

## 10. PEDESTRIAN/CYCLIST ACCESS ACROSS MAIN NORTH ROAD AS PART OF THE STYX RIVER GREEN CORRIDOR

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The purpose of this report is to obtain approval for the development of an overhead pedestrian and cycle bridge at Main North Road as part of the Styx River Green Corridor and the Styx Vision 'To create a Source to Sea Experience'.

This report follows a Seminar to the City Services Committee, Parks and Recreation Committee, Shirley/Papanui Community Board, and the Guardians of the Styx at the Civic Offices on 17 May 2001. A site visit was held in July 2001.

### INTRODUCTION

Transit New Zealand has recently upgraded Main North Road to four lanes between Belfast and the Northwood Estate. They are currently carrying out detailed design for the four laning of the next stretch of Main North Road from Farquhars Road to Northwood Estate (including the railway overbridge) and plan to undertake construction during 2001/02.

As part of the Styx River Green Corridor and the Styx Vision 'To create a Source to Sea Experience', it is important that we work with Transit New Zealand to obtain the best outcome for safe pedestrian and cyclist access across Main North Road, in the vicinity of the Styx River. This report identifies and describes the issues and opportunities, then concludes by recommending one option.

### DESCRIPTION OF THE AREA

The Styx River crosses under Main North Road between Redwood and Belfast, just to the north of the railway overbridge. Upstream to the west, the Styx River flows through Styx Mill Reserve. New residential developments, Regents Park and Northwood Estate, are located to the south and north of this reserve. Downstream to the east, the Styx River meanders along the base of a river terrace, under the north - south railway line, then on through new residential developments (Redwood Springs) and horticultural land.

There are currently no formed cycleways in the vicinity of the Styx River crossing of the Main North Road although a cycle path is proposed to be constructed along the west side of Main North Road.

A controlled intersection is located approximately 900 metres to the north of the Styx River on Main North Road and provides access to Northwood Estate and the Supa Centa via Radcliffe Road.

Please refer to the Map in Appendix One.

### BACKGROUND

#### The Styx River

The Styx River originates just west of Nunweek Park and then meanders northeast to Brooklands and the sea via the Waimakariri River. The river is an important natural landscape feature within the northern part of the city, especially in places where it can easily be seen from roads and public reserves. In this northern vicinity, the river and associated landforms (eg river terraces, low-lying wetlands) provide an important visual boundary separating Belfast from Redwood.



Although the Styx River has been extensively modified, it retains relatively high ecological values in comparison to the Avon and Heathcote Rivers. In this area particularly, opportunities also exist to highlight the rich cultural history associated with the Styx River and its catchment area.

One of the visions of the Waterways and Wetlands Asset Management Strategy for the Styx area is to create a "Source to Sea Experience". The Strategy identifies the need to prevent barriers to walkways that are associated with major vehicle access into the city.

Another of the Strategy's visions, "The Styx as a Place to Be", emphasises the need to highlight and enhance the unique character of the Styx River landscape where the river crosses major roads. These crossings will act as gateways to the city.

The Styx River in this location is classified as an Upstream River with a 30 metre setback distance.

*Styx River looking upstream from Styx Mill Road. This area is part of Styx Mill Reserve.*

### **Main North Road and Styx Mill Road**

Main North Road, a primary route into the city from the north, provides an important gateway to Christchurch. It was also an important walking track for early Maori travelling between Kaiapoi and Otautahi (Christchurch).

Today, Main North Road is classified as a major arterial. Plans are underway to reconstruct it as a four lane median divided road, linking the four lanes in Redwood to the south and Belfast to the north.

Styx Mill Road is classified as a collector road which currently services the residential areas to the west of Main North Road and the Styx Mill Road Transfer Station. On average 250 large City Care trucks visit the transfer station each month. There is also typically 400 another vehicle visits per day. On peak days this number can be as high as 800 vehicles per day.

### **ISSUES**

#### **Traffic**

Traffic flows along Main North Road and Styx Mill Road have increased steadily over recent years. This trend is likely to continue, as the tables below illustrate.

#### *Main North Road*

2001 current traffic flows	21,000 vehicles per day (7 day average)
2021 expected traffic flows	31,000 vehicles per day (7 day average)

**Currently Main North Road has very high traffic flows and this is expected to increase by another 10,000 vehicles per day over the next twenty years.**



*Looking south along Main North Road towards the Styx Mill Road/Main North Road intersection and the railway overbridge.*

#### *Styx Mill Road*

2001 current traffic flows	3,300 vehicles per day (7 day average)
2021 expected traffic flows	4,600 vehicles per day (7 day average)

**Traffic flows along Styx Mill Road are expected to increase by another 1,300 vehicles per day over the next twenty years.**

Factors influencing an increase in traffic flows include:

- major growth in the number of houses in the Styx area
- large retail outlets with frontages onto Main North Road such as the Supa Centa and the proposed New World site just north of the Styx River
- the rapid growth of towns to the north of the city (eg Kaiapoi, Woodend and Rangiora) whose residents travel to Christchurch for work and other city services.

The table below describes the developments on the northern urban fringe of the Styx River. Their location can be seen on the map in Appendix One.

<b>Development</b>	<b>Description</b>
Northwood Estate	<ul style="list-style-type: none"> <li>• 1,200 new homes</li> <li>• District Park</li> <li>• Access to a proposed New World supermarket</li> </ul>
Redwood Springs	<ul style="list-style-type: none"> <li>• 220 new homes</li> <li>• Access off Grimseys Road</li> </ul>
Regents Park	<ul style="list-style-type: none"> <li>• 200 new homes</li> <li>• Access off Styx Mill Road</li> </ul>
Canterbury Supa Centre	<ul style="list-style-type: none"> <li>• 34,000 sq metres bulk retail development</li> <li>• 950 parking spaces</li> <li>• includes the Warehouse and Smiths City</li> </ul>

There is also a reference with the Environment Court for residential development for the area located between Styx Mill Road, Claridges Road, Cavendish and Gardeners Road.

### **Styx River Green Corridor**

Parts of the Styx River Green Corridor are increasingly being utilised for recreational walking. Contributing factors include:

- raised awareness brought about by media articles and council publications
- continuing improvements to Styx Mill Reserve and the greater Styx River Green Corridor
- the large increase in residential development
- increased awareness (through the Styx Vision document) of the planning being undertaken on the Styx.

Learning opportunities will also arise from the “Source to Sea Experience” as students gain insight into the changing nature of the Styx River with its changing moods, ecology and landscape while following its route to the sea.

Leisure Planner, Rob Greenaway, believes that lack of a safe crossing would effectively destroy the ‘Source to Sea Experience’. In his report ‘Pedestrian Traffic Estimate for Recreational Use of an Accessway Under or Over the Main North Road at the Styx River’ (July 2001), Greenaway assumes that all current new developments are complete and occupied, and makes the following assessment:

*It would probably be fair to assume that 26,000 (recreational walkers) is a reasonable figure and could be given a 20% variability – say 20,000 – 30,000 visitors annually, or 32,000 – 47,000 crossings annually (87 to 128 crossings per day).*

*If the crossing was a feature in itself (such as a waka), it would be more likely to be at the higher end of the estimation. If it was perceived as a dangerous crossing, the estimate would be highly unreliable and might be less than 80% of the low estimate.*

### **Pedestrian/cyclist access across Main North Road**

Council staff have been aware of the existing and potential increase in traffic flows along Main North Road and also the need to obtain pedestrian and cycle access across it in the vicinity of the Styx River. Staff have also been aware that Transit New Zealand are currently planning for the widening of this stretch of Main North Road. Accordingly, Louisa Davies (Landscape Architect) and Perry Royal

(Architect) were commissioned by the Council to investigate all possible options to solve this issue. Cost estimates were undertaken City Solutions.

## **OPTIONS**

The various options are listed and discussed below. Each option has been considered from a social, environmental and economic perspective. A more detailed description of each option is outlined in Appendices Two and Three.

### **Options**

- Option One      Access via a walkway/cycleway overhead bridge over Main North Road
- Option Two      Access under Main North Road by replacement of the existing culvert with a new bridge that incorporates both the Styx River and an appropriately designed walkway/cycleway.
- Option Three    Access across Main North Road via a pathway detour that takes people under the existing railway overbridge and along the railway corridor.
- Option Four     Access across Main North Road via a controlled intersection using traffic signals at a relocated intersection 900 metres to the north of the existing Main North Road and Styx Mill Road intersection.
- Option Five     Access across Main North Road via a controlled intersection using traffic signals at the existing intersection of Main North Road and Styx Mill Road intersection.

### **Option One - Access over main North Road**

The overhead bridge is designed not only as a pedestrian and cycleway access across Main North Road but also as an artwork in its own right. The use of a waka 'canoe' form with one end embedded in the Styx River suggests the dragging of the river vessel out of the water and up onto the bank to a place of arrival. The bridge will represent a Gate to the City and an important landmark to highlight the Styx River.

This option has the advantage that people are not only provided with safe access across Main North Road but they do not have to cross Styx Mill Road. The bridge also provides people with a different perspective of the Styx River where they can take in the wider landscape of the Styx River and its associated landforms.

The Council would need to resolve with Northwood Estates how to integrate this option into their development, including the retention basin that they plan for this corner.

The cost of this option is estimated to be \$1,250,000. One advantage is that it does not have to be undertaken at the same time as widening the road. Another advantage is that if the bridge were to be an artwork then funding from other agencies (eg Creative New Zealand) could be available.

Refer to Appendix Three for sketches of a proposed 'waka' bridge

### **Option Two - Access under Main North Road**

A range of alternatives were investigated, including using the existing culvert and the construction of a separate walkway culvert. There was insufficient space within the existing culvert for safe access and it was felt to be unsafe during storm events. A separate walkway tunnel would also raise a lot of safety issues (eg stranger danger and lack of informal surveillance).

A purpose built bridge that provided sufficient light and space for both the waterway and walkway would however, be an alternative safer option. The estimated cost for a purpose built bridge is \$1,400,000 and would need to be constructed at the same time as widening the road.

This option would also require people to either cross Styx Mill Road or go under Styx Mill Road via a separate walkway tunnel at an added extra cost of \$400,000.

Refer to Appendix Three for a sketch of the proposed new bridge.

### **Option Three - Access across Main North Road by detouring to the existing railway overbridge**

Although it is a relatively safe option from a roading perspective, this option takes people away from the Styx River Green Corridor and waterway experience into an area that may be considered unsafe due to its sense of enclosure from high fences and the lack of informal surveillance. This concern is borne out by the graffiti that has already appeared.

It is considered that the majority of people won't want to walk this extra 700 metres and still cross Main North Road in the vicinity of the Styx River, again raising safety concerns. This option would also require people to either cross Styx Mill Road or go under Styx Mill Road via a separate walkway tunnel.

The estimated cost of the walkway along the railway line is \$440,000. A walkway tunnel under Styx Mill Road is estimated to be \$400,000.

Approval will be required from Tranzrail New Zealand for public access on land owned by them alongside the railway line. An alternative would be for the walkway to continue back alongside the other side of Main North Road.



*Location of proposed walkway under the railway overbridge.*

### **Option Four - Access across Main North Road via a controlled intersection 50 - 100 metres to the north of the existing intersection**

Discussions with Northwood estate representatives suggest that ideally they would prefer to have another access into their subdivision off Styx Mill Road just to the west of the Styx Mill Road/Main North Road intersection. Negotiation with Northwood Estate may provide an opportunity to relocate the Styx Mill Road/Main North Road intersection 50 - 100 metres to the north, thereby creating a greater distance between the railway overbridge and the controlled intersection. The 900 metre distance between this intersection and the next one to the north along Main North Road at the main entrance to Northwood Estate and the Supa Centa via Radcliffe Road would correspondingly be reduced.

The estimated cost of relocating the intersection is \$330,000. This option would still require people to either cross Styx Mill Road or go under Styx Mill Road via a separate walkway tunnel at an added extra cost of \$400,000. Another cost will be the need for a buffer zone between the new road and residential development at an estimated cost of \$200,000 (20mx200m=4000m<sup>2</sup>).

### **Option Five - Access across Main North Road via a controlled intersection**

A controlled intersection at the corner of Main North Road and Styx Mill Road may present safety issues for vehicles as well as pedestrians and cyclists. The distance from the railway overbridge to the intersection is very short, which means that traffic coming over the bridge may not be aware of any build-up in traffic flows resulting from red lights at the controlled intersection. To avoid accidents traffic lights would be required at the top of the railway overbridge, similar to those operating on the Moorhouse Avenue overbridge. Transit New Zealand have expressed their concerns regarding the safety of signalling the intersection in its present location.

Even with a controlled intersection, people may still feel unsafe crossing the road, particularly teachers who may be involving large groups of students in the 'Source to Sea Experience'.

The estimated cost for a controlled intersection is \$55,000.

## **DISCUSSION**

### **Timeframe**

Transit New Zealand have employed Montgomery Watson New Zealand Limited to undertake the detailed design work and project management for widening Main North Road. This work has been staged, the last stage being that between Northwood Estate and Farquhars Road. Detailed design work for this last stage is now being carried out and the construction work will be underway during 2002.

It is imperative that the Council decides which option best suits the Council's need to acquire access across Main North Road in this vicinity, to ensure that such access is allowed for in the design for widening Main North Road. If the Council decides on a new bridge (Option Two) then this would need to be constructed at the same time as widening the road. Other options may be undertaken later.

### **Land Protection**

The various options outlined above have been discussed with representatives from Northwood Estates, who support the Source to Sea Vision and are willing to work with the Council.

The Council is also discussing with a private landowner the purchase of the low lying land between Main North Road and the Styx River to the east. Please refer to the map shown in Appendix One.

### **Funding**

Neither the Parks and Waterways Unit or the City Streets Unit has funding in this years budget to finance any of the options. This means that if any work was to be undertaken this financial year then it would need to be done by substitution. The Waterways and Wetlands Asset Management Strategy provides funding for a Source to Sea Experience but not the amount required for either a new Styx River bridge or an overhead bridge.

Option Two would need to be undertaken at the same time as widening the road. Options one, three and four could be carried out at some later date, which means that there would be more flexibility with council funding.

If Option One was viewed as an artwork then other avenues for funding could be explored (eg Creative New Zealand).

### **Consultation**

Council staff have included representatives from Northward Estate and Transit in all their discussions. The waka bridge has also been discussed at a hui with Tangata Whenua representatives. The Council would need to consult with the wider community, including the wider Tangata Whenua community, in regard to the design of the option it selects.

### **Ranking of the Different Options**

To rank the different options, each one was considered in terms of those issues which provide the key points of difference between the options. The scores of each option were added to obtain their final ranking. Appendix Four illustrates the relationship between the different options. Option One scores the lowest overall and is therefore the most preferable.

## **CONCLUSION**

It is critical that the Council decide on the best option to obtain pedestrian access across Main North Road so that the preferred option can be incorporated into the design work for widening the road. Option One, rated the highest, involves construction of an overhead walkway/cycleway to ensure a safe route for pedestrians and cyclists.

Carrying out Option One would create two additional benefits. First, it would provide an important landmark that would highlight the Styx River in the wider landscape and offer a gateway into the city

unlike any other in the country. Such a landmark would become a significant feature of the 'Source to Sea Experience'.

Second, although the development of Option One is dependent on funding and on securing the surrounding low-lying land, it has the advantage that other sources of funding are available.

At its meeting on 1 August the Shirley/Papanui Community Board also considered this report for its information and supported the recommendation.

**Recommendation:** That the Council support, in principle, Option One of a walkway/cycleway bridge over Main North Road subject to:

- (a) Purchase of the low lying land.
- (b) Confirmation of outside funding sources.