

COMPLETE



WCX M5 – St Peters Interchange Active Transport Works

Concept Development and Finalisation Report

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1 INTRODUCTION

COMPLETE Urban Pty. Ltd. (COMPLETE) has been engaged by Inner West Council (IWC) to develop the initial concept design and undertake the detailed design of the proposed active transport upgrade works as part of the WCX M5 St Peters Interchange project.

The project results from a request by the RMS and Westconnex for Council to deliver two (2) active transport projects around the M5 Westconnex Interchange at St Peters. The provision of such walking and cycling facilities with 1km of the St Peters Interchange is a condition of consent for the Westconnex M5 project.

The locations included as part of this project are:

- Shared paths and improved pedestrian crossings in Mary Street and the Princes Highway opposite the St Peters Interchange; and
- A separated cycleway on Burrows Avenue near Sydenham Station, as well as traffic calming on Henry Street, Sydenham and improved crossings at Unwin's Bridge linking with the existing L8 and L13 bike routes from the Marrickville Bicycle Strategy.

2 PROJECT AIMS AND CONCEPT DESIGN PRINCIPLES

2.1 AIMS

The aims of the project were to identify pedestrian and cycle facilities that are to be provided by Westconnex as part of the State Significant Infrastructure works at the M5 Interchange. The initial review considered the following:

- current and future land use and associated pedestrian and cycle demand and needs;
- pedestrian and cycle impacts associated with the project;
- regional and local pedestrian and cycling strategies;
- pedestrian and cycle safety, accessibility and connectivity, including to the public realm;
- intersection and signal phasing opportunities to reduce waiting and crossing times for pedestrians and cyclists;
- provision of upgraded cycle and pedestrian facilities within 1,000 metres of the boundary of the St Peters Interchange, apart from the areas addressed in the development consent; and
- concept designs for pedestrian and cycleway infrastructure and implementation timeframes.

2.2 CONCEPT DESIGN PRINCIPLES

The Westconnex concept designs prepared as part of the previous initial concept design stage were consistent with Council's approved Pedestrian and Cycleway Network Review and included the following principles:

- pedestrian and cycle engineering and safety standards;
- a safety audit of existing and proposed pedestrian and cycle facilities to address the above standards;
- details of selected routes and connections to existing local and regional routes;
- timing and staging of all works;
- infrastructure details, including lighting, safety, security, and standards compliance;
- signage and wayfinding measures; and
- details of associated landscaping works.

3 ROUTE ASSESSMENT METHODOLOGY AND CONSIDERATIONS

3.1 PROCESS

This report has been prepared in response to Council's request to prepare revised concept design to be used for public exhibition. The route assessment has been carried out utilising the following methodology:

- Site inspection of the proposed route;
- Assessment and utilisation of the detailed survey provided by Council;
- Site assessment and recording of site features, incorporating:
 - Existing road geometry, including measurement of key site features to assist in the evaluation of route options and bicycle facility typologies;
 - Existing traffic conditions, including identification of sections of high traffic/ pedestrian volumes, high traffic speeds, areas of traffic congestion etc.;
 - Existing kerbside parking provisions, including identification of areas of high parking utilisation, high parking turnover, location of existing bus stops/ mail zones etc.;
 - Existing pedestrian provisions, including areas of high pedestrian concentration, location of crossings and type of control, any areas of inadequate pedestrian storage space, locations of substandard kerb ramps potentially impacted by a cycle facility etc.;
 - Location and frequency of driveways and side roads along the proposed routes. In addition, assessment of the turning movements and usage (volume) associated with any side road and high use driveways;
 - Location and condition of any street trees and landscaping potentially impacted by a cycle facility; and
 - Location of any street furniture items potentially impacted by a cycle route.
- Preparation of a concept design report outlining the findings of the assessment process, including a recommended final concept design; and
- Stakeholder meeting with Council representatives to present and discuss the route assessment findings and preliminary design opportunities.

3.2 ASSUMPTIONS

The following assumptions are relevant to the preparation of this route assessment study:

- That Transport for NSW are undertaking station upgrade works at Sydenham Station incorporating a new entrance on Burrows Avenue east of George Street. The proposed cycle facility design is to be coordinated with that project;
- Dimensions of parking spaces are based on AS2890.5;
- Design proposals at signalised intersections are subject to approval from the RMS; and
- The proposed cycleway shall connect to the proposed facilities along Canal Road to the south east, and to Sydenham Station and the Marrickville Road cycleway proposed by Council to the northwest.

3.3 CYCLE FACILITY CONSIDERATIONS

Whilst the overall objective is to provide a safe and well-linked cycle facility that is attractive to new and existing cyclists, the cycle route and facility typology must be balanced against the greater needs of the road network, the general public, and the residents and businesses that are located along the route. In light of this, the developed options consider the potential implications of differing cycle facility typologies against existing traffic and parking provisions, particularly along Burrows Avenue.

For the majority of the route, the proposed cycle measures develop and improve the existing facilities, on the understanding that the majority of the roads are quiet with little traffic and so are comfortable for the majority of cyclists to use.

3.4 PEDESTRIAN CONSIDERATIONS

The assessment considers and identifies the existing pedestrian facilities and how potential cycle facilities would impact on those facilities.

3.5 TRAFFIC OPERATION CONSIDERATIONS

The assessment also considers the potential impacts of cycleway options on the existing traffic operation of the route and intersections along the route. Specific consideration of the number of traffic lanes (including short turning lanes at intersections), lane widths, traffic volumes and vehicle speeds.

Any changes at signalised intersections are likely to require additional assessment to meet the requirements of the RMS.

3.6 PARKING CONSIDERATIONS

The assessment considers the parking implications of the route alignment and the cycle facility typology options. Specific reference is made in relation to potential loss of parking.

3.7 PUBLIC TRANSPORT CONSIDERATIONS

It is noted that with the Sydenham Station upgrade works, bus replacement services are no longer expected to use Burrows Avenue.

3.8 STREET TREES, LANDSCAPE AND PUBLIC OPEN SPACE CONSIDERATIONS

The assessment also considers the potential impact on existing landscaping and street tree installations and evaluated the potential landscape and open space losses incurred as a result of providing a cycle facility adjacent.

3.9 FUTURE STAGES

Following completion and endorsement of the concept design stage, and subject to Council's direction, COMPLETE will progress the project to the detailed design and for construction documentation stages.

4 ROUTE OVERVIEW

4.1 STUDY AREA

For the purposes of this report, the route has been divided to the following sections as shown in Figure 1 below:

1. Burrows Avenue; and
2. George Street, Henry Street, Grove Street, Bakers Lane and Mary Street

The treatment options considered for each of the sections are:

1. Burrows Avenue
 - a. Option A – One way westbound separated cycleway on the southern side of Burrows Avenue with an on road mixed traffic facility for cyclists eastbound;
 - b. Option B – Two way separated cycleway on the southern side of Burrows Avenue.
2. George Street, Henry Street, Grove Street, Bakers Lane and Mary Street
 - a. Widened shared path along Mary Street and upgrades to the existing on road cycle route along the other streets.

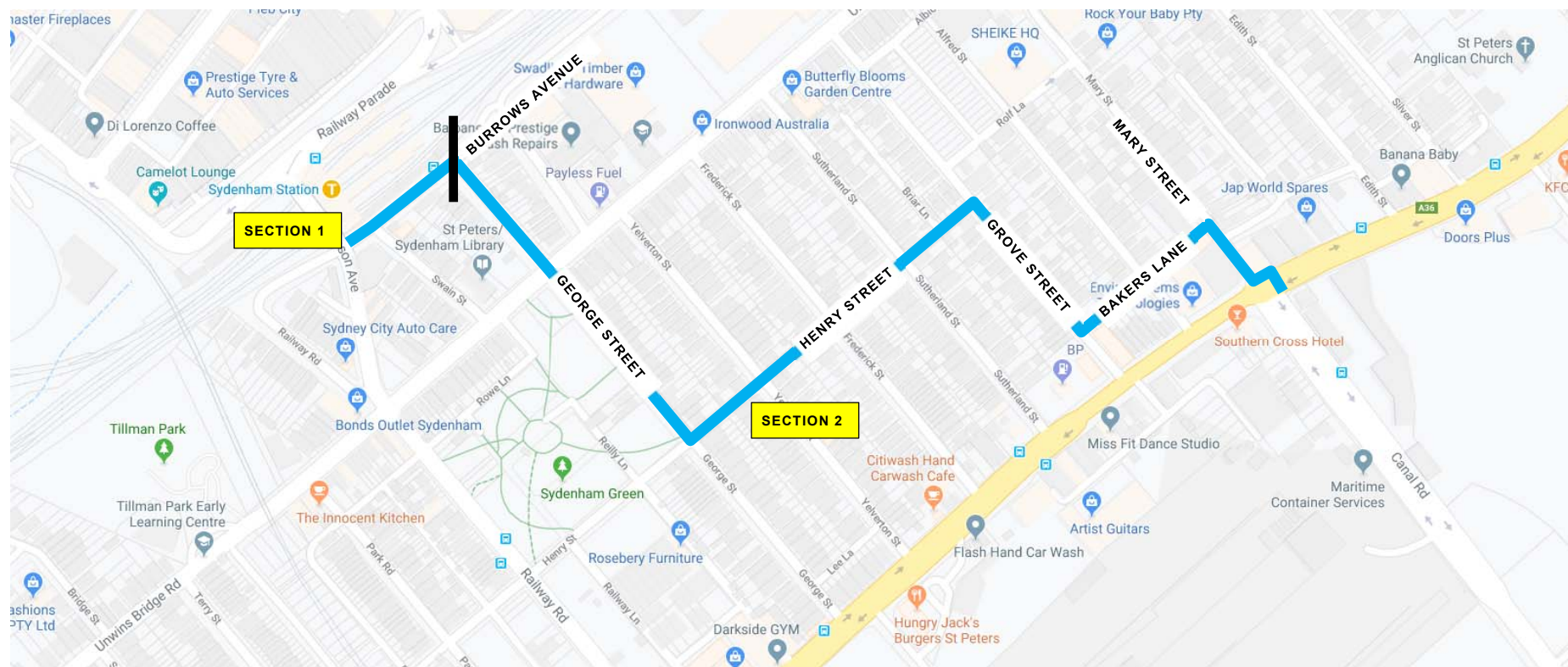


Figure 1 –route overview

4.2 EXISTING CYCLE FACILITIES ON ROUTE

Section of Road	Existing cycle facilities
Section 1 – Burrows Avenue	
Burrows Avenue	On road mixed traffic - no road markings.
Section 2 – George Street, Henry Street, Grove Street, Bakers Lane and Mary Street	
George Street	<p>On road mixed traffic - no road markings, cycle route signage in place.</p> <p>Speed humps / tables in places. Rumble bars at Henry Street intersection (poor condition).</p> <p>No access across Unwins Bridge Road, must turn left at each approach.</p>
Henry Street	<p>On road mixed traffic - no road markings, cycle route signage in place.</p> <p>Rumble bars at George Street, Yelverton Street, Frederick Street, and Sutherland Street intersections (poor condition).</p>
Grove Street	<p>On road mixed traffic - no road markings, cycle route signage in place.</p> <p>Speed humps in places.</p>
Bakers Lane	On road mixed traffic - no road markings.
Mary Street	On road mixed traffic for northbound cyclists only due to one way restriction.
Princes Highway – connection to Canal Road.	Signalised crossing of Princes Highway for pedestrians only. Cyclists must dismount.

5 PROPOSED CONCEPT TREATMENT DETAILS

5.1 TREATMENT COMPONENTS

The following images demonstrate the different components of treatments proposed in this report.

5.1.1 KERB-SEPARATED CYCLE LANE

A kerb (around 400mm wide and 150mm high) is used to separate cyclists from adjacent vehicular traffic or parked cars. Gaps are provided at intervals to allow for drainage.



Location: Liverpool Street, Town Hall NSW

Option B on Burrows Street proposes a bi-directional kerb separated cycleway with both cycle directions accommodated in the same cycleway on one side of the road. Option A proposes a similar facility, but with a single cycle direction only in the separated cycleway and an on road mixed traffic provision in the opposite direction.

5.1.2 ON ROAD MIXED TRAFFIC

In areas treated as mixed traffic, bicycle riders share lane space on the road with motor vehicles. The area is denoted by a bicycle symbol painted on the road pavement.



Location: Amherst Street, Cammeray NSW

5.2 PROPOSED TREATMENTS

Throughout all sections of the route, one or more of the following treatments are proposed:

Treatment 1: Kerb-separated cycle lane in one direction with mixed traffic on the other side of the road. The separated cycle lane is positioned between parking lane and kerb and is separated from the parking lane by a kerb around 400mm wide and 150mm high.

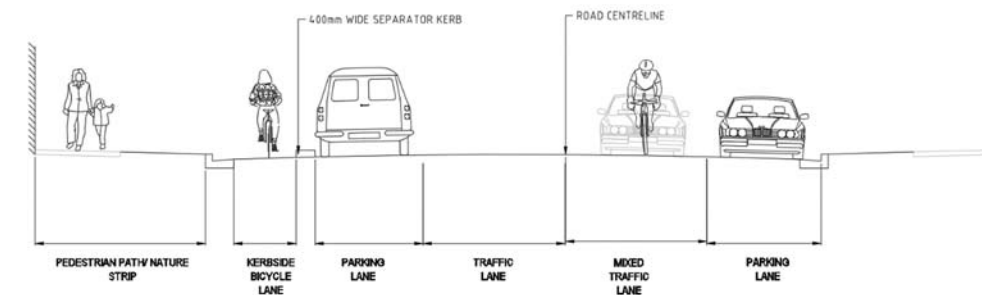


Figure 2.1: Treatment 1

Treatment 2: Bi-directional kerb-separated cycleway – this layout consists of two-way cycleway separated from the adjacent traffic lane or parking lane by a minimum 400mm wide and 150mm high kerb.

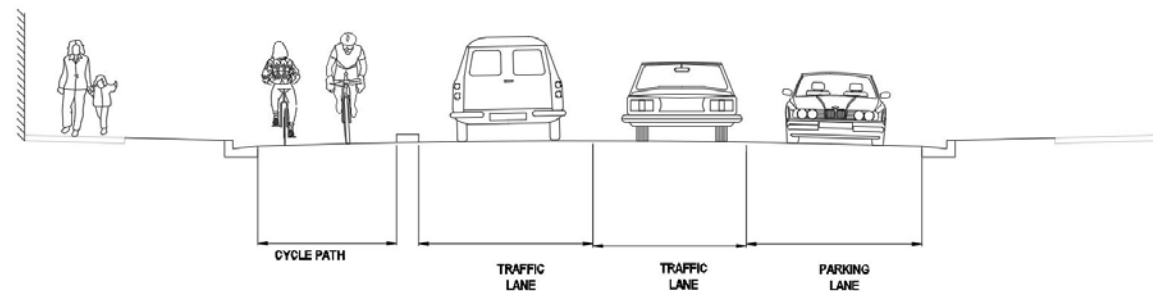


Figure 2.2: Treatment 2

Treatment 3: On road mixed traffic with cyclists on the road sharing the road space with all vehicles.

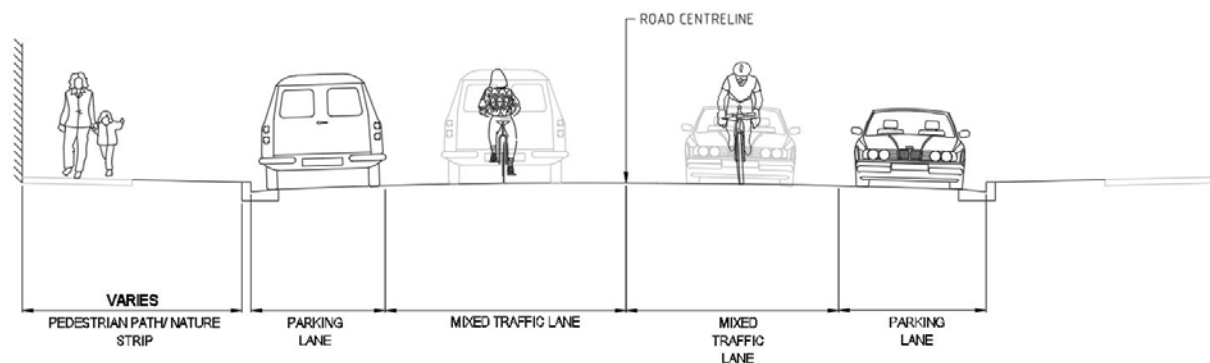


Figure 2.3: Treatment 3

5.3 TREATMENT DETAILS ALONG ROUTE

5.3.1 SECTION 1: BURROWS AVENUE

Option A: Treatment 1

Noting that it is uphill westbound, this option proposes a buffer-separated cycle lane treatment be applied this direction located on the southern side of Burrows Avenue. At Gleeson Avenue, the cycleway extends up on to a shared path at the traffic signals are amended to facilitate a shared crossing across Burrows Avenue.

The eastbound cycle route is then treated as on road mixed traffic.

Total cycle lane width: 1.5m (eastbound)

Separation: 0.4m separation kerb between cycle lane and parking lane

Total traffic lane: 6.5m (two-way)

Parking lane: 2.1m - 2.4m either side. Retention of both drop off zone parking on northern side outside station and approximately 5 car parking spaces on southern side west of George Street.

Option B: Treatment 2

This option proposes a bi-directional separated cycle lane on the southern side of Burrows Avenue. At Gleeson Avenue, the cycleway extends up on to a shared path at the traffic signals are amended to facilitate a shared crossing across Burrows Avenue.

Total cycle lane width: 2.4m (bi-directional)

Separation: 0.4m separation kerb between cycle lane and travel lane

Total traffic lane: 6.8m (two-way)

Parking lane: 2.4m northern side. Retention of the drop off zone parking on northern side outside station and the loss of approximately 5 car parking spaces on southern side west of George Street.

Alternatives considered:

- Treatment 3 – Not considered safe due to high volume of traffic westbound and uphill grade; and
- Shared path on northern side of the road adjacent to rail station – Not considered safe due to the volume of pedestrians using the path, the adjacent drop off zone, and the potential speed of cyclists on the path travelling down the grade.

5.3.2 SECTION 2: GEORGE STREET, HENRY STREET, GROVE STREET, BAKERS LANE & MARY STREET

5.3.2.1 George Street

Proposed treatment: Treatment 3

It is proposed to upgrade the existing on road facility by improving line marking and signage, and improving traffic calming by providing speed cushions and reconstructing the worn rumble bars at key intersections.

Loss of one car parking space adjacent to Sydenham Green to improve access to the park.

Provides gaps in the central median on Unwins Bridge Road and traffic signal adjustments to facilitate straight through movements for cyclists on George Street.

Alternatives considered:

- Treatment 2 – Not considered due to the significant loss of parking required.

5.3.2.2 Henry Street

Proposed treatment: Treatment 3

It is proposed to upgrade the existing on road facility by improving line marking and signage, and improving traffic calming by reconstructing the worn rumble bars at key intersections.

7 APPENDIX

Please see route sections summaries below.

Alternatives considered:

- Nil – insufficient width

5.3.2.3 Grove Street

Proposed treatment: Treatment 3

It is proposed to upgrade the existing on road facility by improving line marking and signage, and improving traffic calming by providing speed cushions and reconstructing the worn rumble bars at key intersections.

Alternatives considered:

- Nil – insufficient width

5.3.2.4 Bakers Lane

Proposed treatment: Treatment 3

It is proposed to upgrade the existing on road facility by improving line marking and signage, and improving traffic calming by providing speed cushions and reconstructing the worn rumble bars at key intersections.

Alternatives considered:

- Nil – insufficient width

5.3.2.5 Mary Street

Proposed treatment: Shared path on northern side of road

It is proposed to widen the footpath on the northern side of Mary Street between the Princes Highway and Bakers Lane to enable a shared path to be provided.

Additional path widening is proposed on the Princes Highway to improve shared path access to the signalised crossing of the highway, and it is proposed to upgrade the crossing for shared use to facilitate cycle access to Canal Road without the need to dismount.

Alternatives considered:

- Nil – insufficient width and difficulties due to the one way restrictions.

6 THE NEXT STEPS

Following community feedback on the proposed concept designs, Council will consider all comments and finalise the concept design. Future stages will include the detailed design process and ultimately construction.

WCX M5 – St Peters Interchange: SECTION 1

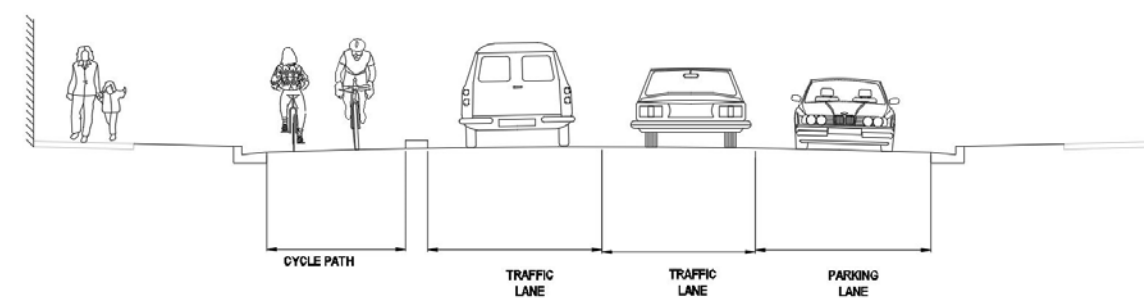
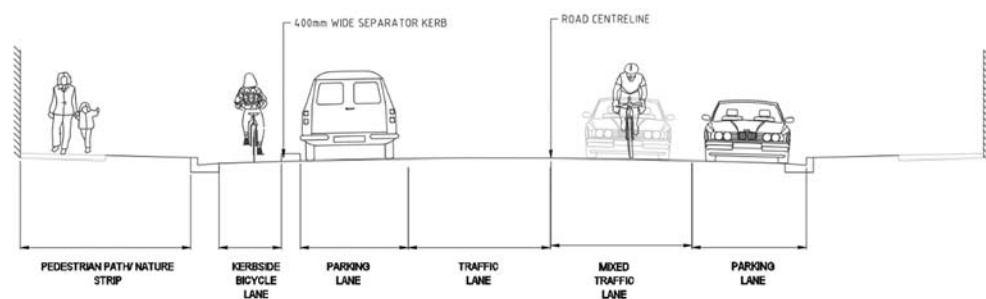
BURROWS AVENUE

Source: SIX Maps



Section features:

- Directly outside Sydenham Station, with drop off parking on the northern side of Burrows Road;
- Station upgrade currently underway. Pedestrian and cycle movements subject to change due to new access provisions;
- High traffic volumes at times due to rat run to avoid Unwins Bridge Road.



OPTION A: Treatment 1 - Kerb-separated cycle lane in one direction with mixed traffic on the other side of the road

Advantages:

- Separated cycleway up the hill;
- Mixed traffic downhill where cycle speeds and vehicle speeds are similar; and
- Retention of existing parking space (approximately 5) on southern side of Burrows Avenue.

Disadvantages:

- On road eastbound may not be ideal for less confident cyclists.

OPTION B: Treatment 2 - Bi-directional kerb-separated cycleway

Advantages:

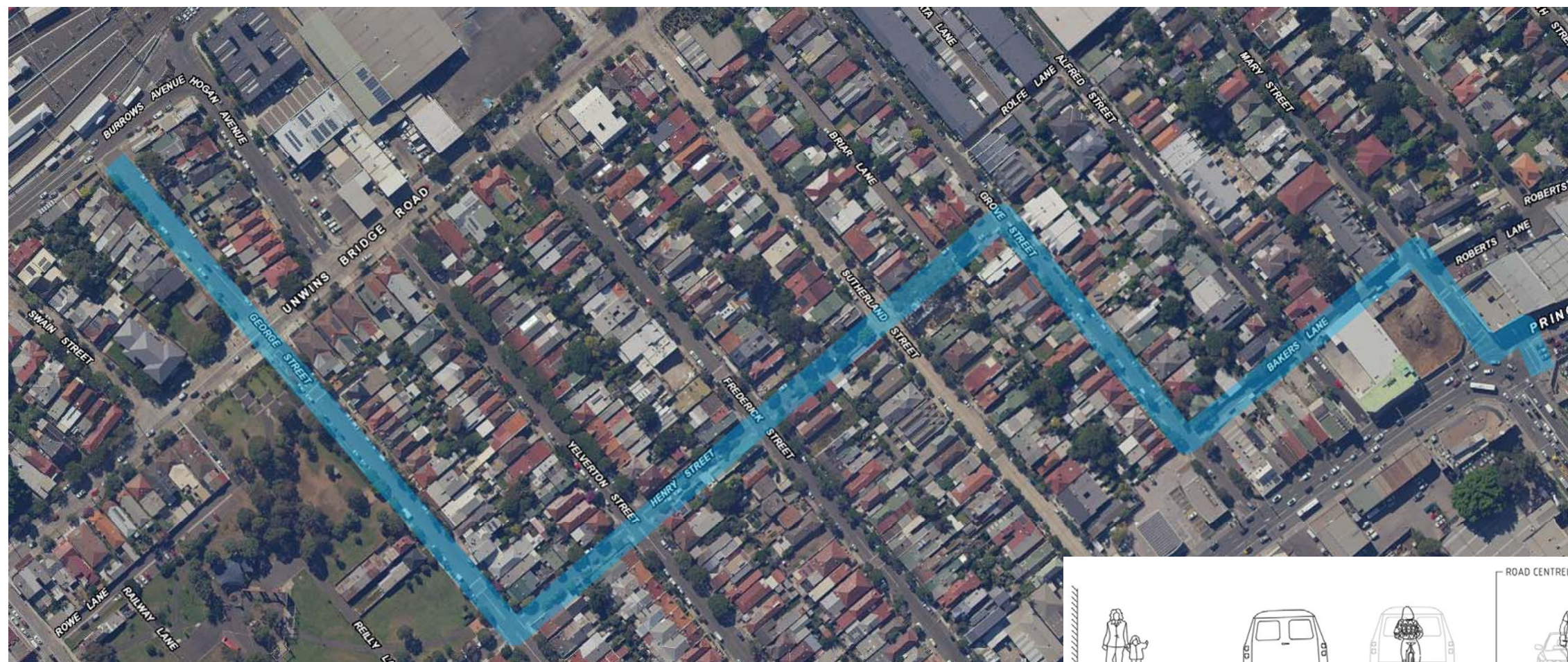
- Separated cycleway in both directions.

Disadvantages:

- Loss of approximately 5 parking spaces from the southern side of Burrows Avenue.

WCX M5 – St Peters Interchange: SECTION 2

GEORGE STREET, HENRY STREET, GROVE STREET, BAKERS LANE AND MARY STREET



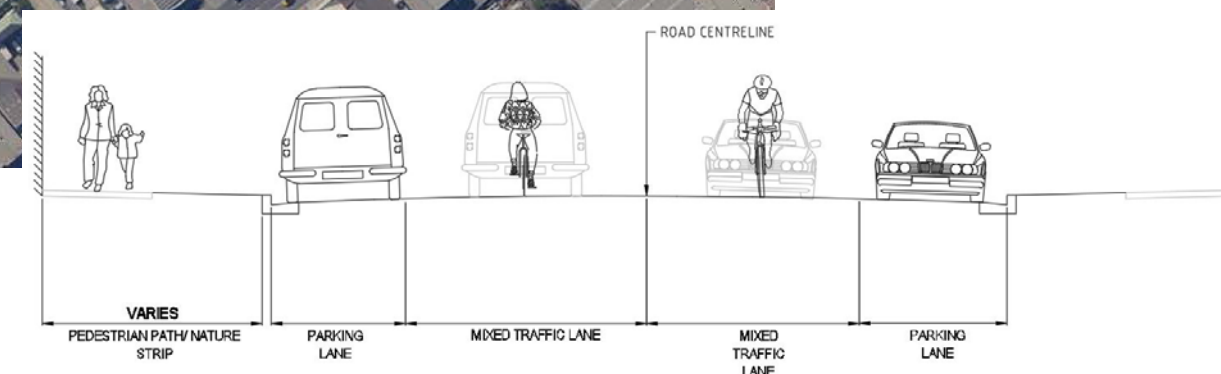
Source: SIX Maps

OPTION: ON ROAD MIXED TRAFFIC

Advantages:

- Upgrades existing facilities and improves route delineation;
- Improves access across Unwins Bridge Road for cyclists;
- Mixed traffic on quiet streets is acceptable for most levels of cyclists;
- No impacts to existing parking provisions, except for loss of one car parking space adjacent to Sydenham Green to improve access to the park;
- Provides shared path on Mary Street to remove cycle route discontinuity related to the one way road; and
- Improves access across the Princes Highway by providing a shared crossing at the traffic signals.

Disadvantages:



Section features:

- Existing cycle route;
- Largely quiet residential streets;
- Current traffic signals at George Street / Unwins Bridge Road permits only left turn movements for George Street road users;
- Mary Street is one way northbound and has a moderate traffic volume; and
- Existing cycle access over the Princes Highway requires cyclists to dismount if off road.