



Central Coburg 2020 (CC2020) Structure Plan

Integrated Transport Strategy

Final Report

Prepared for Moreland City Council

14 March 2006 DM7381

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Document Issue

Issue	Date	Description	Project Consultant	Project Manager	Director Approval
Preliminary	28/10/05	Initial Issue			Christian Griffith
Draft	3/11/05	Includes simulation model results			Christian Griffith
Final	14/03/06	Incorporates Council comments			Christian Griffith

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Executive Summary

The Central Coburg 2020 Structure Plan Integrated Transport Strategy brings together a range of previous work and ongoing studies looking at the Coburg Transport Interchange. The structure plan covers a large area and attempts to resolve transport issues in an integrated fashion for all users over the short, medium and long term.

The resulting Strategy is detailed in the drawing attached to this report and is intended to form the basis for ongoing community consultation. It is expected that it will be refined as this process progresses and other structure plan outcomes are fed into the study.

The costing, prioritisation and staging of the works is set out in broad terms in Section 6. It describes a package of works called the baseline works expected to precede all other works and form the basis for both local accessibility requirements and the transport interchange. The Transport Interchange works are required to facilitate the operation of the proposed interchange while all other works would follow and provide benefits for all users.

The Integrated Transport Strategy brings together a range of issues and responses across motorised and non-motorised modes of travel. It considers walk and cycle movement, public transport (train, tram, bus and taxi) as well private vehicle travel. In addition, impacts on freight movement are considered. Each of these elements of the strategy have been developed to varying degrees at this time with the intent that they be further detailed in the process of consultation and refinement to follow.

It is recommended that the Strategy be adopted as the basis for the future traffic and transport planning of the area noting that issues of detail will naturally require resolution as the process progresses.

The Strategy is recommended as a robust framework on which to base the long term traffic and transport planning of Central Coburg. It has been tested in a simulation model, assessed against economic criteria and designed to be consistent with government and Council policy relating to activity centre planning.



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1 Introduction

1.1 Background

Coburg has been identified as the city of Moreland's Principal Activity Centre (PAC) with the development of a transport interchange identified as a key action. Ongoing structure planning is also underway as part of the Coburg Central 2020 work.

The provision of an integrated transport strategy as an input to the structure plan will form a key part of the success of Central Coburg 2020. This report sets out the Transport Strategy for Central Coburg and brings together the results of a number of years of background studies and modelling, as well as ongoing refinement resulting from other projects such as the Transport Interchange.

1.2 Central Coburg 2020 Context and Structure Planning

Central Coburg 2020

In June 2003, Council adopted a Vision to guide the future growth and development for Central Coburg. In summary the vision for Central Coburg in 2020 is:

Central Coburg develops as the prime shopping, living, employment and activity precinct in Moreland. The centre is transformed into an attractive system of streets and spaces. Central Coburg becomes a sought-after living environment, offering a range of housing choices, including high density housing. Most people arrive at the centre on foot, by bike or by public transport. The provision of a range of services enables people to conduct a number of different activities based on the one trip. Central Coburg is linked with networks of green space.

The Central Coburg 2020 Background Report and Vision was completed in June 2003 and sets out a 10-20 year strategic framework for the future development of that area. In addition to a summary of background research and consultation, it sets out an overarching vision, desired outcomes, detailed vision statements and actions.

Moreland City Council initiated the development of a strategic framework plan for Coburg in December 2000, ahead of Melbourne 2030, the State Government's strategy to guide development of metropolitan Melbourne over the next 30 years. Coburg has been classified as a Principal Activity Centre (PAC) in Melbourne 2030 and is Moreland's only PAC. Melbourne 2030 is underpinned by a transit orientated development approach to manage Melbourne's future development in a sustainable manner. In order to achieve this, extensive structure planning is required to provide a detailed and appropriate augmentation of this Vision. This structure planning will be undertaken as part of a triple bottom line approach, which addresses the environmental, economic, and social/cultural aspects of the Centre. This work will underpin detailed structure planning for Coburg in line with Melbourne 2030 requirements.

The Central Coburg Transport Interchange

The development of the Coburg transport interchange is a key action identified in the Vision through the theme of Linking the Community.

An upgraded station provides improved access to and from Central Coburg and a range of services and facilities. Bus, taxi and pick up points for vehicles are provided at the station forecourt. Bus services are re routed down the new street to stop at the station entrance. Victoria Street provides public transport users with a more pleasant walking environment to the shops and tram service along Sydney Road. Future



development along the new road next to the train line provides improved safety and surveillance for users of the service at any time of the day.

There are a range of desired outcomes identified under the Linking the Community theme that led to the concept of the integrated transport hub at Coburg Station. These include: making the centre more accessible and interconnected by non-motorised (non-car) travel; linking bus, rail and taxi services; integrating the railway station with the central Coburg area; facilitating greater use of public transport through improved service and station, bus and tram stop amenity; enhancing the environmental sustainability of the centre by prioritising pedestrian, cycling and public transport facilities. Investigating a bus loop to re-route bus services past the train station was a key initiative identified in the Vision.

Research to date is revealing that parking considerations will largely drive the economic viability of new development in Central Coburg. Therefore any capacity to improve the public transport facilities and limit the need for car use and associated parking is critical. The provision of well located and designed public transport facilities will be vital to the way people choose to access the centre and the car ownership decisions of residents within the centre. These decisions will ultimately determine the success of CC2020.

A separate study has been undertaken that sets out the analysis and design underpinning the proposed transport interchange with the key elements of the Interchange Project summarised in this report.

Pentridge Redevelopment

The Pentridge Prison Redevelopment is located within the Coburg PAC and consists of the redevelopment of 45 hectares of former institutional land. It is anticipated that a residential occupancy of 5,000 people will be developed on the site over the next 10 years and that a mix of residential, commercial and retail land uses will be developed on the site.

Public Acquisition Overlay for Bell Street Widening

A public acquisition overlay (PAO1) has existed for many years to the north of the Bell Street road reserve to facilitate any proposed future widening of Bell Street through the Bell Street / Sydney Road Intersection. The PAO was designed to accommodate any widening by constructing a road "bypass" of the intersection via a new road generally along the alignment of Urquhart Street. The CC2020 Structure Plan requires the relocation of the PAO to a new position to retain the potential for a road widening in future in a manner consistent with the other objectives of the Structure Plan.

1.3 Purpose

Completion of the Central Coburg 2020 Structure Plan involves the resolution of several transport related issues as set out in two separate studies being the Coburg Transport Interchange Feasibility Project and the previous Central Coburg 2020 Road Design framework (CC2020RDF) work. These two projects are amalgamated and a number of other transport issues covered in the development of an integrated transport strategy for the Structure Plan. This report sets out the basis for an Integrated Transport Strategy and provides the mechanism for Council to engage in discussions with VicRoads to enable in-principle agreements to be struck prior to the finalisation of the Structure Plan.

1.4 Scope and Transport Objectives

The Central Coburg Integrated Transport Strategy covers the geographic area of the structure plan and deals with all road network users and modes of transport as it attempts to resolve competing interests and the sharing of road space and provision of user choice.



The ultimate aim of the Strategy is to achieve the objectives of Melbourne 2030 in terms of sustainable transport design by reducing car dependency and encouraging public transport use, cycling and walking. These aims are set out below:

- Consistency with state government policy and planing statements and guidelines including Melbourne 2030 and the Metropolitan Transport Plan;
- Integrate the results of various local studies and ongoing structure planning with the Central Coburg 2020 vision targets and the transport interchange project;
- Consistency with the Moreland Integrated Transport Strategy, Pedestrian and Walking Strategy (PAWS), Bicycle Strategy, Parking Strategy (draft) and Road Safety Strategy;

1.5 Previous Work

This work references a great deal of background material and brings it together in a consistent format. A number of the more recent and important documents include:

- Melbourne 2030;
- City of Moreland, Central Coburg 2020, June 2003;
- GTA Consultants, Pentridge Development Coburg, s173 Traffic Impacts Assessment Report, 25 March 2002;
- GTA Consultants: Central Coburg 2020 Traffic and Transport Assessment MicroSimulation Model, 12 April 2005;
- GTA Consultants: Central Coburg 2020 Transport Interchange Feasibility Study Stage 1: Existing Conditions and Issues Identification, 27 July 2005;
- GTA Consultants: Central Coburg 2020 Transport Interchange Feasibility Study Stage 2: Development and Testing of Options, 17 August 2005;
- GTA Consultants: Central Coburg 2020 Transport Interchange Feasibility Study Stage 3: Recommended Option, 28 October 2005;
- TTM Consulting "Central Coburg 2020 Transport Network Explanatory Report" 1 August 2003;
- TTM Consulting "Coburg Central Integrated Plan Transport Analysis Discussion Paper" 17 October 2001;
- ARUP "Bell Highway Management and Development Strategy Planning Issues Report" Draft dated 9 January 2003;



2 Coburg PAC

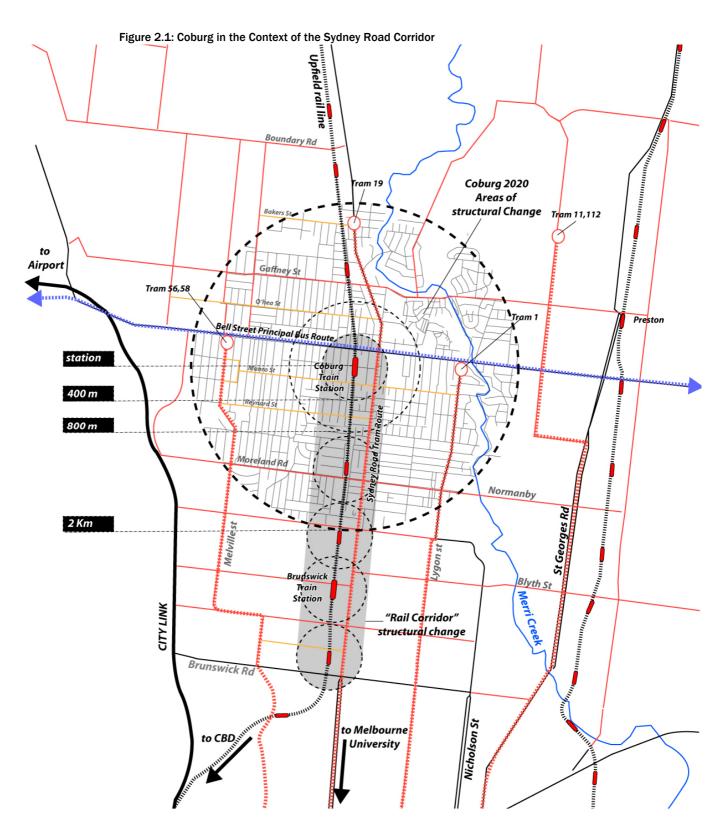
2.1 The Area and Surrounds

The Coburg Principal Activity Centre (PAC) is located near Coburg train station adjacent to Bell Street and Sydney Road in Coburg. It has a tram service operating along Sydney Road and major east-west bus routes, including a future SmartBus service operating along Bell Street. Bell Street functions as a key regional eat-west transport link with serving a number of users including private vehicle travel for through and local traffic, freight flows, on-road public transport (buses) and pedestrians and cyclists.

As a result, Coburg is very highly serviced by public transport although it currently has a car-based usage profile due to the scale and layout of the centre and associated car parking. A key aim of the transport strategy is to change the perception fo the centre to one that is accessible by public transport, walk and cycle for those short trips that currently service the majority of regular local visitation. In addition, the strategy is setting a framework for the longer term accommodation of expanded land uses in a sustainable manner that provides for the regional function of Bell Street and to a lesser extent Sydney Road.

A broad overview of the key transport relationships in the region surrounding Coburg is contained in Figure 2.1. It shows a 2km radius line which gives a rough indication of the potential user catchment for local trips.







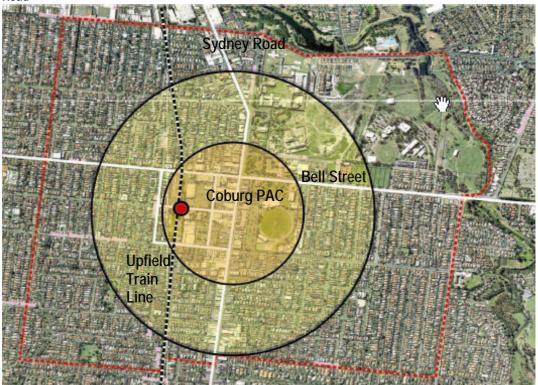
For reasons of completeness, the standard Moreland public transport map is shown in Figure 2.2. This highlights the choice of train, tram and bus services that travellers in the Sydney Road corridor have and the potential choice able to be offered to the Coburg PAC users with a properly integrated transport strategy and interchange. It should be noted that these figures do not illustrate the current limitations of the services with respect to operating hours, days and frequencies.





The Central Coburg area is shown in Figure 2.3 in aerial view and the train station identified along with Bell Street and Sydney Road. In very rough terms, the traditional and established Coburg retail centre is the southwest quadrant of this area. Leisure and open space lie to the southeast. The Civic Centre and Pentridge exist to the northeast and predominately residential properties to the northwest except for the properties fronting Bell Street and Sydney Road.

Figure 2.3: Coburg PAC and Surrounding land Uses as Defined in Quadrants by Bell Street and Sydney Road





The localised Coburg PAC catchment in terms of an 800m walking distance is shown in Figure 2.4 illustrating the extent of potential users that could be encouraged to walk or catch public transport to the PAC if it was carefully designed and detailed.





3 The Coburg Model

3.1 Why Model?

MicroSimulation (microscopic traffic simulation) is the reproduction of events to imitate the movement of individual vehicles along a road network. It can be used in areas of high congestion levels and complex networks to accurately model and visualise the movement and behaviour of individual vehicles. The interactions across a whole network can be modelled to include the impacts of queue lengths, driver behaviour and successive traffic signals.

Paramics is a powerful visualisation tool which allows users to view the operation of a network in real time to watch queue build-ups and dispersions and compare the impacts of changing road network and intersection layouts. It has the ability to model many elements in a complex transport network such as mixed urban road and freeway networks, closely spaced and complex intersections, roundabouts, public transportation (trains, trams, and buses), freight traffic and car parking.

Paramics allows the user to check a range of things such as:

- road network operating conditions in terms of queues, delays and volumes;
- increasing usage of buses;
- increased land uses (more residents etc);
- impacts on local streets (eg rat running);
- effectiveness of new streets and traffic signals;

The typical measures of network performance adopted include main road traffic volumes, local street traffic increases, vehicle queues and delays and network travel times. The transport modes considered in the assessment include trains, trams, buses, cars, walking and cycling;

The model provides a robust basis from which to check that the land use forecasts for Central Coburg are able to be supported by the road, public transport and walk/cycle networks in the area. It also provides for the identification of infrastructure works, policy settings and management structures to deal with the target travel future from both the demand and supply side perspectives.

The model was also used in the broad level planning of the Pentridge Development and the assessment of the road network impacts of the proposed Coburg Transport Interchange Project.

3.2 Land Use and Traffic Forecasts

The land use forecasts underpinning the simulation modelling are described below by region and land use type in Table 3.1 for existing (year 2005) conditions and Table 3.2 for future (year 2020) conditions following expected completion of the Central Coburg 2020 Vision and ultimate development of the Pentridge Site.



Table 3.1: Coburg Model Approximate Existing (Year 2005) Land Use

	Residential (No. dwellings)	Retail / Commercial (m ²)
Central Coburg1	<100	37,000
Pentridge	<100	0
Other Coburg	1,016	48,000
Total	1,045	84,957

Table 3.2: Coburg Model Approximate Future (Year 2020) Land Use

	Residential (No. dwellings)	Retail / Commercial (m²)
Central Coburg	926	45,632
Pentridge	2,500	40,000
Other Coburg	1,535	50,285
Total	4,961	135,917

The tables show an increase of approximately 4000 residential dwellings plus 51,000sqm retail / commercial space across Central Coburg and Pentridge in the period to the year 2020.

3.3 Model Description

Paramics is a microscopic traffic simulation tool developed by Quadstone in Edinburgh, Scotland and used in a number of countries around the world including Australian universities, traffic authorities and consultants.

MicroSimulation (microscopic traffic simulation) is the reproduction of events to imitate the movement of individual vehicles along a road network. It does not mean micro in the sense of individual junctions or very small networks. It therefore fits between a traditional four-step strategic model and a detailed intersection model such as SIDRA.

MicroSimulation can be used in areas of high congestion levels to accurately model and visualise the movement and behaviour of individual vehicles. The interactions across a whole network can be modelled to include the impacts of queue lengths, driver behaviour and successive traffic signals.

Paramics is a powerful visualisation tool which allows users to view the operation of a network in real time with the viewer able to watch queue build-ups and dispersions and compare the impacts or changing road network and intersection layouts. It has the ability to model many elements in a complex transport network such as mixed urban road and freeway networks, closely spaced and complex intersections, roundabouts, public transportation (trains, trams, and buses), freight trains and car parking.

The "sustainable travel demand" matrices developed for Scenario C of the previous GTA Central Coburg Model have been used for the future year testing although the full range of tests undertaken is as described in the table over.

-

 $^{^{\}rm 1}$ Central Coburg is the area bounded by Bell Street, Munro Street, Sydney Road and the Railway Line.



The summary of tested options assessing the impacts of the new interchange and the longer term increase in land uses and new road works is set out in Table 3.3 with a more complete description in Appendix A.

A summary of the model outputs is contained in Appendix B.

Table 3.3: Simulation Tests for CC2020

Test	Future Traffic Volumes?	Central Coburg 2020 Land Uses	Pentridge Road Network	Pentridge Land Uses	Coburg Transport Interchange	Bell St Intersection Works	Bell St widening (6 lanes)
Existing	Х	Х	Х	Х	Х	Х	Х
1: Existing with New Interchange	Х	Х	Х	Х	√	Х	Х
2: Future – No Bell St Widening	✓	√	√	√	√	✓	Х
3: Future – With Bell St Widening	✓	√	√	√	✓	✓	✓
Existing refers to the year 2	2005 and future re	fers to the yea	r 2020		•		

3.4 Model Outcomes

The outcomes show that there are a range of travel demands that work on a strict capacity basis although the degree of performance of the network varies with each scenario, as does the level of land use development that can be accommodated without significant degradation in operating performance.

Results obtained from the model include the mean travel time for all vehicle trips and the mean speed for all vehicles using the network. In addition to this, the travel times and speeds for public transport services that travel on Bell Street and Sydney Road have been added to show the affect on bus and tram services.

Table 3.4 shows that the travel times within the network will not alter much from the existing for each of the test runs with Test 2 experiencing the greatest average increase in travel times. The additional distance that public transport vehicles travel on Bell Street in Test 1 will increase the travel time by an average of just over one minute.

Table 3.4: Average Travel Times for each Model Run - AM Peak (mm:ss)

Total	All Vehicles	On Road Public Transport		
Test		Bell Street	Sydney Road	
Existing	03:25	07:38	06:55	
1	03:23	08:48	06:26	
2	03:34	10:06	07:36	
3	03:31	08:58	07:48	

Bell Street – Average travel times between Hudson Street and Nicholson Street (both directions)

Sydney Road - Average travel times between Harding Street and Murray Road (both directions)



The Sydney Road travel times increase for Tests 2 and 3 as the increased travel demands are related to conditions at the Munro Street / Sydney Road / Harding Street Intersection which will be near capacity in future.

The corresponding average vehicle speeds are shown in Table 3.5. They indicate that the average speeds for all vehicles do not vary significantly under each test demonstrating that the mitigating works are relatively efficient in maintaining existing levels of performance in future with the new interchange and additional land use development as per CC2020.

Table 3.5: Average Vehicles Speed for each Model Run - AM Peak (km/hr)

Test	All Vehicles	On Road Public Transport		
Test		Bell Street	Sydney Road	
Existing	32	17	18	
1	32	18	20	
2	29	16	17	
3	29	17	16	

Bell Street – Average speeds between Hudson Street and Nicholson Street (both directions) Sydney Road – Average speeds between Harding Street and Murray Road (both directions)

The results indicate that the modified bus routes resulting from the new interchange and associated new traffic signals along Bell Street in Test 1 do not affect the average speeds or travel times for all vehicles to any great degree.

Observations of vehicle delays and queues for each of the tests are generally consistent with the existing conditions along Bell Street and Sydney Road noting the Munro St – Harding St capacity issue. This is a result of the proposed mitigating works that together manage the impacts of additional through traffic, altered public transport routes and the proposed future development of Central Coburg including Pentridge.

3.5 Summary

The outcomes of the modelling in terms of the impact of the works and development on all traffic and public transport travel times and operating conditions are summarised below:

- Test 1 which provides for the new bus interchange will not have any significant effect on local and through traffic volumes and is expected to result in an additional bus travel time of just over 1 minute in each direction. In addition, the public transport priority along Bell Street at the intersections will not significantly alter the travel times for through and local traffic on Bell Street;
- Test 2, which has larger traffic volumes on the road network for the future in year 2020 results in an
 acceptable level of performance and accommodates the expected future land uses in CC2020.
 However, it does not allow for Urquhart St and Elm Gv to be converted to local access streets due to the
 lack of widening along Bell St; and
- Test 3 results in a better operational outcome for through and local traffic as it widens Bell Street
 although this requires substantial land acquisition and construction cost. It maintains operating
 conditions for all users at a similar level to existing conditions and provides for the conversion of
 Urguhart St and Elm Gv to local access streets.



4 Widening of Bell Street

4.1 Background

The future role and function of Bell Street is currently the subject of a study being undertaken by VicRoads although it is understood that the study will not be assessing any widening options for Bell Street west of Sydney Road to the freeway.

Historically, VicRoads has maintained a public acquisition overlay (PAO) to both the east and west of Sydney Road connecting back to Bell Street on its northern side. The purpose of the PAO was to provide a means of supplementing turning and/or through traffic capacity as a bypass or diversion around Central Coburg and the Bell St / Sydney Rd Intersection.

The PAO to the east of Sydney Road has now been removed with corresponding works proposed at the Bell St / Sydney Rd Intersection to facilitate the replacement for the existing Elm Grove - Urquhart Street - Drummond Street traffic movement.

However, PAO1 exists to the west of Sydney Road connecting onto Bell Street west of the railline. VicRoads advises that the PAO can be replaced with a new PAO along either the north or south sides of Bell Street if it can be demonstrated that there is a future means of providing additional Bell Street capacity through Central Coburg.

In order to remove PAO1 and provide for any possible long term future VicRoads Bell Street widening, Council has completed sufficient conceptual designing to identify feasible widening options and an associated replacement PAO and its affected properties. This work is not to be taken as representing a design for the widening, nor is it indicative of actual work likely to be undertaken in future. It is completed only to enable cancellation and replacement of PAO1 and to provide planning guidance for the structure plan.

4.2 Design Options Tested

A total of five options were considered in the assessment of a replacement option for PAO1 generally as follows:

- Option 1: north side wide;
- Option 2: north side reduced width;
- Option 3: north and south sides evenly split; and
- Options 4 and 5: widening spread across both sides in various alignments.

Option 2 is illustrated conceptually in Figure 4.1 and provides for widening on the north side. The affected properties and associated new PAO is highlighted along the north side of the road. It should be noted that the sketch shows the indicative alignment of the road and associated edge of road reserve but not the proposed relocated PAO although the sketch gives a good indication of the individual properties affected.

Option 5 is illustrated conceptually in Figure 4.2 and provides for widening spread across both sides of the road. Although it results in a curvilinear alignment through Coburg, it is feasible from a design perspective and takes advantage of the misaligned Bell St approaches to Sydney Road and the potential for future development along the southern side of Bell Street. As for Figure 4.1, only the sketch of the road design is



shown for the purposes of clarity with the actual likely PAO able to be estimated by looking at the affected properties in the base aerial photograph.

Option 1 is a variation on Option 2 requiring more land acquisition along the north side of the road. Option 3 is an option located centrally in the existing Bell Street reserve requiring land acquisition on both sides of the road. Option 4 is a variation on Option 5 that splits land acquisition to both sides of the road.

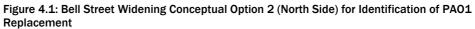






Figure 4.2: Bell Street Widening Conceptual Option 5 (Split North and South) for Identification of PAO1 Replacement



4.3 Economic Assessment

4.3.1 Options Tested

The options for widening Bell St tested were as follows:

- Option 1 Widening to the north side of Bell St with an 'ideal' cross section;
- Option 2 Widening to the north side of Bell St with a 'tight' cross section;
- Option 3 Centrally placed widening which affects properties on the north and south of Bell St; and
- Option 5 Widening affects properties on the south side of Bell St to the west of Waterfield St, and properties to the north side of Bell St east of Waterfield St.

Note that Option 4 was not evaluated on the basis that it is a variation on Option 5 with similar economic impacts.

4.3.2 Methodology

The aim of the economic assessment was to test the impact of each of the four options on property development opportunities in the Coburg Principal Activity Centre (PAC).

A five step methodology was adopted for each of the four tested options:

- (i) The existing properties which would be affected by the widening option were identified;
- (ii) The impact on each property was assessed, i.e. whether existing buildings on the property would have to be demolished to accommodate the widening;



- (iii) The current market value of each property was obtained using Moreland City Council valuation data;
- (iv) The cost of purchasing and (if necessary) demolishing the property was calculated; and
- (v) The resale value of the property (taking into account site area lost to the road widening) was estimated.

This methodology produced a net \$ gain / loss for each option from a financial (property development opportunity) perspective.

Note that this assessment is <u>not</u> a social cost benefit analysis, and does not take into account the social and environmental costs and benefits or the full economic costs and benefits associated with each option.

4.3.3 Assumptions

A number of assumptions are implicit to this methodology. These are explained below:

- The actual date (in the future) when the necessary property acquisition would occur is not known, and not all properties may be acquired at the same time.
- Furthermore, property developers may purchase and redevelop the sites before compulsory acquisition occurs. Assuming that a Public Acquisition Overlay was in place, a rational developer would not construct a new building on the site that encroached on the area earmarked for road widening. In so far as such redevelopment is in the hands of the private sector, there is further uncertainty as to when the development of sites may occur.
- Therefore, all values used are 2005 dollars. No allowance has been made for the time it would take to purchase, demolish and on-sell the sites. This is consistently applied across all four options.
- As stated above, it was assumed that the Capital Improved Value (CIV) provided by Council represented the market value of the property if it had to be acquired today. This is likely to give a conservative (low) estimation of market value. However, because this method was used to value properties across all four options, the values are consistently low and provide a sound basis for comparing the options.
- A 10% solatium was added to the CIV to calculate the full purchase price of the property. This takes into account the fact that the property may be acquired compulsorily for the purpose of road widening, and hence would not necessarily be purchased from a willing vendor. The vendor of the property is therefore entitled to a degree of compensation over and above market price.
- It was assumed that the purchase price of the property represented the value of its development potential rather than the value of existing uses on the site. Given that the price paid for the property does not reflect its existing use (e.g. as a two storey retail store) but its highest and best use (e.g. as a 6 storey mixed use development), the actual building on the site is assumed to have no value. By way of example, if a developer purchased a property (for example Dimmeys) with the intention of demolishing the existing building and constructing an apartment development, the price paid would reflect the value of the site, not the value of the site plus the existing building.
- It was assumed that properties which were purchased and demolished would be put back on the market as development sites. Because of the development potential of these sites under the Central Coburg 2020 Vision (see 'existing and future uses'



below), it was assumed that they would be attractive to developers and would therefore command a resale price that encompassed a value uplift over and above the purchase price.

- However, as some of the developable site's area would be lost to road widening, the value uplift applied to the residual land area only. In other words, whilst the value of the site is increased because of its development potential, the size of the developable site is decreased. The residual site resale value therefore takes into account lost development potential associated with the road widening.
- The equations for assessing the net \$ gain / loss of a particular property were therefore calculated as:

Purchase and Demolition Cost = Purchase Price (= CIV Value + 10% Solatium) + Demolition Cost

Residual Site Resale Value = (Residual Parcel Size (sqm) as a % of Original Parcel Size * Purchase Price) * Value Uplift

Net \$ gain / loss = Residual Site Resale Value - Purchase and Demolition Cost

4.3.4 Existing and Future Uses

The existing site uses and future site development potential under the Central Coburg 2020 Vision are summarised in the Table 4.1, along with the % of value uplift which was applied (assuming the site would be purchased and developed to its full Central Coburg 2020 potential).



Table 4.1: Bell Street Widening Property Impact Summary

		en Street Widening Froper	, ,	Value	
	Parcel			Uplift -	Value
	Size	Existing Use		Options	Uplift -
Parcel	(sqm)	Description	Coburg 2020 Development Potential	1, 2, 5	Option 3
		Poor quality small shop			
Α	900	retail (some vacant)	4 Storey Mixed Use	30%	20%
В	1,052	Church group	4 Storey Mixed Use	30%	20%
С	903	New mixed use	4 Storey Mixed Use	30%	20%
		Office (1980s-90s) /			
		Tinned roof building /			
D	2,650	Tyre Yard	4 Storey Mixed Use	30%	20%
E	1,165	Small shop retail	4 Storey Mixed Use	30%	20%
F	1,406	Small shop retail	4 Storey Mixed Use	30%	20%
		Small shop retail/Corner			
G	1,138	medical centre	4 Storey Mixed Use	30%	20%
			Building not affected by widening -		
			assumed will retain KFC use (except in		
Н	1,414		Option 5 - see below)	0%	0%
		Vic Track Land (South	Victrack land excluded from		
I		of Bell St)	development potential analysis	0%	0%
J		Small shop retail	6 Storey Mixed Use	40%	25%
K	2,903	Dimmeys	6 Storey Mixed Use	40%	25%
		Chemist / Community			
L	2,643	health centre	6 Storey Mixed Use	40%	25%
M	754	Small shop retail	6 Storey Mixed Use	40%	25%
N		Hotel	6 Storey Mixed Use	40%	25%
	Affected	Church Land			
		(Bell/Sydney	Church Land is not a development		
Р	options	Intersection)	parcel	0%	0%

The value uplift achieved upon resale is dependent upon the development potential of the site in question. Development potential assumptions are based on the built form envisaged in Central Coburg 2020. They are defined as:

- 4 Storey Mixed Use Ground floor of retail/showroom/office uses, and 3 storeys of apartments.
- 6 Storey Mixed Use Ground floor of retail/showroom/office uses, and 5 storeys of apartments.

It was also assumed that all new apartment, retail and commercial developments would have minimum parking requirements applied. Developers would be presented with the option of either meeting parking requirements onsite, or paying cash-in-lieu for parking which would be provided elsewhere within the PAC in parking stations. Minimising parking requirements increases the attractiveness of the sites to developers. This is in line with analysis undertaken by SGS Economics & Planning (2004), which highlighted parking stations - rather than on site provision of parking - as a necessary incentive to facilitate the desired redevelopment of the Coburg PAC.

An example of the value uplift achieved by developing a site to its highest and best use is provided within Coburg itself. The 1,052 sqm site at 146 Bell St is currently an older building used by a church group. Its CIV as provided by the Council is \$419,000, with a site value of \$369,000. On the other side of the railway track, a site of comparable size (903 sqm) has been redeveloped as an apartment complex with 9 apartments. The



CIV of this property is \$2.43 million. The attributes of these sites are very similar in terms of size, aspect and location, but the redevelopment of the apartment site has greatly improved its overall value – well beyond the value added by the construction of the apartment building itself as set out in Table 4.2.

Table 4.2: Bell Street Widening Example Additional Value Calculation

Table Hall Bell et et et Wildeling Example Haditella Talae ea	
Apartment Size (sqm)	70
Construction Cost per sqm	2190
Construction Cost per Apartment	\$153,300
Construction Cost 9 Apartments	\$1,379,700
CIV of Building	\$ 2,430,000
Land Value (CIV minus construction cost)	\$ 1,050,300
Comparable Land Value of Church Group Site	\$ 369,000
\$ Uplift in Land Value	\$ 681,300
% Uplift in Land Value	185%

Construction Data Source: Rider Hunt - Riders Digest 2004

In light of this example, the value uplift assumptions applied to each of the four options are justifiable and conservative.

For Options 1, 2, and 5 – the following value uplift assumptions were applied:

- On sites which have a 4 Storey Mixed Use development potential, a 30 % value uplift was assumed.
- On sites which have a 6 Storey Mixed Use development potential, a 40 % value uplift was assumed.
- Note that in Option 5 it is assumed the KFC building would be demolished, and the site redeveloped as 4 Storey mixed use property, with a consequent 30% value uplift. In Options 1 to 3 the KFC building would not be demolished, and no value uplift is assumed.

For Option 3, lower value uplift assumptions are applied. This option places the widening centrally, and therefore requires purchase and demolition of properties on both the north and south sides of Bell St. This creates more redevelopment sites than other options. However, it also requires the demolition of a number of buildings which collectively contribute to the amenity of the Coburg PAC. This includes all of the retail shops to the north and south of Bell St (between Waterfield St and Sydney Rd) and the tavern on the south eastern corner of Sydney Rd and Bell St. Whilst individually these buildings may not have significant character, the demolition and redevelopment of all of these properties would collectively have a negative impact on the character of the Coburg PAC. This is assumed to lead to an overall reduction in value uplift associated with individual properties as compared to Options 1, 2 and 5. The following value uplift assumptions were applied to Option 3:

- On sites which have a 4 Storey Mixed Use development potential, a 20 % value uplift was assumed.
- On sites which have a 6 Storey Mixed Use development potential, a 25 % value uplift was assumed.

4.3.5 Results

The analysis outlined above generated a number of measures for each option, namely:



- The land taken (sqm) for road widening one indicator of lost development potential;
- The purchase and demolition costs;
- The sales revenue from residual parcels; and
- The overall net \$ gain / loss from all affected properties.

The results are summarised in Table 4.3.

Table 4.3: Bell Street Widening Option Economic Analysis Results

	Option			
	1	2	3	5
Land Take (sqm)	-2,818	-2,665	-3,315	-2,658
Purchase and Demolition Costs	-\$13,059,664	-\$13,059,664	-\$26,880,820	-\$11,061,535
Sales Revenue Residual Parcels	\$11,376,218	\$11,616,315	\$26,178,148	\$10,592,795
Net \$ Gain / Loss	-\$1,683,446	-\$1,443,349	-\$702,672	-\$468,740

Option 3 has the highest land take of 3,315 sqm. This is the land taken up by the road widening area only, and does not include the residual development sites which could be on – sold. The other three options have roughly equal land take requirements.

Option 3 also has the highest purchase and demolition costs. These are approximately twice the costs of all other options, and reflect the requirement to purchase sites on both sides of Bell St.

The sales revenue from on-selling the residual parcels is also highest for Option 3. This is logical given Option 3 requires acquisition of approximately twice the quantum of properties as the other three options.

Option 1 returns the worst result in terms of overall net \$ gain / loss, with a loss of around \$1.7 million. This is followed by Option 2, which returns a loss of \$1.4 million. This result is sensible given the similarities of these two options, and the fact that they both affect properties to the north of Bell St. The properties to the north of Bell St also provide limited redevelopment opportunities compared to the larger sites to the south of Bell St (for example, Dimmeys).

Option 3 returns a negative result of - \$700,000. Whilst this option enables the greatest total redevelopment sites to be provided to the market, the overall value of these sites is diminished compared to other options because of the collective amenity effects of such large scale redevelopment.

Option 5 returns the highest net \$ gain / loss result, of - \$470,000. This reflects the fact that this option encompasses the redevelopment of large sites which would be attractive to the development sector (for example Dimmeys and KFC), whilst at the same time retaining a number of buildings which contribute to the overall amenity of Coburg (for example the retail shops to the south of Bell St east of Waterfield St, and the tavern on the south eastern corner of Sydney Rd and Bell St).

4.3.6 Discussion

On the basis of the analysis undertaken in this section of the report, Option 5 is the recommended option. This option has the best net \$ gain / loss result. From a property development perspective, there are clear reasons for supporting this option.

It would encourage the redevelopment of a number of sites to the south of Bell St. These include Dimmeys, KFC, and the properties between the railway line and Mary St.



- These sites are large, and (excluding the KFC site) are located in core of the Coburg PAC.
- They are also earmarked for more intensive development (6 to 7 Storeys versus 3 to 4 Storeys) when compared to properties on the north side.

For these reasons these properties would be more attractive to the development sector than properties to the north of Bell St. Because of the nature of their current uses and their location at the core of the Coburg PAC, redevelopment of these sites is also highly desirable from a Central Coburg 2020 policy perspective.

This option also enables recent property investment in Coburg to be retained. This includes the new mixed use development on the north side of Bell St next to the railway line, and the office building between McKay St and Lobb St.

4.4 Proposed PAO

The economic analysis results in the selection of Option 5 as the preferred in terms of redevelopment potential and overall economic impacts for the Coburg PAC. The proposed resulting PAO to replace PAO1 could look something like that set out in Figure 4.3.

Note that this provides for a six lane Bell Street road cross section with a central median plus turn lanes at intersections and generous footpaths on each side of the road. The effects of the PAO extend between Hudson Street in the west up to and including the Church on the northeast corner of the Bell St / Sydney Road Intersection.



Figure 4.3: Proposed PAO along Bell Street to Replace PAO1 based on Option 5



4.5 Recommendation

A significant amount of conceptual design work has been undertaken in the development of five separate Bell Street widening options testing land acquisition issues along the north, south and both sides of the road. An economic assessment of the options has also been undertaken and the associated land development and design outcomes assessed and compared.

The result is the identification of Option 5 as a feasible design outcome representing a possible conceptual widening option if in the distant future VicRoads decides to supplement capacity along Bell Street. This option has a new PAO associated with it to replace PAO1 and satisfy VicRoads that adequate provision has been made for the future.

The option should not be viewed as the design to adopt, nor should it be viewed as an option being endorsed as part of the structure planning process. Rather, it is intended as sufficient design development to demonstrate that the identified PAO replacement is satisfactory and provides sufficient design flexibility to provide for all requirements in future.



5 Transportation Issues

5.1 Approach

The preparation of an integrated transport strategy for the Coburg PAC is based on a broad range of general principles, issues and opportunities. These are discussed below as an input to the Strategy in Section 6.

5.2 Road

The following recommendations are made in relation to the road network:

- The role, function and management of the local streets be reviewed in line with development;
- Specific local access issues be addressed such as the function of the Louisa Street and Harding Street intersection;
- Local road traffic treatments to manage impacts;
- Increased role for "bypass" streets on each side of the Bell/Sydney Intersection to minimise unnecessary traffic flows through the junction and provide alternative access and circulation routes for traffic with a local origin or destination;

Grade separation of Bell Street with the rail line is not specifically referred to in this document. However, the Integrated Transport Strategy and the Coburg Transport Interchange both recognise that a grade separation may occur in future and as such care has been taken to develop a response that does not compromise the potential for a future grade separation of road and rail at Bell Street.

5.3 Public Transport

A significant increase in public transport patronage is required to alleviate pressures on the road network by 2020. The following recommendations are made in relation to public transport::

- Improved interchange at the rail station and creation of a "front door or hub" for the integration of rail, tram and bus services – This issue is being dealt with through the Coburg Transport Interchange Feasibility Study;
- Consolidation of land uses near public transport nodes;
- Provide additional train, tram and bus services through and to the area;
- Extra train service per hour (changing from a peak hour 20min frequency to a 15min frequency);
- Tram and bus service frequencies up by 20% as well as extended hours of service and service frequency to evenings and weekends;
- Tram priority improvements along Sydney Road to reduce travel times through Coburg by 20%;
- Smart Bus services along Bell St and associated facilities at the new interchange;
- Future provision for bus services and stops to service the Pentridge development and the Council Civic Precinct to the south. It should be noted that the route



currently traveling along Champ Street will require a diversion of some form in future subject to the redevelopment layout adopted at the intersection of Pentridge Boulevard with Sydney Road;

- Allowance for super tram stops or some other form of enhanced stop facility along Sydney Rd at the following locations: Bell Street, Victoria Street and Munro-Harding Street:
- Pedestrian and cycle linkages throughout the area as described below.

It should be noted that the reduction of tram travel times along Sydney Road (Route 19) is a key target of the integrated transport strategy and as such any works with the potential to affect tram travel times should be closely considered. VicRoads and Yarra Trams have expressed a desire to work in more together with Council in the refinement of tram priority treatments via the "Think Tram" Program as the structure plan progresses to the next level of detail.

5.4 Walk and Cycle

The creation of attractive, logical and safe walk and cycle linkages through and within the study area is the first step in reducing the number of short distance trips undertaken by car. The significance of replacing short car trips with walk and cycle trips into Coburg should not be underestimated in terms of the resulting accessibility benefits that will flow to the local network. The recommendations include:

- Need to link separate yet adjacent precincts of Pentridge, Civic, retail/commercial and residential;
- Key aim is to encourage people to walk and cycle which requires an area-wide plan;
- Trial off-road bike lane along O'Hea St and Pentridge Blvd to Merri Ck and Bell St;
- Modified signalised crossings across main roads with usable timings, particularly across Bell Street;
- Inclusion of formal bike facilities in future planning applications for both residential and commercial development;

Council's Bicycle Plan sets out a network of linkages for a range of user types and trip lengths through and within the structure plan area. The Integrated Transport Plan adopts the Bicycle Plan, along with other relevant Council documents, as background and assumes that its recommendations are implemented where relevant.

5.5 Demand Management

The following recommendations are made in the relation to better managing demands to achieve travel behaviour change:

- Promote green travel plans for all businesses, schools and relevant land uses in the area:
- Plan for mixed uses at Pentridge to co-locate live/work/play and reduce car dependency;
- Increase walk and cycle trips for short, local movements through improved linkages and crossing facilities such as well-located signalized crossing points across main roads with timings designed to make them attractive for use;



 Develop urban spaces with provision for walk, cycle and public transport precedence rather than private car domination through the placement of carparking, priority given the linkages, connectivity with approach routes and end of trip facilities given to each mode (eg bike parking at the front door of retail premises);

Essentially, sustainable transport actions can be in the form of 'managed accessibility and managed mobility' with a package of PUSH and PULL strategies spanning the entire range of land use management, transport management and pricing tools. These can be categorised into types as summarised in Table 5.1.

Table 5.1: Strategies to Help Achieve Sustainable Travel Outcomes

PULL (Carrot) STRATEGIES	PUSH (stick) STRATEGIES
Investment in public transport	Parking controls and pricing
High occupancy traffic lanes	Road user pricing for routes and congested areas
Selective higher densities in appropriate locations	Traffic calming
Accessibility zoning	Speed limits
People moving corridors	
Goods corridors	
Pedestrian / cyclist friendly area design	

A number of examples of the strategies above that could be suitable to the Central Coburg 2020 area include:

- a local mini bus/shuttle bus which can run on a continuous loop route to service residents, workers and visitors and discourage short vehicle trips;
- Car share and car pool in new high density developments;
- Restrictive on site parking codes;
- Pricing and management of public parking in terms of restrictions, location, distribution;
- Bicycle facilities at employment areas and at the railway station;
- High quality pedestrian footpaths, seating, shelter and street lighting on the main walking routes between public transport and major activity nodes;
- Maximum green times for pedestrians at signals;
- Rebalancing of roadspace sharing away from private vehicle through travel to public transport and/or carparking via the removal of clearways and/or the provision of dedicated bus lanes or high occupancy vehicle lanes;
- Reconfiguration of traffic signals to better prioritise on-road public transport services such as bus jump lanes, extended green phases and the like to improve bus and tram progression;

These strategies are not intended to be exhaustive, however they set out a range of measures that have been considered and included where relevant and feasible in the Strategy that follows.



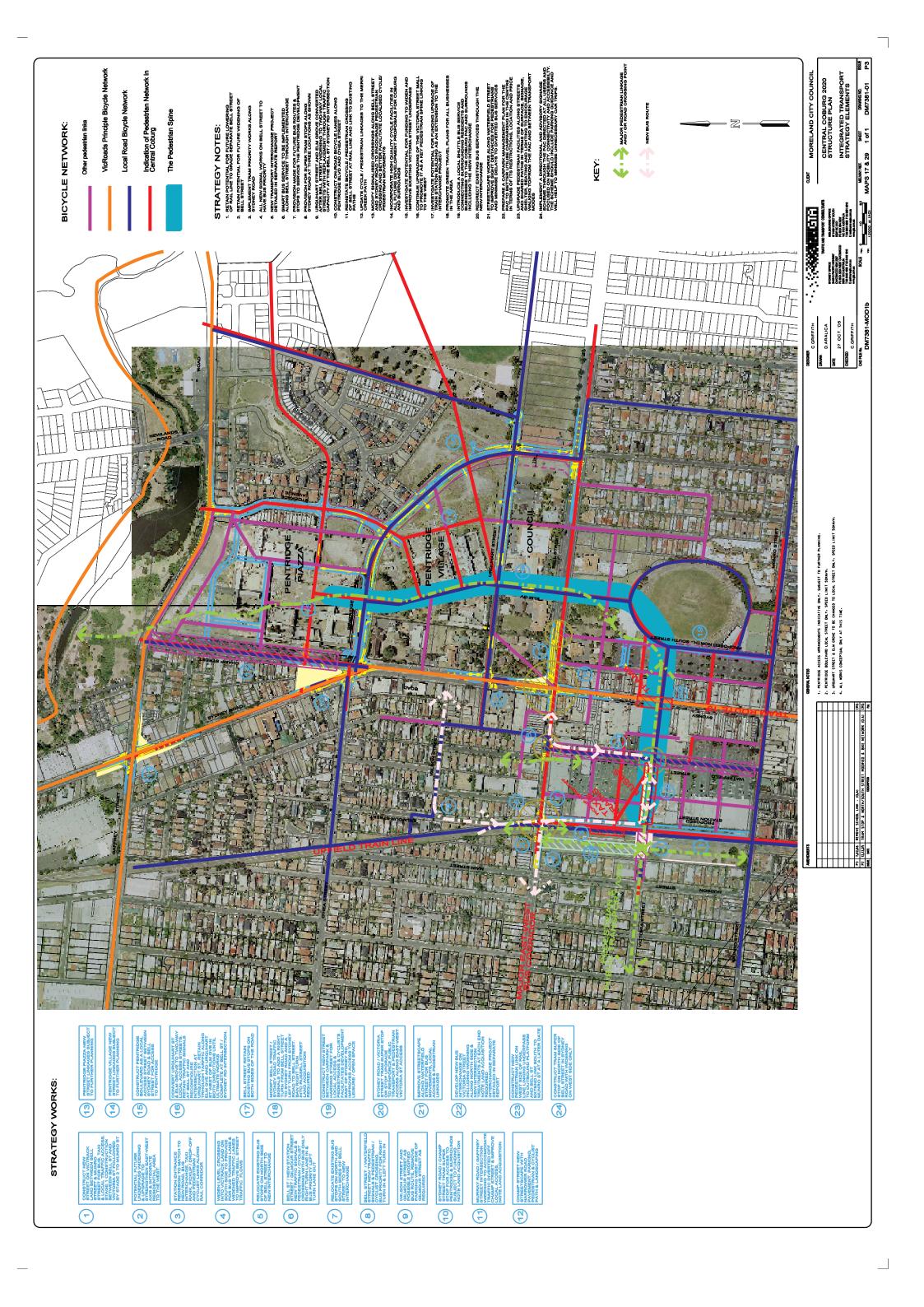
6 Integrated Transport Strategy Elements

6.1 The Works

The Coburg Integrated Transport Strategy comprises a package of works that together form the basis for the Coburg PAC Structure Plan.

A number of the works are purely associated with the provision of a new transport interchange and as such are subject to a separate funding and delivery process. However, a number of works items identified in the Transport Interchange Project are termed baseline works because they relate to the needs of the Coburg PAC irrespective of whether the interchange went ahead.

The package of works is summarised over in the *Coburg PAC Structure Plan Integrated Transport Strategy* Drawing DM7381-01 P3 and included at full size in Appendix B. It is intended that this drawing form the basis for future exhibitions and consultation on the structure plan, and that it be updated as planning progresses towards implementation.





6.2 Costs

The preliminary costing of the Strategy works is set out in Table 6.1 for further development.

Table 6.1: Coburg PAC Structure Plan Integrated Transport Strategy Preliminary Costing

Tem F Tem Tem	1a & 1c 1b 1h 4 4a 11 12 13 1d 1e 1f 1g 2 3 5 6a 6b	Baseline Works included in Interchange Project New north-south street and footpath on Victrack land (Includes 01c) 10m wide landscaped area to eastern edge of rail line between Bell St and the train station New road - Victoria to Munro (Refer also item 13) Modify streetscape along Waterfield St between Bell St and Victoria St Modify streetscape along Waterfield St between Pell St and Victoria St Streetscape improvements in Victoria St between Victoria St & Munro St Streetscape improvements in Victoria St between Victoria St and Munro St Pedestrian / cycle street west side of train line between Victoria St and Munro St Improved pedestrian linkage to Munro St buses Interchange Works included in Interchange Project New ramp/pedestrian access to underpass New station entrance and ramp Improve pedestrian link across and visibility into southern commuter carpark area New taxi rank New interchange incl. reconfigure Victoria St west of Waterfield St Upgrade Victoria St / Waterfield St intersection Install traffic signals at Bell St / Waterfield St Intersection	\$818,787 \$176,026 \$793,511 \$280,333 \$280,333 \$56,679 \$317,343 \$284,929 \$3,007,942 \$1125,614 \$196,846 \$59,743 \$110,938 \$1,999,097 \$86,551
1 1 22 22 2 2 2 4 1 1 3 3 3 3 1 23 23 8 4 6 24 21	1b 1h 4 4a 11 12 13 1d 1e 1f 1g 2 3 5 6a	New north-south street and footpath on Victrack land (Includes 01c) 10m wide landscaped area to eastern edge of rail line between Bell St and the train station New road - Victoria to Munro (Refer also item 13) Modify streetscape along Waterfield St between Bell St and Victoria St Modify streetscape along Waterfield St between Bell St and Victoria St Streetscape improvements in Victoria St between Victoria St & Munro St Streetscape improvements in Victoria St between rail underpass and Hudson St Pedestrian / cycle street west side of train line between Victoria St and Munro St Improved pedestrian linkage to Munro St buses Interchange Works included in Interchange Project New ramp/pedestrian access to underpass New station entrance and ramp Improve pedestrian link across and visibility into southern commuter carpark area New taxi rank New interchnage incl. reconfigure Victoria St west of Waterfield St Upgrade Victoria St / Waterfield St intersection	\$176,026 \$793,511 \$280,333 \$280,333 \$56,675 \$317,343 \$284,925 \$3,007,942 \$1196,846 \$59,743 \$110,938 \$1,999,097
1 1 22 22 2 2 2 4 1 1 3 3 3 3 1 23 23 8 4 6 24 21	1b 1h 4 4a 11 12 13 1d 1e 1f 1g 2 3 5 6a	10m wide landscaped area to eastern edge of rail line between Bell St and the train station New road - Victoria to Munro (Refer also item 13) Modify streetscape along Waterfield St between Bell St and Victoria St Modify streetscape along Waterfield St between Pell St and Victoria St Streetscape improvements in Victoria St between rail underpass and Hudson St Pedestrian / cycle street west side of train line between Victoria St and Munro St Improved pedestrian linkage to Munro St buses Interchange Works included in Interchange Project New ramp/pedestrian access to underpass New station entrance and ramp Improve pedestrian link across and visibility into southern commuter carpark area New taxi rank New interchange incl. reconfigure Victoria St west of Waterfield St Upgrade Victoria St / Waterfield St intersection	\$176,026 \$793,51 \$280,33 \$280,33 \$56,679 \$317,34 \$284,929 \$3,007,942 \$1125,614 \$196,846 \$59,740 \$110,936 \$1,999,09
1 22 22 2 2 4 1 1 3 3 3 3 1 23 23 8 4 6 6 24 21	1h 4 4a 11 12 13 1d 1e 1f 1g 2 3 5 6a	New road - Victoria to Munro (Refer also item 13) Modify streetscape along Waterfield St between Bell St and Victoria St Modify streetscape along Waterfield St between Victoria St & Munro St Streetscape improvements in Victoria St between rail underpass and Hudson St Pedestrian / cycle street west side of train line between Victoria St and Munro St Improved pedestrian linkage to Munro St buses Interchange Works included in Interchange Project New ramp/pedestrian access to underpass New station entrance and ramp Improve pedestrian link across and visibility into southern commuter carpark area New taxi rank New interchnage incl. reconfigure Victoria St west of Waterfield St Upgrade Victoria St / Waterfield St intersection	\$793,51 \$280,33 \$280,33 \$56,67 \$317,34 \$284,92 \$3,007,94 \$1125,61 \$196,84 \$59,74 \$110,93 \$1,999,09
22 22 2 24 1 1 3 3 3 1 23 23 8 4 6 24 21	4 4a 11 12 13 14 1e 1f 1g 2 3 5 6a	Modify streetscape along Waterfield St between Bell St and Victoria St Modify streetscape along Waterfield St between Victoria St & Munro St Streetscape improvements in Victoria St between rail underpass and Hudson St Pedestrian / cycle street west side of train line between Victoria St and Munro St Improved pedestrian linkage to Munro St buses Interchange Works included in Interchange Project New ramp/pedestrian access to underpass New station entrance and ramp Improve pedestrian link across and visibility into southern commuter carpark area New taxi rank New interchnage incl. reconfigure Victoria St west of Waterfield St Upgrade Victoria St / Waterfield St intersection	\$280,33 \$280,33 \$56,67 \$317,34 \$284,92 \$3,007,94 \$125,61 \$196,84 \$59,74 \$110,93 \$1,999,09
22 2 24 1 3 3 3 1 23 23 8 4 6 24 21	4a 11 12 13 14 1e 1f 1g 2 3 5 6a	Modify streetscape along Waterfield St between Victoria St & Munro St Streetscape improvements in Victoria St between rail underpass and Hudson St Pedestrian / cycle street west side of train line between Victoria St and Munro St Improved pedestrian linkage to Munro St buses Interchange Works included in Interchange Project New ramp/pedestrian access to underpass New station entrance and ramp Improve pedestrian link across and visibility into southern commuter carpark area New taxi rank New interchange incl. reconfigure Victoria St west of Waterfield St Upgrade Victoria St / Waterfield St intersection	\$280,33 \$56,67 \$317,34 \$284,92 \$3,007,94 \$125,61 \$196,84 \$59,74 \$110,93 \$1,999,09
2 24 1 3 3 3 1 23 23 8 4 6 24 21	11 12 13 14 1e 1f 1g 2 3 5	Streetscape improvements in Victoria St between rail underpass and Hudson St Pedestrian / cycle street west side of train line between Victoria St and Munro St Improved pedestrian linkage to Munro St buses Interchange Works included in Interchange Project New ramp/pedestrian access to underpass New station entrance and ramp Improve pedestrian link across and visibility into southern commuter carpark area New taxi rank New interchange incl. reconfigure Victoria St west of Waterfield St Upgrade Victoria St / Waterfield St intersection	\$56,67 \$317,34 \$284,92 \$3,007,94 \$125,61 \$196,84 \$59,74 \$110,93 \$1,999,09
24 1 3 3 3 1 23 23 8 4 6 24 21	12 13 1d 1e 1f 1g 2 3 5	Pedestrian / cycle street west side of train line between Victoria St and Munro St Improved pedestrian linkage to Munro St buses Interchange Works included in Interchange Project New ramp/pedestrian access to underpass New station entrance and ramp Improve pedestrian link across and visibility into southern commuter carpark area New taxi rank New interchnage incl. reconfigure Victoria St west of Waterfield St Upgrade Victoria St / Waterfield St intersection	\$317,34 \$284,92 \$3,007,94 \$125,61 \$196,84 \$59,74 \$110,93 \$1,999,09
3 3 3 1 23 23 8 4 6 24 21	1d 1e 1f 1g 2 3 5	Improved pedestrian linkage to Munro St buses Interchange Works included in Interchange Project New ramp/pedestrian access to underpass New station entrance and ramp Improve pedestrian link across and visibility into southern commuter carpark area New taxi rank New interchnage incl. reconfigure Victoria St west of Waterfield St Upgrade Victoria St / Waterfield St intersection	\$284,92 \$3,007,94 \$125,61 \$196,84 \$59,74 \$110,93 \$1,999,09
3 3 3 1 23 23 8 4 6 24 21	1d 1e 1f 1g 2 3 5	Interchange Works included in Interchange Project New ramp/pedestrian access to underpass New station entrance and ramp Improve pedestrian link across and visibility into southern commuter carpark area New taxi rank New interchnage incl. reconfigure Victoria St west of Waterfield St Upgrade Victoria St / Waterfield St intersection	\$3,007,94 \$125,61 \$196,84 \$59,74 \$110,93 \$1,999,09
3 3 1 23 23 8 4 6 24 21	1e 1f 1g 2 3 5	New ramp/pedestrian access to underpass New station entrance and ramp Improve pedestrian link across and visibility into southern commuter carpark area New taxi rank New interchnage incl. reconfigure Victoria St west of Waterfield St Upgrade Victoria St / Waterfield St intersection	\$125,61 \$196,84 \$59,74 \$110,93 \$1,999,09
3 3 1 23 23 8 4 6 24 21	1e 1f 1g 2 3 5	New ramp/pedestrian access to underpass New station entrance and ramp Improve pedestrian link across and visibility into southern commuter carpark area New taxi rank New interchnage incl. reconfigure Victoria St west of Waterfield St Upgrade Victoria St / Waterfield St intersection	\$196,84 \$59,74 \$110,93 \$1,999,09
3 3 1 23 23 8 4 6 24 21	1e 1f 1g 2 3 5	New station entrance and ramp Improve pedestrian link across and visibility into southern commuter carpark area New taxi rank New interchnage incl. reconfigure Victoria St west of Waterfield St Upgrade Victoria St / Waterfield St intersection	\$196,84 \$59,74 \$110,93 \$1,999,09
3 1 23 23 8 4 6 24 21	1f 1g 2 3 5	Improve pedestrian link across and visibility into southern commuter carpark area New taxi rank New interchnage incl. reconfigure Victoria St west of Waterfield St Upgrade Victoria St / Waterfield St intersection	\$59,74 \$110,93 \$1,999,09
1 23 23 8 4 6 24 21	1g 2 3 5 6a	New taxi rank New interchnage incl. reconfigure Victoria St west of Waterfield St Upgrade Victoria St / Waterfield St intersection	\$110,93 \$1,999,09
23 23 8 4 6 24 21	2 3 5 6a	New interchnage incl. reconfigure Victoria St west of Waterfield St Upgrade Victoria St / Waterfield St intersection	\$1,999,09
23 8 4 6 24 21	3 5 6a	Upgrade Victoria St / Waterfield St intersection	
8 4 6 24 21	5 6a		\$86,55
4 6 24 21	6a	Install traffic signals at Bell St / Waterfield St Intersection	t
6 24 21			\$393,38
24 21	6b	Widen Bell St level crossing by 1m on the south side	\$355,97
21		Modify existing pedestrian operated signals at Bell St level crossing	\$424,32
	7	Provide 3m wide landscaped treatment to western platform edge with additional 3m footpath between Victor	\$260,95
3	8	Future upgrade of tram stops and surrounds along Sydney Rd	To be coste
	9	Restructure public domain/ street interface at western end of pedestrian rail underpass	\$934,44
		Ott Out Will	\$4,947,87
		Other Strategy Works	00.54444
2		Widen pedestrian underpass from 3m to 12m	\$3,514,14
		Station Building Upgrade	Not coste
5		Relocate bus stops off Bell St to new interchange	\$10,00
7		Relocate bus stops off Bell St to new interchange	\$10,00
9		Configure Wilson and Gilmour Streets for bus services	\$25,00
10		Sydney Rd / Pentridge Blvd / O/Hea St / Champ St upgraded tram stop	To be coste
11		Murray Rd / Gaffney St wideinng and intersection works	To be coste
12		Champ St streetscape	Council project
13		Pentridge Piazza traffic and transport links	Developer funde
14		Pentridge Village traffic and transport links	Developer funde
15		Pentrdge Blvd construction between Sydney Rd and Bell St	Developer funde
16		Convert Elm Gve to two-way operation and reconfigure the Elm / Urquhart Intersection and signals at Bell	\$150,00
17		Bell St / New North-South Access Street new traffic signals	\$180,00
18		Bell st retention of bus stops on both sides of the road	\$
19		Bell St / Sydney Rd Intersection construct right turn lane and left turn slip lane and signal modifications	To be coste
20		Construct New North-South Access Street between Bell St and Harding St	\$1,600,00
21		Sydney Rd / Victoria St upgraded tram stop	To be coste
+			\$5,489,14
			+5,.55,11
		TOTAL OF ALL WORKS =	\$13,444,96
Notes:			
	clusions and discla		
	Project works co	sted by JMP evel planning only and not to be relied on for budgeting purposes	



6.3 Priorities and Staging of the Works

The prioritisation and staging of the works set out in the Integrated Transport Strategy are to be confirmed following resolution of a government decision on the Coburg Transport Interchange Project as many of the works are linked to the construction of the Interchange.

In broad terms the baseline works in Table 6.1 refer to those works that are required to facilitate local accessibility irrespective of whether the Interchange proceeds although they are also required by the Interchange. As a result, there is scope for the construction and funding of these works to be separate to the Interchange Works but in any event is expected to be required prior to the majority of other works in the table.

The Interchange works refers to those works required to facilitate the operation of the Transport Interchange and as such form a package of works under that separate project.

All other works benefit the CC2020 area and as such could be staged and constructed separately to the works above.



7 Recommendations

The Central Coburg 2020 Structure Plan Integrated Transport Strategy brings together a range of previous work and ongoing studies looking at the Coburg Transport Interchange. The structure plan covers a large area and attempts to resolve transport issues for all users over the short, medium and long term.

The resulting Strategy is detailed in the drawing attached to this report and is intended to form the basis for ongoing community consultation. It is expected that it will be refined as this process progresses and other structure plan outcomes are fed into the study.

It is recommended that the Strategy be adopted as the basis for the future traffic and transport planning of the area noting the following with respect to its implementation:

- (i) The introduction of the new bus interchange is expected to result in manageable additional bus travel times given the priority measures and other works to be constructed, and minor impacts on other through and local traffic along Bell Street;
- (ii) The work on the widening of Bell Street is intended as background for the identification of a new public acquisition overlay to replace the existing PAO1. It is not intended to form the basis for design discussion nor is it expected that it will be implemented in the short to medium term. Its inclusion is designed only to provide VicRoads with sufficient material to allow the modification of the PAO;
- (iii) The proposed change of Urquhart Street and Elm Grove to local access streets can only occur after a full capacity replacement at the Bell Street / Sydney Road Intersection is provided as per Test 3. The Strategy shows an interim stage whereby this through traffic is split between the two routes but is so doing allowing Urquhart Street east of Elm Grove to be converted to two-way operation and local street function as per Test 2. The change to local street status of Elm Grove and Urquhart Street can only occur with land acquisition along the Church frontages to Sydney Road and possibly Bell Street. It is not possible to achieve it without affecting the Church although it is understood that there are heritage and pedestrian amenity issues to be resolved with this work.
- (iv) The new north-south street proposed east of Russell Street provides a high quality road linkage into the area east of Bell Street and allows a much more flexible and higher intensity development outcome. This is more relevant given that the right turn into Russell Street will be closed due to works proposed at the Bell / Sydney Intersection.

The Strategy is recommended as a robust framework on which to base the long term traffic and transport planning of Central Coburg. It has been tested in a simulation model, assessed against economic criteria and designed to be consistent with government and Council policy relating to activity centre planning.



Appendix A Simulation Test Run Descriptions



Existing Model – The 2005 Existing Model calibrated from the recently completed Central Coburg 2020 Traffic and Transport Microsimulation Model has been used as a basis for which to test the impacts of the works including impacts on public transport.

Test 1 (Existing with New Bus Interchange) – This model provided some alterations to the road network to incorporate the bus interchange in central Coburg including:

- As for existing plus the following:
- a new north-south road immediately east of the railway line connecting Bell Street to Munro Street and associated traffic signals at Bell Street;
- A new dedicated right turn lane with a dedicated bus phase for buses along Bell Street into the new road (west to south).
- A connection from the new road into Victoria Street to form part of the bus interchange for which buses will deviate their travel paths off Bell Street;
- Installation of traffic signals at the Bell Street / Waterfield Street Intersection with bus priority; and
- Introduction of the bus interchange in Victoria Street;

Test 2 (Future, No Bell Street Widening) – This model uses the 2020 demands provided for Scenario C from the previous Central Coburg 2020 model and includes:

- As for Test 1 plus the following:
- The introduction of Pentridge Boulevard connecting Sydney Road to Bell Street;
- A single right turn lane from Bell Street east to Sydney Road north;
- Addition of a single left turn slip lane for the north approach to the Bell Street / Sydney Road intersection.
- Introduction of a new north south road east of Sydney Road connecting Harding Street to Bell Street along with new traffic signals onto Bell Street;
- Closure of the right turn lane into Russell Street; and
- Altering Urquhart Street and Elm Grove to two way roads but retention of through traffic.

Test 3 (Future, With Bell Street Widening) – This model is an upgrade to Scenario 2 using the same demands and including additional work such as the widening of Bell Street between Sydney Road and Hudson Street. Specifically, the model includes all of the alterations described in Scenario 2 and the following inclusions:

- As for Test 2 plus the following:
- Three eastbound traffic lanes on Bell Street between Hudson Street and Bell Street;
- Three westbound traffic lanes on Bell Street between Sydney Road and west of Waterfield Street;
- Double right turn lanes for the east approach to the Bell Street / Sydney Road Intersection (east to north); and
- Alteration of Urquhart Street and Elm Grove to local access streets.



Appendix B Simulation Summary Outputs



Simulation Model Link Count Outputs

Link Counts at specific locations on the major roads within the model were undertaken to provide a comparison between each of the Tests. The following table shows a comparison of link volumes recorded for each model run.

The values obtained for Test 1 have volumes less than the other tests as a result of the slow moving traffic due to an over saturated network.

Road Name	Location	Direction	Modelled Count (vph)				
			Existing	Test 1	Test 1a	Test 2	Test 3
Sydney Road	North of Munro Street	Northbound	646	650	729	654	682
Sydney Road	North of Munro Street	Southbound	1561	1410	1157	1298	1285
Sydney Road	North of Murray Road	Southbound	1227	1234	846	1324	1290
Sydney Road	North of Murray Road	Northbound	1189	1191	1155	1172	1363
Bell Street	West of Hudson Street	Eastbound	1500	1512	1226	1418	1547
Bell Street	West of Hudson Street	Westbound	1124	1157	941	1034	1286
Bell Street	West of Nicholson Street	Eastbound	1969	1947	1739	1961	2049
Bell Street	West of Nicholson Street	Westbound	2002	2064	1673	1937	2298



Appendix C Integrated Transport Strategy