

## 12. LICHFIELD/TUAM SWAP

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The purpose of this report is to provide the Committee with information on the proposed Lichfield/Tuam one-way swap project and seek Committee approval to begin consultation at the beginning of June.

### EXECUTIVE SUMMARY

The Council is considering moving the eastbound arterial road function to Tuam Street and making Lichfield Street a local two way road.

The swap of the function of the two streets is proposed because it is considered to have a number of significant advantages for the city. The proposal originated from the City Services Committee which proposed the change in the previous term of the Council as a means of making Lichfield Street more suited to a central city shopping and residential street. The siting of the Bus Xchange added another reason. In traffic terms, the main benefits occur for public transport, cycling and pedestrian movement in the city core, as well as amenity improvements along the Avon River.

The main report following this executive summary contains reasonable detail on the proposal, its objectives, issues, design details and subsequent effects. The paragraphs immediately following this section offer a summary of the main points of the main report. Paragraph numbering is consistent with the main report.

### BACKGROUND

At its 17 December 1999 meeting, the then City Services Committee resolved:

*That the staff investigate the advantages and implications of changing Lichfield Street to a two-way street and Tuam Street to a one-way street from west to east."*

### INTRODUCTION

In 2001 the Central City Strategy was adopted incorporating the City Services Committee proposal as follows:

***"One Way Streets Swap.*** *Further investigate changing Lichfield Street into a two way road and Tuam Street into a one-way road to support improvements in public transport and efficient use of the Bus Exchange, enhancing the river environment (on Oxford Terrace) and amenity improvements for heritage character group buildings on Lichfield Street."*

Extensive technical work has been conducted which has looked at the issues and effects of the possible swap, some consultation with interested parties, and subsequent development and assessment of a draft scheme. The work has been reported to a number of Council forums. The latest being the STU Committee seminar in March 2002. This report now contains the latest information available for the reporting process.

### ISSUES AND OBJECTIVES

The Central City Strategy contains a series of objectives. This proposed one-way swap project is considered to address a number of issues relevant to transport, environment and amenity, and city shape. The stated strategy objectives, and the primary issues relating to them are identified immediately below:

**Transport Objective:** *"To enhance pedestrian, cyclist, and public transport accessibility and safety in and around the Central City, maintain vehicle access but reduce its dominance in some areas of the Central City, and ensure excellent links with the wider metropolitan area."*

The key issues in relation to this objective are:

- Public transport: The public transport system is currently unable to meet its stated performance objectives. This is largely due to increasing road congestion in the central city. In addition, the current routing system for buses, using peripheral termini, requires significant extensions to bus journey distance and travel times, and also impacts on the numbers of bus movements in the central city.
- Pedestrians: Pedestrians face safety and access difficulties on Lichfield Street, in front of the Bus Exchange, due to the arterial function of the road, and the entry and exit of buses and vehicles into the building.
- Cyclists: Cyclists continually rate the central city as the most hazardous area in the city to cycle around.
- Traffic: Frequent queuing of the buses and parking building cars on Lichfield Street impede the arterial function of the road. Road layout currently requires extensive vehicle movement into the central city core.
- Safety: Existing intersections on Lichfield and Tuam Streets rank highly as at-risk intersections in the city, with high associated social costs for crashes.
- Sustainability: Increasingly viable cycle, pedestrian and public transport access is required to the central city to reduce traffic gridlock and pollution effects.

**Environmental and Amenity Objective:** *To safeguard, sustain and enhance the environmental quality, heritage, natural features and visual amenity of the Central City and to mitigate threats to the continued protection and improvement of these values."*

The key issues in relation to this objective are:

- Natural Features: The Avon River is prime environmental asset in the city. It is currently flanked by heavy arterial vehicle flows
- Heritage: Retention of heritage buildings is dependent on viable commercial/retail use. Research shows pedestrian based retailing is better suited to two way streets.

**City Form Objective:** *"Slow Movement Core Area (bounded by one-way system). Review/Introduce a 30-40 kph speed zone and provide greater priority for slow modes including introduction of a new hierarchy: 1) pedestrians, 2) cyclists, 3) public transport, 4) vehicles. Improvements would include more pedestrian crossing points, improving cyclist facilities, improvements to public transport, and appropriate traffic calming and speed reductions which achieve a "pedestrian friendly zone".*

The key issue here is that, with heavy pedestrian volumes, Lichfield St is increasingly part of the city core, but is inconsistent, as a one-way street, with the "slow movement" concept.

## PROJECT SCHEME DEVELOPMENT

A scheme plan has been developed to address the issues relevant to the Central City Strategy. In summary the plan proposes:

- Tuam Street is converted to a one-way street, heading west to east.
- Lichfield Street and Oxford Terrace are converted to two-way movement, but with limited access in some sections.
- St Asaph Street, at its western end, becomes fully one way, from Antigua to Hagley Ave.
- Hagley Ave, between St Asaph and Riccarton/Tuam, becomes one-way, north bound.
- Provision of cycle/bus/pedestrian/taxi only areas on Oxford Terrace (between Hagley and Antigua), and at the Montreal/Oxford and Colombo/Lichfield intersections.
- Active, variable signage for car parking and improved directional signage in central city.

These design concepts can be seen in more detail in the attached scheme plan documents.

The conversion of the street functions (one-way to two-way, and vice versa) will change the vehicle movement pattern around the central city, enhancing the slow core concept. The conversion will also allow large savings in bus travel times and operating costs. The bus/cycle/pedestrian only areas will allow improved access for these modes over that permitted for vehicles, while also directing vehicle flows to appropriate streets. These measures will also significantly improve pedestrian safety, and allow the opportunity for riverbank enhancements.

## **ASSESSMENT OF EFFECTS**

The effects of the swap are described below:

- **Traffic Effects:** The street change will extend vehicle delays at some city intersections, and decrease delays at others. The overall result will be a slight decrease in the level of service for general traffic. It will, however, significantly increase the benefits and service to public transport. In financial terms, there would be a net service gain of approximately \$1.1M per year. There will be some limitations on the routes that can be used to access to various sections of Oxford Terrace - Lichfield Street.
- **Bus Operation Effects:** The swap will allow major changes to bus-routing to proceed. It will become more efficient and effective to move to a cross-routing system (east-west routes cross north-south routes at the Exchange). This will allow a major reduction in bus distances as main bus route journeys to peripheral termini are eliminated. Further, the cross-routing will remove the need for east-west routed bus movements on Colombo Street, thereby reducing peak bus movements to about 25% of existing levels). It will also allow some peripheral termini to be moved or removed. A small disadvantage is that passengers on east-west routes with a destination north of the Square will need to transfer buses at the Exchange, or alternatively use the free Shuttle service.
- **Safety Effects:** There are significant safety benefits with the swap. Major vehicle safety improvements will occur at Hospital Corner, Montreal/Oxford and Colombo/Lichfield as the potential for collisions is reduced or removed by changes to movement patterns.
- **River Promenade Effects:**The project provides future opportunities to enhance the southbank of the Avon River between Antigua and Durham Streets by providing a more accessible riverbank with pedestrian river promenade.
- **Heritage Effects:** The listed heritage buildings and character groups of buildings in Lichfield and Tuam Street would not appear to be greatly affected by the proposed changes to the one-way system.
- **Street Amenity Effects:** The project offers excellent opportunity for amenity improvement along the riverbank section of the work, and limited streetscape opportunities for Lichfield and Tuam.
- **Parking Building Effects:** The general impacts on all of the parking buildings along Lichfield/Tuam Streets are more than minor, with the prime difficulty being access to the entry and exit points. Most of these effects can be mitigated by active signage and improved directional signage.
- **Property Access and Valuations:** There are expected to be minor effects only on property accesses. Land valuations are also anticipated to be mainly unchanged.
- The overall economic effect on the city is expected to be neutral.

## **PLANNING AND RESOURCE CONSENTS**

There are planning and legislative issues that need to be considered in the swap.

- **City Plan:** Roading hierarchy will need to be amended in the city plan, which will require formal amendment processes.
- **Resource Management Act:** An assessment of effects will be required under the RMA, and subject to possible appeal processes, may take up to two years.
- **Transport Act:** The Council is empowered to change roading by-laws to allow Tuam Street to become one-way and the St Asaph St one-way to be extended. The process takes approximately 10 weeks.

## **PROJECT PROGRESS AND TIMELINE**

This report seeks Council approval of the consultation strategy and for consultation to proceed on the project. Should the Sustainable Transport and Utilities Committee give approval to the consultation strategy and for consultation to proceed it will commence on 3 June 2002. The consultation period will continue until 16 August 2002.

Construction is programmed to commence in August 2004 and continue for 6 months with construction occurring before and after the "Swap" occurs in November 2004 in time for the awarding of the new through routed bus contracts by Environment Canterbury.

## **ESTIMATED PROJECT COST AND BUDGET**

The draft annual plan includes the following budget provision

- 2003/04        \$600,000
- 2004/05        \$600,000

Latest estimates of the project cost is \$2.8m which includes new procedures for contingency estimation, higher inner city construction costs, inclusion of variable parking signage and lighting costs, and changes to the proposed scheme design. The scope of the project is being reviewed to define which elements are essential, and which can be deleted or deferred as separate projects. Other issues affecting costs may be identified during the consultation process.

The economic analysis of the project indicates a benefit / cost ratio in excess of Transfund New Zealand's cut off level. This means that subject to a detailed application being submitted to, and being accepted by Transfund, funding for 48% of the project cost will be available. Transfund funding would be \$1.34m and the net cost of the project to Council \$1.46m, or \$0.26m more than currently budgeted for.

## **MAIN REPORT**

The purpose of this report is to provide the Committee with information on the proposed Lichfield/Tuam one-way swap project and seek Committee approval to begin consultation at the beginning of June.

## **INTRODUCTION**

In 2001 the Council adopted Stage 1 of the Central City Strategy aimed at the revitalisation of the central city with it's vision of "*A vibrant, exciting, safe and sustainable Central City heart; a heart with a strong and healthy economy, environment, culture and society*". Development of stage 2 is currently underway with a key component of the Strategy being the central city transport strategy.

As part of the Strategy, Council is considering swapping the functions of Lichfield and Tuam Streets in the Central City so that Lichfield Street becomes a two-way street and Tuam Street a one-way street. The Strategy has as one of it's concepts and priorities:

***"One Way Streets Swap. Further investigate changing Lichfield Street into a two way road and Tuam Street into a one-way road to support improvements in public transport and efficient use of the Bus Exchange, enhancing the river environment (on Oxford Terrace) and amenity improvements for heritage character group buildings on Lichfield Street."***

This project is not simply the swapping of one way and two way traffic flow between the two streets. There would be no point in doing so unless it provided other benefits. It was proposed because it is believed to have a number of advantages and benefits that support the Central City Strategy, including benefits to public transport, cycling and pedestrian activity, and enabling amenity improvements along the Avon River.

The "Lichfield/Tuam Swap" project is a significant strategic project for Christchurch. It provides an opportunity for Christchurch to decide whether it continues to follow an American style car dominant transport system or it reinforces previous initial moves towards a more European styled system where public transport plays a bigger role.

## **BACKGROUND**

At its 17 December 1999 meeting, the then City Services Committee resolved that:

*"the staff investigate the advantages and implications of changing Lichfield Street to a two-way street and Tuam Street to a one-way street from west to east".*

Previous work done over the past two years includes:

- gathering background information for the project,
- an initial assessment of many issues surrounding the project,
- consultation with a select group,
- preliminary traffic analysis of the swap, and development of a scheme plan.

This work was reported to:

- The City Services Committee at the seminar meeting on 3 November 2000
- The Land Transport Subcommittee at the meeting on 30 July 2001
- The Sustainable Transport and Utilities Committee at the seminar meeting on 26 March 2002

This report is the latest component of the reporting process. It provides the basic information considered in developing and assessing the swap concept, and makes recommendations for consultation and future actions. The report is structured as follows:

- Section 3. Issues and Objectives: how the project was initiated and what issues gave rise to considering the swap proposal.
- Section 4. Project Scheme Development: the key features of the proposed design.
- Section 5. Assessment of Effects: the expected/anticipated impacts of the proposed design.
- Section 6. Planning and Resource Consents: issues that relate to statutory processes for developing this project
- Section 7. Project Progress and Timeline: recommendations for proceeding further with the project investigation.
- Section 8: Estimated Project Cost and Budget:
- Section 9: Consultation Strategy.
- Section 10: Project Concept Plan

## **ISSUES AND OBJECTIVES**

### **Transport Objective**

The Central City Strategy Stage 1 report *"Revitalising the Heart of Our City"*<sup>1</sup> has as its main objective:

*"To enhance and promote the Central City (the area within the four avenues) as a center of community, culture, commerce, education, celebration and environmental excellence and sustainability for the existing and future citizens of Christchurch. To make the Central City a great place to live, socialize, work, invest, play, visit, shop and learn."*

Its key transport objective is:

*"To enhance pedestrian, cyclist, and public transport accessibility and safety in and around the Central City, maintain vehicle access but reduce its dominance in some areas of the Central City, and ensure excellent links with the wider metropolitan area."*

The "Swap" provides an opportunity to address a large number of existing transport issues and also meet these central city revitalisation objectives.

*Key public transport issues:*

- The current peripheral termini based bus system requires many central city bus movements. This has caused concern for both the central city community and the Council.
- Environment Canterbury intends to move to a more efficient through-routed bus system at the next major tender round in 2004. Improving bus-route efficiency would aid this further. The current requirement for buses to loop around Lichfield, Manchester and St Asaph Streets adds significant travel time and operating costs.

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<sup>1</sup> "Revitalising the Heart of Our City – Development of a Central City Strategy - Stage 1 – Christchurch Central City Strategy – Stage 1 – Vision, Objectives, Core Principles and Short Term Priorities for Central City Revitalisation", February 2001

- Bus travel times are unreliable in growing central city congestion. Timetables have been changed to acknowledge this. Longer journeys also impose additional operating costs.
- Policy 2.7 and Policy 2.11 of the Regional Passenger Transport Plan 2001, Environment Canterbury, Feb 2002, set standards for bus arrival times and bus journey times. The public transport system is currently unable to meet these requirements.
- Buses on routes from the east arriving at the Exchange experience considerable delays on Colombo Street due to the large number of right-turning vehicles into Lichfield Street.

*Key pedestrian issues:*

- There is a conflict between very high pedestrian volumes at the Colombo/Lichfield intersection and high volumes of arterial traffic and buses turning on and off Lichfield Street.
- While pedestrians have right of way on the footpath, they are often forced to wait for buses to enter and exit the bus exchange as buses attempt to keep to their timetables in the central city congestion.
- Because of the contra flow bus lane, the footpath west of the bus exchange is hard up against the building. This allows only limited sight distance between pedestrians and exiting buses.
- Pedestrians crossing Lichfield Street to or from the Bus Exchange face a difficult "conflict" area with buses and cars entering and exiting the building, and arterial traffic flow.
- The Bus Exchange requires a pedestrian friendly environment, but the relatively high speeds and volumes of vehicles on the one-way street are not conducive to this. Other one-way streets in Christchurch have much lower pedestrian movements.

*Key cycling issues:*

- There have been 3 reported cycling crashes at the Colombo/Lichfield intersection in the last 5 years
- The main cycle route to the west from the central city is along Tuam Street where cyclists mix with moderate to high volumes of traffic before reaching the off road cycle paths in Hagley Park.
- There is a greater concentration of cyclists entering the Central City each day than anywhere else in the city. Surveys constantly rate the central city as the most difficult and risky area of the city to cycle around.

*Key traffic issues:*

- There is a conflict between the arterial road function of Lichfield Street (where the efficient movement of through traffic is important) and buses queuing for the Bus Exchange and blocking the traffic lanes.
- There is a conflict between the arterial road function of Lichfield Street and cars queuing to enter both the Lichfield and Crossing car parking buildings. Queues form and block the traffic lanes.
- Eastbound through traffic on Colombo Street is required to travel right into the pedestrian core of the central city to travel east via the Lichfield Street arterial.
- The high volume of west-bound bus movements along St Asaph Street is in conflict with the arterial function of the street. Buses add to, and are affected by arterial congestion. Provision of separate corridors for public transport can be more appropriate.

*Key safety issues:*

- Four intersections along the Oxford/Lichfield and Tuam Street corridors rank in the 60 least safe intersections in Christchurch. This is based on the social cost of crashes from the Land Transport Safety Authority (LTSA) for 1996 to 2000. Those intersections are Colombo/Lichfield – 25<sup>th</sup>, Oxford/Montreal & Tuam/Montreal – 31<sup>st</sup>, Lichfield/Madras – 45<sup>th</sup> and 53<sup>rd</sup> - Hagley/Riccarton/Oxford/Tuam. The social cost of the crashes is \$11.7m NPV.

- Twelve of the 17 intersections along the Oxford/Lichfield and Tuam Street corridors rank in the total list of around 600 least safe intersections compiled by the LTSA. The social cost of the crashes is \$19.3m NPV.

*Key transport sustainability issue:*

- Christchurch is likely to continue to grow, which means increasing traffic volumes heading into the central city. There is a physical limit to the amount of traffic that can be sustainably catered for without adverse pollution and gridlock effects. Viable pedestrian, cycle and public transport alternatives must provide as good, if not better levels of service to cater for some of the growth.

## **Environmental and Amenity Objectives**

The central city revitalisation strategy has as another of its objectives:

*“Environmental Quality - To safeguard, sustain and enhance the environmental quality, heritage, natural features and visual amenity of the Central City and to mitigate threats to the continued protection and improvement of these values.”*

*Key natural feature issue:*

- The Avon River is the prime environmental asset in central city. Along Oxford Terrace its south bank is currently flanked by heavy arterial traffic flows that limit future potential enhancements of that section of the river.

*Key heritage issue:*

- Lichfield Street contains a significant stock of heritage buildings between Colombo Street and Madras Street. The future of these buildings hinges on their continued viable economic use including viable retail uses of their ground floors. Papers researching other cities that have undertaken street swaps suggest that two-way streets better suit pedestrian based retailing opportunities.

## **City Form Objective**

The central city revitalisation strategy has, as one of its proposed concepts and priorities a slow core area bounded by the one way street system:

*“**Slow Movement Core Area** (bounded by one-way system). Review/Introduce a 30-40 kph speed zone and provide greater priority for slow modes including introduction of a new hierarchy: 1) pedestrians, 2) cyclists, 3) public transport, 4) vehicles. Improvements would include more pedestrian crossing points, improving cyclist facilities, improvements to public transport, and appropriate traffic calming and speed reductions which achieve a “pedestrian friendly zone”.*

*Key city form issue :*

- With its increasing pedestrian volume, Lichfield Street is effectively part of the central city core area. The fact that it is a one-way street is inconsistent with the slow-core theme.

## **PROJECT SCHEME DEVELOPMENT**

The rationale for the scheme design has been to address the issues set out above and to meet the central city revitalisation objectives. This section describes the key elements of the proposed project.

An initial “Swap” option developed in 2000 was tested further and a number of sub-options investigated during the development of the proposed scheme. To achieve improvements in the level of service provided to public transport movement, consideration was initially given to the use of partial bus gates and/or limited banned-turn movements for general traffic at several intersections.

However, the Land Transport Safety Authority (LTSA) raised questions about the safety and readability of the “Swap” features. The issues raised by the LTSA, as well as other outstanding issues, such as potentially having mixed arterial and local traffic functions on Oxford Terrace, led to the proposed design which is attached to this report.

The design varies from the options presented at the Council seminar in March, particularly for the section between Riccarton Avenue and Montreal Street.

The key elements of the project and the rationale for their inclusion are:

### **Primary Road Hierarchy Conversion**

- Conversion of Tuam Street from a mixed hierarchy street to a one-way eastbound arterial road from Hagley Avenue to Fitzgerald Avenue.
  - Provides the arterial road function currently performed by Oxford Terrace and Lichfield Street and moves one-way traffic further from the city's central core.
- Conversion of Oxford Terrace and Lichfield Street from an arterial road to a local street from Hagley Avenue to Fitzgerald Avenue.
  - Provides two way public transport and cycle movement on a single corridor with a high level of priority, efficiency and reliability while retaining local property access.
- The extension of the St Asaph Street arterial as a one way street to Hagley Avenue.
  - Provides a logical extension of St Asaph's one-way status. It also prevents potential capacity restrictions that would otherwise affect the Hagley/Riccarton/Oxford/Tuam intersection, should St Asaph St movements be retained using Antigua and Tuam Streets.
- Conversion of Hagley Avenue, from St Asaph Street to Tuam Street, to one-way north-east-bound.
  - All options investigated require this section to be made one-way to provide enough capacity at the Hagley/Riccarton/Oxford/Tuam intersection. This will eliminate the significant crash problem with the existing right-turn from Riccarton Avenue into Hagley Avenue. The right-turn can be made via the alternate route along Tuam, Antigua and St Asaph Streets. The volumes of right turners are not significant in comparison to the through traffic flows.
- Possible provision of a right turn slip lane for local traffic from Oxford Terrace north into Montreal Street.
  - Rationale – This slip lane allows traffic exiting the Lichfield Street car park and Lichfield St businesses to travel north without being required to travel further through the central city on Oxford Terrace past the “Strip” or deviate south to St Asaph Street.

### **Road Safety Measures**

- Construction of kerb buildouts at all intersections along the project.
  - Kerb buildouts will maximise the safety for all road users by narrowing the intersections down.
- High Street at the High/Lichfield/Manchester intersection deviated onto Manchester Street becoming left in left out only with a narrow median on Manchester Street to prohibit right turns.
  - This provides more intersection capacity and removes safety issues associated with a five legged intersection having all approaches as two way.

### **Cycle, Pedestrian, Public Transport Improvements**

- Provision of three bus/taxi/cycle access only areas. These are located on Oxford Terrace (between Hagley and Antigua), at the Montreal/Oxford intersection, and the Colombo/Lichfield intersection.
  - These provide priority to public transport, pedestrian and cycle movement along Oxford Terrace and Lichfield St, from Hospital Corner to Manchester Street. In particular, they:
    - \* Provide two-way public transport movement on a single corridor with a high level of public transport priority, efficiency and reliability and retain local property access.
    - \* Create no-entry facilities for general traffic, to maximise ease of understanding and compliance.
    - \* Provide a safe and pleasant cycle route into the City from the west and east away from high traffic volumes.



- \* Restrict arterial traffic from inadvertently trying to use Oxford Terrace and directs arterial traffic to Tuam Street.
- \* Provide an area for a peripheral termini (if needed) and help provide sufficient capacity and reduce conflicting turns at the Hagley/Oxford/Riccarton/Tuam intersection.
- \* Enable the traffic signals on Montreal Street approach at Oxford Terrace to be removed. The Montreal/Tuam and Montreal/Oxford intersections can be converted to a single-signal controlled area. This removes the significant crash problem of vehicles driving through the red lights at the Montreal/Oxford intersection after turning off Tuam Street.
- \* Will substantially improve the safety of Colombo/Lichfield intersection. They also resolve the pedestrian, bus, and arterial traffic issues at the bus exchange, Crossing car park and at the Colombo/Lichfield intersection. They provide an improved pedestrian, cycle and public transport environment in this area.

### **Signage and Navigation Improvements**

- Provision of variable parking signage and additional directional signage to off-street parking buildings (variable signage is that signage which can change to show continually updated information)
  - The “Swap” involves making changes to the way the street system works. It is important that drivers are guided to Lichfield and Crossing parking buildings until they learn the new routes. Furthermore Christchurch also currently lacks an adequate directional signage system to guide drivers to any of the off-street car parks in the central city. Variable parking signage showing whether a parking building is open and the number of remaining car parking spaces will also be provided.
- Provision of additional directional signage to sections of Oxford Terrace and the possibility of renaming of those sections.
  - With the bus/cycle/taxi-only access points identified above, navigation around the central city area will change.
    - \* It is important that drivers are guided until they learn the new routes.
    - \* A single access and egress point to each section of Oxford Terrace and parts of Lichfield Street has been provided to maximise the ease of understanding for drivers, to maximise the ease of sign posting directions, and to allow the unique naming of each section for ease of understanding. The access changes are:
      - Oxford Terrace from Antigua Street to Montreal Street is accessible from a newly two way Antigua Street north of Tuam Street
      - Oxford Terrace from Durham to Montreal is accessible from Durham Street
      - Lichfield Street from Durham Street to Colombo Street is accessible from Durham Street.
      - Lichfield Street from Colombo Street to Manchester Street is accessible from Manchester Street.

### **ASSESSMENT OF EFFECTS**

#### **Traffic**

Analysis of the “Swap” has been carried out using the SATURN (Simulation and Assignment of Traffic to Urban Road Networks) modelling suite. It is an industry standard tool for predicting and evaluating changes to urban networks. Key outputs include traffic flows on links and delays at intersections. Network wide time and distance values can be compared between options and used to gauge economic impacts. The key results of the analysis are summarised below.

#### *Traffic flows*

The table below summarises the modelled traffic flows along Lichfield, Tuam and St Asaph Streets for the do minimum (Lichfield Street one way with a through routed bus system) and the “Swap”. The table shows most traffic previously travelling east along the Oxford/Lichfield St route now does so on Tuam Street. Similarly, westbound vehicles are diverted to St Asaph Street from Tuam Street. With restrictions to general traffic through movement on Oxford Terrace and across Colombo St on Lichfield Street, the only vehicles on these sections are buses, taxis and general traffic using the parking buildings, on street parking spaces or accessing local businesses.

<b>Table: Daily Traffic Flows</b>					
<b>Street</b>	<b>Section</b>	<b>General Traffic</b>		<b>Buses</b>	
		<b>Do Minimum</b>	<b>Swap</b>	<b>Do Minimum</b>	<b>Swap</b>
Oxford	Hagley - Antigua	18200	0	526	779
	Antigua - Montreal	17500	Local	526	779
	Montreal - Durham	12200	1800	526	1024
Lichfield	Durham - Colombo	13400	Local	502	1000
	Colombo - Manchester	10500	Local	1000	1000
	Manchester - Madras	9100	700	502	1000
	Madras - Barbadoes	8300	1500	289	368
	Barbadoes - Fitzgerald	8000	1300	68	155
Tuam	Hagley - Antigua	11000	21800	253	0
	Antigua - Montreal	9500	21400	0	0
	Montreal - Durham	13700	15300	0	0
	Durham - Colombo	10800	18300	0	0
	Colombo - Manchester	11400	19400	0	0
	Manchester - Madras	9800	15000	0	0
	Madras - Barbadoes	8400	12300	0	0
	Barbadoes - Fitzgerald	7200	13100	0	0
St Asaph	Hagley - Antigua	4400	20400	245	245
	Antigua - Montreal	9300	20700	498	0
	Montreal - Durham	14100	26000	498	0
	Durham - Colombo	13300	18800	498	0
	Colombo - Manchester	10900	18100	997	0
	Manchester - Madras	11000	15800	498	0
	Madras - Barbadoes	11400	15600	498	198
	Barbadoes - Fitzgerald	7000	8200	87	0
Colombo	St Asaph - Tuam	9400	12800	1501	1003
	Tuam - Lichfield	7500	4000	1501	1003
	Lichfield - Hereford	3100	4000	1003	1003
Hagley	St Asaph - Tuam	12300	29500	247	247

Note: Do minimum is Lichfield Street one way with a through routed bus system

The traffic analysis also shows that traffic flows are within the capacity provided by the links, and average intersection delays are reasonable and intersections below capacities.

#### *Future traffic flows*

Future traffic flows show patterns very similar to the table above. There is relatively small growth in traffic in the central city to 2011 (between 1 and 2% p.a.). It is assumed full through routing of the core bus routes is established by this time, with only a few minor routes using peripheral termini. Again, westbound buses must loop clockwise around Colombo/Lichfield/Manchester/St Asaph without the "Swap". Intersection delays are generally higher in the future than present, but average intersection delays along the Lichfield/Tuam/St Asaph corridor remain reasonable and intersections below capacity with or without the "Swap". Critical intersection movements are the left turn from Tuam into Montreal and the right turn from Durham into St Asaph, which are both nearing saturation but continue to function in a satisfactory manner.

#### *Travel benefits*

There are benefits to bus passengers and bus operating costs as a result of the scheme of about \$1.6m annually. The "Swap" increases the distance that general traffic must travel, increasing their costs by about \$0.5m annually. This increase in cost is offset by the benefits to buses, hence the scheme has a net benefit of about \$1.1m annually. Benefits increase in the future to about \$1.7m/year in 2011 with the benefits to expected bus passenger growth exceeding the costs to expected general traffic growth in the central city. Key results are displayed in the table.

Scenario	Travel Time Costs		Vehicle Operating Costs		Total Cost		Total Cost
	Public Transport	General Traffic	Public Transport	General Traffic	Public Transport	General Traffic	All
Do Minimum (1999)	\$25.26m	\$77.90m	\$3.07m	\$57.61m	\$28.33m	\$135.51m	\$163.85m
"Swap" (1999)	\$23.89m	\$77.84m	\$2.85m	\$58.18m	\$26.74m	\$136.02m	\$162.76m
Benefits (1999)							\$1.1m
Do Minimum (2011)	\$34.45m	\$103.08m	\$3.11m	\$71.66m	\$37.56m	\$174.74m	\$212.30m
"Swap" (2011)	\$31.49m	\$103.79m	\$2.89m	\$72.42m	\$34.38m	\$176.21m	\$210.59m
Benefits (2011)							\$1.7m

#### *Benefit/cost ratio*

A first order benefit cost ratio using Transfund New Zealand project evaluation manual procedures has been calculated for the project. Using the travel time and crash saving benefits, and a construction cost of \$2.8m, a B/C ratio of 7.5 is obtained.

NPV* of travel benefits	\$11.1m
NPV of crash savings	\$4.6m
NPV of tangible benefits	\$15.7m
NPV of project costs	\$2.1m
B/C	7.5

*Note: Construction assumed to start at the end of 2004, 25 year analysis period, discount rate of 10% per annum, benefits assumed constant beyond 2011.*

#### *Summary*

The traffic modelling analysis has verified that the "Swap" project has merit, with benefits to bus passengers and operators. The cost of travel for general traffic increases, but is offset by the benefits to public transport. The economic analysis shows a benefit/cost ratio of 7.5 which exceeds the Transfund cut off of 4.0. Transfund funding should be available for the project subject to a detailed application to Transfund being accepted. Encouraging public transport and discouraging private car modes of travel for commuter trips especially in the central city is a key target of the draft Regional Land Transport Strategy. It has been demonstrated above that the proposed scheme better meets this objective than the existing situation with a through routed bus system. The establishment of a bus corridor on Oxford Terrace/Lichfield St will provide smooth, efficient and reliable operation of the buses and provide greater flexibility to provide for any long term future proposals such as light rail.

#### **Bus Operation**

Associated with, but not directly part of the "Swap" are benefits to the efficiency of the public transport system with a move to a mainly through routed bus system from a peripheral termini based system. The change to a through routed bus system will reduce the number of bus movements on central city streets and the related issues the City has experienced with the peripheral termini.

However, the "Swap" removes further major constraint to the efficient operation of east and west routed buses. These potential benefits to the operation of public transport in the central city have been identified as one of the key reasons for pursuing this project.

North and south bus routes are largely unaffected by the "Swap" excepting that there will be fewer buses to interact with on Colombo Street with the removal of any need for east and west routed buses to use it.

### *Bus times and distances*

The "Swap" brings with it a reduction in bus travel times and distances. Based on weekday services, weekday route kilometres for public buses would reduce by some 173,900 km per year. The following outlines how these changes occur:

- With Lichfield Street one-way as presently configured, bus routes using the off-street Bus Exchange are either required to make large diversions to access it via St Asaph-Colombo or to return to their route via the Lichfield-Manchester-St Asaph loop. These diversions add operating kilometres to bus services and add journey time for passengers. The "Swap" eliminates this extra movement by allowing two-directional movement on Lichfield Street.
- The "Swap" proposal enables bus routes in the central city to move to a "cross" arrangement, whereby the east-west routes and north-south routes cross each other at one point with no common running. The "cross" arrangement was the original concept for bus terminus operations in the City, but did not fully come to fruition. When the Bus Exchange was situated further south than originally planned, it was considered that the east-west bus routes did not adequately service the bus users in the northern part of the central city. East and west routed buses were therefore directed to serve the Colombo/Gloucester stops. This has generated high bus numbers on Colombo Street, and additional bus travel times to reach the peripheral termini after visiting Colombo/Gloucester. With the "Swap", east-west buses will not be required to move north-south on Colombo Street. This will significantly reduce east-west bus running times and distances.

### *Bus stops and numbers*

The bus re-routing associated with a two-way Lichfield Street will see a relocation of bus movements from Colombo, Manchester and St Asaph Streets to Lichfield Street. This will alter peak hour bus movements as follows:

- Reduce Colombo Street bus movements (between Lichfield and Gloucester Streets) to about 25% of current level.
- Bus movements in Lichfield Street will increase to around 63 buses per hour in each direction between Barbadoes Street and Antigua Street.

All north-south services will be able to use the on-street component of the Bus Exchange in Colombo Street, with all east-west services using the off-street Bus Exchange in Lichfield Street.

Subsequent to the "Swap" Environment Canterbury's plans for bus service changes will allow removal of the Riverside peripheral layover, and establishment of a new peripheral terminus at the St Andrew's site adjacent to public hospital (the Antigua/Oxford/Tuam block).

### *Potential Disadvantages*

A possible shortcoming of the effects on passenger transport relates to passenger access from the north of the Central City, to east-west bus services. With the proposed route changes to take advantage of Lichfield Street being two-way, there will be no eastern or western bus services directly serving the northern city centre. There is a risk of disadvantaging some passengers in the northern parts of the city centre. It is not clear how many would be disadvantaged. However, conversely, the indirectness of the current routes may already be acting as a constraint on patronage. The proposal represents a compromise for directly serving passenger destinations in this area.

To off-set the effects of this, the north-south and east-west routes would cross, which would expedite passenger transfer. The increased route legibility with the simpler cross arrangement of buses may mean that passengers with destinations to the north will transfer at the Exchange. Alternatively the free central city shuttle is also available.

### *Bus Effects Summary*

Overall, it is considered that the advantages to bus services from Lichfield Street being made two-way outweigh possible impacts on some existing passengers.

While it is possible to have a through routed bus system without the “Swap”, the cost savings and other opportunities outlined in the report that this project presents would not be achievable. Environment Canterbury has indicated its support for the “Swap” because of the public transport benefits that can be achieved.

## Safety

There are significant safety benefits associated with the “Swap” project that have a net present value of approximately \$4.6m.

The key crash benefits occur at the Hagley/Riccarton/Oxford/Tuam intersection, the Montreal/Oxford intersection and the Colombo/Lichfield intersection, all of which have poor existing crash records. Small dis-benefits will occur on St Asaph Street with the increased traffic volumes where there are no works proposed.

A safety benefit analysis of the “Swap” project was undertaken by a traffic safety consultant to determine whether there are safety benefits or costs associated with the project.

Each intersection on Oxford Terrace, Lichfield Street and St Asaph Street was analysed using the reported crash record for the 5 year period 1997 to 2001 and the traffic projections for the intersection with and without the “Swap”.

Safety benefits or dis-benefits are a result of increases or decreases in traffic through an intersection and whether there is a specific crash type that will be affected by the increase/reduction in traffic, combined with the number and type of conflicts at the intersection and any change in intersection form.

No change in mid-block crash risk or cost was assumed because the swap redistributes traffic between two one way streets and a local street that simply move location. The only locations where an analysis was carried out midblock was where there was an inherent roading issue where safety would be affected as a result of the change in traffic demand. This assumption is conservative because the traffic analysis has shown that more traffic will use the one way pair than at present because of restraints that are proposed for Lichfield Street once it becomes two way. In principle it is safer to concentrate through traffic onto a one way system than to have it spread across many two way roads.

The table below summarises the safety analysis of the “Swap” project. The annual safety costs of the do minimum (existing network with a through routed bus system) and the “Swap” are shown, with the resulting benefits or dis-benefits in the third column.

Table: Summary of Annual Crash Costs And Savings			
Intersection	Do Minimum Annual Crash Cost	“Swap” Annual Crash Cost	Change In Costs Increase = dis-benefit (Decrease = benefit)
St Asaph St/Hagley Ave	\$43,848	\$21,924	(\$21,924)
St Asaph St/Stewart St	\$15,174	\$15,174	\$0
St Asaph St/Antigua St	\$19,116	\$19,116	\$0
St Asaph St/Montreal St	\$68,580	\$94,640	\$26,060
St Asaph St/Durham St	\$150,970	\$182,673	\$31,703
St Asaph St/Colombo St	\$278,935	\$278,935	\$0
St Asaph St/Manchester St	\$137,160	\$137,160	\$0
St Asaph St/Madras St/High St	\$155,506	\$178,831	\$23,325
St Asaph St/Barbadoes St	\$30,348	\$40,363	\$10,015
St Asaph St/Fitzgerald Ave	\$32,022	\$32,022	\$0
Riccarton Ave/Hagley Ave	\$321,109	\$160,555	(\$160,554)
Tuam St/Antigua St	\$14,040	\$14,040	\$0
Tuam St/Montreal St	\$40,446	\$34,379	(\$6,067)
Tuam St/Durham St	\$157,180	\$110,026	(\$47,154)
Tuam St/Colombo St	\$179,644	\$179,644	\$0
Tuam St/Manchester St	\$169,384	\$167,656	(\$1,728)
Tuam St/High St	\$33,156	\$33,156	\$0
Tuam St/Madras St	\$131,314	\$131,314	\$0
Tuam St/Barbadoes St	\$24,732	\$24,732	\$0
Tuam St/Fitzgerald Ave	\$55,620	\$36,153	(\$19,467)

Intersection	Do Minimum Annual Crash Cost	"Swap" Annual Crash Cost	Change In Costs Increase = dis-benefit (Decrease = benefit)
Oxford Tce/Antigua St	\$17,982	\$10,789	(\$7,193)
Oxford Tce/ Montreal St	\$402,365	\$40,236	(\$362,129)
Oxford Tce – 100m east of Montreal	\$107,716	\$37,700	(\$70,016)
Oxford St/Lichfield St/Durham St	\$50,004	\$45,004	(\$5,000)
Lichfield St near Plymouth Lane	\$17,982	\$14,386	(\$3,596)
Lichfield St/Colombo St	\$392,263	\$206,821	(\$185,442)
Lichfield St/Manchester St	\$78,084	\$66,371	(\$11,713)
Lichfield St/Madras St	\$259,819	\$220,846	(\$38,973)
Lichfield St/Barbadoes St	\$148,756	\$157,681	\$8,925
Lichfield St/Fitzgerald Ave	\$43,848	\$55,248	\$11,400
Total Annual Cost	\$3,577,100	\$2,747,576	(\$829,524)

Based on Transfund New Zealand project evaluation procedures the net present value of the crash savings is \$4.6m assuming construction begins in late 2004.

The intersections with the key savings are discussed below.

#### *Montreal/Oxford*

Crash savings of \$362,000 per annum

This intersection has a poor crash record where 21 of the 33 crashes are crossing, no turning type crashes. A recent crash study concluded that many of the crossing, no turns crashes were due to motorists having turned either left or right from Tuam Street into the short block length between the two intersections and not being prepared for the red light at Lichfield Street. With the "Swap" there will be a greater demand for the left turn from Tuam Street towards the north on Montreal Street.

The proposal is to restrict the Oxford Terrace approaches to Montreal Street to public transport and cyclists only. The two intersections will come under the control of one signal controller and the left turn from Tuam Street will be stopped when traffic or pedestrians are crossing Montreal Street from Oxford Terrace. This new arrangement with reduced traffic volumes should be very safe resulting in a crash reduction of 90%.

#### *Colombo/Lichfield*

Crash savings of \$185,000 per annum

This intersection has 9 reported injury crashes in the last five years with a crash rate of 1.8 injury crashes per annum.

The intersection has become very complex in recent years with the introduction of the bus exchange leading to congestion in the intersection and construction of a contra flow bus lane. However, these changes appear to have been beneficial in reducing the crash rate.

The Lichfield Street approaches to Colombo Street are proposed to be for public transport and cyclists only with the "Swap". The reduction in traffic and reduction in potential conflicts at the intersection will cause a conservative reduction in crashes of 55%.

#### *Hagley/Riccarton/Oxford/Tuam*

Crash savings of \$161,000 per annum

This intersection has a reported injury crash rate of 2.6 injury crashes per annum. The total number of reported crashes is 31 including non-injury crashes. Traffic volumes do not change significantly, but they are redistributed differently through the new one way system and consequent turn bans.

There are 6 crashes due to vehicles turning left from Riccarton Avenue into Oxford Terrace. These will be virtually eliminated since the only traffic performing the manoeuvre will be buses and taxis.

There are 10 crashes due to right turn vehicles from Riccarton Avenue or Tuam Street colliding with on-coming straight through vehicles. Since Tuam Street will become a one way road and there will be no turns from Riccarton Ave, it is not possible for these crashes to occur in the future.

There will still be the potential for crashes at the intersection. The intersection will effectively become the intersection of 2 one way roads. These type of intersections can have a very good crash record. Therefore, a crash saving of 50% can be considered to be reasonable or conservative.

### **River Promenade**

The project provides future opportunities to enhance the steep and inaccessible southern riverbank of the prime environmental asset in the Central City, the Avon River, between Antigua and Durham Streets.

The "Swap" removes the arterial traffic function from, and significantly reduces traffic flows on Oxford Terrace. This will enhance the amenity through reduced traffic speed and noise. It will also allow the carriageway width to be reduced in the future with improved opportunities to upgrade the southern riverbank of the Avon River so that it is more accessible thereby further enhancing the amenity of the river corridor.

This is consistent with the Central City Strategy which has as one of its concepts and priorities a continuous promenade along the Avon River potentially on both sides of the river through the central city:

*"Avon River Corridor Pathway. Build continuous sealed pathway with themed street furniture, signage, lighting, and some public art and reconstruction of some areas and further enhancements"*

Enough width is available to have a wide, sealed pathway for shared use, a gritted pathway for pedestrian use only, with room in between for street furniture etc, achieving an inviting and pleasant river side environment.

Public consultation was carried out on a number of proposals, and a majority of the respondents supported the idea of a river "promenade". Specific suggestions on added features along the river included more seats/benches, wider and shared walkways, public art, and lights and informative plaques about special historic events.

### **Heritage Buildings**

The listed heritage buildings and character groups of buildings in Lichfield and Tuam Street are not greatly affected by the proposed changes to the one-way system. Their heritage fabric and construction, heritage values are unchanged. St Michael's Church is one heritage building that could benefit from the swap, with street narrowing enabling a larger area of grass and landscaping to distance the site from the road, increasing exposure and accessibility.

However, Lichfield Street contains a significant stock of heritage buildings between Colombo Street and Madras Street. In most cases the future of these buildings hinges on their continued viable economic use including viable retail uses of their ground floors. Papers researching other cities that have undertaken street swaps suggest that two-way streets better suit pedestrian based retailing opportunities. The increasing pedestrian flows and a swap to two way flow on Lichfield Street may help enhance the economic viability of these buildings. Conversely the move to one way flow on Tuam Street may affect existing pedestrian based retailing over time based in heritage buildings.

### **Street Amenity**

Neither Tuam, St Asaph nor Lichfield Street rank highly in terms of their amenity value when compared to other central city areas. For Tuam and St Asaph Street, this is due mainly to the nature of the buildings and uses on either side and the lack of interest along the street. For Lichfield Street it is the above factors, plus the volume of traffic. The existing pedestrian environment around the Lichfield frontage of the bus exchange is hostile, with buses and vehicles conflicting with pedestrian movements along and across Lichfield Street.

It is considered that there is no direct correlation between one-way traffic and amenity. Erosion of amenity by traffic is instead due to high traffic volume (particularly of heavy goods vehicles), associated noise and pollution.

Amenity is only perceived if there are people there to experience it. Pedestrians are most directly affected while drivers are also influenced by the vehicle environment. Higher pedestrian volumes on Lichfield Street than on Tuam Street and St Asaph Street suggest the net affect will be positive for pedestrians. Conversely the removal of arterial traffic flows from Oxford Terrace travelling alongside the Avon River suggest the effects will be negative for vehicle drivers.

The negative impact of high traffic volumes on amenity can be mitigated to a certain extent by additional landscaping and street features. The kerb buildouts at all the intersections along Lichfield and Tuam Streets provide an opportunity to enhance the amenity for pedestrians and drivers through landscaping.

This project does provide two significant opportunities of improving amenity. The first is the possible river bank enhancement mentioned above on Oxford Terrace. The second is the improvement to the pedestrian-unfriendly environment on Lichfield Street.

## **Parking Facilities**

### *Hospital Parking Building*

There are likely to be less than minor effects on access to and egress from the Hospital Parking building.

Motorists currently have difficulty entering and exiting this car park at peak times because invariably there is a line of north bound traffic waiting at the traffic lights at Tuam St. Traffic flows on Antigua Street will reduce with the "Swap" which will benefit these motorists.

Drivers from southwestern suburbs who would usually return via Tuam Street and Hagley Avenue will now need to make a right hand turn out of the car park and travel via St Asaph Street to Hagley Avenue. With reduced traffic flows on Antigua Street the right turn will not be difficult and net effect will be negligible.

To access the car park motorists from the eastern suburbs will have to more appropriately travel along St Asaph Street arterial as the choice of using the mixed hierarchy Tuam Street will no longer be available as a route.

Canterbury Health propose to construct a new multi level parking building on the north east corner of Antigua St and St Asaph St for Hospital staff parking. If this happens, it is likely that the existing parking building will be dedicated for visitor parking only which over time will significantly increase traffic movements in and out of this building. Currently more than half of this car park is used by Hospital staff. The "Swap" will be beneficial in reducing conflicting traffic flows on Antigua Street.

### *Lichfield St Parking Building*

The "Swap" will remove some issues with the operation of this car parking building but will create others that can be mitigated to an extent.

This car park is the busiest of all CCC operated car parks and as such has the most traffic related problems. There are two main existing traffic issues:

- Vehicles queuing to enter this car parking building interfering with arterial traffic flows. With the "Swap" arterial traffic will be removed from Lichfield Street. Proper traffic management of the queues and low traffic flows should ensure that bus flows are not significantly affected.
- The car park becomes extremely busy during certain times and events (Ballantynes sale for instance). During these busy times queues form and may extend across the Durham Street intersection. The inclusion of active variable parking signage with the "Swap" will help direct traffic to other car parking buildings reducing the likelihood of these queues.



The "Swap" will introduce four issues:

- The bus/taxi/cycle only areas on Oxford Terrace and Lichfield Street will limit the access route to the parking building to Durham Street. Traffic from the northwest, north and northeast will be unaffected. Traffic from the west, south and east will access Durham Street via Montreal and Cashel Street traveling past the alternative King Edward Barracks car park. It is important that directional and active variable parking signage be included as part of the "Swap" project to guide drivers until they learn the new routes and that adequate advertising is undertaken when the "Swap" occurs. It is worth noting that Christchurch currently has a very poor parking signage system. The "Swap" provides an opportunity to make this upgrade.
- Currently there is a certain amount of interconnectivity between the Lichfield St and Crossing car parks. If one gets full motorists are directed to the other. This interconnectivity will still exist but at the location of the variable parking signage not from directly outside the parking building.
- At peak unloading periods when two exit lanes operate, motorists will have to compete for one west bound lane into Lichfield St. Low traffic flows on Lichfield Street should ensure that this does not become a safety issue but it will need to be monitored.
- There may be a temptation for motorists to turn right from Lichfield St into Oxford Terrace past "The Strip" to travel north. It is not possible to stop drivers making illegal manoeuvres. It is important that the availability of the right turn slip lane from Oxford Terrace north into Montreal Street will be sign posted from Lichfield Street.

#### *Crossing Parking Building*

This car park is not as large as the Lichfield St car park and therefore has fewer traffic movements although it is full most Thursdays and Fridays between 12 noon and 2.30pm.

The bus/taxi/cycle only area at the Colombo St/Lichfield St intersection requires all traffic to access the car parking building from Manchester Street. Like the Lichfield parking building it is important that directional and active variable parking signage be included as part of the "Swap" project to guide drivers until they learn the new routes and that adequate advertising is undertaken when the "Swap" occurs.

The "Swap" will completely eliminate buses being delayed from entering the Bus Exchange by queuing cars. Currently, hardly a day goes by when buses are not held up entering the Bus Exchange because of cars queuing to get into the Crossing car park.

A separate turn lane is provided in the design for vehicles entering the car park. This should avoid any conflicts between queued vehicles and buses outside the Crossing.

#### *Tuam St Car Park*

Should Tuam St become one way, the entry lane at this car park could be moved to the right hand side in order to eliminate vehicles entering and exiting the car park crossing paths. This is desirable but not essential. This would require the entry/exit to be reconfigured including modifications to the ticket booth, and moving the ticket dispenser, barrier arms and card reader. It would also provide an opportunity to consider moving the booth further on site to allow more off road queuing with the increase in status and traffic flows on Tuam Street.

#### *On Street Parking*

The "Swap" will result in a minor reduction on street car parking spaces. The main changes will occur at the bus/taxi/cycle only areas, on Tuam Street at the Montreal Street intersection and on Hagley Avenue from St Asaph Street to Tuam Street.

#### **Traffic Noise**

The "Swap" would produce only minor changes to peak noise levels of the order of 3 dBA. Plus or minus 2 dBA is generally considered within the bounds of variability and margins of error. The changes in noise levels are therefore not considered significant.

## **Property Access**

From purely an access perspective properties and businesses do not seem to be affected other than by the change in the direction of travel of vehicles on each street.

A preliminary investigation of all properties along Oxford Terrace, Lichfield and Tuam Streets shows that only one business, Sheppard and Kime may be adversely affected. The business will have difficulties legally moving cars on road between their adjacent building on a one way Tuam Street.

The public consultation process will raise any other as yet unidentified property access issues.

## **Property Valuations and Commercial Opportunities**

### *Land Uses*

There does not appear to be any land use on Lichfield or Tuam Streets that are there specifically because of the nature of the street. The predominant uses within the study area are of a service nature, either related to vehicles or trades. Tuam Street can be regarded as a secondary service/business type location. Lichfield Street provides similar service functions while uses between Colombo and Manchester Streets have more pedestrian based retail focus and benefit from the spillover of retail uses from the central city. From Manchester Street east through to Fitzgerald Avenue, similar land uses indicate that values are reasonably consistent, indicating little impact of the street type.

### *Property and Land Values*

It is considered that the "Swap" would have a neutral effect on values and rental rates. Research and rental evidence highlights that the streets in the study area perform similar functions and there are only small differences in property values and rental paid for premises on both streets. Rentals paid in Tuam Street are overall lower in comparison to that of Lichfield Street due to the retail influence on certain blocks in Lichfield Street. Higher rentals in Lichfield Street can also be due to the perceived retail value being closer to the central business district.

## **Commercial Development**

The Lichfield and Tuam Street locations have not seen the level of development of other one-way street locations.

Lichfield Street can be defined as the natural southern boundary to the central city prime retailing area and provides intermediate vehicle and pedestrian access to the retail area. Parking facilities are provided, namely the Lichfield Street car parking building and The Crossing parking building and to a lesser extent the Bedford Row building.

High Street's development has occurred in its own way and the one-way swap would hold no significant threat to future development plans. The High Street commercial and retail precinct has been developing on its own accord with established boutique type operators and cafés and restaurants. The area also benefits from the large presence of McKenzie & Willis. The Christchurch Polytechnic's location and its Jazz School have also benefited this area.

Tuam Street is probably the least popular of Lichfield, Tuam and St Asaph Streets and could potentially benefit from becoming a one-way street. Higher traffic volumes and greater profile, could give it a lift and it could fulfil similar type uses such as has occurred on St Asaph Street.

## **Overall Economic Effects on the City**

The overall impact of economic effects on the City are expected to be neutral. Any change in retail trade in the Lichfield/Tuam area is likely to be offset by changes elsewhere in the city, and therefore will be neutral overall. For the situation to be otherwise the change would have to, in some way, alter people's perception of the costs of travelling to the central city, change the desirability of the central city as a shopping destination, or affect their spending habits while in the city. Attribution of such changes to the Lichfield/Tuam swap would be difficult, other than in the context of a wider project on inner city revitalisation.

## PLANNING AND RESOURCE CONSENTS

### The City Plan

The statutory planning framework is based on two Acts of Parliament: the Town and Country Planning Act 1977 ('TCPA', from which was developed the 1986 Transitional City Plan) and the Resource Management Act 1991 ('RMA', which supersedes the TCPA and has provided the basis for the development of the Proposed City Plan). This summary will only cover the proposed City Plan provisions.

The roading hierarchy in the Proposed Plan sets out the function of roads and the level of construction expected on them. This provides certainty for those who live adjacent to such roads and acts as an indicator of the likely environmental impacts of the roads within the hierarchy. The Proposed Plan classifies Lichfield and Tuam Streets within the roading hierarchy as follows:

Lichfield St	(Oxford Terrace to Fitzgerald):	minor arterial
Tuam St	(Hagley Avenue to Antigua):	minor arterial
	(Antigua to Durham):	collector
	(Durham to Fitzgerald):	local

Should Tuam and Lichfield Streets be altered in their functions, their classification in the City Plan would also need to be altered. In addition, there are several maps and plans identifying the direction of flow of traffic that would also need to be changed. These changes would require a formal Plan Change to be instigated.

### Resource Management Act

The RMA requires that the Council enable the community to provide for its well being (S5) and also requires that the Council pursue efficient resource use (S7). The Council must hence consider the various impacts of the proposal, both commercial and non-commercial, and weigh up the benefits and cost when deciding whether the change in the one-way streets constitutes an efficient use of resources.

Benefits and costs include both tangible and intangible components, with the tangible being those that can be expressed in monetary values and the intangibles being those that can be described and possibly quantified, but not given a monetary value.

A section 32 assessment is required under the Resource Management Act prior to adopting any change to the Proposed City Plan. This essentially requires the following:

- evaluation of the likely benefits and costs of any alternatives that may/can be considered;
- assessing how effective the alternatives may be in achieving the objectives/policies;
- determining implementation and compliance costs;
- determining the extent to which the change to the roading classification is necessary to achieve the purpose of the Act;
- assessing whether the change is the most appropriate (effective/efficient) means of achieving the objectives.

In addition to the section 32 assessment, the Plan Change process requires public consultation and includes a right of appeal. This process could take up to two years.

### The Transport Act

Section 72 of the Transport Act 1962 authorises the Council to make bylaws regarding the use of roads. Amongst those powers the Council may make a bylaw directing, (or revoking) one-way travel on its roads. In making such a bylaw the Council must use the special order process which requires that the bylaw be considered at two Council meetings, and the bylaw would then come into force seven days after the second Council meeting. The bylaw process would take on average approximately two and a half months.

## PROJECT PROGRESS AND TIMELINE

This report seeks Council approval of the consultation strategy and for consultation to proceed on the project.

Should the Sustainable Transport and Utilities Committee give approval to the consultation strategy and for consultation to proceed it will commence on 3 June 2002. At the same time a full technical report will be made available, in a similar manner as the NROSS Study consultation. The consultation period will continue until 16 August 2002. During this period the "Swap" will be further analysed with a traffic simulation model.

The consultation feedback will then be analysed and incorporated in a final report. This report will be issued to the Sustainable Transport and Utilities Committee and will seek approval to apply for resource consents in October 2002.

The consents process through to the Commissioner's recommendation is expected to extend until May 2003. A further year has been allowed for any appeals to the Environment Court process, however this process could take up to two years.

Construction is programmed to commence in August 2004 and continue for 6 months with construction occurring before and after the "Swap" occurs in November 2004 in time for the awarding of the new through routed bus contracts by Environment Canterbury.

## ESTIMATED PROJECT COST AND BUDGET

The draft annual plan includes the following budget provision

- 2003/04        \$600,000
- 2004/05        \$600,000

Latest estimates of the project cost is \$2.8m which includes new procedures for contingency estimation, higher inner city construction costs, inclusion of variable parking signage and lighting costs, and changes to the proposed scheme design. The scope of the project is being reviewed to define which elements are essential, and which can be deleted or deferred as separate projects. Other issues affecting costs may be identified during the consultation process.

The appropriate actions to inform the budget process of project costs will be carried out as and when project plan development identifies costs and changes.

The economic analysis of the project indicates a benefit / cost ratio of 7.5 which exceeds Transfund New Zealand's cut off of 4.0. This means that subject to a detailed application being submitted to, and being accepted by Transfund, funding for 48% of the project cost will be available. Transfund funding would be \$1.34m and the net cost of the project to Council \$1.46m, or \$0.26m more than currently budgeted for.

## CONSULTATION STRATEGY

### Main Objectives of the Communication

To communicate clearly and effectively with all stakeholders – including those already aware of the proposal, through all phases of the project including before, during and after the formal consultation period.

For this project, "**Consultation**" will occur over a clearly defined time period inside the project's timeframe, within which the Council will communicate with stakeholders using a variety of media, with the purpose of informing stakeholders of proposed changes, and soliciting feedback on those proposals.

Consultation aims to raise awareness, inform, and request/invite feedback from all Stakeholders as appropriate **in order to further assess and refine the proposal.**

The proposed Tuam/Lichfield Swap plan will be presented to stakeholders with the opportunity to provide feedback and comments.

The Council will make its decision on the proposal after considering the feedback it receives from the consultation process.

The Consultation period is 11 weeks, from 3 June to 16 August.

*(Please note: The proposed Consultation strategy and timeframe excludes follow-up with stakeholders after the submission period, and analysis and reporting on the submissions received.)*

### **Stakeholders**

The proposed Tuam/Lichfield swap is likely to have a variety of effects on a large number of people. A comprehensive list of stakeholders to consult with has been developed. There will be some overlap within the stakeholders identified.

Please see the attached Consultation Matrix which lists all stakeholders, with a cross reference to appropriate Consultation tools suggested for each group. Where there is reference to “in the locality”, this means a geographic location of approximately half a street block from the area in question. It follows that this includes a full block of those streets where they link Tuam to Lichfield.

### **Consultation Tools**

The proposed consultation strategy is based on a process of:

*raising awareness → providing detailed information → encouraging feedback.*

The proposed strategy is an integrated plan incorporating a range of tools for consultation including the following:

#### **Media liaison:**

Proactive media management – (this begins before public consultation and continues throughout the project) eg. media release timed with release of Sustainable Transport and Utilities Committee agenda, ongoing releases as appropriate, immediate responses to any mis-reporting of facts. Also includes a special meeting with media.

#### **Publications production and distribution:**

Brochure, flyer, display materials.

#### **Information shop:**

Drop-in “information shop” on Tuam St (involves temporary rental of empty shop near Civic offices), for all stakeholders to find out about the project. A large static display with detailed plans, and staff available to answer questions.

#### **Meetings:**

Held in the information shop at appropriate times for specific groups.

#### **Advertising: newspaper / billboards:**

Newspaper ads (Star and Press), billboards on Tuam and Lichfield Streets (one billboard on each street).

#### **Digital media – CCC website:**

Including all information in the brochure, plus interactive reply form.

#### **Awareness raising activities include:**

Media releases/articles in other publications (eg City Scene, Leading Edge, Taxi Talk, Central City Update) direct mail, flyers distributed, static displays in windows, billboards, newspaper advertising.

#### **Informing:**

Information shop, meetings, webpage, newspaper advertising.

#### **Encouraging feedback:**

Newspaper reminders, media releases, webpage update.

**Feedback mechanisms:**

Reply form on brochure, submission forms at information shop, on-line web reply form, recording of verbal commentary at meetings (note and minute taking by staff).

Please see the attached timeline for further details relating to timing of various activities within the consultation period.

**The estimated costs of the proposed consultation (excluding staff time) include:**

Brochures	\$8,200
Flyer (incl distribution)	\$670
Web page (pdf's)	\$110
Information shop	\$1,780
Meetings	\$1,570
Display materials	\$690
Advertising – print	\$8,840
Advertising - billboards	\$8,860
Postage/direct mail	\$450
Contingency (10%)	\$3,120

**Total incl 10% contingency      \$34,290 (all costs exclude GST)**

After the submission period closes, evaluation of the consultation would be carried out through analysis of the number of enquiries, attendance at meetings, number of submissions received, media exposure (quantity and quality /factuality), and feedback from stakeholders regarding the consultation. (Please note this does not relate to analysis of or reporting on submissions received).

**PROJECT CONCEPT PLAN**

See attached.

- Recommendation:**
1. That the consultation strategy be adopted.
  2. That consultation on the project proceed from 3 June.

**Chairman's**

**Recommendation:** That the above recommendation be adopted.