

#### 4. BREENS/GARDINERS/HAREWOOD INTERSECTION - SAFETY IMPROVEMENT PROJECT

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##### PURPOSE OF REPORT

1. The purpose of this report is to update the Fendalton/Waimairi Community Board on the Breens/Gardiners/Harewood Intersection project. This project was initiated by a survey done at Breens Intermediate School as part of a cycle bubble project.

##### EXECUTIVE SUMMARY

2. The principal aim of the Bubble Cycle project is to investigate, and where possible, implement improvements to road safety for school children cycling to and from school. The Breens/Harewood/Gardiners intersection was the area identified by most student cyclists as intimidating.
3. Residents at this intersection have also expressed concern over its safety and requested that it be signalised.
4. The Community Board was advised through a seminar in August 2005 of the Project Team's intention to carry out an initial issues identification survey. This survey would allow the project team to identify all practicable options for assessment and to consider the needs and concerns of all stakeholders and users of the intersection before a recommendation is made.
5. An initial issues consultation survey was sent to the residents around the intersection in August 2005. The survey requested residents highlight key issues on each street at the intersection. (A summary of consultation feedback can be found in Attachment 1.)
6. Safety at the intersection was identified as a key issue by residents along all three streets. Traffic volume and traffic speed were identified as key issues for Breens Road and Harewood Road. Pedestrian safety in terms of road crossing was identified as a key issue for Harewood Road.
7. The project team took this feedback into consideration when preparing options for the intersection. Options investigated included differences in lane configuration, relocation of the existing pedestrian islands and traffic signals. The only option that would enhance pedestrian and cycle safety however would be signalisation of the intersection.
8. The Benefit to Cost Ratio (BCR) for signalisation is 3.8. An application for Land Transport New Zealand (LTNZ) funding would therefore be appropriate for this project. It is important to note however that the First Year Rate of Return (FYRR) for the project is -20%, which means that any benefits associated with the project in the 2007/2008 financial year are outweighed by the project costs. The FYRR does not become positive until the 2011/2012 financial year. This may result in LTNZ placing a lower priority on funding for this project.
9. Investigations into network issues and funding sources associated with the options continue. A report to the Board will be forwarded later this year.

##### FINANCIAL AND LEGAL CONSIDERATIONS

10. The estimated total cost for this project is \$ 422,000, inclusive of all consultation, design, and project management. The 2006/07 Capital Programme budget is \$102,000.

##### STAFF RECOMMENDATION

It is recommended that the Board receive this report for information only.

## BACKGROUND ON BREENS/GARDINERS/HAREWOOD INTERSECTION PROJECT

11. The principal aim of the Bubble Cycle project is to investigate, and where possible, implement improvements to road safety for school children cycling to and from school. Results from the Breens Intermediate Cycle Bubble survey have identified several areas that student cyclists find intimidating, the Breens/Harewood/Gardiners intersection was the most common area identified. One hundred and sixty-seven (out of 200) surveys were completed, 92 students indicated that they cycle to school and another 22 indicated that if they could choose to cycle to school they would.
12. Over the years, residents at this intersection have also expressed concern over its safety and requested that it be signalised.
13. Harewood Road is a major arterial route, Gardiners Road is a minor arterial and Breens Road a collector. At present, signalisation of the Breens/Harewood/Gardiners intersection ranks very low compared to other City projects. The Benefit to Cost Ratio (BCR) for signalisation is 3.8. An application for Land Transport New Zealand (LTNZ) funding would therefore be appropriate for this project. It is important to note however that the First Year Rate of Return (FYRR) for the project is -20%, which means that any benefits associated with the project in the 2007/2008 financial year are outweighed by the project costs. The FYRR does not become positive until the 2011/2012 financial year. This may result in LTNZ placing a lower priority on funding for this project.
14. The Land Transport New Zealand Crash Analysis System shows there have been a total of nine reported accidents in the five year period between 2000 and 2004 within a 50m radius of the Breens/Gardiners/Harewood intersection. Five of these crashes occurred in 2000 and 2001. None of the crashes involved cyclists or pedestrians.
15. Three crashes resulted in minor injuries while the other six crashes were non-injury. Five of the crashes involved vehicles crossing Harewood Road and colliding with through traffic on Harewood Road. Four of these five crashes involved vehicles crossing from Gardiners Road to Breens Road.
16. The other four crashes were dissimilar in nature ranging from collisions involving turning vehicles at the intersection, to a collision with a parked car and losing control on a straight section of road.
17. A report completed by Beca Carter Hollings & Ferner Ltd in September 2002 for Christchurch City Council indicated that 14 crashes had been observed within 50m of the intersection between 1997 and 2001. This suggests that the observed crash rate at the intersection has decreased significantly since 2002. Given that no improvement works have occurred in this period, it is likely that all road users including cyclists and pedestrians have become more watchful when entering the intersection in response to the risk they perceive with the intersection.
18. Based on the previous knowledge of residents' issues held by Council Officers and the Board, the Team suggested to the Community Board that other options could be further identified and investigated. An initial issues identification questionnaire was delivered to the Breens Intermediate School and the community immediately around the intersection requesting general information on the intersection and area around it.
19. The principal aim of the project is to improve the pedestrian and cycle safety through the Breens Road/Harewood Road/Gardiners Road intersection.

The objectives for the project are as follows:

- Improve safety for pedestrians and cyclists
- Decrease vehicle speeds
- Create an environment which encourages drivers to comply with the stop signs at Breens and Gardiners roads
- Minimise congestion associated with children being dropped off and picked up from school

## CONSULTATION

20. The Community Board was advised through a seminar in August 2005 of the Project Team's intention to carry out an initial issues identification survey. This survey would allow the project team to identify all practicable options for assessment and to consider the needs and concerns of all stakeholders and users of the intersection before a recommendation is made.
21. Thirty responses were received from residents around the intersection during the initial issues consultation (refer to Attachment 1 for summary of feedback). Safety at the intersection was identified as a key issue by residents along all three streets. Traffic volume and traffic speed were identified as key issues for Breens Road and Harewood Road. Pedestrian safety in terms of road crossing was identified as a key issue for Harewood Road.
22. The majority of respondents suggested that the intersection needed to have some form of traffic control (roundabout or traffic lights) to control vehicle turning into and out of Breens Road and Gardiners Road from Harewood Road and to control speeding on Harewood Road. Most respondents noted that road rules were not adhered to by many drivers when negotiating this intersection.
23. Other issues highlighted were pedestrian and cyclist safety issues with regards to crossing Harewood Road and the perceived number of accidents and "near-misses". One resident expressed concern regarding the safety of their property and pedestrians in the vicinity following an accident some years ago that destroyed the front fence. The resident requested that bollards be installed. Bollards are required to be frangible in the road environment (i.e. collapse on impact) therefore this solution would not provide the protection intended. Bollards are sometimes installed in locations where the aim is to deter traffic taking short cuts through pedestrian areas, not where the concern is accident related (accidents are unpredictable events).
24. Respondents were informed that feedback received would result in further consultation depending upon options proposed by the project team.

## OPTIONS

25. Four options were assessed as part of the Breen-Gardiners- Harewood Intersection project. A roundabout was not considered suitable for this location as it would be required to be a very large radius and multilane, this would not enhance cyclist and pedestrian safety and may in fact worsen the situation.
  - (a) **Option 1:** Maintenance of the status quo.  
  
Retention of the existing uncontrolled intersection.
  - (b) **Option 2:** Reduction of through lanes on Harewood Road from two to one.
26. This option reduces the number of through lanes from two to one on Harewood Road, through the painting of chevron marking alongside the median island to increase the width of non-trafficable area. It is also proposed to have chevron marking installed between the right turn lane and through lane to increase the storage area provided in the centre of the intersection.
27. It is also proposed to relocate the existing pedestrian refuges closer to the intersection and to mark cycle lanes on Harewood Road. It is proposed to reduce the kerb radii on the southeast and to place no stopping lines around all quadrants of the intersection.
  - (c) **Option 3:** The installation of kerb build outs and reduction in kerb radii at the intersection.
28. This option involves the installation of kerb build-out and a reduction in kerb radii at the intersection. The two through lanes and a right turn lane on Harewood Road will be retained. It is proposed to widen the existing central median island adjacent the right turn lanes onto Harewood Road to allow the pedestrian island to be relocated closer to the intersection. Cycles lanes will be marked on the approach and departure of the intersection on Harewood Road.

(d) **Option 4:** Installation of traffic signals at the intersection.

29. This option retains two through lanes and right turn lanes on Harewood Road and with road widening could also provide for a separate left turn lanes. The Breens Road and Gardiners Road approaches will be modified to provide an exclusive and opposing right turn lane and a shared through and left turning lane. The pedestrian island on both Breens and Gardiners Roads would need to be removed.
30. The central median island adjacent to the right turn lanes will have to be widened to accommodate the traffic signal poles, while the central median away from the intersection will be reduced in width to accommodate the additional traffic lane and cycle lane.
31. Kerb build-outs and reduced kerb radii will be provided on all quadrants of the intersection. It is proposed to mark cycle lanes on all approaches to the intersection. No stopping will be marked around all quadrants of the intersection and outside the kerb build-outs.

#### **ASSESSMENT OF OPTIONS**

32. Option 1- The option to maintain the status quo essentially means to do no capital works at this intersection. This would retain the road environment in its existing condition. However this option continues to be considered as a solution if the alternative options can not meet the project objectives and budget.
33. Option 2 does not meet all of the project objectives. Although it increases the safety for pedestrians and cyclists and decreases vehicles speeds, this option does not increase compliance with Stop controls on Breens Road and Gardiner Road. It also does not minimise congestion associated with school drop offs and picks up.
34. Option 3 does not meet all of the project objectives. Although it increases the safety for pedestrians and cyclists, decreases vehicles speeds and minimises congestion associated with school drop offs and picks up, this option does not increase compliance with Stop controls on Breens Road and Gardiner Road.
35. Option 4 has the potential to improve the safety of pedestrians and cyclists more than option 3 would but also has the potential to create problems with turning vehicles conflicting with parallel crossing pedestrians. The signalisation would cost approximately \$422,000 against a cycleway budget of \$102,000. The option may also delay through traffic on Harewood Road, the effect of this on the surrounding network is being quantified. On street parking will be reduced and noise in the vicinity increased due to acceleration and deceleration movements.
36. Investigations into network issues, funding sources and timing continue. A report to the Board will be forwarded later this year.