

Victoria Road Urban Design Review

Traffic Assessment

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JMT
Consulting

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Table of Contents

1	Introduction	1
1.1	<i>Background</i>	1
1.2	<i>Study area</i>	2
1.3	<i>Traffic modelling methodology</i>	2
2	Existing Traffic Movements	3
3	Changes in Planning Controls	4
3.1	<i>Traffic generation</i>	4
3.2	<i>Assumed traffic routes</i>	5
3.3	<i>Forecast traffic movements</i>	6
3.4	<i>Traffic impacts – changes in planning controls</i>	7
4	Proposed Road Closures	9
4.1	<i>Description of road closures</i>	9
4.2	<i>Assumed traffic routes</i>	10
4.3	<i>Forecast traffic movements</i>	12
4.4	<i>Traffic impacts – proposed road closures</i>	13
5	Changes to Planning Controls + Road Closures	15
5.1	<i>Forecast traffic movements</i>	15
5.2	<i>Traffic impacts – changes to planning controls + road closures</i>	16
5.3	<i>Local road impacts</i>	19
6	Summary	20

Figures

Figure 1	Study area.....	2
Figure 2	Existing traffic movements.....	3
Figure 3	Assumed traffic routes to and from future Victoria Road development.....	5
Figure 4	Increase in traffic flows – changes to planning controls.....	6
Figure 5	Traffic impacts due to changes in planning controls (AM peak hour).....	7
Figure 6	Traffic impacts due to changes in planning controls (PM peak hour).....	8
Figure 7	Traffic impacts due to changes in planning controls (Saturday peak hour).....	8
Figure 8	Proposed Church Street public space.....	9
Figure 9	Proposed Formosa Street public space.....	9
Figure 10	Changes to traffic movements with Formosa Street closure.....	11
Figure 11	Changes to traffic movements with Church Street closure.....	11

Figure 12	Forecast changes in traffic flows – proposed road closures	12
Figure 13	Traffic impacts due to road closures (AM peak hour).....	13
Figure 14	Traffic impacts due to road closures (PM peak hour).....	14
Figure 15	Traffic impacts due to road closures (Saturday peak hour).....	14
Figure 16	Forecast cumulative changes in traffic movements.....	15
Figure 17	Road network performance – AM peak hour	16
Figure 18	Road network performance – PM peak hour	17
Figure 19	Road network performance – Saturday peak hour.....	18
Figure 20	Changes in traffic flows on local streets	19

Tables

Table 1	Increase in traffic flows – changes to planning controls	4
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1 Introduction

1.1 Background

JMT Consulting was engaged by the City of Canada Bay Council to review the traffic implications of recommendations arising from the Victoria Road Urban Design Review. This traffic assessment considers the implications of the following:

(i) Changes to planning controls

- Implications of increase in traffic movements associated with changes in planning controls along the Victoria Road corridor, as recommended as part of the Victoria Road Urban Design Review

(ii) Proposed road closures

- Traffic implications of road closures proposed for consideration as part of the Victoria Road Urban Design Review, those being:
 - Formosa Street between Lyons Road and Bowman Street
 - Church Street between Victoria Road and Formosa Street

(iii) Changes to planning controls + proposed road closures

- Traffic implications of the combination of the proposed road closures in conjunction with the changes in planning controls

The report includes the following items:

- Existing traffic flows in the study area
- Forecast increases in traffic movements associated with changes in planning controls for the Victoria Road corridor
- Forecast changes in traffic flows as a result of road closures as recommended in the Victoria Road Urban Design Review
- Traffic modelling to consider the impact to road network operations arising from changes in planning controls and road closures
- Summary and conclusions of study

1.2 Study area

The geographical area considered as part of this study is illustrated in Figure 1 below and broadly considers key roads and intersections adjacent to the Victoria Road corridor.

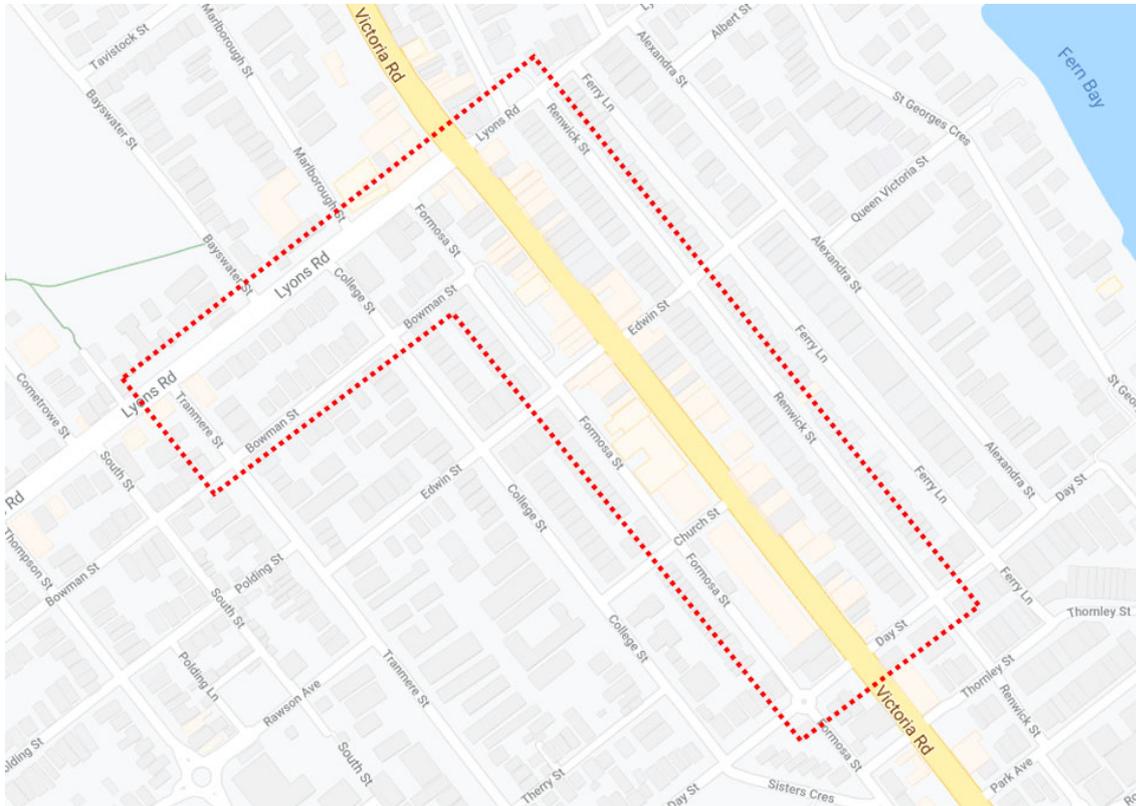


Figure 1 Study area

1.3 Traffic modelling methodology

Traffic modelling has been undertaken using the TfNSW approved SIDRA Intersection (version 8) software to consider the impacts of the proposed changes in planning controls and road closures as envisaged in the Victoria Road Urban Design Review. The modelling has considered the following two key parameters:

- (i) Vehicle delay: The average increase in vehicle delay experienced for specified traffic movements
- (ii) Queue lengths: The average queue length on certain intersection approaches impacted by either road closures or changes in planning controls

2 Existing Traffic Movements

To understand existing traffic movements in the study area, traffic counts were undertaken in March 2020 on a typical weekday and weekend period. The traffic surveys were undertaken on Thursday 12th and Saturday 14th March 2020, prior to the introduction of restrictions associated with the Covid-19 pandemic. The identified peak hours were as follows:

- AM weekday peak period – 7.45am to 8.45am
- PM weekday peak period – 5pm to 6pm
- Weekend (Saturday) peak period – 12pm to 1pm

The results of the traffic surveys are presented in Figure 2 and have been used as the basis for informing the traffic modelling undertaken for this study.

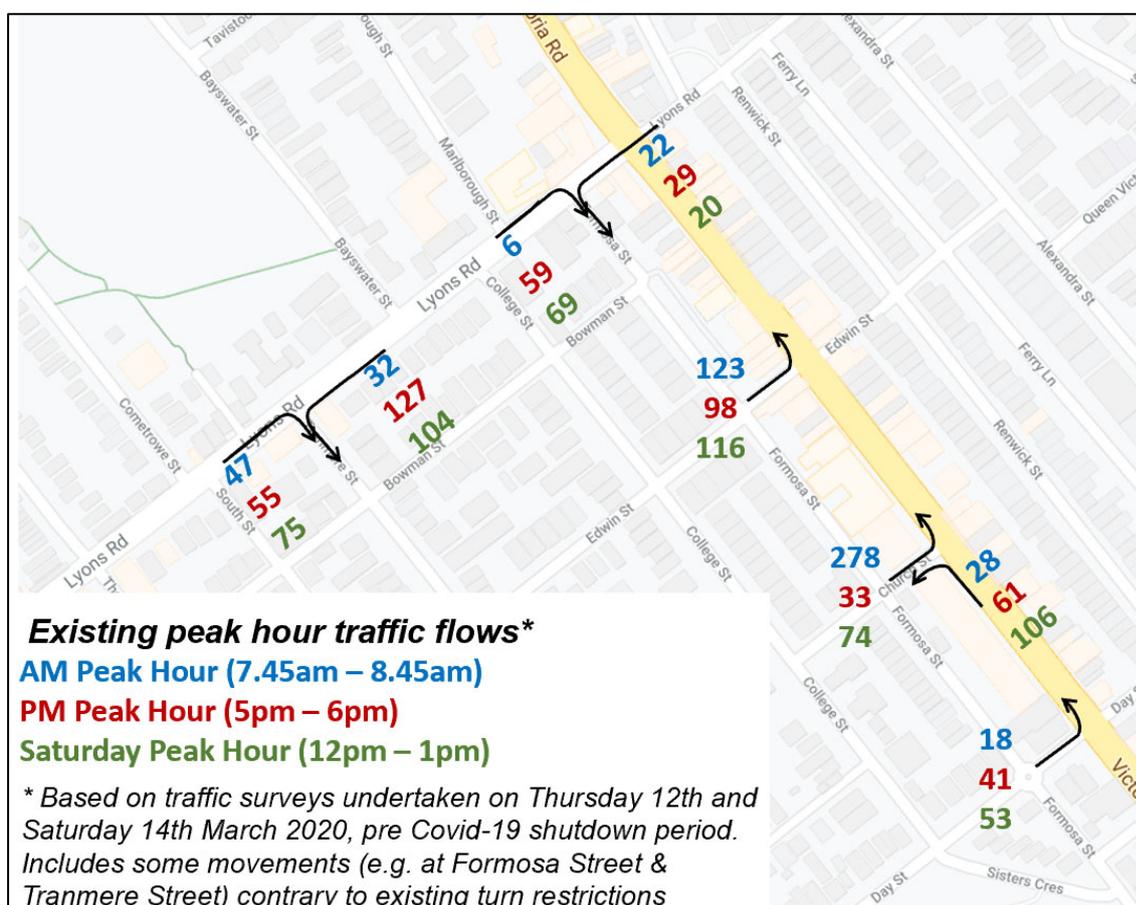


Figure 2 Existing traffic movements

3 Changes in Planning Controls

3.1 Traffic generation

The forecast increase in traffic flows associated with changes to the planning controls along the Victoria Road corridor are summarised in Table 1 below. Traffic generation forecasts were based on typical rates of traffic generation for residential and commercial uses, based on surveys of similar sites.

It should be noted that this analysis considers a 'worst case' assumption where each block is developed to its maximum potential and provides for the maximum allowable amount of on-site car parking. As well considering the maximum development potential, the capacity testing was done as if there was no existing residential or commercial on the sites.

Table 1 Increase in traffic flows – changes to planning controls

Location	Land Use Assumptions		Additional peak hour trips								
	Residential dwellings	Commercial car parking spaces	AM peak hour			PM peak hour			Saturday peak hour		
			In	Out	Total	In	Out	Total	In	Out	Total
Block A	55	40	12	19	31	19	12	31	9	9	18
Block B	55	40	12	19	31	19	12	31	9	9	18
Block C	48	27	9	14	23	14	9	23	7	7	15
Total			33	52	85	52	33	85	25	25	50

3.2 Assumed traffic routes

The assumed traffic routes that drivers of the future development along Victoria Road will take, both leaving and arriving to the site, are presented in Figure 3. These traffic routes have been used as the basis for determining the increases in traffic movements associated with the changes in planning controls along the Victoria Road corridor.

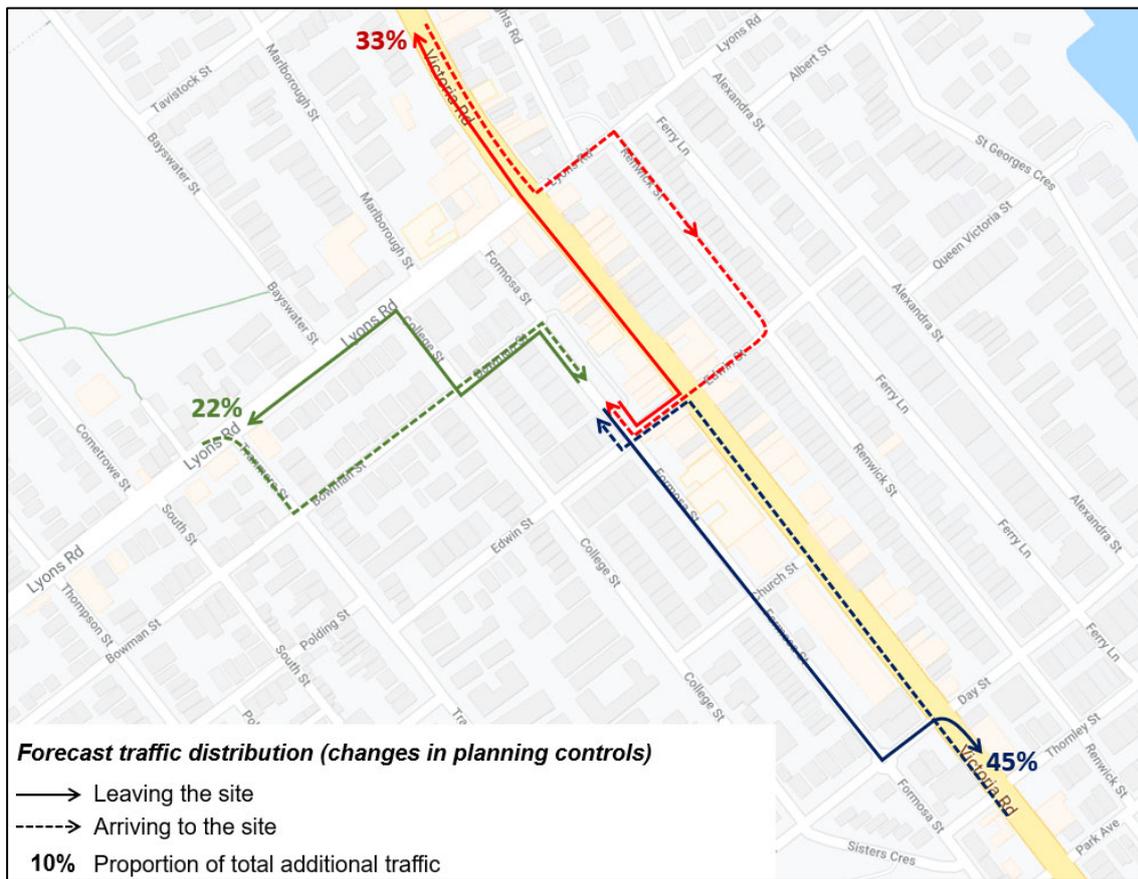


Figure 3 Assumed traffic routes to and from future Victoria Road development

3.3 Forecast traffic movements

The resultant increase in traffic movements at key intersections in the study area arising from the changes in planning controls is presented in Figure 4.

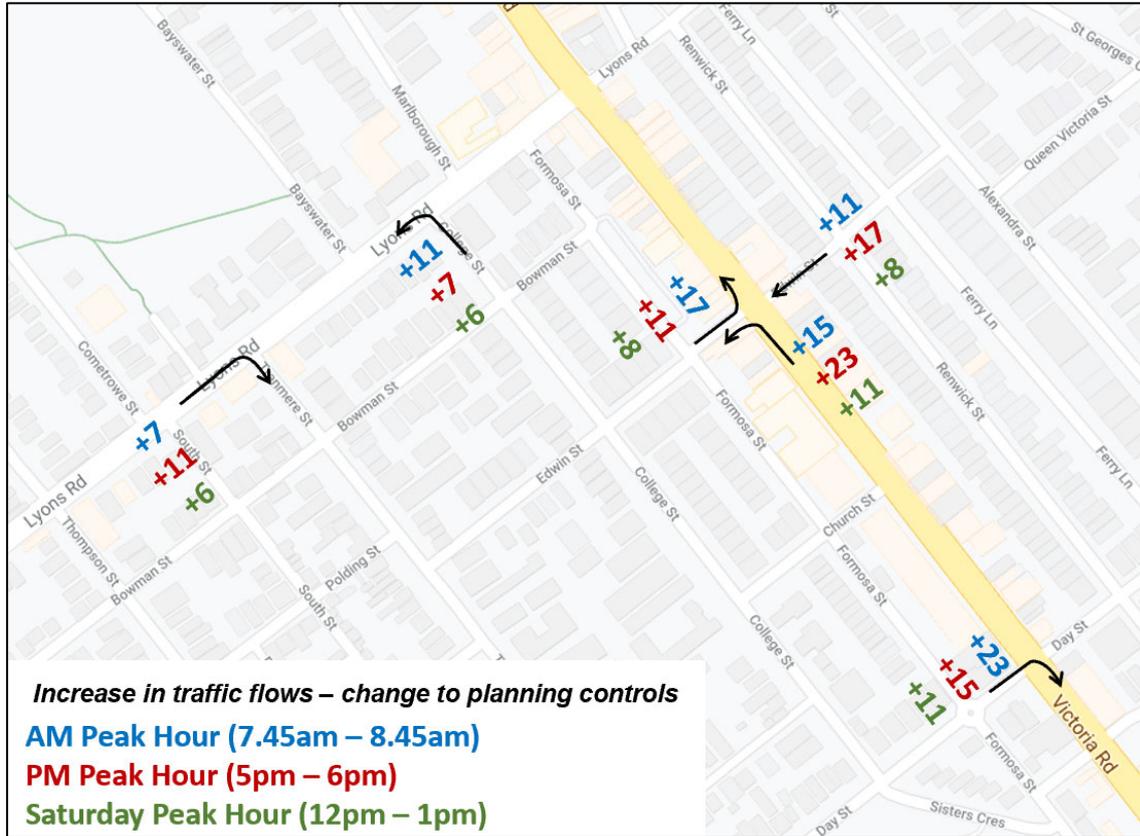


Figure 4 Increase in traffic flows – changes to planning controls

3.4 Traffic impacts – changes in planning controls

The implications in terms of additional delays for vehicle movements impacted by the changes in planning controls are illustrated in Figure 5 (AM peak hour), Figure 6 (PM peak hour) and Figure 7 (Saturday peak hour).

The analysis indicates that the proposed changes in the planning controls result in relatively small increases in traffic movements and do not, in themselves, materially impact the performance of the adjacent road network. In addition to the minor increases in vehicle delays along certain key movements, no changes to the existing ‘level of service’ of all of the intersections in the study area are forecast.

The greatest impact arising from the increased traffic movements is expected during the morning peak hour at the Day Street / Victoria Road intersection, where vehicles turning right onto Victoria Road are forecast to be delayed by an additional 31 seconds. This is considered a relatively minor impact localised to one peak period, with the remainder of movements generally unimpacted at the other intersections analysed.

As previously noted the analysis undertaken for this study considers a ‘worst case’ assumption and therefore the traffic impacts associated with the changes in planning controls are likely to be reduced compared with those reported in this document.

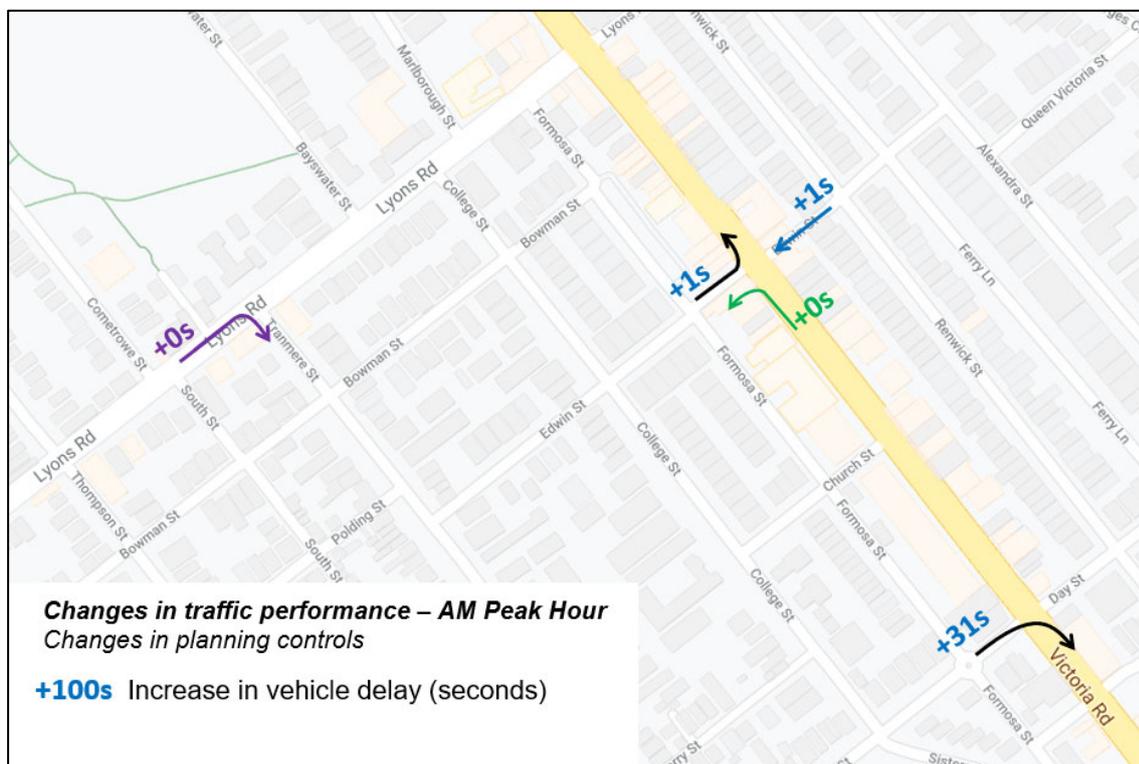


Figure 5 Traffic impacts due to changes in planning controls (AM peak hour)

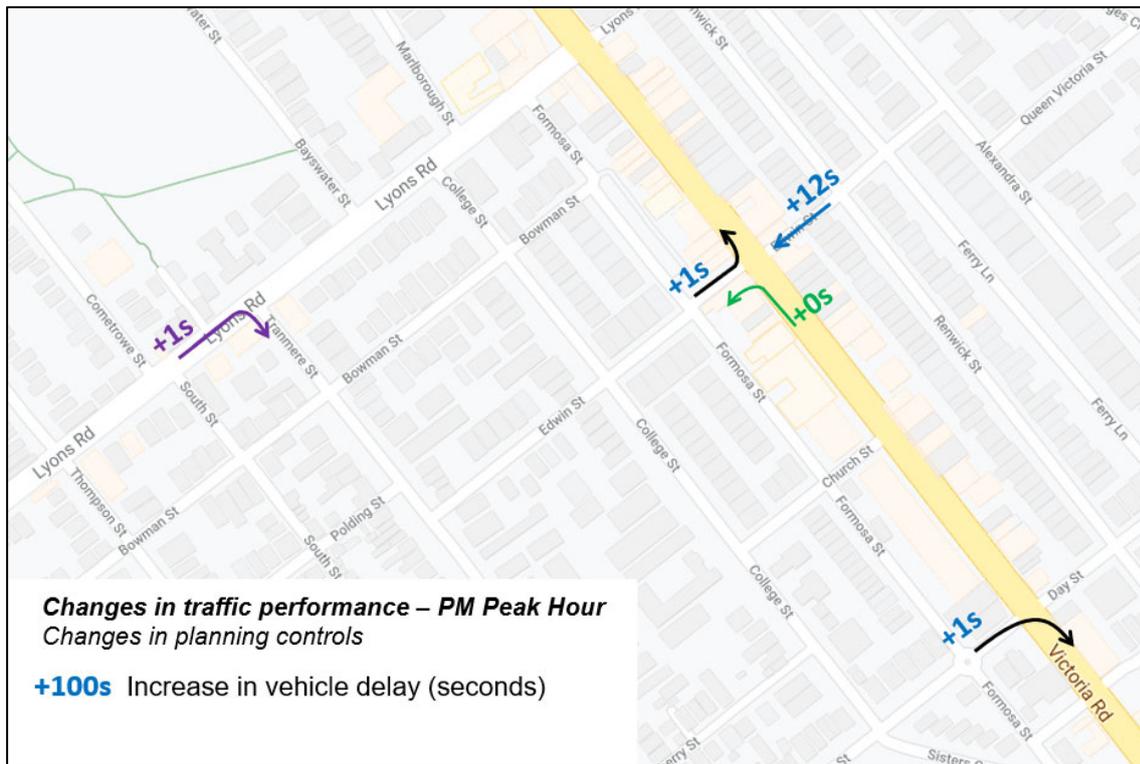


Figure 6 Traffic impacts due to changes in planning controls (PM peak hour)

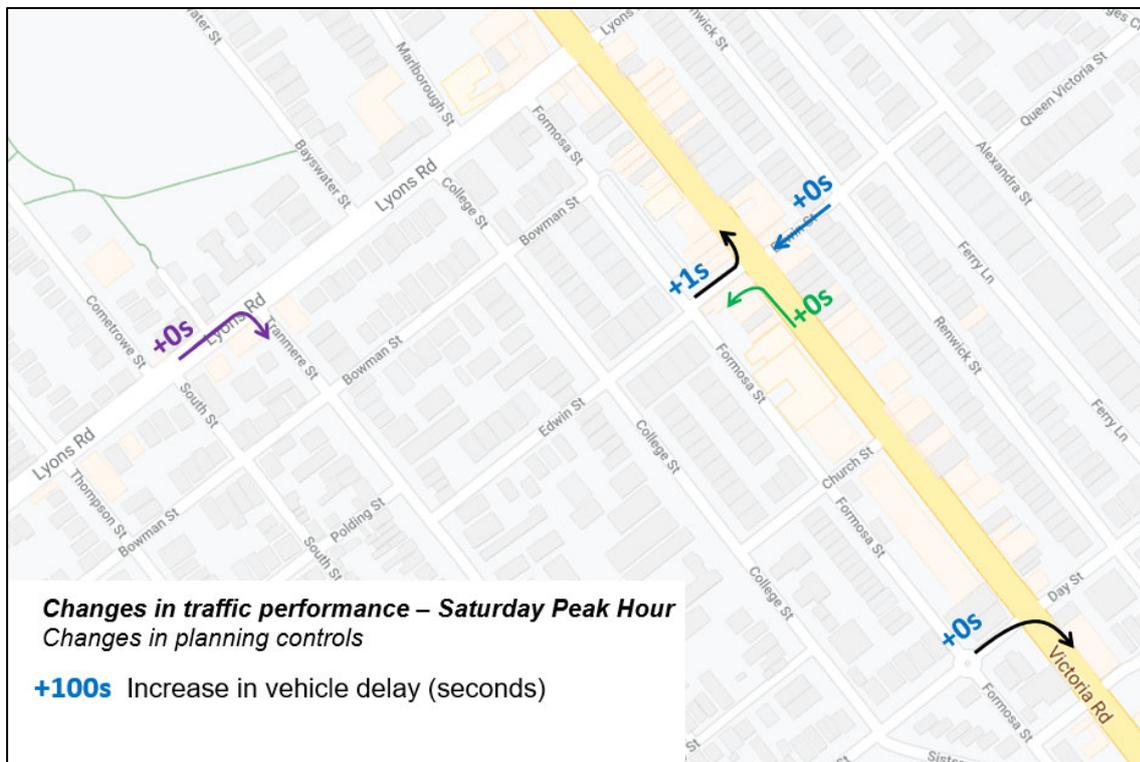


Figure 7 Traffic impacts due to changes in planning controls (Saturday peak hour)

4 Proposed Road Closures

4.1 Description of road closures

In August 2019, Studio GL prepared an Urban Design Review of Victoria Road (Drummoyne) on behalf of City of Canada Bay Council. Two of the recommendations within the review included the creation of public spaces on Formosa Street and Church Street to improve activation opportunities and the amenity of the corridor. The implications of these new public spaces from a traffic perspective are as follows:

- Church Street public space: Requires the partial or complete closure of Church Street between Victoria Road and Formosa Street (see Figure 8)

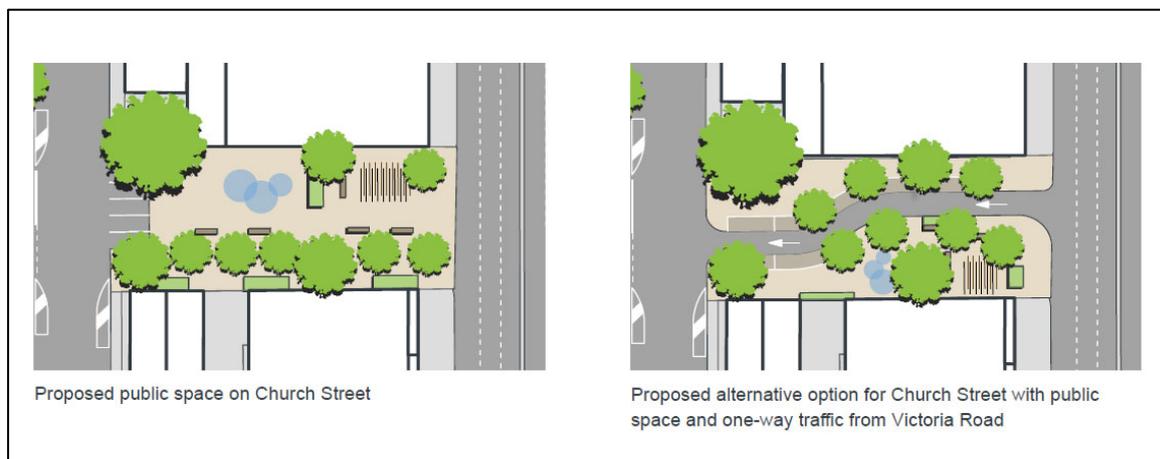


Figure 8 Proposed Church Street public space

Source: Victoria Road Drummoyne Urban Design Review

- Formosa Street public space: Requires the closure of the northern end of Formosa Street at its intersection with Lyons Road (see Figure 9)

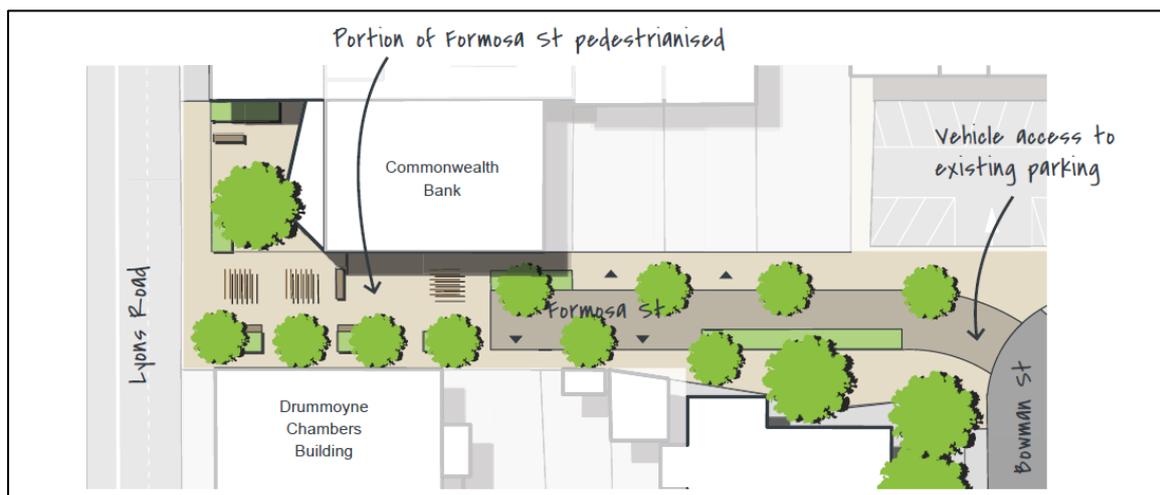


Figure 9 Proposed Formosa Street public space

Source: Victoria Road Drummoyne Urban Design Review

In adopting the Urban Design Review, Council resolved that:

“traffic analysis be undertaken for the proposed public spaces on Church Street and Formosa Street to determine:

- a) the impact on the movement of local traffic arising as a consequence of the new public spaces;*
- b) whether there are alternative street configurations for Church Street and Formosa Street that will improve the pedestrian experience and the public domain whilst also mitigating any identified traffic impacts.”*

4.2 Assumed traffic routes

Figure 10 and Figure 12 illustrates the assumptions adopted for the analysis with respect to the re-routing of traffic as a result of the Formosa Street and Church Street closures respectively. These assumptions are summarised as follows:

- All traffic currently turning left into Church Street from Victoria Road will instead turn left into Edwin Street
- Traffic currently turning left from Church Street onto Victoria Road will be distributed evenly between Day Street and Edwin Street
- Traffic currently turning right into Formosa Street from Lyons Road will instead turn right at Tranmere Street and travel down Bowman Street
- Traffic currently turning left into Formosa Street from Lyons Road will be distributed evenly between Renwick Street /Edwin Street and Tranmere Street, except for the AM peak hour given a no left turn restriction into Tranmere Street is in place during this time



Figure 10 Changes to traffic movements with Formosa Street closure



Figure 11 Changes to traffic movements with Church Street closure

4.3 Forecast traffic movements

The forecast changes in traffic flows arising from the proposed road closures is summarised in Figure 12 below. Key findings to note from this analysis include:

- The significant increase in traffic movements in the morning peak hour turning left out of Edwin Street and Day Street associated with the Church Street closure
- The relatively modest increase in traffic movements into Tranmere Street as a result of the Formosa Street closure
- Significant increase in left turn movements into Edwin Street from Victoria Road during the Saturday peak hour.

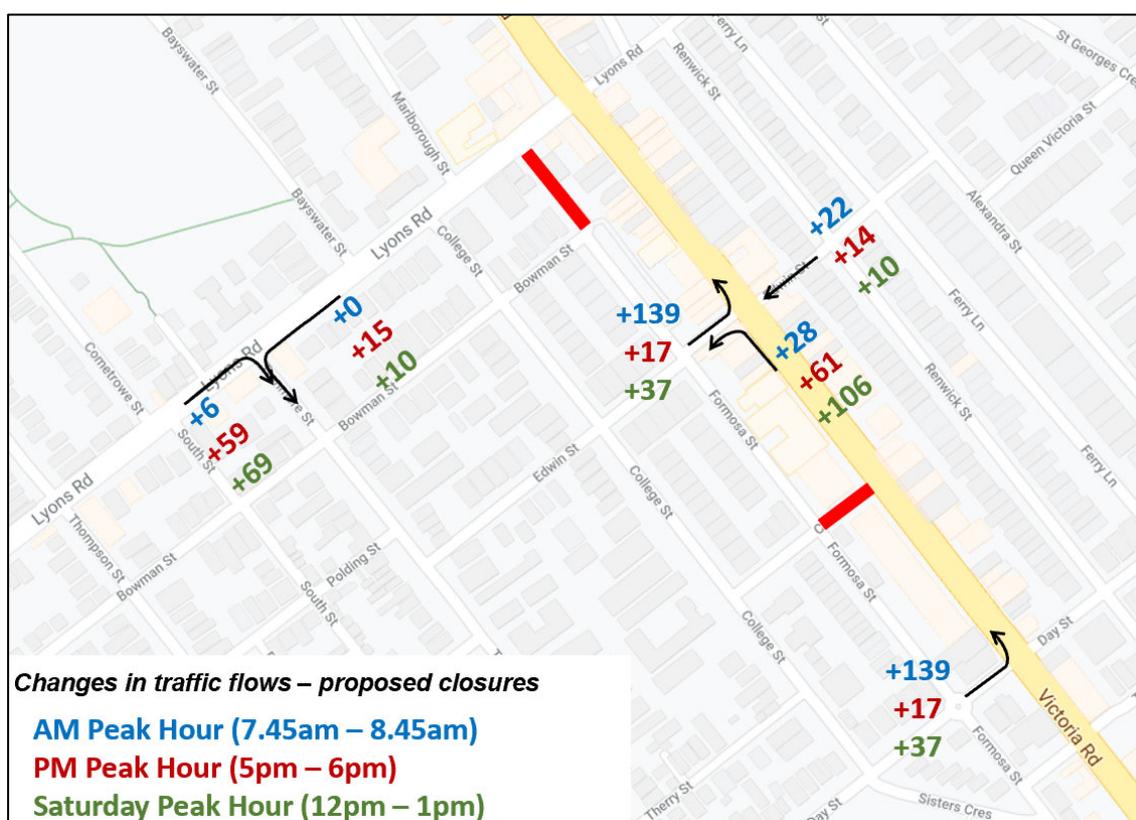


Figure 12 Forecast changes in traffic flows – proposed road closures

4.4 Traffic impacts – proposed road closures

The implications in terms of additional delays and queues for vehicle impacted by the proposed road closures are illustrated in Figure 13 (AM peak hour), Figure 14 (PM peak hour) and Figure 15 (Saturday peak hour).

The biggest impact in terms of road network performance is during the AM peak hour as a result of the significant number of vehicles impacted by the closure of Church Street. Currently 278 vehicles turn left out of Church Street onto Victoria Road, with these vehicles expected to use either Edwin Street or Day Street in future. At both the Edwin Street / Victoria Road and Day Street / Victoria Road intersections queue lengths and vehicle delays forecast to increase substantially as a result of the Church Street closure.

Traffic impacts are more moderate during both the PM and Saturday peak hours as a result of the Church Street closure, with increases in vehicle delays generally confined to 10 seconds or less.

As traffic movements on Formosa Street are relatively modest in all peak hours the proposed closure of Formosa Street is expected to result in minor delays at adjacent intersections.

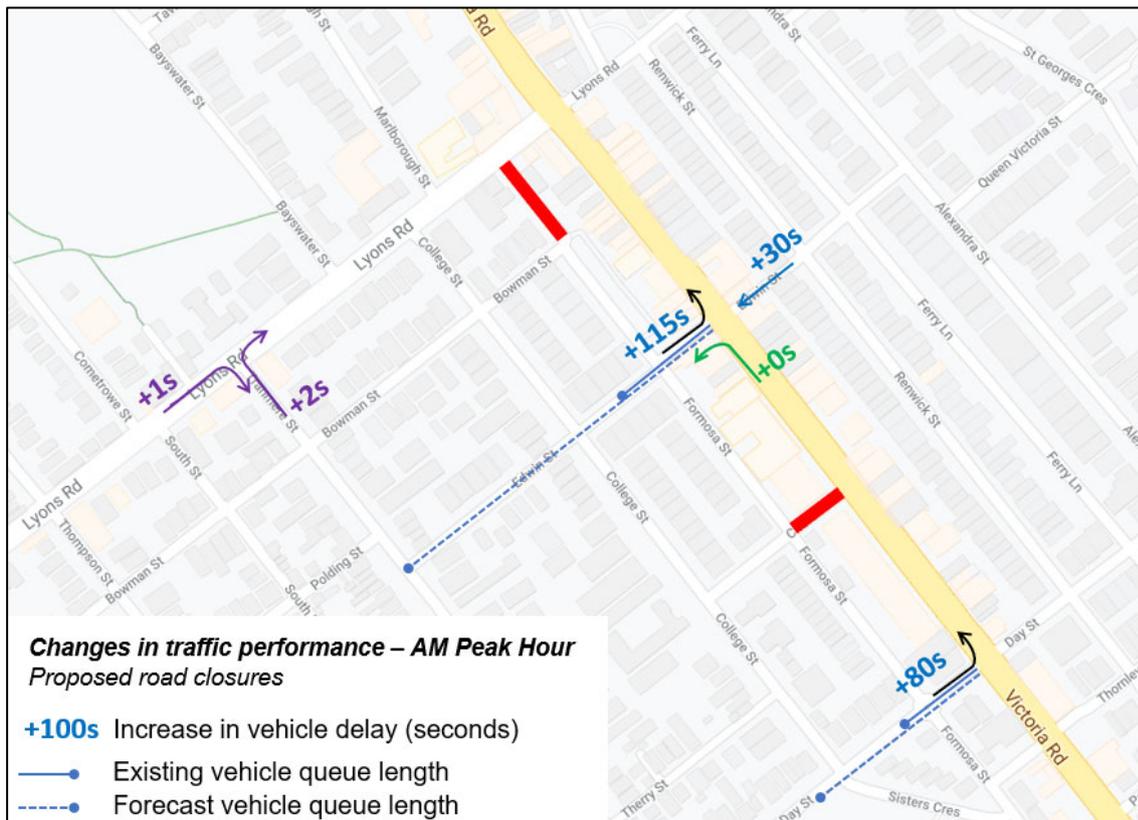


Figure 13 Traffic impacts due to road closures (AM peak hour)

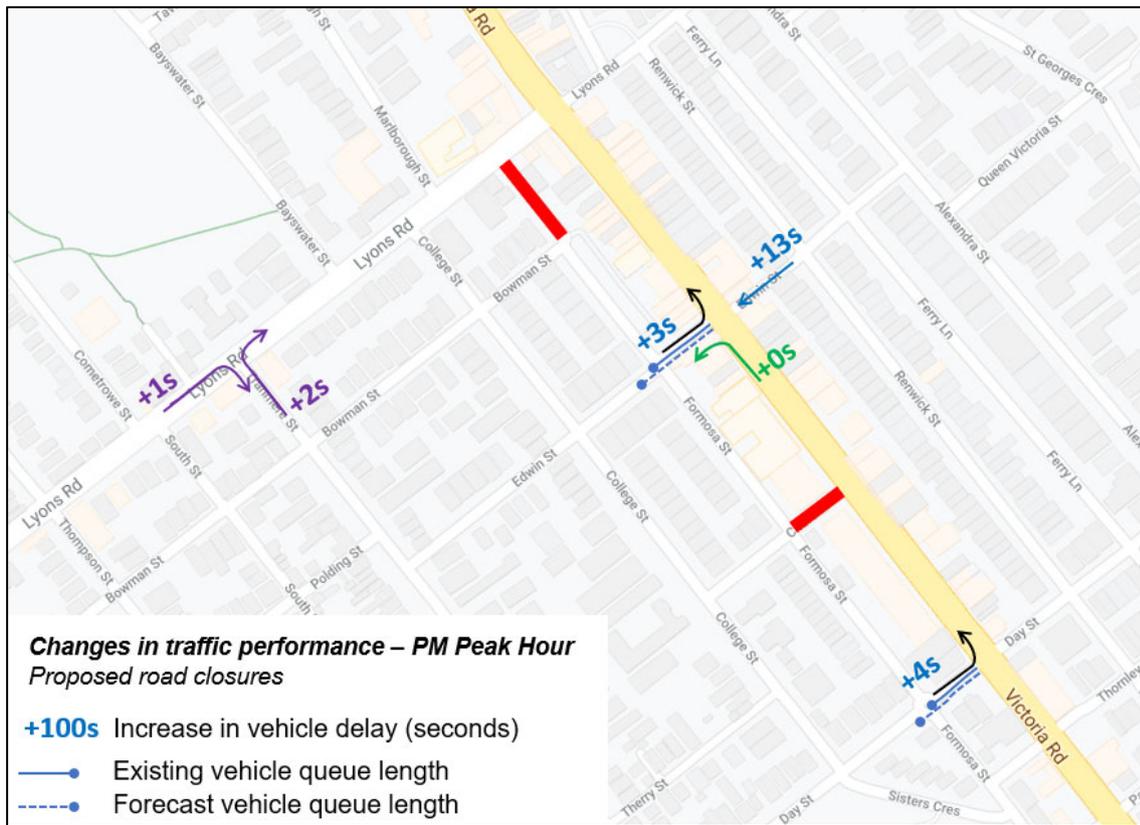


Figure 14 Traffic impacts due to road closures (PM peak hour)

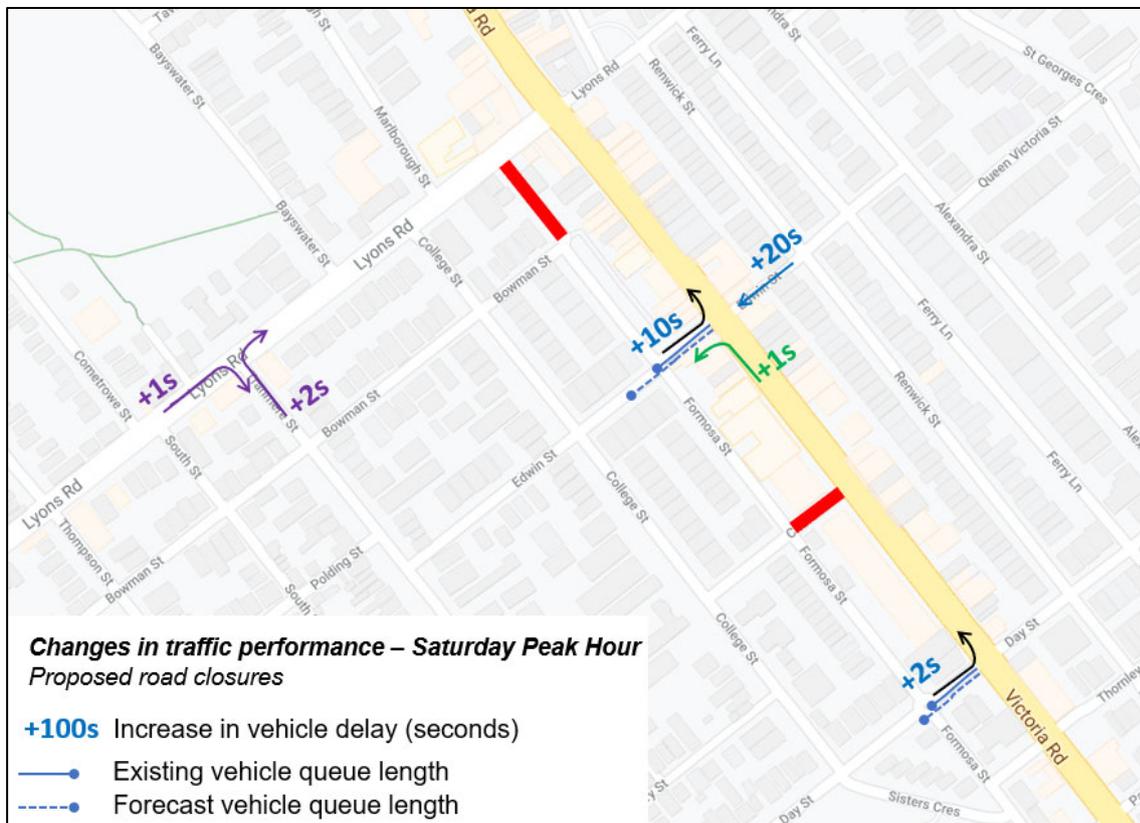


Figure 15 Traffic impacts due to road closures (Saturday peak hour)

5 Changes to Planning Controls + Road Closures

5.1 Forecast traffic movements

The cumulative increase in traffic movements at key intersections in the study area as a result of both the changes in planning controls and road closures is presented in Figure 16. These cumulative traffic movements have formed the basis for the traffic modelling undertaken in the next section of the report.

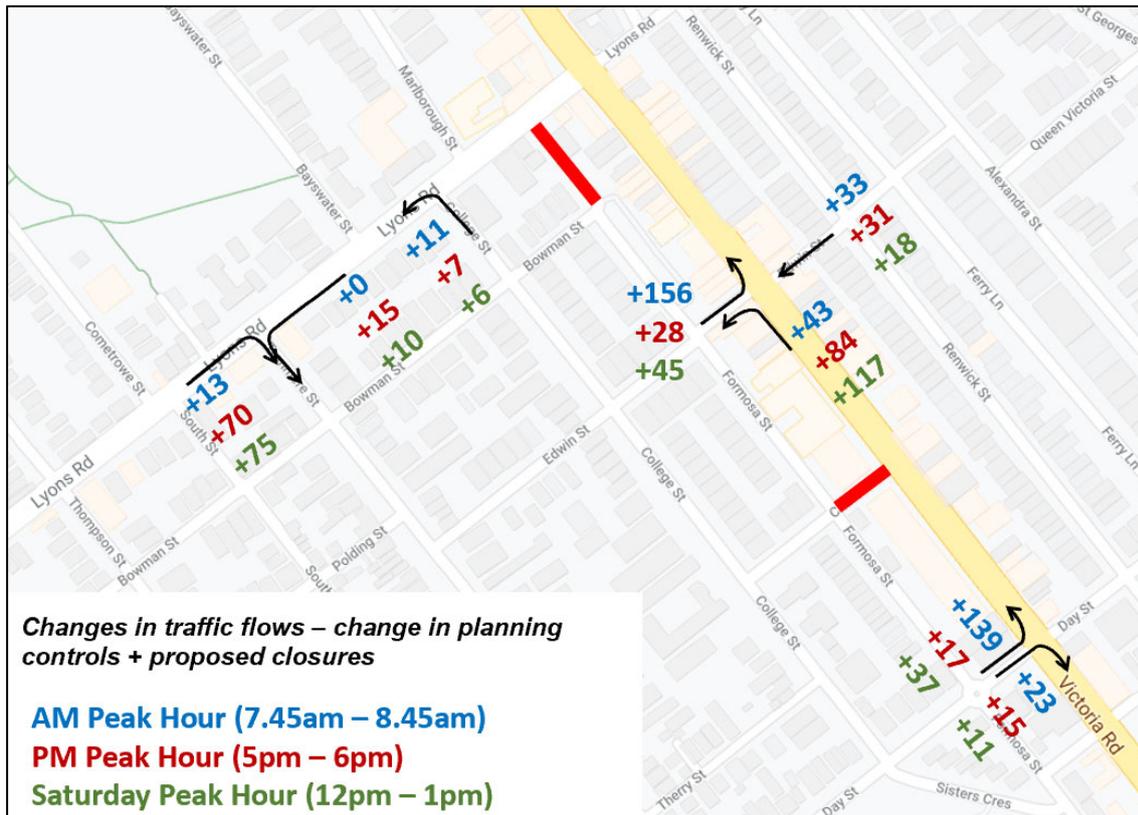


Figure 16 Forecast cumulative changes in traffic movements

5.2 Traffic impacts – changes to planning controls + road closures

5.2.1 AM peak hour

The findings of the traffic modelling for the AM peak hour are illustrated in Figure 17. The biggest impact in terms of road network performance is at the Edwin Street / Victoria Road intersection, with queue lengths and vehicle delays forecast to increase significantly. As previously noted these impacts are almost entirely attributable to the proposed Church Street closure rather than the changes in planning controls. There are also expected to be significant impacts at the Day Street / Victoria Road intersection, again largely due to the proposed road closures. In this context a full closure of Church Street as envisaged in the Victoria Road Urban Design review is not considered feasible.

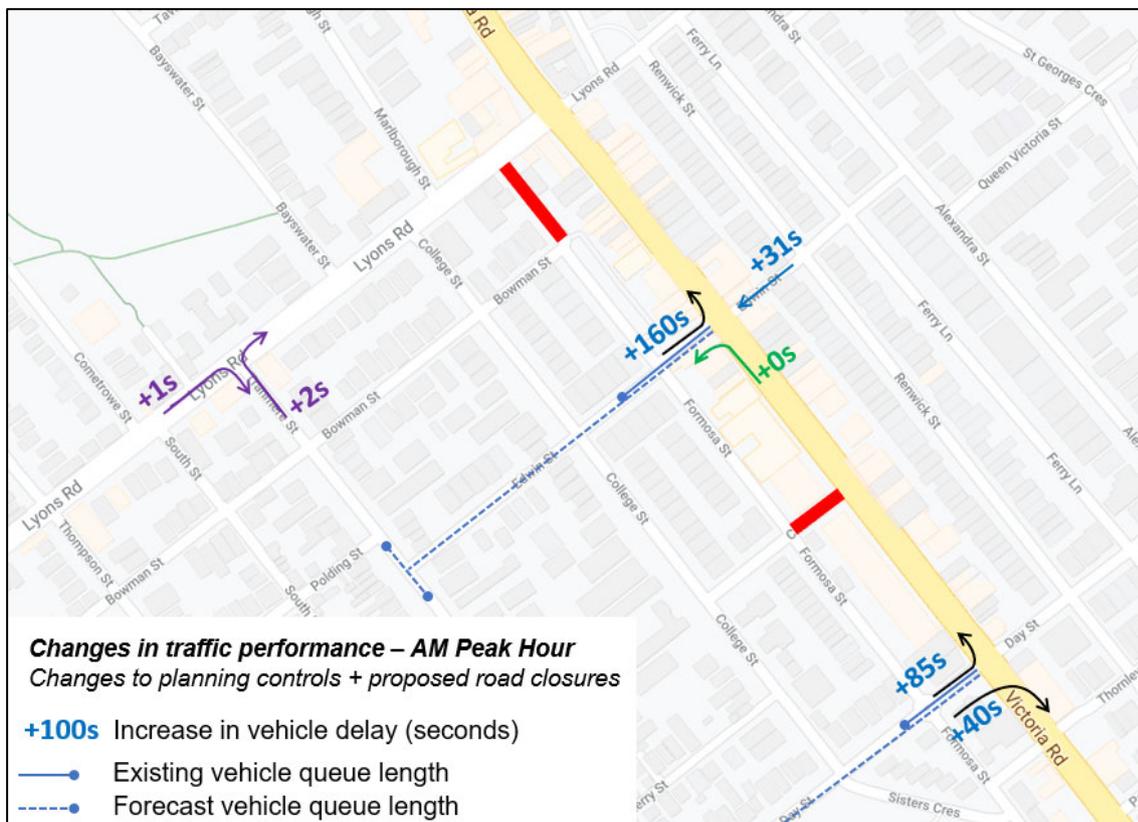


Figure 17 Road network performance – AM peak hour

5.2.2 PM peak hour

Figure 18 illustrates the performance of the road network in the vicinity of the study area. The greatest impact during this time period is for vehicles travelling east from Edwin Street across Victoria Road, which are forecast to experience increases in delays of approximately 45 seconds. Unlike the AM peak hour however, the remainder of the intersection operates well with no other significant increases in delays or vehicle queues forecast.

Vehicles travelling through the Lyons Road / Tranmere Street intersection are forecast to experience only minor delays as a result of the Formosa Street closure – less than 3 seconds on average. Similarly, vehicles turning left from Victoria Road into Edwin Street as a result of the Church Street closure are not forecast to be materially impacted.

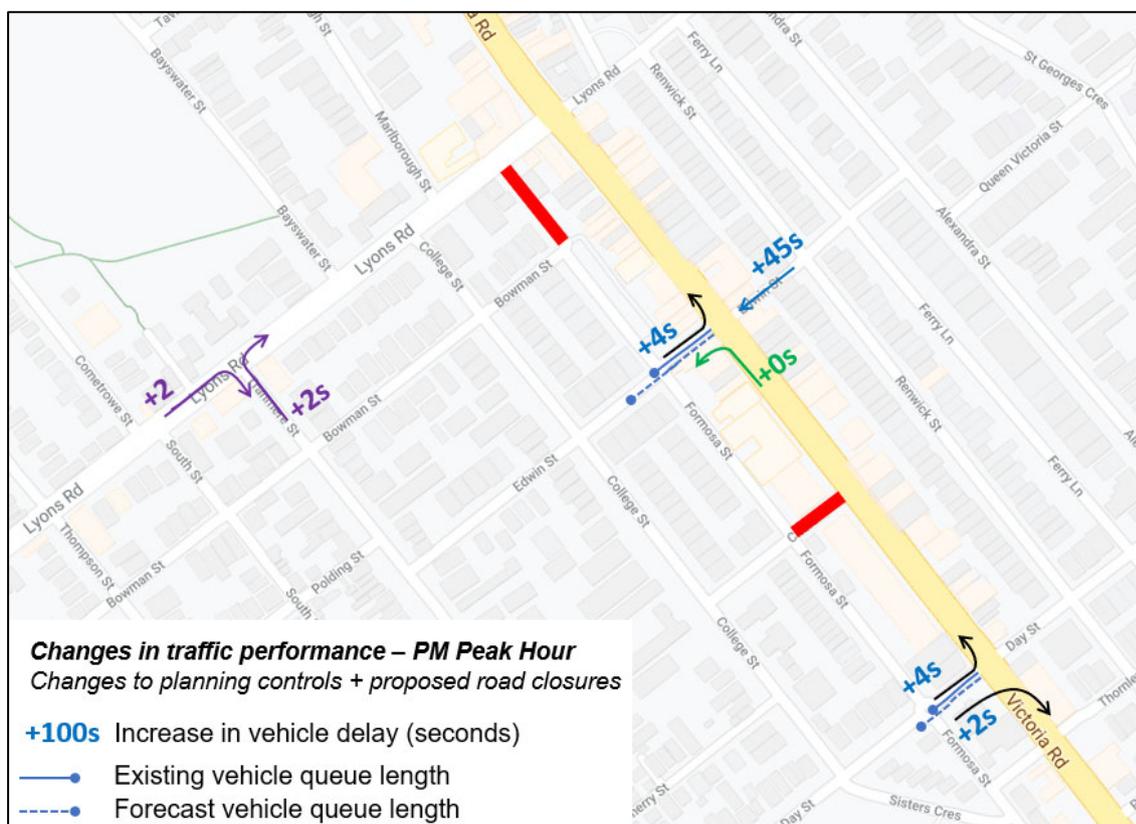


Figure 18 Road network performance – PM peak hour

5.2.3 Saturday peak hour

The performance of the road network during the Saturday peak hour is presented in Figure 19 below, with overall findings similar to the PM peak hour. In general intersection operation is similar to existing conditions, with the road closures and changes to planning controls in place. The traffic impacts during this period are therefore considered to be relatively minor.

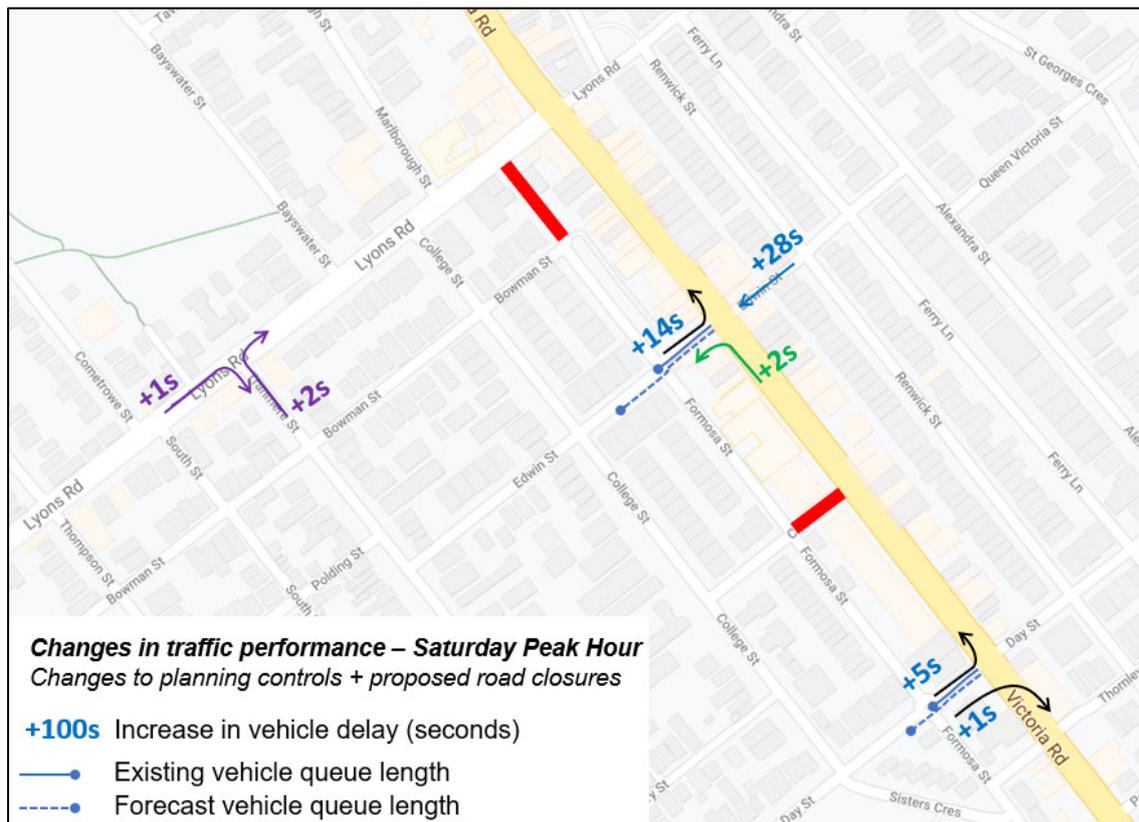


Figure 19 Road network performance – Saturday peak hour

5.3 Local road impacts

A further consideration in assessing the impacts of the road closures and changes in planning controls is the forecast increase in traffic on local streets within the study area. Although the projected level of traffic may result in acceptable road network performance, it may have adverse impacts in relation to environmental amenity on local streets.

The two key local streets impacted by the proposal in terms of additional traffic movements are Tranmere Street and Bowman Street. These streets are both forecast to experience additional traffic movements primarily as a result of the Formosa Street closure. Figure 20 illustrates the magnitude of this forecast increase in traffic movements – both on an absolute and relative (percentage increase) basis.

The analysis indicates that Bowman Street is forecast to experience nearly a doubling of traffic flows in both the PM and Saturday peak hours, with this figure dropping to approximately 35% for Tranmere Street. It should be noted however that the *RMS Guide to Traffic Generating Developments* document notes that the environmental capacity for a local street is estimated to be up to 300 vehicles per hour. The projected traffic movements on both Tranmere Street and Bowman Street is not expected to exceed this threshold with the proposed road closures and changes in planning controls.

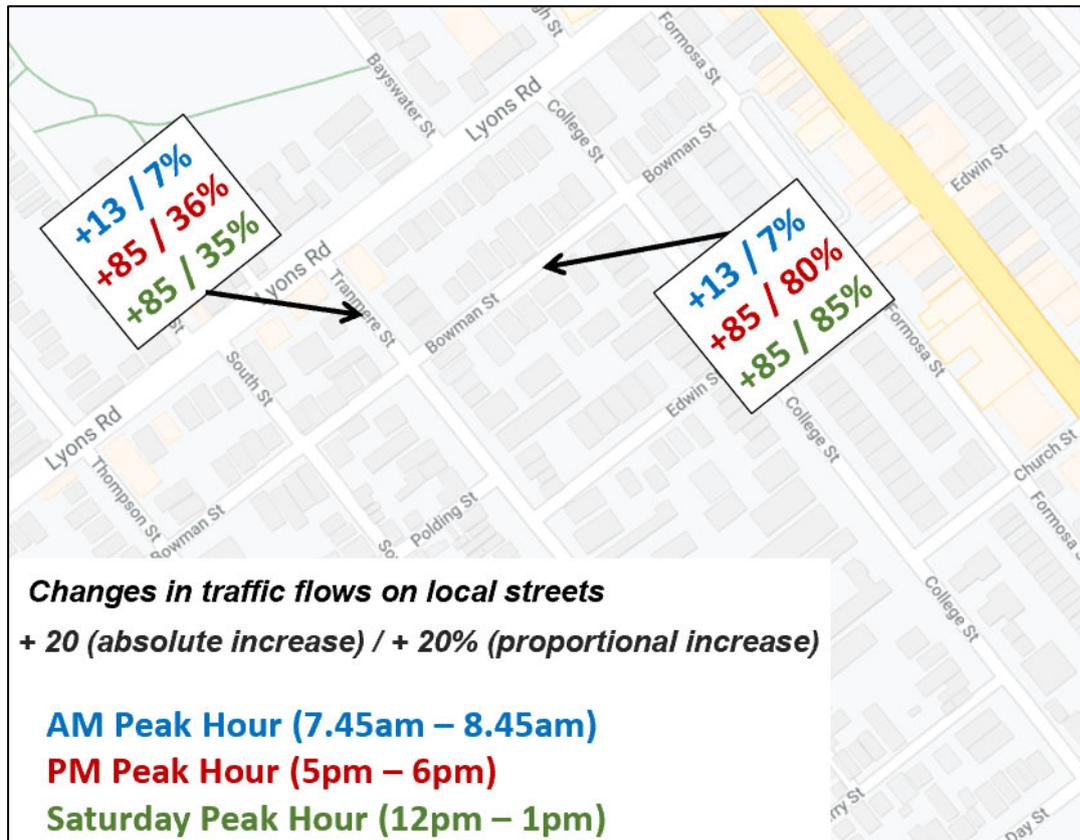


Figure 20 Changes in traffic flows on local streets

6 Summary

JMT Consulting has prepared this report on behalf of the City of Canada Bay Council to assess review the traffic implications of recommendations arising from the Victoria Road Urban Design Review. The key findings of the assessment are as follows.

(i) Changes to planning controls

- The proposed changes in the planning controls result in relatively small increases in traffic movements and do not, in themselves, materially impact the performance of the adjacent road network.

(ii) Formosa Street closure

- Traffic movements on Formosa Street are modest in all peak hours and, should Formosa Street be closed to traffic, delays at adjacent intersections would be minor.
- The most significant impact arising from the Formosa Street is the relatively high increase in traffic flows on adjacent local streets, particularly Bowman Street where traffic volumes are forecast to increase by up to 85% during peak hours. It is important to note however that the total traffic flows on local streets are not projected to exceed the 'environmental capacity' threshold of 300 vehicles per hour.
- The closure of Formosa Street as envisaged in the Victoria Road Urban Design review is therefore considered a feasible option. Should however it be determined that the impacts of the closure on adjacent local streets are too significant, then an alternate option would be to leave the street open to vehicles but reduce the width of the carriageway by removing the existing parking lane to provide for additional footpath width.

(iii) Church Street closure

- A significant number of vehicles currently use Church Street to exit onto Victoria Road – with nearly 300 vehicles in a single hour recorded in the morning peak. Closure of this exit from Church Street results in major impacts to adjacent intersections during the morning peak hour. In this context a full closure of Church Street as envisaged in the Victoria Road Urban Design review is not considered feasible.
- An alternative viable option would be to convert Church Street to one-way out, which would not impact the operation of the road network while at the same time provide an opportunity to enhance the public domain and reduce traffic movements.