

## 5. MEMORIAL/ROYDVALE INTERSECTION - SAFETY IMPROVEMENTS

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### PURPOSE OF REPORT

1. The purpose of this report is to:
  - a) Seek the Board's recommendation to the Council to approve the Memorial Avenue/Roydvale Avenue Intersection Safety Improvement Project to proceed to tender and construction; and
  - b) Seek the Council's approval for resolutions for new traffic restrictions associated with the Memorial Avenue/Roydvale Avenue Intersection Safety Improvement Project.

### EXECUTIVE SUMMARY

2. A 2001 Crash Reduction Study highlighted safety concerns at the intersection of Memorial Avenue and Roydvale Avenue. As a result budget was set aside to address the issues raised in the study. This Intersection Safety Improvement Project is on the Christchurch City Council's Capital Works Programme for construction in the 2006/07 financial year.
3. Memorial Avenue is a major arterial road carrying an average of 17,000 vehicles/day and Roydvale Avenue a collector road carrying an average of 7,200 vehicles/day measured in 2003.
4. The Project Consultation Leader has consulted with the affected residents, property owners, businesses, local schools, and other interested parties. Feedback from the community (summarised in Attachment 3) on the initial concept plan (Attachment 1) was considered carefully by the project team. Following consultation minor modifications have been made to produce the final plan (Attachment 2). This is the preferred option as it satisfies the aims and objectives of the project and has majority community support.
5. The proposed option will improve the safety and efficiency of the Memorial Avenue/Roydvale Avenue intersection, by upgrading the existing traffic signals to latest standard, providing right turn only lanes on Roydvale Avenue and improving cycle facilities. Although, eighteen on streets car parks will need to be removed on the northern leg of Roydvale Avenue, these parks have been unable to be accommodated by other options while achieving the project objectives.
6. The project team recognises that the project does not fulfil all the concerns raised during consultation. However, the team is confident that the proposed option meets the aims and objectives of the project in an effective and efficient manner.

### FINANCIAL AND LEGAL CONSIDERATIONS

7. This safety improvement project is programmed in the Transport and Greenspace Unit's capital programme, for implementation in the 2006/2007 financial year. The estimated total cost for this project is \$237,300 and there is budget allocation in the 2006/2007 capital programme for this work to occur.
8. Without the approval of the resolutions for the traffic restrictions associated with this project, the restrictions will not be enforceable upon implementation.
9. The Community Board does not have delegated authority to approve the design, tender and construction of the Project - such a decision needs to be made by the full Council. The Board has, however, recommendatory powers to the Council".

### STAFF RECOMMENDATIONS

It is recommended that the Board:

1. Recommend that Council approve this safety improvement project for design, tender and construction as shown in Attachment 2.
2. Secondly that the Board approve the following resolutions for new traffic restrictions.

**Removal of existing no-stopping:**

- a. That the existing no-stopping restriction on the north-east side of Memorial Avenue commencing at its intersection with Roydvale Avenue and extending 45m in a north-westerly direction be revoked.
- b. That the existing no-stopping restriction on the north-west side of Roydvale Avenue commencing at its intersection with Memorial Avenue and extending 18m in a north-easterly direction be revoked.
- c. That the existing no-stopping restriction on the south-east side of Roydvale Avenue commencing at its intersection with Memorial Avenue and extending 47m in a north-easterly direction be revoked.
- d. That the existing no-stopping restriction on the south-east side of Roydvale Avenue commencing at its intersection with Winslow Street and extending 15m in a south-westerly direction be revoked.

**Installation of new no stopping:**

- e. That the stopping of vehicles be prohibited at any time on the north-east side of Memorial Avenue commencing at its intersection with Roydvale Avenue and extending 52m in a north-westerly direction.
- f. That the stopping of vehicles be prohibited at any time on the north-west side of Roydvale Avenue commencing at its intersection with Memorial Avenue and extending 113m in a north- easterly direction to Sir Pickering Drive.
- g. That the stopping of vehicles be prohibited at any time on the south-east side of Roydvale Avenue commencing at its intersection with Memorial Avenue and extending 86m in a north-easterly direction to Winslow Street.

## BACKGROUND

10. This project was initiated by a 2001 Crash Reduction Study which highlighted safety concerns at the above intersection. Requests had also been received from the public for a pedestrian facility from the north side of Memorial Avenue to Burnside Park.
11. The existing intersection is an important part of the roading network in the City. This intersection caters for approximately 22,000 vehicles per day, and is the main route into the city for visitors arriving at the airport. Memorial Avenue is a major arterial road carrying an average of 17,000 vehicles/day and Roydvale Avenue a collector road carrying an average of 7,200 vehicles/day measured in 2003. The intersection currently has a number of issues in terms of safety that the proposed project seeks to address.
12. The Land Transport New Zealand (LTNZ) Crash Analysis System shows there have been ten crashes (three minor injury and seven non injury) recorded at the intersection of Memorial Avenue/Roydvale Avenue for the five year period between 1999 and 2003 on the LTNZ Crash Analysis System. The majority of the crashes involved right turn movements.
13. The aim of the project is to:
  - Reduce the number of crashes at this intersection.
14. The objectives of the project are to:
  - Improve the visibility of the traffic signals
  - Improve pedestrian crossing facilities at the intersection
  - Improve traffic safety for all road users
  - Provide cycle facilities
  - Maintain existing on-street parking levels where appropriate.
15. There are a number of bus routes along Memorial and Roydvale Avenue, they are:-
  - Bus route No. 3 Avonhead / Sumner travels along Roydvale Avenue through the Memorial Avenue intersection.
  - Bus route No. 19 Burnside / Spreydon travels along Roydvale Avenue between Teesdale Street and Sir William Pickering Drive.
  - Bus route A to the airport travels along Memorial Avenue through the Roydvale Avenue intersection.

This project has several bus stops and a bus shelters near the intersection. These existing bus stops and bus shelters have been retained in the proposal.
16. The Memorial Avenue/Roydvale Avenue intersection street lighting has recently been upgraded to modern standards.

## CONSULTATION

17. The initial concept plan and consultation plan for this Safety Improvement Project for the intersection of Memorial Avenue and Roydvale Avenue was presented at a seminar meeting of the Fendalton/Waimairi Community Board on the 14 March 2006.
18. The aim of the consultation was to provide interested and affected groups in the community with information about the project and to ensure that due consideration is given to any concerns raised, albeit, within a project that has set engineering requirements. It was also proposed that one on one consultation was undertaken with business operators within the proposed area that are directly affected by the proposal.
19. Following the Community Board seminar, a newsletter was distributed to interested and affected parties. The newsletter incorporated the plan shown in Attachment 1; this plan indicated the proposal to removal some on-street parking on both sides of Roydvale Avenue between Memorial Avenue and Winslow Street. Those properties that were directly affected by the proposed reduction in on-street parking were visited by the Consultation Leader. Both businesses accepted the removal of on-street parking as it will be beneficial for traffic safety and efficient traffic movement.
20. Feedback to the proposal from the community identified that 89% gave their general support. A summary of the feedback to this consultation can be seen in Attachment 3.

21. The main issue related to the desire to incorporate right turn phases from Memorial Avenue and Roydvale Avenue. The Council has a policy on the installation of right turn phases. In general, the decision to install a right turn phase is based on the history of crashes occurring at the intersection, the efficiency of the intersection as a whole and the efficiency of the roading network. Each signalised intersection is assessed on a regular basis (at least five yearly) to determine the appropriate phasing, signal timings, coordination strategies and crash reduction works. The number and type of right turn crashes at this intersection does not justify the installation of a right turn phase signal. Details of the assessment are included below.
22. The assessment of intersection efficiency is based on the critical morning, business and evening peak hours. It is not feasible to design a roading network for the peak quarter hour period and therefore higher delays in these peaks (8.15 - 8.30, 3.00 - 3.15, 5.15 - 5.30) must be expected. The addition of a right turn to the phasing sequence of an intersection reduces operational efficiency and increases delay to other movements. It is because of this that there needs to be a strong case to justify an exclusive phase. In observations made on site during the peak periods, the maximum queue was 12 vehicles in the morning peak and seven vehicles during the afternoon peak, all of which were able to make the right-turn within a single cycle of the signals.
23. Therefore the right turn phase is not justified. The assessment shows that it fails to meet the criteria for installation and delays to right turn vehicles in the peak periods are acceptable.
24. A request for cycle lanes on the Roydvale Avenue approaches could not be accommodated as the road would require widening and the cost of relocating services in this location was very high. The cost to accommodate cycle planes added significant cost to the project which could not be accommodated within the budget. This cost issue is the same reason that the request for provide a separate left turn lane on the Roydvale Avenue southern approach, instead of a shared left and straight through lane, could not be accommodated.
25. Changes that were made to the plan as result of consultation include:
  - Removal of the parking spaces blocking the left turn lane from Roydvale Avenue north and therefore the no-stopping restriction is continuous from Memorial Avenue to Winslow Street. The management of the affected computer business on the corner of Winslow and Roydvale Avenue accepts this alteration as in the best interests of the community.
  - Extension of the no stopping lines from Sir William Pickering Drive to Memorial Avenue as the parked cars in this area often impede the right turners into Winslow Street. The adjacent property owner has been notified and accepts the change.
  - Set back of the right turn lanes on Roydvale Avenue to allow larger vehicles to make left turns off Memorial Avenue
  - Slight kerb alignment changes on the south east corner to accommodate bigger vehicle turning movements.

#### OPTIONS

26. **Option 1.** Retain the status quo.
27. **Option 2.** This option was the recommended layout from the 2001 Crash Reduction Study. It proposed the removal of the ends of the medians on Memorial Avenue to better align the right turn lanes. It also removed the left turn slip lane on Memorial Avenue east approach into Roydvale Avenue and reduced the kerb radius on the south east corner of the intersection.
28. **Option 3.** This option also proposed the removal of the median islands to better align the right turn lanes on Memorial Avenue. It also had a realigned slip lane and increased splitter island size on the Memorial Avenue east approach. There are cycle lanes on Memorial Avenue approaches and road widening on the north west corner.
29. **Option 4.** This preferred option has kerb widening on the approaches of Memorial Avenue and Roydvale Avenue. There is kerb build outs on the departures from the intersection for the installation of overhead traffic signal mast arms for Memorial Avenue traffic approach. The median island on the Memorial Avenue east approach will be trimmed back for the pedestrian cross walk. All kerb alterations have been checked to make sure they accommodate the movements of truck 'B' trains. There are coloured cycle facilities on all approaches.

## ASSESSMENT OF OPTIONS

30. **Option 1.** The option to maintain the status quo essentially means to do no capital works at this intersection of Memorial Avenue and Roydvale Avenue. This would retain the road environment in its existing condition. This option would be inconsistent with the Community Outcomes outlined in the LTCCP, and would be inconsistent with Council strategies, such as the road safety, pedestrian and cycle safety strategies. Therefore, it is considered that it would not be appropriate to maintain the status quo because of the opportunity to ensure an efficient, safe and sustainable transport system, whilst providing for all modes of transportation would not happen.
31. **Option 2** does not meet the aims and objectives of safer facilities for cyclists as it has no provision for cycle facilities at the intersection. The project team was unsure about removing the median island at the right turn bay as this does form part of the traffic delineation through the intersection and provides a site for the traffic signal poles. This would also introduce another style of right turn treatment along Memorial Avenue and is not a consistent route treatment.
32. **Option 3.** This option does not meet the aims and objectives as the project team was unsure about removing the median island at the right turn bay as this does form part of the traffic delineation through the intersection. This would introduce another style of right turn treatment along Memorial Avenue and is not a consistent route treatment. It also requires land to be purchased for the proposed re-alignment of the slip lane and splitter island.

## PREFERRED OPTION ASSESSMENT

33. **Option 4** is preferred option; this option provides the best safety improvement as shown in Attachment 2 for all road users with the following features and meets all the project objectives.
  - The installation of full height poles and overhead signals on mast arms will provide safety benefit, as signal visibility is greatly enhanced.
  - Pedestrian safety will be improved by the provision of signalised pedestrian crossings on the Memorial Avenue east approach and Roydvale Avenue south approach. A proposed grit path along the Burnside Park will be joined onto the existing footpath at the south corner of the intersection. There will be tactile paving at the signalised crossings for the partially sighted.
  - To improve cycle safety road cycle facilities are provided on both sides of the road on all approaches to the intersection. This is achieved by adding cycle lanes to the Memorial Avenue and cycle stop boxes on the Roydvale Avenue approaches to the intersection. The use of a red coloured surface at the approaches to the intersections highlight conflict areas where motorists may be required to cross the cycle lane.
  - Improved traffic safety and traffic flow is achieved by the provision of right turn only lanes by the removal of on-street parking along Roydvale Avenue adjacent to the intersection. A total reduction of 18 on-street car parks is required to achieve this.
  - The proposal reduces some of the 'right turn against through vehicle' crashes on Memorial Avenue.