

3. AVONSIDE DRIVE/FITZGERALD AVENUE/KILMORE STREET INTERSECTION IMPROVEMENTS

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The purpose of this report is to:

1. inform the Committee of proposed improvements to the Avonside Drive/Fitzgerald Avenue/Kilmore Street intersection; and
2. obtain the Committee's recommended comments about the proposal for the Board to consider forwarding to the Sustainable Transport and Utilities Committee.

The improvements include earthquake strengthening of the Fitzgerald Avenue Bridges over the Avon River, traffic safety works, maintenance of transport capacity and the addition of cycle lanes on the intersection approaches and departures.

It is also proposed to install cycle lanes on Kilmore Street from Fitzgerald Avenue to Dawson Street.

This report will be submitted to the Sustainable, Transport and Utilities Committee for approval to proceed to the public consultation phase.

BACKGROUND

The Fitzgerald Avenue Bridges over the Avon River have been identified, through the Council's 'lifelines' project, as requiring earthquake strengthening. With budgetary funding available to implement the strengthening work the opportunity arose to address transport issues at the intersection at the same time.

Fitzgerald Avenue is classified as a major arterial route and part of the inner orbital route of avenues and the central business district. Both Avonside Drive and Kilmore Street are minor arterials feeding traffic to and from the central city.

The intersection currently carries approximately 38,000 vehicles per day throughput and is an important part of the roading network in the city. Traffic flows through the intersection have been growing consistently at around 2% per annum of current flows.

In the five years between 1998 and 2002, 38 crashes have been reported at this intersection in the Land Transport Safety Authority crash database. Of the crashes, 33 were non-injury, four resulted in minor injuries and one crash resulted in a serious injury. The 38 reported crashes underestimate the actual number of crashes which could be in the order of 260 crashes over the last five year period (under reporting rates are 7.5 for non-injury, 2.5 for minor and 1.6 for serious crashes).

The reported crashes predominately involve right turning vehicles, that is, 13 crashes from Fitzgerald Avenue into Avonside Drive and 11 crashes from Fitzgerald Avenue north right turning into Kilmore Street. The remaining 14 crashes are of a random nature and do not follow any particular pattern.

The main causal factor in motorists misreading the intersection is that the right turners on both Fitzgerald approaches do not have sufficient visibility of oncoming traffic to safely execute the existing 'filter' right turn movement.

AIMS AND OBJECTIVES OF THE SAFETY IMPROVEMENTS

- Improved bridge safety through earthquake strengthening
- Increased road safety through a reduction in the number of vehicle crashes
- Improved safety and level of service for cyclists
- Improved pedestrian safety
- Planning for future traffic growth
- Maintaining public transport levels of service
- Maintaining, where possible, on street parking

THE PROPOSED IMPROVEMENTS

Investigations of the intersection and research undertaken by staff have identified the improvements necessary to achieve these objectives. These are:

Fitzgerald Avenue - Northern Approach

A 'clip on' to the existing bridge to enable a separate left turn traffic lane and cycle lane to be provided. A realigned separate right turn lane with a 'filter' turn is proposed by adding a median island on the western side of the existing bridge.

Fitzgerald Avenue - Northern Departure

A cycle lane would be added and a 'cut down' in the median provided for pedestrians crossing Fitzgerald Avenue opposite River Road. A 'U' turn facility would be added for vehicles wanting to access River Road.

Fitzgerald Avenue - Southern Approach

It is proposed to install a cycle lane, a separate left turn traffic lane and a protected right turn signal phase for motorists turning into Avonside Drive.

Fitzgerald Avenue - Southern Departure

It is proposed to install a cycle lane. The three existing traffic lanes would be maintained.

Avonside Drive - Eastern Approach

It is proposed to add a cycle lane and specifically mark the kerbside lane for left turning vehicles.

Avonside Drive - Eastern Departure

It is proposed to formalise the cycle lane by installing cycle symbols.

Kilmore Street - Western Approach

It is proposed to install a cycle lane on Kilmore Street from Dawson Street to the intersection.

Kilmore Street - Western Departure

It is proposed to install a cycle lane on Kilmore Street from the intersection to Dawson Street. This would require the removal of the existing on streets parks immediately adjacent to three businesses, namely Pomeroy's OBJ, Metro floors and Givenchy's.

Improved Bridge Safety through Earthquake Strengthening

The Fitzgerald Avenue twin bridges have been assessed as susceptible to a moderate seismic event. They need to be strengthened.

Some work has already been carried out to tie the deck to the substructure. Further work needs to be done to overcome the threat from liquefaction and bilateral spreading. No particular method for doing this has been established, however, the benefit of maintaining these key bridges has been assessed at well over \$1,000,000. Additional investigative work would be undertaken in conjunction with the proposed traffic improvements.

Increased Traffic Safety

The proposed safety improvements would provide a protected right turn signal phase for motorists turning right from the southern Fitzgerald approach. This would address the high number of crashes associated with this movement.

On the northern Fitzgerald approach to the intersection, vehicles turning right into Kilmore Street would be catered for with a 'filtered' right turn, but supported by a major engineering realignment of the right turn traffic lane.

The realignment of the right turn lane would provide motorists with clear 'sight' lines of approaching straight through vehicles as this lane would line up with the opposing right turn lane into Avonside Drive.

Improved Level of Service for Cyclists

There are no existing cycle lanes marked on the Fitzgerald Avenue legs of the intersection and only one advanced stop box on the Kilmore approach.

The proposed plan would see the installation of cycle lanes on all approaches to and departures from the intersection to improve safety for cyclists and to increase their level of service.

A 'clip on' installed on the east side of the bridge would allow for a cycle lane on the Fitzgerald north approach to the intersection as well as a separate left turn lane for traffic.

To ensure adequate road space was available for the cycle lane to be installed on the Fitzgerald south approach, some adjustment to the alignment of the kerb line adjacent to the footpath would be required. Consequently the width of the footpath in this section would be reduced, however, the footpath would retain a minimum width standard. An alternative to reducing the width of the footpath would be to set back the edge of the existing central median island but this option would require the removal of trees.

Cycle lanes would be installed on Avonside Drive on the west approach to the intersection and the cycle lane formalised on the river side of Avonside Drive.

Cycle lanes would have a red asphalt surface at specific potential conflict points and each cycle lane would have an advanced stop box in front of the vehicle limit lines at the intersection.

Improved Pedestrian Facilities

Signalised pedestrian crossings on all four legs of the intersection do exist and these would be retained albeit with a minor alteration to the crossing on the south side of the intersection.

The front edge of the centre median island where currently a 'cut down' is provided to allow pedestrians to cross over Fitzgerald Avenue from Kilmore Street to Avonside Drive would be removed. Pedestrians would now cross in front of the median island, rather than through it. The rationale for this change is that the removal of the 'cut-down' would more clearly indicate to motorists that the crossing was one crossing rather than two separate ones and motorists must give way to all pedestrians on any section of the crossing.

The realignment of the right turn lane, on the south approach, would see a median island (including a pedestrian 'cut-down' for pedestrians exiting River Road) installed on the southern approach to the intersection so that the turning lane could be positioned on the west side of the existing river bridge.

Maintaining Current Traffic Capacity While Ensuring Room for Future Growth

The Canterbury Regional Land Transport Strategy 2002 defines Avonside Drive, Fitzgerald Avenue and Kilmore Street as part of the Christchurch arterial network, and recommends a maximum level of service up to, but not exceeding capacity, (LOS E). With the removal of the state highway through the central business district, Fitzgerald Avenue is likely to become part of the strategic network in the future with a maximum recommended level of service (LOS D) which is approximately 90% of capacity.

Traffic modelling indicates that the existing intersection layout and phasing will exceed capacity, or LOS E, in the design critical morning peak in 2010 and in 2021 in the evening peak. If protected right turn phases were provided with the existing intersection configuration for safety reasons alone, capacity would be exceeded as early as 2007 and 2015 respectively.

The proposed changes would provide the same level of service as the existing intersection layout, but with additional safety for right turning vehicles. That is, capacity would not be exceeded until approximately 2013 in the morning peak and 2021 in the evening peak.

During the morning peak there are only 45 vehicles turning right from Fitzgerald south into Avonside Drive. If, in around 2013, this movement was banned in the morning peak and the 45 vehicles either used the 'U' turn bay or another street in the vicinity to turn right, then the intersection would operate below capacity through to 2021.

Maintaining Local Street Accessibility

Left turn movements into and out of River Road would be maintained, however, to accommodate the proposed right turn lane and the pedestrian crossing on the northern approach, the existing right turn movement from River Road into Fitzgerald Avenue would be banned. The right turn in would be available via the 'U' turn bay proposed to be located just north of the River Road/Fitzgerald Avenue intersection. North bound travel for River Road traffic would still be available via Harvey Terrace; or Stanmore Road; or along Kilmore Street to Madras Street.

Public Transport Objective

The proposed improvement to intersection capacity would maintain the same level of service currently provided to the No. 70 Queenspark and No. 48 Kainga services that travel along Fitzgerald Avenue.

Parking Objective

It is proposed to maintain as much on street parking as possible. However, for safety reasons the existing on street parking adjacent to the three businesses on the south side of Kilmore Street just west of the intersection would need to be removed. There is some flexibility, however, to provide a section of time limited parking, specifically for these businesses, immediately west of the proposed no stopping area.

Environment

The proposed bridge strengthening work would be undertaken with due consideration to the flora and fauna under and around the bridge, and staff who have a speciality in this area would be consulted and involved in the process.

The adjustment to the front edge of the central median island to improve pedestrian safety would require the removal of two trees. The Council's arborist has inspected the trees within the central island and has advised that of the two trees affected adjacent to the front edge, one is diseased and should be removed and the other is young enough to be transplanted elsewhere.

BUDGET

A total of \$1,077,927.00 is available over the 2004/2005 and the 2005/2006 financial years for this project.

CONCLUSION

The proposed bridge strengthening work along with the traffic safety improvements at the intersection and beyond would ensure that a significant city asset was protected and enhanced as well as improving safety for all road users and ensuring that capacity through the intersection was assured through to 2021.

While the proposed work may take several months to complete it is anticipated that any major disruption to road users could be contained within a one month period. At this stage the proposed work could start as early as June 2005.

Attached to this report is a copy of the proposed inform consultation plan for this project.

Staff

- Recommendation:**
1. That the information be received.
 2. That the Committee provide comment on the proposal for the Board's consideration.