

Item No: LTC0518 Item 2

Subject: Old Canterbury Road, Dulwich Hill - Proposed Traffic Signals Concept Design Plans (Ashfield Ward/Summer Hill Electorate/Ashfield & Inner West LAC)

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SUMMARY

Concept design options have been prepared for the signalisation of Old Canterbury Road, Weston Street and Edward Street. Consultation was undertaken with owners and occupiers of properties regarding the options. A summary of the consultation results and traffic modelling results are presented in this report for consideration.

It is recommended that detail design of the traffic signals and intersection of Old Canterbury Road, Weston Street and Edward Street proceed based on a road closure to traffic at Weston Street, and consideration be given to improvements to traffic safety in Windsor Road, Edward Lane and Weston Street to be implemented in tandem with the proposed traffic signals.

RECOMMENDATION

THAT:

- 1. The concept design of the traffic signals and intersection of Old Canterbury Road, Weston Street and Edward Street based on a full road closure to traffic at Weston Street as shown in Option 3, be APPROVED, and inform the detailed design;**
- 2. Specific measures to improve traffic safety at the intersection of Old Canterbury Road and Windsor Road and in Edward Lane be considered in tandem with the detailed design and be presented to a future Local Traffic Committee for consideration with the detailed design plans for the signalised intersection; and**
- 3. The detailed design plans be forwarded to the Roads & Maritime Services for consideration and approval.**

BACKGROUND

As part of the development of the Summer Hill Flour Mills at 2-32 Smith Street, Summer Hill, the developer is required to install traffic signals at the intersection of Old Canterbury Road, Weston Street and Edward Street.

In July 2017 Council undertook preliminary engagement regarding the new signals and at the September 2017 Local Traffic Committee Meeting the committee endorsed the signals' concept design.

Concurrent with planning for the new signals, Council is also developing the Greenway Master Plan. This includes a walking and cycling route along Weston Street. The development of the Master Plan provided Council with an opportunity to consider new options for the intersection (beyond that endorsed in 2017) which will best meet the needs of residents and are compatible with the Greenway.

Council undertook traffic counts and modelling in February, and developed three options for the signalisation of the intersection.

Five scenarios have been modelled in Sidra as follows:

- **Existing without development:** Priority controlled intersection (current configuration) with traffic numbers based on intersection counts undertaken in February 2018.
- **Existing with development:** Priority controlled intersection (current configuration) with additional traffic generated due the Flour Mill and McGill Street developments.
- **Option 1 Full access at Weston Street:** Signalised intersection with access in and out of Weston Street and provision of a bi-directional shared path on the eastern side of Weston Street and closure of the Old Canterbury Road service road.
- **Option 2 Out only at Weston Street:** Signalised intersection with closure of Weston Street southbound at its interface with Old Canterbury Road, provision of a right turn lane on Old Canterbury Road in the westbound direction and closure of the Old Canterbury Road service road.
- **Option 3 Full closure at Weston Street** Signalised intersection with full closure of Weston Street at its interface with Old Canterbury Road, provision of a right turn lane on Old Canterbury Road in the westbound direction and implementation of a shared zone in the Old Canterbury Road service road.

These intersection concept plans are presented in Attachment 1. The traffic modelling memo is presented in Attachment 2.

Council is undertaking the concept design of the traffic signals and community engagement on behalf of the developer. It is anticipated that the recommendation of this report will be given to the developer to facilitate detailed design and construction.

FINANCIAL IMPLICATIONS

The detailed design and construction of the intersection and traffic signals is to be undertaken and funded by developers in 2018/19. Works outside the intersection associated with the Greenway would be funded by the Greenway Capital Budget and implemented in coordination with the traffic signals in 2018/19.

OFFICER COMMENTS

Signalisation of Old Canterbury Road, Weston Street and Edward Street

The intersection of Old Canterbury Road, Weston Street and Edward Street currently operates as a priority controlled intersection with Old Canterbury Road functioning as a major east-west sub-arterial road, and Weston and Edward Streets as minor local roads.

Council undertook traffic counts in February 2018, developed three options for the signalisation of the intersection and undertook on traffic modelling. A summary of the modelled performance of the intersection is shown in the table below.

Option 3 would deliver the most efficient intersection operation with the shortest queues and least delay to vehicles.

For all options an extended 'No Parking' zone on Old Canterbury Road in the westbound direction, east of Weston Street is required to reduce traffic queue lengths. It is recommended that this operate in the PM peak only.

Option	Morning peak hour		Evening peak hour		Operational comments
	Level of Service	Queue length (m)	Level of Service	Queue length (m)	
Option 1: Full access at Weston Street	C	275	D	475	Acceptable operational performance, however unacceptably long queue lengths during the morning and evening peak periods.
Option 2: Out only at Weston Street	B	240	B	260	Good operational performance however long queue lengths during the evening peak period.
Option 3: Full closure at Weston Street	B	150	A	155	Good operational performance and queue lengths

Each of the three options has different impacts on traffic, parking, access and safety. Specific advantages and disadvantages are summarised below.

	Option 1: Full access at Weston Street	Option 2: Out only at Weston Street	Option 3: Full closure at Weston Street
Performance of intersection	Acceptable performance	Good performance	Good performance
Queue lengths at intersection	Long queue lengths	Long queue lengths	Acceptable queue lengths
Turn movements onto Old Canterbury Road	Signalised turn onto Old Canterbury Road at Weston Street	Signalised turn onto Old Canterbury Road at Weston Street	Maintains priority controlled turn onto Old Canterbury Road at Windsor Road
Resident access to service road	Closes service road to residents	Closes service road to residents	Maintains service road open to residents
Resident access to Weston Street	Maintains resident access to Weston Street from Old Canterbury Road	Closes resident access to Weston Street from Old Canterbury Road. Up to 15 second delay.	Closes resident access to Weston Street from Old Canterbury Road. Up to 15 second delay.
Traffic volumes on Windsor and Weston	Increases traffic volumes in Weston Street	Increases traffic volumes in Weston Street	Increases traffic volumes in Windsor Road
Traffic volumes on Edward and Channel	Increases traffic volumes in Edward Lane and Channel Street	Increases traffic volumes in Edward Lane and Channel Street	Increases traffic volumes in Edward Lane and Channel Street
Resident parking	Loss of 12 parking spaces	Loss of 10 parking spaces	No Loss of parking spaces
Parking on Old Canterbury Road	Loss of up to 18 parking spaces in afternoon peak	Loss of up to 18 parking spaces in afternoon peak	Loss of up to 18 parking spaces in afternoon peak
Safety of pedestrians and cyclists	Least safe for pedestrians and cyclists	Somewhat safe for pedestrians and cyclists	Safest for pedestrians and cyclists
Compatibility with Greenway	Less compatible with Greenway	Less compatible with Greenway	More compatible with Greenway

With consideration of the above analysis and the outcomes of the community consultation below, it is recommended that Option 3 be approved to inform the detailed design. Option 3:

- provides the best operational performance for Old Canterbury Road
- is supported by over 50% of residents
- maintains access and parking for all residents
- is considered safest for pedestrians and cyclists
- is most compatible with preferred Greenway design in Weston Street

It is considered that other measures can be implemented to:

- provide a safer right turn out from Windsor Road, as raised by a number of residents during consultation
- minimise impacts on Edward Lane and Channel Street, as raised by a number of residents during consultation

Proposed Improvements to Windsor Road at Old Canterbury Road

Currently the intersection of Windsor Road and Old Canterbury Road is considered unsafe by the majority of residents. Refer to the results of the public consultation below.

The major disadvantage of Option 3 is that it does not provide a signalised environment to turn in/out Dulwich Hill along Old Canterbury Road.

The intersection of Old Canterbury Road, Windsor Road and Spencer Street operates as a priority controlled intersection with Old Canterbury Road functioning as a major east-west sub-arterial road, Windsor Road as a collector, and Spencer Street as a minor local road.

The Dulwich Hill North LATM (GTA 2016) recommended a threshold treatment on Windsor Road at Old Canterbury Road as a short term priority.

To improve the traffic safety of the Windsor Road and Old Canterbury Road intersection, it is recommended specific measures be investigated and implemented in tandem with the detailed design and be presented to a future Traffic Committee for consideration with the detailed design plans:

- Removal of the existing pedestrian refuge (which is anecdotally knocked over every few weeks and is currently perceived as unsafe by residents) to encourage residents to use the signals at Edward Street or Junction Street.
- Installation of 'No Stopping' signs on Old Canterbury Road at Windsor Road to provide adequate sight lines when turning out of Windsor Road. Consideration should also be given of extending the 'No Stopping' zones to 15m (i.e. beyond the statutory distance) in recognition of the crash numbers and difficulty experienced by drivers using this intersection.
- Installation of "No Right Turn" signage on Old Canterbury Road for west bound lanes at Spencer Street to encourage drivers to use the newly implemented signalised right turn at Edward Street and reduce the turning movements at the Old Canterbury, Windsor and Spencer Street intersection.
- Installation of 'Keep Clear' line marking in the east bound lanes on Old Canterbury Road at Windsor Road to ensure vehicles can exit safely from Windsor Road during the morning peak when modelled queue lengths are predicted to stretch past Windsor Road.
- Coordination of traffic signal controls at Edward/Weston Streets and Junction Street to maximise gaps in traffic for safe exit and entry from Windsor Road. The Edward Street traffic signal could be coordinated to trigger approximately 5 to 6 seconds after Junction Road to provide the biggest gap in traffic.

It should be noted that the proposed closure of Weston Street will not make the intersection of Windsor and Old Canterbury less safe, and, although not as safe as signalised intersection, when combined with the above measures, will improve the safety of the intersection of Windsor Road and Old Canterbury Road.

Proposed improvements to Edward Lane and Channel Street

Residents adjacent to Edward Lane and also a few residents in Channel Street are concerned that any of the Options will increase traffic volumes in Edward Lane and Channel Street. Refer to the results of the public consultation below. Anecdotal evidence suggests Edward Lane especially is used as a shortcut by pedestrians and there is no footpath in the lane to walk on.

The Dulwich Hill North LATM (GTA 2016) recommended kerb extensions at the intersections of Weston Street and Windsor Road, and Davis Street and Windsor Road to further calm traffic on Windsor Road. No other works were recommended at the intersection, nor in Weston Street, Edward Lane or Channel Street.

To improve the traffic safety of Edward Lane and Channel Street, it is recommended specific measures be investigated and implemented in tandem with the detailed design and be presented to a future Traffic Committee for consideration with the detailed design plans:

- Installation of continuous footpath treatments at the threshold of Edward Lane and Windsor Road, and potentially at Edward Street and Weston Street to slow traffic and give priority to pedestrians.
- Installation of 'No Right Turn' signage on Windsor Road for north bound lanes at Edward Lane to encourage drivers to use Channel Street and reduce the turning movements close to the Old Canterbury Road, Windsor Road and Spencer Street intersection.
- Installation of kerb extensions at Channel Street and Windsor Road to slow traffic and improve sight lines for vehicles turning in and out of Channel Street.

Other issues to be considered during detailed design of traffic signals

Extension of 'No Stopping' and/or 'No Parking' zone on Old Canterbury Road in the westbound direction, east of Weston Street is required to reduce traffic queue lengths to acceptable levels. Detailed design of the intersection should consider the extents and type of restrictions implemented. It is recommended that a 'No Parking' zone be introduced from the existing 'No Stopping' zone east of Weston Street over the crest of the bridge and that this operate in the PM peak only.

Traffic modelling shows that queue lengths on Old Canterbury Road will extend over the crest in the westbound direction, east of Weston Street, during the afternoon peak. Sight lines over the crest are limited. To reduce risk of rear end collisions into queued traffic consideration should be given to overhead lanterns on mast-arms and/or advanced warning (flashing) lights.

There is a need to provide bicycle lanterns and a wider crossing area to facilitate movements of bikes and pedestrians on the eastern pedestrian leg across Old Canterbury Road until a tunnel under Old Canterbury Road is constructed. Bicycle lanterns and a 4.5m wide marked foot crossing are suggested.

PUBLIC CONSULTATION

A notification letter and concept plans were sent to owners and occupiers of affected properties in Old Canterbury Road, Weston Street, Edward Street, Windsor Road and Channel Street on 15 March 2018. All properties within 100m of the intersection were notified. A total of 191 letters were distributed. The closing date for submissions was 8 April 2018.

There were a total of 134 responses received and the majority was submitted online with a number submitted via email. A summary of the preferences expressed by residents is outlined in the table below.

Option	Responses in support	Percentage in support
Option 1: Full access at Weston Street	59	44.0%
Option 2: Out only at Weston Street	2	1.5%
Option 3: Full closure at Weston Street	73	54.4%
Total	134	

Option	Responses in support from			
	Weston St Residents	Windsor St Residents	Old Canterbury Rd Residents	Other Residents
Option 1: Full access at Weston Street	1	47	5	6
Option 2: Out only at Weston Street	0	1	0	1
Option 3: Full closure at Weston Street	31	5	8	29
Total	32	53	13	36

Issues raised in specific written responses are detailed below. Responses with similar issues have been collated in order to provide a concise overview of the primary issues.

It's apparent from the community consultation that the community had a polar response, either favoring Option 1 or Option 3. However, common concerns were raised from supporters of both Option 1 and Option 3 including a safe turn in/out to Dulwich Hill along Old Canterbury Road and concerns about increased traffic on Edward Lane, Channel Street, Weston Street or Windsor Road depending on the preferred Option.

Residents comments	Officers comments
<p>Twenty six (26) residents support Option 1 as it provides a safe turn in/out Dulwich Hill along Old Canterbury Road. Currently the intersection of Windsor Road, which is the local collector road, and Old Canterbury Road is considered unsafe by the majority of residents.</p> <p>Three (3) residents support Option 3 but flag the need for improvements at the intersection of Windsor Road and Old Canterbury Road</p>	<p>Seven crashes were reported to RMS between July 2011 and June 2016 at the intersection of Old Canterbury Road, Windsor Road and Spencer Street. Note this is injury or tow away crashes only. Anecdotal evidence from numerous residents suggests that there are many more unreported crashes and that the holding rail at the pedestrian refuge on Old Canterbury Road at this location is flattened every few weeks.</p> <p>The Dulwich Hill North LATM (GTA 2016) recommended a threshold treatment on Windsor Road at Old Canterbury Road as a short term priority.</p> <p>For all options measures to improve the traffic safety of the Windsor Road and Old Canterbury Road intersection should be considered in tandem with the traffic signals as discussed above.</p>
<p>Two (2) residents support Option 1 due to the inconvenience of not being able to turn left into Weston Street from Old Canterbury Road in Option 2 or 3.</p>	<p>The furthest additional distance caused by the closure or part closure of Weston Street is around 160m. At 50km/h this is 12 seconds. This delay would only be experienced if coming from one direction out of three. i.e. from Old Canterbury west bound, not Old Canterbury east bound or Windsor Road.</p>

Residents comments	Officers comments
<p>Eleven (11) residents support Option 1 due to potential increases in traffic volumes in Edward Lane in Option 2 or 3.</p> <p>Three (3) residents support Option 3 but flag the need for improvements in Edward Lane</p>	<p>Edward Lane currently averages 80 vehicles per day (2016).</p> <p>It is considered that the relative increase in traffic on Edward Lane would be greatest in Option 2 then Option 1 and then Option 3. In Option 2 residents entering Weston Street may use the lane and the traffic signals may induce demand down the lane also. In Option 1 the traffic signals may induce demand down the lane. In Option 3 only local residents would utilize Edward Lane.</p> <p>The Dulwich Hill North LATM (GTA 2016) made no recommended for Edward Lane.</p> <p>For all options measures to minimise traffic volumes and improve the traffic safety in Edward Lane should be considered in tandem with the traffic signals as discussed above as discussed above.</p>
<p>Twelve (12) residents support Option 1 due to potential for increased traffic volumes in Windsor Road</p>	<p>Windsor Road near Old Canterbury Road currently averages 1170 vehicles per day (2016). It is a collector road. Vehicles using Weston Street at present averages 280 vehicles per day (2018). The very low numbers tend to indicate that this is predominantly generated by residents of Weston Street. Some of this traffic would originate from Windsor Road.</p> <p>Option 2 and 3 would result in increased numbers of vehicles on Windsor Road between Old Canterbury and Weston Street due to the restricted access at Weston Street. The increase may be in the order of 150 to 250 vehicles per day or an increase from 1170 to 1420 vehicles per day (20%).</p> <p>The Guide to Traffic Generating Developments (RMS 2002) specifies environmental limits for each road class, and specifically 3000 vehicles per day for collector roads. The increased traffic on Windsor Road would therefore remain within desirable limits for a collector road.</p>
<p>Twenty eight (28) residents support Option 3 as it is considered to be the safest and most desirable Option for cycling and walking including users of the Greenway.</p>	<p>A low traffic bike boulevard is preferred for the Greenway on Weston Street. Option 3 is most compatible with this.</p> <p>Provision of a safe and convenient Greenway route reduce will enable residents to make short trips by walking or cycling potentially reducing traffic on local roads including Windsor Road and Weston Street.</p>
<p>Thirteen (13) residents support Option 3 due to potential for increased traffic volumes in Weston Street.</p>	<p>Windsor Road near Old Canterbury Road currently averages 1170 vehicles per day (2016). Vehicles using Weston Street at present averages 280 vehicles per day (2018).</p> <p>Options 1 and 2 are likely to induce traffic from Windsor Road onto Weston Street due to the safer turning environment provided.</p> <p>The increase may be in the order of 250 to 350 vehicles per day or an increase from 280 to 630 vehicles per day (125%).</p> <p>The Guide to Traffic Generating Developments (RMS 2002) specifies environmental limits for each road class, and specifically 2000 vehicles per day for local streets. The increased traffic on Weston Street Road would therefore remain within desirable limits for a local street.</p>

Residents comments	Officers comments
Twelve (12) residents support Option 3 due to loss of parking in Weston Street and/or access to properties in Option 2 or 3.	<p>The Lewisham Parking review (IWC 2016) found parking in Weston Street was often constrained with occupancy rates generally 50-75% throughout the week with higher demand in some peak periods. Parking in Windsor Road was less constrained.</p> <p>Anecdotal evidence from numerous residents suggests that parking has become increasingly difficult on both Weston Street and Windsor Road due to increasing development and associated construction as well as the light rail.</p>

CONCLUSION

With consideration of the above analysis and the outcomes of the community consultation, it is recommended that the Option 3 concept plan be used to inform the detailed design.

Along with the concept plan, detailed designs should give consideration to extension of 'No Stopping' and/or 'No Parking' zones on Old Canterbury Road; overhead lanterns on mast-arms and/or advanced warning (flashing) lights; and bicycle lanterns and a 4.5m wide marked foot crossing on the eastern pedestrian leg across Old Canterbury Road.

It is also recommended that specific measures be investigated and implemented in tandem with the detailed design to improve safety at the intersection of Old Canterbury Road, Windsor Road and Spencer Street as well as at Edward Lane and Channel Street.

ATTACHMENTS

1. [Signalisation Options](#)
2. [Traffic Modelling Report](#)



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PM No stopping zone on Old Canterbury Road Westbound (18 car spaces affected)
Evening peak hour westbound queue lengths extend past Tothill Street.
Extended No Stopping Zone doesn't reduce to acceptable level.

Intersection operates at a good level of service (LOS B in AM and PM peak)

Route on to Weston Street - Southbound

Legend

- Parking Space Removed
- Retained Parking Space
- Parking Space Gained
- Shared Path
- Shared Zone

Option 2 - ONE-WAY OUT AT WESTON STREET

Advantages

- Allows Old Canterbury Road westbound to accommodate a dedicated right turn lane and straight through lane - safer than Option 1
- Bikes can move more easily between Weston Street and the service road - safer than Option 1

Disadvantages

- PM no stopping affects 18 car spaces on Old Canterbury Road
- Parking spaces lost: 10 total (4 in service road, 4 on east side of Weston street, 2 on west side of Weston st and 2 on Edward st with 2 gained on northern side of Old Canterbury Rd)
- Vehicle access lost to front of 5 houses on service road (emergency and maintenance vehicles allowed)
- People who want to turn left into Weston Street will have to travel further and use Windsor Road to access Weston Street.
- Possible induced northbound traffic on Weston street as per option 1
- Queue lengths on Old Canterbury Road





Memorandum

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Subject	Old Canterbury Road / Weston Street traffic modelling assessment	Project Name	The GreenWay Missing Links Master Plan
Attention	McGregor Coxall	Project No.	IA174800
From	Richard Banzon		
Date	19 March 2018		
Copies to	McGregor Coxall and Inner West Council		

1. Introduction

This memorandum outlines the traffic modelling assessment of the proposed of Old Canterbury Road / Weston Street / Edward Street intersection as part of the GreenWay.

The outcomes of this assessment will inform the route options assessment by McGregor Coxall, which is being prepared as part of The GreenWay Missing Links Master Plan development process.

This memorandum is structured as follows:

- Section 2 outlines the traffic modelling approach undertaken for the assessment
- Section 3 details the intersection configurations modelled and any assumptions made
- Section 4 outlines the results of the assessment
- Section 5 presents a summary of assessment findings



Memorandum

Old Canterbury Road / Weston Street traffic
modelling assessment

Item 2

2. Traffic modelling approach

2.1 Intersection performance criteria

The assessment has been undertaken using SIDRA INTERSECTION (Sidra) modelling software (version 7). Sidra is a micro-analytical tool for evaluation of intersection performance in terms of capacity, Degree of Saturation, Level of Service, average vehicle delay and queue lengths, and is an appropriate tool for modelling individual intersections. Roads and Maritime Services (Roads and Maritime) *Traffic Modelling Guidelines* (version 1.0, February 2013) state that the following core performance elements should be assessed when modelling using Sidra:

- Degree of Saturation (DoS)
- Level of Service (LoS)
- 95 per cent back of queue distance

2.1.1 Degree of Saturation

DoS is defined as the ratio of demand (arrival) flow to capacity (also known as volume to capacity ratio). A DoS above 1.0 represents oversaturated conditions (where demand flow exceeds capacity), and DoS below 1.0 represent undersaturated conditions (where demand flows are below capacity).

2.1.2 Level of Service

LoS is a qualitative measure describing operational conditions within a traffic stream and their perception by drivers and/or passengers. This measure is used in planning design and operation of roads. The road operational conditions in terms of LoS criteria are classified into six categories as shown in Table 2.1.

Table 2.1 : Level of Service (LoS) criteria

LoS	Average delay per vehicle (seconds per vehicle)	Traffic signals	Roundabout
A	Less than 15	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity.	Good with acceptable delays and spare capacity.
C	29 to 42	Satisfactory	Satisfactory
D	43 to 56	Operating near capacity	Operating near capacity
E	57 to 70	At capacity; incidents will cause delays.	At capacity; requires other control mode
F	Over 70	Extra capacity required	Extra capacity required

Source: Guide to Traffic Generating Developments (Roads and Maritime, version 2.2, 2002)

The average delay assessed for roundabouts is for the worst movement, and is expressed in seconds per vehicle.

Attachment 2



Memorandum

Old Canterbury Road / Weston Street traffic
modelling assessment

3. Modelled scenarios

The intersection of Old Canterbury Road, Weston Street and Edward Street currently operates as a priority controlled intersection with Old Canterbury Road functioning as a major east-west sub-arterial road, and Weston Street and Edward Street as minor local roads.

A tunnel under Old Canterbury Road east of Edward Street is currently being designed as part of the Central Links package. Assessment of at-grade crossing options has been undertaken due to the signalisation of Old Canterbury Road / Weston Street / Edward Street as part of the Summer Hill Flour Mill development north-east of the intersection. Additional treatments are proposed to accommodate the GreenWay. This crossing would be used by cyclists and pedestrians until the tunnel is operational.

Five scenarios have been modelled in *Sidra* as follows:

- **Existing without development:** Priority controlled intersection (current configuration)
- **Existing with development:** Priority controlled intersection with additional traffic generated due the Flour Mill and McGill Street developments
- **Option 1:** Signalised intersection with provision of a bi-directional shared path on the eastern side of Weston Street and an extended no stopping zone on Old Canterbury Road in the westbound direction, east of Weston Street
- **Option 2:** Signalised intersection with closure of Weston Street southbound at its interface with Old Canterbury Road, provision of a right turn lane on Old Canterbury Road in the westbound direction and an extended no stopping zone on Old Canterbury Road in the westbound direction, east of Weston Street
- **Option 3:** Signalised intersection with full closure of Weston Street at its interface with Old Canterbury Road, provision of a right turn lane on Old Canterbury Road in the westbound direction and an extended no stopping zone on Old Canterbury Road in the westbound direction, east of Weston Street

These intersection concepts and modelling results are presented in Chapter 4.

Existing traffic counts are outlined in Appendix A.



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Old Canterbury Road / Weston Street traffic
modelling assessment

4. Modelling assessment

4.1 Existing intersection performance

Table 4.1 shows the performance of the existing intersection configuration with and without additional traffic generated due to the Flour Mill and McGill Street developments.

Additional traffic has been based on an assessment of the Flour Mill and McGill Street developments undertaken by Arup as outlined in *Summer Hill Flour Mill Preferred Project Report – Traffic and Transport* (Arup 2012).

Table 4.1 : Existing intersection modelling results

Time period / approach	Existing without development				Existing with development			
	DoS	Average delay (sec)	LoS	Queue length (m)	DoS	Average delay (sec)	LoS	Queue length (m)
Morning peak hour								
Weston Street south approach	0.12	93	F	<10	0.18	>100	F	<10
Old Canterbury Road east approach	0.38	16	B	25	0.45	18	B	30
Edward Street north approach	0.38	>100	F	10	>1	>100	F	70
Old Canterbury Road west approach	0.31	9	A	<10	0.32	9	A	<10
Overall intersection	0.38	>100	F	25	0.45	>100	F	70
Evening peak hour								
Weston Street south approach	0.10	>100	F	<10	0.16	>100	F	<10
Old Canterbury Road east approach	0.61	13	A	40	0.69	16	B	60
Edward Street north approach	0.52	>100	F	10	>1	>100	F	200
Old Canterbury Road west approach	0.21	17	B	<10	0.23	18	B	<10
Overall intersection	0.61	>100	F	40	>1	>100	F	200

The existing intersection without development traffic currently operates at LoS F during the morning and evening peak hour. This is due to the worst performing movement reported for priority controlled (unsignalised) intersections, which in this case corresponds to the right turns out of Weston Street and Edward Street. Vehicles turning right from either of these roads have to give way to a number of conflicting movements including vehicles travelling on Old Canterbury Road, which is a major east-west road that experiences high traffic volumes.

The addition of development traffic results in the intersection degrading in performance, with average delays greater than 100 seconds. The intersection's deterioration with development traffic is largely attributed to the additional traffic turning into and out of Edward Street. The intersection in its existing configuration would not be able to accommodate the additional traffic generated due to the two developments.



Memorandum

Old Canterbury Road / Weston Street traffic
modelling assessment

4.2 Option 1 intersection performance

Figure 4.1 shows the Option 1 intersection configuration modelled in Sidra.



Figure 4.1 : Option 1 – Weston Street open with shared path



Memorandum

Old Canterbury Road / Weston Street traffic
modelling assessment

Table 4.2 shows the performance of the intersection with and without Option 1 upgrades.

Table 4.2 : Option 1 modelling results

Time period / approach	Existing with development				Option 1			
	DoS	Average delay (sec)	LoS	Queue length (m)	DoS	Average delay (sec)	LoS	Queue length (m)
Morning peak hour								
Weston Street south approach	0.18	>100	F	<10	0.09	66	E	<10
Old Canterbury Road east approach	0.45	18	B	30	0.91	42	C	205
Edward Street north approach	>1	>100	F	70	0.87	64	E	110
Old Canterbury Road west approach	0.32	9	A	<10	0.89	26	B	275
Overall intersection	0.45	>100	F	70	0.91	37	C	275
Evening peak hour								
Weston Street south approach	0.16	>100	F	<10	0.04	64	E	<10
Old Canterbury Road east approach	0.69	16	B	60	0.97	58	E	475
Edward Street north approach	>1	>100	F	200	0.43	33	C	55
Old Canterbury Road west approach	0.23	18	B	<10	0.95	57	E	250
Overall intersection	>1	>100	F	200	0.97	55	D	475

Signalisation of the intersection with an extended no stopping zone on Old Canterbury Road in the westbound direction and modifying Weston Street with a bi-directional shared path on the eastern side improves the intersection's performance from LoS F to LoS C during the morning peak hour and LoS F to LoS D during the evening peak hour. However, queue lengths on Old Canterbury Road in the eastbound direction during the morning peak hour would extend beyond the Old Canterbury Road / Junction Road intersection. During the evening peak hour, queues on Old Canterbury Road in the westbound direction would extend beyond the Old Canterbury Road / Toothill Street intersection.

Further extension of the no stopping zone on Old Canterbury Road in the westbound direction would not improve queue lengths to an acceptable level and therefore additional modifications would be required.



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Old Canterbury Road / Weston Street traffic
modelling assessment

4.3 Option 2 intersection performance

Figure 4.2 shows the Option 2 intersection configuration modelled in Sidra.

Prohibiting vehicles from entering Weston Street at its northern end would require vehicles to turn into Windsor Road to access Weston Street. This would result in a minor redistribution of traffic given the low number of vehicles turning into Weston Street, with the surveys recording 12 vehicles and 22 vehicles turning into Weston Street during the morning and evening peak hour, respectively.



Figure 4.2 : Option 2 - Weston Street partial closure (one-way northbound)

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Old Canterbury Road / Weston Street traffic
modelling assessment

Table 4.3 shows the performance of the intersection with and without Option 2 upgrades.

Table 4.3 : Option 2 modelling results

Time period / approach	Existing with development)				Option 2			
	DoS	Average delay (sec)	LoS	Queue length (m)	DoS	Average delay (sec)	LoS	Queue length (m)
Morning peak hour								
Weston Street south approach	0.18	>100	F	<10	0.09	66	E	<10
Old Canterbury Road east approach	0.45	18	B	30	0.58	18	B	130
Edward Street north approach	>1	>100	F	70	0.83	60	E	105
Old Canterbury Road west approach	0.32	9	A	<10	0.86	20	B	240
Overall intersection	0.45	>100	F	70	0.86	25	B	240
Evening peak hour								
Weston Street south approach	0.16	>100	F	<10	0.04	64	E	<10
Old Canterbury Road east approach	0.69	16	B	60	0.82	11	A	260
Edward Street north approach	>1	>100	F	200	0.62	42	C	70
Old Canterbury Road west approach	0.23	18	B	<10	0.66	17	B	125
Overall intersection	>1	>100	F	200	0.82	17	B	260

Signalisation of the intersection with an extended no stopping zone on Old Canterbury Road in the westbound direction and converting Weston Street to one-way northbound improves the performance of the intersection from LoS F to LoS B during both peak hours. However, queue lengths during the evening peak hour on Old Canterbury Road in the westbound direction would extend beyond the adjacent Old Canterbury Road / Toothill Street intersection.

Further extension of the no stopping zone on Old Canterbury Road in the westbound direction would not improve queue lengths to an acceptable level.



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Old Canterbury Road / Weston Street traffic
modelling assessment

4.4 Option 3 intersection performance

Figure 4.3 shows the Option 3 intersection configuration modelled in Sidra.

Prohibiting vehicles from entering or exiting Weston Street at its northern end would require vehicles to change their travel route. Existing traffic volumes on Weston Street south of Old Canterbury Road are low, with 12 vehicles travelling southbound and 13 vehicles travelling northbound during the morning peak hour, and 22 vehicles travelling southbound and 7 vehicles travelling northbound during the evening peak hour.



Figure 4.3 : Option 3 – Weston Street full closure

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Old Canterbury Road / Weston Street traffic
modelling assessment

Table 4.4 shows the performance of the intersection with and without Option 3 upgrades.

Table 4.4 : Option 3 modelling results

Time period / approach	Existing with development				Option 3			
	DoS	Average delay (sec)	LoS	Queue length (m)	DoS	Average delay (sec)	LoS	Queue length (m)
Morning peak hour								
Weston Street south approach	0.18	>100	F	<10	N/A	N/A	N/A	N/A
Old Canterbury Road east approach	0.45	18	B	30	0.45	11	A	100
Edward Street north approach	>1	>100	F	70	0.76	54	D	100
Old Canterbury Road west approach	0.32	9	A	<10	0.75	9	A	150
Overall intersection	0.45	>100	F	70	0.76	16	B	150
Evening peak hour								
Weston Street south approach	0.16	>100	F	<10	N/A	N/A	N/A	N/A
Old Canterbury Road east approach	0.69	16	B	60	0.67	5	A	155
Edward Street north approach	>1	>100	F	200	0.48	46	D	75
Old Canterbury Road west approach	0.23	18	B	<10	0.57	12	A	100
Overall intersection	>1	>100	F	200	0.67	12	A	155

Signalisation of the intersection with an extended no stopping zone on Old Canterbury Road in the westbound direction and closing off Weston Street to traffic at its interface with Old Canterbury Road improves the performance of the intersection from LoS F to LoS B during the morning peak hour and LoS F to LoS A during the evening peak hour. Queue lengths are acceptable during both peak hours.

Removing parking during the morning peak period marginally improves the performance of the intersection, and therefore prohibiting parking would only be necessary during the evening peak period.



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Old Canterbury Road / Weston Street traffic
modelling assessment

4.5 Induced traffic on Weston St resulting from signalisation of the intersection

Annual Average Daily Traffic (AADT) in 2014 on Windsor Road was observed to be 540 vehicles northbound and 640 vehicles southbound. The signalisation of Old Canterbury Road / Weston Street / Edwards Street may induce traffic from Windsor Road onto Weston Street. Based on the assumption that Weston Street northbound traffic volumes are similar to Windsor Road northbound volumes, this would equate to a maximum of 50 vehicles travelling onto Weston Street from Windsor Road during the morning and evening peak hour. Therefore, induced traffic on Weston St due to the signalisation of Old Canterbury Road / Weston Street / Edward Street would be up to additional vehicle every minute during the morning and evening peak hour.

Given the low volume of traffic using Weston Street, a maximum of 50 vehicles per hour would be induced onto Weston Street. This level of induced traffic is within the environmental capacity performance standard for a local street (200 vehicles per hour¹). Hence the impact to Weston Street would be minor. In addition, signalisation of Old Canterbury Road / Weston Street / Edwards Street may lead to vehicles turning left onto Old Canterbury Road via Windsor Road instead of Weston Street.

4.6 Service road at the corner of Old Canterbury Road and Weston Street

Users of the GreenWay would need to cross the existing Weston St service road located immediately south-east of the Old Canterbury Road / Weston Street / Edward Street intersection. The design to signalise Old Canterbury Road / Weston Street / Edward Street should consider the intended form and function of the service road while the GreenWay is operational. Traffic volumes and the speed of vehicles using this service road are likely to be very low as it provides vehicular access to a limited number on street parking spaces.

Future access to the service road by vehicles would be constrained by intersection geometry and location of poles and traffic signal equipment. Further this could potentially create unsafe conflicts between vehicles and pedestrians. Treatments that have been considered include:

- Closing vehicle access to and from the service road (Option 1 and Option 2)
- A continuous footpath treatment that would allow vehicle access to a shared zone along the service road (Option 3)

Implementing a shared zone may create conflicts with pedestrian waiting areas, however the number of vehicles that would access the service road would be very low and therefore is an appropriate treatment. Closing the service road to vehicular traffic is considered the safest option for operation of the new traffic signals.

¹ Guide to Traffic: Generating Developments (RTA, 2002)



Memorandum

Old Canterbury Road / Weston Street traffic
modelling assessment

5. Options summary

Table 5.1 provides a summary of modelling assessment.

Table 5.1 : Old Canterbury Road / Weston Street / Edward Street modelling summary

Option	Morning peak hour		Evening peak hour		Comments
	Level of Service	Queue length (metres)	Level of Service	Queue length (metres)	
Option 1 (Weston Street open)	C	275	D	475	Acceptable operational performance, however unacceptably long queue lengths during the morning and evening peak periods. Requires additional modification to reduce queue lengths.
Option 2 (Weston Street partial closure)	B	240	B	260	Acceptable operational performance however long queue lengths during the evening peak period. Requires additional modification to reduce queue lengths.
Option 3 (Weston Street full closure)	B	150	A	155	Acceptable operational performance, and queue lengths

Option 3 would be the most efficient intersection operation with the shortest queues and least delay to vehicles.



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Old Canterbury Road / Weston Street traffic
modelling assessment

Appendix A – Intersection counts

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Job No	N3857 - Marion Street
Client	Inner West Council
Site	Weston Street - south of Old Canterbury Road
Location	Lewisham
Site No	2D
Start Date	6-Feb-18
Description	Volume Summary
Direction	NB



Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon 12-Feb	Tue 6-Feb	Wed 7-Feb	Thu 8-Feb	Fri 9-Feb	Sat 10-Feb	Sun 11-Feb		
AM Peak	21	12	13	2	4	13	12		
PM Peak	9	9	14	16	11	15	12	100	109
0:00	0	2	1	0	1	2	2	1	1
1:00	0	1	0	1	1	2	1	1	1
2:00	0	0	1	0	0	2	0	0	0
3:00	0	0	1	1	0	2	0	0	1
4:00	2	0	1	2	2	1	2	1	1
5:00	4	4	5	2	3	0	0	4	3
6:00	4	6	7	0	4	7	4	4	5
7:00	14	10	9	0	0	6	2	7	6
8:00	9	10	13	0	0	13	5	6	7
9:00	6	11	8	0	0	6	12	5	6
10:00	3	12	5	0	0	11	8	4	6
11:00	21	9	8	0	0	7	6	8	7
12:00	8	8	3	0	0	13	12	4	6
13:00	4	7	5	0	0	9	4	3	4
14:00	3	8	0	0	0	6	6	2	3
15:00	9	8	1	10	0	15	10	6	8
16:00	8	8	7	9	0	9	6	6	7
17:00	9	8	6	16	11	9	7	10	9
18:00	6	9	8	8	10	9	7	8	8
19:00	3	5	14	12	10	9	7	9	9
20:00	0	3	3	8	3	7	4	3	4
21:00	2	5	2	5	4	4	1	4	3
22:00	1	5	1	4	3	2	1	3	2
23:00	0	0	1	2	2	1	2	1	1
Total	116	139	110	80	54	152	109	100	109

7-19	100	108	73	43	21	113	85	69	78
6-22	109	127	99	68	42	140	101	89	98
6-24	110	132	101	74	47	143	104	93	102
0-24	116	139	110	80	54	152	109	100	109

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Weston Street - south of Old Canterbury Road
Location	Lewisham
Site No	2D
Start Date	6-Feb-18
Description	Volume Summary
Direction	SB



Hour Starting	Day of Week							W'Day Ave 180	7 Day Ave 188
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	12-Feb	6-Feb	7-Feb	8-Feb	9-Feb	10-Feb	11-Feb		
AM Peak	16	21	17	2	8	20	14		
PM Peak	29	24	20	25	22	31	17		
0:00	1	0	2	0	4	5	6	1	3
1:00	0	1	1	1	3	4	7	1	2
2:00	0	1	0	2	1	2	0	1	1
3:00	0	0	0	0	1	1	1	0	0
4:00	1	0	0	0	1	0	1	0	0
5:00	1	1	5	2	2	2	0	2	2
6:00	16	13	14	1	8	15	2	10	10
7:00	13	16	17	0	0	4	5	9	8
8:00	11	21	13	0	0	8	3	9	8
9:00	6	16	10	0	0	9	14	6	8
10:00	12	9	6	0	0	18	5	5	7
11:00	13	19	11	0	0	20	8	9	10
12:00	17	13	9	0	0	31	12	8	12
13:00	10	6	15	0	0	16	17	6	9
14:00	13	10	4	0	0	10	8	5	6
15:00	19	24	2	12	0	12	17	11	12
16:00	29	22	19	22	0	17	13	18	17
17:00	16	20	20	25	22	19	11	21	19
18:00	16	17	18	23	17	11	17	18	17
19:00	5	11	19	16	18	8	7	14	12
20:00	0	6	7	13	9	11	11	7	8
21:00	4	10	4	4	6	6	7	6	6
22:00	6	4	9	4	11	4	3	7	6
23:00	3	5	3	4	5	4	2	4	4
Total	212	245	208	129	108	237	177	180	188

7-19	175	193	144	82	39	175	130	127	134
6-22	200	233	188	116	80	215	157	163	170
6-24	209	242	200	124	96	223	162	174	179
0-24	212	245	208	129	108	237	177	180	188

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Edward Street - north of Old Canterbury Road
Location	Lewisham
Site No	2C
Start Date	6-Feb-18
Description	Volume Summary
Direction	NB



Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon 12-Feb	Tue 6-Feb	Wed 7-Feb	Thu 8-Feb	Fri 9-Feb	Sat 10-Feb	Sun 11-Feb		
AM Peak	88	95	99	95	105	127	82		
PM Peak	155	157	138	162	156	164	98	1454	1390
0:00	7	3	9	3	7	11	7	6	7
1:00	4	6	4	7	2	10	4	5	5
2:00	5	2	2	4	4	4	15	3	5
3:00	0	2	5	1	0	6	4	2	3
4:00	4	4	2	4	3	8	2	3	4
5:00	20	28	20	10	17	9	2	19	15
6:00	53	73	65	68	66	39	12	65	54
7:00	78	90	80	77	60	39	16	77	63
8:00	88	95	99	86	105	60	33	95	81
9:00	68	78	84	95	80	111	64	81	83
10:00	56	57	84	74	85	118	66	71	77
11:00	66	61	72	69	65	127	82	67	77
12:00	71	61	58	72	69	164	90	66	84
13:00	59	70	63	71	70	116	71	67	74
14:00	62	69	70	93	78	73	81	74	75
15:00	132	131	130	114	142	74	78	130	114
16:00	119	112	130	145	142	92	98	130	120
17:00	155	157	134	135	128	95	83	142	127
18:00	102	139	138	162	156	84	63	139	121
19:00	74	67	61	97	82	72	40	76	70
20:00	51	57	62	64	59	49	44	59	55
21:00	27	35	44	44	27	43	20	35	34
22:00	21	32	22	39	32	27	18	29	27
23:00	15	6	12	14	20	27	10	13	15
Total	1337	1435	1450	1548	1499	1458	1003	1454	1390

7-19	1056	1120	1142	1193	1180	1153	825	1138	1096
6-22	1261	1352	1374	1466	1414	1356	941	1373	1309
6-24	1297	1390	1408	1519	1466	1410	969	1416	1351
0-24	1337	1435	1450	1548	1499	1458	1003	1454	1390

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Edward Street - north of Old Canterbury Road
Location	Lewisham
Site No	2C
Start Date	6-Feb-18
Description	Volume Summary
Direction	SB



Hour Starting	Day of Week							W'Day Ave 1357	7 Day Ave 1265
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	12-Feb	6-Feb	7-Feb	8-Feb	9-Feb	10-Feb	11-Feb		
AM Peak	135	149	143	149	139	137	55		
PM Peak	117	132	145	119	130	154	80		
0:00	5	3	3	2	5	17	8	4	6
1:00	1	1	2	4	4	5	5	2	3
2:00	4	5	4	6	5	6	5	5	5
3:00	3	1	6	3	5	9	6	4	5
4:00	3	3	4	5	6	6	1	4	4
5:00	12	14	13	8	12	7	0	12	9
6:00	69	77	109	83	82	35	9	84	66
7:00	100	149	128	112	110	41	14	120	93
8:00	135	131	143	149	139	45	28	139	110
9:00	82	123	106	103	78	56	49	98	85
10:00	40	87	62	47	58	78	55	59	61
11:00	60	48	49	41	68	137	55	53	65
12:00	55	47	54	59	65	154	68	56	72
13:00	34	52	54	53	63	108	64	51	61
14:00	43	69	63	63	67	73	63	61	63
15:00	83	73	77	91	109	58	67	87	80
16:00	99	103	108	95	114	72	69	104	94
17:00	117	109	145	119	130	81	80	124	112
18:00	111	132	127	103	103	76	63	115	102
19:00	68	65	50	73	72	67	46	66	63
20:00	37	43	46	51	56	39	30	47	43
21:00	29	28	36	31	35	31	19	32	30
22:00	11	16	17	22	26	16	14	18	17
23:00	11	8	11	21	12	27	7	13	14
Total	1212	1387	1417	1344	1424	1244	825	1357	1265

7-19	959	1123	1116	1035	1104	979	675	1067	999
6-22	1162	1336	1357	1273	1349	1151	779	1295	1201
6-24	1184	1360	1385	1316	1387	1194	800	1326	1232
0-24	1212	1387	1417	1344	1424	1244	825	1357	1265

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Old Canterbury Road - east of Edward St
Location	Lewisham
Site No	2B
Start Date	6-Feb-18
Description	Volume Summary
Direction	EB



Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon 12-Feb	Tue 6-Feb	Wed 7-Feb	Thu 8-Feb	Fri 9-Feb	Sat 10-Feb	Sun 11-Feb		
AM Peak	1156	1076	1256	1175	1235	908	772		
PM Peak	751	759	769	852	809	866	763	12381	11967
0:00	51	43	49	52	74	125	164	54	80
1:00	44	25	23	30	42	70	111	33	49
2:00	32	27	32	34	43	61	63	34	42
3:00	51	47	47	49	53	71	86	49	58
4:00	137	121	122	150	133	64	61	133	113
5:00	466	505	499	467	491	241	120	486	398
6:00	1106	1076	1196	1143	1133	501	216	1131	910
7:00	1156	992	1256	1175	1235	590	281	1163	955
8:00	1005	788	1112	747	1157	777	431	962	860
9:00	948	837	943	921	897	858	682	909	869
10:00	629	738	721	731	733	829	728	710	730
11:00	578	589	594	602	705	908	772	614	678
12:00	541	586	611	554	622	866	763	583	649
13:00	477	533	553	553	572	860	654	538	600
14:00	525	589	545	577	619	731	632	571	603
15:00	610	611	687	688	781	662	632	675	667
16:00	683	668	702	684	809	715	613	709	696
17:00	751	759	769	852	764	797	686	779	768
18:00	637	745	727	718	744	745	500	714	688
19:00	509	483	500	521	565	592	399	516	510
20:00	359	354	332	391	421	422	305	371	369
21:00	252	298	298	323	321	363	268	298	303
22:00	174	194	204	225	304	323	181	220	229
23:00	103	85	113	152	197	257	89	130	142
Total	11824	11693	12635	12339	13415	12428	9437	12381	11967

7-19	8540	8435	9220	8802	9638	9338	7374	8927	8764
6-22	10766	10646	11546	11180	12078	11216	8562	11243	10856
6-24	11043	10925	11863	11557	12579	11796	8832	11593	11228
0-24	11824	11693	12635	12339	13415	12428	9437	12381	11967

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Old Canterbury Road - east of Edward St
Location	Lewisham
Site No	2B
Start Date	6-Feb-18
Description	Volume Summary
Direction	WB



Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	12-Feb	6-Feb	7-Feb	8-Feb	9-Feb	10-Feb	11-Feb		
AM Peak	574	611	621	586	648	834	622		
PM Peak	1225	1189	1167	1130	1126	862	789	13159	12715
0:00	134	117	157	196	198	301	382	160	212
1:00	73	84	100	97	112	211	280	93	137
2:00	77	44	57	74	82	162	214	67	101
3:00	43	43	52	39	61	127	164	48	76
4:00	53	41	58	51	51	104	124	51	69
5:00	118	129	133	111	138	109	83	126	117
6:00	330	392	344	347	354	168	116	353	293
7:00	553	608	569	530	542	331	158	560	470
8:00	574	596	621	578	646	483	258	603	537
9:00	522	528	500	487	520	649	457	511	523
10:00	521	503	522	535	648	793	517	546	577
11:00	574	611	583	586	615	834	622	594	632
12:00	660	623	642	693	770	835	706	678	704
13:00	685	703	715	725	807	862	655	727	736
14:00	818	901	903	954	970	856	700	909	872
15:00	1117	1129	1158	1068	1074	803	743	1109	1013
16:00	1131	1176	1167	1130	1119	845	789	1145	1051
17:00	1225	1189	1166	1126	1126	738	753	1166	1046
18:00	1065	1058	955	1047	1030	700	638	1031	928
19:00	720	789	771	829	770	609	523	776	716
20:00	528	631	623	694	542	552	507	604	582
21:00	492	490	560	627	535	545	411	541	523
22:00	377	397	474	474	523	616	343	449	458
23:00	235	277	286	328	435	587	251	312	343
Total	12625	13059	13116	13326	13668	12820	10394	13159	12715

7-19	9445	9625	9501	9459	9867	8729	6996	9579	9089
6-22	11515	11927	11799	11956	12068	10603	8553	11853	11203
6-24	12127	12601	12559	12758	13026	11806	9147	12614	12003
0-24	12625	13059	13116	13326	13668	12820	10394	13159	12715

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Old Canterbury Road - west of Edward St - EB Only
Location	Lewisham
Site No	2A
Start Date	6-Feb-18
Description	Volume Summary
Direction	EB



Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon 12-Feb	Tue 6-Feb	Wed 7-Feb	Thu 8-Feb	Fri 9-Feb	Sat 10-Feb	Sun 11-Feb		
AM Peak	1103	1073	1165	1110	1143	847	753		
PM Peak	689	679	666	765	743	817	724	11734	11396
0:00	50	39	46	53	78	122	163	53	79
1:00	45	26	25	29	39	72	109	33	49
2:00	29	24	30	33	37	59	62	31	39
3:00	47	47	48	45	48	66	82	47	55
4:00	134	119	120	141	128	60	60	128	109
5:00	469	497	491	458	490	240	120	481	395
6:00	1079	1073	1144	1110	1116	509	215	1104	892
7:00	1103	967	1165	1102	1143	582	284	1096	907
8:00	995	758	1059	778	1066	762	417	931	834
9:00	906	799	871	883	860	847	653	864	831
10:00	616	682	698	677	700	814	706	675	699
11:00	555	574	567	601	664	843	753	592	651
12:00	518	564	580	530	579	813	724	554	615
13:00	468	522	531	532	533	817	630	517	576
14:00	510	545	519	547	592	702	609	543	575
15:00	578	576	652	627	724	629	595	631	626
16:00	628	602	640	634	743	695	602	649	649
17:00	689	679	666	765	693	762	643	698	700
18:00	582	672	650	665	712	708	471	656	637
19:00	468	450	479	482	533	560	379	482	479
20:00	347	322	311	352	383	412	298	343	346
21:00	240	289	290	307	310	359	266	287	294
22:00	166	188	198	211	296	324	172	212	222
23:00	102	84	107	139	191	244	91	125	137
Total	11324	11098	11887	11701	12658	12001	9104	11734	11396

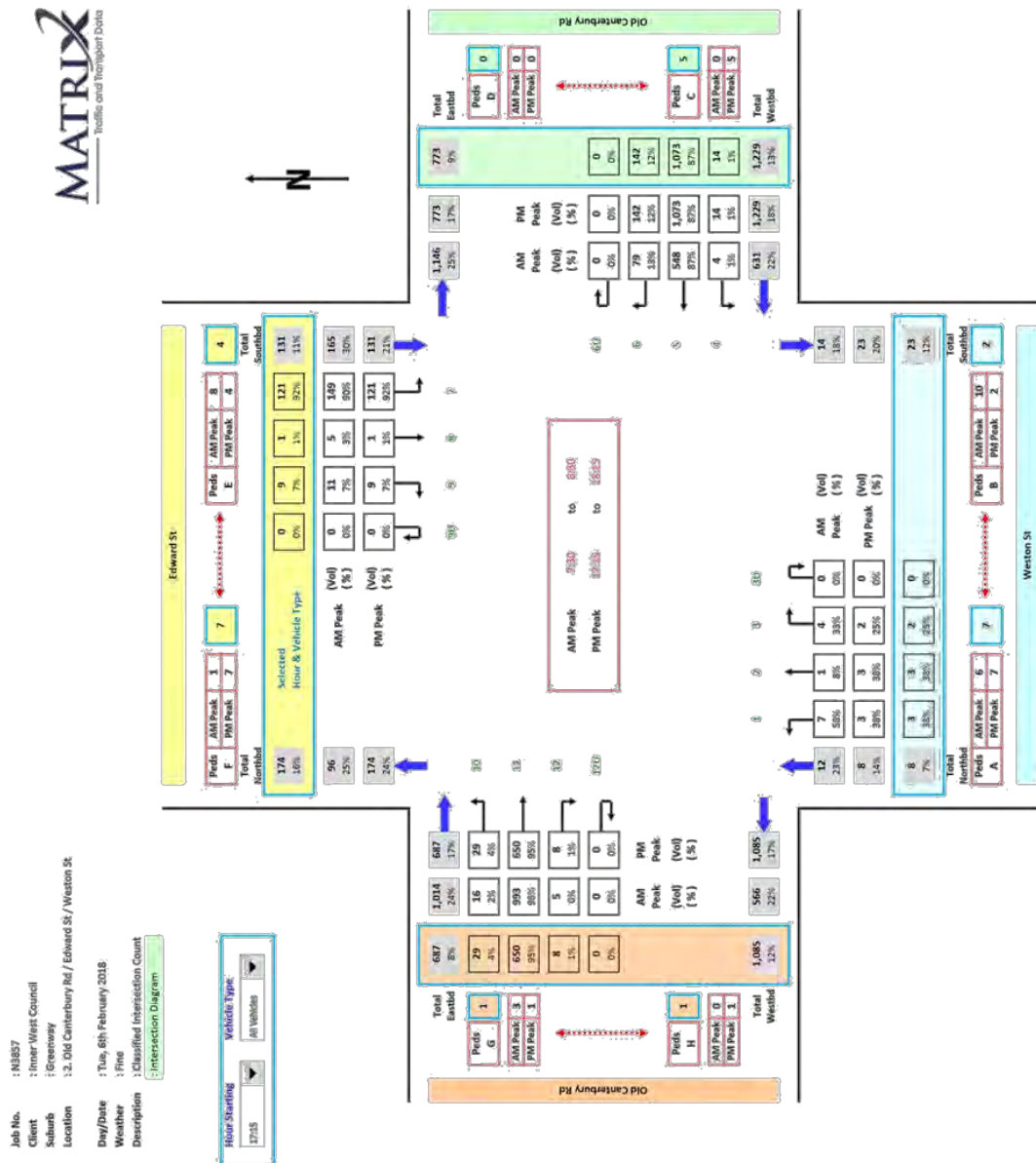
7-19	8148	7940	8598	8341	9009	8974	7087	8407	8300
6-22	10282	10074	10822	10592	11351	10814	8245	10624	10311
6-24	10550	10346	11127	10942	11838	11382	8508	10961	10670
0-24	11324	11098	11887	11701	12658	12001	9104	11734	11396

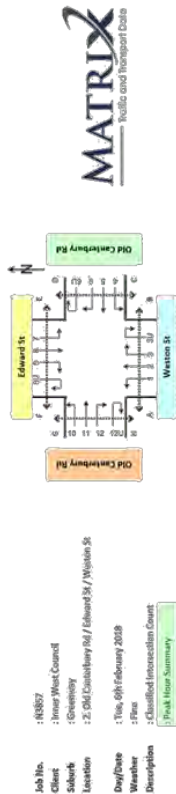
Job No	N3857 - Marion Street
Client	Inner West Council
Site	Old Canterbury Road - west of Edward St - WB Only
Location	Lewisham
Site No	2A
Start Date	6-Feb-18
Description	Volume Summary
Direction	WB



Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	12-Feb	6-Feb	7-Feb	8-Feb	9-Feb	10-Feb	11-Feb		
AM Peak	542	582	547	535	599	770	581		
PM Peak	1100	1096	1091	1026	1040	822	733	12244	11863
0:00	131	115	150	198	196	300	373	158	209
1:00	71	79	96	94	111	203	274	90	133
2:00	73	41	57	72	79	162	203	64	98
3:00	42	41	51	37	61	125	161	46	74
4:00	51	41	58	49	52	97	124	50	67
5:00	108	114	124	104	131	100	80	116	109
6:00	293	352	327	317	327	152	110	323	268
7:00	511	526	514	487	508	318	139	509	429
8:00	522	542	547	521	589	467	239	544	490
9:00	493	476	448	452	478	570	407	469	475
10:00	483	480	484	501	599	735	478	509	537
11:00	542	582	543	535	570	770	581	554	589
12:00	627	581	598	655	724	759	641	637	655
13:00	644	672	681	685	760	822	607	688	696
14:00	773	867	876	906	901	818	645	865	827
15:00	1028	1034	1065	999	978	755	684	1021	935
16:00	1038	1096	1091	1024	1015	797	733	1053	971
17:00	1100	1064	1070	1026	1040	685	703	1060	955
18:00	1011	986	873	957	925	661	595	950	858
19:00	666	744	725	766	710	574	501	722	669
20:00	504	590	581	635	495	519	475	561	543
21:00	479	474	545	604	516	535	396	524	507
22:00	357	375	455	451	498	603	328	427	438
23:00	226	266	275	319	416	571	247	300	331
Total	11773	12138	12234	12394	12679	12098	9724	12244	11863

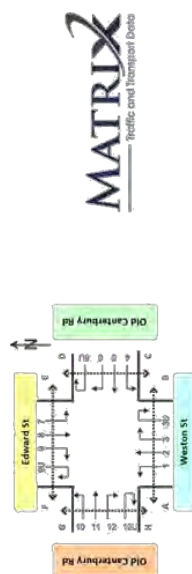
7-19	8772	8906	8790	8748	9087	8157	6452	8861	8416
6-22	10714	11066	10968	11070	11135	9937	7934	10991	10403
6-24	11297	11707	11698	11840	12049	11111	8509	11718	11173
0-24	11773	12138	12234	12394	12679	12098	9724	12244	11863





Approach	Weston St	Old Canterbury Rd	Edward St	Old Canterbury Rd	Grand Total
Time Period					
1500 to 1530	7	13	10	10	40
1530 to 1545	7	13	10	10	40
1545 to 1600	7	13	10	10	40
Total	21	39	30	30	120

Approach	Weston St	Old Canterbury Rd	Edward St	Old Canterbury Rd	Grand Total
Time Period					
1500 to 1530	7	13	10	10	40
1530 to 1545	7	13	10	10	40
1545 to 1600	7	13	10	10	40
Total	21	39	30	30	120



Job No.	: NBS57
Client	: Inner West Council
Suburb	: Granville
Location	: 2, Old Condamine Rd / Edward St / Western St
Day/Date	: Tue, 6th February 2018
Weather	: Fine
Description	: Classified Intersection Count Hourly Summary

[illegible]

[illegible]