

14. BECKENHAM SHOPPING COMPLEX OF 140 COLOMBO STREET

General Manager responsible:	General Manager, Regulation and Democracy Services, DDI 941-8462
Officer responsible:	Resource Management Manager
Author:	Clifford Chai, Traffic Planner

PURPOSE OF REPORT

1. The purpose of this report is respond to the Spreydon/Heathcote Community Board request to determine the traffic implications of a two-way crossing at the Tennyson Street road frontage of 140 Colombo Street.

EXECUTIVE SUMMARY

2. At its meeting on 13 October 2009 the Board resolved:

*The Board **decided** to request a report on all traffic/parking matters, prior to 15 December 2009 related to the development at 140 Colombo Street, specially to include the following matters:*

- (a) *A traffic conflict has been created that needs to be corrected on Tennyson Street with the non signed no-entry into the parking off Tennyson Street. How do we get that done?*
- (b) *How could traffic get access from Tennyson Street into the parking area? What issues arise from that?*
- (c) *What would be the best solution on Colombo Street – options need to be explored? What is the Board's role in that?*

3. At its meeting on 15 December 2009, in response to a deputation, the Board recorded:

*Further to a Board resolution from the 13 October 2009 meeting requesting a report on all traffic/parking matters related to the development at 140 Colombo Street, the Board further **requested** that staff expedite a report on the exit/entry issues at 140 Colombo Street, and consider the suggestion of the Council waiving any Resource Consent fees that might apply and paying for the reconstruction of the exit to make it both entry/exit onto Tennyson Street.*

4. Further two petitions were tabled at Board meetings regarding this matter. The first tabled at the 16 March 2010 meeting was signed by retailers of the 140 Colombo Street complex. This petition requested the removal of one car park space to enable an entry from Tennyson Street whilst retaining the exit onto Tennyson Street. The second petition was tabled at the 13 April 2010 meeting and was signed by customers of shops in the complex. This petition requested the removal of one car park space nearest to the Tennyson Street exit to enable an entry lane area with the creation of an entry to the shopping complex from Tennyson Street and a request for a painted or flush median on Tennyson Street to enable safe refuge before turning into the shopping complex.
5. This report sets out a revised traffic plan and the proposed two-way access on Tennyson Street will have both positive and negative effects.
6. The positive effects include:
 - The reduction in traffic volumes between the Tennyson Street and Strickland Street section of Colombo Street;
 - The mitigation of road user conflicts at the Colombo Street crossing;
 - The improvement of vehicle flows at the Colombo Street and Tennyson Street crossings and within the car parking area; and
 - The reduction of vehicle obstruction for northbound traffic on Colombo Street.

The negative effects include:

- Traffic volumes on Tennyson Street will increase;
 - The level of service at the Tennyson Street approach will be impacted further;
 - The proposed two-way crossing will require the removal of two on-street parking spaces on the northern side of Tennyson Street to cater for a left-turn slip-lane for vehicles entering the Complex;
 - The proposed design will increase City Plan non-compliance for 140 Colombo Street (ie. on-site parking shortfall will increase by one, the wider two-way crossing will be closer to the T-intersection and the queuing space on the site will be exacerbated); and
 - Additional vehicle conflicts may arise at the proposed two-way crossing.
7. Taking into account the above, the proposed two-way crossing at the Tennyson Street frontage of the Beckenham Shopping Complex will improve the overall road environment on that section of Colombo Street (between Tennyson Street and Strickland Street) and the carpark function inside the Beckenham Shopping Complex.
 8. The changes will, however, require a resource consent. While the overall road environment would be improved, there will be negative effects associated with a further reduction in on-site car parking and internal circulation issues. Ultimately, these issues will be considered and determined by an independent commissioner, so there is still a degree of uncertainty associated with the resource consent application.
 9. This report is provided at the request of the Spreydon/Heathcote Community Board. The Board's role would be to make a recommendation to the Council given the unbudgeted financial implications of altering the traffic layout at the Colombo Street/Tennyson Street intersection.
 10. The primary concern being raised appears to be related to the absence of an entry off Tennyson Street and that vehicles entering the site from Tennyson Street will therefore improve safety issues on the Colombo Street access. Two-way crossing for Tennyson Street was never proposed by the applicant as this would have increased the extent of the non-compliances for their application in terms of the City Plan (ie. Tennyson Street crossing will be set closer to the intersection and more parking shortfall will be resulted on the site and on the street) and therefore it has not been anticipated in the land use consent (RMA92006445) at the time.
 11. In terms of safety concern at the Colombo Street crossing, the current site layout has only been operating for over two years¹. Given that the Crash Analysis Assessment (CAS) assessment has not identified any accident that was the direct result of the vehicle accessing the Colombo Street crossing of the Beckenham Shopping Complex, I can only conclude that there is insufficient time for CAS assessment to determine whether there is any safety issue on the subject crossing. However, my observation at the Complex has also lead me to conclude that the traffic conflicts at this part of the road will continue to increase in proportion to the traffic volume of Colombo Street in the future.

FINANCIAL IMPLICATIONS

12. The physical works to widen the crossing to include an entry has been estimated to be up to \$10,000. A resource consent will also be required for a number of traffic non-compliances. The cost for processing such an application is estimated to range from \$1,500 to \$15,000 depending on the process required. The process cannot be determined with any certainty yet as an independent commissioner will be making the notification and substantive decisions.
13. In addition there will be the costs incurred by the Council as the applicant for the resource consent. As with the processing cost this may range from a few thousand dollars to approximately \$10,000 in application costs depending on whether or not the application is publicly notified.

¹ A typical road safety audit usually take into account the accident rate, frequency or number of crashes for a period of five years.

14. The owner of 140 Colombo Street has advised he is not prepared to make any financial contribution to this matter. Given this situation the Council will need to apply to itself for the resource consent, hence the need for a Commissioner.
15. Both the application cost and the resource consent for the two-way crossing of Tennyson Street will therefore need to be met by the Council. While the Board has requested any resource consent fees be "waived" there will still be the estimated \$4,500 - \$35,000 cost incurred by the Council to make the application and to process that application.
16. The potential cost of \$35,000 is not budgeted for and will need to be met from rates.

Do the Recommendations of this Report Align with 2009-19 LTCCP budgets?

17. Not budgeted for in the LTCCP.

LEGAL CONSIDERATIONS

18. The proposed two way access on the Tennyson Street frontage will require resource consent processed under the Resource Management Act.

Have you considered the legal implications of the issue under consideration?

19. Yes. As above a resource consent will be required for the changes.

ALIGNMENT WITH LTCCP AND ACTIVITY MANAGEMENT PLANS

20. Not applicable.

Do the recommendations of this report support a level of service or project in the 2009-19 LTCCP?

21. Not applicable. Yes the level of service that the Council is involved with is outlined on Page 89 of LTCCP.

ALIGNMENT WITH STRATEGIES

22. Not applicable.

Do the recommendations align with the Council's strategies?

23. Not applicable.

CONSULTATION FULFILMENT

24. Not applicable.

STAFF CONCLUSIONS

It is concluded that:

- An entry on Tennyson Street at the Beckenham Shopping Complex will improve the overall road environment on the section of Colombo Street (between Tennyson Street and Strickland Street).
- A left-turn deceleration lane will need to be provided for the two-way crossing on the North side of the Tennyson Street access. "No Parking Zone" (i.e. yellow 'no stopping' lines) will need to be marked alongside the deceleration lane, starting from the Colombo Street and Tennyson Street intersection.
- No painted median be included on Tennyson Street as there is not sufficient width in the carriageway.

- There will be some negative effects resulting from the installation of a two-way access on Tennyson Street such as a further reduction in car parking and an increase of vehicle conflict within the site.
- A more simple solution to resolve the primary concern being raised (vehicles entering the site from Tennyson Street) may be to install better signage to improve the visibility of the no entry.

Comments by General Manager

25. While safety concerns have been raised by Mrs Turnbull, as noted above the current layout provided for in the resource consent has only been operating for two years. While the layout referred to in this report results in an improved layout it achieves that improvement at the ratepayers' cost, not the landowners. There is no mechanism to require the landowner to contribute to these traffic improvements.
26. The estimated "up to" \$35,000 cost is unbudgeted and for that reason Council approval is required to this expenditure. There is a potential precedent issue in that the Council approved a traffic layout through a resource consent in 2006 and two years after that consent has been given effect to it is now being asked to fund changes at ratepayer's expense, outside of the Council's standard process for determining whether or not any changes are required. The resource consent process used here is a standard process and there are many similar local shopping centres in Christchurch. If Council funding is provided now on this occasion there may be similar requests from other Community Boards for changes a short period after a resource consent is implemented.
27. Further the Council is being asked to fund improvements when the project has not been through the normal LTCCP/Annual Plan process for capital expenditure. There is no urgency reason for this project to be carried out outside the Council's normal financial planning process and staff advice is that this project should be referred to the 2011 Annual Plan process.

STAFF RECOMMENDATION

If the Community Board wishes to progress this matter, it recommends that the Council give consideration to the Colombo Street/Tennyson Street traffic improvements referred to in this report as part of the 2011 Annual Plan.

CHAIRPERSONS RECOMMENDATION

The Chairperson has not seen this report.

BACKGROUND (THE ISSUES)

28. On 15 September 2009, Mrs Susan Turnbull, a tenant of the shopping complex, made a deputation at the Board meeting. Mrs Turnbull raised safety concerns relating to the vehicular accesses of the Beckenham Shopping Complex of 140 Colombo Street.

The objectives

29. To determine the suitability of a two-way access on Tennyson Street from a traffic engineering perspective.

The option

30. Two way vehicular crossing on Tennyson Street.

ASSESSMENT OF OPTION

Site address: 140 Colombo Street
Zoning: Special Purpose (Road) Zone and Business 1 Zone
Description of Assessment: Traffic Assessment of a two-way crossing at the Tennyson Street road frontage of 140 Colombo Street.

Introduction

On 15 September 2009, Mrs Susan Turnbull, a potential shop lease holder then, attended as a deputation at the Board meeting. Mrs Turnbull raised safety concerns relating to the vehicular accesses of the Beckenham Shopping Complex. Those concerns principally related to there being no entry from Tennyson Street.

Site and Locality

The site (140 Colombo Street) is located East of the Colombo Street and Tennyson Street intersection in Sydenham. The site has frontage to both Colombo Street and Tennyson Street. This part of Colombo Street is classified as a 'Minor Arterial' road and Tennyson Street is a 'Collector' road. An aerial photograph of the site is shown in Figure 1 below.

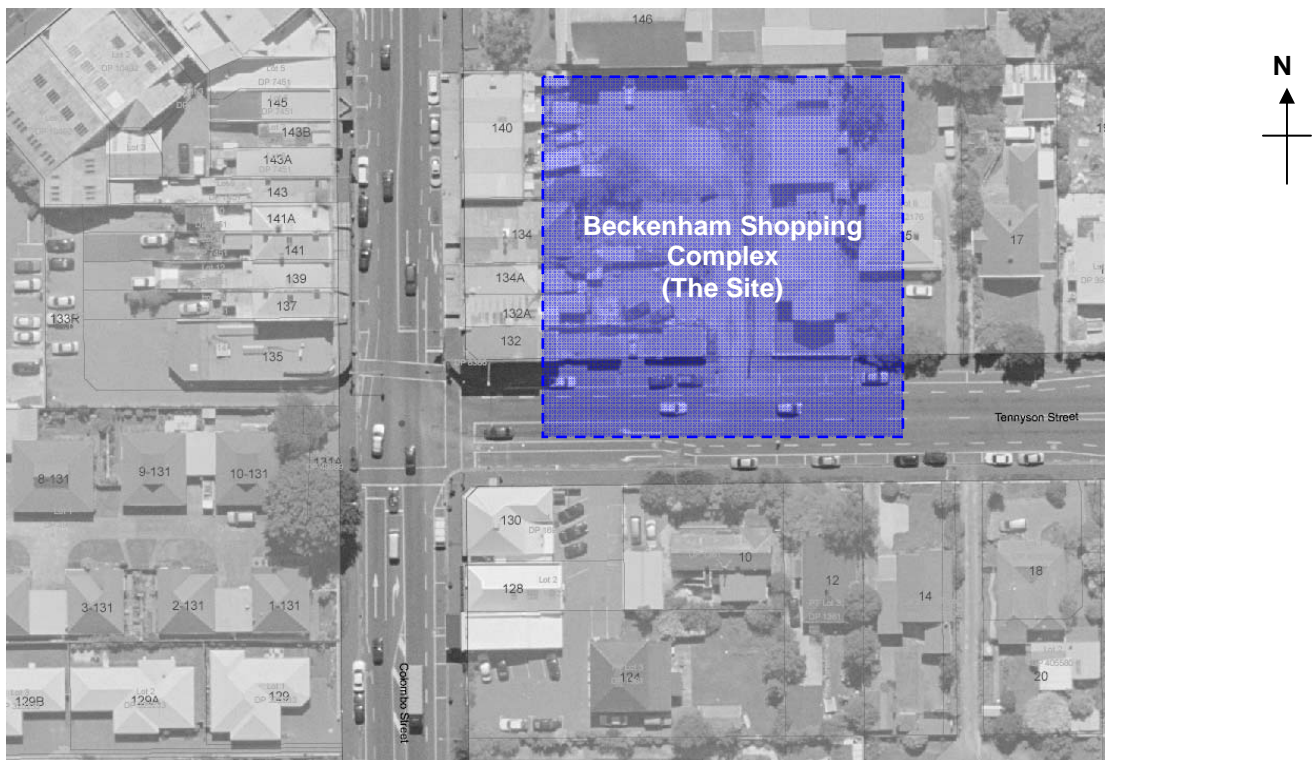


Figure 1. Beckenham Shopping Complex

Background

The site consists of five allotments that includes 132 Colombo Street, 132A Colombo Street, 134A Colombo Street, 134 Colombo Street and 140 Colombo Street. On October 2006 a resource consent (RMA92006445) was granted for the five properties to construct the new Beckenham Shopping Complex.

The application was lodged after consultation with traffic engineers from the City Environment Group. The transport assessment for the application was conducted by Mr Geoff McGregor of ViaStrada Traffic Engineering and Planning. The transport assessment was completed on the basis that an exit only was applied for on Tennyson Street. It was considered the layout struck a balance between access, internal circulation issues and on-site car parking. The decision on the resource consent application was made by an independent commissioner, Bob Nixon of Planit & Associates.

The transport non compliances addressed in the consent include the following:

Rule	Description
• 13 – 2.2.1	Parking Space Numbers – requires 47, proposes 35
• 13 – 2.2.2	Availability of Parking Spaces – parking spaces 34 and 35 will not be available at all times, given their tandem situation
• 13 – 2.2.4	Staff Car Parking – requires staff parking to be marked and signed accordingly
• 13 – 2.2.7	Loading Areas – requires 1 99% loading bay, none proposed
• 13 – 2.2.13	On site Manoeuvring – spaces 34, 35 & 36 will reverse on to Tennyson which is classified as a collector road in the City Plan. Space 11 may require an additional manoeuvre in order to obtain access and egress
• 13 – 2.3.6	Distance of Vehicle Crossings from Intersections – require all crossings to be setback a minimum of 30 metres from the intersection of a Minor Arterial Route (Colombo) and a Collector Route (Tennyson). The Tennyson Street exit is situated approximately 27.0 metres from the intersection
• 13 – 2.3.8	Access for High Traffic Generators – The site provides over 25 parking spaces. Council is afforded discretion in regard to vehicular access

In brief, the relevant matters of this traffic assessment relate to the parking space shortfall on the site, the distance of vehicle crossings from intersections and the high traffic generator rules. Mr McGregor's considerations for supporting approval to the consent are summarised below:

- The shortfall of 12 car parks is supported on the basis that the proposed parking arrangement, will improve the existing on-street parking supply in the area.
- The one-way exit on Tennyson Street will reduce vehicle conflicts/confusion to drivers and therefore considered to mitigate the breach of 'Distance of Vehicle Crossings from Intersections' standard (i.e. Rule 13-2.3.6).
- The traffic signals will provide gaps for existing traffic of the site at the Colombo Street and Tennyson Street crossings. The layout with "no right turn" sign at the Colombo Street access will discourage right turns out of the site. In addition, the access points have been located in the most practicable locations on the site and the two crossings (i.e. on Colombo Street and Tennyson Street) generally fulfil the intent of the rules relating to access.

The site plan of RMA92006445 consent is shown in Figure 2 below.

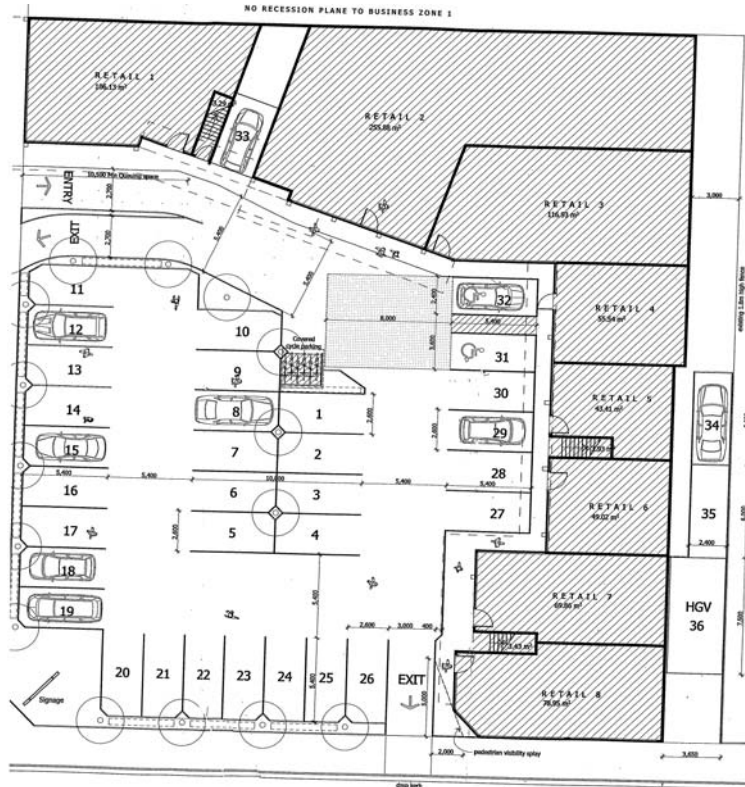


Figure 2. Site Plan of Resource Consent RMA92006445

In 2009, another resource consent (RMA92013936) was lodged for 140 Colombo Street. This consent covers the change of conditions to the previous consent (RMA92006445) to relocate Car Park 33 to in between the bicycle stand and Car Park 1. This proposed alteration will also reduce the aisle width of the Car Park 31 (Mobility Park). This application was granted on 22nd April 2009.

The new site plan of this consent, has formed the current car park layout, is shown in Figure 3 below.

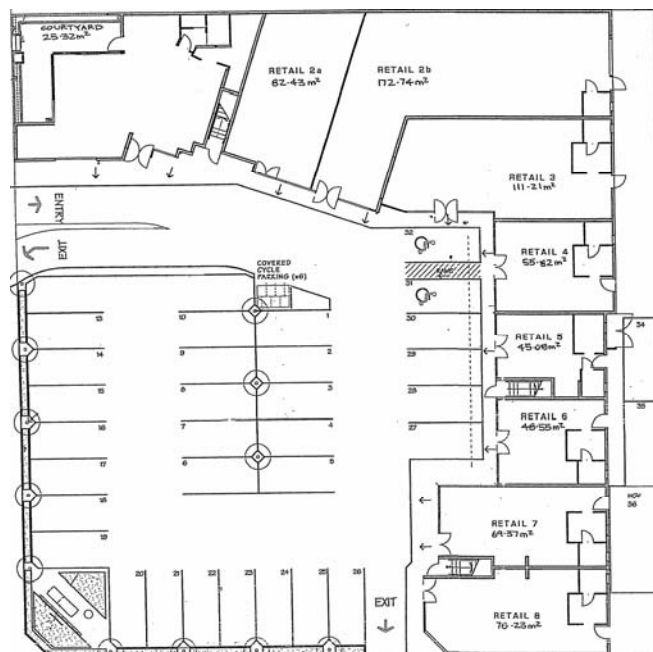


Figure 3. Site Plan of Resource Consent RMA92013936

It is important to note that the configurations shown in Figure 1 and Figure 2 were developed following discussion with traffic engineers in the City Environment section of the Council. This is what was applied for and considered for resource consent application. Both the traffic planner and commissioner supported the configuration, ultimately resulting in resource consent being granted. It needs to be recognised that the site is situated in a complex traffic environment and the configuration shown above was seen as an acceptable solution which struck a balance between access, provision of on-site car parking and internal circulation issues.

Road Environment

Traffic Environment

Traffic Volume

The traffic volume of Colombo Street South of the Tennyson Street intersection is around 18,600vpd (4-Days Average, CCC Traffic Count Database, February 2008). Including weekend traffic, the average daily traffic volume is around 17,680vpd (7-Days Average).

The morning traffic volume (i.e. between 8am to 9am) peak at around 1600 vehicle trips per hour (vph) and the evening peak (between 5pm to 6pm) is approximately the same as the morning. The inter-peak (12-2pm) is averaging at around 1250vph.

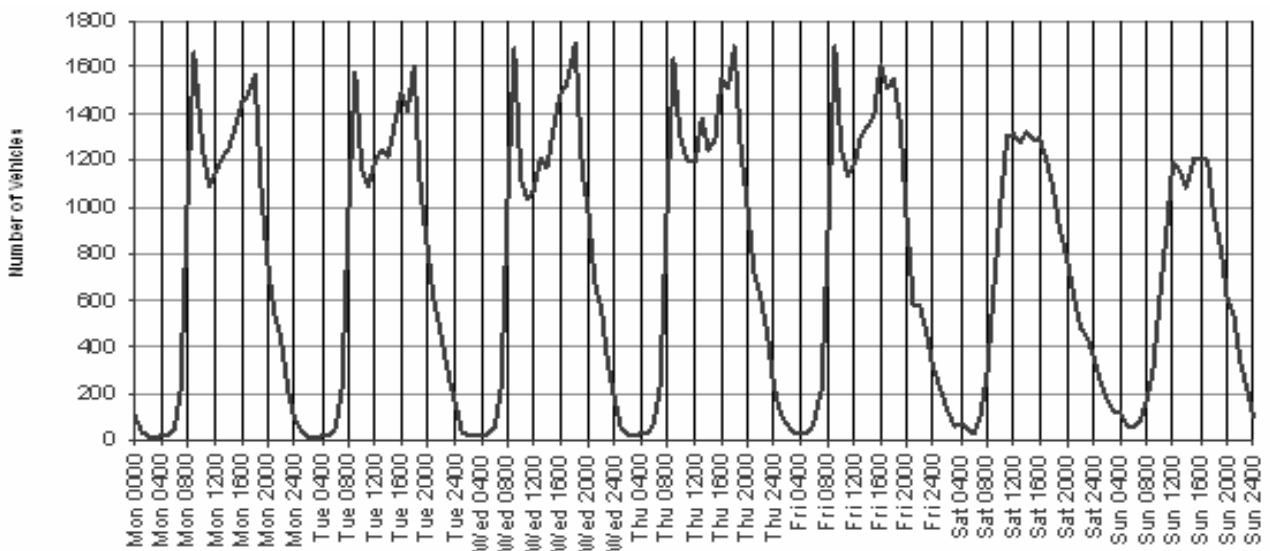
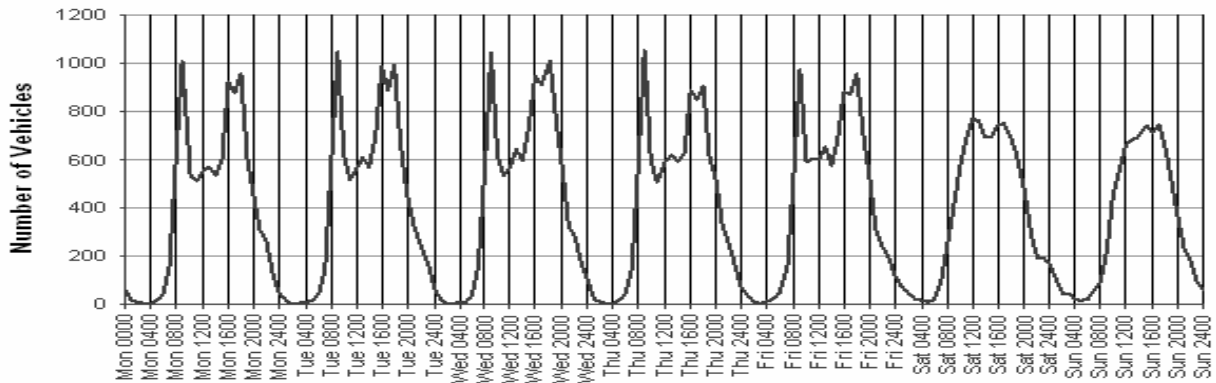


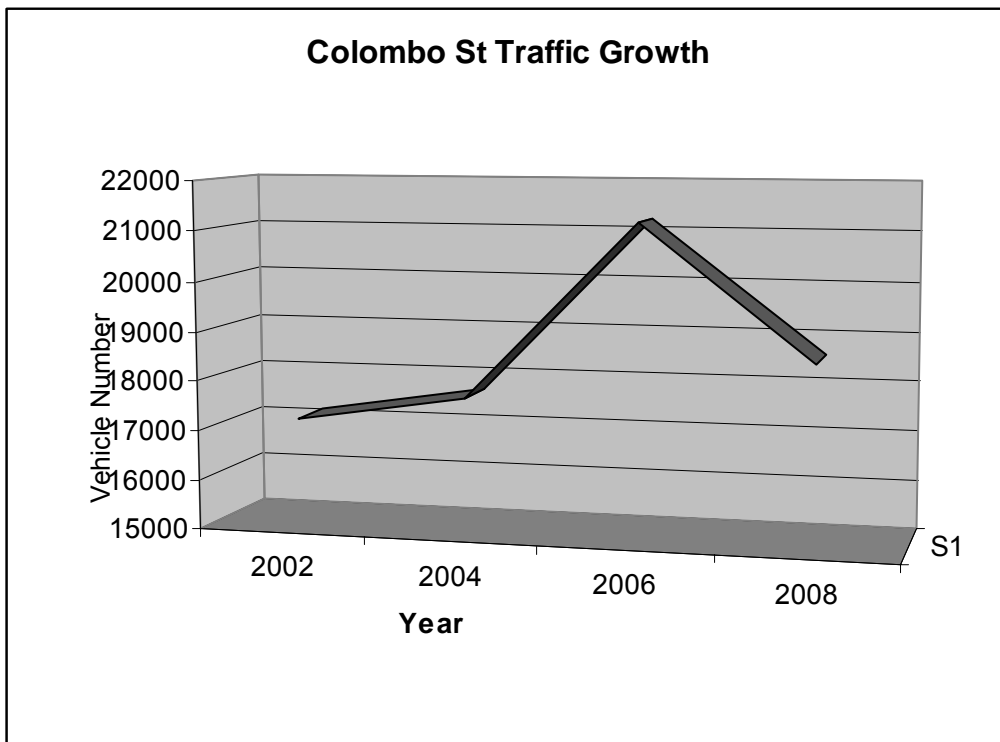
Figure 4

The traffic volume of Tennyson Street West of the Eastern Street intersection is around 10,150vpd (4-Days Average, CCC Traffic Count Database, 29th March 2007). Including the weekends traffic, the average daily traffic volume is around 9,730vpd (7-Days Average).

The morning traffic volume (i.e. between 8am to 9am) peak at around 1000 vehicle trips per hour (vph) and the evening peak (between 6pm to 7pm) is about 970vph. The inter-peak (12-2pm) is averaging at around 600vph.



The traffic growth along this part of Colombo Street has been staggered (generally over a ten year period). However, in terms of transport planning, it is my view that the traffic growth can be considered to increase at around 3% to 4% per year. Figure 5 below shows the traffic growth tend for 2002 to 2008 of the Colombo Street and Tennyson Street intersection.



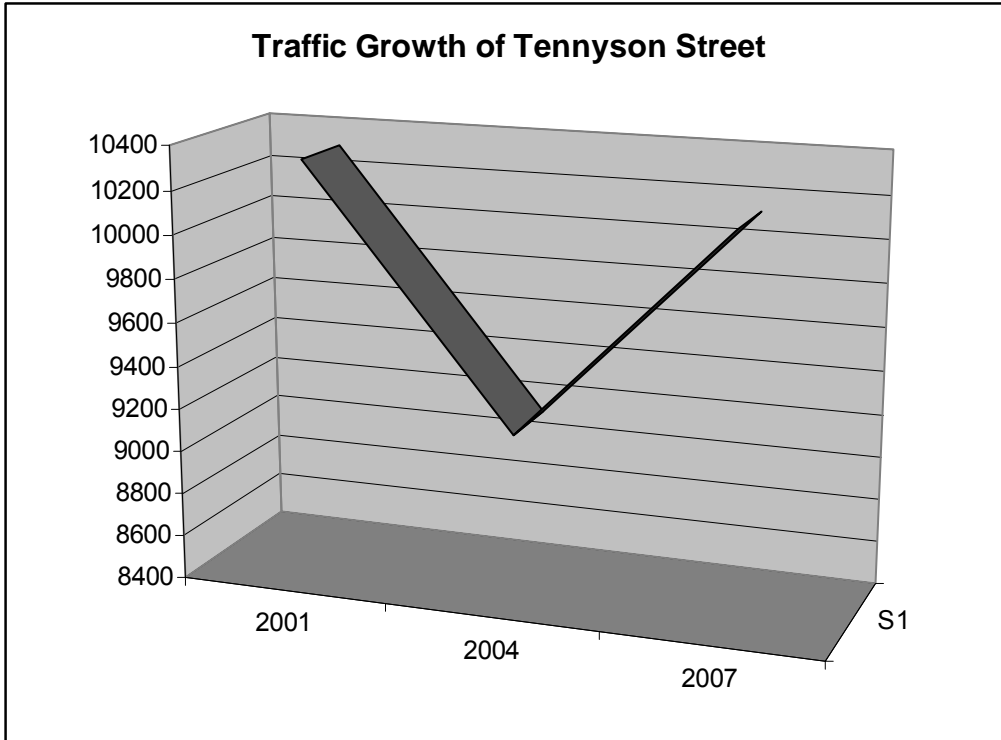


Figure 5 Traffic growth of Colombo Street at the intersection Tennyson Street

Beckenham Shopping Complex

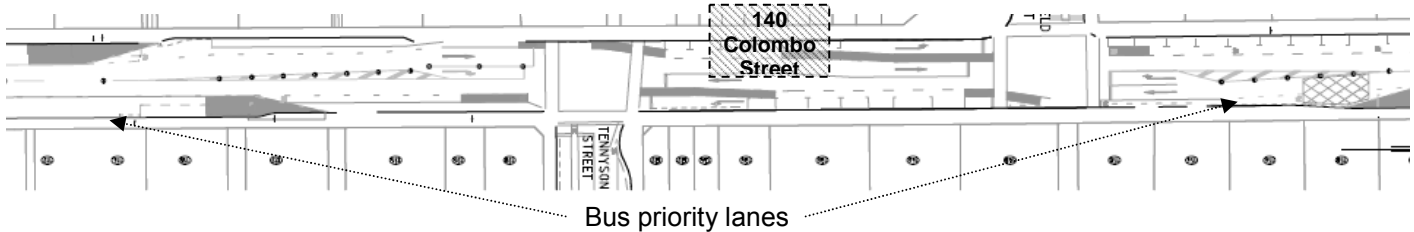
The current layout of 140 Colombo Street is shown in Figure 6 below.



Figure 6 Current Beckenham Shopping Complex

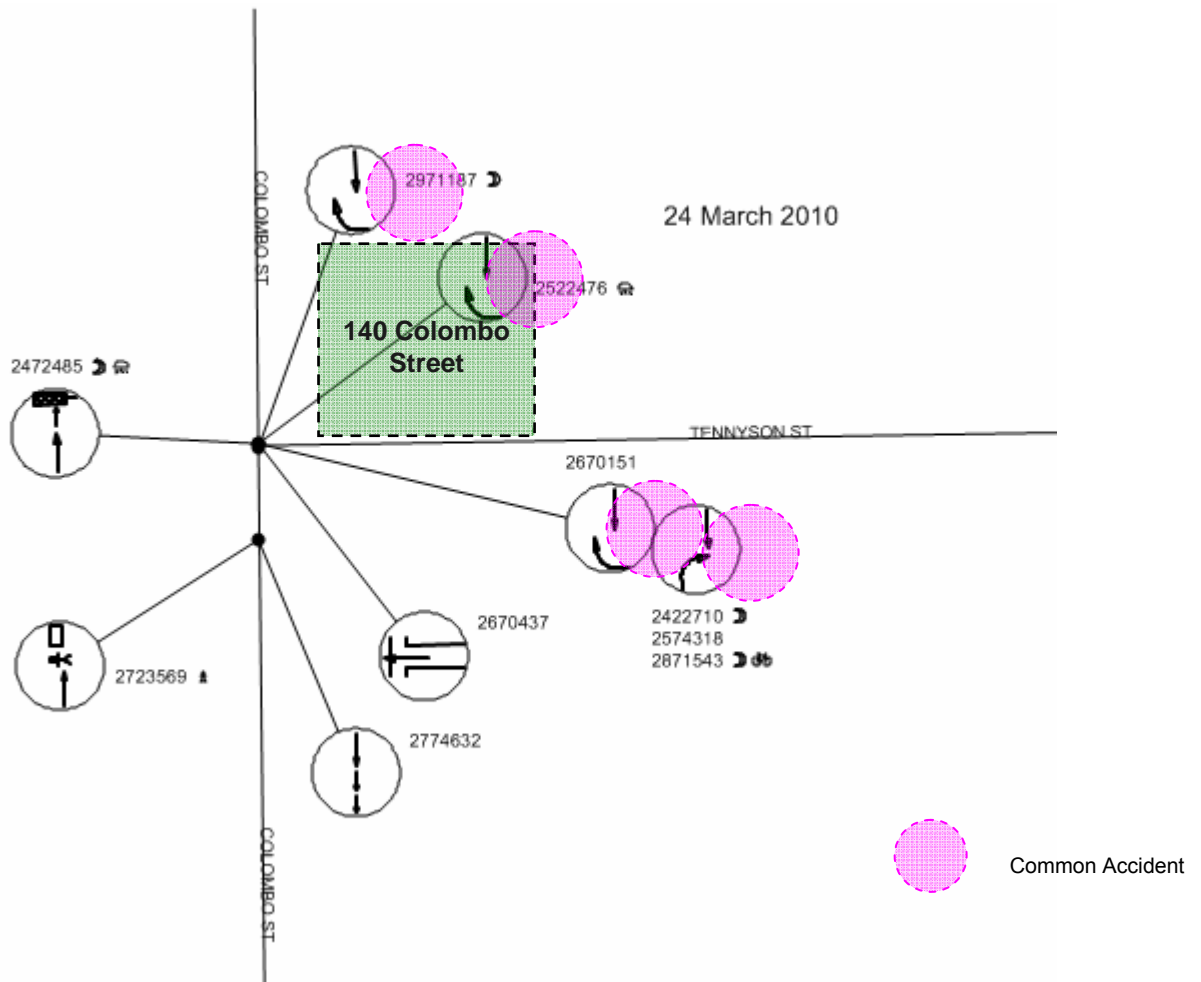
Bus Priority Route

A scheme plan for the bus priority at Colombo Street (South of Moorhouse Avenue) was released for consultation in October –December 2007. However, the detailed design for the Colombo Street South Bus Priority project was not completed until January 2010. With regard to the Beckenham Shopping Complex, the street layout adjoining Colombo Street frontage has largely remain unchanged. This is shown in Figure 7 below.



Accident Analysis

The accident data is based on the New Zealand Transport Agency CAS database. The crashes identified in this assessment are between the five years period of 2004 to 2009. The location, the type of crashes and accident record numbers are shown in Figure 8 below:



There were 11 crashes recorded in the area (details of the crashes are listed in Appendix 2). The location of the accidents are shown in Figure 8 above. There were no fatalities and serious injuries reported in the last 5 years. Three of the reported crashes caused minor injuries to the people involved. The injury accidents involved one pedestrian, one “moped” cyclist and the occupancies of a vehicle. In short, eight (72%) of the eleven accidents occurred at the signalised intersection, while two crashes took place around 20m South the intersection on Colombo Street and another around 20m North of the intersection.

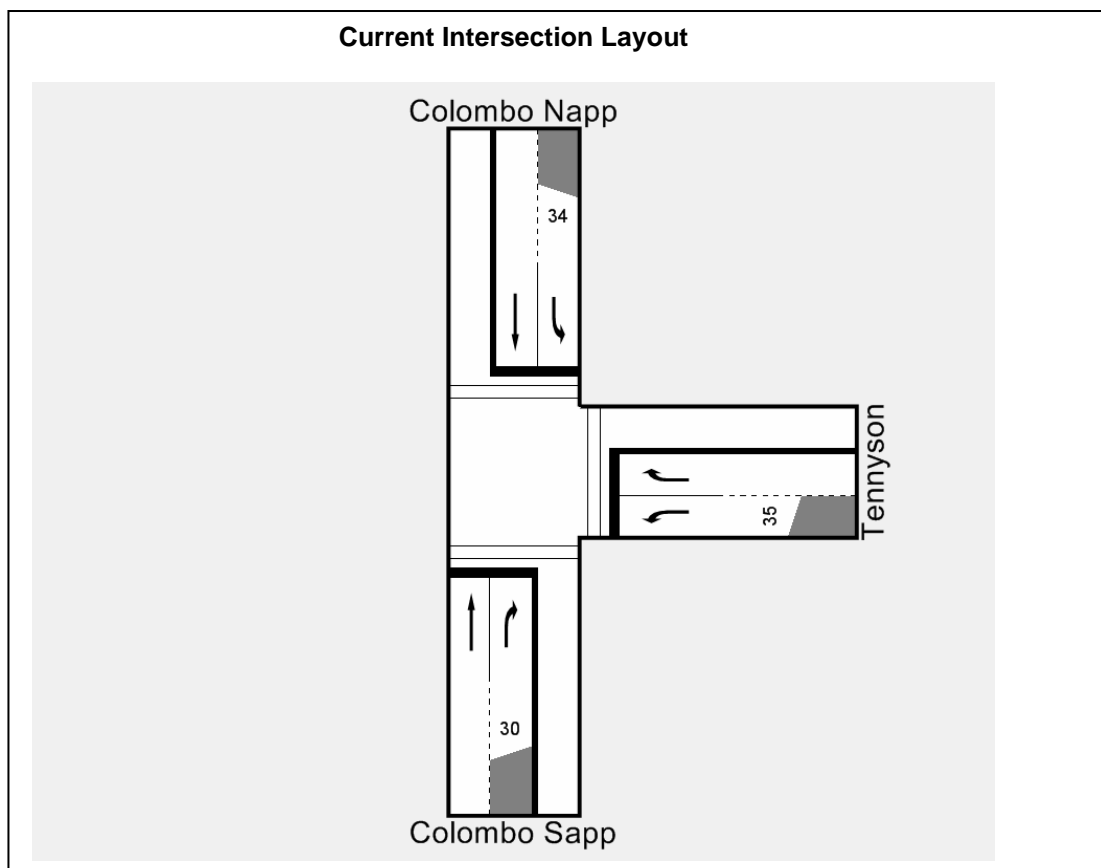
A common type of accidents (55% of the accidents) was caused by the southbound vehicles on Colombo Street crashing into the vehicles right-turning at the Tennyson Street approaches. All the six right turning crashes at the Tennyson Street approach onto Colombo Street were at fault for not giving way to the non-turning traffic on Colombo Street (i.e. vehicle did not stop for amber signal light).

In addition, on site observation has also noted a common conflict between vehicle and cyclist frequently occurs at the Colombo Street two-way crossing of the Beckenham Shopping Complex. This is due to the southbound cycle lane being located in between the left turn bay and the through lane. Southbound cyclists will need to negotiate with the left turners at the intersection and vehicles turning into the Beckenham Shopping Complex at the Colombo Street crossing. This interaction become frequent around the evening peak traffic hours when the southbound traffic (both vehicle and cyclist) increases, which can exacerbate into conflicts.

My on-site observation has identified at least one conflict when a cyclist approaching the T-intersection on the cycle lane who was impeded by a vehicle, also travelling southbound, left-turning into the crossing of the Beckenham Shopping Complex car park. The approaching cyclist was at the blind spot of the driver, due to the position of the vehicle being partially skewed when waiting for the traffic to move forward before turning into the vehicular crossing of the carpark.

Colombo Street and Tennyson Street Intersection

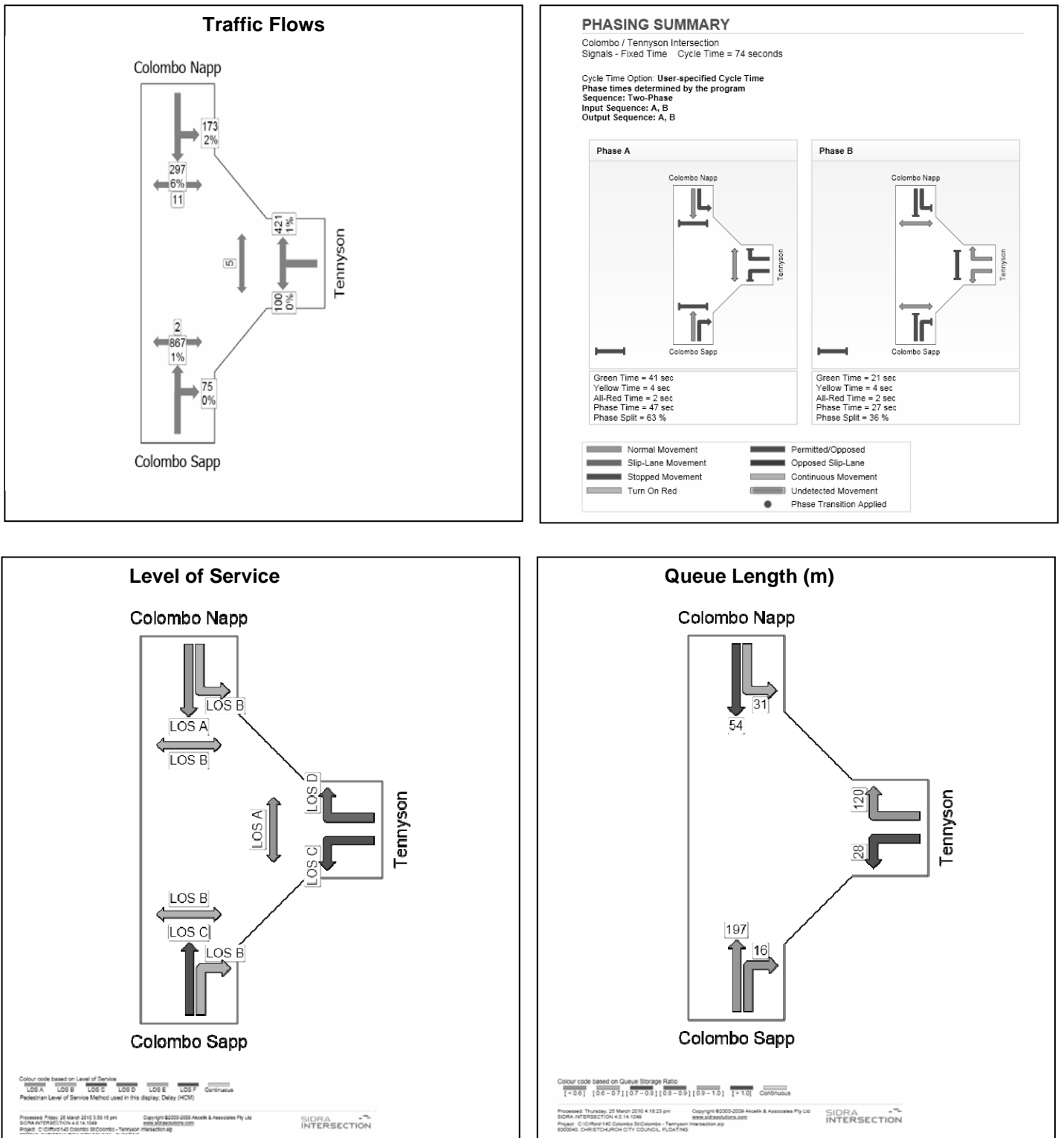
Sidra Intersection Modelling has been used to determine the existing level of service at this intersection. The intersection layout is shown in Figure 9 below:



The input data of the base model for this Colombo Street/Tennyson Street Signalised T- intersection is in accordance with the Christchurch City Council Intersection Count Data (15-3-2007).

The Evening Peak Traffic Environment

The morning peak² (8.30am to 9.30am) results for level of service (LOS) and queue lengths are shown in Figure 10 below.

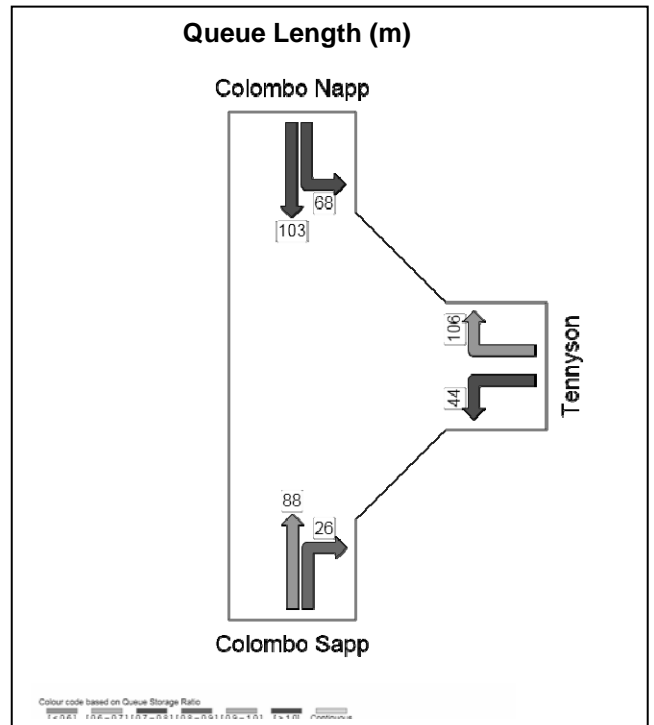
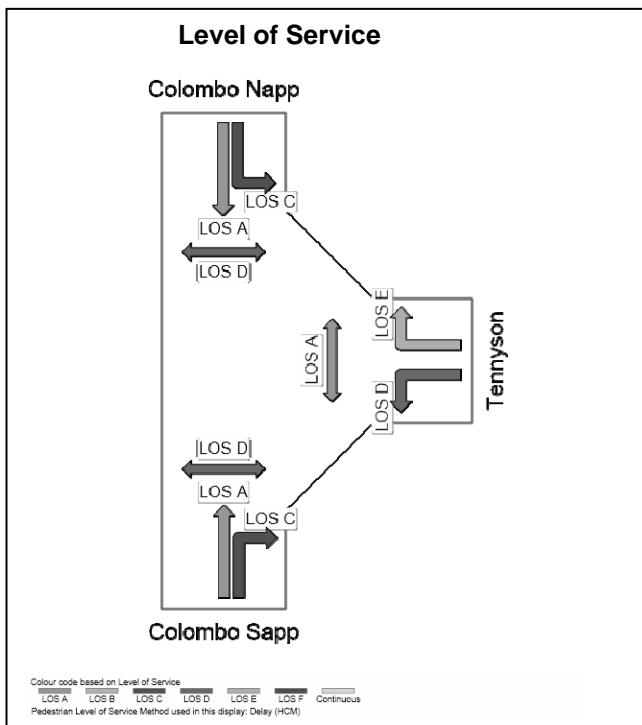
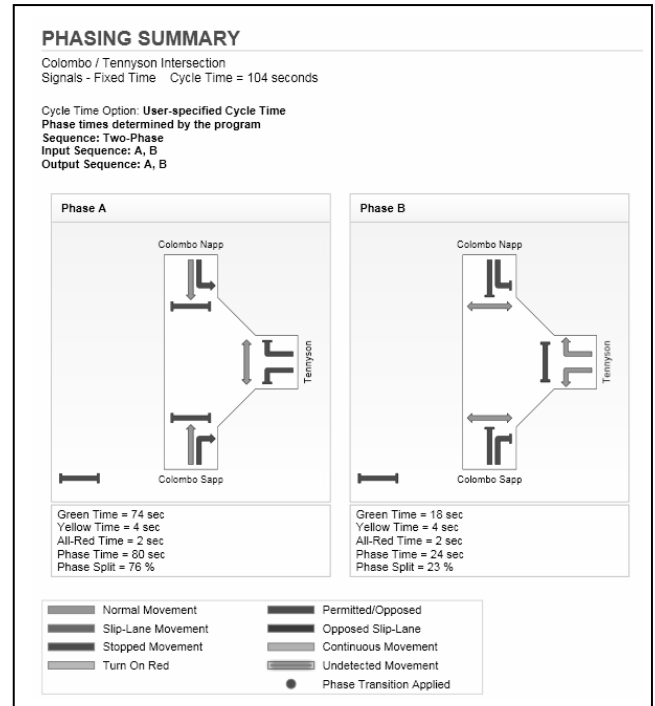
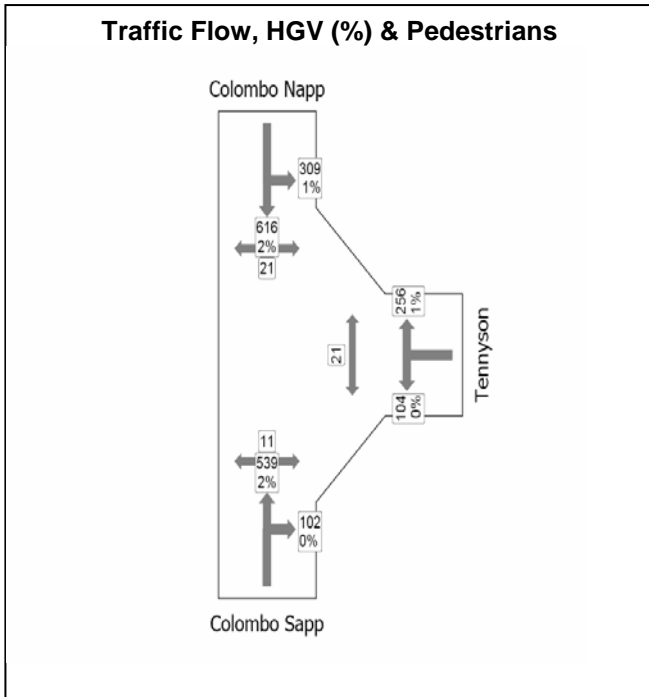


² Average signal cycle time = 75s (based on SCATS report between 7am to 9am).

The LOS for the right turners at the Tennyson Street approach is "D". That means the average delay for the vehicles at that approach is between 25 seconds to 35 seconds. When taking into account the accident analysis and the traffic volume of this right turn movement, in my view, the LOS "D" at this approach is likely to result in risk taking behaviour for the drivers when approaching the intersection as they do not want to wait for the next set of signals. Therefore, in my view, by relieving the vehicle turning demand of the Beckenham Shopping Complex at the Colombo Street crossing, it will mitigate the traffic demand on Colombo Street.

The Evening Peak Traffic Environment

The evening peak³ (4.30pm to 5.30pm) results for LOS and queue lengths are shown in Figure 11 below.



³ Average signal cycle time = 104s (based on SCATS report between 5pm to 6pm).

The pedestrians LOS is "D" at the Colombo Street crossing as they have 18 seconds green time, as supposed to Tennyson Crossing, which is 74 seconds green time to cross the road. Taking into account that the pedestrian demand on this intersection is not high, I do not consider this is an issue at the intersection.

The southbound vehicles on Colombo Street (North Approach) is heavily queued during the evening peak traffic hours with through movement anticipated at around 103m and left turning movement at around 68m in length. These anticipated queue lengths have exceeded the capacity on this section of Colombo Street, as the distance between the Tennyson/Colombo intersection and the Strickland/Colombo intersection is approximately 75m in length and the left-turn bay at the subject intersection is only 34m in length. However in terms of level of service (i.e. based on average delays), the traffic signals green time allows these vehicles to have a LOS between "A to C" (i.e. average delay per vehicle of around 10 seconds to 25 seconds) during the evening peak.

In terms of the right turning movement at the Tennyson Street approach, this movement has a LOS "E" (i.e. average delay per vehicle of around 35 seconds to 50 seconds) in the evening peak. However, when taking into account the traffic volume involved, this movement only carries around 256vph, which equates to around 8% of the traffic movements at the intersection during the evening peak hours. Therefore, in my view, only a relatively small portion of road users will be impacted by this extended delays.

If a two-way crossing is proposed at the Tennyson Street crossing, the potential delay for this right turning movement is likely to increase. However, taking into account the size of the Beckenham Shopping Complex car park (about 31 car parks), and the nature of the businesses (i.e. small scale retail and commercial premises), I do not consider the traffic generation of Beckenham Shopping Complex will exacerbate this right turning movement any further than what is currently experienced. However, due to the limited information on the use of the floor area at the shopping complex (as some stores are still vacant), the traffic generation and car parking demand of the site will need to be further assessed in a separate resource consent to determine the effects.

Summary

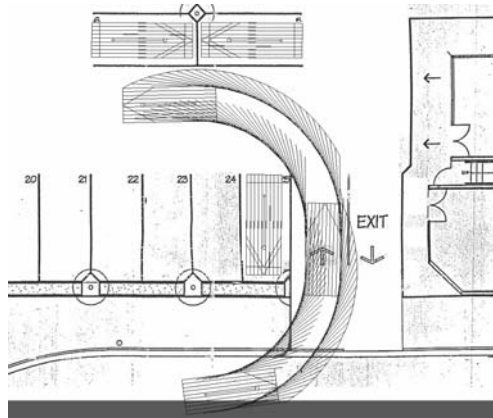
In summary, the traffic models analysis only concentrate on the traffic environment of the peak traffic hours (morning and evening). The inter-peak period (i.e. between 10am to 3pm) has not been modelled as it is not considered to be the worse case scenario and therefore I consider the lower traffic volume on the road will mitigate any adverse impact on Tennyson Street and Colombo Street.

The Colombo Street peak traffic environment (i.e. around 1600vph during the peak traffic hours) is complex, with various road users (private vehicles, public transports, commercial vehicles, pedestrians and cyclists) frequently interacting with each other on the road. During the peak traffic hours, this section of Colombo Street (i.e. between Tennyson Street and Strickland Street) is fully occupied. However, the traffic signals (controlled by SCATS) of these two intersections are coordinated in such a way that priority is given to the Colombo Street. As such, the traffic delays on this arterial road are maintain between LOS "A and B".

The Tennyson Street traffic environment is less complicated, owing to the lower traffic volume on the road (i.e. around 1000vph during the peak traffic hours). On the other hand, the overall level of service on this approach is generally lower (LOS "C" to "E") than the Colombo Street. In addition, to date, there is no bus priority lanes proposed along this street by the Council, which means that the traffic demand on this road will not be as high as the Colombo Street.

Tennyson Street Two-Way Access Option

I have conducted a swept-path analysis for the two-way access option at the Tennyson Street crossing and it is shown in Figure 12 below:



The swept-path manoeuvring diagram in Figure 12 shows that this turning movement is acceptable by the City Plan standard.

The proposed two-way access of the Tennyson Street crossing will have both positive and negative effects.

The positive effects include:

- The reduction in traffic volumes between the Tennyson Street and Strickland Street section of Colombo Street;
- The mitigation of road user conflicts at the Colombo Street crossing;
- The improvement of vehicle flows at the Colombo Street and Tennyson Street crossings and within the car parking area; and
- The reduction of vehicle obstruction for northbound traffic on Colombo Street.

The negative effects include:

- Traffic volumes on Tennyson Street will increase;
- The level of service at the Tennyson Street approach will be impacted further;
- The proposed two-way crossing will require the removal of two on-street parking spaces on the northern side of Tennyson Street to cater for a left-turn slip-lane for vehicles entering the Complex;
- The proposed design will increase City Plan non-compliance for 140 Colombo Street (i.e. on-site parking shortfall will increase by one, the wider two-way crossing will be closer to the T-intersection and the queuing space on the site will be exacerbated); and
- Additional vehicle conflicts may arise at the proposed two-way crossing.

Other Matters

In terms of the proposed flush median on Tennyson Street, I have discussed this issue with the traffic engineers at the Capital Program Group and in our opinion, without compromising on the cycle lanes, the current road space does not provide enough room for this design. As a general rule, traffic islands and medians are preferred options over painted medians close to intersections.

It is also relevant to note that vehicles right turning into the Beckenham Shopping Complex carpark on the proposed two-way access of Tennyson Street will be mainly affected by the green signal phasing of Tennyson Street approach. In this signal phase, the opposing movement that would conflict with the right-turners entering the carpark of Beckenham Shopping Complex from Tennyson Street crossing is the left-turning movement at the northern approach of the Colombo Street intersection. The left turning bay for this movement on the Colombo Street northern approach is only around 34m on length (which can potentially contains around 4 cars) and therefore this left turn movement will not carry high vehicle flow and impact on the gap time for the right-turning vehicle entering the carpark of the shopping complex. However, it is important to note that the signal phasing at the intersection will need to be further reviewed by the Transport and Greenspace Team (Networks Operations and Traffic Systems) of the Council for safer operation should the two-way crossing of the Shopping Complex be installed at the Tennyson Street frontage. Furthermore, I consider a left-turning deceleration lane alongside the Tennyson Street crossing will provide additional road space for the right turning vehicle entering the carpark to stay clear of the trafficable lane (i.e. eastbound through traffic).

Conclusion

While it is acknowledged the current layout is not ideal, it was the layout applied for by the applicant and is on balance a satisfactory layout. The primary concern being raised appears to be related to the absence of an entry off Tennyson Street and that vehicles are entering site from Tennyson Street therefore creating safety issues. Entry from Tennyson Street was never anticipated and this could be made clearer with additional signage.

Having said that, it is my view that a two-way crossing at the Tennyson Street frontage will improve the overall road environment for both Colombo Street and the carpark function inside the complex.

Report prepared by

Clifford Chai
Traffic Planner

Appendix 1 CAS Report



First Street	Distance (R)	Second street or landmark	Crash Number	Date	Day Time	Description of Events	Crash Factors	Road	Weather	Junction	Ctrl	Tot Inj F S M A E I T R M
COLOMBO ST		208 TENNYSON ST	2873001	26/08/2009	Wed 0840	CAR1 WED on COLOMBO ST hit Parked Vehicle while manoeuvring	CAR1 misjudged speed of own vehicle	Dry	Bright	Unknown	M/A	
COLOMBO ST		208 TENNYSON ST	2723569	26/11/2007	Mon 1716	CAR1 WED on COLOMBO ST hit PEDESTRIAN2 (Males) and vehicle. CAR1 hit Parked Vehicle, PEDESTRIAN2 hit Parked Vehicle.	CAR1 too far left/right, fatigue (drowsy, tired, fell asleep)	Dry	Bright	Unknown	M/A	1
COLOMBO ST		208 TENNYSON ST	2774632	17/12/2007	Mon 1330	CAR1 SED on COLOMBO ST hit rear end of VAN2 stop/slow for queue	CAR1 following too closely VAN2 suddenly braked	Dry	Bright	Unknown	M/A	
COLOMBO ST		I TENNYSON ST	2670151	28/01/2006	Sat 1004	VAN1 SED on COLOMBO ST hit CAR2 turning right onto COLOMBO ST from the left	VAN1 did not stop at steady red light	Dry	Overcast	Fine	T Junction	Traffic Signal
COLOMBO ST		I TENNYSON ST	2574518	26/09/2005	Mon 0840	CAR2 turning right hit by oncoming CAR1 SED on COLOMBO ST	CAR2 failed to give way when turning to non-turning traffic, didn't see/look when required to give way to traffic from another direction	Dry	Overcast	Fine	T Junction	Traffic Signal
COLOMBO ST		I TENNYSON ST	2472485	07/08/2004	Sat 0100	CAR1 WED on COLOMBO ST hit rear end of CAR2 stop/slow for signals	CAR1 failed to notice car slowing	Wet	Dark	Heavy Rain	T Junction	Traffic Signal
COLOMBO ST		I TENNYSON ST	2422710	17/09/2004	Fri 1840	MOPED2 turning right hit by oncoming CAR1 SED on COLOMBO ST	MOPED2 failed to give way when turning to non-turning traffic, didn't see/look when required to give way to traffic from another direction	Dry	Dark	Fine	T Junction	Traffic Signal
COLOMBO ST		I TENNYSON ST	2670437	27/02/2006	Mon 1928	CAR1 WED on TENNYSON ST missed inverts or end of road, CAR1 hit House Or Bldg	CAR1 illness with no warning (eg heart attack)	Dry	Bright	Fine	T Junction	Traffic Signal
COLOMBO ST		I TENNYSON ST	2871543	14/05/2008	Wed 1840	CAR2 turning right hit by oncoming CYCLIST1 SED on COLOMBO ST	CAR2 failed to give way when turning to non-turning traffic, didn't see/look when required to give way to traffic from another direction	Dry	Dark	Fine	T Junction	Traffic Signal
COLOMBO ST		I TENNYSON ST	2871187	22/04/2009	Wed 1910	CAR1 SED on COLOMBO ST hit CAR2 turning right onto COLOMBO ST from the left	CAR1 did not stop at steady red light, failed to notice traffic lights	Dry	Dark	Fine	T Junction	Traffic Signal
TENNYSON ST		I COLOMBO ST	2522476	10/08/2005	Wed 0745	CAR1 SED on COLOMBO ST hit CAR2 turning right onto COLOMBO ST from the left	CAR2 did not stop at steady amber light	Wet	Bright	Fine	T Junction	Traffic Signal