

8. AVONDALE ROAD/BASSETT STREET/NEW BRIGHTON ROAD - INTERSECTION IMPROVEMENTS



General Manager responsible:	General Manager City Environment, DDI 941-8608
Officer responsible:	Unit Manager Transport and Greenspace
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PURPOSE OF REPORT

1. The purpose of this report is to seek the recommendation of the Burwood/Pegasus Community Board to the Council for the approval of the Avondale Road/Bassett Street/New Brighton Road intersection improvements project, as shown in **Attachment 1**.

EXECUTIVE SUMMARY

2. This intersection improvement is included in the 2010/11 LTCCP Annual Plan to address traffic congestion delays and safety issues at this intersection. New Brighton Road is classed as a Minor Arterial and Avondale Road and Bassett Street are classed as Collectors. The surrounding area is residential with the Burwood School on New Brighton Road half a block west of the intersection. The project is located in the Burwood/Pegasus Ward.
3. The objectives for the project are to improve road safety and reduce traffic congestion at this intersection for all road users and assist bus priority. Over the past five years there were a total of 12 accidents from January 2005 to December 2009, seven of which resulted in personal injury.
 - (a) Six accidents including one serious and two minor injuries, involved failures to give way by vehicles. The serious injury accident (2009) occurred when a moped on New Brighton Road hit a car turning right into New Brighton Road from the Avondale Road.
 - (b) Drivers' illness caused two accidents, including one minor injury.
 - (c) Excess alcohol consumption was considered a contributory factor in seven non injury crashes.
4. There are a number of bus routes that pass through the intersection. These include:
 - (a) The number 83 Hei Hei to Burwood (Bassett Street to New Brighton Road west and vice versa at 15 minute intervals during morning peak times).
 - (b) The number 70 on New Brighton Road at five minute intervals during morning and afternoon peak time periods.
 - (c) The Metrostar, Halswell to New Brighton (Bassett Street to New Brighton Road west and vice versa at 15 minute intervals).

Bus priority measures have been implemented along New Brighton Road, and the scheme in existence includes a bus lane terminating to the west of the intersection. It is also noted that previous discussions have examined the possibility of upgrading the intersection to signals in order to accommodate bus priority measures.

5. Three options were considered for the intersection. The Project Team after site investigation and consideration of feasible options recommends that the existing roundabout be removed and the intersection be signalised as shown in attachment one (option 2).

FINANCIAL IMPLICATIONS

6. Funding for the proposed Avondale/Bassett/New Brighton Road intersection improvement works is provided in the 2009-19 LTCCP Road Safety at Schools programme.

2010/11 \$332,000 including carry-forward from 2009-10

Application will be made for NZTA co-funding for the components of this project that qualify. The budget in the LTCCP does not cover the current estimated costs for the project. The shortfall in funding will be managed within the Streets & Transport Capital Programme.

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

7. Yes. Funding is provided from the Streets and Transport Capital Programme in the 2009-19 LTCCP (refer page 247).

LEGAL CONSIDERATIONS

8. Part 1, Clause 5 of the Christchurch City Council Traffic and Parking Bylaw 2008 provides the Council with the authority to install parking restrictions by resolution.
9. The Community Boards have delegated authority from the Council to exercise the delegations as set out in the Register of Delegations dated 13 December 2007. The list of delegations for the Community Boards includes the resolution of parking restrictions and the installation of traffic islands, roundabouts and traffic restraints on roads.
10. The installation of any parking restriction signs and/or markings must comply with the Land Transport Rule: Traffic Control Devices 2004.
11. There is no land ownership issues associated with this project, which is within existing land boundaries. No resource consents are required.

ALIGNMENT WITH LTCCP AND ACTIVITY MANAGEMENT PLANS

12. Funding for the proposed Avondale/Bassett/New Brighton Road intersection improvement works Project is programmed in the 2009–19 LTCCP Road Safety at Schools (Page 247).
13. Funding for this project is provided within the Transport and Greenspace Unit's Capital Programme as outlined above.

ALIGNMENT WITH STRATEGIES

14. This project is consistent with key Council strategies including the Parking Strategy, Road Safety Strategy and Pedestrian Strategy.

CONSULTATION FULFILMENT

15. A seminar was held with the Burwood/Pegasus Community Board on 2 June 2010 advising of the project consultation programme.
16. Information leaflets were distributed on 6 July 2010 to directly affected residents and property owners in the area of the Avondale/Bassett/New Brighton intersection and other stakeholders. Six responses were received.
17. The key issues raised were:
 - (a) How long is it going to take to build?
 - (b) Are delays going to increase for traffic turning left out of Avondale Street at peak time?
 - (c) Will drivers' sight distances be reduced by landscaping at the intersection?
18. Each submission was acknowledged by email or letter, any questions answered, submitters advised of the feedback received and the project team's response; and when the Burwood/Pegasus Community Board would be meeting to consider the project for recommendation to the Council. Copies of this information have been made available separately to Board members.

19. As a result of the ongoing design process and public consultation a small number of changes have been made to the consultation plan. These include:
- (a) The addition of advanced cycle stop boxes with lead in lanes on each approach.
 - (b) The addition of 10 metre long exit lanes for cyclists.
 - (c) An amendment to the kerb radii on the south west corner of the intersection.
 - (d) A change to the landscaping arrangements on the north west corner of the intersection.

STAFF RECOMMENDATION

It is recommended that the Burwood/Pegasus Community Board recommend to the Council that it approve:

- (a) The proposed plan for the Avondale/Bassett/New Brighton Road intersection improvement works (TP 323001 Issue 2) as shown in Attachment 1; and
- (b) The following parking restrictions:

REVOCATIONS

No Stopping

- (i) That the existing no stopping restrictions on the north side of New Brighton Road commencing at its intersection with Bassett Street and extending in an easterly direction for 54 metres, be revoked.
- (ii) That the existing no stopping restrictions on the south side of New Brighton Road commencing at its intersection with Avondale Road and extending in an easterly direction for 202 metres, be revoked.
- (iii) That the existing no stopping restrictions on the south side of New Brighton Road commencing at its intersection with Avondale Road and extending in a westerly direction for 103 metres, be revoked.
- (iv) That the existing no stopping restrictions on the north side of New Brighton Road commencing at its intersection with Bassett Street and extending in a westerly direction for 71 metres be revoked.

Give Way

- (i) That the existing Give Way control placed against New Brighton Road on the western approach to its intersection with Bassett Street, be revoked.
- (ii) That the existing Give Way control placed against New Brighton Road on the eastern approach to its intersection with Avondale Road, be revoked.
- (iii) That the existing Give Way control placed against Bassett Street on the northern approach to its intersection with New Brighton Road, be revoked.
- (iv) That the existing Give Way control placed against Avondale Road on the southern approach to its intersection with New Brighton Road, be revoked.

Roundabout

- (i) That the roundabout at the intersection of Bassett Street, New Brighton Road and Avondale Road, be removed.

Bus Stop

- (i) That the existing bus stop located on the east side of Bassett Street at a point 62 metres north of its intersection with New Brighton Road, be revoked.

RESOLUTIONS

New No Stopping

- (i) That the stopping of vehicles be prohibited at any time on the west side of Bassett Street commencing at its intersection with New Brighton Road and extending in a northerly direction for a distance of 41 metres.
- (ii) That the stopping of vehicles be prohibited at any time on the east side of Bassett Street commencing at its intersection with New Brighton Road and extending in a northerly direction for a distance of 62 metres.
- (iii) That the stopping of vehicles be prohibited at any time on the east side of Bassett Street commencing at a point 76 metres north of its intersection with New Brighton Road and extending in a northerly direction for a distance of 32 metres.
- (iv) That the stopping of vehicles be prohibited at any time on the north side of New Brighton Road commencing at its intersection with Bassett Street and extending in an easterly direction for a distance of 69 metres.
- (v) That the stopping of vehicles be prohibited at any time on the south side of New Brighton Road commencing at its intersection with Avondale Road and extending in an easterly direction for a distance of 202 metres.
- (vi) That the stopping of vehicles be prohibited at any time on the east side of Avondale Road commencing at its intersection with New Brighton Road and extending in a southerly direction for a distance of 76 metres.
- (vii) That the stopping of vehicles be prohibited at any time on the west side of Avondale Road commencing at its intersection with New Brighton Road and extending in a southerly direction for a distance of 64 metres.
- (viii) That the stopping of vehicles be prohibited at any time on the south side of New Brighton Road commencing at its intersection with Avondale Road and extending in a westerly direction for a distance of 103 metres.
- (ix) That the stopping of vehicles be prohibited at any time on the north side of New Brighton Road commencing at its intersection with Bassett Street and extending in a westerly direction for a distance of 71 metres.

New Signalised Intersection

That the intersection of Avondale Road, New Brighton Road and Bassett Street be controlled by traffic signals.

New Bus Stop

That a bus stop be installed on the east side of Bassett Street commencing at a point 62 metres north from its intersection with New Brighton Road and extending in a northerly direction for a distance of 14 metres.

BACKGROUND (THE ISSUES)

21. Recent changes to the road network affecting this project involve the intersection of Travis Road/Queen Elizabeth II Drive/Burwood Road, located to the north of New Brighton Road/Avondale Road/Bassett Street intersection, which has recently been upgraded to form a signalised intersection, relieving a considerable degree of congestion along Travis Road/Queen Elizabeth II Drive. It is considered that this congestion relief along Travis Road/Queen Elizabeth II Drive could have diverted traffic away from New Brighton Road, and as such revised traffic counts were undertaken in May 2010.
22. Results from the traffic counts taken in May 2010 are shown in the chart below:

Queue length survey results		
Approaches	95% Queue Length (vehicles.)	
	Morning Peak	Evening Peak
Bassett Street (N)	15	5
Avondale Road (S)	10	12
New Brighton (E)	22	11
New Brighton (W)	8	27

23. Reported crashes within 50 metres of the intersection were retrieved from the New Zealand Transport Agency Crash Analysis System (CAS) data base for the five years period from 2005 to 2009. In total, there were 12 accidents during the period of 2005 to the end of 2009, seven of which resulted in personal injury.
- (a) Six accidents including one serious and two minor injuries involved failures to give way by vehicles. The serious injury accident (2009) occurred when a moped on New Brighton Road hit a car turning right onto New Brighton Road from Avondale Road.
 - (b) Driver illness caused two accidents, including one minor injury.
 - (c) Excess alcohol consumption was considered as contributory factor for seven non injury crashes.
24. On site observations indicated that a significant number of pedestrians do use the intersection as do considerable numbers of cyclists, who often chose to dismount and use the pedestrian facilities, rather than risk using the intersection. It was also noted that a considerable proportion of the cyclists and pedestrians were children.
25. There are a number of bus routes that pass through the intersection. These include (as at 27 May 2010):
- (a) The number 83 Hei Hei to Burwood (Bassett Street to New Brighton Road west and vice versa at 15 minute intervals during morning peak times).
 - (b) The number 70 on New Brighton Road at five minute intervals during morning and afternoon peak time periods.
 - (c) The Metrostar, Halswell to New Brighton (Bassett Street to New Brighton Road west and vice versa at 15 minute intervals).
26. Bus priority measures have been investigated along New Brighton Road, and a scheme has been considered which includes a bus lane terminating to the west of the intersection. It is also noted that previous discussions have examined the possibility of upgrading the intersection to signals in order to accommodate bus priority measures.

THE OBJECTIVES

27. The objectives determined for this project are:
- (i) To meet the budget.
 - (ii) That there is no land acquisition due to budget limitations.
 - (iii) To reduce congestion and traffic delays in conjunction with assisting bus priority.
 - (iv) To improve intersection safety for all road users.

THE OPTIONS

28. Three options for the intersection have been considered. Option 2 has been selected as the preferred option.
29. **Option 1** involves making some major changes on the roundabout set up, increasing the number of lanes entering the roundabout on two of the four approaches. The size of the roundabout will also be changed, with two circulatory lanes being provided. The requirement for two circulatory lanes around the roundabout requires reconsideration of the layout. There does appear to be some scope to reduce the size of the central island to accommodate the two lanes, however when doing so swept path assessment indicate that a larger vehicle (such as a bus) could not traverse the roundabout at the same time as a car. Therefore it would also be necessary to increase the general size of the roundabout, requiring additional land.
30. Analysis of this intersection design was undertaken to determine the amount of future traffic growth which could be accommodated by the roundabout. Assessments indicated that the intersection could operate within capacity for a minimum of seven years, assuming a two percent per annum traffic growth rate. Beyond these time periods, it is not anticipated that the intersection would operate satisfactorily. This would give no allowance for bus priority.
31. It is considered that although measures could be installed to prioritise bus movements through the intersection along New Brighton Road, these would adversely impact the capacity of the intersection for other users, causing increases in overall delays at the intersection and impacting on other bus services. Furthermore, it should be noted that the scheme does not provide any improvements for either cyclists or pedestrians. Additionally the only improvements which would enhance provision for buses would be the reduction in queues that would occur at the roundabout.
32. Option 1 is not the preferred option due to the fact that additional land take would be required in order to construct the scheme. Furthermore the roundabout does not provide any facilities for cyclists and pedestrians, and could potentially worsen conditions for cyclists, as it is often perceived by cyclists that multiple lane roundabouts are unsafe. Furthermore, the widening of some approaches is likely to increase crossing distances for pedestrians, again worsening safety conditions. Additionally, although it is possible to provide bus priority measures at the intersection these would adversely impact upon other users of the intersection.
33. **Option 2** involves signalling the intersection as shown in **attachment 1**. This option will:
- (i) Signalise the intersection while providing an additional 50 metre long lane to accommodate right turning vehicles on the north arm, a 30 metre long right turn lane on the east arm, and a 40 metre long right turn lane on the west arm. Each approach lane will be three metres wide, except the lane on the south approach, which will remain at 4.5 metres and a lane on the west approach which will be provided at four metres to accommodate left turning buses.
 - (ii) Channelling lanes are provided along New Brighton Road, leading up to the intersection, and advanced cycle stop boxes are proposed for each approach. Ten metre long cycle lanes are provided on all approaches to facilitate access to the advance cycle stop boxes.

- (iii) A pedestrian crossing is provided at each arm of the intersection. The signals will permit the inclusion of bus priority measures at the intersection in the future, with the possibility that signals could be set up to accommodate a call system for buses.
 - (iv) The signalised intersection will operate using four phases during the morning peak, with right turning signals for the north and west approaches. During the afternoon peak the intersection operates using three phases, with a right turn signal for movements from the west approach.
 - (v) The signals can operate within capacity operating either with early start right turn movements, or lag right turn movements.
 - (vi) An extension to the no stopping restrictions at the intersection will be required to accommodate the additional lanes.
34. Option 2 is selected as the preferred option as it meets all the aims and objectives, reducing congestion and improving safety, while still allowing the possibility of providing for future bus priority measures through the intersection.
35. **Option 3** involves making minor changes to the roundabout, increasing the number of lanes entering the roundabout on three of the four approaches. However, the size of the roundabout will not be changed, with only a single circulatory lanes being provided, meaning that the additional width provided on approaches is to accommodate left turning vehicles alone. It should be noted that in order to accommodate even the limited additional width required it is likely that a portion of additional land from adjacent properties may be required, while geometric design standards could be compromised. However, it should be noted that the scheme does not provide any improvements for either cyclists or pedestrians. Additionally the only improvements which would enhance provision for buses would be the reduction in queues that would occur at the roundabout. The intersection could operate within capacity for a minimum of two years, assuming a two percent per annum traffic growth rate.
36. Option 3 is not the preferred option as it can only provide benefits when compared to the existing situation on a short term basis before further improvements are required. The option also does not provide any improvements cyclists and pedestrians, particularly as the widening of some approaches is likely to increase crossing distances for pedestrians. Although it would be possible to enact bus priority measures on the New Brighton Road through the intersection, these would adversely impact on queues and delays on other approaches.

THE PREFERRED OPTION

37. Option two, the preferred option, will improve road safety and achieve traffic flow efficiencies at this intersection for all road users and particularly for cyclists, pedestrians and school children.