Subject:** Boonara Avenue, Bondi - Right Turn Ban into Bondi Road

**TRIM No:** A21/0178

**Author:** Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

---

**COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Does not support banning the right turn from Boonara Avenue into Bondi Road, Bondi.
2. Does not support the alternative option of banning the right turn from Boonara Avenue plus the through movement from Boonara Avenue to Castlefield Street.
3. Does not support alternative options of banning the right turn out of Boonara Avenue plus Imperial Avenue.
4. Advises residents who were surveyed of the decision.

**1. Executive Summary**

Council received a petition in 2018 requesting banning of the right turn from Boonara Avenue northbound into Bondi Road southbound (see Figure 1). This was triggered by views that Boonara Avenue was being used as a through traffic route, particularly on weekends.

Council surveyed 110 potentially affected residents in Boonara Avenue, Imperial Avenue and Farrellys Avenue and Bondi Road to gain an appreciation of the view of this community. Forty-three responses were received: 15 from Boonara, 25 from Imperial and three from other streets.

The responses from residents were divided:

- All 15 responses from Boonara Avenue were in favour of the right turn ban.
- All 25 responses from Imperial Avenue were against the right turn ban.
- Of the three responses from other streets, two were in favour of and one was against the right turn ban.

If implemented the right turn ban:

- Will divert some traffic northbound on Boonara Avenue to Imperial Avenue and Farrellys Avenue.
- Will not have a significant impact on road safety as traffic diverted to Imperial Avenue will have the same constraints turning right into Bondi Road.

Consent from Transport from NSW (TfNSW) is required if Council determines to implement the right turn ban as it involves a State Road.



It is recommended that the right turn ban is not pursued.

During the investigation Council officers were requested to investigate two alternative options. They are:

1. Banning the right turn from Boonara Avenue plus the through movement from Boonara Avenue to Castlefield Street. This would leave Boonara Avenue as left out only into Bondi Road.
2. Banning the right turn out of Boonara Avenue plus Imperial Avenue.

It is recommended that the alternative options are not pursued.

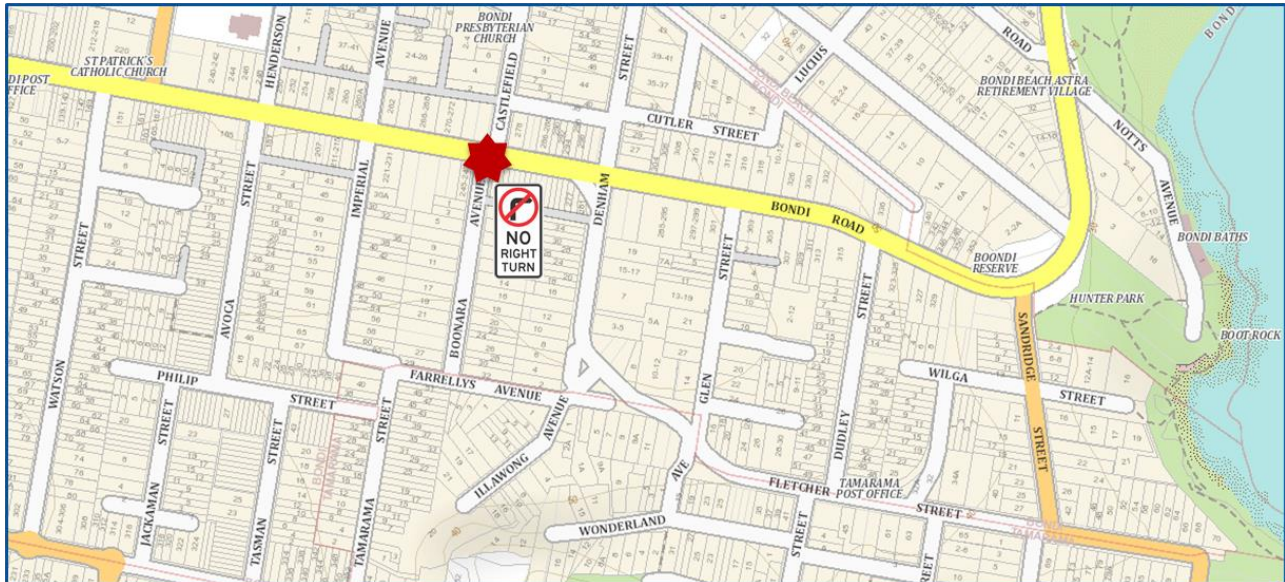


Figure 1. Location where No Right Turn ban is requested.

## 2. Introduction/Background

The petition requesting the banning of the right turn from Boonara Avenue into Bondi Road stated:

*'We, the undersigned eligible voters of the South Bondi/ Watson Precinct, petition the Waverley Council Traffic Committee to amend traffic flow to prevent the many near-misses, aggressive driving and serious congestion, particularly on weekends, as drivers attempt to turn right from Boonara Ave into Bondi Road taking a "short-cut" to the beach. A "No Right Turn sign" would help prevent all of the abovementioned while still allowing through traffic to Castlefield Street. Furthermore a "No Right Turn at Bondi Rd" at the junction of Boonara Ave and Farrellys Ave would encourage drivers to continue along Farrellys to safely use the traffic lights at Denham to turn right onto Bondi Rd.'*

The petition was signed by 40 residents from 27 dwellings. Thirty-eight of the signatories were from Boonara Avenue.

In response to the request, Council has:

- Undertaken traffic count surveys at the intersection of Boonara Road, Castlefield Street, and Bondi Road.
- Reviewed the 5-year crash history.
- Undertaken a survey of resident views in and adjacent to Boonara Avenue and Imperial Avenue.
- Considered the request and alternative options including:
  - Banning the right turn from Boonara Avenue as requested.



- Banning the right turn from Boonara Avenue plus the through movement from Boonara Avenue to Castlefield Street. This would leave Boonara Avenue as left out only into Bondi Road.
- Banning the right turn out of Boonara Avenue plus Imperial Avenue.

### 3. Technical Analysis

#### Crash history



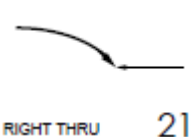
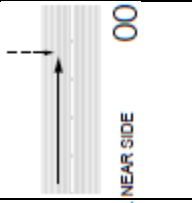

Table 1 presents the five-year crash history for serious crashes in the vicinity of the intersections of Boonara Avenue and Imperial Avenue with Bondi Road.

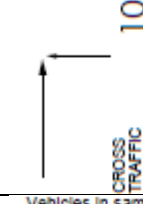
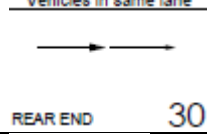

The recorded crash data do not include some 'minor' crashes. They are confined to those crashes which conform to the national guidelines for reporting and classifying road vehicle crashes. The main criteria are:

- The crash was reported to the police.
- The crash occurred on a road open to the public.
- The crash involved at least one moving road vehicle.
- The crash involved at least one person being killed or injured or at least one motor vehicle being towed away.

Around 1% of reports are not filed prior to the years data being finalised. These reports are rolled over into the following years data.

Table 1. Reported road crashes (June 2015 to June 2020).

Location	Day	Time	RUM Code	Description
Bondi / Boonara	Saturday	20:15		4WD vehicle turning right from Boonara struck a motor scooter travelling east on Bondi Road.
	Friday	6:10		Car turning right from Boonara struck a motorcycle turning right from Castlefield Street into Bondi Road.
	Wednesday	8:25		Car turning right from Bondi Road into Boonara Avenue struck a motorcycle travelling west on Bondi Road.
	Friday	8:21		Car travelling north on Boonara struck a pedestrian crossing Boonara at Bondi Road.
	Thursday	9:00		4WD vehicle turning right from Boonara north struck a pedal cyclist turning right into Bondi Road from Castlefield Street.

Location	Day	Time	RUM Code	Description
Bondi / Imperial	Friday	18:15		Car travelling north on Imperial struck a pedal cyclist travelling west on Bondi Road.
	Tuesday	16:00		Motor scooter travelling east on Bondi Road struck a car travelling east.
Bondi, 20 metres west of Boonara	Sunday	10:20		Motorcycle travelling south went out of control on the carriageway.

Three crashes recorded involved a vehicle turning right out of Boonara Avenue into Bondi Road striking a cyclist, motor scooter, and a motorbike. Crashes between two cars are not contained in the database. This is because they were not reported to NSW Police as is the case for most incidents where people are not injured.

What the crash data does indicate is that cyclists, motor scooter riders, and motor bike riders are vulnerable when travelling along Bondi Road. This is a matter for TfNSW to address as Bondi Road is a State Road.

### Traffic counts

Council undertook surveys of traffic movements at the intersection of Boonara Avenue with Bondi Road on Wednesday, 13 February 2019, and Saturday, 16 February 2019. The surveys recorded hourly traffic movements from 7.00 am to 7.00 pm. The survey results are attached.

The surveys recorded:

- 21 to 35 vehicles turning right from Boonara Avenue into Bondi Road in the peak hours, say one vehicle every two minutes.
- 271 vehicles turning right over 12 hours on the Wednesday, 40% of the northbound traffic on Boonara Avenue.
- 345 vehicles turning right over 12 hours on the Saturday, 44% of the northbound traffic on Boonara Avenue.

The traffic counts indicate significant right turns occurring out of Boonara Avenue. Restricting movements on Boonara Avenue would have adverse flow on effects to other streets including Imperial Avenue.

### Resident survey

Council surveyed 110 potentially affected residents in Boonara, Imperial, and Farrellys Avenues and Bondi Road to gain an appreciation of the view of this community. Forty-three responses were received: 15 from Boonara, 25 from Imperial and three from other streets. The results of the survey are presented in Table 2.

Table 2. Survey results.

	Surveys delivered	Responses		In Favour	Against
		(number)	(percentage)		
Boonara Avenue	34	15	44%	15	0
Imperial Avenue	39	25	64%	0	25
Bondi Road	32	2	6%	1	1
Philip and Tamarama Streets	5	1	20%	1	0
<b>Total</b>	<b>110</b>	<b>43</b>	<b>39%</b>	<b>17</b>	<b>26</b>

The responses from residents were divided:

- All 15 responses from Boonara Avenue were in favour of the right turn ban.
- All 25 responses from Imperial Avenue were against the right turn ban.
- Of the three responses from other streets, two were in favour and one was against the right turn ban.

In short, Boonara Avenue residents are in favour of the right turn ban and Imperial Avenue residents are against it.

### Alternative options

Two alternative options have been considered:

1. Banning the right turn from Boonara Avenue plus the through movement from Boonara Avenue to Castlefield Street. This would leave Boonara Avenue as left out only into Bondi Road.
2. Banning the right turn out of Boonara Avenue plus Imperial Avenue.

The through movement from Boonara Avenue to Castlefield Street is not high. It comprises 8–10% of the traffic northbound on Boonara Avenue. The crash history shows no serious crashes. The potential for a collision is the same as for the right turn out of Boonara Avenue. However, if the right turn from Boonara Avenue were to be banned this movement should also be banned as the right turn ban at Boonara Avenue may result in an increase in the movement from Boonara Avenue into Castlefield Street.

Banning the right turn out of both Boonara Avenue and Imperial Avenue would result in significant diversion for local traffic. Impacts on other local streets would be significant.

Both alternatives are not supported.

### 4. Financial Information for Council's Consideration

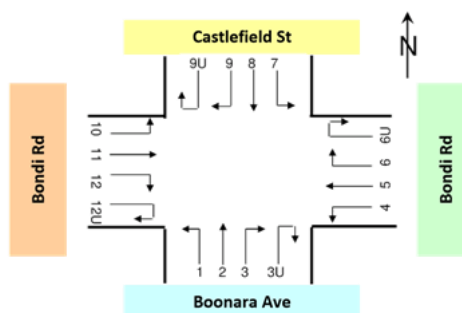
There are no costs associated with the recommendation. Council will meet the cost of sign installation from existing budgets should the recommendation not be adopted and signage approved instead.

### 5. Attachments

1. Bondi Road and Boonara Avenue and Castlefield Street - Wednesday Count [↓](#)
2. Bondi Road and Boonara Avenue and Castlefield Street - Saturday Count [↓](#)
3. Bondi Road and Boonara Avenue and Castlefield Street - Wednesday 12 hour movements [↓](#)
4. Bondi Road and Boonara Ave and Castlefield Street - Saturday 12 hour movements [↓](#)

Job No. : N4786  
 Client : Waverley Council  
 Suburb : Bondi Rd IC  
 Location : 1. Bondi Rd / Boonara Ave / Castlefield St

Day/Date : Wed, 13th Feb 2019  
 Weather : Fine  
 Description : Classified Intersection Count  
 : Peak Hour Summary



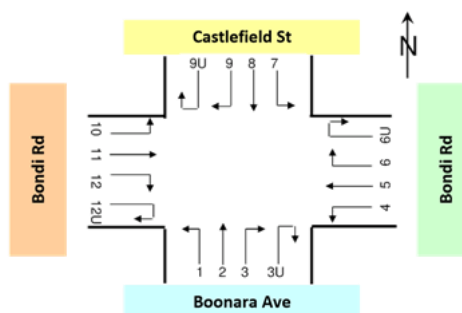
AM  
PM

Approach	Boonara Ave			Bondi Rd			Castlefield St			Bondi Rd			Grand Total
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
7:30 to 8:30	50	1	51	1,069	47	1,116	29	3	32	334	44	378	1,577
17:45 to 18:45	81	1	82	679	24	703	24	0	24	738	28	766	1,575

Approach	Boonara Ave			Bondi Rd			Castlefield St			Bondi Rd			Grand Total
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
7:00 to 8:00	41	4	45	975	55	1,030	32	2	34	305	48	353	1,462
7:15 to 8:15	44	2	46	1,043	54	1,097	24	2	26	315	42	357	1,526
7:30 to 8:30	50	1	51	1,069	47	1,116	29	3	32	334	44	378	1,577
7:45 to 8:45	55	1	56	1,031	42	1,073	30	3	33	367	39	406	1,568
8:00 to 9:00	60	1	61	919	41	960	28	2	30	417	36	453	1,504
8:15 to 9:15	53	1	54	825	43	868	30	1	31	425	35	460	1,413
8:30 to 9:30	49	1	50	781	45	826	25	1	26	420	31	451	1,353
8:45 to 9:45	51	0	51	694	46	740	20	1	21	414	26	440	1,252
9:00 to 10:00	43	0	43	644	46	690	19	2	21	376	29	405	1,159
9:15 to 10:15	42	0	42	604	42	646	13	2	15	357	32	389	1,092
9:30 to 10:30	45	1	46	549	44	593	13	1	14	400	35	435	1,088
9:45 to 10:45	38	4	42	546	40	586	11	2	13	427	44	471	1,112
10:00 to 11:00	33	5	38	558	41	599	15	1	16	466	42	508	1,161
10:15 to 11:15	42	5	47	576	46	622	15	1	16	477	46	523	1,208
10:30 to 11:30	38	6	44	581	46	627	18	2	20	472	44	516	1,207
10:45 to 11:45	40	4	44	596	53	649	21	2	23	478	40	518	1,234
11:00 to 12:00	50	4	54	602	48	650	15	2	17	501	44	545	1,266
11:15 to 12:15	44	5	49	600	45	645	15	2	17	514	37	551	1,262
11:30 to 12:30	51	3	54	598	45	643	14	2	16	516	40	556	1,269
11:45 to 12:45	53	4	57	593	40	633	17	1	18	480	37	517	1,225
12:00 to 13:00	51	3	54	586	44	630	24	1	25	469	30	499	1,208
12:15 to 13:15	52	2	54	587	45	632	28	1	29	483	33	516	1,231
12:30 to 13:30	45	2	47	608	48	656	28	0	28	465	27	492	1,223
12:45 to 13:45	44	0	44	598	55	653	23	0	23	497	35	532	1,252
13:00 to 14:00	48	0	48	604	59	663	18	0	18	496	40	536	1,265
13:15 to 14:15	51	0	51	595	56	651	15	0	15	490	38	528	1,245
13:30 to 14:30	60	0	60	595	46	641	15	0	15	491	44	535	1,251
13:45 to 14:45	61	0	61	619	40	659	15	0	15	493	38	531	1,266
14:00 to 15:00	55	1	56	639	28	667	19	0	19	472	33	505	1,247
14:15 to 15:15	46	1	47	678	26	704	17	1	18	482	30	512	1,281
14:30 to 15:30	44	1	45	720	26	746	16	1	17	486	24	510	1,318
14:45 to 15:45	48	1	49	728	28	756	18	1	19	494	25	519	1,343
15:00 to 16:00	53	0	53	700	41	741	12	1	13	511	25	536	1,343
15:15 to 16:15	57	0	57	663	46	709	17	0	17	532	28	560	1,343
15:30 to 16:30	63	0	63	641	46	687	17	0	17	554	31	585	1,352
15:45 to 16:45	64	2	66	611	43	654	16	1	17	557	28	585	1,322
16:00 to 17:00	72	2	74	631	34	665	18	1	19	585	31	616	1,374
16:15 to 17:15	80	2	82	649	30	679	17	1	18	571	31	602	1,381
16:30 to 17:30	75	2	77	649	30	679	15	1	16	587	26	613	1,385
16:45 to 17:45	69	0	69	648	34	682	15	0	15	621	28	649	1,415
17:00 to 18:00	64	0	64	642	32	674	20	0	20	658	28	686	1,444
17:15 to 18:15	60	0	60	663	33	696	21	0	21	708	23	731	1,508
17:30 to 18:30	67	0	67	667	33	700	23	0	23	738	29	767	1,557
17:45 to 18:45	81	1	82	679	24	703	24	0	24	738	28	766	1,575
18:00 to 19:00	85	2	87	664	21	685	25	0	25	737	27	764	1,561
12hr Totals	655	22	677	8,164	490	8,654	245	12	257	5,993	413	6,406	15,994

Job No. : N4786  
 Client : Waverley Council  
 Suburb : Bondi Rd IC  
 Location : 1. Bondi Rd / Boonara Ave / Castlefield St

Day/Date : Sat, 16th Feb 2019  
 Weather : Fine  
 Description : Classified Intersection Count  
 : Peak Hour Summary



AM

PM

Approach	Boonara Ave			Bondi Rd			Castlefield St			Bondi Rd			Grand Total
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
11:00 to 12:00	78	0	78	777	37	814	32	0	32	661	29	690	1,614
17:30 to 18:30	66	0	66	784	25	809	26	0	26	656	26	682	1,583

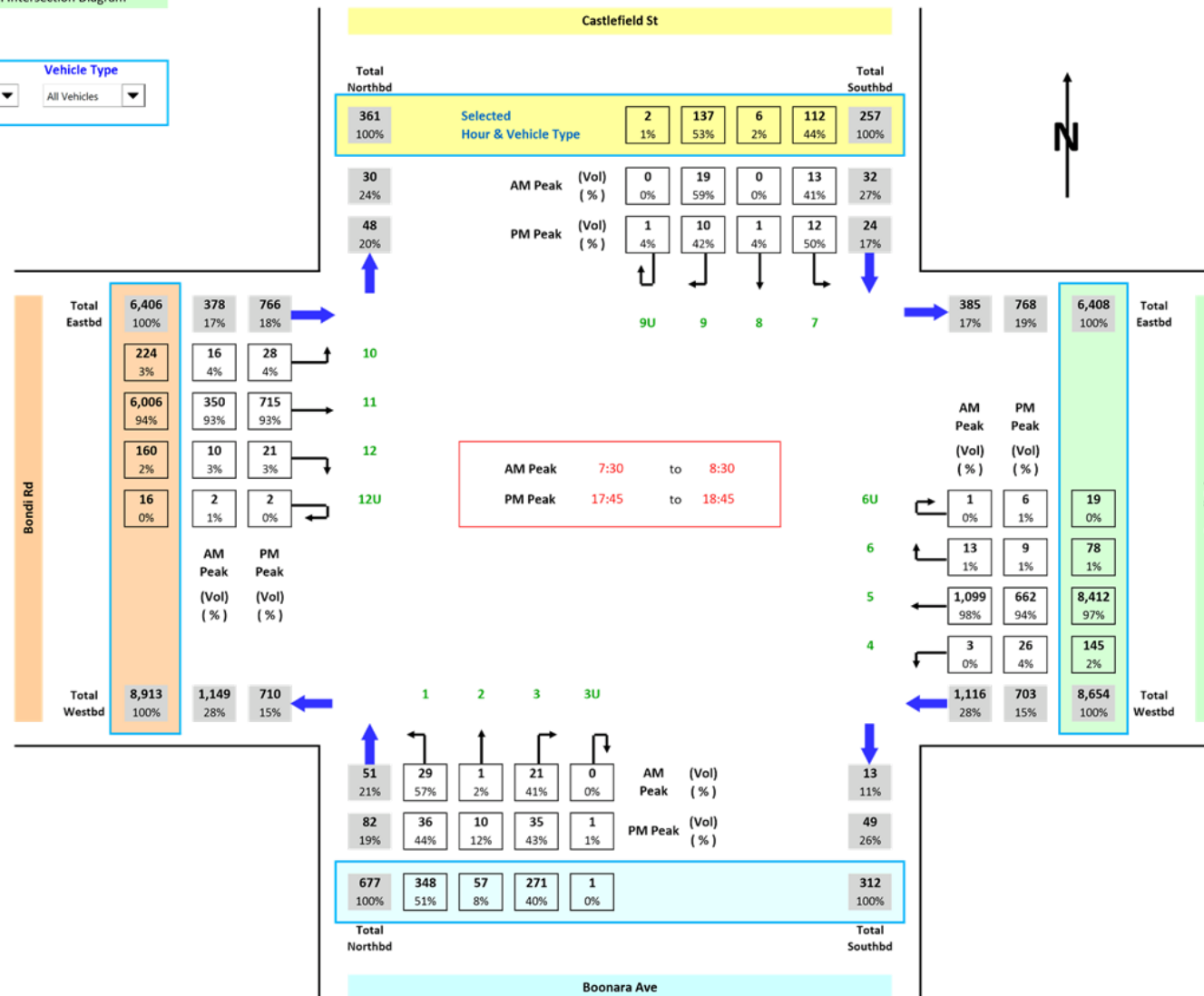
Approach	Boonara Ave			Bondi Rd			Castlefield St			Bondi Rd			Grand Total
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
7:00 to 8:00	24	5	29	451	50	501	13	0	13	358	18	376	919
7:15 to 8:15	33	5	38	518	27	545	14	0	14	398	23	421	1,018
7:30 to 8:30	36	4	40	558	30	588	21	0	21	431	26	457	1,106
7:45 to 8:45	43	3	46	581	28	609	26	0	26	435	23	458	1,139
8:00 to 9:00	47	2	49	591	28	619	31	0	31	447	21	468	1,167
8:15 to 9:15	49	2	51	603	23	626	33	1	34	449	22	471	1,182
8:30 to 9:30	48	1	49	662	25	687	31	1	32	449	24	473	1,241
8:45 to 9:45	42	2	44	719	26	745	27	1	28	475	26	501	1,318
9:00 to 10:00	51	2	53	756	25	781	22	1	23	515	30	545	1,402
9:15 to 10:15	51	1	52	790	28	818	29	0	29	550	31	581	1,480
9:30 to 10:30	62	1	63	789	26	815	28	0	28	589	29	618	1,524
9:45 to 10:45	66	1	67	777	23	800	33	0	33	614	30	644	1,544
10:00 to 11:00	71	1	72	755	24	779	32	0	32	613	26	639	1,522
10:15 to 11:15	76	1	77	740	26	766	22	0	22	626	27	653	1,518
10:30 to 11:30	75	1	76	725	27	752	27	0	27	647	28	675	1,530
10:45 to 11:45	80	0	80	738	34	772	29	0	29	643	29	672	1,553
11:00 to 12:00	78	0	78	777	37	814	32	0	32	661	29	690	1,614
11:15 to 12:15	75	0	75	781	36	817	43	0	43	648	31	679	1,614
11:30 to 12:30	81	0	81	769	35	804	41	0	41	640	31	671	1,597
11:45 to 12:45	87	0	87	761	29	790	32	0	32	675	29	704	1,613
12:00 to 13:00	77	0	77	727	30	757	29	1	30	668	35	703	1,567
12:15 to 13:15	95	1	96	716	33	749	21	1	22	669	30	699	1,566
12:30 to 13:30	85	1	86	734	34	768	21	1	22	672	34	706	1,582
12:45 to 13:45	84	1	85	730	39	769	22	1	23	660	36	696	1,573
13:00 to 14:00	94	2	96	749	40	789	18	0	18	645	32	677	1,580
13:15 to 14:15	81	1	82	754	36	790	17	0	17	655	34	689	1,578
13:30 to 14:30	80	1	81	746	34	780	19	0	19	652	29	681	1,561
13:45 to 14:45	73	1	74	748	33	781	27	0	27	640	27	667	1,549
14:00 to 15:00	71	1	72	750	31	781	30	0	30	652	28	680	1,563
14:15 to 15:15	66	1	67	764	28	792	28	0	28	645	29	674	1,561
14:30 to 15:30	66	2	68	761	30	791	24	0	24	663	24	687	1,570
14:45 to 15:45	72	3	75	758	25	783	19	1	20	668	24	692	1,570
15:00 to 16:00	71	2	73	777	22	799	19	1	20	663	21	684	1,576
15:15 to 16:15	71	2	73	777	25	802	25	1	26	653	18	671	1,572
15:30 to 16:30	60	1	61	765	25	790	25	1	26	619	21	640	1,517
15:45 to 16:45	56	0	56	789	25	814	25	0	25	593	19	612	1,507
16:00 to 17:00	52	0	52	765	27	792	28	0	28	599	21	620	1,492
16:15 to 17:15	51	0	51	750	25	775	22	0	22	615	21	636	1,484
16:30 to 17:30	64	1	65	765	25	790	21	0	21	629	22	651	1,527
16:45 to 17:45	62	1	63	745	25	770	22	0	22	644	25	669	1,524
17:00 to 18:00	68	1	69	758	27	785	18	0	18	651	24	675	1,547
17:15 to 18:15	64	1	65	779	27	806	22	0	22	661	27	688	1,581
17:30 to 18:30	66	0	66	784	25	809	26	0	26	656	26	682	1,583
17:45 to 18:45	65	0	65	760	24	784	23	0	23	673	25	698	1,570
18:00 to 19:00	62	0	62	755	20	775	23	0	23	663	24	687	1,547
12hr Totals	766	16	782	8,611	361	8,972	295	3	298	7,135	309	7,444	17,496

Job No. : N4786  
 Client : Waverley Council  
 Suburb : Bondi Rd IC  
 Location : 1. Bondi Rd / Boonara Ave / Castlefield St

Day/Date : Wed, 13th Feb 2019  
 Weather : Fine  
 Description : Classified Intersection Count  
 : Intersection Diagram



Hour Starting: 12hr Totals  
 Vehicle Type: All Vehicles

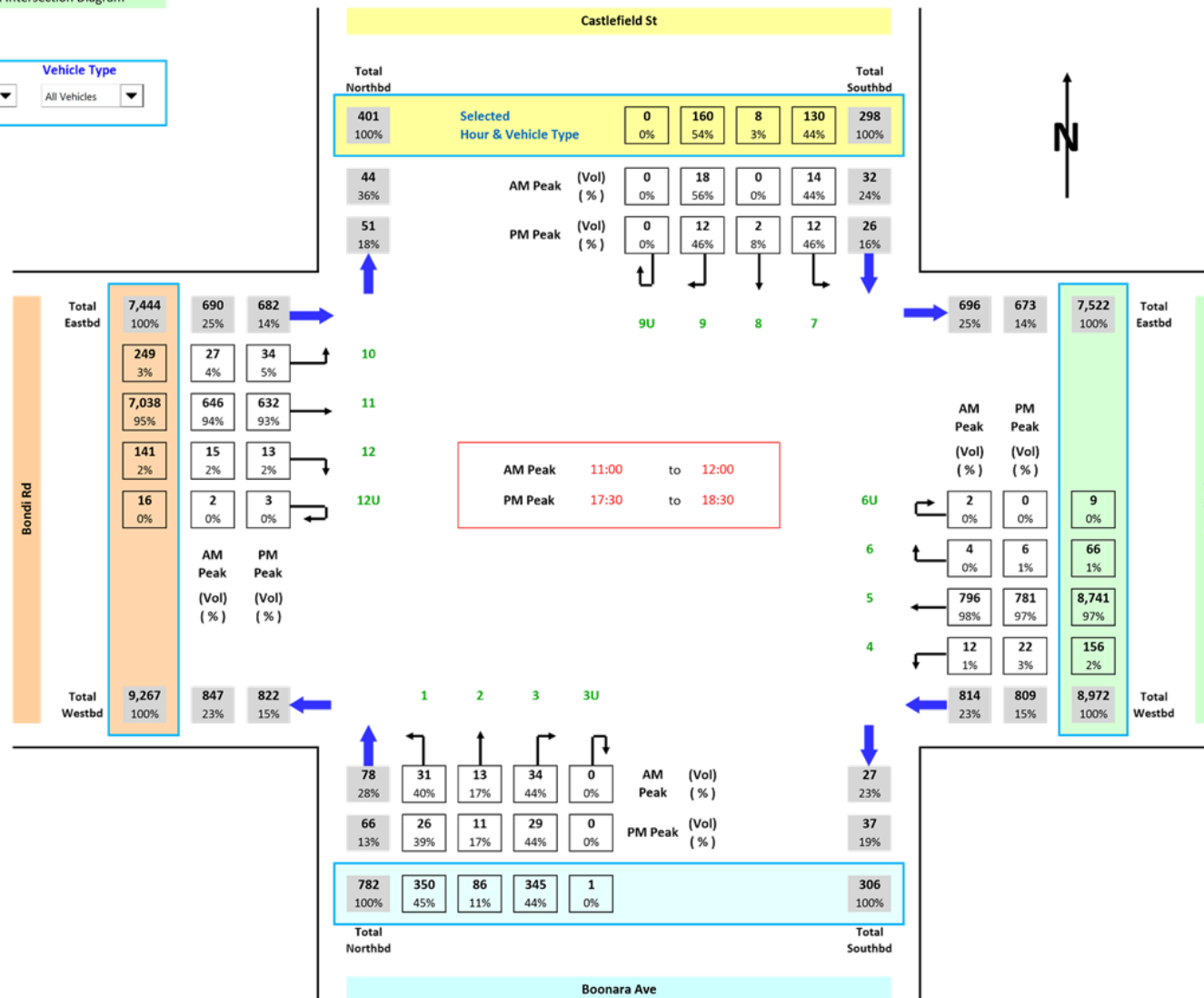


Job No. : N4786  
 Client : Waverley Council  
 Suburb : Bondi Rd IC  
 Location : 1. Bondi Rd / Boonara Ave / Castlefield St

Day/Date : Sat, 16th Feb 2019  
 Weather : Fine  
 Description : Classified Intersection Count  
 : Intersection Diagram



Hour Starting Vehicle Type  
 12hr Totals All Vehicles



**REPORT**  
**TC/C.03/21.05**

**Subject:** York Road and Darley Road Intersection, Queens Park - Slip Lane Closure

**TRIM No:** A21/0105

**Author:** Malik Almuhanha, Senior Traffic Engineer  
Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

---

**COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Supports the removal of the left turn slip lane from Darley Road eastbound into York Road northbound, Queens Park, subject to Transport for NSW (TfNSW) approval.
2. Refers the concept plan attached to the report (Attachment 1) to TfNSW for assessment.
3. Advises Randwick Council of the proposal.

**1. Executive Summary**

The Centennial Park Musgrave Gates at the corner of York Road and Darley Road are a key entry point to Centennial Park (See Figure 1). There are significant numbers of pedestrians and bicycle riders who access Centennial Park for both recreational and commuting purposes.

The current design of the intersection and slip lane results in conflicts between vehicles and pedestrians and cyclists. The traffic island beside the slip lane cannot accommodate the increasing levels of pedestrians and cyclists.

The proposal will enhance safety for pedestrians and cyclists. Some additional queuing will occur for vehicles turning left from Darley Road eastbound into York Road northbound. Other traffic movements are not affected.

The proposed concept plan will also support the planned Queens park cycleway running east-west in Queens Park adjacent to Darley Road. Centennial Park management have been involved in the discussions and are supportive of the proposal.





Figure 1. Intersection of York Road and Darley Road.

## 2. Introduction/Background

The York Road/Darley Road intersection upgrade was initiated as part of the Waverley Streetscapes project. The removal of the left turn slip lane from Darley Road to York Road was proposed to enhance pedestrian and cycle connectivity through the intersection.

It has been observed that the triangle at the corner of York Road and Darley Road is not sufficient to accommodate the growing number of pedestrians and cyclists accessing Centennial Park through the Musgrave Gates (see Figure 2).



Figure 2. Intersection of York Road and Darley Road.

The numbers of walkers and cyclists accessing Centennial Park through the Musgrave Gates has increased significantly and now sees the peak periods of use on weekends. This is due to the significant number of sporting fixtures in the Parklands and the high number of recreational visitors. Throughout the week, morning and evenings have a peak of recreational/ fitness walkers and cyclists in addition to the growing number of commuting bicycle riders during the week.

### 3. Technical Analysis

#### Intersection performance analysis

Two options were considered in modelling the resultant effect as follows (see Figure 3):

- Option A – A combined through and left turn lane on Darley Road (see Table 1).
- Option B – An exclusive left turn lane on Darley Road (see Table 2).

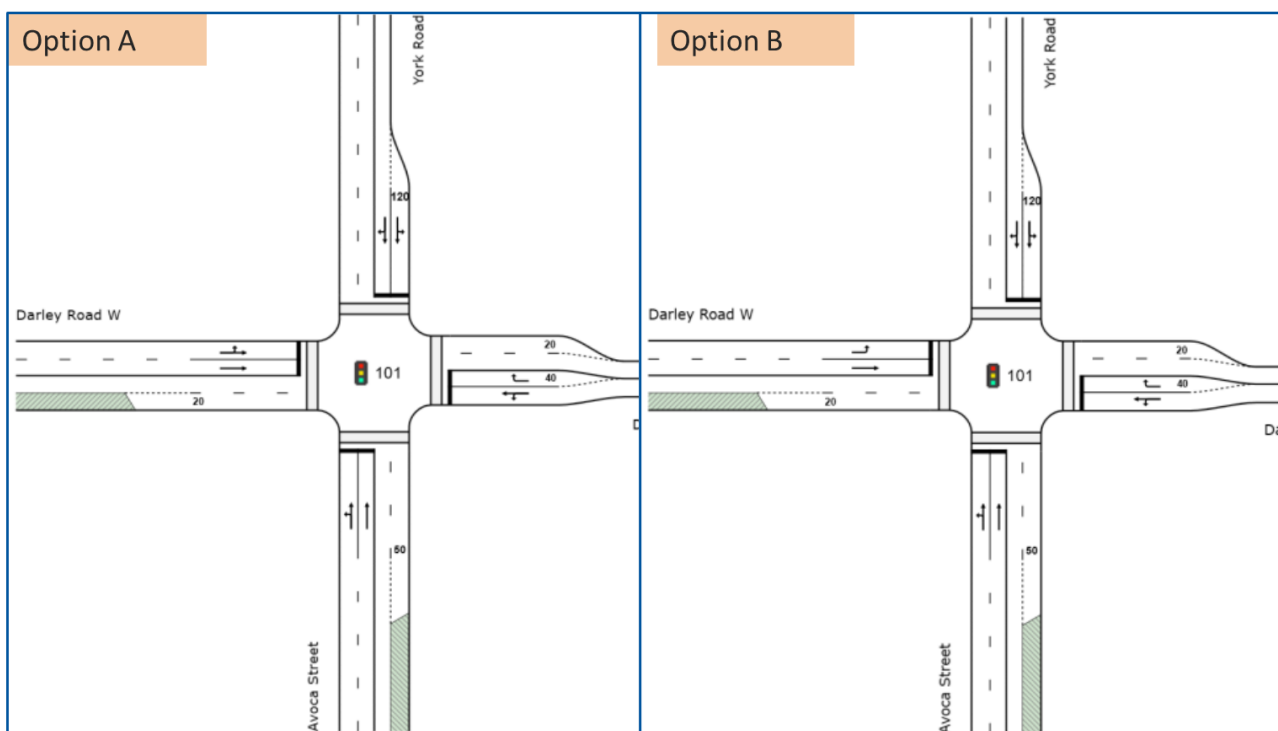


Figure 3. Options A and B used in SIDRA analysis.

The options have been analysed using SIDRA intersection analysis software. The SIDRA modelling reports average vehicle delays, queue lengths and Level of Service. Level of Service criteria are shown in Table 1.

*Table 1. Level of Service criteria.*

Level of service (LOS)	Average delay per vehicle (secs/veh)	Traffic signals, roundabout	Give way & stop sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity, at signals incidents will cause excessive delays	At capacity, requires other control mode
F	Greater than 70	Extra capacity required	Extreme delay, major treatment required

The SIDRA modelling indicated that Option A and B would operate similarly in terms of intersection performance.

Compared to the existing intersection, the removal of the slip lane only impacts the performance of the Darley Road west leg, particularly for traffic turning left to York Road, with all other approaches continuing to operate as per existing.

Table 2 presents the impact on the western leg of Darley Road.

*Table 2. Existing and future operating conditions on Darley Road west – Option B combined through (exclusive left turn lane).*

Option	Peak	Darley Road West Movement	Degree of saturation (DOS)	Average delay (sec)	95th percentile queue (m)	Level of service (LOS)
Existing	AM	Left	0.510	18.6	96.7	B
		Through	1.177	223.8	352.4	F
		Overall	1.177	115.2	352.4	F
	PM	Left	0.458	10.1	72.1	A
		Through	1.201	244.0	450.4	F
		Overall	1.201	121.2	450.4	F
Proposed	AM	Left	0.573	33.7	132.6	C
		Through	1.177	223.8	352.4	F
		Overall	1.177	123.2	352.4	F
	PM	Left	0.514	23.8	131.8	B
		Through	1.201	244.0	450.4	F
		Overall	1.201	128.4	450.4	F

The results in Table 2 show:

- Average delays for the left turn into York Road in the morning and evening peak increase by 15.1 and 13.7 seconds respectively.



- Average queues for the left turn into York Road in the morning and evening peak increase by 35.9 and 59.7 metres respectively.
- The Level of Service for the left turn into York Road in the morning and evening peak changes from B to C and A to B respectively.

The Level of Service C indicates that the changes can be accommodated satisfactorily.

## Safety

The current intersection configuration creates a number of safety issues:

- The size of the triangular pedestrian island is not adequate for the numbers of pedestrians and this is compounded by the need for bicycle riders using this facility (see Figure 2).
- The zebra crossing is located in the slip lane and is frequently obstructed by a queued vehicle waiting to leave the slip lane to York Road.
- Multiple changes in level between the zebra crossing and the access point to Centennial Park.

The inadequacy of this configuration is compounded by the construction of the Queens Park Cycleway and footpath that will run parallel to Darley Road. The design of this intersection and slip lane is no longer appropriate for the high levels of walking and cycling.

## Proposed design

The proposed design features an exclusive left turn lane (see Figure 4). Although the performance of the intersection will decrease slightly, particularly affecting traffic turning left to York Road, it will still be performing at an acceptable level. It will also resolve safety matters and provide a better crossing experience for pedestrians and cyclists.

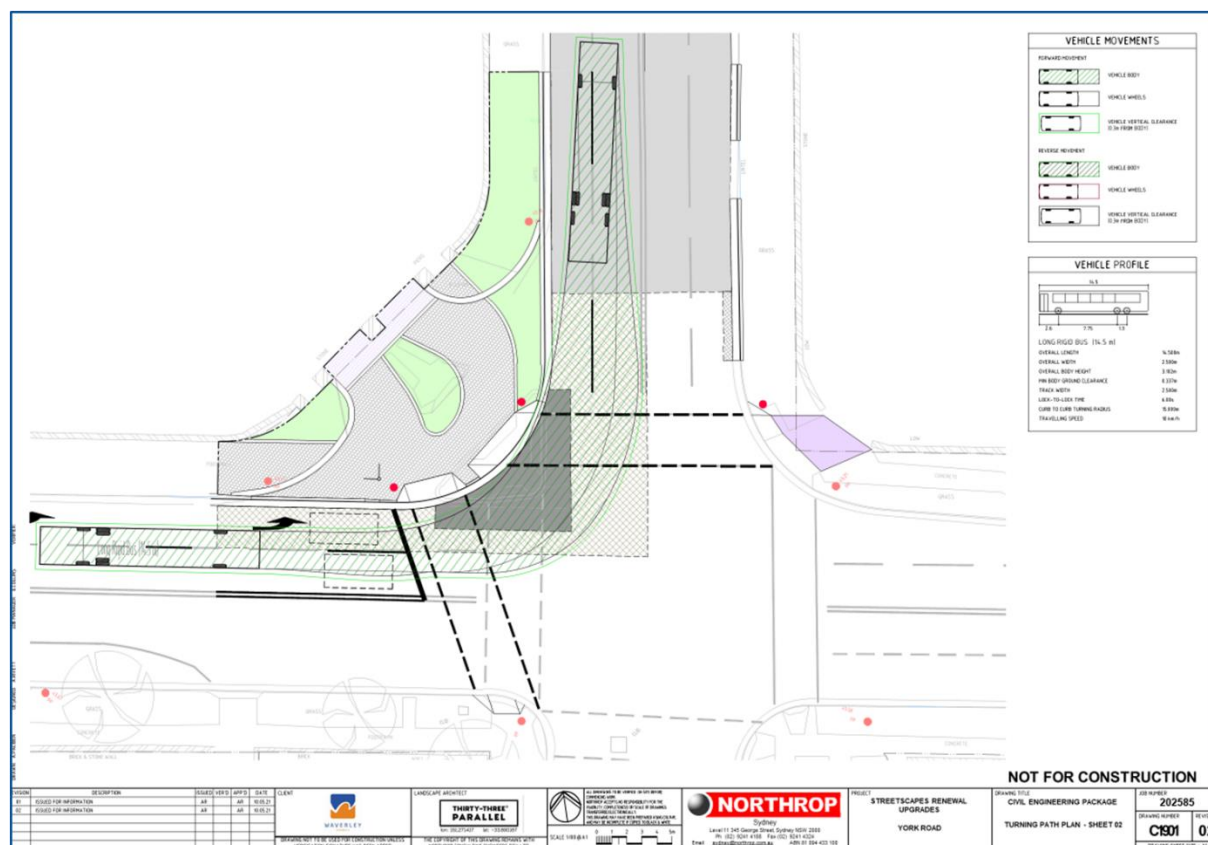


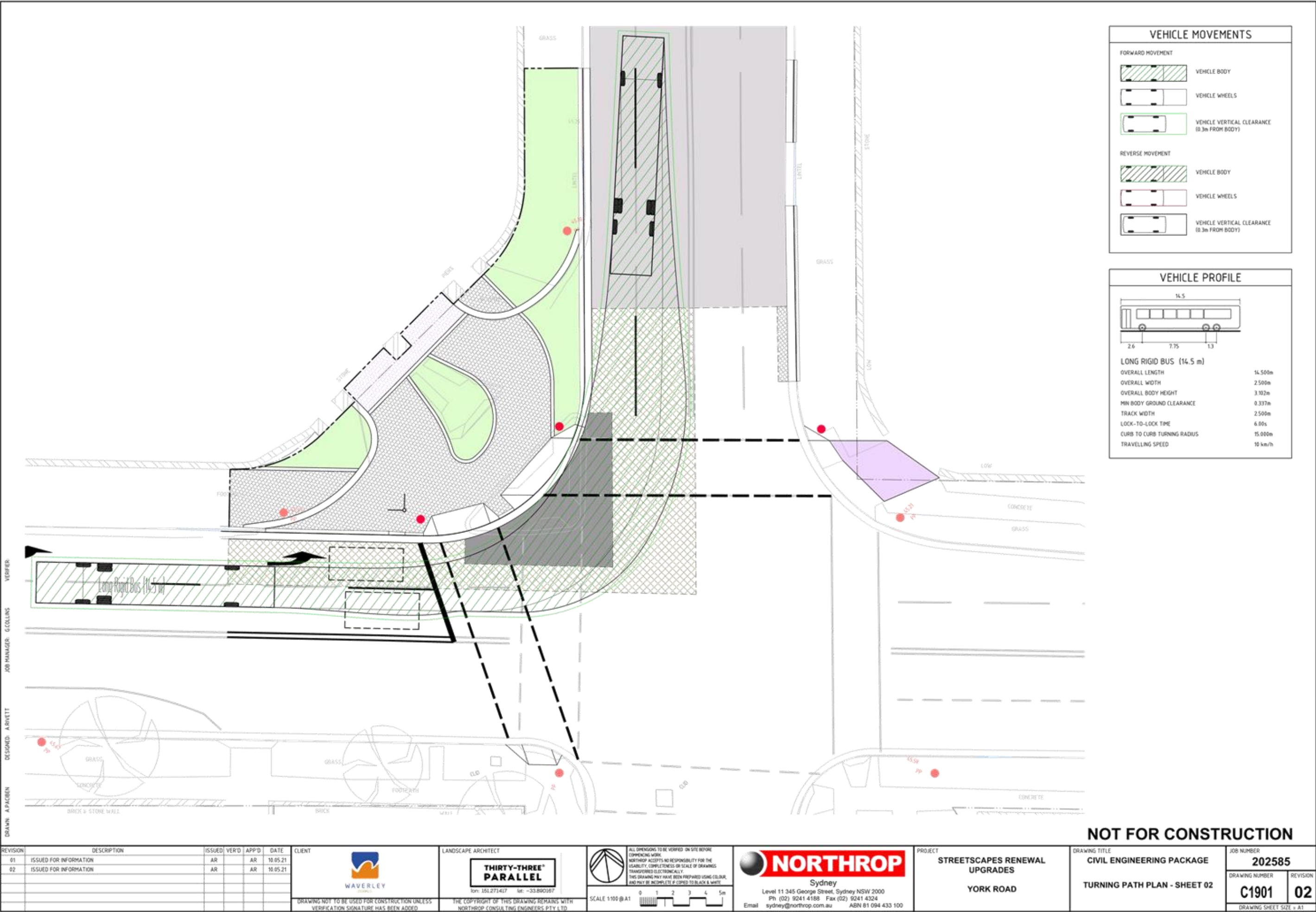
Figure 4. Proposed new design with an exclusive left turn lane.

**4. Financial Information for Council's Consideration**

The project is co-funded by Council and TfNSW under the Regional Roads Program.

**5. Attachments**

1. Proposed Design York Road and Darley Road intersection [↓](#)
2. York Road and Darley Road intersection modelling



# TECHNICAL NOTE

## Transport Engineering



Project Code: N208800

Project Name: Waverley Streetscapes

Date: 5 May 2021

Version No. A

Author: Carla Bradley

Reviewer: Brett Maynard

SUBJECT: York Road / Darley Road / Avoca Street Intersection – SIDRA Modelling

Page 1 of 2 plus attachments

## Background

This technical note has been prepared by GTA, now Stantec, on behalf of Northrop Consulting Engineers, and presents the impact of the proposed changes to the York Road/ Darley Road/ Avoca Street intersection as part of the Waverley Streetscapes project.

The project proposes to remove the left turn slip lane from Darley Road to York Road to enhance pedestrian and cycle connectivity through the intersection. This technical note assesses the impact of the slip lane removal against the existing intersection performance.

## Previous Modelling

Previous modelling at the York Road/ Darley Road/ Avoca Street intersection was completed by Parsons Brinckerhoff, on behalf of Randwick City Council, in May 2018. This modelling was completed in SIDRA INTERSECTION 7.0 and included an existing conditions model and a future optimised model that removed the left turn slip lane. A summary of the results and full outputs of this previous modelling are included in Attachment 3.

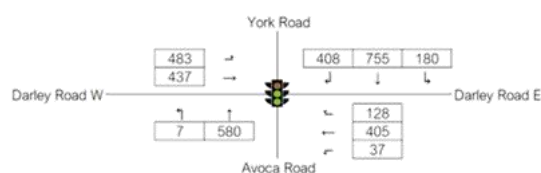
## Traffic Volumes

To confirm any change in traffic volumes since the 2018 modelling was completed, SCATS detector counts were obtained for Tuesday 30 March 2021 (Attachment 1). A comparison between the 2018 data extracted from the previous modelling and the 2021 SCATS data indicates that traffic volumes at the intersection have decreased. As a result, the traffic volume inputs from the 2018 modelling completed by Parson Brinckerhoff were used in the modelling as a conservative approach. The AM and PM peak hour data extracted from the models and used within the updated SIDRA modelling is summarised in Figure 1 and Figure 2.

Figure 1: 2018 AM peak hour traffic volumes



Figure 2: 2018 PM peak hour traffic volumes



VIC | NSW | QLD | SA | WA  
 Level 16, 207 Kent Street  
 SYDNEY NSW 2000  
 t// +612 8448 1800  
 ABN 51 137 610 452



## Existing Intersection Operation

The operation of the study intersection has been assessed using SIDRA INTERSECTION<sup>1</sup> (SIDRA), a computer-based modelling package which calculates intersection performance.

The commonly used measure of intersection performance, as defined by TfNSW, is vehicle delay. SIDRA determines the average delay that vehicles encounter and provides a measure of the level of service. Intersections operating at level of service D or better are generally considered to have acceptable delays.

Table 1 shows the criteria that SIDRA adopts in assessing the level of service.

Table 1: SIDRA level of service criteria

Level of service (LOS)	Average delay per vehicle (secs/veh)	Traffic signals, roundabout	Give way & stop sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity, at signals incidents will cause excessive delays	At capacity, requires other control mode
F	Greater than 70	Extra capacity required	Extreme delay, major treatment required

Table 2 presents a summary of the existing intersection operation at York Road/ Darley Road/ Avoca Street, with full results and calibration details presented in Attachment 2.

Table 2: Existing operating conditions

Peak	Leg	Degree of saturation (DOS)	Average delay (sec)	95th percentile queue (m)	Level of service (LOS)
AM	South	0.815	41.2	209.7	C
	East	0.916	57.8	175.9	E
	North	1.130	103.7	452.2	F
	West	1.177	115.2	352.4	F
	Overall	1.177	78.6	452.2	F
PM	South	0.681	45.1	116.9	D
	East	0.822	46.6	179.4	D
	North	1.339	235.4	1059.0	F
	West	1.201	121.2	450.4	F
	Overall	1.339	140.5	1059.0	F

Based on the above assessment, the intersection of York Road/ Darley Road/ Avoca Street currently operates beyond capacity at LoS F in both the AM and PM peak, with excessive delay on York Road and Darley Road west and significant queuing on York Road in the PM peak.

<sup>1</sup> Program used under license from Akcelik & Associates Pty Ltd.



## Proposed Intersection Layout

The project seeks to remove the existing left turn slip lane from Darley Road into York Road. Two options were considered in modelling the resultant effect as follows:

- combined through and left turn lane on Darley Road
- exclusive left turn lane on Darley Road

Figure 3: Proposed Intersection Layout (Option a)

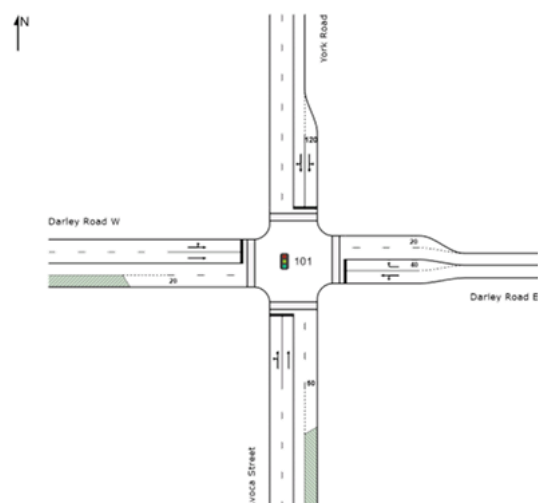
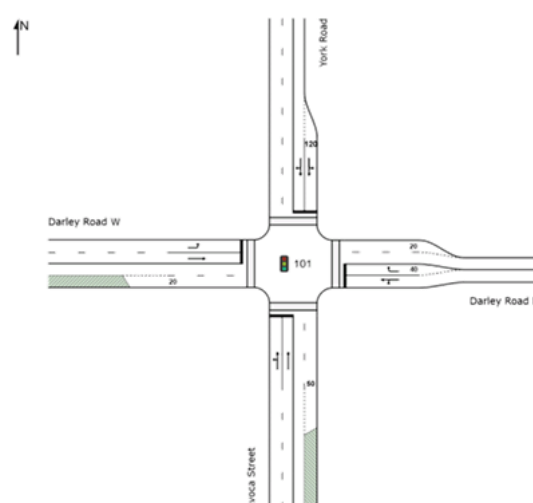


Figure 4: Proposed Intersection Layout (Option b)



## Traffic Impact

To determine the traffic impact of the proposed intersection changes, the two options for lane configuration on Darley Road west were tested using the existing phasing sourced from TfNSW IDM data. Table 3 presents a summary of the future operation of the intersection using existing phasing data, with full results presented in Attachment 2.

Table 3: Future operating conditions – existing signal phasing

Layout Option	Peak	Leg	Degree of saturation (DOS)	Average delay (sec)	95th percentile queue (m)	Level of service (LOS)
Option a - combined through and left turn lane	AM	South	0.815	41.2	209.7	C
		East	0.916	57.8	175.9	E
		North	1.130	103.7	452.2	F
		West	1.177	123.2	352.4	F
		Overall	1.177	80.4	452.2	F
	PM	South	0.681	45.1	116.9	D
		East	0.822	46.6	179.4	D
		North	1.339	235.4	1059.0	F
		West	1.201	128.4	450.4	F
		Overall	1.339	142.5	1059.0	F

Layout Option	Peak	Leg	Degree of saturation (DOS)	Average delay (sec)	95th percentile queue (m)	Level of service (LOS)
Option b - exclusive left turn lane	AM	South	0.815	41.2	209.7	C
		East	0.916	57.8	175.9	E
		North	1.130	103.7	452.2	F
		West	1.177	123.2	352.4	F
		Overall	1.177	80.4	452.2	F
	PM	South	0.681	45.1	116.9	D
		East	0.822	46.6	179.4	D
		North	1.339	235.4	1059.0	F
		West	1.201	128.4	450.4	F
		Overall	1.339	142.5	1059.0	F

Both potential lane configurations on Darley Road west operate the same, with identical outputs produced by SIDRA. This is likely due to the downstream effect where the short exit lane on Darley Road east (20 metres) effectively only allows for one through lane, resulting in motorists avoiding using the kerb side lane to continue straight through the intersection (noting that right turns are not permitted on this approach).

Compared to the existing intersection operation, the removal of the slip lane only impacts the performance of the Darley Road west leg, with all other approaches continuing to operate as per existing. A detailed interrogation of the Darley Road west leg performance indicates the impact is only for left turning traffic. Table 4 presents the performance of the Darley Road west leg existing operation and following removal of the left turn slip lane.

Table 4: Comparison of Existing and Future operating conditions on Darley Road west

Option	Peak	Darley Road West Movement	Degree of saturation (DOS)	Average delay (sec)	95th percentile queue (m)	Level of service (LOS)
Existing	AM	Left	0.510	18.6	96.7	B
		Through	1.177	223.8	352.4	F
		Overall	1.177	115.2	352.4	F
	PM	Left	0.458	10.1	72.1	A
		Through	1.201	244.0	450.4	F
		Overall	1.201	121.2	450.4	F
Proposed	AM	Left	0.573	33.7	132.6	C
		Through	1.177	223.8	352.4	F
		Overall	1.177	123.2	352.4	F
	PM	Left	0.514	23.8	131.8	B
		Through	1.201	244.0	450.4	F
		Overall	1.201	128.4	450.4	F

Based on the above assessment, the left turn movement from Darley Road into York Road currently operates satisfactorily at LoS B and LoS A in the AM and PM peaks, respectively. Following the proposed removal of

the left turn slip lane this movement continues to operate satisfactorily, however the LoS decreases to LoS C and LoS B in the AM and PM peaks, respectively.

## Summary

Based on the analysis and information presented within this technical note, the following conclusions are made:

- The intersection of York Road/ Darley Road/ Avoca Street currently operates beyond capacity at LoS F, with excessive delay and queues in both the AM and PM peak periods.
- Two options for the lane configuration on Darley Road west were considered in conjunction with the proposed removal of the left turn slip lane from Darley Road into York Road. These are:
  - combined through and left turn lane on Darley Road
  - exclusive left turn lane on Darley Road
- There is no appreciable difference between the combined and exclusive left turn lane. This is a result of the downstream effect of Darley Road east where the short kerbside lane of only 20 metres effectively means through traffic on Darley Road generally uses the right-hand lane to avoid the need to merge immediately downstream of the signals.
- The removal of the left turn slip lane and adopting existing signal phase times has a minor impact on the overall intersection performance, increasing the average delay by approximately two seconds in both the AM and PM peak periods. The degree of saturation, 95<sup>th</sup> percentile queues and level of service remain the same as existing conditions.
- The removal of the left turn slip lane only impacts the performance for the left turn movement from Darley Road into York Road. With the existing layout, the left turn operates satisfactorily at LoS B and LoS A in the AM and PM peak periods respectively, with minimal queues and delay. Following the removal of the slip lane, the left turn movements continues to operate satisfactorily, however the LoS decreases to LoS C and LoS B in the AM and PM peak periods respectively.

Notwithstanding the overall intersection capacity issues identified by the modelling, the removal of the left turn slip lane does not significantly impact the overall intersection performance and the operation of the affected left turn movement continues to operate satisfactorily.

It is recommended that a review of parking in the vicinity of the intersection is undertaken to remove the downstream impact on lane utilisation, particularly on Avoca Street. This would require further modelling to confirm the removal of parking during peak periods provides improved overall intersection performance.

# ATTACHMENT 1

## Scats Detector Count Data



now



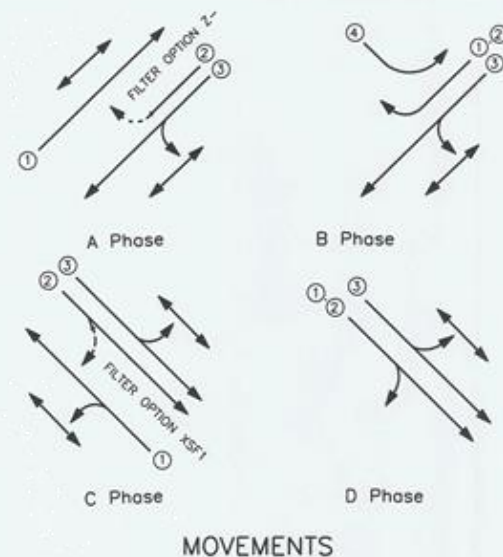
**Stantec**

Technical Note: Waverley Streetscapes

ID: 210505tnote-N208800 York-Darley-Avoca Intersection  
Modelling.docx



7000.381.W.1041



## DETECTOR SPECIFICATION

Detector	Specifications
A	FN A(L) A(E1) SG/PS A A DS - -
A-B1	FN B(PR) SG/PS A DS Z-
A-B1	FN A(L), B(L) B(L) A(E2) B(E2) SG/PS A/B B A B DS Z- Z- Z-A-B(PR), B(NEXT) -
A-B2	FN A(L) A(E3) B(E3) SG/PS A/B A B DS - B (NEXT) A (NEXT)
B-C-D	FN C(PR) B(E1) C(E1) D(E1) SG/PS C/D B C D DS D C(NEXT), D(NEXT), B-C-D(PR) D(NEXT) C(NEXT)
C	FN C(L), D(L) C(E2) D(E2) SG/PS C/D C D DS - C-D(PR), D(NEXT) C(NEXT)
C-D	FN D(PR) D(E3) SG/PS C D DS - C(NEXT)
A	FN A(PB) C(L) SG/PS A.A(WALK) A.A(WALK) DS - B.C.D
A-B	FN A(PB) C(L) SG/PS A/B.A(WALK) A/B.A(WALK) DS B C.D
C	FN C(PB) A(L) SG/PS C(WALK) C.C(WALK) DS - A.B.D
C-D	FN C(PB) A(L) SG/PS C/D.C(WALK) C/D.C(WALK) DS D A.B.D

## SPECIAL SIGNAL GROUP DISPLAY SEQUENCE

SIGNAL GROUP	TABLE TYPE	REMARKS
A/B	3	
B (RT)	41	
B (LT)	12	R.A. Protection for "WALK" period.
C/D	3	
D (RT)	-	
A/B Ped.	-	i) Introduction concurrent with A/B Overlap ii) Walk/Clearance Overlap permitted A=B iii) Timer permitted except under masterlink.
C/D Ped.	-	i) Introduction concurrent with C/D Overlap. ii) Walk/Clearance Overlap permitted C=D. iii) Timer permitted except under masterlink.

## POSTS

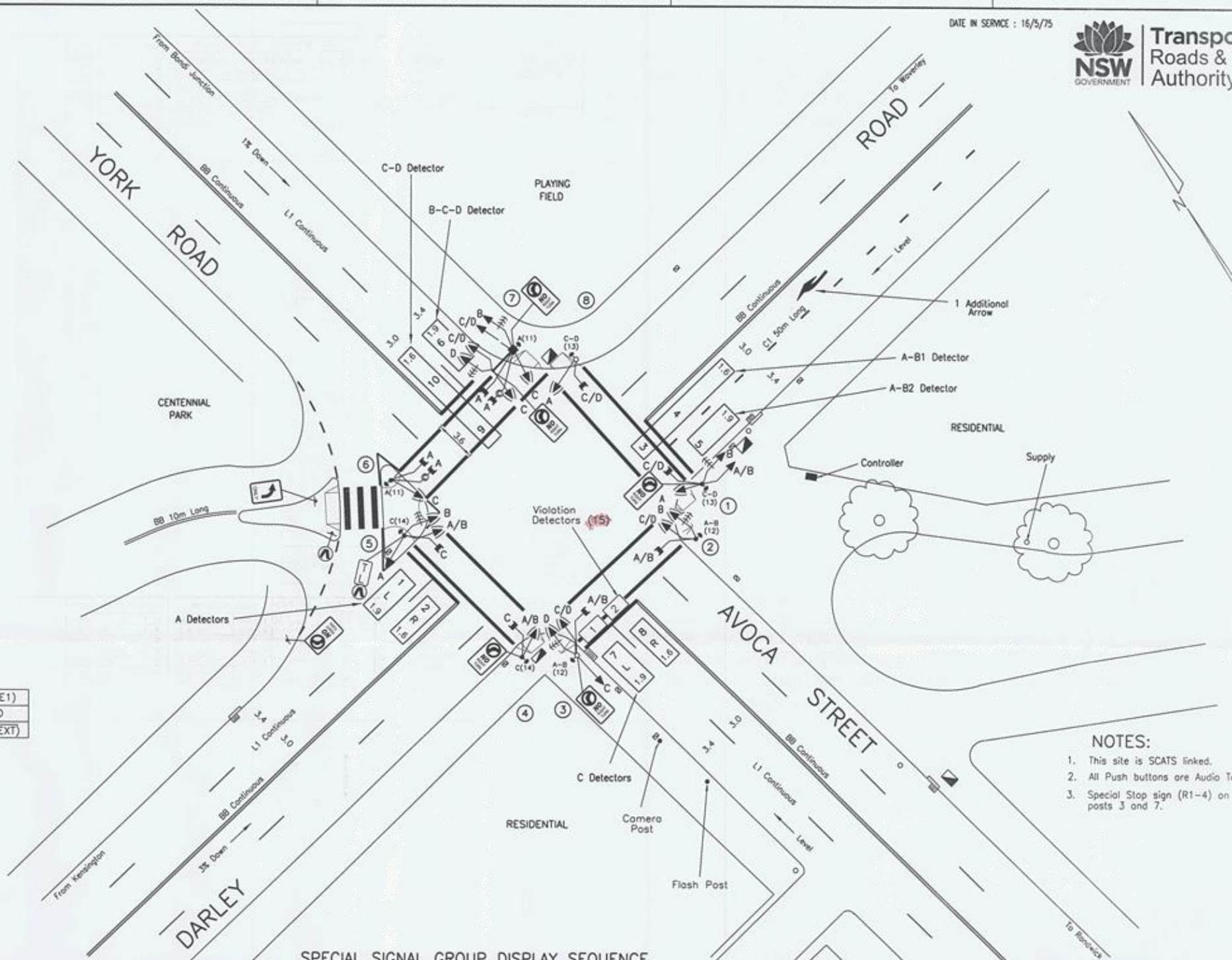
POST	TYPE	LENGTH	REMARKS
1	2	4.1	EXISTING
2	2	4.1	EXISTING
3	ELP	-	EXISTING
4	2	4.1	EXISTING
5	2	4.1	EXISTING
6	2	4.1	EXISTING
7	9	-	EXISTING 2.5m OUTREACH
8	ELP	-	EXISTING

## NOTES:

1. This site is SCATS linked.
2. All Push buttons are Audio Tactile.
3. Special Stop sign (R1-4) on posts 3 and 7.



**Transport**  
Roads & Traffic  
Authority



A ORIGINAL ISSUE  
B ISSUE - 08/08  
PLAN AMENDED TO SUIT WAVE  
ICOM ENG.

PUBLIC UTILITY LEGEND	REFERENCE PLANS	U.B.D. Ref. 25, E16
HYDRANT	SYMBOLS/ABBVS. V0003-6	U.S.G. E1 322 520
STOP VALVE	STD. POST. V0001-5	CD-OROS No 1 247 126
GAS VALVE	DET. SCHED. EXP. V0018-10	
SEWER MANHOLE	PRES. DETECT. V0005-17	
TELECOM PIT	SSG DIS. SDO. V0018-8	
ELECT. LIGHT POLE	CABLE INSTALL. SHT 12	
POWER POLE	CABLE CHART SHT 10	
STAY POLE		
TELEPHONE BOX	(D) SURVEYOR	
TELECOM PILLAR	(Q) DATE	

DESIGN APPROVAL	RTA ACCEPTANCE
APPROVED	RECOMMENDED
POSITION DIRECTOR	POSITION
DATE 5.3.08	DATE 05/05/08
DESIGN PREPARED BY	ACCEPTED
TRANSPORT AND TRAFFIC PLANNING ASSOCIATES	POSITION
	DATE 05/05/08

Roads and Traffic Authority, N.S.W.  
RANDWICK CITY COUNCIL AREA  
TRAFFIC SIGNALS AT THE INTERSECTION OF  
YORK ROAD, DARLEY ROAD AND AVOCA STREET  
RANDWICK  
TCS No 1041

DESIGN OFFICE PARRAMATTA	ISSUE
CADD FILE: W1041_11B.dgn	
SCALE 1:200	
FILE 381.TS.165	SUPERSEDES SHEET/ISSUE 11A
REGN. 7000.381.W.1041	B
	11



**Report: Periodic statistics for site 1041**

15 minute intervals

**From: Tuesday, 30 March 2021, 12:00:00 AM AEDT****To: Tuesday, 30 March 2021, 11:59:59 PM AEDT**

Tuesday, 30 March 2021, 12:00:00 AM AEDT to Tuesday, 30 March 2021, 12:15:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
Unknown phase	1	2	2	2	2
A phase	7	11	14	12	85
B phase	1	12	12	12	12
C phase	7	24	455	112	790
Actual cycle	8	2	466	111	889
Split plan 2	7	36	108	72	504
Split plan 3	6	36	144	60	360
Signal group 1	8	0	8	5	43
Signal group 2	8	0	17	6	55
Signal group 3	1	6	6	6	6
Signal group 4	6	18	449	116	698
Signal group 5	6	18	449	116	698
Signal group 7	1	12	12	12	12

Tuesday, 30 March 2021, 12:15:00 AM AEDT to Tuesday, 30 March 2021, 12:30:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	11	14	12	85
C phase	7	15	163	94	664
D phase	1	11	11	11	11
Actual cycle	7	26	175	107	749
Split plan 2	3	108	324	216	648
Split plan 3	2	36	72	54	108
Signal group 1	8	0	8	5	43
Signal group 2	8	0	8	5	43
Signal group 4	6	40	157	106	639
Signal group 5	7	9	157	88	622
Signal group 6	1	5	5	5	5

Tuesday, 30 March 2021, 12:30:00 AM AEDT to Tuesday, 30 March 2021, 12:45:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	10	11	13	11	118
C phase	9	20	203	76	684
Actual cycle	9	31	214	87	791
Signal group 1	11	0	7	5	58
Signal group 2	11	0	7	5	58
Signal group 4	9	14	197	70	630
Signal group 5	9	14	197	70	630

Tuesday, 30 March 2021, 12:45:00 AM AEDT to Tuesday, 30 March 2021, 1:00:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	11	14	12	74
B phase	1	12	12	12	12
C phase	5	24	227	105	527

Actual cycle	5	36	241	120	602
Signal group 1	7	0	8	5	38
Signal group 2	7	0	17	7	50
Signal group 3	1	6	6	6	6
Signal group 4	5	18	221	99	497
Signal group 5	5	18	221	99	497
Signal group 7	1	12	12	12	12

Tuesday, 30 March 2021, 1:00:00 AM AEDT to Tuesday, 30 March 2021, 1:15:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	3	11	13	11	35
C phase	2	70	225	147	295
Actual cycle	2	81	236	158	317
Signal group 1	4	0	7	4	17
Signal group 2	4	0	7	4	17
Signal group 4	2	64	219	141	283
Signal group 5	2	64	219	141	283

Tuesday, 30 March 2021, 1:15:00 AM AEDT to Tuesday, 30 March 2021, 1:30:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	11	13	11	93
B phase	1	12	12	12	12
C phase	7	29	130	77	539
D phase	1	12	12	12	12
Actual cycle	7	40	142	92	645
Signal group 1	9	0	7	5	45
Signal group 2	9	0	17	6	57
Signal group 3	1	6	6	6	6
Signal group 4	7	23	124	72	509
Signal group 5	7	23	124	71	497
Signal group 6	1	6	6	6	6
Signal group 7	1	12	12	12	12

Tuesday, 30 March 2021, 1:30:00 AM AEDT to Tuesday, 30 March 2021, 1:45:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	4	11	12	11	45
C phase	3	24	564	241	723
Actual cycle	3	35	575	252	757
Signal group 1	5	0	6	4	21
Signal group 2	5	0	6	4	21
Signal group 4	3	18	558	235	705
Signal group 5	3	18	558	235	705

Tuesday, 30 March 2021, 1:45:00 AM AEDT to Tuesday, 30 March 2021, 2:00:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	4	11	14	11	47
B phase	1	12	12	12	12
C phase	3	61	228	128	384
Actual cycle	3	84	242	144	432
Signal group 1	5	0	8	4	23
Signal group 2	5	0	17	7	35

Signal group 3	1	6	6	6	6
Signal group 4	3	55	222	122	366
Signal group 5	3	55	222	122	366
Signal group 7	1	12	12	12	12

Tuesday, 30 March 2021, 2:00:00 AM AEDT to Tuesday, 30 March 2021, 2:15:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	4	11	17	13	53
C phase	3	44	561	262	787
Actual cycle	3	61	572	275	827
Signal group 1	5	0	11	5	29
Signal group 2	5	0	11	5	29
Signal group 4	3	38	555	256	769
Signal group 5	3	38	555	256	769

Tuesday, 30 March 2021, 2:15:00 AM AEDT to Tuesday, 30 March 2021, 2:30:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	5	11	15	12	62
C phase	4	20	381	185	742
Actual cycle	4	32	392	198	792
Split plan 2	2	108	324	216	432
Split plan 3	1	36	36	36	36
Signal group 1	6	0	9	5	32
Signal group 2	6	0	9	5	32
Signal group 4	4	14	375	179	718
Signal group 5	4	14	375	179	718

Tuesday, 30 March 2021, 2:30:00 AM AEDT to Tuesday, 30 March 2021, 2:45:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	1	12	12	12	12
Split plan 2	1	108	108	108	108
Signal group 1	2	0	6	3	6
Signal group 2	2	0	6	3	6

Tuesday, 30 March 2021, 2:45:00 AM AEDT to Tuesday, 30 March 2021, 3:00:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	2	11	15	13	26
C phase	1	157	157	157	157
Actual cycle	1	168	168	168	168
Split plan 2	2	108	108	108	216
Split plan 3	1	36	36	36	36
Signal group 1	3	0	9	4	14
Signal group 2	3	0	9	4	14
Signal group 4	1	151	151	151	151
Signal group 5	1	151	151	151	151

Tuesday, 30 March 2021, 3:00:00 AM AEDT to Tuesday, 30 March 2021, 3:15:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	2	12	13	12	25
C phase	1	167	167	167	167



Actual cycle	1	179	179	179	179
Split plan 2	2	108	108	108	216
Split plan 3	1	108	108	108	108
Signal group 1	3	0	7	4	13
Signal group 2	3	0	7	4	13
Signal group 4	1	161	161	161	161
Signal group 5	1	161	161	161	161

Tuesday, 30 March 2021, 3:15:00 AM AEDT to Tuesday, 30 March 2021, 3:30:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	6	11	12	11	69
C phase	5	22	277	132	663
Actual cycle	5	33	289	144	720
Split plan 2	1	108	108	108	108
Split plan 3	1	504	504	504	504
Signal group 1	7	0	6	4	33
Signal group 2	7	0	6	4	33
Signal group 4	5	16	271	126	633
Signal group 5	5	16	271	126	633

Tuesday, 30 March 2021, 3:30:00 AM AEDT to Tuesday, 30 March 2021, 3:45:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	3	11	11	11	33
C phase	2	26	98	62	124
Actual cycle	2	37	109	73	146
Split plan 2	2	108	108	108	216
Split plan 3	2	36	324	180	360
Signal group 1	4	0	5	3	15
Signal group 2	4	0	5	3	15
Signal group 4	2	20	92	56	112
Signal group 5	2	20	92	56	112

Tuesday, 30 March 2021, 3:45:00 AM AEDT to Tuesday, 30 March 2021, 4:00:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	3	12	12	12	36
C phase	3	15	455	164	493
D phase	1	11	11	11	11
Actual cycle	3	26	467	176	528
Signal group 1	4	0	6	4	18
Signal group 2	4	0	6	4	18
Signal group 4	2	17	475	246	492
Signal group 5	3	9	449	158	475
Signal group 6	1	5	5	5	5

Tuesday, 30 March 2021, 4:00:00 AM AEDT to Tuesday, 30 March 2021, 4:15:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	9	11	12	11	102
B phase	1	12	12	12	12
C phase	8	24	278	96	773
Actual cycle	8	36	290	109	876
Signal group 1	10	0	6	4	48

Signal group 2	10	0	17	6	60
Signal group 3	1	6	6	6	6
Signal group 4	8	18	272	90	725
Signal group 5	8	18	272	90	725
Signal group 7	1	12	12	12	12

Tuesday, 30 March 2021, 4:15:00 AM AEDT to Tuesday, 30 March 2021, 4:30:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	11	16	12	98
C phase	7	22	224	88	619
Actual cycle	7	33	235	100	706
Signal group 1	9	0	10	5	50
Signal group 2	9	0	10	5	50
Signal group 4	7	16	218	82	577
Signal group 5	7	16	218	82	577

Tuesday, 30 March 2021, 4:30:00 AM AEDT to Tuesday, 30 March 2021, 4:45:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	13	11	16	11	154
C phase	12	15	135	57	686
Actual cycle	12	26	148	69	828
Split plan 2	3	36	144	84	252
Split plan 3	4	36	108	63	252
Signal group 1	14	0	10	5	77
Signal group 2	14	0	10	5	77
Signal group 4	12	9	129	51	614
Signal group 5	12	9	129	51	614

Tuesday, 30 March 2021, 4:45:00 AM AEDT to Tuesday, 30 March 2021, 5:00:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	15	11	17	11	175
B phase	2	12	12	12	24
C phase	14	18	98	45	635
D phase	1	12	12	12	12
Actual cycle	14	34	109	59	835
Split plan 2	5	36	252	100	504
Split plan 3	6	36	108	54	324
Signal group 1	16	0	11	5	86
Signal group 2	16	0	17	6	110
Signal group 3	2	6	6	6	12
Signal group 4	14	12	92	40	564
Signal group 5	14	12	92	39	552
Signal group 6	1	6	6	6	6
Signal group 7	2	12	12	12	24

Tuesday, 30 March 2021, 5:00:00 AM AEDT to Tuesday, 30 March 2021, 5:15:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	14	11	21	13	188
B phase	2	11	12	11	23
C phase	13	18	90	42	558
Actual cycle	13	32	107	58	757

Split plan 2	1	72	72	72	72
Split plan 3	2	36	108	72	144
Signal group 1	15	0	15	6	104
Signal group 2	15	0	26	8	127
Signal group 3	2	5	6	5	11
Signal group 4	13	12	84	36	480
Signal group 5	13	12	84	36	480
Signal group 7	2	11	12	11	23
Signal group 8	1	8	8	8	8

Tuesday, 30 March 2021, 5:15:00 AM AEDT to Tuesday, 30 March 2021, 5:30:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	18	11	18	13	238
B phase	1	11	11	11	11
C phase	17	15	133	36	627
Nominal cycle length	1	56	56	56	56
Active cycle length	1	56	56	56	56
Actual cycle	17	26	145	50	863
Signal group 1	19	0	13	6	132
Signal group 2	19	0	17	7	143
Signal group 3	1	5	5	5	5
Signal group 4	17	9	127	30	525
Signal group 5	17	9	127	30	525
Signal group 7	1	11	11	11	11

Tuesday, 30 March 2021, 5:30:00 AM AEDT to Tuesday, 30 March 2021, 5:45:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	20	11	21	14	288
B phase	2	12	12	12	24
C phase	20	15	76	28	564
D phase	1	12	12	12	12
Nominal cycle length	4	36	56	46	184
Active cycle length	4	36	56	46	184
Actual cycle	20	28	87	44	888
Split plan 2	2	36	36	36	72
Split plan 3	3	72	380	174	524
Split plan 4	2	36	148	92	184
Signal group 1	21	0	15	8	168
Signal group 2	21	0	27	9	192
Signal group 3	2	6	6	6	12
Signal group 4	19	9	51	20	386
Signal group 5	19	9	51	19	374
Signal group 6	1	6	6	6	6
Signal group 7	2	12	12	12	24
Signal group 8	3	8	8	8	24
Signal group 11	1	8	8	8	8
Pedestrian movement 1	2	177	203	190	380

Tuesday, 30 March 2021, 5:45:00 AM AEDT to Tuesday, 30 March 2021, 6:00:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	16	11	21	15	242
B phase	7	11	12	11	82

C phase	16	20	45	30	493
D phase	5	11	12	11	59
Actual cycle	15	31	74	51	778
Split plan 3	1	56	56	56	56
Split plan 4	1	392	392	392	392
Signal group 1	17	0	15	8	146
Signal group 2	17	0	26	13	228
Signal group 3	7	5	6	5	40
Signal group 4	15	17	58	30	462
Signal group 5	16	14	39	24	397
Signal group 6	6	5	9	6	38
Signal group 7	7	5	12	10	70
Signal group 8	3	8	8	8	24
Signal group 9	2	8	8	8	16
Signal group 10	3	8	8	8	24
Signal group 11	4	8	8	8	32
Pedestrian movement 1	3	83	250	188	565
Pedestrian movement 2	1	94	94	94	94
Pedestrian movement 3	2	2	189	95	191
Pedestrian movement 4	4	2	376	121	487

Tuesday, 30 March 2021, 6:00:00 AM AEDT to Tuesday, 30 March 2021, 6:15:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	16	12	28	18	291
B phase	8	11	12	11	92
C phase	17	15	47	24	412
D phase	6	11	12	11	71
Nominal cycle length	2	36	56	46	92
Active cycle length	2	36	56	46	92
Actual cycle	17	27	73	50	866
Split plan 3	3	36	56	49	148
Split plan 4	3	56	408	173	520
Signal group 1	17	0	22	11	195
Signal group 2	17	0	23	16	287
Signal group 3	8	5	6	5	44
Signal group 4	16	9	68	24	399
Signal group 5	18	9	41	18	336
Signal group 6	6	5	6	5	35
Signal group 7	8	5	12	10	80
Signal group 8	4	8	8	8	32
Signal group 10	2	8	8	8	16
Signal group 11	5	8	8	8	40
Pedestrian movement 1	4	76	474	196	787
Pedestrian movement 3	1	207	207	207	207
Pedestrian movement 4	4	29	514	170	680

Tuesday, 30 March 2021, 6:15:00 AM AEDT to Tuesday, 30 March 2021, 6:30:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	14	12	36	21	295
B phase	9	11	13	11	106
C phase	13	20	53	30	402
D phase	7	12	12	12	84
Nominal cycle length	8	63	82	72	579

Active cycle length	8	63	82	72	579
Actual cycle	12	44	93	67	809
Split plan 3	2	80	180	130	260
Split plan 4	3	56	158	119	359
Signal group 1	15	0	30	14	210
Signal group 2	15	0	34	21	317
Signal group 3	9	5	7	5	52
Signal group 4	13	21	47	31	408
Signal group 5	13	14	47	24	324
Signal group 6	8	6	6	6	48
Signal group 7	9	11	13	11	106
Signal group 8	7	8	8	8	56
Signal group 9	3	8	8	8	24
Signal group 10	1	8	8	8	8
Signal group 11	4	8	8	8	32
Pedestrian movement 1	6	57	229	127	766
Pedestrian movement 2	2	113	399	256	512
Pedestrian movement 3	1	860	860	860	860
Pedestrian movement 4	3	29	202	95	287

Tuesday, 30 March 2021, 6:30:00 AM AEDT to Tuesday, 30 March 2021, 6:45:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	10	19	35	30	305
B phase	8	11	12	11	94
C phase	11	19	40	33	364
D phase	8	12	16	13	108
Nominal cycle length	10	69	103	86	865
Active cycle length	10	69	103	86	865
Actual cycle	10	50	101	83	835
Split plan 2	1	83	83	83	83
Signal group 1	11	0	29	22	245
Signal group 2	11	0	41	30	339
Signal group 3	8	5	6	5	46
Signal group 4	10	28	49	39	393
Signal group 5	11	14	34	27	299
Signal group 6	8	6	10	7	60
Signal group 7	8	6	12	9	76
Signal group 8	6	8	8	8	48
Signal group 9	3	8	8	8	24
Signal group 10	3	8	8	8	24
Signal group 11	6	8	8	8	48
Pedestrian movement 1	6	24	165	108	652
Pedestrian movement 2	2	244	263	253	507
Pedestrian movement 3	2	155	386	270	541
Pedestrian movement 4	6	55	171	107	645

Tuesday, 30 March 2021, 6:45:00 AM AEDT to Tuesday, 30 March 2021, 7:00:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	24	36	29	206
B phase	8	11	23	16	134
C phase	8	37	61	48	385
D phase	8	16	19	17	140
Nominal cycle length	7	106	117	112	786

Active cycle length	7	106	117	112	786
Actual cycle	7	93	131	112	789
Signal group 1	8	0	30	20	164
Signal group 2	8	0	46	35	283
Signal group 3	8	5	17	10	86
Signal group 4	8	47	72	59	477
Signal group 5	8	31	55	42	337
Signal group 6	8	10	13	11	92
Signal group 7	8	5	22	13	110
Signal group 8	5	8	8	8	40
Signal group 9	3	8	8	8	24
Signal group 10	4	8	8	8	32
Signal group 11	8	8	8	8	64
Pedestrian movement 1	4	80	180	139	557
Pedestrian movement 2	2	90	156	123	246
Pedestrian movement 3	3	75	220	158	474
Pedestrian movement 4	8	28	130	70	564

Tuesday, 30 March 2021, 7:00:00 AM AEDT to Tuesday, 30 March 2021, 7:15:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	21	33	29	234
B phase	9	11	25	18	162
C phase	8	35	81	49	392
D phase	7	12	16	14	102
Nominal cycle length	6	106	112	109	658
Active cycle length	6	106	112	109	658
Actual cycle	8	85	146	107	857
Signal group 1	9	0	27	20	186
Signal group 2	9	0	48	36	329
Signal group 3	9	5	19	12	108
Signal group 4	8	43	75	53	431
Signal group 5	8	29	75	43	344
Signal group 6	7	6	10	8	60
Signal group 7	9	5	25	14	132
Signal group 8	8	8	8	8	64
Signal group 9	4	8	8	8	32
Signal group 10	5	8	8	8	40
Signal group 11	7	8	8	8	56
Pedestrian movement 1	8	21	78	40	327
Pedestrian movement 2	3	102	319	201	603
Pedestrian movement 3	4	80	218	130	522
Pedestrian movement 4	7	16	159	67	472

Tuesday, 30 March 2021, 7:15:00 AM AEDT to Tuesday, 30 March 2021, 7:30:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	24	36	31	250
B phase	8	12	24	17	142
C phase	7	29	59	43	302
D phase	8	14	19	17	136
Nominal cycle length	8	105	118	110	883
Active cycle length	8	105	118	110	883
Actual cycle	7	86	125	108	759
Split plan 3	2	105	333	219	438

Split plan 4	1	327	327	327	327
Signal group 1	9	0	30	22	202
Signal group 2	9	0	51	38	344
Signal group 3	8	6	18	11	94
Signal group 4	7	42	67	54	378
Signal group 5	7	23	53	37	260
Signal group 6	8	8	13	11	88
Signal group 7	8	10	23	14	118
Signal group 8	8	8	8	8	64
Signal group 9	5	8	8	8	40
Signal group 10	4	8	8	8	32
Signal group 11	6	8	8	8	48
Pedestrian movement 1	7	26	73	55	389
Pedestrian movement 2	5	47	238	130	651
Pedestrian movement 3	4	27	194	92	370
Pedestrian movement 4	5	21	171	86	434

Tuesday, 30 March 2021, 7:30:00 AM AEDT to Tuesday, 30 March 2021, 7:45:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	21	33	27	219
B phase	7	14	23	18	130
C phase	7	37	63	49	345
D phase	7	19	25	22	155
Nominal cycle length	7	111	120	115	809
Active cycle length	7	111	120	115	809
Actual cycle	6	100	130	115	690
Split plan 3	1	452	452	452	452
Signal group 1	9	0	27	19	171
Signal group 2	8	0	45	34	274
Signal group 3	7	8	17	12	88
Signal group 4	7	54	76	65	458
Signal group 5	7	31	57	43	303
Signal group 6	7	13	19	16	113
Signal group 7	7	8	23	15	106
Signal group 8	7	8	8	8	56
Signal group 9	8	8	8	8	64
Signal group 10	4	8	8	8	32
Signal group 11	6	8	9	8	49
Pedestrian movement 1	7	41	136	71	503
Pedestrian movement 2	7	13	84	60	426
Pedestrian movement 3	4	98	223	163	655
Pedestrian movement 4	5	2	163	73	368

Tuesday, 30 March 2021, 7:45:00 AM AEDT to Tuesday, 30 March 2021, 8:00:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	21	37	31	220
B phase	7	12	37	18	132
C phase	8	39	55	46	374
D phase	7	17	22	19	133
Nominal cycle length	7	112	117	115	807
Active cycle length	7	112	117	115	807
Actual cycle	7	97	121	112	789
Signal group 1	9	0	33	23	211

Signal group 2	8	0	52	38	310
Signal group 3	7	6	31	12	90
Signal group 4	8	49	66	57	459
Signal group 5	8	33	49	40	326
Signal group 6	7	11	16	13	91
Signal group 7	7	6	31	13	96
Signal group 8	7	8	8	8	56
Signal group 9	5	8	8	8	40
Signal group 10	7	8	8	8	56
Signal group 11	6	8	8	8	48
Pedestrian movement 1	7	37	129	73	517
Pedestrian movement 2	4	19	228	105	421
Pedestrian movement 3	7	71	105	83	587
Pedestrian movement 4	6	36	187	81	490

Tuesday, 30 March 2021, 8:00:00 AM AEDT to Tuesday, 30 March 2021, 8:15:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	22	38	27	190
B phase	8	14	26	18	146
C phase	8	38	54	43	346
D phase	8	22	31	25	200
Nominal cycle length	7	111	117	114	801
Active cycle length	7	111	117	114	801
Actual cycle	7	102	123	113	796
Split plan 2	1	111	111	111	111
Split plan 3	1	113	113	113	113
Signal group 1	8	0	31	18	147
Signal group 2	8	0	46	34	278
Signal group 3	8	8	20	12	99
Signal group 4	8	56	74	62	498
Signal group 5	8	32	48	37	298
Signal group 6	8	16	25	19	152
Signal group 7	8	8	26	14	117
Signal group 8	8	8	8	8	64
Signal group 9	4	8	8	8	32
Signal group 10	5	8	9	8	41
Signal group 11	6	8	8	8	48
Pedestrian movement 1	7	22	110	57	404
Pedestrian movement 2	3	89	204	128	385
Pedestrian movement 3	4	2	300	109	437
Pedestrian movement 4	5	23	228	90	452

Tuesday, 30 March 2021, 8:15:00 AM AEDT to Tuesday, 30 March 2021, 8:30:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	21	35	26	184
B phase	8	13	28	19	153
C phase	7	23	64	45	318
D phase	8	20	33	26	214
Nominal cycle length	4	115	120	117	470
Active cycle length	4	115	120	117	470
Actual cycle	7	87	146	116	814
Split plan 1	1	115	115	115	115
Split plan 2	1	355	355	355	355



Split plan 3	1	240	240	240	240
Offset plan 2	1	470	470	470	470
Signal group 1	8	0	29	17	142
Signal group 2	8	0	47	33	270
Signal group 3	8	7	22	13	105
Signal group 4	7	45	91	67	470
Signal group 5	7	17	58	39	276
Signal group 6	8	14	27	20	166
Signal group 7	8	7	25	16	129
Signal group 8	6	8	8	8	48
Signal group 9	3	8	8	8	24
Signal group 10	4	8	8	8	32
Signal group 11	5	8	8	8	40
Pedestrian movement 1	6	61	175	100	604
Pedestrian movement 2	3	78	296	199	599
Pedestrian movement 3	3	72	103	92	277
Pedestrian movement 4	4	48	312	158	635

Tuesday, 30 March 2021, 8:30:00 AM AEDT to Tuesday, 30 March 2021, 8:45:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	21	33	26	212
B phase	7	12	22	14	103
C phase	7	32	79	47	335
D phase	7	23	34	28	200
Nominal cycle length	6	110	118	114	684
Active cycle length	6	110	118	114	684
Actual cycle	6	105	152	119	719
Split plan 3	1	232	232	232	232
Signal group 1	9	0	27	18	164
Signal group 2	8	0	44	30	247
Signal group 3	7	6	16	8	61
Signal group 4	7	59	102	70	493
Signal group 5	7	26	73	41	293
Signal group 6	7	17	28	22	158
Signal group 7	7	6	22	9	67
Signal group 8	8	8	8	8	64
Signal group 9	6	8	8	8	48
Signal group 10	6	8	8	8	48
Signal group 11	5	8	8	8	40
Pedestrian movement 1	7	33	107	58	407
Pedestrian movement 2	5	61	236	115	577
Pedestrian movement 3	6	58	148	94	565
Pedestrian movement 4	5	49	208	111	557

Tuesday, 30 March 2021, 8:45:00 AM AEDT to Tuesday, 30 March 2021, 9:00:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	21	38	25	176
B phase	6	13	27	19	118
C phase	8	27	59	43	345
D phase	8	26	35	30	243
Nominal cycle length	3	112	120	116	349
Active cycle length	3	112	120	116	349
Actual cycle	7	96	128	113	793

Split plan 1	1	120	120	120	120
Split plan 2	1	120	120	120	120
Signal group 1	8	0	32	16	134
Signal group 2	8	0	42	31	252
Signal group 3	6	7	21	13	82
Signal group 4	8	47	85	67	540
Signal group 5	8	21	53	37	297
Signal group 6	8	20	29	24	195
Signal group 7	6	10	27	17	106
Signal group 8	7	8	8	8	56
Signal group 9	5	8	8	8	40
Signal group 10	4	8	8	8	32
Signal group 11	7	8	8	8	56
Pedestrian movement 1	6	24	216	75	455
Pedestrian movement 2	4	88	177	114	457
Pedestrian movement 3	3	42	385	178	534
Pedestrian movement 4	6	27	164	67	403

Tuesday, 30 March 2021, 9:00:00 AM AEDT to Tuesday, 30 March 2021, 9:15:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	23	29	25	178
B phase	8	17	24	19	156
C phase	7	39	64	49	343
D phase	7	21	27	23	164
Nominal cycle length	7	110	118	113	797
Active cycle length	7	110	118	113	797
Actual cycle	7	89	135	114	800
Signal group 1	8	0	23	17	136
Signal group 2	8	0	44	34	274
Signal group 3	8	11	18	13	108
Signal group 4	8	54	75	63	507
Signal group 5	8	33	58	42	343
Signal group 6	7	15	21	17	122
Signal group 7	8	11	18	15	120
Signal group 8	6	8	8	8	48
Signal group 9	5	8	8	8	40
Signal group 10	6	8	8	8	48
Signal group 11	6	8	8	8	48
Pedestrian movement 1	5	43	114	72	362
Pedestrian movement 2	5	17	189	102	512
Pedestrian movement 3	5	45	106	70	354
Pedestrian movement 4	5	60	162	97	486

Tuesday, 30 March 2021, 9:15:00 AM AEDT to Tuesday, 30 March 2021, 9:30:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	9	15	27	21	194
B phase	9	12	22	15	143
C phase	8	33	50	42	343
D phase	8	19	29	23	187
Nominal cycle length	8	99	108	103	825
Active cycle length	8	99	108	103	825
Actual cycle	7	85	111	104	728
Split plan 3	1	102	102	102	102

Split plan 4	1	101	101	101	101
Signal group 1	10	0	21	14	140
Signal group 2	10	0	37	28	283
Signal group 3	9	6	16	9	89
Signal group 4	8	48	68	60	482
Signal group 5	8	27	44	36	295
Signal group 6	9	13	27	18	166
Signal group 7	9	6	22	12	113
Signal group 8	4	8	8	8	32
Signal group 9	4	8	9	8	33
Signal group 10	5	8	8	8	40
Signal group 11	5	8	8	8	40
Pedestrian movement 1	4	88	153	133	535
Pedestrian movement 2	3	2	82	44	132
Pedestrian movement 3	5	32	106	58	290
Pedestrian movement 4	5	46	188	102	510

Tuesday, 30 March 2021, 9:30:00 AM AEDT to Tuesday, 30 March 2021, 9:45:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	21	28	24	197
B phase	8	12	24	16	134
C phase	8	30	67	44	354
D phase	8	22	31	26	213
Nominal cycle length	7	104	113	110	771
Active cycle length	7	104	113	110	771
Actual cycle	8	99	129	112	898
Split plan 1	1	329	329	329	329
Split plan 2	1	335	335	335	335
Signal group 1	9	0	22	16	149
Signal group 2	9	0	42	31	283
Signal group 3	8	6	18	10	86
Signal group 4	7	54	74	61	428
Signal group 5	8	24	61	38	307
Signal group 6	8	16	25	20	165
Signal group 7	8	6	24	14	116
Signal group 8	8	8	8	8	64
Signal group 9	5	8	8	8	40
Signal group 10	3	8	8	8	24
Signal group 11	4	8	8	8	32
Pedestrian movement 1	8	28	89	59	475
Pedestrian movement 2	4	65	308	132	528
Pedestrian movement 3	2	308	354	331	662
Pedestrian movement 4	3	119	300	196	589

Tuesday, 30 March 2021, 9:45:00 AM AEDT to Tuesday, 30 March 2021, 10:00:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	9	12	31	23	210
B phase	9	11	20	13	123
C phase	9	21	60	38	347
D phase	8	19	30	24	197
Nominal cycle length	8	96	113	102	817
Active cycle length	8	96	113	102	817
Actual cycle	8	76	116	96	774

Split plan 2	1	706	706	706	706
Signal group 1	10	0	25	15	156
Signal group 2	10	0	37	27	279
Signal group 3	9	5	14	7	69
Signal group 4	8	41	78	56	449
Signal group 5	8	15	54	31	252
Signal group 6	9	13	24	18	168
Signal group 7	9	5	20	11	99
Signal group 8	6	8	8	8	48
Signal group 9	1	8	8	8	8
Signal group 10	4	8	8	8	32
Signal group 11	3	8	8	8	24
Pedestrian movement 1	5	18	194	98	490
Pedestrian movement 3	3	76	251	162	486
Pedestrian movement 4	2	59	98	78	157

Tuesday, 30 March 2021, 10:00:00 AM AEDT to Tuesday, 30 March 2021, 10:15:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	21	34	26	212
B phase	8	11	22	16	133
C phase	8	34	50	43	348
D phase	8	20	27	23	185
Nominal cycle length	9	107	114	110	991
Active cycle length	9	107	114	110	991
Actual cycle	8	97	123	109	878
Split plan 2	1	442	442	442	442
Signal group 1	9	0	28	18	164
Signal group 2	9	0	45	33	297
Signal group 3	8	5	16	10	85
Signal group 4	7	50	66	60	421
Signal group 5	8	28	44	37	300
Signal group 6	8	14	21	17	137
Signal group 7	8	9	22	14	115
Signal group 8	4	8	8	8	32
Signal group 9	6	8	8	8	48
Signal group 10	3	8	8	8	24
Signal group 11	4	8	8	8	32
Pedestrian movement 1	4	24	286	136	545
Pedestrian movement 2	5	26	178	108	540
Pedestrian movement 3	3	22	85	55	165
Pedestrian movement 4	4	76	271	153	614

Tuesday, 30 March 2021, 10:15:00 AM AEDT to Tuesday, 30 March 2021, 10:30:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	9	21	34	23	215
B phase	8	11	15	12	101
C phase	9	25	73	39	352
D phase	9	19	25	22	201
Nominal cycle length	9	85	103	94	854
Active cycle length	9	85	103	94	854
Actual cycle	8	78	132	95	765
Split plan 2	1	194	194	194	194
Split plan 3	1	361	361	361	361

Offset plan 2	1	455	455	455	455
Signal group 1	10	0	28	16	161
Signal group 2	10	0	34	26	262
Signal group 3	8	5	9	6	53
Signal group 4	9	42	89	55	499
Signal group 5	9	19	67	33	298
Signal group 6	9	13	19	16	147
Signal group 7	8	7	12	10	83
Signal group 8	9	8	8	8	72
Signal group 9	4	8	8	8	32
Signal group 10	3	8	8	8	24
Signal group 11	5	8	8	8	40
Pedestrian movement 1	8	34	87	60	487
Pedestrian movement 2	3	50	367	161	485
Pedestrian movement 3	2	54	639	346	693
Pedestrian movement 4	5	22	216	117	586

Tuesday, 30 March 2021, 10:30:00 AM AEDT to Tuesday, 30 March 2021, 10:45:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	16	24	21	169
B phase	9	11	18	14	128
C phase	9	26	63	41	369
D phase	9	17	25	22	199
Nominal cycle length	9	88	111	99	892
Active cycle length	9	88	111	99	892
Actual cycle	8	88	125	99	797
Split plan 3	1	516	516	516	516
Signal group 1	9	0	18	13	121
Signal group 2	9	0	35	26	237
Signal group 3	9	5	12	8	74
Signal group 4	9	44	74	57	514
Signal group 5	9	20	57	35	315
Signal group 6	9	11	19	16	145
Signal group 7	9	11	18	13	122
Signal group 8	6	8	8	8	48
Signal group 9	4	8	8	8	32
Signal group 10	1	8	8	8	8
Signal group 11	6	8	8	8	48
Pedestrian movement 1	5	36	226	105	529
Pedestrian movement 2	3	74	499	250	752
Pedestrian movement 4	5	35	194	104	523

Tuesday, 30 March 2021, 10:45:00 AM AEDT to Tuesday, 30 March 2021, 11:00:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	18	35	24	196
B phase	7	11	16	12	86
C phase	8	34	53	40	324
D phase	9	19	30	25	227
Nominal cycle length	9	96	105	101	909
Active cycle length	9	96	105	101	909
Actual cycle	8	89	117	101	808
Signal group 1	9	0	29	16	148
Signal group 2	9	0	37	26	234

Signal group 3	7	5	10	6	44
Signal group 4	8	53	69	59	479
Signal group 5	8	28	47	34	276
Signal group 6	9	13	24	19	173
Signal group 7	7	5	16	11	80
Signal group 8	5	8	8	8	40
Signal group 9	3	8	8	8	24
Signal group 10	2	8	8	8	16
Signal group 11	2	8	8	8	16
Pedestrian movement 1	4	29	166	94	376
Pedestrian movement 2	2	75	248	161	323
Pedestrian movement 3	1	321	321	321	321
Pedestrian movement 4	1	367	367	367	367

Tuesday, 30 March 2021, 11:00:00 AM AEDT to Tuesday, 30 March 2021, 11:15:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	9	21	31	24	221
B phase	8	11	13	12	96
C phase	8	20	47	36	295
D phase	9	21	31	25	229
Nominal cycle length	9	89	115	103	930
Active cycle length	9	89	115	103	930
Actual cycle	8	75	115	97	779
Split plan 1	1	193	193	193	193
Split plan 2	1	90	90	90	90
Split plan 3	1	89	89	89	89
Signal group 1	10	0	25	16	166
Signal group 2	10	0	37	26	263
Signal group 3	8	5	7	6	48
Signal group 4	8	39	69	56	454
Signal group 5	8	14	41	30	247
Signal group 6	9	15	25	19	175
Signal group 7	8	6	12	9	72
Signal group 8	6	8	8	8	48
Signal group 9	1	8	8	8	8
Signal group 10	4	8	8	8	32
Signal group 11	5	8	9	8	41
Pedestrian movement 1	5	79	164	103	517
Pedestrian movement 3	3	45	301	145	437
Pedestrian movement 4	5	2	250	78	390

Tuesday, 30 March 2021, 11:15:00 AM AEDT to Tuesday, 30 March 2021, 11:30:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	14	28	22	181
B phase	8	11	17	13	108
C phase	8	40	58	45	362
D phase	8	21	31	26	209
Nominal cycle length	7	104	111	107	752
Active cycle length	7	104	111	107	752
Actual cycle	7	98	123	107	753
Split plan 2	1	216	216	216	216
Split plan 3	2	107	210	158	317
Signal group 1	10	0	23	15	156

Signal group 2	9	0	34	26	241
Signal group 3	8	5	11	7	60
Signal group 4	8	59	73	65	523
Signal group 5	8	34	52	39	314
Signal group 6	8	15	25	20	161
Signal group 7	8	5	15	10	84
Signal group 8	6	8	8	8	48
Signal group 9	3	8	8	8	24
Signal group 10	4	8	9	8	34
Signal group 11	5	8	9	8	41
Pedestrian movement 1	5	51	265	121	605
Pedestrian movement 2	2	305	324	314	629
Pedestrian movement 3	3	2	184	62	188
Pedestrian movement 4	5	2	266	93	466

Tuesday, 30 March 2021, 11:30:00 AM AEDT to Tuesday, 30 March 2021, 11:45:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	9	20	30	24	216
B phase	9	11	22	13	119
C phase	10	25	48	34	343
D phase	9	19	28	23	211
Nominal cycle length	10	83	105	91	913
Active cycle length	10	83	105	91	913
Actual cycle	9	59	113	91	824
Split plan 1	1	171	171	171	171
Split plan 2	1	84	84	84	84
Split plan 3	1	86	86	86	86
Signal group 1	10	0	24	16	162
Signal group 2	10	0	37	27	270
Signal group 3	9	5	16	7	65
Signal group 4	10	42	58	49	494
Signal group 5	10	19	42	28	283
Signal group 6	9	13	22	17	157
Signal group 7	9	6	22	11	101
Signal group 8	6	8	8	8	48
Signal group 9	1	8	8	8	8
Signal group 10	3	8	8	8	24
Signal group 11	2	8	8	8	16
Pedestrian movement 1	5	38	265	100	501
Pedestrian movement 3	2	145	171	158	316
Pedestrian movement 4	1	781	781	781	781

Tuesday, 30 March 2021, 11:45:00 AM AEDT to Tuesday, 30 March 2021, 12:00:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	19	31	25	207
B phase	9	11	18	14	128
C phase	8	29	75	47	382
D phase	7	19	25	22	160
Nominal cycle length	6	101	112	108	650
Active cycle length	6	101	112	108	650
Actual cycle	7	73	143	107	751
Split plan 3	1	326	326	326	326
Split plan 4	1	222	222	222	222

Signal group 1	9	0	25	17	159
Signal group 2	9	0	39	30	276
Signal group 3	9	5	12	8	74
Signal group 4	8	47	70	61	493
Signal group 5	8	23	69	41	333
Signal group 6	7	13	19	16	118
Signal group 7	9	9	18	12	110
Signal group 8	6	8	8	8	48
Signal group 9	3	8	8	8	24
Signal group 10	3	8	8	8	24
Pedestrian movement 1	5	43	219	102	511
Pedestrian movement 2	2	56	89	72	145
Pedestrian movement 3	2	89	467	278	556

Tuesday, 30 March 2021, 12:00:00 PM AEDT to Tuesday, 30 March 2021, 12:15:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	21	30	24	197
B phase	8	11	16	12	103
C phase	8	32	54	41	329
D phase	8	24	30	27	218
Nominal cycle length	8	100	109	105	843
Active cycle length	8	100	109	105	843
Actual cycle	8	95	120	105	847
Signal group 1	9	0	24	16	149
Signal group 2	9	0	35	28	252
Signal group 3	8	5	10	6	55
Signal group 4	7	54	75	61	432
Signal group 5	8	26	48	35	281
Signal group 6	8	18	24	21	170
Signal group 7	8	5	16	9	79
Signal group 8	5	8	8	8	40
Signal group 9	2	8	8	8	16
Signal group 10	4	8	8	8	32
Signal group 11	5	8	9	8	41
Pedestrian movement 1	5	30	222	105	526
Pedestrian movement 2	1	376	376	376	376
Pedestrian movement 3	3	26	113	73	221
Pedestrian movement 4	4	2	295	96	387

Tuesday, 30 March 2021, 12:15:00 PM AEDT to Tuesday, 30 March 2021, 12:30:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	21	32	26	213
B phase	7	12	18	13	93
C phase	8	34	59	44	352
D phase	8	22	28	25	202
Nominal cycle length	8	101	113	106	851
Active cycle length	8	101	113	106	851
Actual cycle	7	103	121	108	757
Split plan 2	1	215	215	215	215
Split plan 3	1	102	102	102	102
Signal group 1	10	0	26	18	186
Signal group 2	10	0	38	27	279
Signal group 3	7	6	12	7	51



Signal group 4	8	54	77	63	506
Signal group 5	8	28	53	38	304
Signal group 6	8	16	22	19	154
Signal group 7	7	6	15	11	81
Signal group 8	6	8	8	8	48
Signal group 9	3	8	8	8	24
Signal group 10	2	8	8	8	16
Signal group 11	3	8	8	8	24
Pedestrian movement 1	5	49	211	95	477
Pedestrian movement 2	2	161	395	278	556
Pedestrian movement 3	2	60	476	268	536
Pedestrian movement 4	2	87	337	212	424

Tuesday, 30 March 2021, 12:30:00 PM AEDT to Tuesday, 30 March 2021, 12:45:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	21	27	23	190
B phase	8	11	20	15	121
C phase	8	38	53	46	372
D phase	9	19	25	21	195
Nominal cycle length	7	99	110	104	734
Active cycle length	7	99	110	104	734
Actual cycle	8	96	116	107	856
Signal group 1	9	0	21	15	141
Signal group 2	9	0	39	29	263
Signal group 3	8	5	14	9	73
Signal group 4	8	52	72	62	497
Signal group 5	8	32	47	40	324
Signal group 6	9	13	19	15	141
Signal group 7	8	5	20	13	109
Signal group 8	5	8	8	8	40
Signal group 9	4	8	8	8	32
Signal group 10	3	8	9	8	25
Signal group 11	3	8	8	8	24
Pedestrian movement 1	4	25	98	59	239
Pedestrian movement 2	3	77	269	144	434
Pedestrian movement 3	2	100	433	266	533
Pedestrian movement 4	3	71	382	184	552

Tuesday, 30 March 2021, 12:45:00 PM AEDT to Tuesday, 30 March 2021, 1:00:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	16	33	25	207
B phase	8	11	24	14	117
C phase	8	40	66	49	396
D phase	7	17	26	20	144
Nominal cycle length	6	100	111	106	641
Active cycle length	6	100	111	106	641
Actual cycle	7	97	130	109	769
Signal group 1	9	0	27	17	159
Signal group 2	9	0	40	30	275
Signal group 3	8	5	17	8	68
Signal group 4	8	52	66	61	492
Signal group 5	8	34	60	43	348
Signal group 6	7	11	20	14	102

Signal group 7	8	5	24	13	111
Signal group 8	7	8	8	8	56
Signal group 9	3	8	8	8	24
Signal group 10	1	8	8	8	8
Signal group 11	4	8	8	8	32
Pedestrian movement 1	6	32	204	87	523
Pedestrian movement 2	2	81	193	137	274
Pedestrian movement 3	1	571	571	571	571
Pedestrian movement 4	3	83	290	159	479

Tuesday, 30 March 2021, 1:00:00 PM AEDT to Tuesday, 30 March 2021, 1:15:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	21	29	23	190
B phase	8	11	13	11	95
C phase	9	30	55	38	343
D phase	9	23	29	26	239
Nominal cycle length	8	96	105	100	807
Active cycle length	8	96	105	100	807
Actual cycle	8	88	114	99	799
Signal group 1	10	0	23	15	159
Signal group 2	9	0	35	25	225
Signal group 3	8	5	7	5	47
Signal group 4	9	52	78	58	528
Signal group 5	9	24	49	32	289
Signal group 6	9	17	23	20	185
Signal group 7	8	6	13	9	77
Signal group 8	6	8	8	8	48
Signal group 9	6	8	8	8	48
Signal group 10	4	8	8	8	32
Signal group 11	5	8	8	8	40
Pedestrian movement 1	5	35	174	103	517
Pedestrian movement 2	5	76	270	132	664
Pedestrian movement 3	3	98	374	250	751
Pedestrian movement 4	4	51	310	135	541

Tuesday, 30 March 2021, 1:15:00 PM AEDT to Tuesday, 30 March 2021, 1:30:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	21	29	25	202
B phase	8	11	18	15	122
C phase	8	26	78	42	337
D phase	8	23	33	29	232
Nominal cycle length	7	106	112	108	758
Active cycle length	7	106	112	108	758
Actual cycle	7	89	119	105	741
Split plan 1	2	106	436	271	542
Split plan 2	1	107	107	107	107
Signal group 1	9	0	23	17	154
Signal group 2	8	0	40	29	238
Signal group 3	8	5	12	9	74
Signal group 4	8	53	103	65	521
Signal group 5	8	20	72	36	289
Signal group 6	8	17	27	23	184
Signal group 7	8	5	16	11	92

Signal group 8	6	8	8	8	48
Signal group 9	3	8	8	8	24
Signal group 10	5	8	9	8	41
Signal group 11	4	8	8	8	32
Pedestrian movement 1	6	39	152	83	502
Pedestrian movement 2	2	57	212	134	269
Pedestrian movement 3	5	2	260	100	504
Pedestrian movement 4	4	45	159	86	346

Tuesday, 30 March 2021, 1:30:00 PM AEDT to Tuesday, 30 March 2021, 1:45:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	21	33	25	203
B phase	8	11	22	15	120
C phase	8	27	54	40	326
D phase	8	21	34	28	231
Nominal cycle length	7	106	119	111	783
Active cycle length	7	106	119	111	783
Actual cycle	7	101	124	112	786
Split plan 1	1	107	107	107	107
Signal group 1	9	0	27	17	155
Signal group 2	9	0	41	30	275
Signal group 3	8	5	16	9	72
Signal group 4	8	51	78	63	509
Signal group 5	8	21	48	34	278
Signal group 6	8	15	28	22	183
Signal group 7	8	8	16	12	102
Signal group 8	8	8	8	8	64
Signal group 9	5	8	8	8	40
Signal group 10	4	8	8	8	32
Signal group 11	7	8	9	8	57
Pedestrian movement 1	8	23	77	46	371
Pedestrian movement 2	4	86	185	125	500
Pedestrian movement 3	3	113	255	190	572
Pedestrian movement 4	6	2	198	66	397

Tuesday, 30 March 2021, 1:45:00 PM AEDT to Tuesday, 30 March 2021, 2:00:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	14	31	24	199
B phase	7	11	17	13	92
C phase	9	22	71	39	356
D phase	8	21	31	27	222
Nominal cycle length	9	97	108	101	916
Active cycle length	9	97	108	101	916
Actual cycle	8	87	123	99	798
Offset plan 3	1	500	500	500	500
Signal group 1	9	0	25	16	151
Signal group 2	9	0	36	27	243
Signal group 3	7	5	11	7	50
Signal group 4	8	44	96	59	477
Signal group 5	9	16	65	33	302
Signal group 6	8	15	25	21	174
Signal group 7	7	7	14	10	74
Signal group 8	6	8	8	8	48

Signal group 9	3	8	8	8	24
Signal group 10	3	8	8	8	24
Signal group 11	3	8	8	8	24
Pedestrian movement 1	5	55	138	99	499
Pedestrian movement 2	2	171	272	221	443
Pedestrian movement 3	2	155	312	233	467
Pedestrian movement 4	2	50	187	118	237

Tuesday, 30 March 2021, 2:00:00 PM AEDT to Tuesday, 30 March 2021, 2:15:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	22	33	25	207
B phase	8	11	20	14	117
C phase	8	28	47	38	311
D phase	8	27	38	31	251
Nominal cycle length	7	104	114	109	765
Active cycle length	7	104	114	109	765
Actual cycle	7	97	116	109	768
Split plan 2	1	338	338	338	338
Signal group 1	9	0	27	17	159
Signal group 2	9	0	36	29	264
Signal group 3	8	5	14	8	69
Signal group 4	8	57	71	64	514
Signal group 5	8	22	41	32	263
Signal group 6	8	21	32	25	203
Signal group 7	8	6	17	11	93
Signal group 8	4	8	8	8	32
Signal group 9	4	8	8	8	32
Signal group 10	5	8	8	8	40
Signal group 11	6	8	8	8	48
Pedestrian movement 1	4	33	347	141	564
Pedestrian movement 2	4	52	369	147	591
Pedestrian movement 3	5	51	216	130	653
Pedestrian movement 4	5	40	223	95	476

Tuesday, 30 March 2021, 2:15:00 PM AEDT to Tuesday, 30 March 2021, 2:30:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	21	31	26	213
B phase	8	12	18	14	112
C phase	8	29	44	37	300
D phase	8	23	33	28	228
Nominal cycle length	7	100	111	105	741
Active cycle length	7	100	111	105	741
Actual cycle	8	94	118	106	853
Split plan 1	1	201	201	201	201
Split plan 2	2	103	220	161	323
Signal group 1	9	0	25	18	165
Signal group 2	9	0	38	30	277
Signal group 3	8	6	12	8	64
Signal group 4	7	54	67	59	418
Signal group 5	8	23	38	31	252
Signal group 6	8	17	27	22	180
Signal group 7	8	6	13	11	88
Signal group 8	5	8	8	8	40

Signal group 9	4	8	8	8	32
Signal group 10	4	8	8	8	32
Signal group 11	4	8	8	8	32
Pedestrian movement 1	4	52	269	153	612
Pedestrian movement 2	3	107	174	150	451
Pedestrian movement 3	3	76	298	215	647
Pedestrian movement 4	2	182	322	252	504

Tuesday, 30 March 2021, 2:30:00 PM AEDT to Tuesday, 30 March 2021, 2:45:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	9	21	40	28	253
B phase	7	11	20	14	101
C phase	8	27	47	34	279
D phase	8	26	34	29	236
Nominal cycle length	6	99	116	108	650
Active cycle length	6	99	116	108	650
Actual cycle	7	94	121	103	724
Split plan 2	2	116	200	158	316
Split plan 3	1	111	111	111	111
Signal group 1	10	0	34	19	199
Signal group 2	10	0	41	31	312
Signal group 3	8	5	14	8	65
Signal group 4	8	47	70	58	467
Signal group 5	8	21	41	28	231
Signal group 6	8	20	28	23	188
Signal group 7	7	5	20	13	95
Signal group 8	4	8	9	8	33
Signal group 9	4	8	8	8	32
Signal group 10	2	8	8	8	16
Signal group 11	4	8	9	8	33
Pedestrian movement 1	3	30	194	118	355
Pedestrian movement 2	3	40	391	195	585
Pedestrian movement 3	1	532	532	532	532
Pedestrian movement 4	3	2	246	148	444

Tuesday, 30 March 2021, 2:45:00 PM AEDT to Tuesday, 30 March 2021, 3:00:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	14	31	23	190
B phase	8	12	17	14	113
C phase	8	31	69	45	361
D phase	8	20	34	28	230
Nominal cycle length	5	106	112	109	547
Active cycle length	5	106	112	109	547
Actual cycle	7	91	144	111	779
Split plan 1	1	106	106	106	106
Split plan 2	2	218	441	329	659
Signal group 1	9	0	25	15	142
Signal group 2	9	0	37	28	254
Signal group 3	8	6	11	8	64
Signal group 4	8	56	95	67	543
Signal group 5	8	25	63	39	313
Signal group 6	8	14	28	22	182
Signal group 7	8	8	17	13	107

Signal group 8	7	8	8	8	56
Signal group 9	1	8	8	8	8
Signal group 10	1	8	8	8	8
Signal group 11	3	8	8	8	24
Pedestrian movement 1	7	25	109	60	421
Pedestrian movement 4	2	157	322	239	479

Tuesday, 30 March 2021, 3:00:00 PM AEDT to Tuesday, 30 March 2021, 3:15:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	12	41	27	223
B phase	6	11	24	13	83
C phase	9	23	54	36	325
D phase	8	24	35	30	241
Nominal cycle length	8	95	108	102	816
Active cycle length	8	95	108	102	816
Actual cycle	8	87	129	104	836
Split plan 2	1	108	108	108	108
Signal group 1	9	0	35	19	175
Signal group 2	9	0	37	28	258
Signal group 3	6	5	18	7	47
Signal group 4	8	49	69	58	464
Signal group 5	9	17	48	30	271
Signal group 6	8	18	29	24	193
Signal group 7	6	6	24	10	65
Signal group 8	7	8	8	8	56
Signal group 9	3	8	8	8	24
Signal group 10	4	8	8	8	32
Signal group 11	5	8	8	8	40
Pedestrian movement 1	6	37	192	101	610
Pedestrian movement 2	2	86	289	187	375
Pedestrian movement 3	3	24	276	153	460
Pedestrian movement 4	4	45	132	80	323

Tuesday, 30 March 2021, 3:15:00 PM AEDT to Tuesday, 30 March 2021, 3:30:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	21	32	27	195
B phase	8	13	24	20	160
C phase	7	23	49	31	219
D phase	8	22	40	35	283
Nominal cycle length	7	110	120	114	798
Active cycle length	7	110	120	114	798
Actual cycle	7	110	128	116	812
Split plan 2	1	115	115	115	115
Signal group 1	8	0	26	19	153
Signal group 2	8	0	45	36	290
Signal group 3	8	7	18	14	112
Signal group 4	8	56	67	61	490
Signal group 5	8	17	43	25	207
Signal group 6	8	16	34	29	235
Signal group 7	8	13	22	17	142
Signal group 8	5	8	8	8	40
Signal group 9	4	8	8	8	32
Signal group 10	3	8	8	8	24

Signal group 11	5	8	8	8	40
Pedestrian movement 1	5	41	201	107	536
Pedestrian movement 2	4	39	328	135	541
Pedestrian movement 3	3	53	597	235	705
Pedestrian movement 4	5	52	166	110	551

Tuesday, 30 March 2021, 3:30:00 PM AEDT to Tuesday, 30 March 2021, 3:45:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	17	44	28	225
B phase	7	11	26	17	124
C phase	7	29	43	33	233
D phase	8	30	43	37	303
Nominal cycle length	6	111	118	113	679
Active cycle length	6	111	118	113	679
Actual cycle	7	103	128	114	801
Signal group 1	9	0	38	19	177
Signal group 2	9	0	45	33	301
Signal group 3	7	5	20	11	82
Signal group 4	7	60	74	66	464
Signal group 5	7	23	37	27	191
Signal group 6	8	24	37	31	255
Signal group 7	7	6	20	14	100
Signal group 8	6	8	8	8	48
Signal group 9	5	8	8	8	40
Signal group 10	5	8	8	8	40
Signal group 11	5	8	8	8	40
Pedestrian movement 1	5	32	194	101	508
Pedestrian movement 2	3	104	352	189	568
Pedestrian movement 3	4	70	329	156	627
Pedestrian movement 4	4	21	296	142	571

Tuesday, 30 March 2021, 3:45:00 PM AEDT to Tuesday, 30 March 2021, 4:00:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	19	39	25	206
B phase	7	15	32	22	159
C phase	7	22	51	33	234
D phase	7	33	41	37	259
Nominal cycle length	4	113	120	117	470
Active cycle length	4	113	120	117	470
Actual cycle	6	107	135	115	691
Signal group 1	9	0	33	17	158
Signal group 2	9	0	47	35	316
Signal group 3	7	9	26	16	116
Signal group 4	7	55	80	64	451
Signal group 5	7	16	45	27	192
Signal group 6	7	27	35	31	217
Signal group 7	7	9	26	17	123
Signal group 8	7	8	8	8	56
Signal group 9	6	8	8	8	48
Signal group 10	7	8	8	8	56
Signal group 11	5	8	8	8	40
Pedestrian movement 1	7	13	93	49	348
Pedestrian movement 2	5	60	121	88	442

Pedestrian movement 3	6	34	161	81	489
Pedestrian movement 4	4	45	205	114	456

Tuesday, 30 March 2021, 4:00:00 PM AEDT to Tuesday, 30 March 2021, 4:15:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	21	35	27	193
B phase	7	12	23	15	111
C phase	8	26	71	44	353
D phase	6	24	42	33	202
Nominal cycle length	3	113	120	117	351
Active cycle length	3	113	120	117	351
Actual cycle	7	76	157	117	820
Signal group 1	8	0	29	18	151
Signal group 2	8	0	44	32	262
Signal group 3	7	6	17	9	69
Signal group 4	7	62	82	69	487
Signal group 5	8	20	65	38	305
Signal group 6	6	18	36	27	166
Signal group 7	7	6	17	11	81
Signal group 8	8	8	8	8	64
Signal group 9	5	8	8	8	40
Signal group 10	5	8	8	8	40
Signal group 11	4	8	9	8	33
Pedestrian movement 1	7	39	120	71	498
Pedestrian movement 2	4	87	287	162	650
Pedestrian movement 3	4	41	214	128	514
Pedestrian movement 4	4	2	290	98	395

Tuesday, 30 March 2021, 4:15:00 PM AEDT to Tuesday, 30 March 2021, 4:30:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	21	27	23	186
B phase	8	15	23	19	157
C phase	8	27	41	33	268
D phase	8	26	46	34	276
Nominal cycle length	7	105	115	111	777
Active cycle length	7	105	115	111	777
Actual cycle	7	102	125	111	777
Signal group 1	9	0	21	15	139
Signal group 2	8	0	44	31	254
Signal group 3	8	9	17	13	109
Signal group 4	8	54	70	62	496
Signal group 5	8	21	35	27	220
Signal group 6	8	20	40	28	228
Signal group 7	8	9	22	15	127
Signal group 8	6	8	8	8	48
Signal group 9	5	8	8	8	40
Signal group 10	5	8	9	8	41
Signal group 11	4	8	9	8	33
Pedestrian movement 1	5	34	130	83	419
Pedestrian movement 2	4	33	282	116	465
Pedestrian movement 3	5	2	111	65	327
Pedestrian movement 4	3	40	385	156	470



Tuesday, 30 March 2021, 4:30:00 PM AEDT to Tuesday, 30 March 2021, 4:45:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	25	42	31	254
B phase	6	12	23	15	90
C phase	8	25	40	32	260
D phase	8	28	37	34	272
Nominal cycle length	8	106	120	112	896
Active cycle length	8	106	120	112	896
Actual cycle	7	100	129	111	780
Signal group 1	9	0	36	22	206
Signal group 2	9	0	47	32	296
Signal group 3	6	6	17	9	54
Signal group 4	8	53	69	60	484
Signal group 5	8	19	34	26	212
Signal group 6	8	22	31	28	224
Signal group 7	6	6	17	10	60
Signal group 8	1	8	8	8	8
Signal group 9	3	8	8	8	24
Signal group 10	7	8	8	8	56
Signal group 11	4	8	8	8	32
Pedestrian movement 2	2	93	282	187	375
Pedestrian movement 3	6	30	108	59	359
Pedestrian movement 4	4	37	258	133	535

Tuesday, 30 March 2021, 4:45:00 PM AEDT to Tuesday, 30 March 2021, 5:00:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	23	35	27	193
B phase	7	11	17	13	94
C phase	8	28	59	38	310
D phase	7	34	43	40	282
Nominal cycle length	7	115	119	117	819
Active cycle length	7	115	119	117	819
Actual cycle	7	108	133	121	851
Signal group 1	8	0	29	18	151
Signal group 2	8	0	44	30	245
Signal group 3	7	5	11	7	52
Signal group 4	7	65	79	70	491
Signal group 5	8	22	53	32	262
Signal group 6	7	27	37	34	239
Signal group 7	7	6	15	10	76
Signal group 8	6	8	8	8	48
Signal group 9	6	8	8	8	48
Signal group 10	3	8	8	8	24
Signal group 11	7	8	8	8	56
Pedestrian movement 1	5	22	126	69	349
Pedestrian movement 2	6	74	95	89	537
Pedestrian movement 3	2	120	235	177	355
Pedestrian movement 4	6	20	160	71	426

Tuesday, 30 March 2021, 5:00:00 PM AEDT to Tuesday, 30 March 2021, 5:15:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
-----------	-----------	---------	---------	---------	-------

A phase	8	29	36	32	259
B phase	8	12	19	13	111
C phase	7	31	37	33	236
D phase	7	39	42	40	280
Nominal cycle length	2	119	120	119	239
Active cycle length	2	119	120	119	239
Actual cycle	6	116	124	119	719
Signal group 1	8	0	30	23	184
Signal group 2	8	0	42	35	282
Signal group 3	8	6	13	7	63
Signal group 4	7	66	71	67	474
Signal group 5	7	25	31	27	194
Signal group 6	7	33	36	34	238
Signal group 7	8	6	13	10	81
Signal group 8	7	8	8	8	56
Signal group 9	5	8	8	8	40
Signal group 10	5	8	8	8	40
Signal group 11	5	8	9	8	41
Pedestrian movement 1	6	23	63	37	222
Pedestrian movement 2	4	43	214	117	471
Pedestrian movement 3	4	19	192	87	349
Pedestrian movement 4	4	2	80	43	173

Tuesday, 30 March 2021, 5:15:00 PM AEDT to Tuesday, 30 March 2021, 5:30:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	22	42	29	207
B phase	6	14	23	18	111
C phase	8	27	45	32	256
D phase	7	42	42	42	294
Nominal cycle length	1	120	120	120	120
Active cycle length	1	120	120	120	120
Actual cycle	7	106	134	119	837
Signal group 1	8	0	36	20	164
Signal group 2	8	0	43	34	276
Signal group 3	6	8	17	12	75
Signal group 4	7	63	81	68	479
Signal group 5	8	21	39	26	208
Signal group 6	7	36	36	36	252
Signal group 7	6	9	17	13	81
Signal group 8	6	8	8	8	48
Signal group 9	5	8	8	8	40
Signal group 10	6	8	8	8	48
Signal group 11	7	8	8	8	56
Pedestrian movement 1	6	25	146	62	375
Pedestrian movement 2	5	63	288	122	610
Pedestrian movement 3	6	31	100	61	367
Pedestrian movement 4	6	31	148	81	488

Tuesday, 30 March 2021, 5:30:00 PM AEDT to Tuesday, 30 March 2021, 5:45:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	26	34	31	221
B phase	8	12	16	14	113
C phase	7	24	48	35	246

D phase	7	34	42	39	277
Nominal cycle length	2	117	118	117	235
Active cycle length	2	117	118	117	235
Actual cycle	6	104	133	120	724
Signal group 1	8	0	28	22	179
Signal group 2	8	0	44	34	279
Signal group 3	8	6	10	8	65
Signal group 4	7	60	77	68	481
Signal group 5	7	18	42	29	204
Signal group 6	7	28	36	33	235
Signal group 7	8	7	13	9	77
Signal group 8	7	8	8	8	56
Signal group 9	4	8	8	8	32
Signal group 10	6	8	9	8	49
Signal group 11	6	8	8	8	48
Pedestrian movement 1	7	30	124	62	434
Pedestrian movement 2	3	62	230	126	380
Pedestrian movement 3	5	2	203	72	363
Pedestrian movement 4	6	23	140	69	416

Tuesday, 30 March 2021, 5:45:00 PM AEDT to Tuesday, 30 March 2021, 6:00:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	22	33	27	219
B phase	7	12	24	17	120
C phase	8	25	48	35	284
D phase	7	33	42	36	254
Nominal cycle length	7	112	118	114	799
Active cycle length	7	112	118	114	799
Actual cycle	7	107	133	115	809
Signal group 1	9	0	27	19	171
Signal group 2	9	0	40	32	291
Signal group 3	7	6	18	11	78
Signal group 4	7	59	80	65	460
Signal group 5	8	19	42	29	236
Signal group 6	7	27	36	30	212
Signal group 7	7	6	18	12	90
Signal group 8	6	8	8	8	48
Signal group 9	5	8	8	8	40
Signal group 10	5	8	8	8	40
Signal group 11	7	8	9	8	57
Pedestrian movement 1	6	19	305	77	464
Pedestrian movement 2	4	91	417	174	696
Pedestrian movement 3	5	71	205	121	609
Pedestrian movement 4	7	2	152	65	461

Tuesday, 30 March 2021, 6:00:00 PM AEDT to Tuesday, 30 March 2021, 6:15:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	29	35	31	218
B phase	7	12	19	14	99
C phase	8	21	37	31	254
D phase	7	35	48	42	294
Nominal cycle length	5	114	120	117	587
Active cycle length	5	114	120	117	587

Actual cycle	7	105	129	118	832
Signal group 1	8	0	29	22	176
Signal group 2	8	0	43	34	276
Signal group 3	7	6	13	8	58
Signal group 4	7	62	75	67	472
Signal group 5	8	15	31	25	206
Signal group 6	7	29	42	36	252
Signal group 7	7	6	19	10	70
Signal group 8	7	8	8	8	56
Signal group 9	5	8	8	8	40
Signal group 10	5	8	9	8	41
Signal group 11	7	8	9	8	57
Pedestrian movement 1	7	21	72	40	283
Pedestrian movement 2	5	71	191	116	583
Pedestrian movement 3	4	2	206	99	396
Pedestrian movement 4	6	2	221	72	435

Tuesday, 30 March 2021, 6:15:00 PM AEDT to Tuesday, 30 March 2021, 6:30:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	7	21	36	30	214
B phase	8	11	21	14	112
C phase	7	26	42	34	242
D phase	7	36	46	40	283
Nominal cycle length	3	116	120	118	354
Active cycle length	3	116	120	118	354
Actual cycle	6	116	122	117	706
Split plan 2	1	120	120	120	120
Signal group 1	8	0	30	21	172
Signal group 2	8	0	43	34	272
Signal group 3	8	5	15	8	64
Signal group 4	7	66	76	69	483
Signal group 5	7	20	36	28	200
Signal group 6	7	30	40	34	241
Signal group 7	8	5	15	10	82
Signal group 8	7	8	8	8	56
Signal group 9	5	8	8	8	40
Signal group 10	5	8	8	8	40
Signal group 11	6	8	8	8	48
Pedestrian movement 1	6	34	84	57	345
Pedestrian movement 2	4	61	110	92	370
Pedestrian movement 3	4	44	278	123	493
Pedestrian movement 4	5	40	122	63	316

Tuesday, 30 March 2021, 6:30:00 PM AEDT to Tuesday, 30 March 2021, 6:45:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	8	21	35	28	225
B phase	4	11	14	12	48
C phase	9	23	50	38	345
D phase	8	25	37	33	270
Nominal cycle length	8	98	112	104	833
Active cycle length	8	98	112	104	833
Actual cycle	8	93	115	105	840
Signal group 1	9	0	29	19	178

Signal group 2	9	0	35	25	225
Signal group 3	4	5	8	6	24
Signal group 4	8	54	76	65	521
Signal group 5	9	17	44	32	291
Signal group 6	8	19	31	27	221
Signal group 7	4	5	12	7	30
Signal group 8	7	8	8	8	56
Signal group 9	7	8	8	8	56
Signal group 10	5	8	9	8	41
Signal group 11	8	8	9	8	66
Pedestrian movement 1	7	18	174	66	466
Pedestrian movement 2	7	53	184	86	606
Pedestrian movement 3	4	2	207	114	459
Pedestrian movement 4	8	2	54	31	249

Tuesday, 30 March 2021, 6:45:00 PM AEDT to Tuesday, 30 March 2021, 7:00:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	9	21	29	24	223
B phase	9	11	16	12	116
C phase	8	28	47	37	296
D phase	9	20	33	26	242
Nominal cycle length	9	84	108	100	907
Active cycle length	9	84	108	100	907
Actual cycle	8	91	108	100	807
Signal group 1	9	0	23	16	150
Signal group 2	9	0	36	28	254
Signal group 3	9	5	10	6	62
Signal group 4	9	42	69	56	512
Signal group 5	9	22	41	30	270
Signal group 6	9	14	27	20	188
Signal group 7	9	5	12	8	80
Signal group 8	7	8	8	8	56
Signal group 9	6	8	8	8	48
Signal group 10	6	8	9	8	50
Signal group 11	9	8	8	8	72
Pedestrian movement 1	6	29	131	54	325
Pedestrian movement 2	5	56	177	92	462
Pedestrian movement 3	5	2	187	62	312
Pedestrian movement 4	9	17	88	47	430

Tuesday, 30 March 2021, 7:00:00 PM AEDT to Tuesday, 30 March 2021, 7:15:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	10	19	34	25	256
B phase	6	11	14	12	72
C phase	10	20	39	30	301
D phase	10	19	33	25	252
Nominal cycle length	9	77	99	88	797
Active cycle length	9	77	99	88	797
Actual cycle	9	73	106	87	785
Split plan 2	1	77	77	77	77
Signal group 1	11	0	28	17	196
Signal group 2	11	0	30	24	268
Signal group 3	6	5	8	6	36

Signal group 4	10	40	57	49	493
Signal group 5	10	14	33	24	241
Signal group 6	10	13	27	19	192
Signal group 7	6	5	14	10	60
Signal group 8	8	8	8	8	64
Signal group 9	6	8	8	8	48
Signal group 10	4	8	9	8	34
Signal group 11	5	8	8	8	40
Pedestrian movement 1	7	17	176	67	473
Pedestrian movement 2	5	48	176	124	620
Pedestrian movement 3	3	2	175	59	179
Pedestrian movement 4	4	39	265	146	584

Tuesday, 30 March 2021, 7:15:00 PM AEDT to Tuesday, 30 March 2021, 7:30:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	10	16	29	21	218
B phase	6	11	14	11	70
C phase	10	24	58	38	380
D phase	9	19	32	23	215
Nominal cycle length	10	76	96	87	879
Active cycle length	10	76	96	87	879
Actual cycle	9	66	111	87	790
Split plan 2	1	543	543	543	543
Split plan 3	1	76	76	76	76
Signal group 1	11	0	23	14	158
Signal group 2	11	0	29	19	216
Signal group 3	6	5	8	5	34
Signal group 4	10	40	70	53	535
Signal group 5	10	18	52	32	320
Signal group 6	9	13	26	17	161
Signal group 7	6	5	12	8	52
Signal group 8	8	8	8	8	64
Signal group 9	5	8	8	8	40
Signal group 10	5	8	9	8	42
Signal group 11	5	8	8	8	40
Pedestrian movement 1	7	23	99	52	369
Pedestrian movement 2	4	34	331	120	480
Pedestrian movement 3	4	2	302	137	551
Pedestrian movement 4	4	47	288	125	501

Tuesday, 30 March 2021, 7:30:00 PM AEDT to Tuesday, 30 March 2021, 7:45:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	13	14	22	18	243
B phase	7	11	13	11	82
C phase	13	20	60	33	432
D phase	9	12	16	13	122
Nominal cycle length	11	56	82	71	784
Active cycle length	11	56	82	71	784
Actual cycle	13	41	104	67	879
Split plan 3	1	592	592	592	592
Signal group 1	14	0	16	11	165
Signal group 2	14	0	27	17	247
Signal group 3	7	5	7	5	40

Signal group 4	12	26	54	35	425
Signal group 5	13	14	54	27	354
Signal group 6	9	6	10	7	68
Signal group 7	7	6	13	10	76
Signal group 8	5	8	8	8	40
Signal group 9	1	8	8	8	8
Signal group 10	1	8	8	8	8
Signal group 11	4	8	8	8	32
Pedestrian movement 1	4	160	221	191	766
Pedestrian movement 4	3	65	130	106	319

Tuesday, 30 March 2021, 7:45:00 PM AEDT to Tuesday, 30 March 2021, 8:00:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	15	12	24	18	282
B phase	5	11	13	11	57
C phase	14	20	33	23	335
D phase	14	12	17	13	191
Nominal cycle length	8	56	70	63	508
Active cycle length	8	56	70	63	508
Actual cycle	13	47	69	59	770
Split plan 2	1	186	186	186	186
Split plan 3	1	300	300	300	300
Signal group 1	16	0	18	12	193
Signal group 2	16	0	26	15	250
Signal group 3	5	5	7	5	27
Signal group 4	14	26	42	31	442
Signal group 5	14	14	27	17	251
Signal group 6	15	6	11	7	116
Signal group 7	5	5	13	10	51
Signal group 8	4	8	8	8	32
Signal group 9	1	8	8	8	8
Signal group 10	3	8	8	8	24
Pedestrian movement 1	3	51	176	111	334
Pedestrian movement 3	2	169	578	373	747

Tuesday, 30 March 2021, 8:00:00 PM AEDT to Tuesday, 30 March 2021, 8:15:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	14	12	24	17	239
B phase	11	11	20	12	136
C phase	14	20	34	26	367
D phase	11	12	18	13	152
Nominal cycle length	9	56	81	70	637
Active cycle length	9	56	81	70	637
Actual cycle	13	45	79	64	837
Split plan 2	2	73	81	77	154
Split plan 3	2	79	340	209	419
Split plan 4	1	56	56	56	56
Signal group 1	15	0	18	10	155
Signal group 2	15	0	30	19	291
Signal group 3	11	5	14	6	70
Signal group 4	13	25	45	32	416
Signal group 5	14	14	28	20	283
Signal group 6	11	6	12	7	86



Signal group 7	11	11	20	12	136
Signal group 8	3	8	8	8	24
Signal group 11	1	8	8	8	8
Pedestrian movement 1	2	111	510	310	621

Tuesday, 30 March 2021, 8:15:00 PM AEDT to Tuesday, 30 March 2021, 8:30:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	14	11	22	16	224
B phase	7	11	13	12	84
C phase	14	20	44	28	393
D phase	12	12	20	14	176
Nominal cycle length	11	56	76	64	708
Active cycle length	11	56	76	64	708
Actual cycle	14	45	82	62	877
Split plan 3	1	257	257	257	257
Split plan 4	1	114	114	114	114
Signal group 1	15	0	16	9	139
Signal group 2	15	0	23	14	223
Signal group 3	7	5	7	6	42
Signal group 4	13	26	58	35	457
Signal group 5	14	14	39	22	310
Signal group 6	12	6	14	8	104
Signal group 7	7	11	13	12	84
Signal group 9	2	8	8	8	16
Signal group 11	1	8	8	8	8
Pedestrian movement 2	1	335	335	335	335

Tuesday, 30 March 2021, 8:30:00 PM AEDT to Tuesday, 30 March 2021, 8:45:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	15	11	22	16	244
B phase	1	12	12	12	12
C phase	14	20	47	31	437
D phase	10	12	18	14	149
Nominal cycle length	7	56	67	61	429
Active cycle length	7	56	67	61	429
Actual cycle	14	37	77	59	831
Split plan 2	2	56	317	186	373
Split plan 3	3	56	168	112	336
Split plan 4	1	112	112	112	112
Signal group 1	16	0	16	9	154
Signal group 2	16	0	17	10	166
Signal group 3	1	6	6	6	6
Signal group 4	15	26	42	35	534
Signal group 5	15	14	41	25	385
Signal group 6	10	6	12	9	90
Signal group 7	1	12	12	12	12
Signal group 8	2	8	8	8	16
Signal group 11	1	8	8	8	8
Pedestrian movement 1	1	300	300	300	300

Tuesday, 30 March 2021, 8:45:00 PM AEDT to Tuesday, 30 March 2021, 9:00:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
-----------	-----------	---------	---------	---------	-------

A phase	16	12	21	15	252
B phase	7	11	12	11	80
C phase	16	20	42	28	451
D phase	9	12	13	12	111
Actual cycle	15	37	71	55	835
Split plan 3	1	56	56	56	56
Split plan 4	2	224	336	280	560
Signal group 1	17	0	15	9	155
Signal group 2	17	0	24	13	235
Signal group 3	7	5	6	5	38
Signal group 4	16	21	36	29	466
Signal group 5	16	14	36	22	355
Signal group 6	9	6	7	6	57
Signal group 7	7	11	12	11	80

Tuesday, 30 March 2021, 9:00:00 PM AEDT to Tuesday, 30 March 2021, 9:15:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	16	11	23	16	256
B phase	5	11	12	11	57
C phase	16	15	46	27	440
D phase	10	12	15	12	126
Nominal cycle length	2	36	56	46	92
Active cycle length	2	36	56	46	92
Actual cycle	16	32	84	53	853
Signal group 1	17	0	17	9	160
Signal group 2	17	0	18	12	206
Signal group 3	5	5	6	5	27
Signal group 4	16	9	40	28	458
Signal group 5	16	9	40	21	344
Signal group 6	10	6	9	6	66
Signal group 7	5	5	12	9	45
Signal group 8	2	8	8	8	16
Signal group 10	2	8	8	8	16
Pedestrian movement 1	1	81	81	81	81
Pedestrian movement 3	1	122	122	122	122

Tuesday, 30 March 2021, 9:15:00 PM AEDT to Tuesday, 30 March 2021, 9:30:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	14	11	25	16	231
B phase	5	11	12	11	58
C phase	14	20	55	34	483
D phase	9	12	15	12	112
Nominal cycle length	11	36	67	60	670
Active cycle length	11	36	67	60	670
Actual cycle	13	32	93	59	769
Split plan 3	2	260	520	390	780
Split plan 4	1	58	58	58	58
Signal group 1	15	0	19	9	147
Signal group 2	15	0	26	13	205
Signal group 3	5	5	6	5	28
Signal group 4	13	20	79	39	517
Signal group 5	14	14	49	28	399
Signal group 6	9	6	9	6	58

Signal group 7	5	11	12	11	58
Signal group 8	1	8	8	8	8

Tuesday, 30 March 2021, 9:30:00 PM AEDT to Tuesday, 30 March 2021, 9:45:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	17	11	22	15	258
B phase	1	11	11	11	11
C phase	18	15	45	29	529
D phase	7	12	13	12	85
Nominal cycle length	3	36	56	49	148
Active cycle length	3	36	56	49	148
Actual cycle	17	27	80	49	842
Split plan 3	1	112	112	112	112
Signal group 1	18	0	16	8	156
Signal group 2	18	0	17	9	167
Signal group 3	1	5	5	5	5
Signal group 4	17	9	40	28	488
Signal group 5	18	9	39	23	421
Signal group 6	7	6	7	6	43
Signal group 7	1	11	11	11	11
Signal group 8	1	8	8	8	8
Signal group 11	1	8	8	8	8

Tuesday, 30 March 2021, 9:45:00 PM AEDT to Tuesday, 30 March 2021, 10:00:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	15	11	23	15	237
B phase	3	11	12	11	35
C phase	15	18	83	31	479
D phase	10	12	18	12	127
Nominal cycle length	1	36	36	36	36
Active cycle length	1	36	36	36	36
Actual cycle	15	39	109	58	878
Split plan 3	1	652	652	652	652
Signal group 1	16	0	17	9	147
Signal group 2	16	0	23	11	182
Signal group 3	3	5	6	5	17
Signal group 4	16	12	89	33	530
Signal group 5	16	12	77	25	403
Signal group 6	10	6	12	6	67
Signal group 7	3	11	12	11	35

Tuesday, 30 March 2021, 10:00:00 PM AEDT to Tuesday, 30 March 2021, 10:15:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	19	11	19	12	245
B phase	1	11	11	11	11
C phase	20	14	57	27	556
D phase	6	11	13	12	72
Nominal cycle length	2	36	56	46	92
Active cycle length	2	36	56	46	92
Actual cycle	20	26	80	43	872
Split plan 3	4	36	36	36	144
Split plan 4	3	72	144	96	288

Signal group 1	20	0	13	6	131
Signal group 2	20	0	17	7	142
Signal group 3	1	5	5	5	5
Signal group 4	18	8	72	28	508
Signal group 5	20	8	51	21	436
Signal group 6	6	5	6	5	35
Signal group 7	1	11	11	11	11

Tuesday, 30 March 2021, 10:15:00 PM AEDT to Tuesday, 30 March 2021, 10:30:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	15	11	22	15	226
B phase	2	11	12	11	23
C phase	14	21	95	37	522
D phase	6	12	15	12	77
Nominal cycle length	2	36	56	46	92
Active cycle length	2	36	56	46	92
Actual cycle	14	37	130	59	826
Split plan 2	2	36	168	102	204
Split plan 3	2	56	56	56	112
Signal group 1	16	0	16	8	136
Signal group 2	16	0	17	9	159
Signal group 3	2	5	6	5	11
Signal group 4	14	19	89	36	515
Signal group 5	14	15	89	31	438
Signal group 6	6	6	9	6	41
Signal group 7	2	11	12	11	23

Tuesday, 30 March 2021, 10:30:00 PM AEDT to Tuesday, 30 March 2021, 10:45:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	18	11	16	12	233
B phase	1	11	11	11	11
C phase	18	15	47	26	475
D phase	7	11	12	11	83
Nominal cycle length	2	36	56	46	92
Active cycle length	2	36	56	46	92
Actual cycle	18	26	83	43	790
Split plan 3	1	148	148	148	148
Split plan 4	1	224	224	224	224
Signal group 1	19	0	10	6	125
Signal group 2	19	0	18	7	136
Signal group 3	1	5	5	5	5
Signal group 4	17	9	50	26	456
Signal group 5	18	9	41	20	367
Signal group 6	7	5	6	5	41
Signal group 7	1	11	11	11	11
Signal group 11	1	8	8	8	8

Tuesday, 30 March 2021, 10:45:00 PM AEDT to Tuesday, 30 March 2021, 11:00:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	17	11	15	12	212
C phase	16	16	94	36	582
D phase	1	12	12	12	12

Actual cycle	16	28	105	49	795
Split plan 3	1	36	36	36	36
Signal group 1	18	0	9	6	110
Signal group 2	18	0	9	6	110
Signal group 4	16	10	88	31	499
Signal group 5	16	10	88	30	487
Signal group 6	1	6	6	6	6

Tuesday, 30 March 2021, 11:00:00 PM AEDT to Tuesday, 30 March 2021, 11:15:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	10	11	21	14	144
C phase	10	20	152	67	679
D phase	3	11	14	12	37
Actual cycle	9	37	178	82	743
Signal group 1	11	0	15	7	84
Signal group 2	11	0	15	7	84
Signal group 4	10	14	146	65	656
Signal group 5	10	14	146	61	619
Signal group 6	3	5	8	6	19
Signal group 9	1	8	8	8	8
Signal group 10	1	8	8	8	8

Tuesday, 30 March 2021, 11:15:00 PM AEDT to Tuesday, 30 March 2021, 11:30:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	16	11	16	12	204
C phase	17	15	61	35	605
D phase	2	11	12	11	23
Actual cycle	17	26	74	48	832
Split plan 2	1	72	72	72	72
Signal group 1	17	0	10	6	108
Signal group 2	17	0	10	6	108
Signal group 4	17	9	56	34	585
Signal group 5	18	9	55	30	556
Signal group 6	2	5	6	5	11

Tuesday, 30 March 2021, 11:30:00 PM AEDT to Tuesday, 30 March 2021, 11:45:00 PM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	13	11	16	12	160
C phase	13	23	136	56	738
Actual cycle	12	34	149	69	830
Signal group 1	14	0	10	5	82
Signal group 2	14	0	10	5	82
Signal group 4	13	17	130	50	660
Signal group 5	13	17	130	50	660

Tuesday, 30 March 2021, 11:45:00 PM AEDT to Wednesday, 31 March 2021, 12:00:00 AM AEDT:

Data item	Frequency	Minimum	Maximum	Average	Total
A phase	11	11	13	11	130
C phase	11	29	158	68	757
D phase	1	12	12	12	12
Actual cycle	11	41	158	80	888

Signal group 1	11	0	7	5	59
Signal group 2	11	0	7	5	59
Signal group 4	11	23	153	64	704
Signal group 5	11	23	153	62	692
Signal group 6	1	6	6	6	6

# ATTACHMENT 2

## SIDRA Calibration and Outputs



now



Technical Note: Waverley Streetscapes

ID: 210505tnote-N208800 York-Darley-Avoca Intersection  
Modelling.docx



## Existing Models Calibration

No site visit was undertaken to observe intersection performance, signal phasing and queue lengths. The existing model inputs were typically based on the results from the 2018 modelling undertaken by Parsons Brinckerhoff. The following summarises the differences between the 2018 modelling and the updated modelling presented within this technical note.

### Traffic Volumes

To confirm any change in traffic volumes since the 2018 modelling was completed, SCATS detector counts were obtained for Tuesday 30 March 2021 (Attachment 1). The detector data indicates that the AM and PM peak hours occurred between 8:15am to 9:15am and 16:55pm to 17:55pm respectively.

A comparison between the 2018 data extracted from the previous modelling and the 2021 SCATS data indicates that traffic volumes at the intersection have decreased. The overall intersection volumes decreased by 20 and 13.7 percent in the AM and PM peaks respectively.

Figure 5 and Figure 6 show the changes in traffic volumes between 2018 and 2021, with green values indicating volumes have decreased and red indicating an increased volume. As shown, only the through and left turn movement from Darley Road East had an increase in volumes in the AM peak, with all other movements experiencing a decrease in traffic.

Figure 5: Difference between 2018 and 2021 AM peak hour traffic volumes<sup>2</sup>

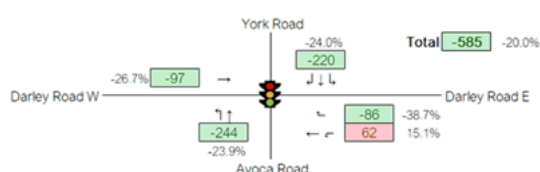
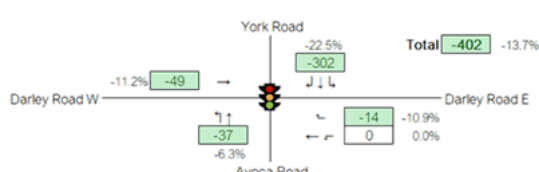


Figure 6: Difference between 2018 and 2021 PM peak hour traffic volumes<sup>2</sup>



As a result, the traffic volume inputs from the 2018 modelling completed by Parsons Brinckerhoff were used in the modelling as a conservative approach.

### Signal Phasing

In addition to the SCATS detector counts, IDM data was requested from TfNSW for 30 March 2021 to compare the phase timing incorporated into the 2018 modelling. The 2021 phasing data was used in the updated intersection modelling.

### Queue Lengths

The queue lengths within the 2018 model were used to validate the existing model outputs.

<sup>2</sup> Left turning traffic using the slip lane from Darley Road into York Road are excluded from overall traffic volumes as this movement is not covered by a SCATS detector.

# ATTACHMENT 3

## 2018 Modelling Details and SIDRA Outputs



now



**Stantec**

Technical Note: Waverley Streetscapes

ID: 210505tnote-N208800 York-Darley-Avoca Intersection  
Modelling.docx

Background Information

Parsons Brinckerhoff completed modelling of the York Road/ Darley Road/ Avoca street intersection in May 2018 on behalf of Randwick City Council. SIDRA INTERSECTION 7.0 was used to complete the modelling, noting that GTA, now Stantec currently uses SIDRA INTERSECTION 8.0. The updated software version produces slightly different outputs because of improvements to the software to represent real-world intersection performance.

No details on the model inputs were provided with the model files.

The models included an existing scenario and a future optimised model. The only difference between the two layouts was the removal of the left turn slip lane from Darley Road into York Road.

Figure 7: 2018 Existing Model Layout

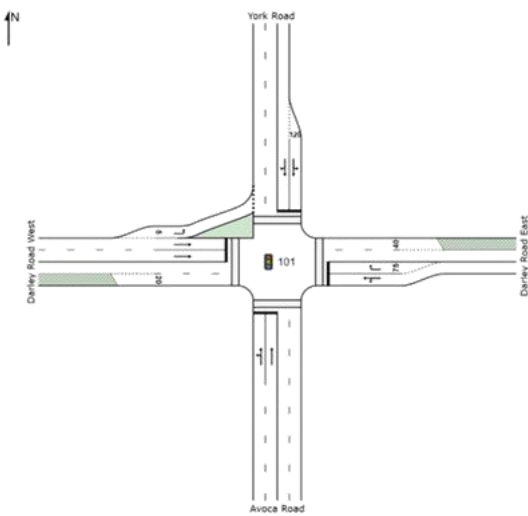
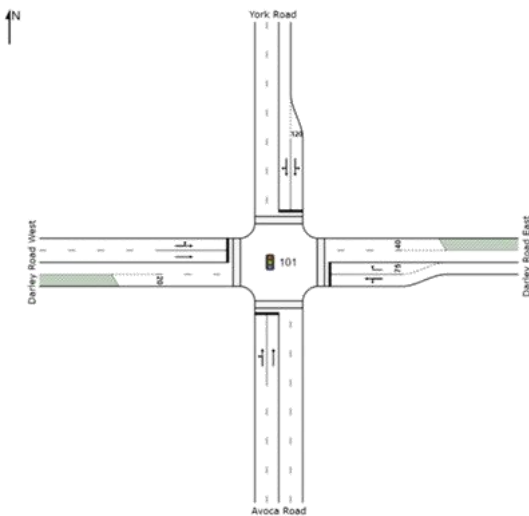


Figure 8: 2018 Future Optimised Model Layout



Traffic Volumes

Given the lack of available information, the date of traffic volumes or peak hours modelled is unknown. It is assumed that these traffic volumes were surveyed in 2018. Figure 9 and Figure 10 show the AM and PM peak hour volume input used in the 2018 modelling.

Figure 9: 2018 AM peak hour traffic volumes

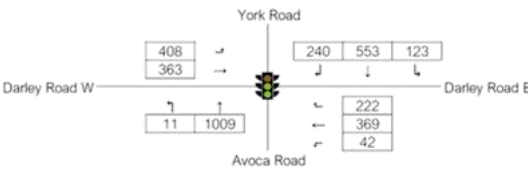
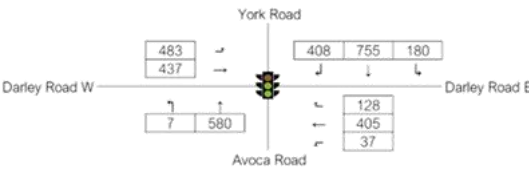


Figure 10: 2018 PM peak hour traffic volumes



now



## Existing Intersection Performance

Table 5 presents a summary of the 2018 existing intersection operation extracted from the modelling previously undertaken by Parsons Brinckerhoff, with full results subsequently attached.

Table 5: 2018 Existing Intersection Performance

Peak	Leg	Degree of saturation (DOS)	Average delay (sec)	95th percentile queue (m)	Level of service (LOS)
AM	South	0.791	37.8	196.3	C
	East	0.956	52.5	145.6	D
	North	0.740	35.9	216.1	C
	West	0.977	49.0	178.1	D
	Overall	0.977	42.6	216.1	D
PM	South	0.674	43.0	111.3	D
	East	0.934	49.8	172.6	D
	North	0.927	35.1	284.1	C
	West	0.965	41.3	214.3	C
	Overall	0.965	40.6	284.1	C

As shown in Table 5, the degree of saturation is above the maximum practical degree of saturation (0.90 at specified in TfNSW Traffic Modelling Guidelines). The intersection currently operates at LoS D in the AM and LoS C in the PM (delay of 42 seconds is the boundary between LoS C and D). This indicates the intersection is currently operating just within stable conditions, but that small increases in flow may cause exponential increases in delay.

## Future Optimised Intersection Performance

Table 6 presents a summary of the 2018 future optimised intersection operation extracted from the modelling previously undertaken by Parson Brinckerhoff, with full results subsequently attached.

Table 6: 2018 Future Optimised Intersection Performance

Peak	Leg	Degree of saturation (DOS)	Average delay (sec)	95th percentile queue (m)	Level of service (LOS)
AM	South	0.879	49.8	229.3	D
	East	0.956	47.6	127.6	D
	North	0.871	50.3	280.4	D
	West	0.976	70.6	231.5	F
	Overall	0.976	54.3	280.4	D
PM	South	0.925	66.2	142.0	E
	East	0.901	37.7	136.1	C
	North	0.958	70.4	440.5	E
	West	0.971	63.9	264.6	E
	Overall	0.971	62.5	440.5	E

In the AM peak, the LoS remains at D, with DoS remaining approximately the same as existing, but with delay and 95<sup>th</sup> percentile queue increasing. In the PM peak LoS decreases to LoS E, which is an unstable condition, with long delays and excessive queuing.

## Review of Models

The models were interrogated to check if the models matched existing conditions, with several anomalies identified. There may be reasons behind these anomalies, however having not completed the modelling and in the absence of additional information it is not possible to confirm whether the previous modelling is an accurate representation.

The anomalies that were identified and subsequently changed within GTA, now Stantec's modelling include the following:

- Intersection approach distances were not adjusted to reflect the existing intersection.
- Short lane lengths do not match distances measured from aerial imagery, noting that Avoca Street includes two full length lanes, however on-site the kerbside lane is a short lane with parking.
- The left turn slip lane from Darley Road into York Road includes a 5-metre short lane which is not reflective of site conditions.
- User given phase times were used within both the existing and future proposed models. It is not clear whether they have been adopted from SCATS data and if/ how the future phasing times have been optimised.
- In the future optimised model, the proposed phasing did not appear to allow for the left turn from Darley into York Road in Phase D. This may be due to not having a LT arrow lantern installed.

## Summary

The results from this modelling indicated the intersection was currently operating just within stable conditions in both the AM and PM peak periods. The removal of the slip lane decreased the performance of the intersection and resulted in unstable conditions for the PM peak period.

Updates to the modelling were requested to consider refinement of the future condition following removal of the slip lane. Due to the previous modelling being completed in an old version of SIDRA and several anomalies found within the model, GTA, now Stantec undertook additional modelling for the intersection based updated information (where available) to incorporate the requested changes.



now

**Stantec**

Technical Note: Waverley Streetscapes

ID: 210505tnote-N208800 York-Darley-Avoca Intersection  
Modelling.docx

## USER REPORT FOR SITE

 **Project:** 210426sid\_N208800 York-Darley-Avoca

**Template:** Site User Report

### **Site:** 101 [York Darley Avoca - AM - Existing]

New Site

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 117 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

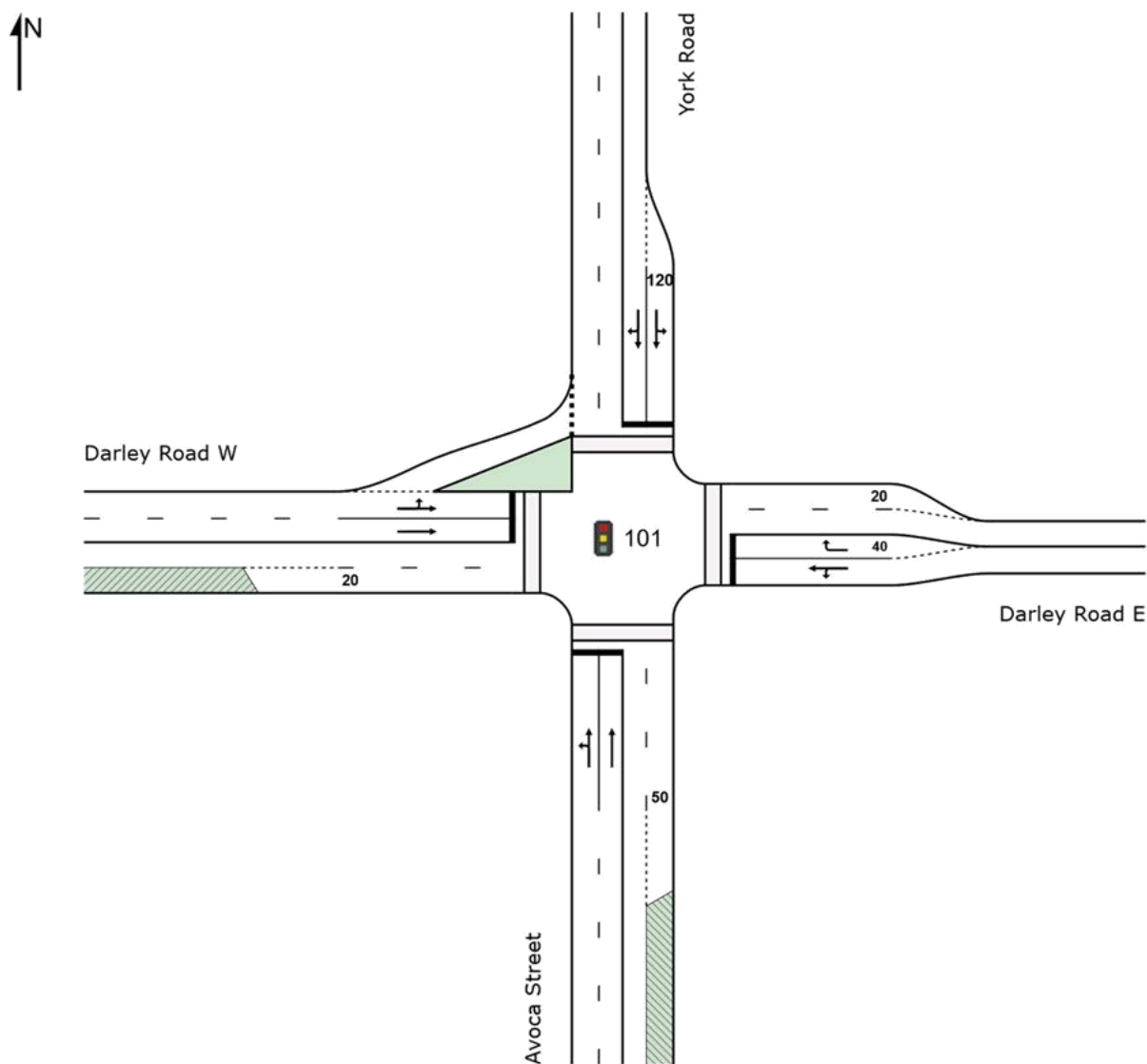
Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D

Output Phase Sequence: A, B, C, D

#### Site Layout





Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Avoca Street												
1	L2	12	0.0	0.815	45.7	LOS D	29.8	209.7	0.98	0.92	1.05	25.6
2	T1	1062	0.8	0.815	41.2	LOS C	29.8	209.7	0.98	0.92	1.05	31.1
Approach		1074	0.8	0.815	41.2	LOS C	29.8	209.7	0.98	0.92	1.05	31.0
East: Darley Road E												
4	L2	44	0.0	0.867	52.1	LOS D	25.0	175.9	0.93	0.96	1.12	19.7
5	T1	388	0.8	0.867	47.5	LOS D	25.0	175.9	0.93	0.96	1.12	25.4
6	R2	234	0.0	0.916	76.0	LOS F	14.8	103.4	1.00	1.20	1.97	24.4
Approach		666	0.5	0.916	57.8	LOS E	25.0	175.9	0.96	1.05	1.42	24.7
North: York Road												
7	L2	129	7.3	0.367	20.9	LOS B	11.1	79.7	0.59	0.64	0.84	39.8
8	T1	582	1.6	1.130	96.1	LOS F	63.9	452.2	0.82	1.15	1.61	18.4
9	R2	253	0.8	1.130	163.6	LOS F	63.9	452.2	1.00	1.56	2.22	15.2
Approach		964	2.2	1.130	103.7	LOS F	63.9	452.2	0.84	1.19	1.67	18.5
West: Darley Road W												
10	L2	429	0.0	0.510	18.6	LOS B	13.8	96.7	0.70	0.77	0.70	41.2
11	T1	382	1.6	1.177	223.8	LOS F	49.7	352.4	1.00	1.94	2.49	8.8
Approach		812	0.8	1.177	115.2	LOS F	49.7	352.4	0.84	1.32	1.55	18.3
All Vehicles		3516	1.1	1.177	78.6	LOS F	63.9	452.2	0.90	1.11	1.40	22.1

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	35	52.7	LOS E	0.1	0.1	0.95	0.95	
P2	East Full Crossing	202	53.1	LOS E	0.6	0.6	0.96	0.96	
P3	North Full Crossing	65	52.8	LOS E	0.2	0.2	0.95	0.95	
P4	West Full Crossing	89	52.9	LOS E	0.3	0.3	0.95	0.95	
All Pedestrians		392	53.0	LOS E			0.95	0.95	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

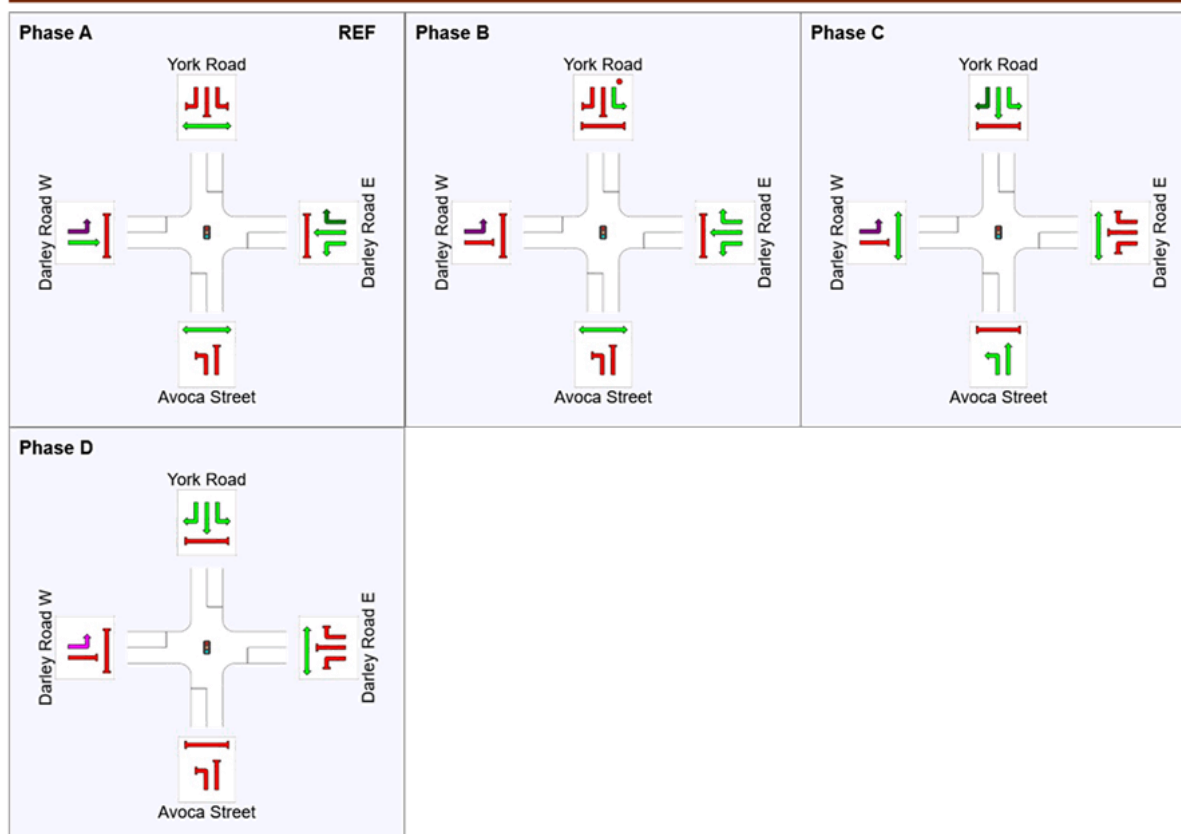
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

### Phase Timing Summary

Phase	A	B	C	D
Phase Change Time (sec)	0	26	44	90
Green Time (sec)	20	12	40	21
Phase Time (sec)	26	18	46	27
Phase Split	22%	15%	39%	23%

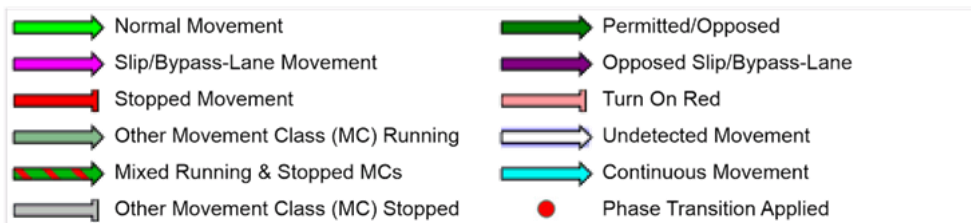
See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency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

### Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase



SIDRA INTERSECTION 8.0 | Copyright © 2000-2019 Akcelik and Associates Pty Ltd | [sidrasolutions.com](http://sidrasolutions.com)

Organisation: GTA CONSULTANTS | Created: Tuesday, 4 May 2021 11:44:08 AM

Project: P:\N20800-20899\N208800 Waverley Streetscapes\Modelling\210426sid\_N208800 York-Darley-Avoca.sip8

## USER REPORT FOR SITE

 **Project:** 210426sid\_N208800 York-Darley-Avoca

**Template:** Site User Report

### **Site:** 101 [York Darley Avoca - AM - Slip Lane Removed]

New Site

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 117 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

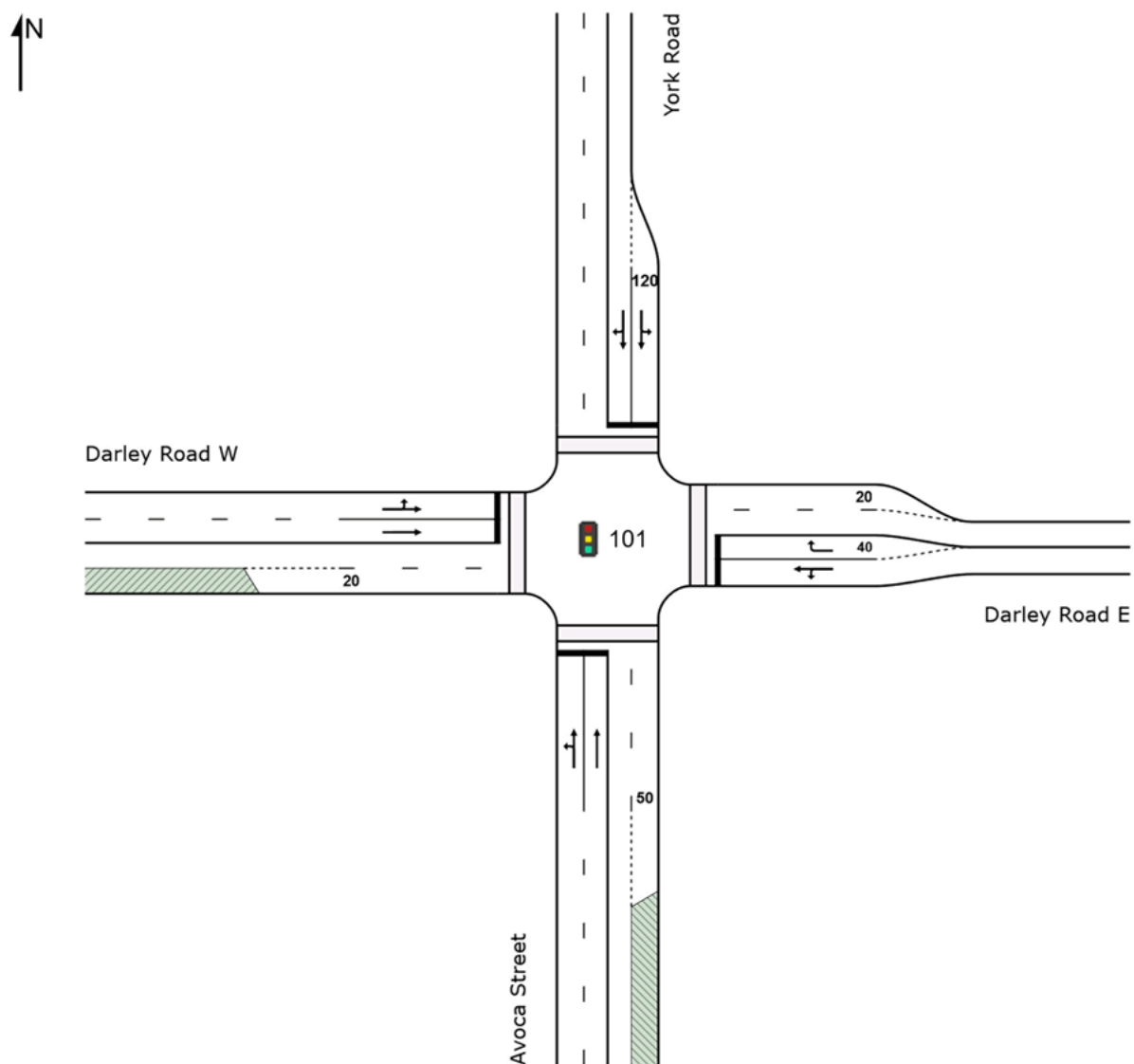
Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D

Output Phase Sequence: A, B, C, D

#### Site Layout



Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Avoca Street												
1	L2	12	0.0	0.815	45.7	LOS D	29.8	209.7	0.98	0.92	1.05	25.6
2	T1	1062	0.8	0.815	41.2	LOS C	29.8	209.7	0.98	0.92	1.05	31.1
Approach		1074	0.8	0.815	41.2	LOS C	29.8	209.7	0.98	0.92	1.05	31.0
East: Darley Road E												
4	L2	44	0.0	0.867	52.1	LOS D	25.0	175.9	0.93	0.96	1.12	19.7
5	T1	388	0.8	0.867	47.5	LOS D	25.0	175.9	0.93	0.96	1.12	25.4
6	R2	234	0.0	0.916	76.0	LOS F	14.8	103.4	1.00	1.20	1.97	24.4
Approach		666	0.5	0.916	57.8	LOS E	25.0	175.9	0.96	1.05	1.42	24.7
North: York Road												
7	L2	129	7.3	0.367	20.9	LOS B	11.1	79.7	0.59	0.64	0.84	39.8
8	T1	582	1.6	1.130	96.1	LOS F	63.9	452.2	0.82	1.15	1.61	18.4
9	R2	253	0.8	1.130	163.6	LOS F	63.9	452.2	1.00	1.56	2.22	15.2
Approach		964	2.2	1.130	103.7	LOS F	63.9	452.2	0.84	1.19	1.67	18.5
West: Darley Road W												
10	L2	429	0.0	0.573	33.7	LOS C	18.9	132.6	0.83	0.82	0.83	35.6
11	T1	382	1.6	1.177	223.8	LOS F	49.7	352.4	1.00	1.94	2.49	8.8
Approach		812	0.8	1.177	123.2	LOS F	49.7	352.4	0.91	1.35	1.61	17.5
All Vehicles		3516	1.1	1.177	80.4	LOS F	63.9	452.2	0.92	1.12	1.42	21.8

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	35	52.7	LOS E	0.1	0.1	0.95	0.95	
P2	East Full Crossing	202	53.1	LOS E	0.6	0.6	0.96	0.96	
P3	North Full Crossing	65	52.8	LOS E	0.2	0.2	0.95	0.95	
P4	West Full Crossing	89	52.9	LOS E	0.3	0.3	0.95	0.95	
All Pedestrians		392	53.0	LOS E			0.95	0.95	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

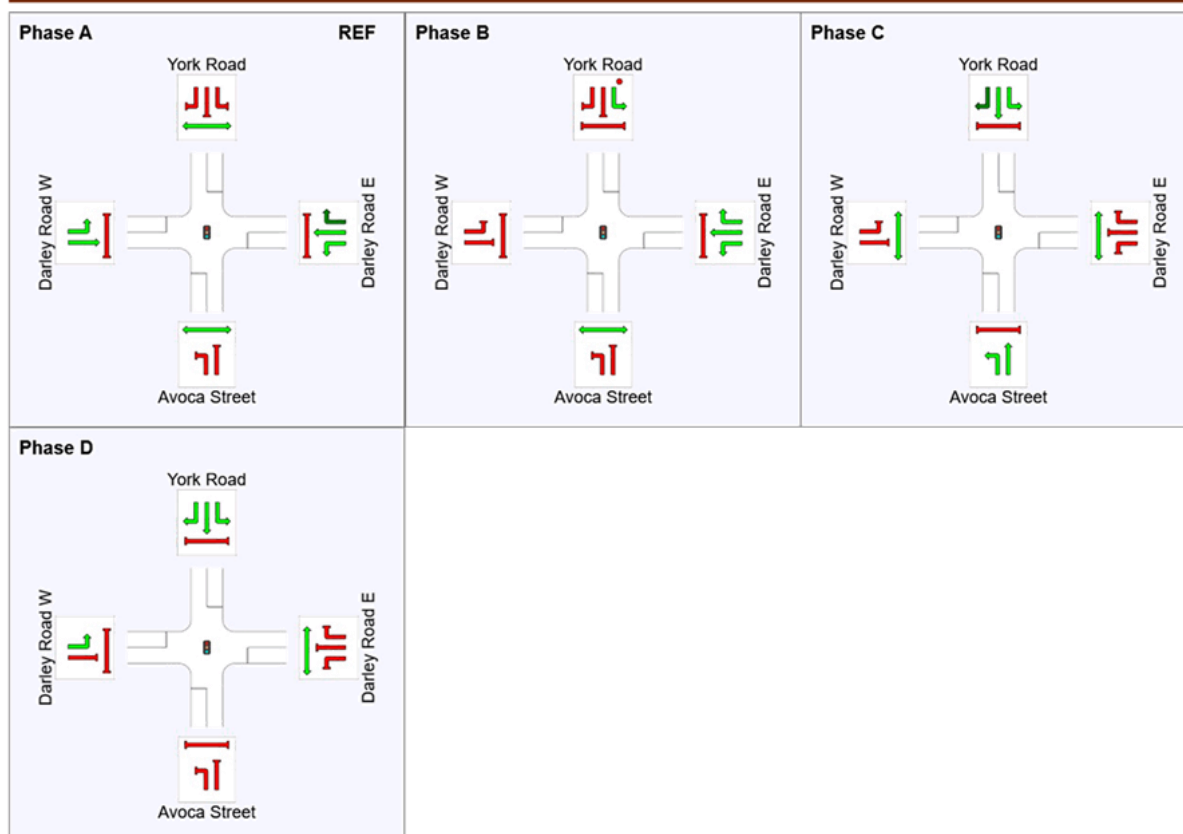
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

### Phase Timing Summary

Phase	A	B	C	D
Phase Change Time (sec)	0	26	44	90
Green Time (sec)	20	12	40	21
Phase Time (sec)	26	18	46	27
Phase Split	22%	15%	39%	23%

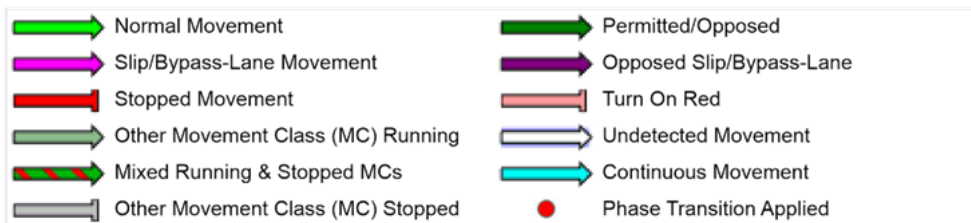
See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency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

### Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase



SIDRA INTERSECTION 8.0 | Copyright © 2000-2019 Akcelik and Associates Pty Ltd | [sidrasolutions.com](http://sidrasolutions.com)

Organisation: GTA CONSULTANTS | Created: Tuesday, 4 May 2021 11:44:12 AM

Project: P:\N20800-20899\N208800 Waverley Streetscapes\Modelling\210426sid\_N208800 York-Darley-Avoca.sip8

## USER REPORT FOR SITE

 **Project:** 210426sid\_N208800 York-Darley-Avoca

**Template:** Site User Report

### **Site:** 101 [York Darley Avoca - AM - Slip Lane Removed & Exclusive Left]

New Site

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 117 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

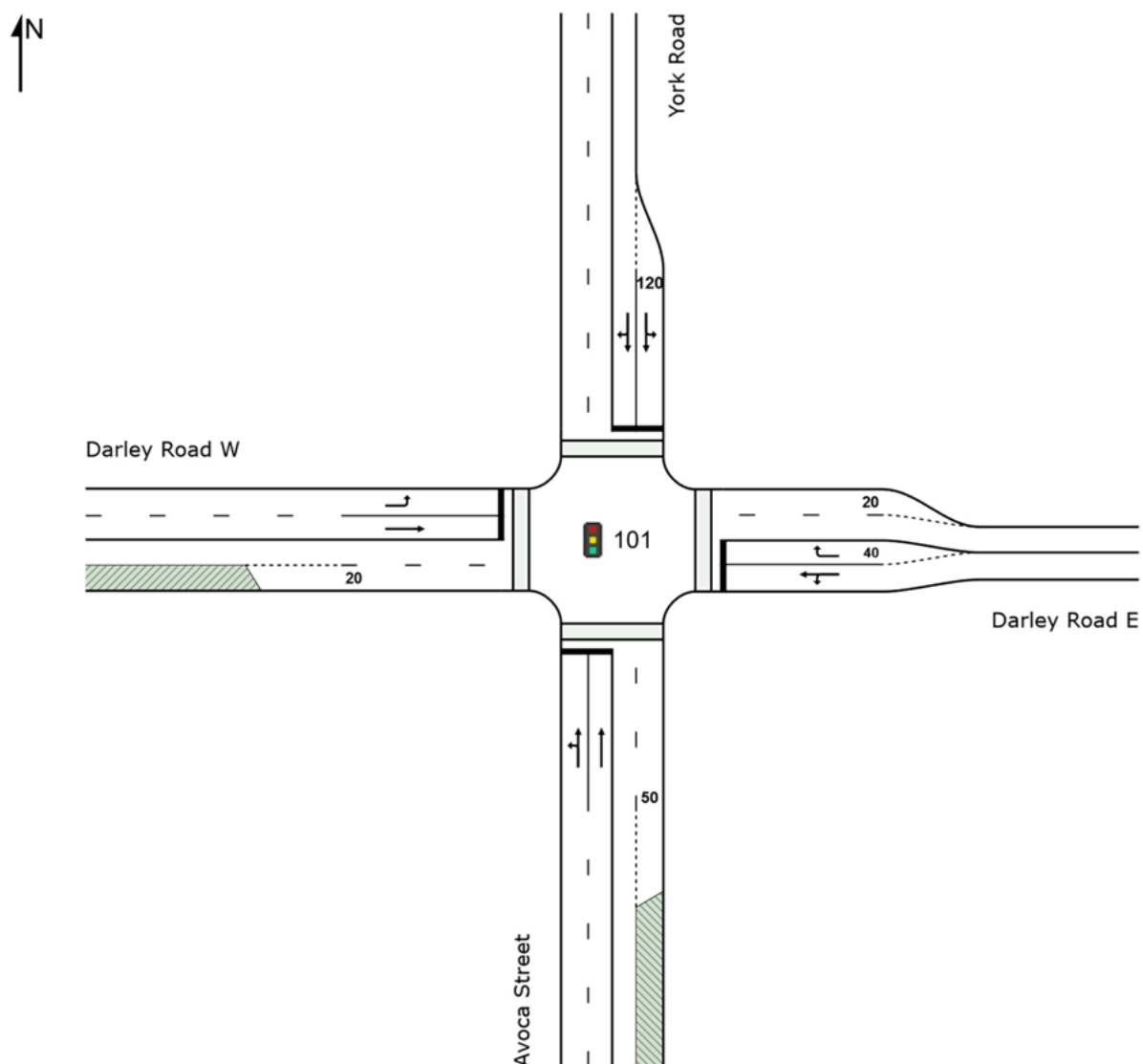
Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D

Output Phase Sequence: A, B, C, D

#### Site Layout





Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Avoca Street												
1	L2	12	0.0	0.815	45.7	LOS D	29.8	209.7	0.98	0.92	1.05	25.6
2	T1	1062	0.8	0.815	41.2	LOS C	29.8	209.7	0.98	0.92	1.05	31.1
Approach		1074	0.8	0.815	41.2	LOS C	29.8	209.7	0.98	0.92	1.05	31.0
East: Darley Road E												
4	L2	44	0.0	0.867	52.1	LOS D	25.0	175.9	0.93	0.96	1.12	19.7
5	T1	388	0.8	0.867	47.5	LOS D	25.0	175.9	0.93	0.96	1.12	25.4
6	R2	234	0.0	0.916	76.0	LOS F	14.8	103.4	1.00	1.20	1.97	24.4
Approach		666	0.5	0.916	57.8	LOS E	25.0	175.9	0.96	1.05	1.42	24.7
North: York Road												
7	L2	129	7.3	0.367	20.9	LOS B	11.1	79.7	0.59	0.64	0.84	39.8
8	T1	582	1.6	1.130	96.1	LOS F	63.9	452.2	0.82	1.15	1.61	18.4
9	R2	253	0.8	1.130	163.6	LOS F	63.9	452.2	1.00	1.56	2.22	15.2
Approach		964	2.2	1.130	103.7	LOS F	63.9	452.2	0.84	1.19	1.67	18.5
West: Darley Road W												
10	L2	429	0.0	0.573	33.7	LOS C	18.9	132.6	0.83	0.82	0.83	35.6
11	T1	382	1.6	1.177	223.8	LOS F	49.7	352.4	1.00	1.94	2.49	8.8
Approach		812	0.8	1.177	123.2	LOS F	49.7	352.4	0.91	1.35	1.61	17.5
All Vehicles		3516	1.1	1.177	80.4	LOS F	63.9	452.2	0.92	1.12	1.42	21.8

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	35	52.7	LOS E	0.1	0.1	0.95	0.95	
P2	East Full Crossing	202	53.1	LOS E	0.6	0.6	0.96	0.96	
P3	North Full Crossing	65	52.8	LOS E	0.2	0.2	0.95	0.95	
P4	West Full Crossing	89	52.9	LOS E	0.3	0.3	0.95	0.95	
All Pedestrians		392	53.0	LOS E			0.95	0.95	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

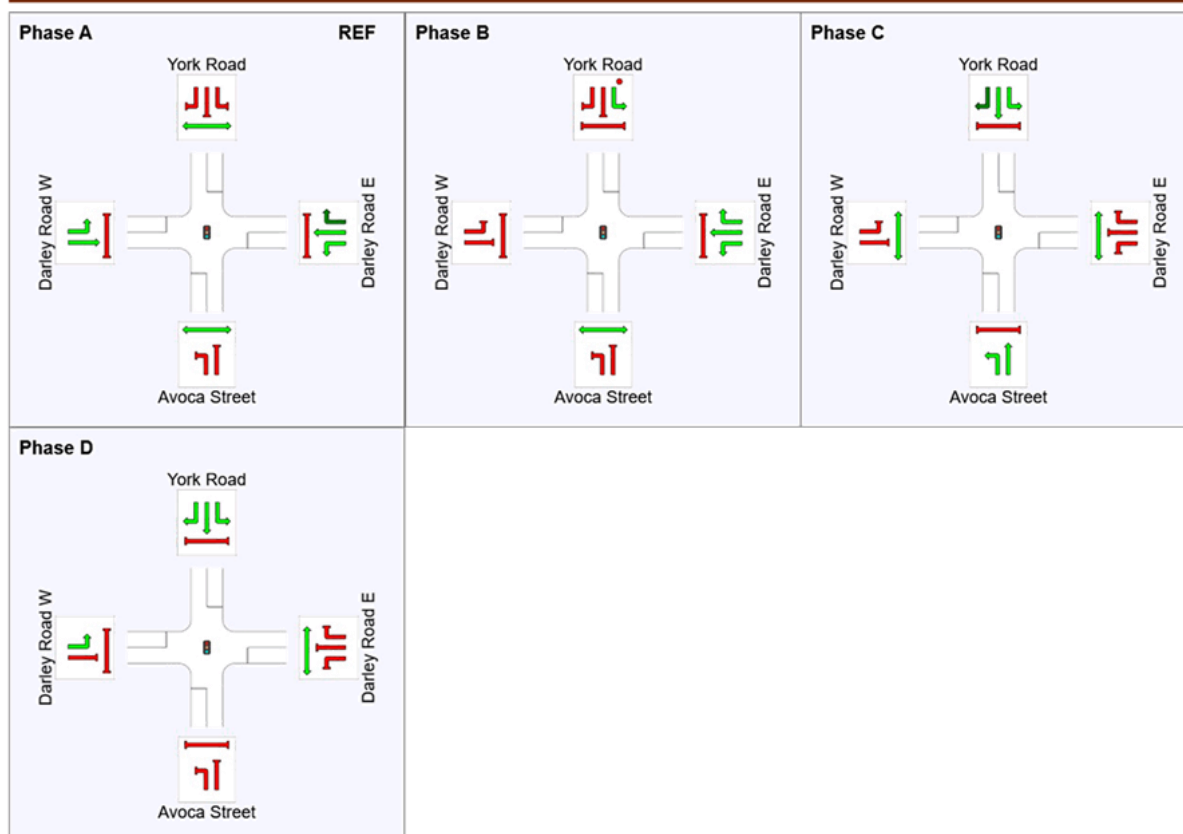
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

### Phase Timing Summary

Phase	A	B	C	D
Phase Change Time (sec)	0	26	44	90
Green Time (sec)	20	12	40	21
Phase Time (sec)	26	18	46	27
Phase Split	22%	15%	39%	23%

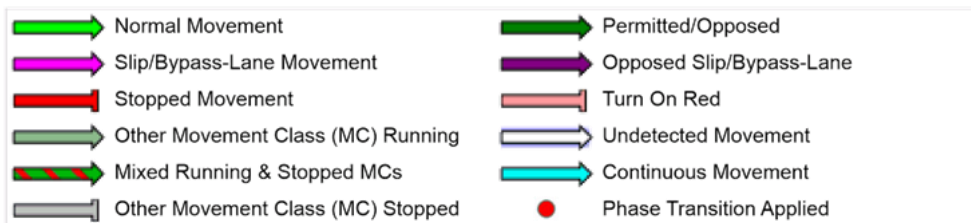
See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency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

### Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase



SIDRA INTERSECTION 8.0 | Copyright © 2000-2019 Akcelik and Associates Pty Ltd | [sidrasolutions.com](http://sidrasolutions.com)

Organisation: GTA CONSULTANTS | Created: Tuesday, 4 May 2021 11:44:16 AM

Project: P:\N20800-20899\N208800 Waverley Streetscapes\Modelling\210426sid\_N208800 York-Darley-Avoca.sip8



## USER REPORT FOR SITE

 Project: 210426sid\_N208800 York-Darley-Avoca

Template: Site User Report

### Site: 101 [York Darley Avoca - PM - Existing]

New Site

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 119 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

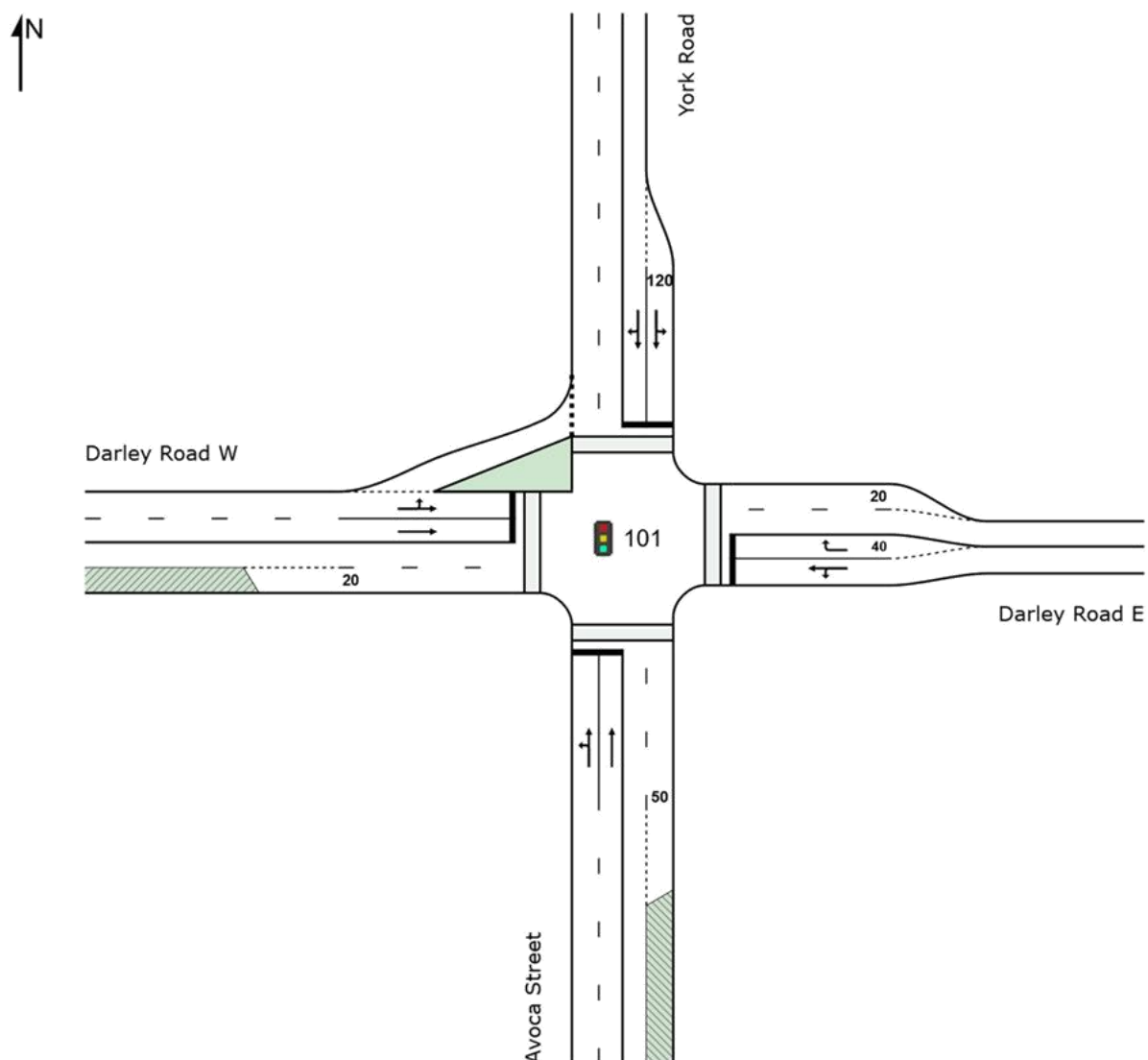
Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D

Output Phase Sequence: A, B, C, D

#### Site Layout



Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Avoca Street												
1	L2	7	0.0	0.681	49.5	LOS D	16.6	116.9	0.97	0.83	0.97	24.5
2	T1	611	0.6	0.681	45.0	LOS D	16.6	116.9	0.97	0.82	0.97	30.0
Approach		618	0.6	0.681	45.1	LOS D	16.6	116.9	0.97	0.82	0.97	30.0
East: Darley Road E												
4	L2	39	0.0	0.822	46.5	LOS D	25.5	179.4	0.94	0.90	1.03	21.2
5	T1	426	0.7	0.822	42.0	LOS C	25.5	179.4	0.94	0.90	1.03	26.9
6	R2	135	2.3	0.620	61.2	LOS E	7.6	54.1	0.99	0.93	1.39	27.1
Approach		600	1.0	0.822	46.6	LOS D	25.5	179.4	0.95	0.90	1.11	26.7
North: York Road												
7	L2	189	2.2	0.435	21.9	LOS B	14.1	100.0	0.62	0.69	0.89	39.3
8	T1	795	0.9	1.339	227.7	LOS F	150.2	1059.0	0.87	1.63	2.33	10.6
9	R2	429	0.7	1.339	343.7	LOS F	150.2	1059.0	1.00	2.12	3.09	9.3
Approach		1414	1.0	1.339	235.4	LOS F	150.2	1059.0	0.87	1.65	2.37	11.1
West: Darley Road W												
10	L2	508	0.0	0.458	10.1	LOS A	10.3	72.1	0.49	0.69	0.49	44.9
11	T1	460	1.6	1.201	244.0	LOS F	63.5	450.4	1.00	2.08	2.56	8.2
Approach		968	0.8	1.201	121.2	LOS F	63.5	450.4	0.73	1.35	1.47	17.7
All Vehicles		3600	0.9	1.339	140.5	LOS F	150.2	1059.0	0.86	1.30	1.68	15.6

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	26	53.7	LOS E	0.1	0.1	0.95	0.95
P2	East Full Crossing	44	53.8	LOS E	0.1	0.1	0.95	0.95
P3	North Full Crossing	65	53.8	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	75	53.8	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	53.8	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

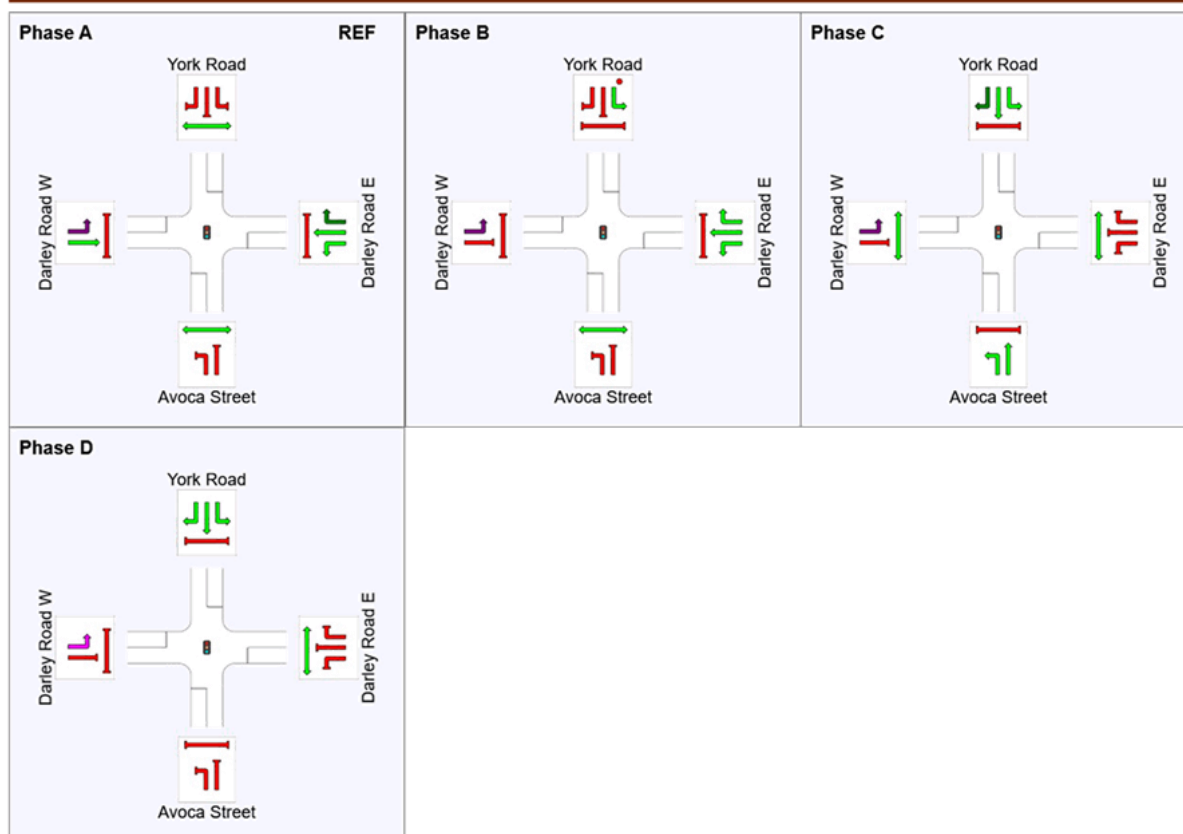
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

### Phase Timing Summary

Phase	A	B	C	D
Phase Change Time (sec)	0	30	46	80
Green Time (sec)	24	10	28	33
Phase Time (sec)	30	16	34	39
Phase Split	25%	13%	29%	33%

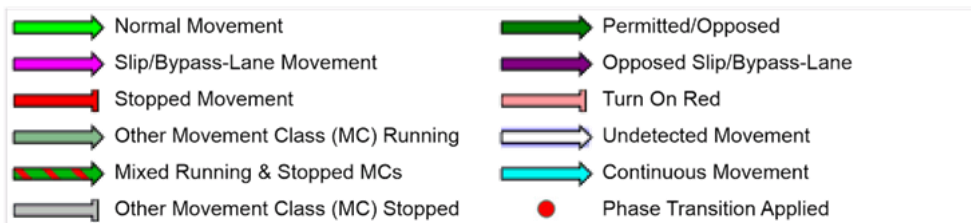
See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency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

### Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase



SIDRA INTERSECTION 8.0 | Copyright © 2000-2019 Akcelik and Associates Pty Ltd | [sidrasolutions.com](http://sidrasolutions.com)

Organisation: GTA CONSULTANTS | Created: Tuesday, 4 May 2021 11:44:10 AM

Project: P:\N20800-20899\N208800 Waverley Streetscapes\Modelling\210426sid\_N208800 York-Darley-Avoca.sip8

## USER REPORT FOR SITE

 Project: 210426sid\_N208800 York-Darley-Avoca

Template: Site User Report

### Site: 101 [York Darley Avoca - PM - Slip Lane Removed]

New Site

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 119 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

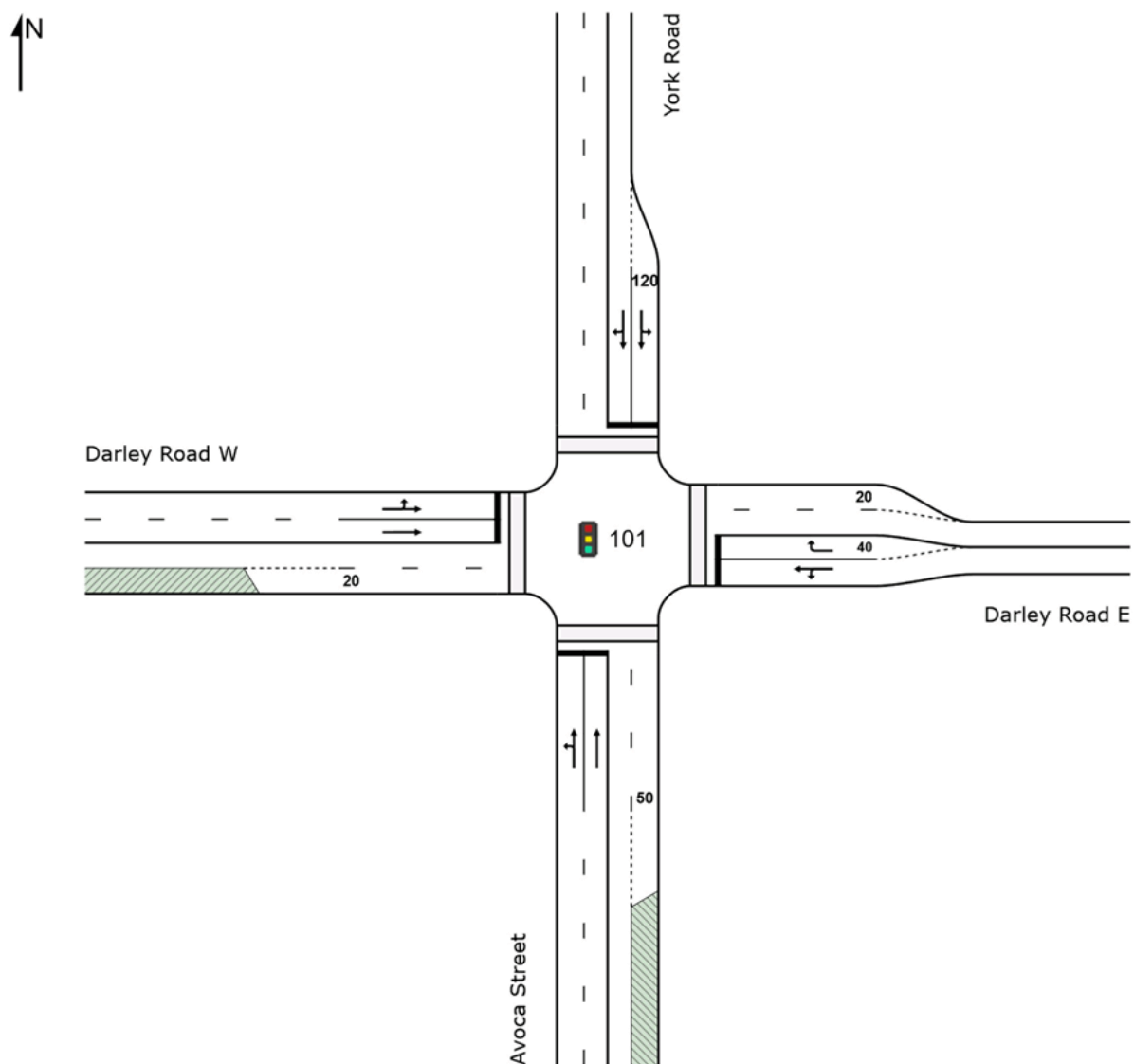
Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D

Output Phase Sequence: A, B, C, D

#### Site Layout



Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Avoca Street												
1	L2	7	0.0	0.681	49.5	LOS D	16.6	116.9	0.97	0.83	0.97	24.5
2	T1	611	0.6	0.681	45.0	LOS D	16.6	116.9	0.97	0.82	0.97	30.0
Approach		618	0.6	0.681	45.1	LOS D	16.6	116.9	0.97	0.82	0.97	30.0
East: Darley Road E												
4	L2	39	0.0	0.822	46.5	LOS D	25.5	179.4	0.94	0.90	1.03	21.2
5	T1	426	0.7	0.822	42.0	LOS C	25.5	179.4	0.94	0.90	1.03	26.9
6	R2	135	2.3	0.620	61.2	LOS E	7.6	54.1	0.99	0.93	1.39	27.1
Approach		600	1.0	0.822	46.6	LOS D	25.5	179.4	0.95	0.90	1.11	26.7
North: York Road												
7	L2	189	2.2	0.435	21.9	LOS B	14.1	100.0	0.62	0.69	0.89	39.3
8	T1	795	0.9	1.339	227.7	LOS F	150.2	1059.0	0.87	1.63	2.33	10.6
9	R2	429	0.7	1.339	343.7	LOS F	150.2	1059.0	1.00	2.12	3.09	9.3
Approach		1414	1.0	1.339	235.4	LOS F	150.2	1059.0	0.87	1.65	2.37	11.1
West: Darley Road W												
10	L2	508	0.0	0.514	23.8	LOS B	18.8	131.8	0.70	0.78	0.70	38.8
11	T1	460	1.6	1.201	244.0	LOS F	63.5	450.4	1.00	2.08	2.56	8.2
Approach		968	0.8	1.201	128.4	LOS F	63.5	450.4	0.84	1.40	1.58	17.0
All Vehicles		3600	0.9	1.339	142.5	LOS F	150.2	1059.0	0.89	1.32	1.71	15.4

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	26	53.7	LOS E	0.1	0.1	0.95	0.95
P2	East Full Crossing	44	53.8	LOS E	0.1	0.1	0.95	0.95
P3	North Full Crossing	65	53.8	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	75	53.8	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	53.8	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

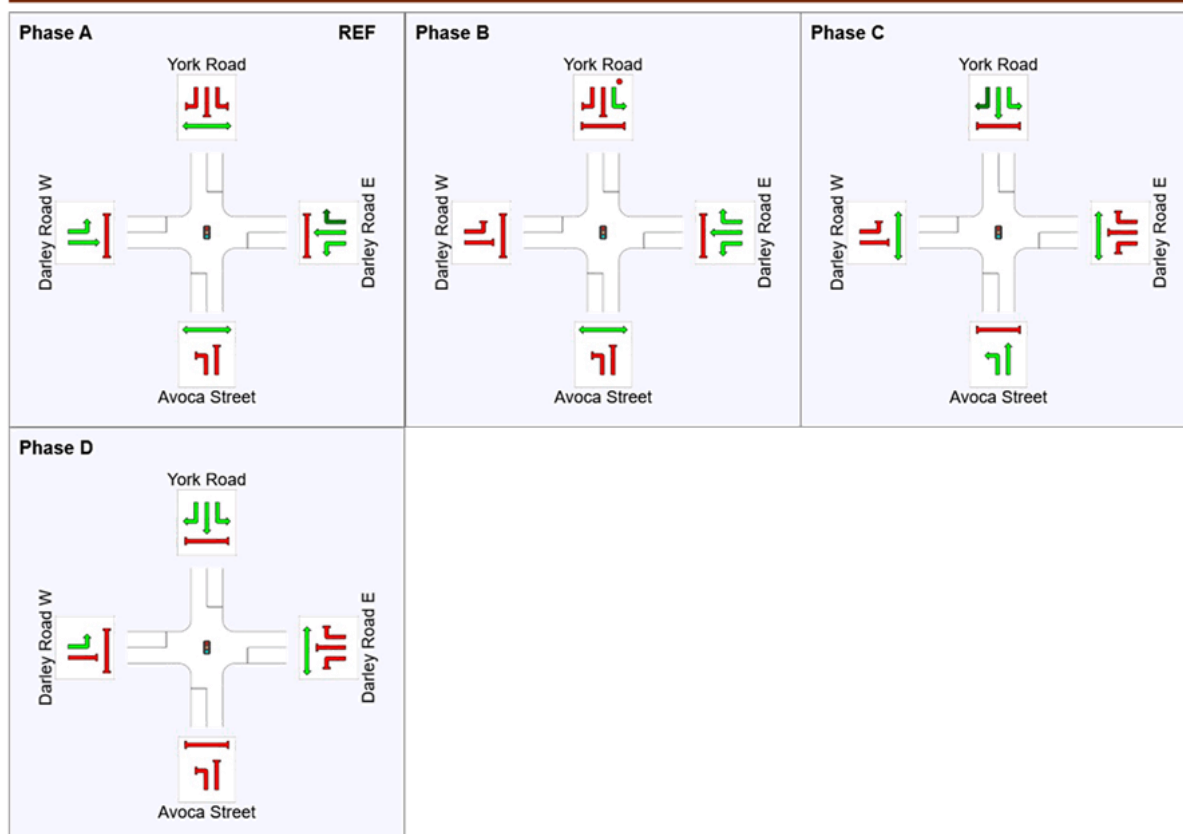
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

### Phase Timing Summary

Phase	A	B	C	D
Phase Change Time (sec)	0	30	46	80
Green Time (sec)	24	10	28	33
Phase Time (sec)	30	16	34	39
Phase Split	25%	13%	29%	33%

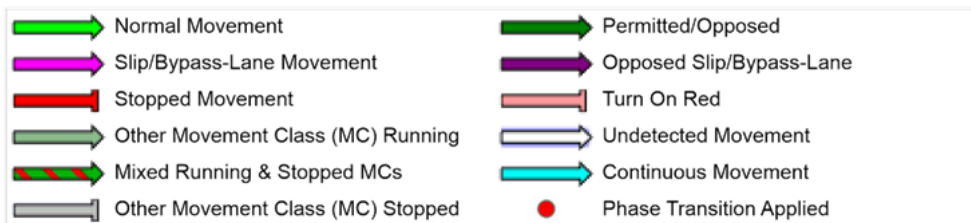
See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency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

### Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase



SIDRA INTERSECTION 8.0 | Copyright © 2000-2019 Akcelik and Associates Pty Ltd | [sidrasolutions.com](http://sidrasolutions.com)

Organisation: GTA CONSULTANTS | Created: Tuesday, 4 May 2021 11:44:14 AM

Project: P:\N20800-20899\N208800 Waverley Streetscapes\Modelling\210426sid\_N208800 York-Darley-Avoca.sip8

## USER REPORT FOR SITE

 Project: 210426sid\_N208800 York-Darley-Avoca

Template: Site User Report

### Site: 101 [York Darley Avoca - PM - Slip Lane Removed & Exclusive Left]

New Site

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 119 seconds (Site User-Given Phase Times)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times specified by the user

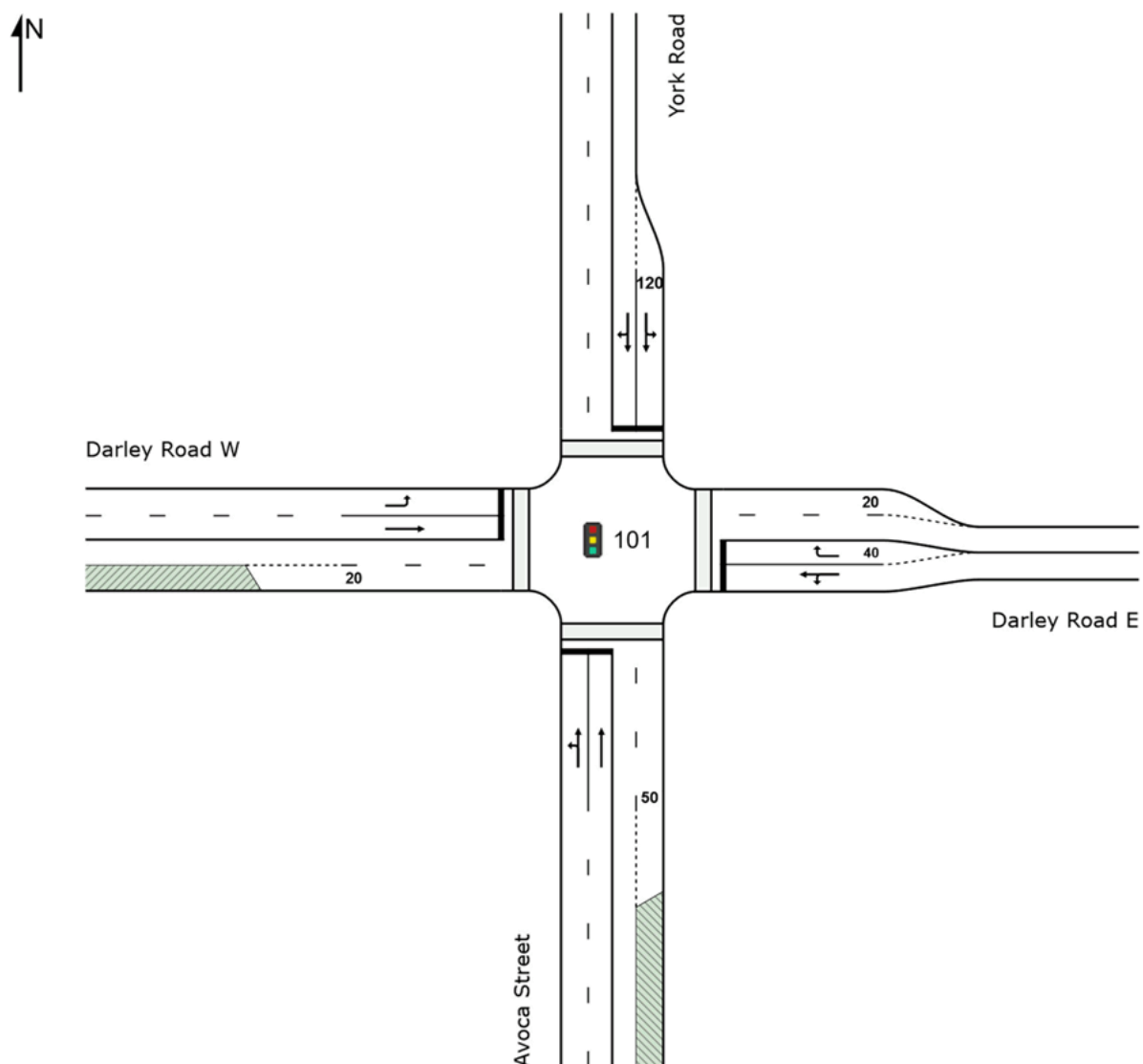
Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D

Output Phase Sequence: A, B, C, D

#### Site Layout





Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Avoca Street												
1	L2	7	0.0	0.681	49.5	LOS D	16.6	116.9	0.97	0.83	0.97	24.5
2	T1	611	0.6	0.681	45.0	LOS D	16.6	116.9	0.97	0.82	0.97	30.0
Approach		618	0.6	0.681	45.1	LOS D	16.6	116.9	0.97	0.82	0.97	30.0
East: Darley Road E												
4	L2	39	0.0	0.822	46.5	LOS D	25.5	179.4	0.94	0.90	1.03	21.2
5	T1	426	0.7	0.822	42.0	LOS C	25.5	179.4	0.94	0.90	1.03	26.9
6	R2	135	2.3	0.620	61.2	LOS E	7.6	54.1	0.99	0.93	1.39	27.1
Approach		600	1.0	0.822	46.6	LOS D	25.5	179.4	0.95	0.90	1.11	26.7
North: York Road												
7	L2	189	2.2	0.435	21.9	LOS B	14.1	100.0	0.62	0.69	0.89	39.3
8	T1	795	0.9	1.339	227.7	LOS F	150.2	1059.0	0.87	1.63	2.33	10.6
9	R2	429	0.7	1.339	343.7	LOS F	150.2	1059.0	1.00	2.12	3.09	9.3
Approach		1414	1.0	1.339	235.4	LOS F	150.2	1059.0	0.87	1.65	2.37	11.1
West: Darley Road W												
10	L2	508	0.0	0.514	23.8	LOS B	18.8	131.8	0.70	0.78	0.70	38.8
11	T1	460	1.6	1.201	244.0	LOS F	63.5	450.4	1.00	2.08	2.56	8.2
Approach		968	0.8	1.201	128.4	LOS F	63.5	450.4	0.84	1.40	1.58	17.0
All Vehicles		3600	0.9	1.339	142.5	LOS F	150.2	1059.0	0.89	1.32	1.71	15.4

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	26	53.7	LOS E	0.1	0.1	0.95	0.95
P2	East Full Crossing	44	53.8	LOS E	0.1	0.1	0.95	0.95
P3	North Full Crossing	65	53.8	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	75	53.8	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	53.8	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

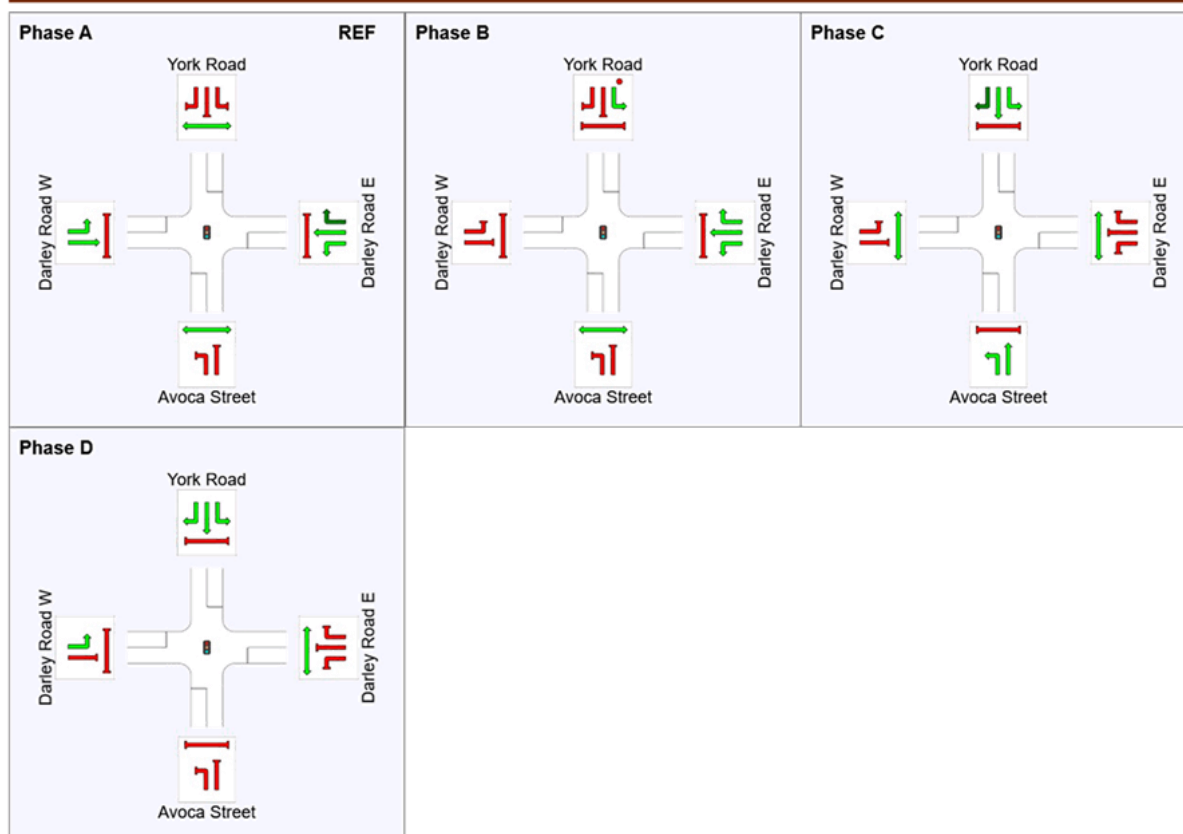


### Phase Timing Summary

Phase	A	B	C	D
Phase Change Time (sec)	0	30	46	80
Green Time (sec)	24	10	28	33
Phase Time (sec)	30	16	34	39
Phase Split	25%	13%	29%	33%

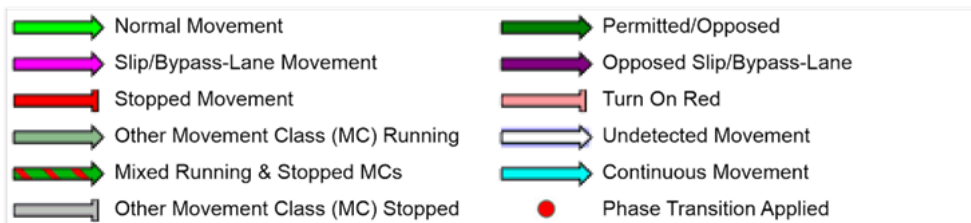
See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency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

### Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase



SIDRA INTERSECTION 8.0 | Copyright © 2000-2019 Akcelik and Associates Pty Ltd | [sidrasolutions.com](http://sidrasolutions.com)

Organisation: GTA CONSULTANTS | Created: Tuesday, 4 May 2021 11:44:19 AM

Project: P:\N20800-20899\N208800 Waverley Streetscapes\Modelling\210426sid\_N208800 York-Darley-Avoca.sip8

**REPORT**  
**TC/C.04/21.05**

**Subject:** Queens Park Road, Queens Park - Bus Zone Modifications

**TRIM No:** SF21/1704

**Author:** Hamoon Bahari, Professional Engineer, Traffic and Transport  
Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

---

**COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Removes the existing bus zone, tombstone (bus stop sign) and tactile ground surface indicators.
2. Installs a 18.5 metre bus zone east of the existing 'No Stopping' restriction.
3. Installs a J-stem pole, tombstone and tactile ground surface indicators 12.5 metres east of the existing 'No Stopping' restriction.

**1. Executive Summary**

Council officers have received a request from State Transit to reconfigure a bus zone at 16 Queens Park Road, Queens Park.

It is proposed to shorten the bus zone in length from 20 metres to 18.5 metres and move it 16 metres to the east. The changes will result in 2 additional on-street parking spaces for cars becoming available as well as improving access for buses.

The site location is shown in Figure 1. The existing signage and proposed changes are shown in Figures 2 and 3.

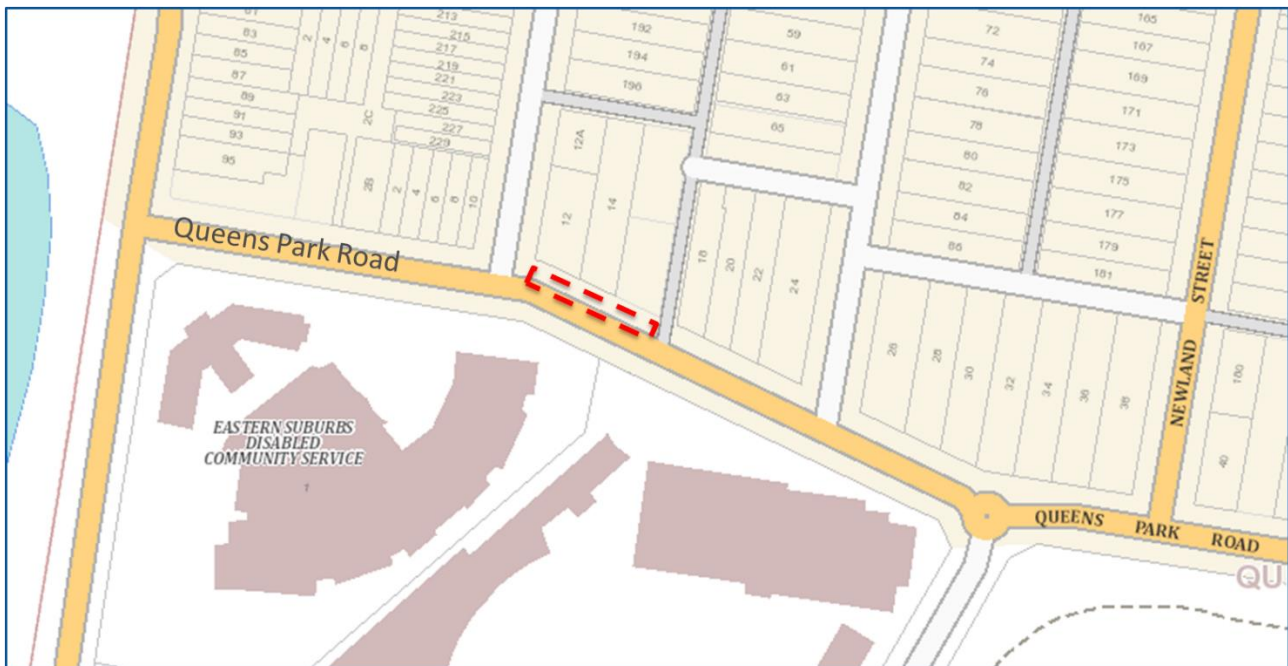


Figure 1. Site location.

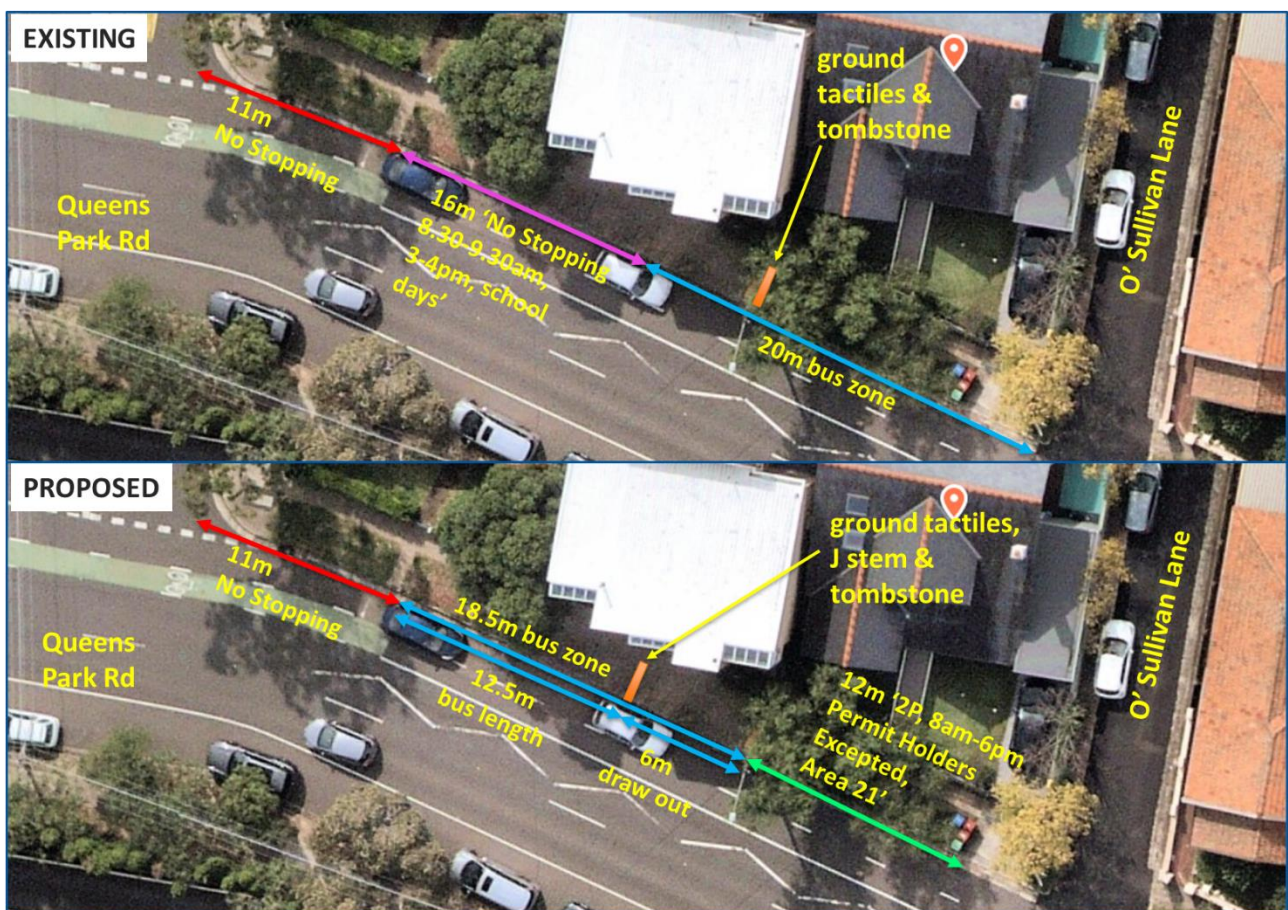


Figure 2. Existing and proposed parking restrictions.



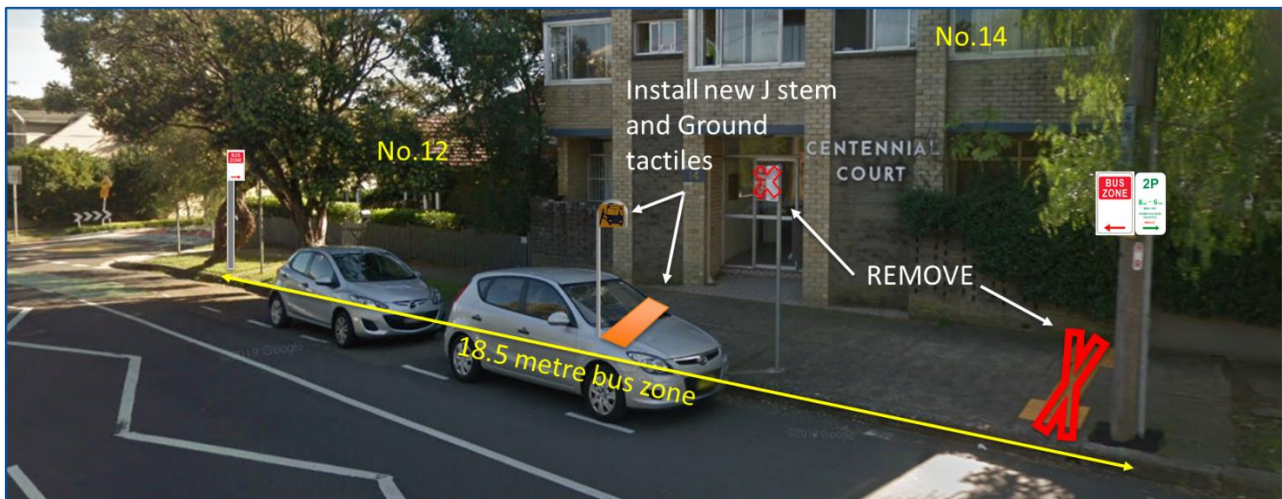


Figure 3. Proposed parking restrictions.

## 2. Introduction/Background

Council officers have received a request from State Transit to reconfigure a bus zone 16 Queens Park Road, Queens Park.

The bus zone is currently used by regular bus services and school buses. The services and routes that use this bus zone are shown in Table 1.

Table 1. Bus services and schedules.

Service No.	Route(s)	Schedule of Services
357 (regular service)	Mascot Via Randwick & Kingsford to Bondi Junction	First service 6.13 am to last service 11.08 pm Monday–Friday First service 6.36 am to last service 11.38 pm Saturday First service 6.36 am to last service 10.07 pm Sunday
634E (School Bus)	Eastgardens to Bondi Junction	8.09 am and 8.39 am, Monday–Friday
683E (School Bus)	Emanuel School Randwick to Watsons Bay	3.46 pm, Monday–Friday
697E (School Bus)	Mount Sinai College to South Head Cemetery	3.22 pm and 3.54 pm, Monday–Friday

The existing bus zone and the parking restrictions are shown below in Figure 2.

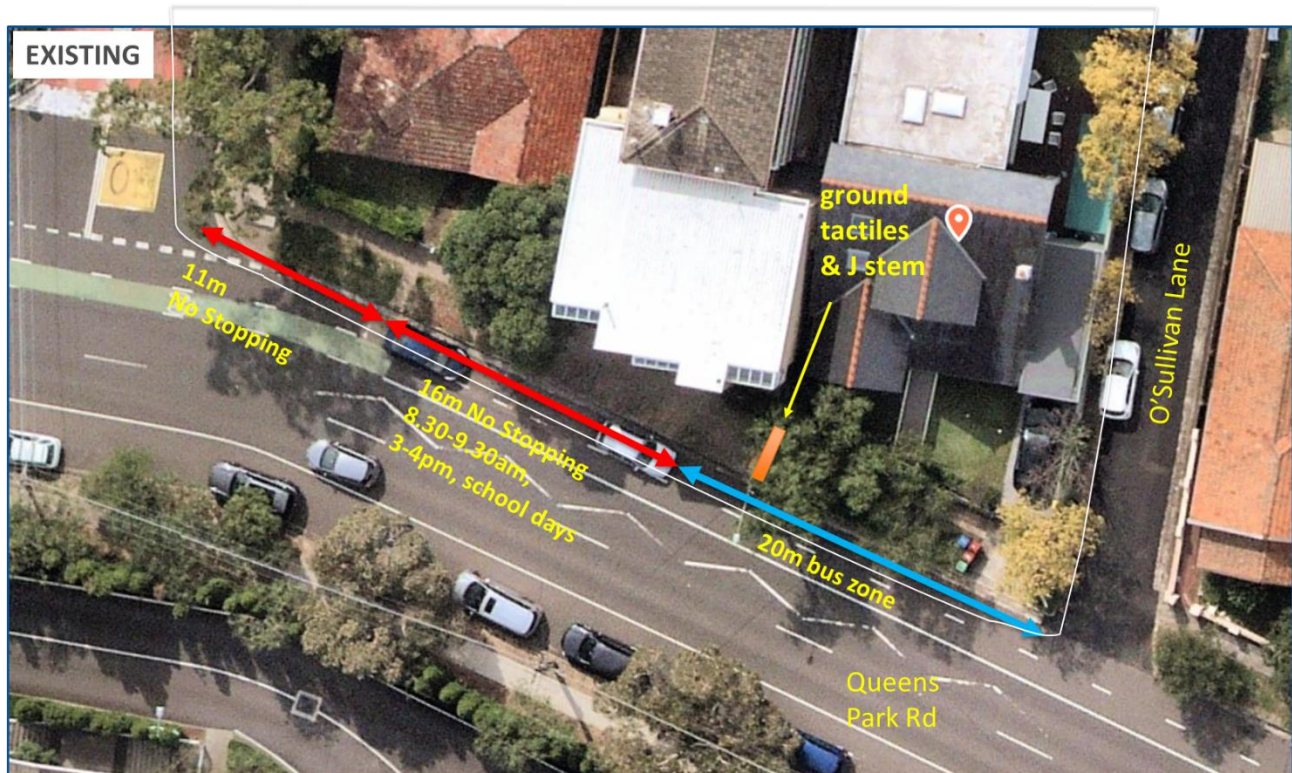


Figure 4. Existing parking restrictions.

### 3. Technical Analysis

#### Compliance with *Disability Discrimination Act (DDA)*

The 'AHRC Bus Stops Guidelines' and 'AS1428.4.1 – 2009 Design for access and Mobility, Part 4.1– Means to assist the orientation of people with vision impairment' provide guidance for the design of DDA-compliant bus stops.

The J-stem and TGSIs including a level concrete slab will be installed at the new location in compliance with AS1428.4.1. The TGS layout is shown in Figure 4.

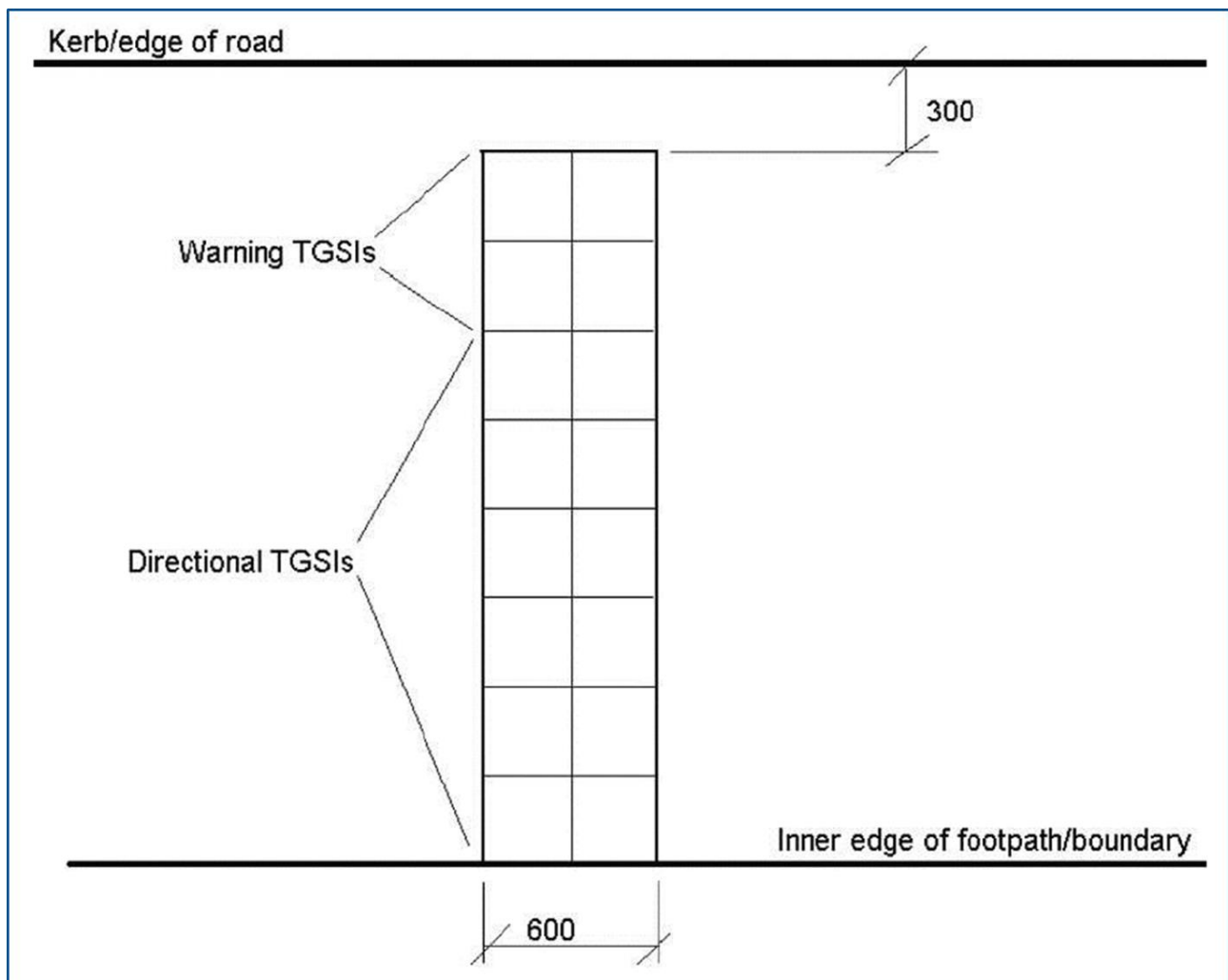


Figure 5. Tactile Ground Service Indicator (TGSi) layout.

#### 4. Financial Information for Council's Consideration

Council will meet the cost of sign installation and installation of a DDA-compliant level slab including tactile ground surface indicators from existing budgets. State Transit will supply the J-stem and tombstone.

#### 5. Attachments

Nil.

**REPORT**  
**TC/C.05/21.05**

**Subject:** 7 Brae Street, Bronte - 'P Disability Only' Zone - Review

**TRIM No:** A20/0534

**Author:** Paul Cai, Traffic Engineer  
Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

---

**COUNCIL OFFICER'S PROPOSAL:**

That Council reduces the length of the existing 'P Disability Only' parking zone in front of 7 Brae Street, Bronte, by 7 metres from 13 metres to 6 metres.

**1. Executive Summary**

Council has received requests from residents at 40 and 36 Brae Street to remove a 13 metre disability zone in front of 7 Brae Street, Bronte. The residents advised that 'P Disability Only' parking zone was not being occupied most of the time.

The 13 metre zone can accommodate two cars.

Residents in the properties surrounding the zone were contacted by letter box drop and asked if they required use of the spaces. If so, they were requested to provide a copy of their Mobility Parking Permit and a current vehicle registration certificate.

Thirty-nine survey letters were delivered to the residents near the site including six units at 7 Brae Street. One application was received for usage of the on-street accessible parking space.

It is proposed to reduce the length of the zone to six metres to accommodate a single car.

This will provide one additional space on street for people without a Mobility Parking Permit.

Council will need to exercise its delegated functions to implement the proposals.

**2. Introduction/Background**

Council adopted a recommendation from Waverley Traffic Committee to install a 6.5 metre 'P Disability Only' parking zone on the frontage of 7 Brae Street, Bronte, at its meeting held on 16 February 2016.

Council adopted a further recommendation from Waverley Traffic Committee to extend the length of the 'P Disability Only' zone by 6.5 metres to occupy the full frontage of 7 Brae Street on 23 March 2017.

Council has been advised by the residents of Brae Street that the resident who was using the accessible space had moved away from Brae Street and the 'P Disability Only' parking zone is often unoccupied.



### 3. Technical Analysis

Forty-four survey letters were delivered to residents near the site on Brae Street.

One application has been received by Council from a resident at 38 Brae Street for use of the disability parking zone. A valid Mobility Parking Scheme card and vehicle registration certificate were provided.

It is proposed to reduce the length of the existing 13 metre 'P Disability Only' to 6 metres, retaining one parking space, as shown in Figure 1.



Figure 1. Existing 'P Disability Only' parking zone to be reduced to 6.5 metre long.

The proposed length is based on Australian Standard AS2890.5-2020 – On-street parking. This is shown in Figure 2 below.

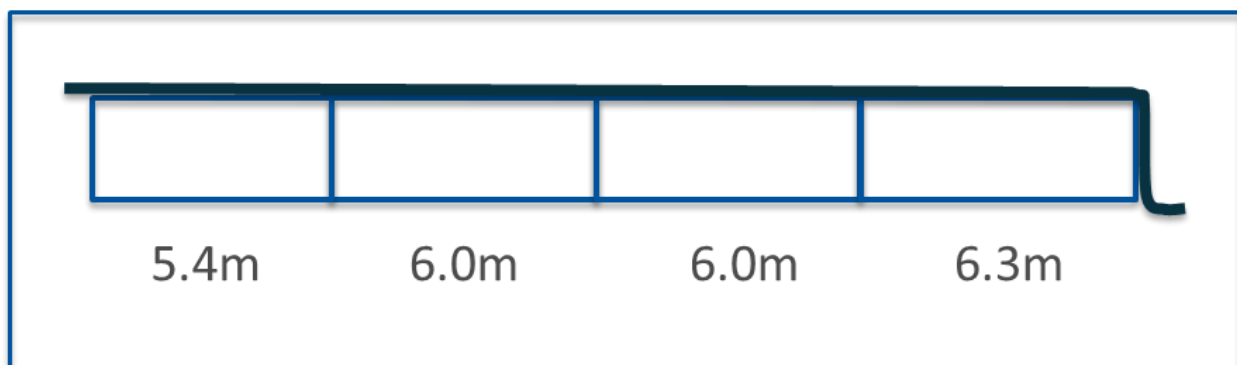


Figure 2. Dimensions for on-street disability parking spaces.

### 4. Financial Information for Council's Consideration

If changes to signs are approved, Council will supply and install the signs and remove existing signs with funds from existing budgets.



**5. Attachments**

Nil.

**REPORT**  
**TC/C.06/21.05**

**Subject:** Mason Lane, Bondi - 'No Parking' Zones

**TRIM No:** SF21/1703

**Author:** Hamoon Bahari, Professional Engineer, Traffic and Transport  
Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

**COUNCIL OFFICER'S PROPOSAL:**

That Council installs:

1. A 23 metre 'No Parking' zone on the northern side of Mason Lane (east), Bondi.
2. A 20 metre 'No Parking' zone on the northern side of Mason Lane (west), Bondi.

**1. Executive Summary**

Council officers have received representations from residents to review parking controls on Mason Lane east and Mason Lane west in Bondi. Parking is unrestricted on both sides of the two laneways.

Mason Lane East and West both intersect with Jackaman Street. The area is shown below in Figure 1.

The Installation of a 23 metre 'No Parking' zone on the northern side of Mason Lane East and a 20 metre 'No Parking' zone on the northern side of Mason Lane West is proposed (see Figures 2 and 3).



*Figure 1. Site location.*



Figure 2. Street view of proposed No Parking signage in Mason Lane (east).



Figure 3. Street view of proposed No Parking signage in Mason Lane (west).

## 2. Introduction/Background

Vehicles have been reported parked on both of these laneways creating difficulties for residents who use the lanes to access their off-street parking.

Mason Lane east and Mason Lane west are both unrestricted parking areas, with a kerb to kerb width of 4 metres. This narrow span of width can cause issues with vehicles being side-swiped and side mirrors being hit.



The recommendation will still allow vehicles to park in the area momentarily for up to 2 minutes for picking up and dropping off purposes. It will primarily aid the ability of residents exiting and entering the lane to access their driveways into their property.

The locations of the proposed 'No Parking' zones are shown in Figure 2.

### 3. Technical Analysis

#### Properties and driveways that access Mason Lane (east and west)

At Mason Lane (east), the properties that have off-street access include 322 and 324 Birrell Street.

At Mason Lane (west), the properties that have off-street access include 312, 314 and 316 Birrell Street and 2 Jackaman Street.

These properties are shown in Figure 4 and 5.



Figure 4. Properties that have access to Mason Lane (east).

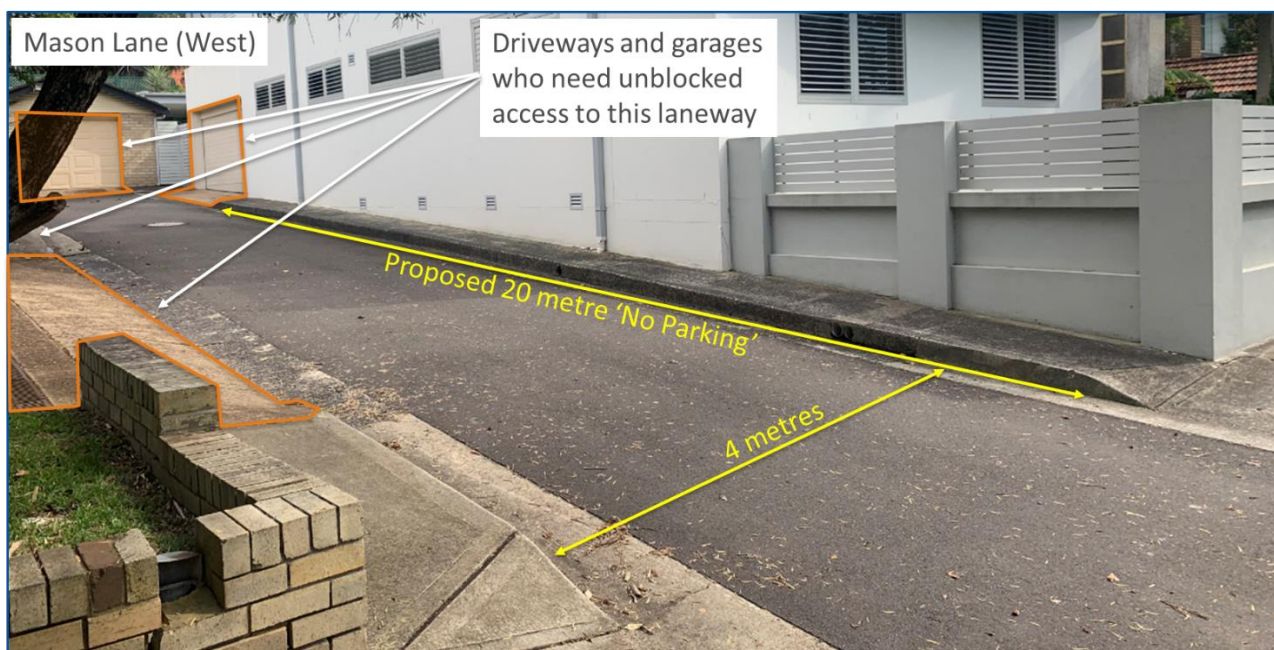


Figure 5. Properties that have access to Mason Lane (west).

#### 4. Financial Information for Council's Consideration

Council will meet the cost of sign installation from existing budgets.

#### 5. Attachments

Nil.

**REPORT**  
**TC/C.07/21.05**

**Subject:** Albert Street and St Thomas Street Intersection, Bronte - 'No Stopping' Zones

**TRIM No:** A14/0145

**Author:** Emraul Kayes, Traffic Engineer  
Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

---

**COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Installs a 'No Stopping' zone at the intersection of St Thomas Street and Albert Street for:
  - (a) 8 metres on the western side of St Thomas Street, north of Albert Street.
  - (b) 8 metres on the northern side of Albert Street, west of St Thomas Street.
2. Installs unbroken yellow C3 lines along the 'No Stopping' zone.

**1. Executive Summary**

Council has received representations from a resident to review parking controls at the intersection of Albert Street and St Thomas Street Bronte (see Figure 1).

Parking demands are high as the location is close to Bronte beach. People regularly park their vehicles within the statutory no stopping area at this intersection. This reduces visibility for drivers turning into St Thomas Street from Albert Street and blocks the views for pedestrians crossing the road.

The following measures are proposed for this location (see Figure 2):

- Installation of an 8-metre 'No Stopping' zone on the western side of St Thomas Street north of Albert Street.
- Installation of an 8-metre 'No Stopping' zone on the northern side of Albert Street west of St Thomas Street.
- Installation of unbroken yellow C3 lines along the proposed 'No Stopping' zone.

The 8 metre 'No Stopping' distances are a reduction from the statutory 10 metre 'No Stopping' restrictions at intersections with no signposting. This is possible due to the low vehicle speeds. It maximises on-street parking without compromising road safety.

Forty-one residences in the vicinity of the intersection were consulted via letterbox surveys. Five responses were received. All five were in favour of the restrictions.

Council will need to exercise its delegated functions to implement the proposal.





Figure 1. Site location.

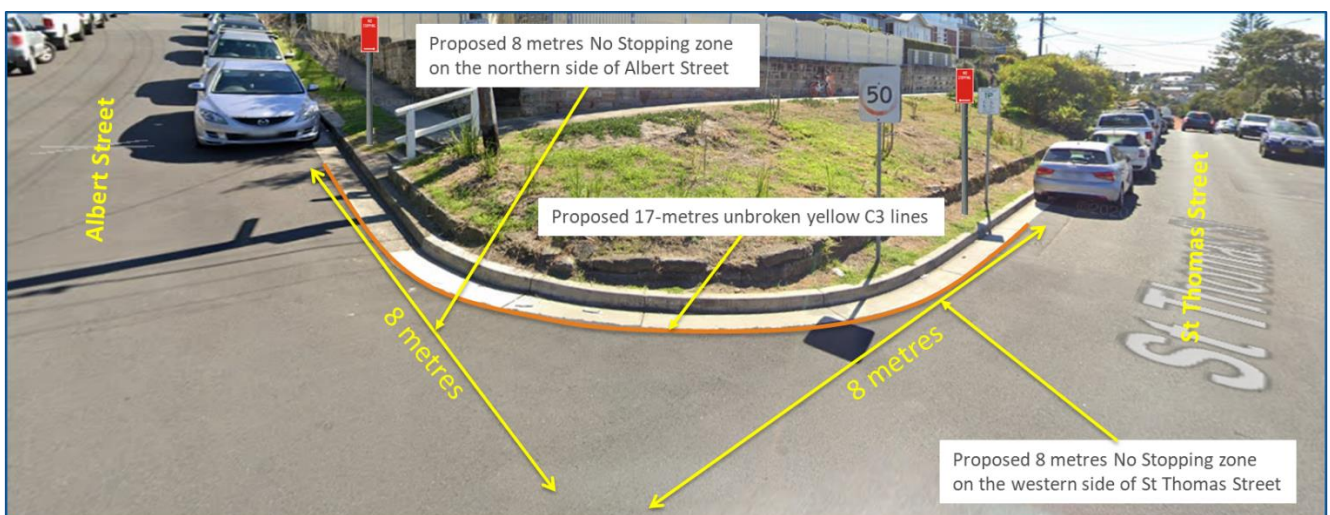


Figure 2. Proposed 'No Stopping' signage and unbroken yellow C3 lines on the northern side of the intersection.

## 2. Introduction/Background

The proposal was previously considered at the February 2021 Traffic Committee meeting. The Traffic Committee determined that it required consultation before making a recommendation to Council. It resolved that:

1. *The Council Officer's Proposal not be adopted.*
2. *Council consults the community on introducing 8 metre signposting rather than 10 metre statutory signposting at the intersection of St Thomas Street and Albert Street, with an explanation of the rationale.*



### 3. Technical Analysis

Forty-one residences in the vicinity of the intersection were consulted via letterbox surveys (see Figure 3). Five responses were received. All five were in favour of the restrictions.



Figure 3. Consultation area.

Council officers have examined the site and the intersection of Albert Street with St Thomas Street. It is apparent from the low speeds that the statutory 10 metre 'No Stopping' restrictions at the intersection can be reduced.

An assessment of the reduction of the 'No Stopping' at the intersection to 8 metres has been completed in accordance with Transport for NSW (TfNSW) Technical Direction TTD 2014/005 'Statutory 10 m 'No Stopping' at unsignalised intersections review checklist.' The TfNSW checklist has been completed (see Table 1).

Table 1. Assessment Checklist for reviewing the statutory 'No Stopping' distance at unsignalised intersections.

Assessment checklist for reviewing the statutory ‘No Stopping’ distance at unsignalised intersections			
Site: Albert Street / St Thomas Street, Bronte			
Traffic Committee: February 2021		Date of assessment: 22 January 2021	
Name: Emraul Kayes			
	Yes	No	Comment
Detailed plan to scale, include key elements like: <ul style="list-style-type: none"><li>• Kerb and Gutter</li><li>• Line marking</li><li>• Existing property line</li><li>• Footpath width</li><li>• Existing kerbside parking</li></ul>	√		See Figure --- - 10 metres of “No stopping” signage plus C3 line marking on the southern side of the intersection - no signed restrictions on the northern side of the intersection - 1.2-metre-wide footpaths
Crossing Sight Distance	√		18.5 metres minimum required 14 and 15 metres currently available without ‘No

Assessment checklist for reviewing the statutory 'No Stopping' distance at unsignalised intersections			
			Stopping' restrictions (determined on site) Currently not OK with cars parked close to the intersection. 'No Stopping' signage required.
Approach Sight Distance	√		Albert Street: 5.0 metres minimum required 60 metres currently available (determined on site) Currently O.K. Note this does not affect 'No Stopping' zone requirements.
Safe Intersection Sight Distance	√		28.4 metres – minimum required From Albert Street towards right available SISD = 32 metres, towards left = 29 metres Currently O.K. Note this does not affect 'No Stopping' zone requirements.
Minimum Gap Sight Distance	√		22 metres – minimum required 24 metres – currently available (determined on site) Currently O.K.
Turning paths	√		Can accommodate Council's waste vehicles (9.887 metres)
Public transport	N/A		-
Emergency vehicle access	√		OK
Angle parking manoeuvres	N/A		-

The critical factor in determining 'No Stopping' requirements for this location is the crossing sight distance. The crossing sight distance (CSD) is the minimum distance a pedestrian requires in order to safely cross the road (see Figure 4).

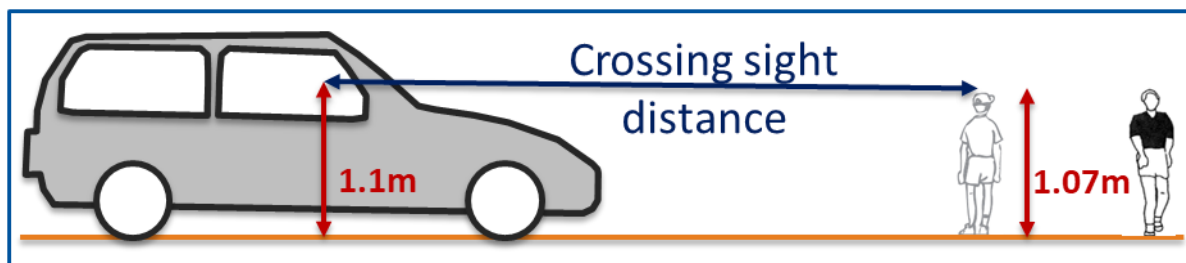


Figure 4. Crossing sight distances.

Traffic speeds on the approach to the intersection are around 20 km/h (mid-block). The crossing sight distance has been assessed at 25 km/h as a worst-case scenario. The crossing sight distance required is 18.5 metres (see Figure 5).

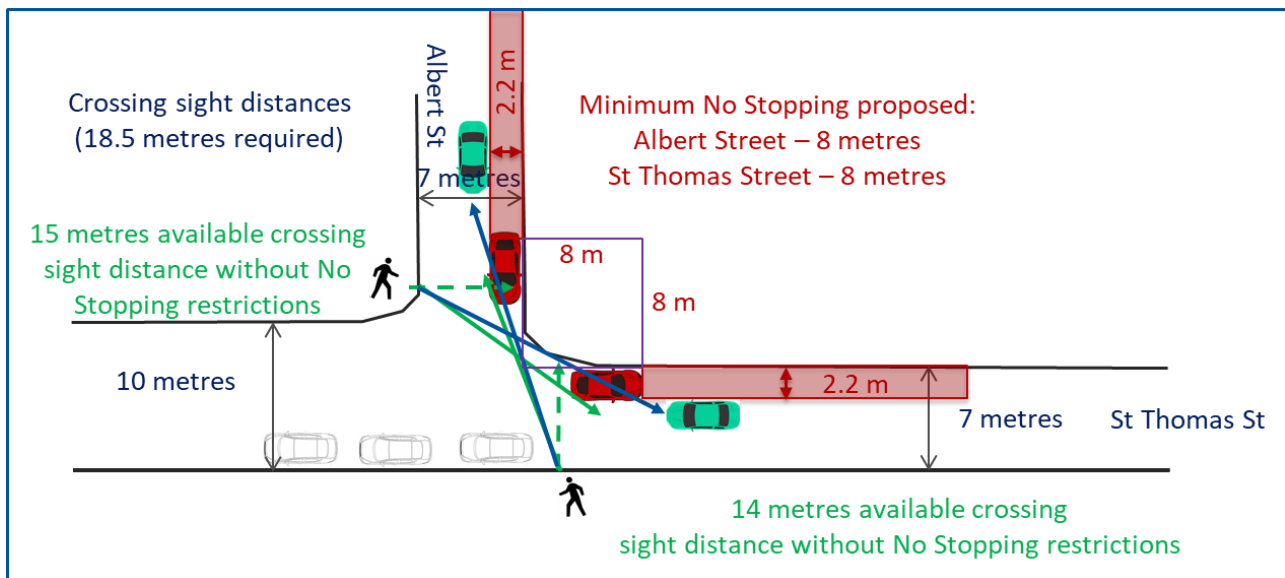


Figure 5. Available crossing sight distances in the intersection.

The green lines in Figure 5 show the existing sight distances with cars parked close to the intersection (red cars). The blue lines show the crossing sight distances and the area which must be kept clear to provide the 18.5 metre crossing sight distance.

The 2.2 metre parking lanes as shown can be provided clear of the blue lines resulting in an 8 x 8 metre area that needs to be signposted as No Stopping.

The installation of 'No Stopping' signage and an unbroken yellow (C3) line 8 metres on both sides of the corner is recommended.

#### 4. Financial Information for Council's Consideration

Council will meet the cost of sign installation from existing budgets.

#### 5. Attachments

Nil.

**REPORT**  
**TC/C.08/21.05**

**Subject:** Turner Street, Bronte - 'No Stopping' Zone - Removal

**TRIM No:** A02/0637

**Author:** Emraul Kayes, Traffic Engineer  
Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

**COUNCIL OFFICER'S PROPOSAL:**

That Council removes the 7 metre 'No Stopping' zone at the access to 24 Darling Street in Turner Street, Bronte.

**1. Executive Summary**

A 7 metre 'No Stopping' zone in Turner Street at the rear of 24 Darling Street is soon to become redundant due to driveway opposite soon to be closed. The driveway previously provided access to the rear of 6 Ashley Street. 6 Ashley Street is to be accessed via Ashley Street itself due to a redevelopment of the site.

Figure 1 shows the location of the affected properties. Figure 2 shows the existing 'No Stopping' restrictions.

It is proposed to remove the 'No Stopping' restrictions once the construction work is complete and the Turner Street access to 6 Ashley Street is closed.

Council will be required to exercise its delegated functions to implement the proposal.



Figure 1. The location of the existing 'No Stopping' zone.





Figure 2. Existing 'No Stopping' restrictions.

## 2. Introduction/Background

The pavement width of Turner Street is 5 metres. Currently, a 7 metres 'No Stopping' restriction is in place fronting the access to 24 Darling Street on Turner Street. The resident from 24 Darling Street has requested that the existing 'No Stopping' zone outside their property in Turner Street be removed. The existing 'No Stopping' zone was installed in 2009, as 6 Ashley Street needed it access to their driveway.

6 Ashley Street has had a recent development application (DA-234/2016/B) approved by Council. The conditions of consent state in part:

### *'NEW VEHICLE CROSSING*

*A new vehicle crossing is to be provided to access the proposed garage. A separate application is required for the vehicle crossing, with all work to be carried out with the approval of and in accordance with the requirements of Council.*

### *EXISTING VEHICLE CROSSING IS TO BE CLOSED*

*The existing vehicle crossing from Turner Street is to be closed and all work associated with the closure is to be carried out with the approval of, and in accordance with, the requirements of Council.*

*The vehicular crossing is to be closed (to the satisfaction of the Executive Manager, Creating Waverley) prior to the issue of any occupation certificate for the development (interim or otherwise).'*

## 3. Technical Analysis

If the signs are removed 'No Parking' restrictions would still apply across the driveway in accordance with NSW Road Rule 198. This would allow people to drop off and pick up including removing goods from their cars before moving on. The greater flexibility is to the benefit of the owner of 24 Darling Street.

**4. Financial Information for Council's Consideration**

Council will undertake the removal/installation of signs/lines from existing budgets if the proposed changes are approved.

**5. Attachments**

Nil.

## REPORT

### TC/C.09/21.05



**Subject:** Brown Street and Palmerston Avenue Intersection, Bronte  
- 'No Stopping' Zone - Review

**TRIM No:** A14/0145

**Author:** Emraul Kayes, Traffic Engineer  
Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

---

#### COUNCIL OFFICER'S PROPOSAL:

That Council reduces the length of the 'No Stopping' restrictions on the south-east corner of the intersection of Brown Street and Palmerston Avenue, Bronte, to 10 metres.

#### 1. Executive Summary

Council has received request to reduce the length of the 'No Stopping' restrictions on the south-east corner of the intersection of Brown Street and Palmerston Street. Figure 1 shows the site location.

It is proposed to reduce the existing 'No Stopping' zones at the intersection by from 24 metres to 10 metres on Brown Street and from 17 metres to 10 metres on Palmerston Avenue. This will result in additional parking available for at two cars on Brown Street and one car on Palmerston Avenue.

Available sight distances for drivers at the intersection as a result of the changes are satisfactory.

The location of 'No Stopping' signage on the northern side will remain unchanged. The proposed changes are shown in Figure 2.

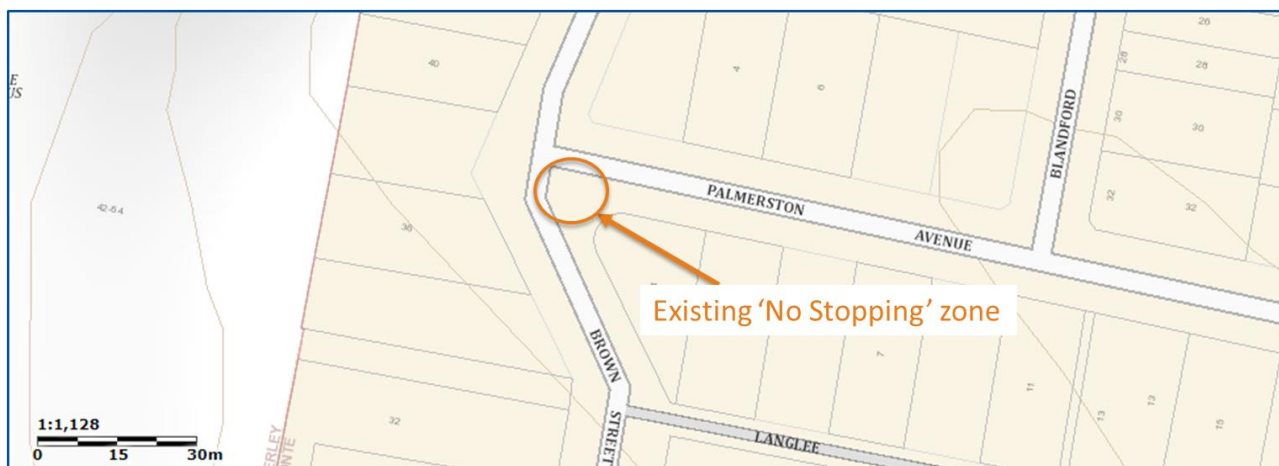


Figure 1. Site location.





Figure 2. Existing and proposed signage changes at the corner of Brown Street and Palmerston Avenue, Bronte.

## 2. Introduction/Background

On-street parking demands are high in this location. In accordance with rule 170(3) of the NSW Road Rules, there is a scope to reduce the length of the existing 'No Stopping' zones to 10 metres at this intersection.

## 3. Technical Analysis

Palmerston Avenue forms a T-intersection with Brown Street. The current length of 'No Stopping' zones in the intersection are 24 metres and 17 metres on the southern side. Road 170(3) of the NSW Road Rules allows the length to be reduced to 10 metres each.

Available sight distances for drivers at the intersection as a result of the changes are satisfactory.

The proposed changes will result in an additional three on-street parking spaces.

**4. Financial Information for Council's Consideration**

Changes to signage will be funded from existing budgets.

**5. Attachments**

Nil.



## REPORT

### TC/C.10/21.05



**Subject:** 191 Birrell Street, Waverley - 'No Stopping' Zone

**TRIM No:** SF21/1701

**Author:** Hamoon Bahari, Professional Engineer, Traffic and Transport  
Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

#### COUNCIL OFFICER'S PROPOSAL:

That Council installs a 10 metre 'No Stopping' zone on the eastern side of Langlee Avenue adjacent to 191 Birrell Street, Waverley.

#### 1. Executive Summary

Council officers have received representations from Council's parking patrol officers to review parking controls at the intersection of Birrell Street and Langlee Avenue (see Figure 1).

As a result of the absence of parking restrictions, vehicles are being parked on the corner limiting sightlines for drivers entering/exiting the intersection.

Installation of a 10 metre 'No Stopping' zone on the eastern side of Langlee Avenue adjacent to property 191 Birrell Street is proposed.



Figure 1. Site location.

## 2. Introduction/Background

Vehicles have been parked within the 10 metre statutory 'No Stopping' zone in Langlee Avenue resulting in difficulty of vehicles sight lines entering and exiting at the intersection.

There is an existing 'No Stopping' sign on the southern side of Birrell Street, as shown below in Figure 2.

The proposal will close the 'No Stopping' zone loop around the corner.



Figure 2. Existing 'No Stopping' signage on Birrell Street.

## 3. Technical Analysis

Rule 332 of the NSW Road Rules 2014 requires signs at both ends of a parking restriction. An except is presented below.

*NSW Road Rules 2014 – Rule 332 – Parking control signs applying to a length of road*

*(1) If a parking control sign displays an arrow and is at the side of a road, then, unless information on or with the sign indicates otherwise, the sign applies to the length of road between the sign and the nearest (in the direction indicated by the arrow) of the following:*

- (a) a parking control sign at that side of the road that displays an arrow indicating the opposite direction,*
- (b) a yellow edge line on the road,*
- (c) if the road ends at a T-intersection or dead end—the end of the road.*

Officers recommend the installation of a 10 metre 'No Stopping' zone on the eastern side of Langlee Avenue adjacent to 191 Birrell Street as shown in Figure 3 below.





Figure 3. Street view of proposed 'No Stopping' signage.

#### 4. Financial Information for Council's Consideration

Council will meet the cost of sign installation from existing budgets.

#### 5. Attachments

Nil.

## REPORT

### TC/C.11/21.05



**Subject:** 278-282 Birrell Street, Bondi - Construction Zone

**TRIM No:** A03/2514-04

**Author:** Emraul Kayes, Traffic Engineer  
Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

#### COUNCIL OFFICER'S PROPOSAL:

That Council:

1. Installs a 30 metre 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Saturday Council Authorised Vehicles Excepted' construction zone along the frontage of 278–282 Birrell Street, Bondi.
2. Delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of, or remove, the construction zone, as necessary.

#### 1. Executive Summary

Council has received an application from the builder/developer at 278–282 Birrell Street, Bondi, for the installation of a construction zone along the frontage of the property (see Figure 1).

Council officers propose the installation of a 30 metre construction zone as shown in Figure 2.

Council will need to exercise its delegated functions to implement the proposal.

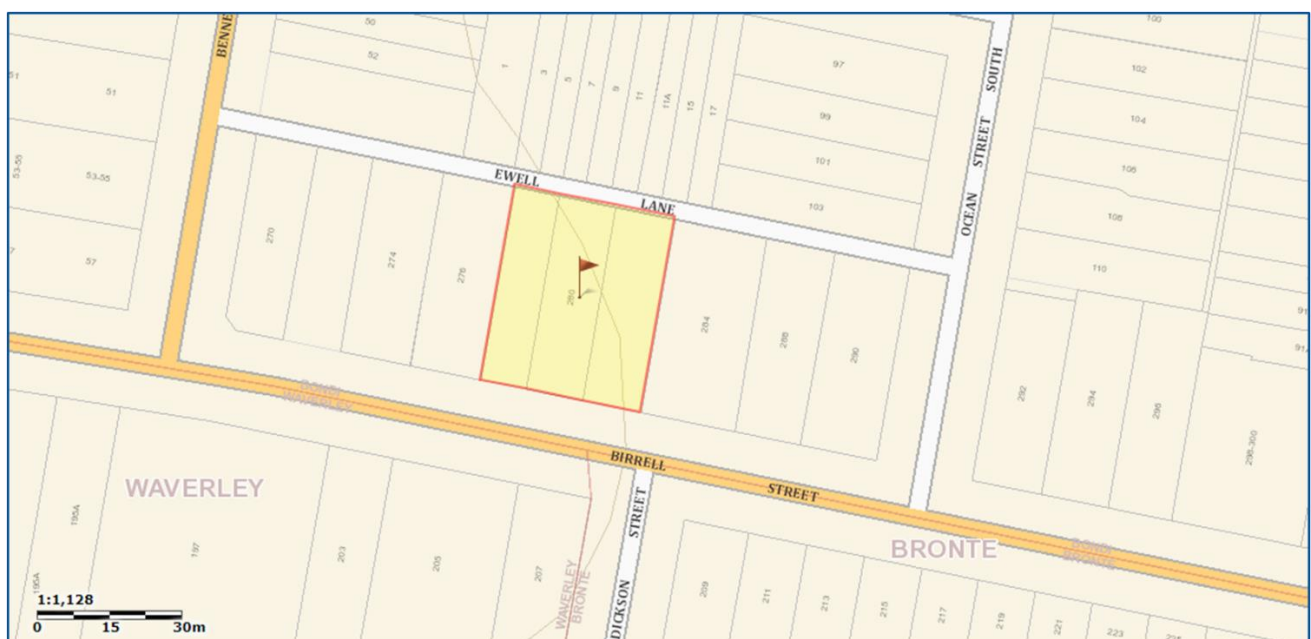


Figure 1. Site location.



Figure 2. Location to install construction zone signs.

## 2. Introduction/Background

In accordance with standard practice at Council, it is proposed that the construction zone is signposted 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Saturday Council Authorised Vehicles Excepted' for the approved construction hours under the development consent. Council will then supply the applicant with transferable permits to be used on the applicant's construction vehicles. The Traffic Committee and Council's requirements for permit approvals are a minimum length of 9 metres along the site frontage with a minimum period of 13 weeks.

## 3. Technical Analysis

The subject site has a frontage of 34 metres on Birrell Street. There are no driveways to the property from Birrell Street. The applicant has requested a 30 metre construction zone along the frontage on Birrell Street. Council officers propose to install a 30 metre construction zone. The existing and recommended parking allocation is shown in Figures 3 and 4 below.

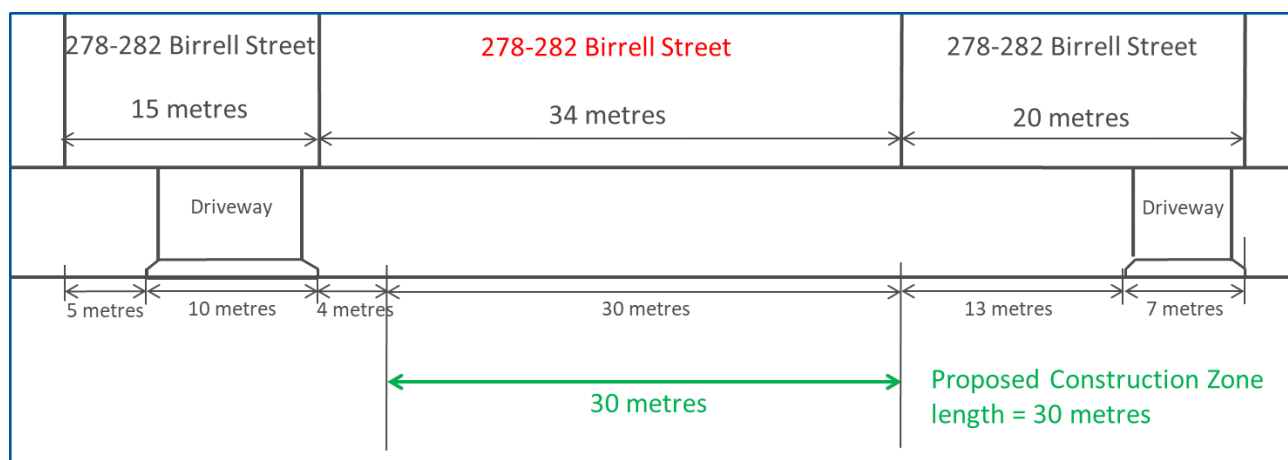


Figure 3. On-street parking for site and adjacent properties.



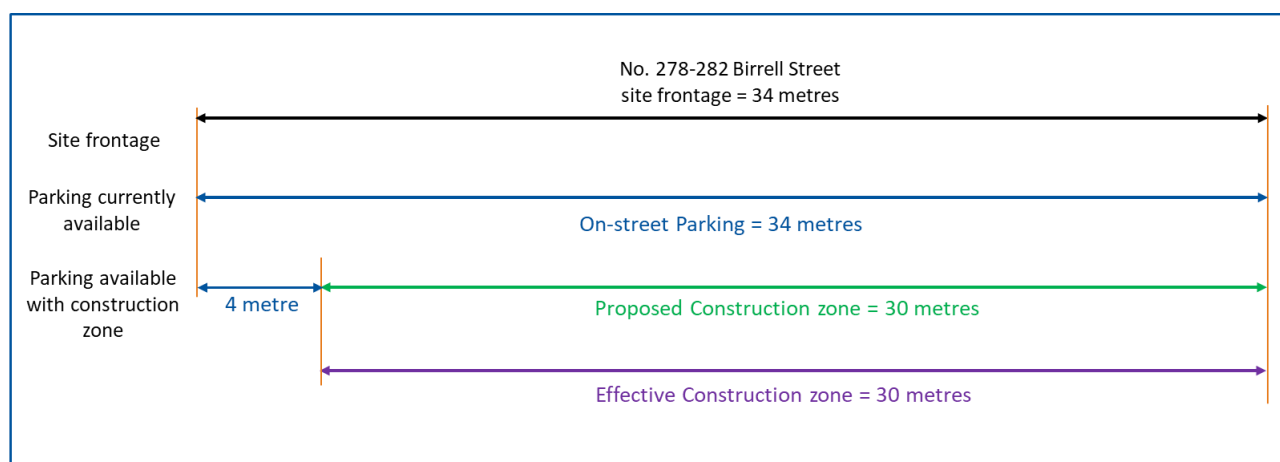


Figure 4. On-street parking for site frontage only.

Table 1. Application details.

<b>Applicant</b>	PBS Building NSW
<b>Development application</b>	DA-187/2020/A
<b>Works</b>	Modification to basement level to accommodate additional storage to satisfy Condition 21, amend wording of Condition 4 relating to the Planning Agreement to allow preliminary works to commence. PAN-62793
<b>Approved hours of construction</b>	7 am–5 pm Monday–Friday; 8 am–3 pm Saturday
<b>Frontage length</b>	34 metres
<b>Road</b>	Birrell Street
<b>Existing parking</b>	There is parking restriction
<b>Length requested by applicant</b>	30 metres
<b>Length to be signposted</b>	30 metres
<b>Effective construction zone - Total length available for construction</b>	30 metres
<b>Duration</b>	40 weeks
<b>Fee area</b>	Fee (areas zoned low, medium, or high density residential)
<b>Estimated fees</b>	\$2,070 per week (30 metres x \$69 per metre)

## Signage

The proposed signage is shown below.

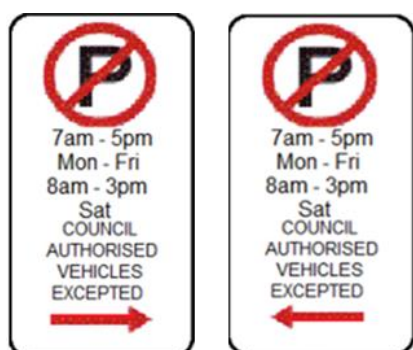


Figure 4. Proposed signage.

**4. Financial Information for Council's Consideration**

The applicant will be required to pay the approved application fee, which covers the cost of administration and signage.

The approved usage charges for the 2020–2021 financial year from 1 January 2021 are:

- \$69 per metre per week in a residential area.
- \$95 per metre per week in a commercial or mixed-use area.
- \$377 per metered (ticket) car parking space per week in addition to above fees (where applicable).

The cost to the applicant for the 30 metres made available for construction vehicles will be \$2,070 per week (30 metres x \$69 per metre).

**5. Attachments**

Nil.

**REPORT**  
**TC/C.12/21.05**

**Subject:** 13 Calga Avenue, Bronte - Construction Zone

**TRIM No:** A03/2514-04

**Author:** Emraul Kayes, Traffic Engineer  
Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

**COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Installs a 15 metre 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Saturday Council Authorised Vehicles Excepted' construction zone along the frontage of 13 Calga Avenue, Bronte.
2. Delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of, or remove, the construction zone, as necessary.

**1. Executive Summary**

Council has received an application from the builder/developer at 13 Calga Avenue, Bronte, for the installation of a construction zone along the frontage of the property (see Figure 1).

Council officers propose the installation of a 15 metre construction zone as shown in Figure 2.

Council will need to exercise its delegated functions to implement the proposal.



Figure 1. Site location.



Figure 2. Location to install construction zone signs.

## 2. Introduction/Background

In accordance with standard practice at Council, it is proposed that the construction zone is signposted 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Saturday Council Authorised Vehicles Excepted' for the approved construction hours under the development consent. Council will then supply the applicant with transferable permits to be used on the applicant's construction vehicles. The Traffic Committee and Council's requirements for permit approvals are a minimum length of 9 metres along the site frontage with a minimum period of 13 weeks.

## 3. Technical Analysis

The subject site has a frontage of 15 metres on Calga Avenue including a 7.5 metre driveway. The applicant has requested a 15 metre construction zone along the frontage on Calga Avenue. Council officers propose to install a 15 metre construction zone. The existing and recommended parking allocation is shown in Figures 3 and 4 below.

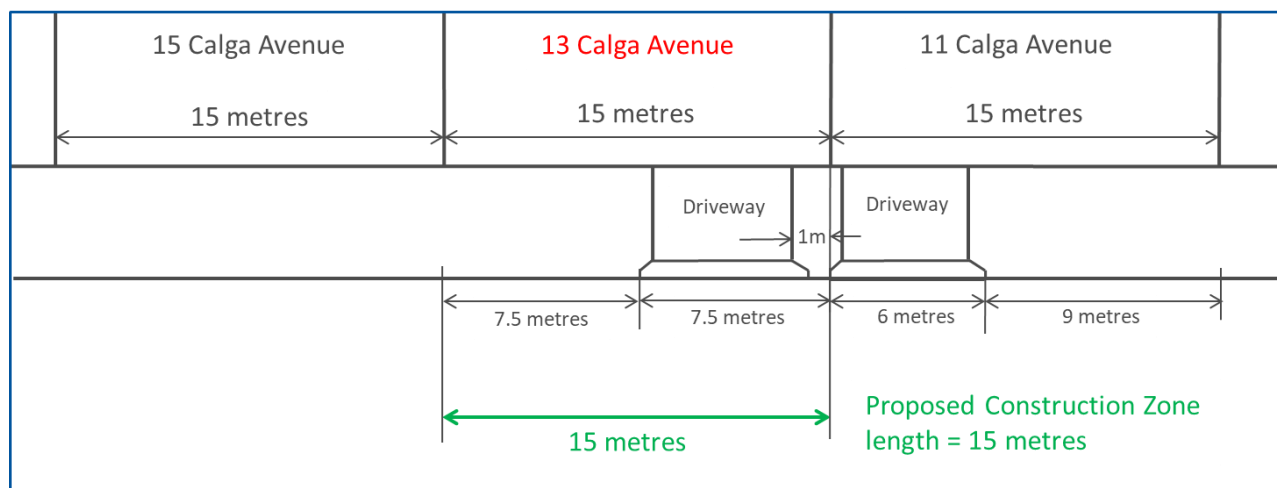


Figure 3. On-street parking for site and adjacent properties.

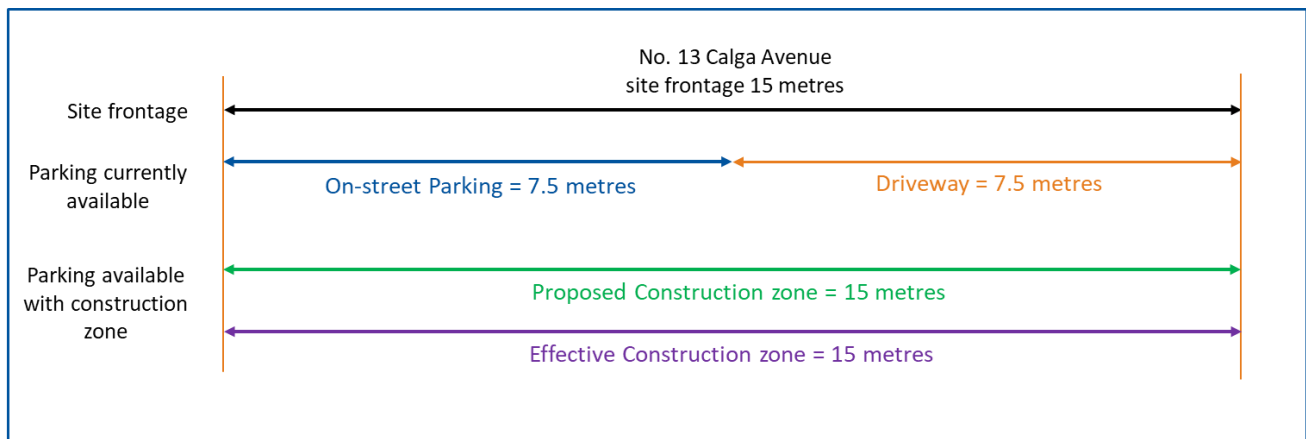


Figure 4. On-street parking for site frontage only.

Table 1. Application details.

<b>Applicant</b>	Joe Ajaka
<b>Development application</b>	DA-238/2020
<b>Works</b>	Demolition of dwelling and construction of a two-storey dwelling with integrated garage and retaining existing swimming pool.
<b>Approved hours of construction</b>	7 am–5 pm Monday–Friday; 8 am–3 pm Saturday
<b>Frontage length</b>	15 metres
<b>Road</b>	Calga Avenue
<b>Existing parking</b>	No parking restrictions (unrestricted)
<b>Length requested by applicant</b>	15 metres
<b>Length to be signposted</b>	15 metres
<b>Effective construction zone - Total length available for construction</b>	15 metres
<b>Duration</b>	17/05/2021 – 23/08/2021 (13 weeks)
<b>Fee area</b>	Residential area with no parking restrictions
<b>Estimated fees</b>	\$1,035 per week (15 metres x \$69 per metre)

### Signage

The proposed signage is shown below.

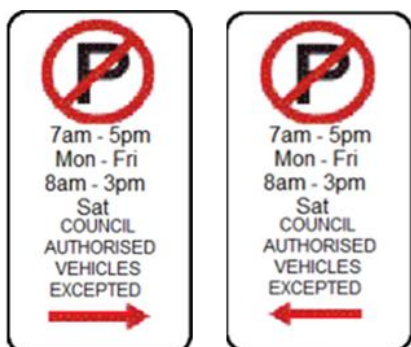


Figure 4. Proposed signage.

## 4. Financial Information for Council's Consideration

The applicant will be required to pay the approved application fee, which covers the cost of administration and signage.

The approved usage charges for the 2020–2021 financial year from 1 January 2021 are:

- \$69 per metre per week in a residential area.
- \$95 per metre per week in a commercial or mixed-use area.
- \$377 per metered (ticket) car parking space per week in addition to above fees (where applicable).

The cost to the applicant for the 15 metres made available for construction vehicles will be \$1,035 per week (15 metres x \$69 per metre).

## **5. Attachments**

Nil.



**REPORT**  
**TC/C.13/21.05**

**Subject:** 55 Hewlett Street, Bronte - Construction Zone

**TRIM No:** A03/2514-04

**Author:** Emraul Kayes, Traffic Engineer  
Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

**COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Installs a 9 metre 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Saturday Council Authorised Vehicles Excepted' construction zone along the frontage of 55 Hewlett Street, Bronte.
2. Delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of, or remove, the construction zone, as necessary.

**1. Executive Summary**

Council has received an application from the builder/developer at 55 Hewlett Street, Bronte, for the installation of a construction zone along the frontage of the property (see Figure 1).

Council officers propose the installation of a 9 metre construction zone as shown in Figure 2.

Council will need to exercise its delegated functions to implement the proposal.

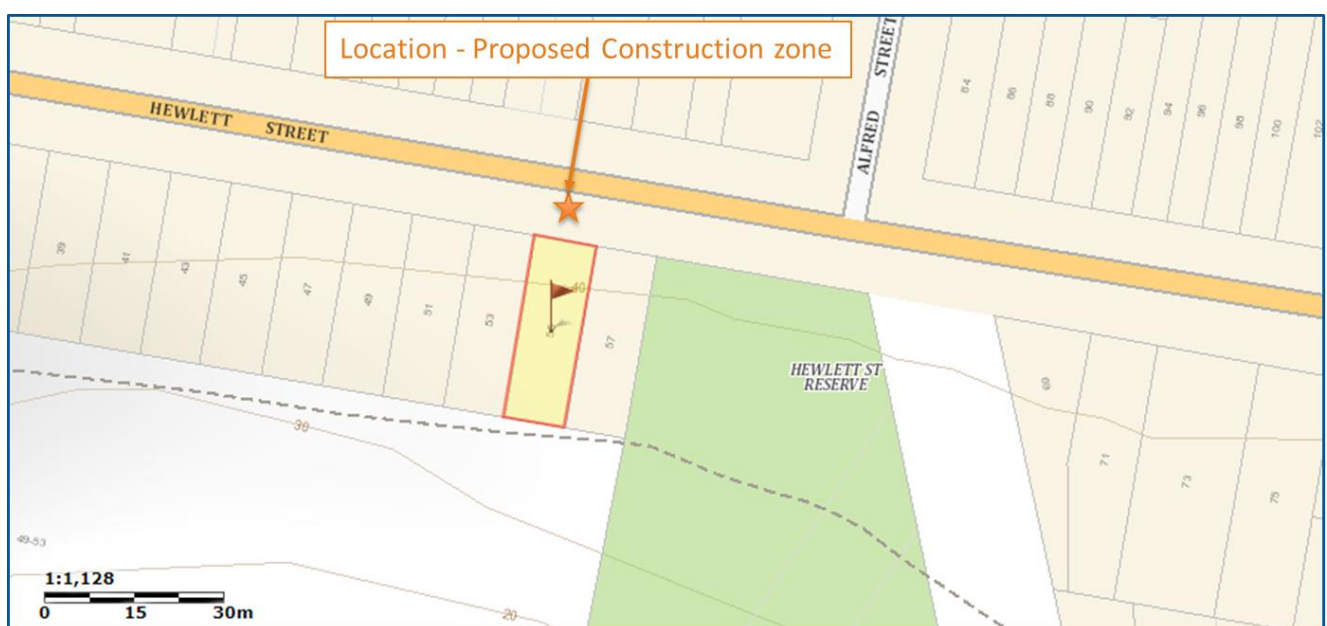




Figure 2. Location to install construction zone signs.

## 2. Introduction/Background

In accordance with standard practice at Council, it is proposed that the construction zone is signposted 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Saturday Council Authorised Vehicles Excepted' for the approved construction hours under the development consent. Council will then supply the applicant with transferable permits to be used on the applicant's construction vehicles. The Traffic Committee and Council's requirements for permit approvals are a minimum length of 9 metres along the site frontage with a minimum period of 13 weeks.

## 3. Technical Analysis

The subject site has a frontage of 10 metres on Hewlett Street. There is no driveway to this property. The applicant has requested a 9 metre construction zone along the frontage on Hewlett Street. Council officers propose to install a 9 metre construction zone. The existing and recommended parking allocation is shown in Figures 3 and 4 below.

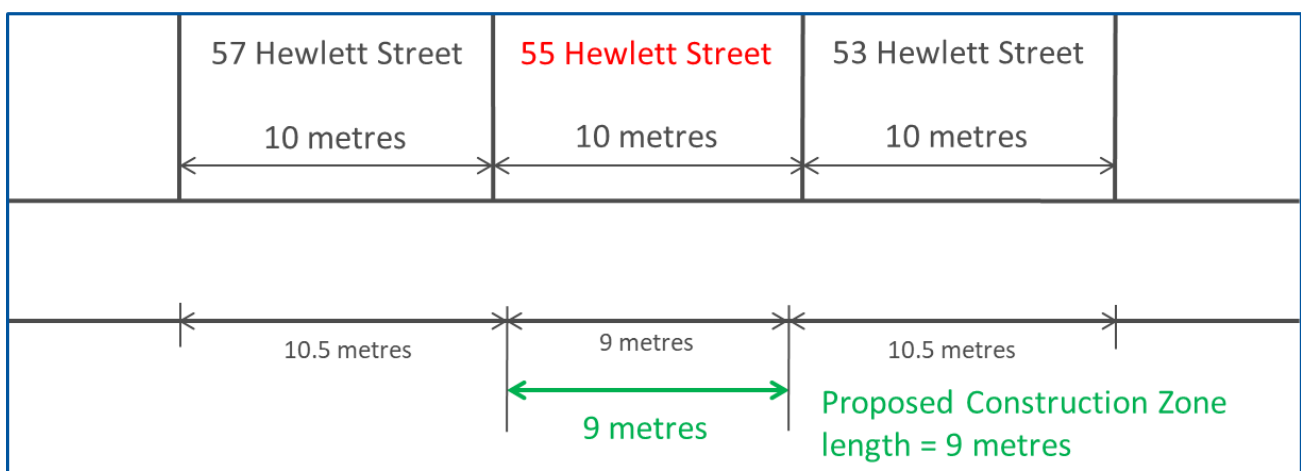


Figure 3. On-street parking for site and adjacent properties.

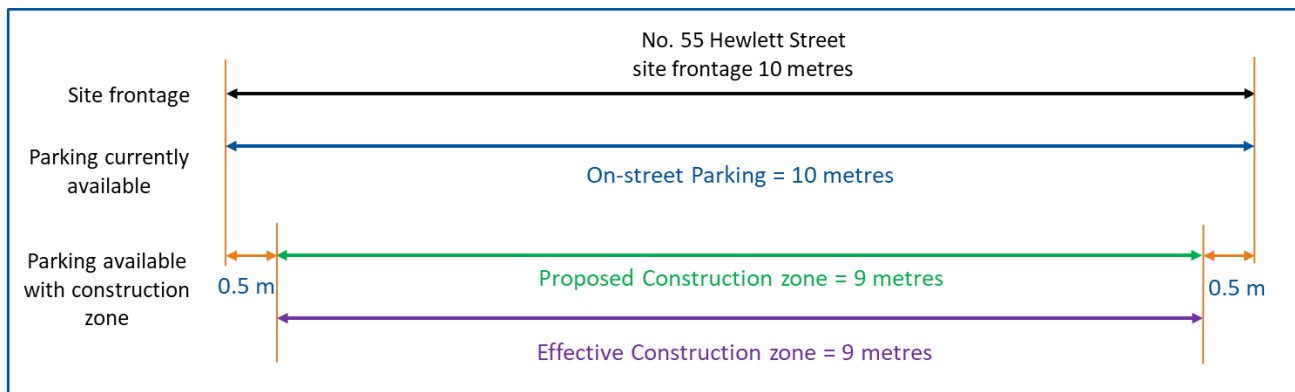


Figure 4. On-street parking for site frontage only.

Table 1. Application details.

<b>Applicant</b>	Rafa Haidary
<b>Development application</b>	DA-12/2020
<b>Works</b>	Demolition of dwelling and construction of a new part 2, part 3 storey dwelling with integrated garage, swimming pool at rear and removal of trees
<b>Approved hours of construction</b>	7 am–5 pm Monday–Friday; 8 am–3 pm Saturday
<b>Frontage length</b>	10 metres
<b>Road</b>	Hewlett Street
<b>Existing parking</b>	No parking restrictions (unrestricted)
<b>Length requested by applicant</b>	9 metres
<b>Length to be signposted</b>	9 metres
<b>Effective construction zone - Total length available for construction</b>	9 metres
<b>Duration</b>	17 weeks
<b>Fee area</b>	Residential area with no parking restrictions
<b>Estimated fees</b>	\$621 per week (9 metres x \$69 per metre)

### Signage

The proposed signage is shown below.

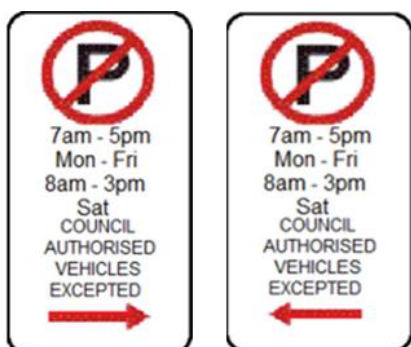


Figure 4. Proposed signage.

### 4. Financial Information for Council's Consideration

The applicant will be required to pay the approved application fee, which covers the cost of administration and signage.

The approved usage charges for the 2020–2021 financial year from 1 January 2021 are:

- \$69 per metre per week in a residential area.
- \$95 per metre per week in a commercial or mixed-use area.
- \$377 per metered (ticket) car parking space per week in addition to above fees (where applicable).

The cost to the applicant for the 9 metres made available for construction vehicles will be \$621 per week (9 metres x \$69 per metre).

## **5. Attachments**

Nil.

**REPORT**  
**TC/V.01/21.05**

**Subject:** Bondi Festival Ferris Wheel and Ice Rink - Special Event

**TRIM No:** A20/0172

**Author:** Malik Almuhanha, Senior Traffic Engineer  
Shaun Munro, Manager, Events  
Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

---

**COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Approves the temporary traffic and parking changes for the Bondi Festival at Queen Elizabeth Drive and Park Drive South, Bondi Beach, as outlined in the Traffic Control Plans shown in Figures 2 and Figure 3 of the report, subject to the event organisers:
  - (a) Obtaining NSW Police approval.
  - (b) Notifying the State Transit Authority, NSW Ambulance Service and NSW Fire and Rescue (Bondi, Woollahra and Randwick fire stations) seven days prior to the event.
  - (c) Notifying local residents and businesses seven days prior to the event.
  - (d) Considering all other impacts on the surrounding environment.
2. Issues a schedule of conditions, with any additional conditions to be imposed by NSW Police and Transport for NSW.
3. Delegates authority to the Executive Manager, Infrastructure Services, to modify the Traffic Control Plans should on-site circumstances warrant changes.

**1. Executive Summary**

Council is holding the annual Bondi Festival event in Roscoe Street Mall and Bondi Beach Park between Friday, 25 June, and Sunday, 11 July 2021.

Bondi Festival is an annual arts and place activation event ordinarily hosted in the Bondi Pavilion on the Bondi Pavilion forecourt and the Dolphin court on the southern end of the Pavilion.

Two integral and long-standing components of the event are a temporary outdoor ice rink on the Bondi Pavilion forecourt and a 27 metre Ferris wheel on the Dolphin Court at the southern end of the Pavilion.

Due to the Bondi Pavilion Conservation and Restoration Project taking place this year, the usual locations are unavailable. Alternative temporary locations for an ice rink and Ferris wheel have been identified. They are:



- The Ice rink is to be located at the southernmost end of Park Drive South.
- The Ferris wheel is to be located in a section of parking spaces and a portion of the road on Queen Elizabeth Drive.

There will be parking loss during the six-week event (see Figure 1). This will occur at:

- Queen Elizabeth Drive – 19 parking spaces will be taken up by the Ferris wheel and traffic diversion.
- Park Drive South – 35 parking spaces will be taken up by the ice rink and a turning area for drivers to make a U-turn.



Figure 1. Event location.

## 2. Introduction/Background

Bondi Festival is a Council event that is planned and delivered by the Arts and Culture and Events Teams in partnership with the Bondi and Districts Chamber of Commerce.

The event recently merged two standalone Council events, Bondi Feast and Bondi Winter Magic, into one arts and culture and place activation event. The event aims to support local businesses in Bondi Beach by providing entertainment activities for residents and attract visitation during the winter school holidays.

2021 will be the eleventh year an ice rink has been installed at Bondi Beach and the fourth year for a Ferris wheel. The combination of these two activities attracts up to 60,000 visitors to Bondi Beach, providing an opportunity to bring the community together, economic benefit to businesses, and revenue for Council.

The locations for the ice rink and the Ferris wheel in previous years were Bondi Pavilion forecourt and Dolphin Court on the southern end of the Pavilion, both locations are unavailable due to the Bondi Pavilion Conservation and Restoration Project, so alternative temporary locations have been identified.



The Events team, in consultation with Traffic, Open Spaces, Major Projects, Parking, and Infrastructure Services considered several locations for both activities.

Key guiding considerations for identifying locations were, risk and safety, minimising disruptions to park operations and park users, ensure access to the three-phase power and the need to bring all Festival activities together in one central Festival hub, ideally focussed near local businesses.

### 3. Technical Analysis

#### Traffic Control Plans

Nineteen parking spaces will be unavailable during Ferris wheel operation. This includes removal of parking so that vehicles can pass the Ferris Wheel itself. Figure 2 below shows the traffic control plan for the Ferris Wheel.

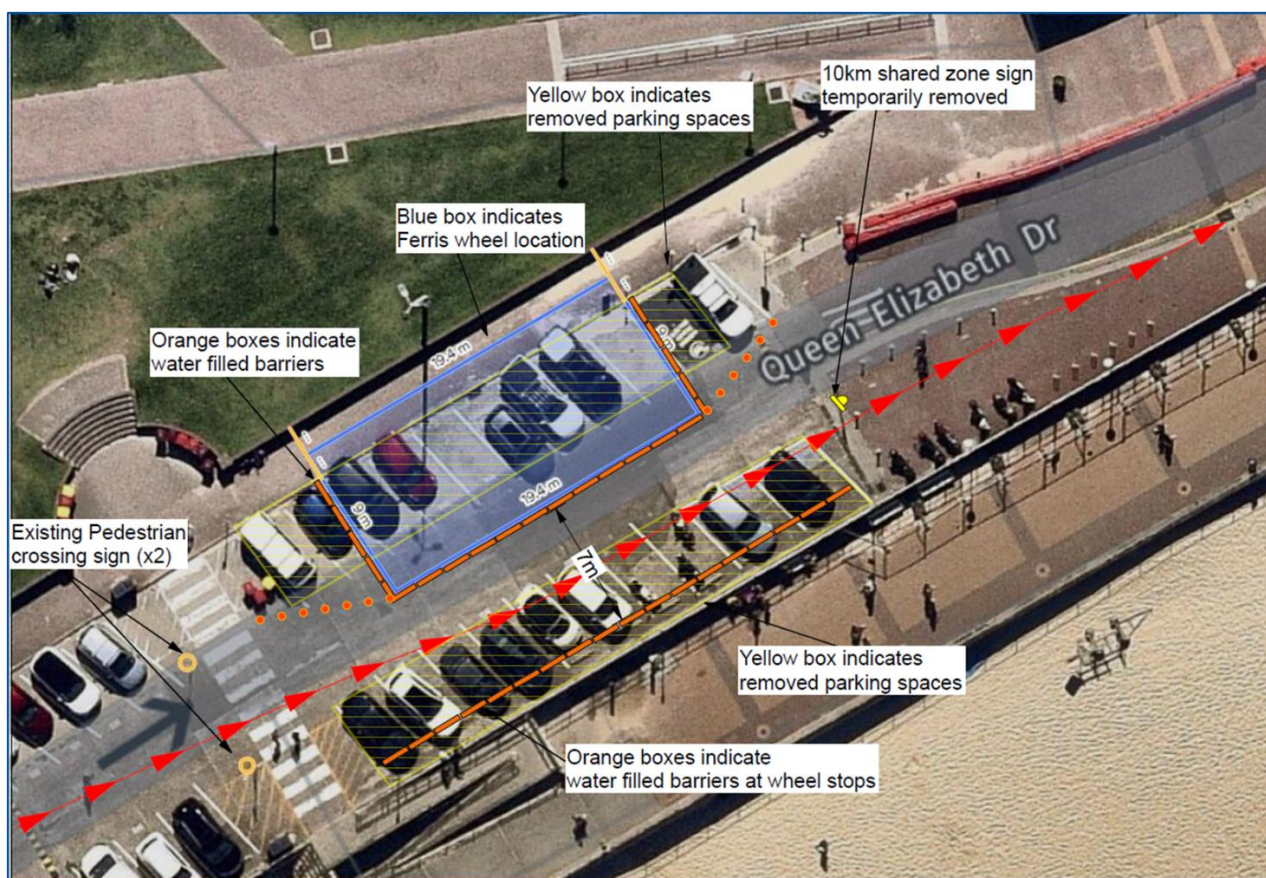


Figure 2. Queen Elizabeth Drive (Ferris wheel) Traffic Control Plan.

Thirty-four parking spaces will be unavailable during the ice rink operation. This includes removal of parking so that drivers can utilise a turning bay to complete a U-turn.

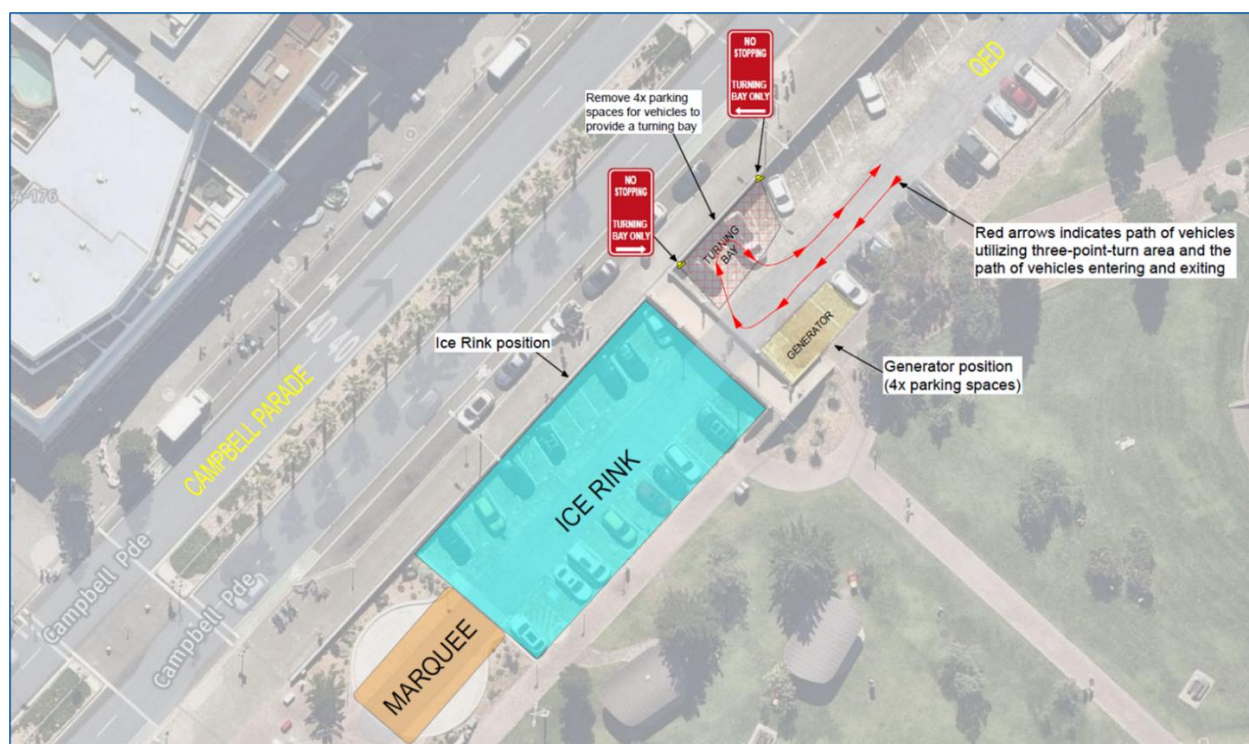


Figure 3. South Park Drive (ice rink) Traffic Control Plan.

### Impacts on Bondi Pavilion Conservation and Restoration Project

The forecourt repaving project currently underway as part of the Bondi Pavilion project includes changes to traffic conditions along Queen Elizabeth Drive. Development of traffic controls for the Ferris wheel on Queen Elizabeth Drive have factored in the existing Traffic Management Plan for the project and have been tailored to work in sync with scheduled changes in early June.

### Alternative location investigations

The following alternative locations were assessed for the Ferris wheel and ice rink.

- North Bondi Park. This location has level ground to accommodate the ice rink and Ferris wheel, but it is too far from the Festival hub and has no access to three phase power.
- Bondi Park (between Hall and Roscoe Street). The ice rink was in a section of this park several years ago. The sloped gradient of the park created considerable site challenges. It also resulted in damages to the grass and irrigation lines. The same gradient and damage issues apply to the Ferris wheel. A small flat section of Bondi Park near the Campbell Parade bus stop between Hall and Roscoe Street was considered for the Ferris wheel. It was ruled out due to risks related to privacy for residents on the other side of Campbell Parade and potential traffic issues for motorists.
- South Bondi Park. This location presents the same issues as Bondi Park regarding gradient and damages. It is also too far from the Festival hub and has no access to three-phase power.
- Bondi Beach Promenade. A potential location on the promenade next to the Skate Park was identified for the Ferris wheel. However, it is too far from the Festival hub and has no access to three phase power.

## Timeline

Table 1. Schedule of activities.

Date	Time	Location (Activity)	Details
Tuesday 15 June	7.00 am	Queen Elizabeth Drive	Events Team take delivery of water-filled barriers on QED. Stack these in available parking spaces. Events Team to use these barriers to block spaces to the north of the pedestrian crossing on both sides of QED. (Returned to public at 10.00 am on Wednesday 28 July)
Tuesday 15 June	7.00 am	Park Drive South (Ice Rink)	Parking spaces to the south of pedestrian bridge, and four spaces to the northeast of pedestrian bridge, taken out. (Returned to public at 5.00 pm on Wednesday 14 July)
Tuesday 15 June to Thursday 17 June	All hours	Queen Elizabeth Drive (Ferris Wheel) Park Drive South (Ice Rink)	Events Team to monitor and maintain both areas and ensure that no cars are entering restricted areas.
Friday 18 June	7.00 am	Park Drive South (Ice Rink)	Ice Rink bump in commences. Bump in continues until Friday 25 June, which is show day.
Monday 21 June	10.00 am	Queen Elizabeth Drive (Ferris Wheel)	Parking spaces from '501' northwards to the pedestrian crossing taken out. Events Team to monitor throughout the day and bollard the spaces off as vehicles leave the spaces.
Monday 21 June to Tuesday 22 June	10 pm to 7.00 am	Queen Elizabeth Drive (Ferris Wheel)	Primary assembly of Ferris Wheel (Overnight)
Tuesday 22 June to Thursday 24 June	Business hours	Queen Elizabeth Drive (Ferris Wheel)	Assembly of Ferris Wheel continues
Friday 25 June	9.00 am	Queen Elizabeth Drive (Ferris Wheel)	Ferris Wheel Box Office Opens
Friday 25 June	9.00 am	Park Drive South (Ice Rink)	Ice Rink Box Office Opens
Friday 25 June to Sunday 11 July	When ready	Park Drive South (Ice Rink)	Ice Rink Operational
Monday 12 July	7.00 am	Park Drive South (Ice Rink)	Ice Rink Bump out commences
Wednesday 14 July	5.00 pm	Park Drive South (Ice Rink)	Ice rink bump out concludes. Parks staff remove temporary fencing and restore parking.
Sunday 25 July	10.00 am	Queen Elizabeth Drive (Ferris Wheel)	Parking spaces from '501' northwards to the pedestrian crossing taken out.
Sunday 25 July	8.00 pm	Queen Elizabeth Drive (Ferris Wheel)	Ferris Wheel ceases operation
Sunday 25 July	10.00 pm	Queen Elizabeth Drive (Ferris Wheel)	Ferris Wheel demobilisation.
Monday 26 July	10.00 am	Queen Elizabeth Drive (Ferris Wheel)	Parking spaces from '501' northwards to the pedestrian crossing returned to public.
Wednesday 28 July	5.00 pm	Queen Elizabeth Drive (Ferris Wheel)	Ice rink bump out concludes.
Thursday 29 July	7.00 am	Queen Elizabeth Drive	Removal of barriers and parking restoration.

**4. Financial Information for Council's Consideration**

Council will fund the cost of the event from existing events budget.

**5. Attachments**

Nil.



**REPORT**  
**TC/V.02/21.05**

**Subject:** 43-45 Hall Street, Bondi Beach - Partial Road Closure for Tower Crane Installation

**TRIM No:** A02/0617-07

**Author:** Paul Cai, Traffic Engineer  
Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

---

**COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Approves the temporary partial closure of Hall Street, Bondi Beach, between Consett Avenue and Jaques Avenue, from 6.00 am to 6.00 pm on Monday, 28 June 2021, subject to the applicant:
  - (a) Obtaining approval from NSW Police.
  - (b) Notifying the State Transit Authority, NSW Ambulance Service and NSW Fire and Rescue.
  - (c) Notifying affected residents and businesses of the changes in traffic in writing prior to implementation of the road and footpath closure.
  - (d) Using traffic controllers accredited by Transport for NSW.
  - (e) Covering all costs associated with closing the road, including traffic control and permit fees.
2. Delegates authority to the Executive Manager, Infrastructure Services to adjust the length and duration of the partial road closure, or approve any backup date and times, if required.

**1. Executive Summary**

Council has received an application on behalf of the construction company Lords Group requesting the temporary partial closure of Hall Street from 35–37 to 49 Hall Street (as shown in Figure 1). The proposed closure includes:

- 60 metres of the eastbound travel lane on Hall Street.
- 60 metres of the kerb-side parking lane (11 metered car parking spaces) on the north side of Hall Street (including a 12 metre long loading zone).
- 55 metres of the kerb-side parking lane (9 metered car parking spaces) on the south side of Hall Street.
- 24 metres of footpath on the north side of Hall Street (the frontage of 43–45 Hall Street).

This partial road closure is proposed to occur between 6.00 am and 6.00 pm on Monday, 28 June 2021, weather permitting. The temporary road closure is to accommodate standing of a mobile crane and delivery trucks for installing a tower crane in the construction site at 43–45 Hall Street.

The westbound travel lane and kerb-side lane on the south side of Hall Street will be kept clear and traffic controllers accredited by Transport for NSW are to be assigned to manage the traffic flow in Hall Street.

Traffic controllers will be assigned to guide pedestrians to use the other footpath or walk across the road if required.

Council will need to exercise its delegated function to approve the proposal.



Figure 1. Aerial view of proposed partial road closure on Hall Street.

## 2. Introduction/Background

A development application (DA-391/2018) has been approved for construction of a shop-top housing development at 43–45 Hall Street, Bondi Beach. A tower crane is to be installed in the construction site to assist the construction of the building. The tower crane will be delivered in sections and assembled using a mobile crane in Hall Street. As a result, a one-day partial road closure of part of Hall Street is required so that the tower crane can be safely assembled.

The proposed road closure is proposed to occur from 6.00 am to 6.00 pm on Monday, 28 June 2021, subject to weather conditions.

## 3. Technical Analysis

The site has a 24 metre frontage to Hall Street. Hall Street is the only practical location from which to conduct this crane lift.



The road closure will involve a mobile crane being set up in the eastbound travel lane and kerb-side parking lane in the north side of Hall Street. The length of the partial road closure is 60 metres—approximately 11 metered car parking spaces. Closure of the parking lane affects:

- 48 metres of '1P meter registration 8.00 am–6.00 pm; 3P meter registration 6.00 pm – 9.00pm.'
- 12 metres of 'Loading Zone ticket 6.30am–6.00 pm Monday to Saturday; 1P meter registration 8.00 am–6.00 pm Sunday; 3P meter registration 6.00 pm–9.00 pm.'

The footpath along the site frontage will be closed to pedestrians. Traffic controllers will safely guide pedestrians across the road.

The westbound travel lane in Hall Street will remain open with two-way flow under traffic control. Traffic controllers will use stop/slow traffic control to manage the two-way traffic flow in Hall Street.

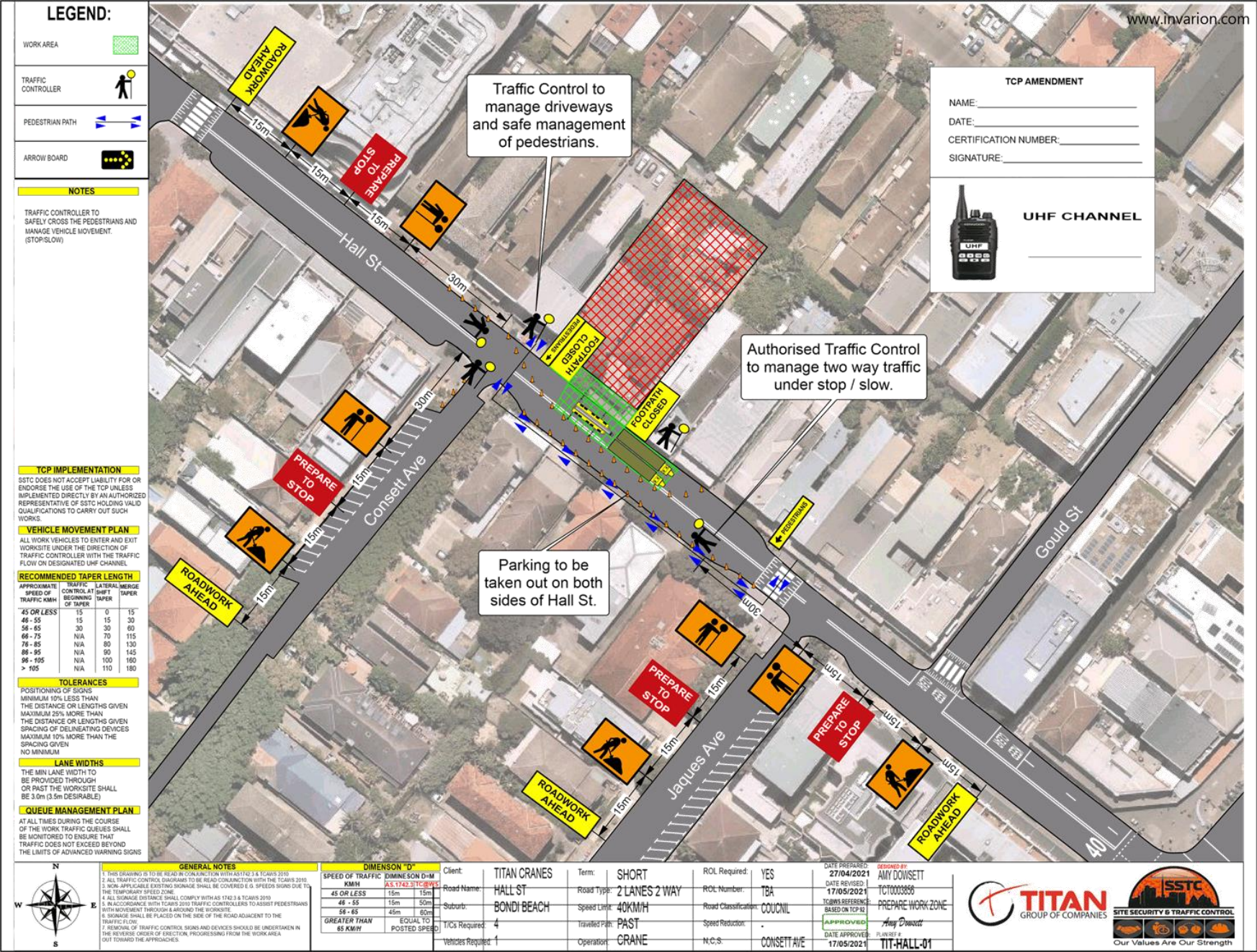
55 metres of the parking lane (approximately 9 metered car parking spaces) on the south side of Hall Street opposite to the work area will be kept clear for the safety movement of traffic.

#### **4. Financial Information for Council's Consideration**

The applicant will be required to meet the cost of closing the road and standing plant in accordance with Council's fee and charges for 2020–2021.

#### **5. Attachments**

1. Traffic Control Plan



**REPORT**  
**TC/V.03/21.05**

**Subject:** Murriverie Road, North Bondi - Bus Stop Improvements

**TRIM No:** A20/0076

**Author:** Hamoon Bahari, Professional Engineer, Traffic and Transport  
Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

---

**COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Approves the location and time restrictions for bus stops and bus zones as set out in the report at the following locations in Murriverie Road, North Bondi:
  - (a) Intersection of Murriverie Road and Shaw Street.
  - (b) Intersection of Old South Head Road and Murriverie Road.
  - (c) Adjacent to Justus Street.
  - (d) Opposite Justus Street.
  - (e) Adjacent to Nancy Street.
  - (f) Opposite Nancy Street.
  - (g) Adjacent to Hardy Street.
2. Notifies the residents of Murriverie Road between Old South Head Road and Middleton Avenue of the changes to parking arrangements.

**1. Executive Summary**

Council officers have received requests from residents of Murriverie Road, State Transit and Council's Parking Patrol team for improvements to signage of bus stops along Murriverie Road between Old South Head Road and Middleton Avenue.

Residents have reported their frustration and confusion about when and where they can park if their residence is outside an existing school bus stop. Similarly, Council Parking Patrol Officers have also reported confusion about the time restrictions signposted on the J-stems.

It is proposed that all bus stops will be signposted with bus zone signage. Time restrictions for bus stops which are for school services only will cover the periods that school services are scheduled to access that stop. This will assist residents in ensuring that they do not receive an infringement notice. Council will need to exercise its delegated functions to implement the proposal.



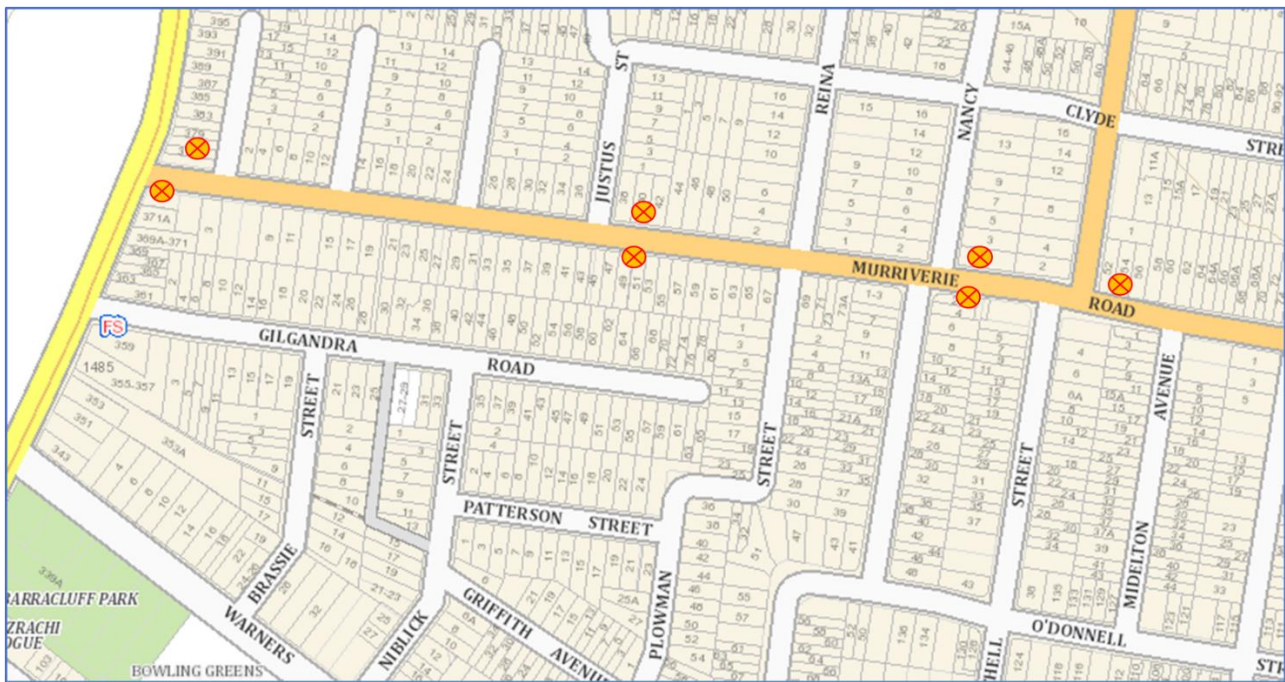


Figure 1. Site location.

## 2. Introduction/Background

Murriverie Road between Old South Head Road and Middleton Avenue has seven bus stops that are accessed by State Transit and school buses.

All of the bus stop locations are used by school buses with the exception of bus stop ID 202671, which also services a standard non-school bus route 379.

The locations of the modifications are presented below in Table 1.

Table 1. Bus stop locations.

Bus Stop ID	Bus stop location	Traffic and parking asset
202684	Intersection of Murriverie Road and Shaw Street	Bus zone, 25 metres
202683	Intersection of Old South Head Road and Murriverie Road	Bus zone, 13 metres
202685	Adjacent to Justus Street	J-stem
202682	Opposite Justus Street	J-stem
202686	Adjacent to Nancy Street	J-stem
202681	Opposite Nancy Street	J-stem
202671	Adjacent to Hardy Street (opposite SHUK Café)	J-stem

## 3. Technical Analysis

### Intersection of Murriverie Road and Shaw Street

- The 25 metre bus zone will remain.
- The bus zone will be time restricted to read 'Bus Zone, 7 am–8 am, Monday–Friday, 3.30 pm–4.30 pm, Monday–Friday, School days only.'

- The existing J-stem sign (the tombstone) will be reviewed by State Transit and replaced if necessary.

Table 2 and Figures 2 and 3 present the changes and proposed signage.

Table 2. Existing and proposed bus zone time restrictions.

Existing			Bus Services	Proposed	
Bus Stop ID	signs	J-Stem		J-Stem sign	Bus Zone sign
	25 metre full time bus zone		School - 7:25am, Mon-Fri, 738e	To be reviewed by State Transit	7:00am-8.00am
			School - 3:41pm, Friday only, 697e		Mon-Fri
202684		Tombstone faded	School - 4:04pm, Mon-Fri, 697e		3:30pm-4:30pm
			School - 4:13pm, Mon-Fri, 697e		Mon-Fri
					School days only



Figure 2. Street view of proposal.

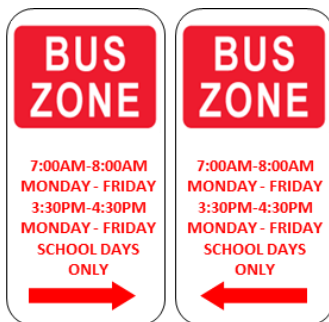


Figure 3. Proposed sign

#### Intersection of Old South Head Road and Murrivier Road

- The bus zone will be time restricted to read 'Bus Zone, 7 am–8 am, Monday–Friday, 3.00 pm–4.30 pm, Monday–Friday, School days only.'
- There will be no changes to the existing 13 metre bus zone length.
- The existing J-stem sign (the tombstone) will be reviewed by State Transit and replaced if necessary.

Table 3 and Figures 4 and 5 present the changes and proposed signage.

*Table 3. Existing and proposed bus zone time restrictions.*

Existing			Bus Services	Proposed	
Bus Stop ID	signs	J-Stem		J-Stem sign	Bus Zone sign
	13 metre full time bus zone		School - 7:27am, Mon-Fri, 697e	To be reviewed by State Transit	7:00am-8.00am
			School - 3:09pm, Friday Only, 738e		Mon-Fri
202683		Tombstone faded	School - 3:47pm, Mon-Thur, 738e		3:00pm-4:30pm
			School - 4:04pm, Mon-Fri, 687e		Mon-Fri
			School - 4:05pm, Mon-Fri, 608e		School days only



*Figure 4. Proposal at bus stop ID 202683.*



*Figure 5. Proposed sign.*

### Murriverie Road adjacent to Justus Street

The J-stem was originally between the driveways of 40 and 42 Murriverie Road. The J-stem sign is believed to have been removed by a resident sometime in late 2013/early 2014. It was later reinstated west of the driveway of 42 Murriverie Road between 2016 and 2018 to enable the buses to use the driveways for an effective draw out distance.

It is proposed to install a 20 metre bus zone plus 10 metres of 'No Stopping' east of Justus Street. Changes include:



- Installation of a 10 metre statutory 'No Stopping' sign on the northern side of Murriverie Road, east of Justus Street
- Installation of a 'Bus Zone, 7 am–8 am, Monday–Friday, 2.30 pm–4.30 pm, Monday–Friday, School days only' 1 metre east of the western bus zone sign, spanning 20 metres west towards Justus Street.

The existing J-stem sign (the tombstone) has recently been replaced due to removal by persons unknown. It will be reviewed by State Transit.

Table 4 and Figures 6, 7 and 8 present the changes and proposed signage.

Table 4. Existing and proposed bus zone time restrictions.

Existing			Bus Services	Proposed	
Bus Stop ID	signs	J-Stem		J-Stem sign	Bus Zone sign
	No bus zone signs		School - 7:25am, Mon-Fri, 738e	To be reviewed by State Transit	7:00am-8:00am
			School - 2:54pm, 2:59pm, Tuesday only, 710e		Mon-Fri
202685		Tombstone faded	School - 3:44pm, 3:49pm Mon, Wed, Thu, Fri, 710e		2:30pm-4:30pm
			School - 3:42pm, Friday only, 697e		Mon-Fri
			School - 4:05pm, 4:14pm Mon-Fri, 697e		School days only



Figure 6. Proposal at bus stop ID 202685.

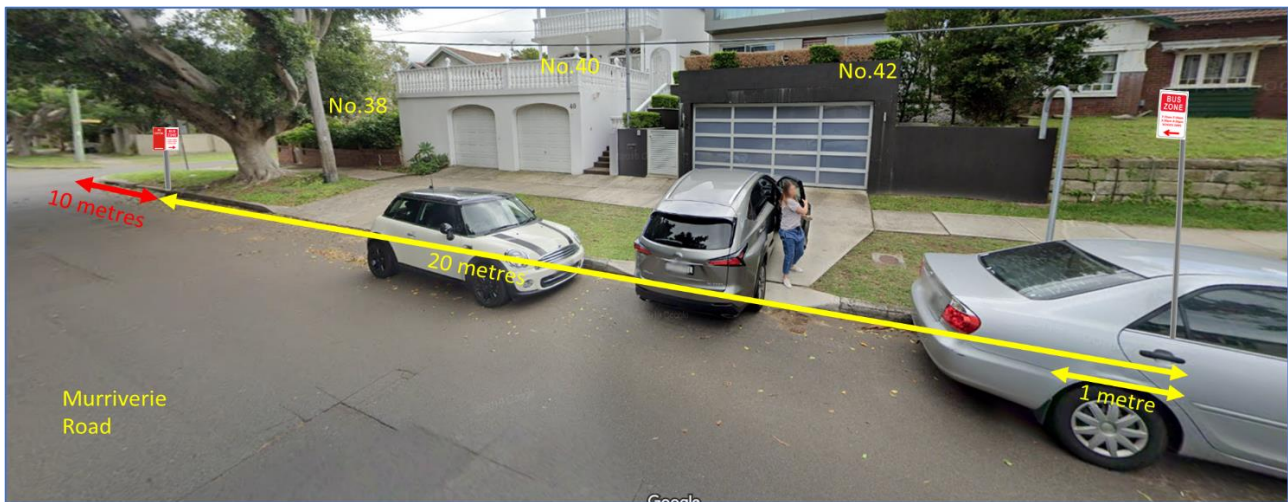


Figure 7. Proposal at bus stop ID 202685.

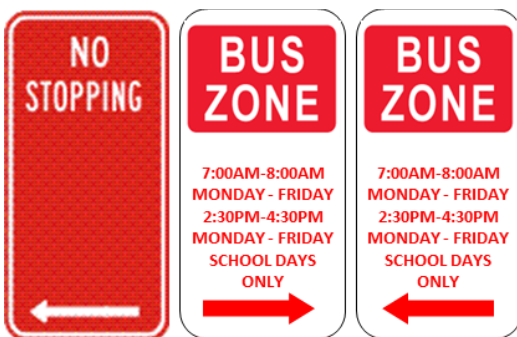


Figure 8. Proposed signs.

#### Murrivier Road opposite Justus Street

- Installation of a 20 metre 'Bus Zone, 7 am–8 am, Monday–Friday, 3.00 pm–5.00 pm, Monday–Friday, School days only' between the driveways of 53 and 57 Murrivier Road.
- The existing J-stem sign (the tombstone) will be reviewed by State Transit and replaced if necessary.

Table 5 and Figures 8 and 9 present the changes and proposed signage.

Table 5. Existing and proposed bus zone time restrictions.

Existing			Bus Services	Proposed	
Bus Stop ID	signs	J-Stem		J-Stem sign	Bus zone sign
202682	No bus zone signs	Tombstone faded	School - 4:02pm, Mon-Fri, 687e	To be reviewed by State Transit	7:00am-8:00am
			School - 4:32pm, Mon-Fri, 608e		Mon-Fri
			School - 3:08pm, Friday only, 738e		3:00pm-5:00pm,
			School - 3:46pm Mon-Thur, 738e		Mon-Fri
			School - 7:26am, Mon-Fri, 697e		School days only





Figure 9. Proposal at bus stop ID 202682.



Figure 10. Proposal at bus stop ID 202682.



Figure 11. Proposed sign.

**Murriverie Road adjacent to Nancy street**

- Installation of a 'Bus Zone, 7 am–8 am, Monday–Friday, 2.30 pm–4.30 pm, Monday–Friday, School days only' 1 metre east of the existing J-stem for a length of 20 metres.
- Installation of a 10 metre statutory 'No Stopping' at the intersection of Murriverie and Nancy Street.
- The existing J-stem sign (the tombstone) will be reviewed by State Transit and replaced if necessary.

Table 6 and Figures 12 and 13 presents the changes and proposed signage.

Table 6. Existing and proposed bus zone time restrictions.

Existing			Bus Services	Proposed	
Bus Stop ID	signs	J-Stem		J-Stem sign	Bus zone sign
	No bus zone signs		School - 2:54pm & 2:59pm, Tuesday only, 710e	To remain as existing	7:00am-8:00am
			School - 3:44pm & 3:49pm Mon-Fri, 710e		Mon-Fri
202686		Good condition	School - 7:26am, Mon-Fri, 738e		2:30pm-4:30pm
			School - 3:43pm, Friday only, 797e		Mon-Fri
			School - 4:06pm & 4:15pm, Mon-Fri, 697e		School days only



Figure 12. Proposal at bus stop ID 202686.



Figure 13. Proposed signs.

### Murriverie Road opposite Nancy street

There is some confusion between the school bus stop on Murriverie Road and 15 minute parking restrictions that apply outside the pharmacy. Residents have been parking within the bus stop area in mistake during the school bus times thinking that parking is unrestricted outside the 15 minute parking times.

It is proposed to relocate this bus stop west towards the playground and install a bus zone. Changes are:

- Introduction of a new 'Bus Zone, 7 am–8 am, Monday–Friday, 2.30 pm–4.30 pm, Monday–Friday, School days only' spanning a length of 25 metres from the immediate east of the driveway of 2 Glenayr Avenue towards the Glenayr Avenue intersection with Murriverie Road
- Removal of the existing J-stem signpost and tactile ground surface Indicators outside 79 Murriverie Road.
- Installation of a new J-stem signpost, sign (the tombstone) and tactile ground surface indicators within the new bus zone, 1 metre east of the western bus zone sign.

Table 7 and Figures 14, 15, and 16 present the changes and proposed signage.

Table 7. Existing and proposed bus zone time restrictions.

Existing			Bus Services	Proposed	
Bus Stop ID	signs	J-Stem		J-Stem sign	Bus zone sign
	No bus zone signs		School - 7:25am, Mon-Fri, 697e	To be reviewed by State Transit	
			School - 3:08pm Friday only, 738e		7:00am-8:00am
202681		Tombstone faded	School - 3:46pm, Mon-Thur, 738e		Mon-Fri
			School - 4:02pm, Mon-Fri, 687e		2:30pm-4:30pm
			School - 4:03pm, Mon-Fri, 608e		Mon-Fri





Figure 14. Proposal removal of J-stem and DDA tactiles at bus stop ID 202681.

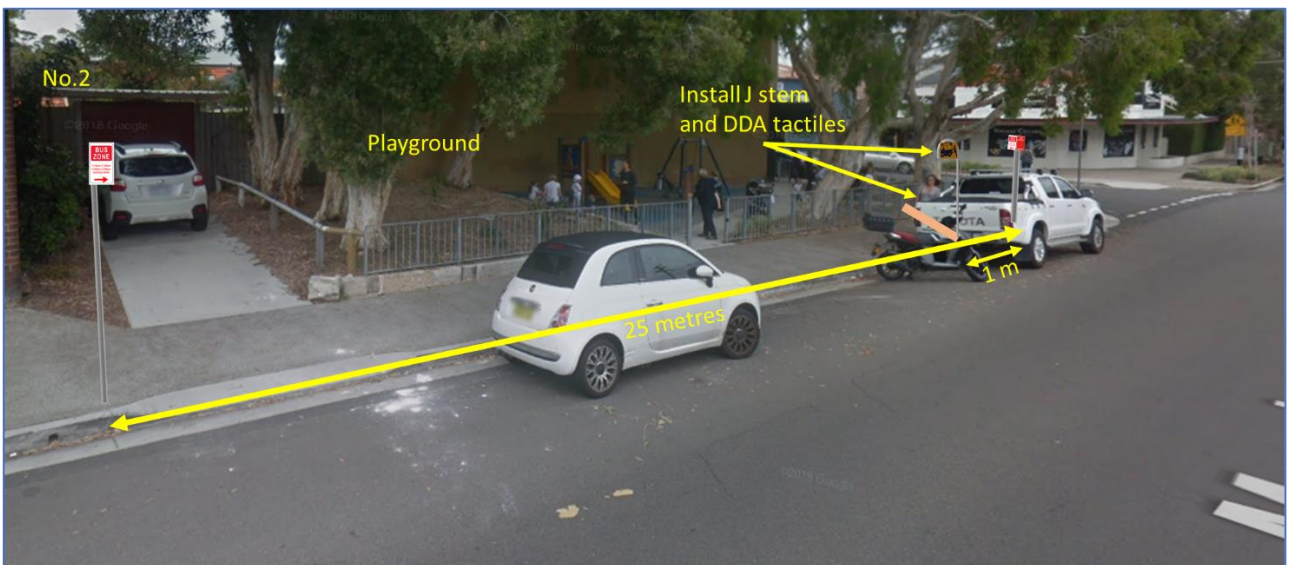


Figure 15. Proposal at bus stop ID 202681.



Figure 16. Proposed sign.

**Murriverie Road adjacent to Hardy Street (opposite Shuk Cafe)**

This bus stop is used for regular and school services. Changes proposed are:

- Installation of a full-time 'Bus Zone' beginning 10 metres east of the intersection of Murrivierie Road and Hardy Street for a length of 16.5 metres ending at the immediate east of the driveway of 56 Murrivierie Road.



- Installation of a 10 metre statutory 'No Stopping' at the intersection of Murriverie and Hardy Street.

Table 8 and Figures 17 and 18 present the changes and proposed signage.

Table 8. Existing and proposed bus zone time restrictions.

Existing			Bus Services	Proposed	
Bus Stop ID	signs	J-Stem		J-Stem sign	Bus zone sign
202671	No bus zone signs	Good condition	School - 4:06pm & 4:15pm, Mon-Fri, 697e	To remain as existing	full time bus zone
			Regular bus service - All day 379		



Figure 17. Proposal at bus stop ID 202671.

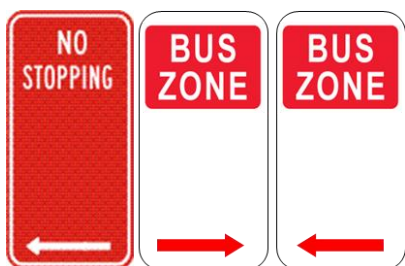


Figure 18. Proposed sign.

#### 4. Financial Information for Council's Consideration

Council will meet the cost of sign installation from existing budgets. State Transit has agreed to meet the cost of J-stem sign replacement/installation.

#### 5. Attachments

Nil.

## REPORT

### TC/V.04/21.05



**Subject:** Ethel Street and Kimberley Street Intersection, Vaucluse - 'No Stopping' Zones

**TRIM No:** SF21/1707

**Author:** Hamoon Bahari, Professional Engineer, Traffic and Transport  
Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

### COUNCIL OFFICER'S PROPOSAL:

That Council installs 10 metre 'No Stopping' zones on the south-eastern and south-western corners of the intersection of Ethel Street and Kimberley Street, Vaucluse.

#### 1. Executive Summary

Council officers have received a request from residents to review parking controls at the intersection of Ethel Street and Kimberley Street, Vaucluse (see Figure 1). Ten metre 'No Stopping' restrictions are proposed on the south-eastern and south-western corner of the intersection (see Figure 2).

Council will need to exercise its delegated functions to implement the proposal.

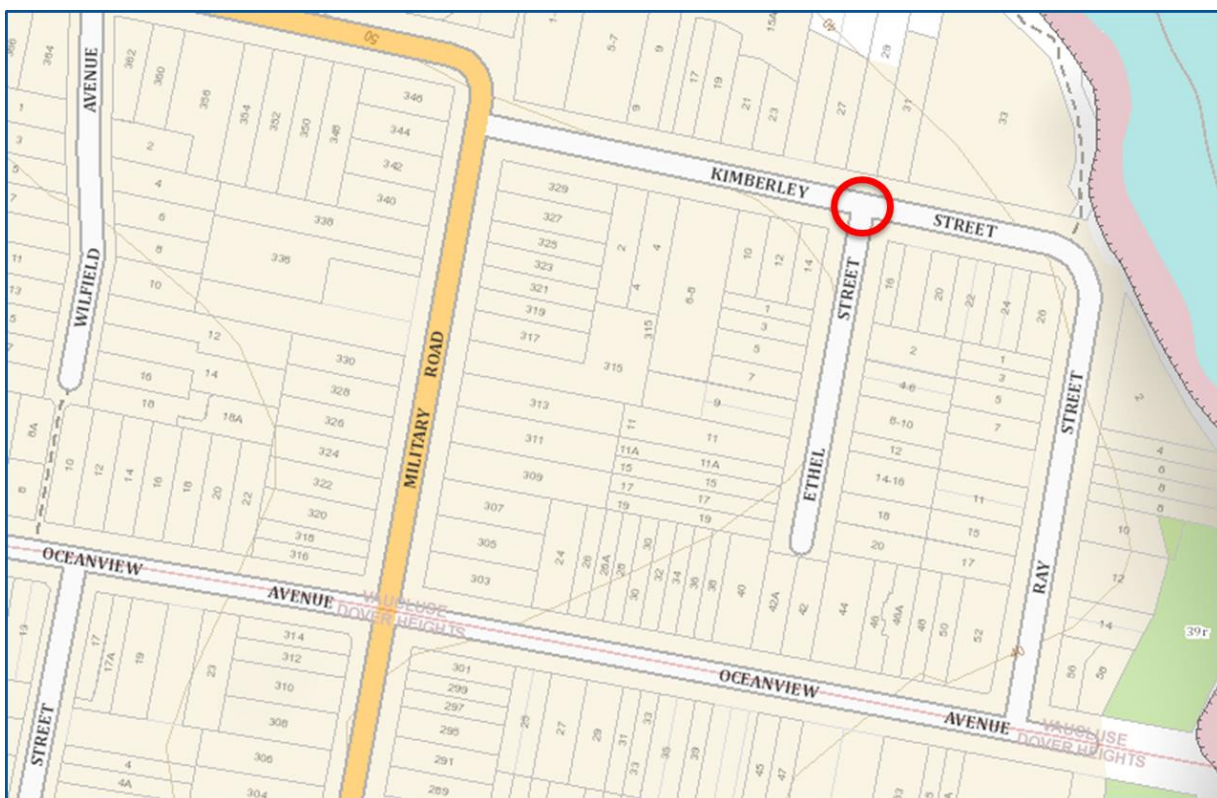


Figure 1. Site location.

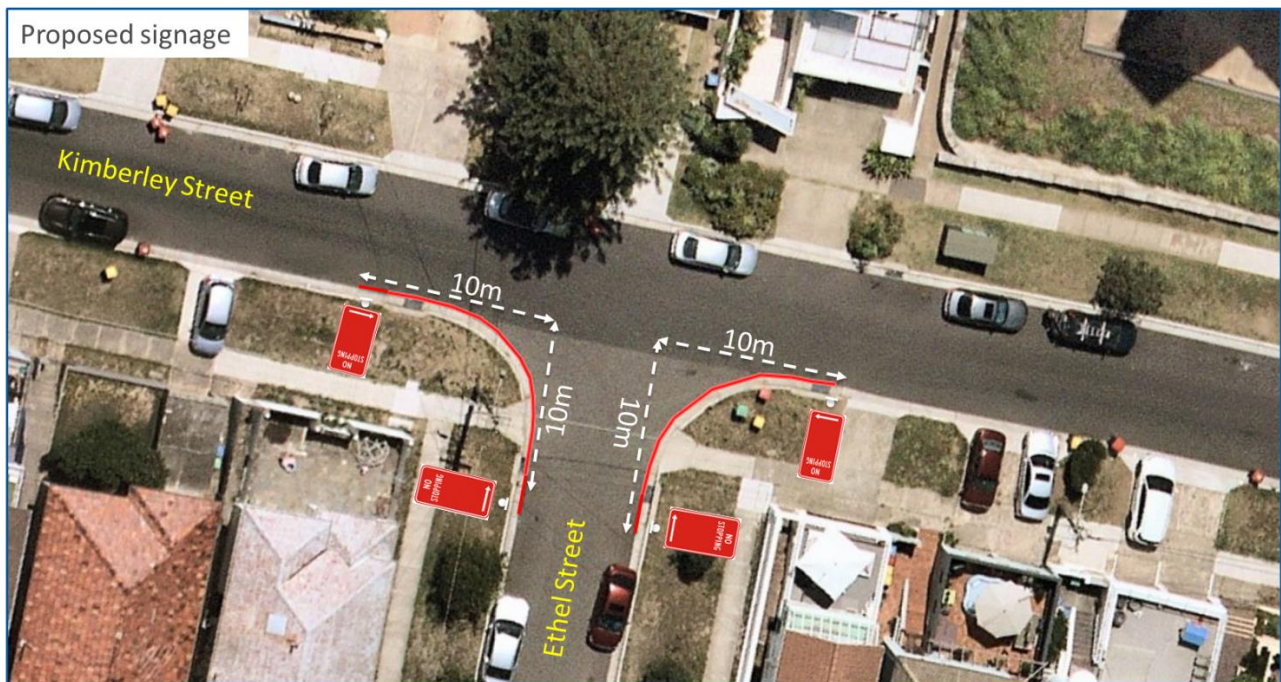


Figure 2. Proposed 'No Stopping' restrictions.

## 2. Introduction/Background

Sight distances are limited at the intersection. Issues include:

- Difficulty seeing around the corner of the intersection.
- Cars parked at the intersection and around the corner.
- Blind spots for vehicles heading in all directions.

## 3. Technical Analysis

Rule 170 of the NSW Road Rules 2014 shown below further reinforces this report's recommendations:

### *170 – Stopping in or near an intersection*

*(3) A driver must not stop on a road within 10 metres from the nearest point of an intersecting road at an intersection without traffic lights, unless the driver stops—*

*(a) at a place on a length of road, or in an area, to which a parking control sign applies and the driver is permitted to stop at that place under these Rules, or*

*(b) if the intersection is a T-intersection—along the continuous side of the continuing road at the intersection.*

## 4. Financial Information for Council's Consideration

Council will meet the cost of sign installation from existing budgets.

## 5. Attachments

Nil.



## REPORT

### TC/V.05/21.05



**Subject:** Diamond Bay Road and Isabel Avenue Intersection, Vaucluse - 'No Stopping' Zone - Review

**TRIM No:** A14/0145

**Author:** Emraul Kayes, Traffic Engineer  
Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

#### COUNCIL OFFICER'S PROPOSAL:

That Council reduces the length of the 'No Stopping' zone on the inner bend of the connection of Diamond Bay Road to Isabel Avenue, Vaucluse, from 26 metres to 19 metres, as shown in Figure 2 of the report.

#### 1. Executive Summary

Council has received representations requesting modifications to parking restrictions on the bend in the road where Diamond Bay Road and Isabel Avenue connect (see Figure 1).

Twenty-six metres of 'No Stopping' is currently signposted on the inner curve of the bend. It is proposed to decrease this to 19 metres. This will result in additional on-street parking, which can accommodate a standard car and a small car.



Figure 1. Site location

The proposed changes are shown in Figure 2.



Figure 2. Sketch of the proposed signage changes in the corner of Diamond Bay Road and Isabel Avenue, Vaucluse.

## 2. Introduction/Background

The parking demand is high in this location. Reducing the length of the 'No Stopping' zone will make more parking available without compromising safety.

## 3. Technical Analysis

Sight distances at the bend in the road where Diamond Bay Road connects with Isabel Avenue are good. Traffic speeds around the bend are around 10 to 30 km/h. Stopping sight distance requirements at 30 km/hr are 22.4 metres. Provision of this sight distance with the reduced 'No Stopping' zone is shown in Figure 3.

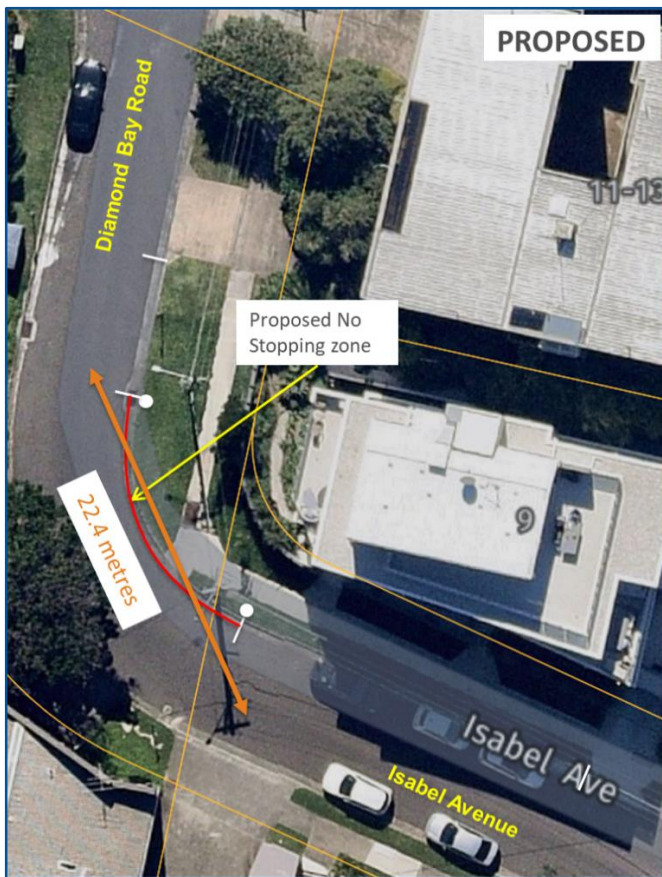


Figure 3. 22.4 metre stopping sight distance.

The proposed changes will increase the spaces for at least two vehicles in this location.

#### 4. Financial Information for Council's Consideration

Changes to signage will be funded from existing budgets.

#### 5. Attachments

Nil.



**REPORT**  
**TC/V.06/21.05**

**Subject:** Warners Avenue, Bondi Beach - 15 Minute Parking

**TRIM No:** A03/0042-04

**Author:** Malik Almuhanha, Senior Traffic Engineer  
Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

---

**COUNCIL OFFICER'S PROPOSAL:**

That Council converts the existing 14 metres of '2P, 8 am–10 pm, Permit Holders Excepted, Area B' parking restriction on the southern kerb line of Warners Avenue east of Glenayr Avenue, Bondi Beach, to 'P 15 mins, 8 am–2 pm' and '2P 2 pm–10 pm, Permit Holders Excepted, Area B', as shown in Figure 1 of the report.

**1. Executive Summary**

Council officers have reviewed parking restrictions in Warners Avenue east of Glenayr Avenue as requested by Council at its meeting on 10 October 2019.

Council requested consideration of *'converting the two to three parking spaces (14 metres) in Warners Avenue, outside 100 Glenayr Avenue (the Organic Republic Bakery), currently signposted '2P 8 am–10 pm permit holders excepted Area 8', into a 'drop in' zone 'P 15 mins 8 am–12 pm', together with '2P 12 pm–10 pm permit holders excepted Area 8' outside the 'drop in' zone times'*

Twenty-seven residents and businesses within a 50-metre radius were surveyed for their views. Three responses were received, all in favour of the proposed restriction. As part of the feedback, a suggestion was made to extend the 15 minute parking to cover the busy lunchtime period. This is considered reasonable.

It is recommended that the 15 minute parking is applied between 8 am and 2 pm, instead of between 8 am and 12 pm as originally requested by Council.

The proposed 14 metre restriction (three parking spaces) will benefit customers of cafes, restaurants, and other businesses in this active area.

Figure 1 shows the existing and proposed restrictions.



Figure 1. Proposed 8 am to 2 pm 15 minute parking restrictions.

## 2. Introduction/Background

At its meeting on 10 October 2019, Council resolved as follows:

*That Council:*

1. Notes that a new single 'P 15 mins' 'drop in' parking space has recently been endorsed by Council outside the Blair Street Dairy cafe at 27 Blair Street.
2. Investigates converting the two to three parking spaces (14 metres) in Warners Avenue, outside 100 Glenayr Avenue (the Organic Republic Bakery), currently signposted '2P 8 am–10 pm permit holders excepted Area 8', into a 'drop in' zone 'P 15 mins 8 am–12 pm', together with '2P 12 pm–10 pm permit holders excepted Area 8' outside the 'drop in' zone times.
3. Officers consult business owners and local residents within 50 metres of the site on the above proposal and prepare a report for the Waverley Traffic Committee's consideration.

This report recommends the installation of a morning P 15 minute restriction to facilitate a better parking turnover for businesses in the area. Consultation with affected residents/businesses shows a strong support for the proposal.

## 3. Technical Analysis

Warners Avenue is a local street east of Glenayr Avenue in Bondi Beach. The area is busy with shops, cafes and other businesses attracting customers who only require short-term parking. That necessitates facilitating a short-term parking restriction to accommodate the turnover required.

The area lies within an existing resident parking scheme (Area B). Motorists, including residents, will be subject to the proposed P 15 minute parking between 8 am and 2 pm. However, residents with parking

permits will be able utilise the parking restriction between 2 pm and 10 pm. Other motorists will be restricted to 2 hour parking during that time.

**Consultation**

Council resolved to consult with businesses and local residents within 50 metres of the proposed location. Twenty-seven businesses/residents were consulted, with three responses received, all welcoming the proposal.

**4. Financial Information for Council's Consideration**

Council will fund the installation of the signs.

**5. Attachments**

Nil.

**REPORT**  
**TC/V.07/21.05****Subject:** 55 Murriverie Road North Bondi - 'P Disability Only' Zone**TRIM No:** A20/0534**Author:** Emraul Kayes, Traffic Engineer  
Calum Hutcheson, Service Manager, Traffic and Transport**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services**COUNCIL OFFICER'S PROPOSAL:**

That Council installs a 5.4 metre 'P Disability Only' parking zone outside 53 Murriverie Road, North Bondi.

**1. Executive Summary**

Council has received a request from a resident for a 'P Disability Only' parking zone at 55 Murriverie Road, North Bondi. An assessment of the request was undertaken in April 2021 of the proposed zone. It meets all Council's requirements.

The frontage of 55 Murriverie Road is currently occupied by a school bus stop. The location of the proposed disability space has been selected adjacent to the driveway to property number 53 Murriverie Road.

The location of the site is shown in Figure 1. The proposed disability parking zone is shown in Figure 2.



*Figure 1. Site location.*



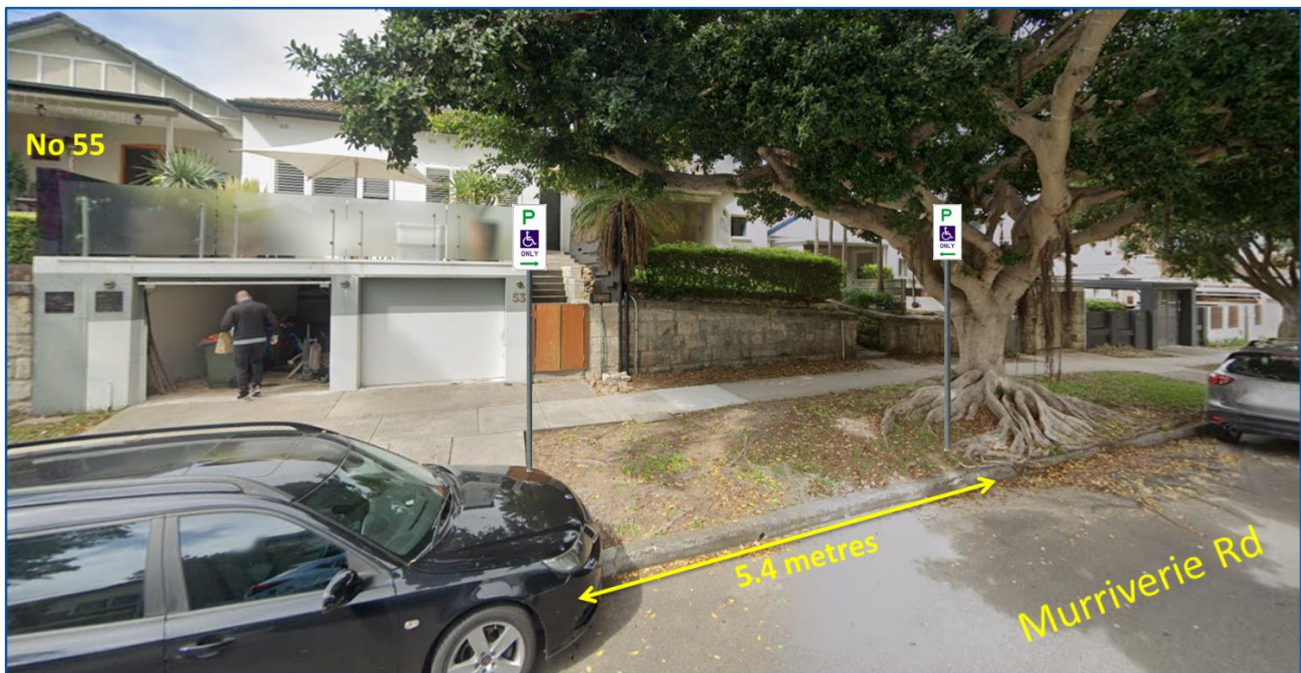


Figure 2. Proposed 'P Disability Only' parking zone location.

## 2. Introduction/Background

Council's requirements for approval of on-street disabled parking spaces outside individual properties are:

1. The applicant must have a vehicle registered to the address fronting the new disability parking space.
2. The applicant must have an approved RMS Mobility Parking Permit.
3. The applicant must not have access to off-street parking within their property.

The level of parking within 50 metres either side and opposite of the property to be surveyed on two occasions at random by Council officers. The parking demand is to be above 85% capacity on both occasions.

## 3. Technical Analysis

Compliance of the proposal with Council standard requirements is presented below.

Table 1. Compliance with Council requirements.

<b>Address</b>	55 Murriverie Road, North Bondi
<b>Mobility Parking Permit</b>	Yes
<b>Circumstances leading to requirement</b>	Applicant has medical condition – cannot walk for long distances
<b>Off-street parking available</b>	No
<b>Length of property frontage</b>	9 metres
<b>Length of zone</b>	5.4 metres
<b>On-street parking occupancy within 50 metres either side of the property</b>	89%–81% occupied during the day.
<b>Other on-street disability spaces</b>	Nil within 50 metres. One along 6 Bonus Street.

The proposed length of 5.4 metres is based on Australian Standard AS2890.5-2020 – On-street parking. This is shown in Figure 3 below.

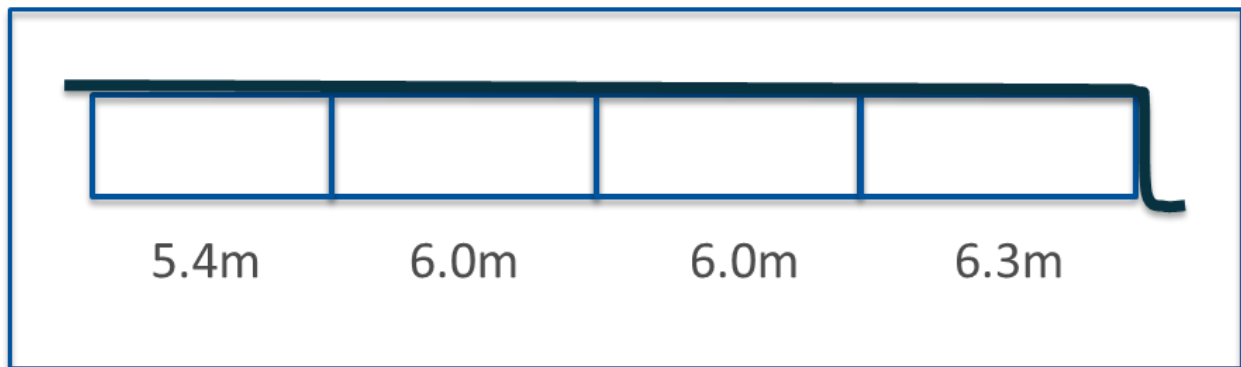


Figure 3. Dimensions for on-street disability parking spaces

### Signage

The proposed signage is shown below.

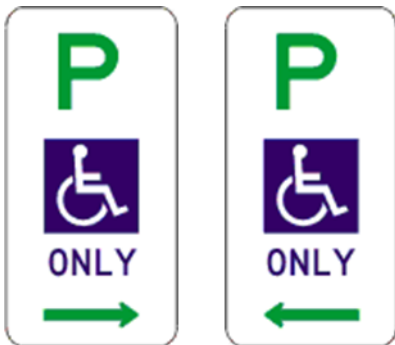


Figure 4. Proposed signage.

### 4. Financial Information for Council's Consideration

If changes to signs are approved, Council will supply and install the signs and remove existing signs with funds from existing budgets.

### 5. Attachments

Nil.



**REPORT**  
**TC/V.08/21.05**

**Subject:** 68 Blair Street, North Bondi - 'P Disability Only' Zone - Removal

**TRIM No:** A20/0534

**Author:** Emraul Kayes, Traffic Engineer  
Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

**COUNCIL OFFICER'S PROPOSAL:**

That Council removes the 6 metre 'P Disability Only' parking zone outside 68 Blair Street, North Bondi.

**1. Executive Summary**

Council has been advised that a disability parking space fronting 68 Blair Street installed in 2011 is no longer being used (see Figure 1). A resident from Blair Street informed Council that the occupant of the disability space has passed away and that the family had since moved away. Council officers have confirmed this.

The site location and disabled space are shown in Figures 1 and 2 respectively.

It is recommended that the disabled space is removed.

Council will need to exercise its delegated functions to implement the proposals.



Figure 1. Existing location of 'P Disability Only' zone fronting 68 Blair Street.



Figure 2. Existing 'P Disability Only' zone in 68 Blair Street be removed.

## 2. Introduction/Background

At its meeting on 28 July 2011, the Traffic Committee recommended the installation of a 6 metre 'P Disability Only' parking space fronting 68 Blair Street. The installation of the signage was completed on 22 September 2011.

## 3. Technical Analysis

Removal of the disabled space will result in unrestricted parking for one vehicle.

## 4. Financial Information for Council's Consideration

Council will undertake the work with funds from existing budgets.

## 5. Attachments

Nil.

**REPORT**  
**TC/V.09/21.05**

**Subject:** 114 Warners Avenue, Bondi Beach - Construction Zone

**TRIM No:** A03/2514-04

**Author:** Emraul Kayes, Traffic Engineer  
Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

---

**COUNCIL OFFICER'S PROPOSAL:**

That Council:

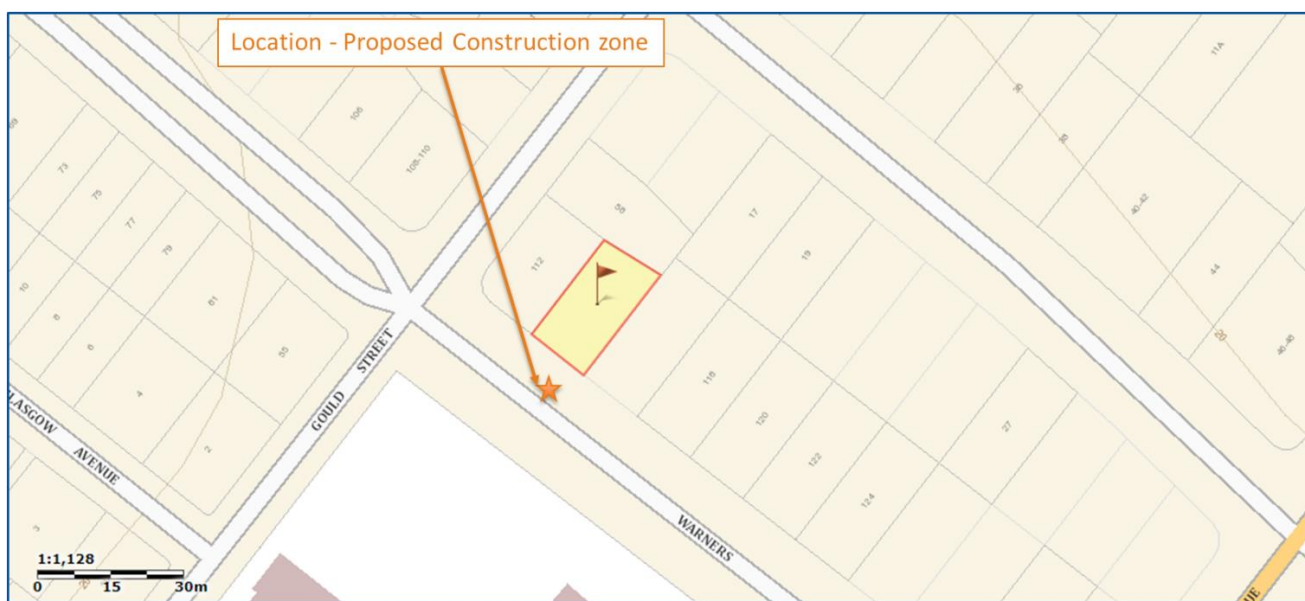
1. Installs a 10 metre 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Saturday Council Authorised Vehicles Excepted' construction zone along the frontage of 114 Warners Avenue, Bondi Beach.
2. Delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of, or remove, the construction zone, as necessary.

**1. Executive Summary**

Council has received an application from the builder/developer at 114 Warners Avenue, Bondi Beach, for the installation of a construction zone along the frontage of the property (see Figure 1).

Council officers propose the installation of a 10 metre construction zone as shown in Figure 2.

Council will need to exercise its delegated functions to implement the proposal.



*Figure 1. Site location.*



Figure 2. Location to install construction zone signs.

## 2. Introduction/Background

In accordance with standard practice at Council, it is proposed that the construction zone is signposted 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Saturday Council Authorised Vehicles Excepted' for the approved construction hours under the development consent. Council will then supply the applicant with transferable permits to be used on the applicant's construction vehicles. The Traffic Committee and Council's requirements for permit approvals are a minimum length of 9 metres along the site frontage with a minimum period of 13 weeks.

## 3. Technical Analysis

The subject site has a frontage of 14 metres on Warners Avenue including a 7.35 metre wide driveway.

The applicant has requested a 9 metre construction zone along the frontage on Warners Avenue.

Council officers propose to install a 10 metre construction zone to line up with existing sign posts. The existing and recommended parking allocation is shown in Figures 3 and 4 below.

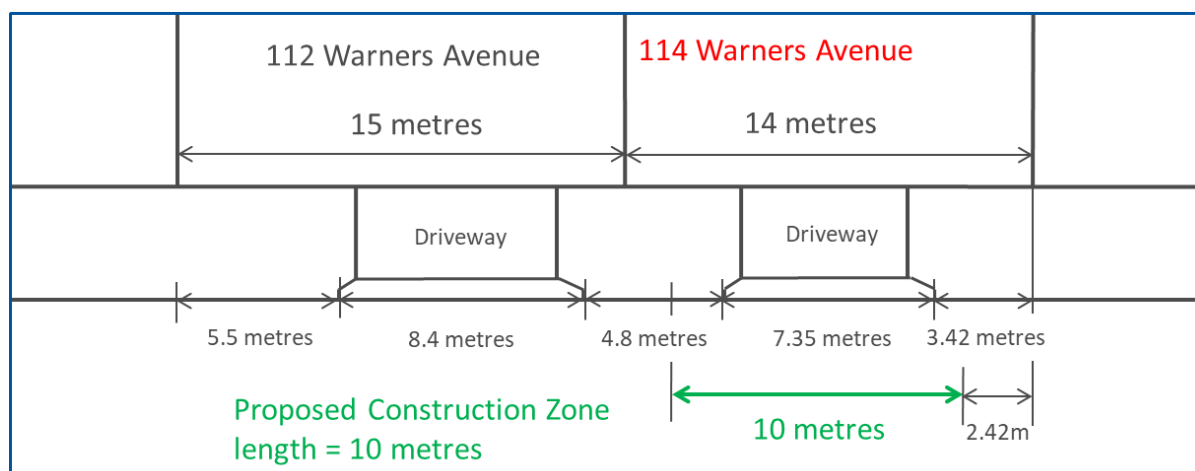


Figure 3. On-street parking for site and adjacent properties.



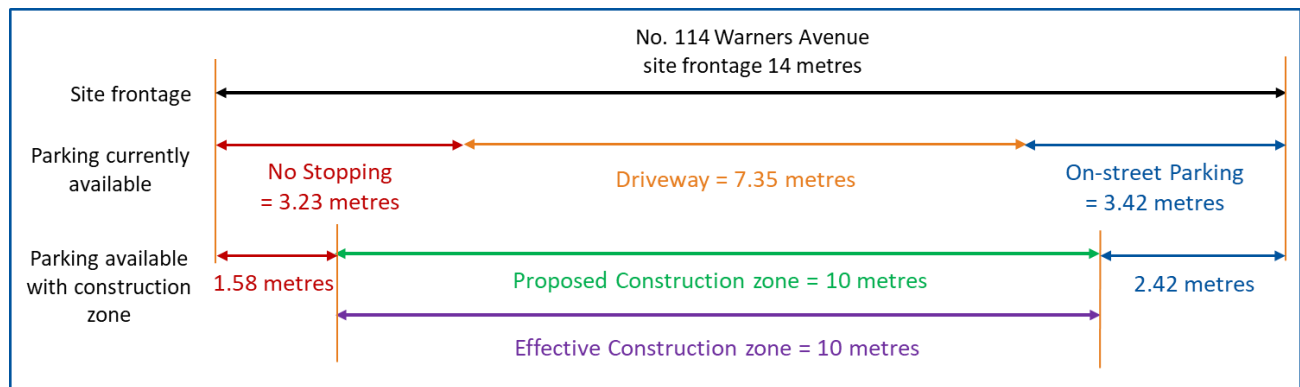


Figure 4. On-street parking for site frontage only.

Table 1. Application details.

<b>Applicant</b>	HTC Builders
<b>Development application</b>	DA-10/2020
<b>Works</b>	Amended - Alterations and additions to residential flat building including an additional part storey comprising a separate unit
<b>Approved hours of construction</b>	7 am–5 pm Monday–Friday; 8 am–3 pm Saturday
<b>Frontage length</b>	14 metres
<b>Road</b>	Warners Avenue
<b>Existing parking</b>	2P Meter Registration, 8am-10pm, 'Permit Holders Excepted' AREA 8
<b>Length requested by applicant</b>	9 metres
<b>Length to be signposted</b>	10 metres
<b>Effective construction zone - Total length available for construction</b>	10 metres
<b>Duration</b>	15 weeks (14/6/21 – 30/9/21)
<b>Fee area</b>	Residential area with 'Meter Registration' parking restrictions
<b>Estimated fees</b>	\$950 per week (10 metres x \$95 per metre)

## Signage

The proposed signage is shown below.

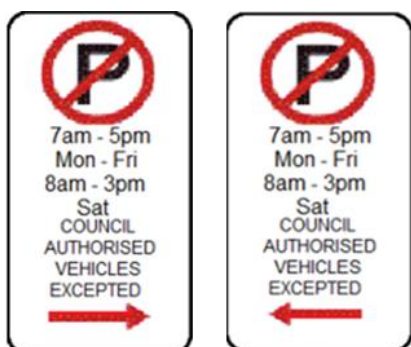


Figure 4. Proposed signage.

## 4. Financial Information for Council's Consideration

The applicant will be required to pay the approved application fee, which covers the cost of administration and signage.



The approved usage charges for the 2020–2021 financial year from 1 January 2021 are:

- \$69 per metre per week in a residential area.
- \$95 per metre per week in a commercial or mixed-use area.
- \$377 per metered (ticket) car parking space per week in addition to above fees (where applicable).

The cost to the applicant for the 10 metres made available for construction vehicles will be \$950 per week (10 metres x \$95 per metre).

## **5. Attachments**

Nil.

**REPORT**  
**TC/CV.01/21.05**

**Subject:** Guide for Assessment of Motor Bike Parking between Driveways

**TRIM No:** A21/0065

**Author:** Paul Cai, Traffic Engineer  
Calum Hutcheson, Service Manager, Traffic and Transport

**Authoriser:** Dan Joannides, Executive Manager, Infrastructure Services

---

**COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Endorses the process in the report for the assessment of motor bike parking zones between driveways.
2. Endorses the customised single sign 'Motor Bikes Only Between Driveways' for motor bike parking between driveways for a 12-month trial.
3. Endorses the 'Motor Bike Parking Warrants' attached to the report.

**1. Executive Summary**

This report presents the approach to be undertaken and factors to be considered by Council officers when assessing motor bike parking zones between driveways.

Attached is a warrant to be used in assessing whether to install motor bike parking between two driveways.

The assessment requires a three-month trial of driveway line marking prior to consideration of motor bike parking. This proposed to be paid for by the applicant.

A single sign is proposed for these motor bike parking zones. It will state 'P Motor Bike Only Between Driveways', as shown in Figure 1.



*Figure 1. Customised motor bike parking sign.*

A 12-month trial is recommended.

Endorsement from Council of the attached warrant is sought. This will provide residents and Council officers clear direction when undertaking these assessments.

## **2. Introduction/Background**

Council often receives requests for solutions to be undertaken to prevent vehicles parked partially across driveways which restrict access to and from properties.

Austroads guidelines and previous Council resolutions support the use of motor bike parking zones between driveways so that cars cannot be parked within these short parking zones.

## **3. Technical Analysis**

Motor bike parking zones between driveways are approved by Council taking into consideration the recommendations of the Traffic Committee. A number of criteria are applied when assessing the justification for installing motor bike parking spaces at the sections with limited distance between driveways. They are as follows.

### **Installation of driveway line marking**

Installation of driveway line marking must be undertaken prior to consideration of motor-bike parking. It identifies where vehicles can be legally parked. It is a guide only. Infringement would be for stopping on or across a driveway or other way of access under rule 198(2)(a) of the NSW Road Rules.

Affected residents are required to have driveway line marking installed for a period of three months prior to Council taking the matter further. Council would provide a single line either side of the section between the driveways if occupants of both residences agree.

The applicants are required to meet the cost of installing the driveway line marking.

### **Distance between driveways**

4.2 metres has been adopted as the maximum distance between driveways splays/wings for motor bike parking to be considered. This distance caters for the average small car.

Motor bike parking might not be installed for lengths between 3.5 and 4.2 metres if there is clear evidence that the space is used by people with 'city' cars (sometimes referred to as smart cars). These smaller cars are around 3.5 metres long.

### **Resident views check**

A minimum of five properties on either side and a similar stretch of properties opposite the affected driveways should be sought for their views on the proposed motor bike parking zone.

The proposed motor bike parking zone does not need to be supported by all the residents. Weight will be given to residents of the properties whose driveway is on either side of the proposed zone.

Assessment of the surveys will be presented to the Traffic Committee if a proposal is presented by Council officers for the installation of the motor bike parking.

**Signage**

Parking restriction signs are typically installed in pairs with a left and a right arrow closing the area where the parking restriction applies. A single sign can be installed indicating that the restriction applies between the driveways only has the same effect.

Driveway line marking on either side of the section between the driveways is to be installed in conjunction with the customised single sign. The line marking provides a guidance in defining the boundary of the motor bike parking zone. This line marking would already be in place because of the three-month trial requirement.

**4. Financial Information for Council's Consideration**

Driveway line marking is proposed to be at the cost of the applicant.

Costs associated with installing the motor bike parking sign/s will be funded by Council from existing budgets.

**5. Attachments**

1. Motor bike parking warrants [↓](#)

## Motor bike Parking Warrants

This warrant covers factors to be considered in the assessment of motor bike parking between driveways. The installation of motor bike parking prevents cars being parked in sections of the parking lane that are not long enough to use unless the car overhangs a driveway. This warrant does not apply to motor bike parking elsewhere.

Austroads guidelines and Waverley Council resolutions support the use of motor bike parking spaces in certain circumstances.

Austroads' *Guide to Traffic Management - Part 11: Parking (Section 7.8.3)*, states that motor bike parking provision can be achieved by "using irregular spaces and under-size remnants". The Waverley Local Traffic Committee and Council have supported this principle and have previously been in favour of installing 'P MOTOR BIKES ONLY' zones in short sections of kerb where other vehicles would obstruct vehicular access.

### Example of motor bike parking

An example of motor bike parking signage in place on Niblick Street, North Bondi is shown in Figure 1. The signage is adapted from RMS sign "R5-1-4"



Figure 1. Example of motor bike signage from Niblick Street, North Bondi.

### Warrants

Three criteria are applied when assessing the justification for installing motor bike parking spaces because of the limited distances between some driveways. These include the alternative use of driveway line-marking, the distance between driveways, and impacts on adjacent neighbours. The criteria for consideration of these motor bike parking spaces are:

1. Installation of driveway line-marking as an alternative measure prior to consideration of motor bike parking.





2. Distance check – 4.2 metres has been adopted as the maximum distance between driveway splays before motor bike parking is considered. This caters for the average small car.
3. Resident views check – the views of residents and/or property owners on either side of and opposite to the proposed motor bike parking zone should be sought.

### Background to warrants

#### 1. Installation of driveway line-marking

Driveway line-marking must be tested as an alternative prior to consideration of motor-bike parking.

Council offers a driveway line-marking service for individual properties. This involves providing a 1 metre line on either side of a driveway. It is provided at cost to the resident. The cost is specified in Council's "Pricing Policy Fees and Charges".

The driveway line-marking identifies where vehicles can be legally parked. It is a guide only. Infringement would be for stopping on or across a driveway or other way of access under NSW Road Rule 198(2)(a).

Residents requesting motor bike parking are required to have driveway line-marking installed for a period of 3 months prior to Council taking the matter further. Council would provide a single line either side of the section between the driveways as shown in Figure 2. This is subject to the affected resident/s agreeing to pay the standard fee. This could be one or both residents either side of the requested motor bike parking.

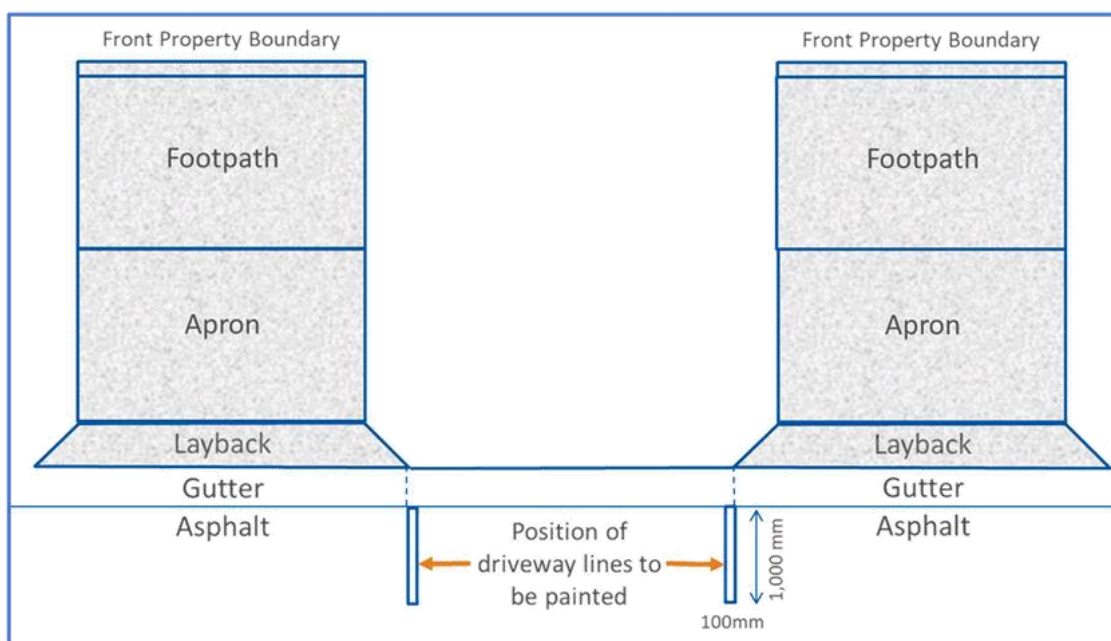


Figure 2. Location for driveway line-marking on either side of the section between two driveways.



## 2. Distance between driveways

This is measured between the driveway splays. 4.2 metres has been adopted as the maximum distance between driveway splays/wings for motor bike parking to be considered.

The 4.2 metre criteria is based on the average length of a sample of small cars shown in Table 1.

*Table 1. Sample small car lengths (2019 models).*

Model	Length (metres)*
Mitsubishi Mirage	3.80
Honda Civic	4.52
Hyundai i30	4.34
Subaru Impreza	4.46
Toyota Yaris	3.95
Mini 3-door	3.82
Ford Fiesta	4.04
<b>Average</b>	<b>4.13</b>

\* Source: <https://www.automobiledimension.com/>

Figure 3 shows a 3.82 metre mini 3-door car adjacent to a 4.18 metre spaces. A long car would overhang either the driveway or the adjacent car share space or both. This is the threshold point where motor bike parking would be considered.



*Figure 3. 4.18 metre parking space - Church Street, Camperdown.*

## 3. Resident views check

The views of residents living on either side of and opposite to the proposed motor bike parking zone should be sought.

This should cover a minimum of five properties on either side of the affected driveways plus a similar stretch of properties opposite. This would amount to around 10 houses and more if houses are subdivided or apartment buildings are involved.



The proposed motor bike parking zone does not necessarily need to be supported by all residents. Weight will be given to residents of the properties whose driveway is on either side of the proposed zone.

Assessment of the surveys are to be presented to Waverley Traffic Committee if the Council Officer assessment satisfies the criteria for the installation of the motor bike parking.

#### 4. Consideration of smaller “city” cars

Whilst the criteria assume average dimensions of small cars they do not consider “city cars”. These are the compact cars sometimes referred to as smart cars.

Sample “city” car lengths (2019 models) are shown below. The average length is 3.44 metres.

Motor bike parking might not be installed for lengths between 3.5 and 4.2 metres if there is clear evidence that the space is used by people with “city” cars.

ID	Model	Length (metres)*
1	Volkswagen up!	2.70
2	Toyota AYGO	3.47
3	Suzuki Celerio	3.47
4	Smart EQ fortwo	3.47
5	Smart EQ forfour	3.48
6	Skoda Citigo iV	3.48
7	Seat Mii electric	3.50
8	Renault Twingo	3.56
9	Peugeot iOn	3.57
10	Peugeot 108	3.60
11	Opel Karl	3.60
12	Opel ADAM	3.60
13	Kia Picanto	3.60
14	Hyundai i10	3.62
15	Fiat Panda	3.65
16	Fiat 500	3.67
17	Citroen C-Zero	3.68
18	Citroen C1	3.70
	<b>Average</b>	<b>3.44</b>
	<b>Minimum</b>	<b>2.70</b>
	<b>Maximum</b>	<b>3.70</b>

\* Source: <https://www.automobiledimension.com/>



## Signage

The provision of 2 motor bike signs close to each other can result in visual clutter. Provision of one sign only could be considered.

NSW Road Rule 316(4) provides the opportunity to adapt signs as required. It states:

*“A traffic sign may be a reasonable likeness of a diagram of a kind of traffic sign mentioned in these rules even though—*

- a) the dimensions of the sign, or of anything on the sign, are different, or*
- b) the sign has additional information on or with it, or*
- c) the number on the sign is different, or*
- d) the sign has a different number of panels, or*
- e) the sign is combined on a single panel with 1 or more other traffic signs, or*
- f) for a parking control sign—words, figures, symbols, or anything else, on the sign are differently arranged, or*
- g) for a bus lane sign, emergency stopping lane only sign, one-way sign or parking control sign—the sign has an arrow pointing in a different direction, or*
- h) for a separated footpath sign or an end separated footpath sign—the pedestrian and bicycle symbols are reversed, or*
- i) for a road access sign—information on or with the sign indicates (whether by different wording or in another way) that it applies to different or additional vehicles or persons, or*
- j) there is a variation in shade or brightness between a colour on the sign and the equivalent colour in the diagram.”*

Parking restriction signs are typically installed in pairs with a left and a right arrow closing the area where the parking restriction applies. A single sign can be installed indicating that the restriction applies between the driveways only has the same effect. Options for motor bike are shown in Figure 4. They are both applicable when installing motor bike parking between driveways.

Motor bike parking restrictions between driveways for distances of 4.2 metres or less will be signposted using the customised single sign. This sign has “additional information” as allowed for under NSW Road Rule 316(4). The additional information negates the requirement for left and right arrow signs.



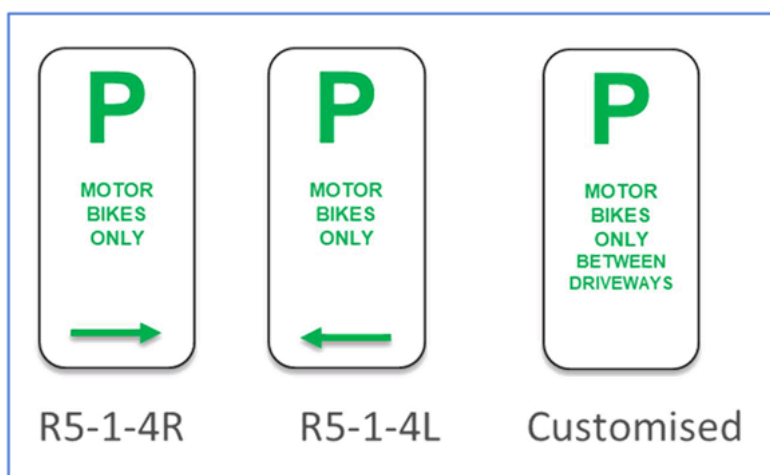


Figure 4. Motor bike parking signs.

Driveway line-marking on either side of the section between the driveways is to be installed in conjunction with the customised single sign. This would normally be in place

The line-marking provides a guidance in defining the motor bike parking zone. The applicant will be required to meet the cost of installing the driveway line-marking. Cost associated with installing the motor bike parking only sign/s will be funded by Council from existing budgets.