



# Altona North Precinct Structure Plan

## Functional Layout Plans Report

Client:

Victorian Planning Authority

Project No. 162470

Final Report – 25/05/17

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ATTACHMENT A – FUNCTIONAL ROAD DESIGN

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# 1 INTRODUCTION

Trafficworks has been engaged by the Victorian Planning Authority (VPA) to undertake functional designs (on an aerial base) for key intersections, road segments, bicycle and shared path projects and public transport projects within the Altona North precinct. Functional designs were undertaken for:

- 3 road segments:
  - RD-01 – North-South (NS) Connector 1
  - RD-02 – North-South (NS) Connector 2
  - RD-03 – East West (EW) Connector
- 10 intersections:
  - IN-01 – Blackshaws Road / NS Connector 1
  - IN-02 – Blackshaws Road / NS Connector 2
  - IN-03 – Kyle Road / EW Connector
  - IN-04 – NS Connector 1 / EW Connector
  - IN-05 – NS Connector 2 / EW Connector
  - IN-06 – NS Connector 2 / New Street
  - IN-07 – Blackshaws Road / Millers Road
  - Blackshaws Road / New Street
  - Blackshaws Road / Hansen Street
  - Blackshaws Road / Schutt Street
- 2 public transport projects:
  - Marigold Avenue – Bus Improvements
  - Brunel Street – Bus Improvements
- 8 bicycle facility and shared path projects:
  - Federation Trail Link – Construction of Shared Path
  - Cyclamen Avenue – Millers Road Bicycle Lanterns
  - Cyclamen Avenue – Speed Reduction Measures and Line Marking
  - Cyclamen Avenue – Kyle Road Pram Ramps
  - Aloha Street – Speed Reduction Measures and Line Marking
  - Aloha Street – Pram Ramps on Stephenson Street
  - The Broadway Path – Line Marking for Bicycle Lanes
  - Spotswood Station Parkiteer

The Altona North precinct functional designs have generally been prepared in line with the following documents to ensure the appropriate standards, regulations and guidelines are satisfied.

- Austroads Guide to Road Design Part 3: Geometric Design
- Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections



- Australian Standards
- VPA standard cross-sections for Altona North Precinct

This report has been prepared to outline the methodology applied in relation to design vehicles, geometric design parameters, cross sections etc. and to determine the existing services that may impact on the design.

## 2 BACKGROUND

The subject area is located approximately 8km south-west of Melbourne CBD. It is bounded by Westgate Freeway (M1) and the Brooklyn Terminal Station to the north, the Bacchus Marsh Junction – Newport National Freight railway line and New Street to the east, Blackshaws Road to the south and Kyle Road to the west.

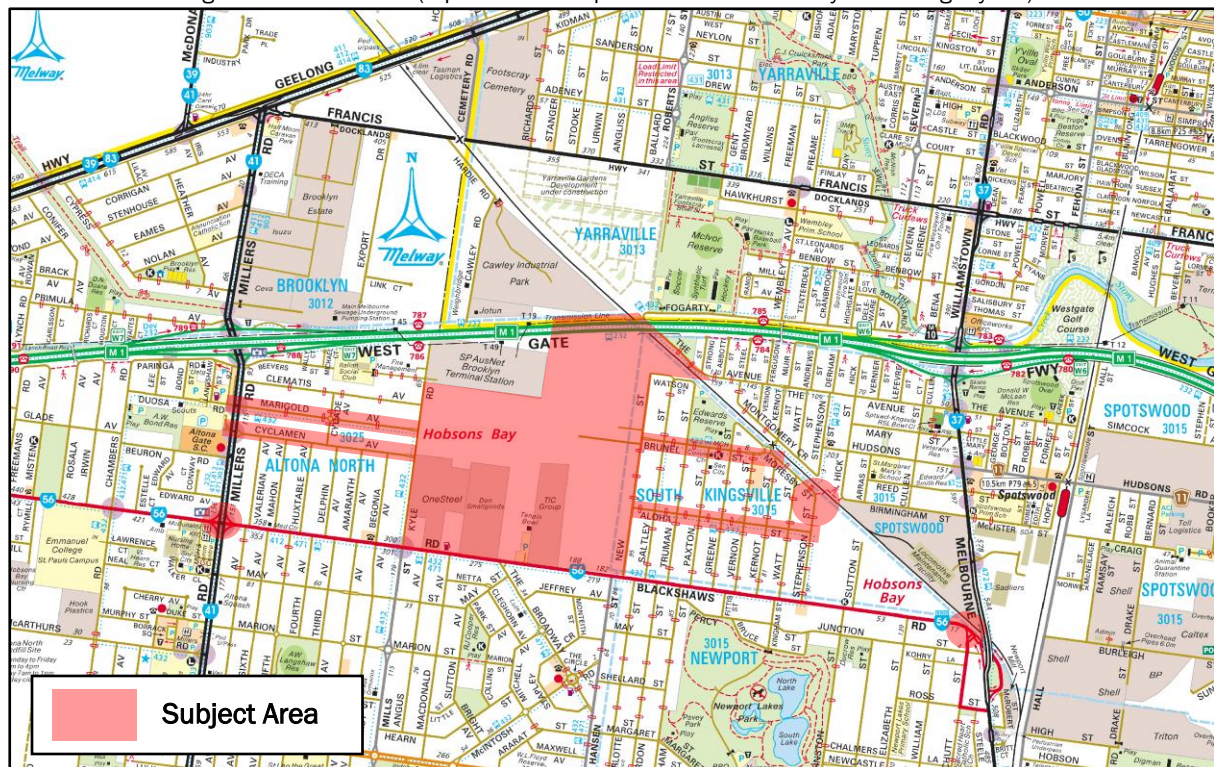
The site is approximately 67ha in land area and is within the municipality of Hobsons Bay City Council. It is predominantly Industrial 1 Zone (IN1Z), with a small strip of Industrial 3 Zoned (IN3Z) land abutting New Street in the east. It is noted that the Hobsons Bay City Council may introduce new land uses within the subject area in future.

The precinct is expected to accommodate approximately 3,000 residential lots with a proposed 4,500m<sup>2</sup> neighbourhood activity centre as well as a community centre and a number of local parks.

The VPA is in the process of preparing a precinct structure plan (PSP) to guide the future development of this site. The PSP seeks to provide a mix of residential and employment opportunities and a range of parks and sporting facilities. These functional design plans will inform the Altona North PSP.

The subject site and the surrounding road environment is shown in Figure 1.

Figure 1: Site Location (reproduced with permission from Melway Publishing Pty Ltd)



Functional designs were primarily undertaken along Blackshaws Road, New Street, Kyle Road, Marigold Avenue, Cyclamen Avenue, Aloha Street, Brunel Street, The Broadway and Millers Road. A description of the key roads within the subject area are outlined in Section 2.1.

The draft precinct structure plan for the site is shown in Figure 3. This plan indicates the key features and land uses within the precinct. Figure 3 shows the key Development Contribution Plan (DCP) treatments to be developed.

Figure 2: Draft Future Urban Structure.

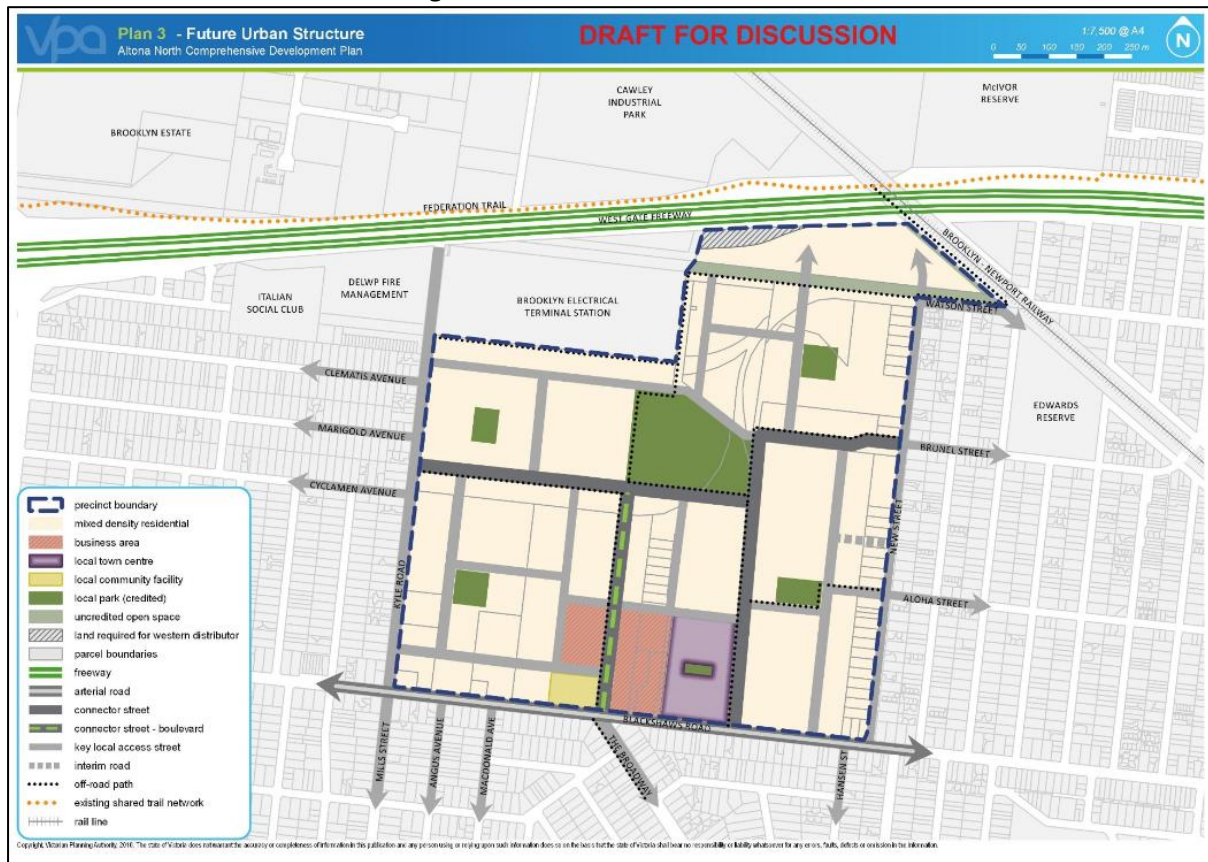
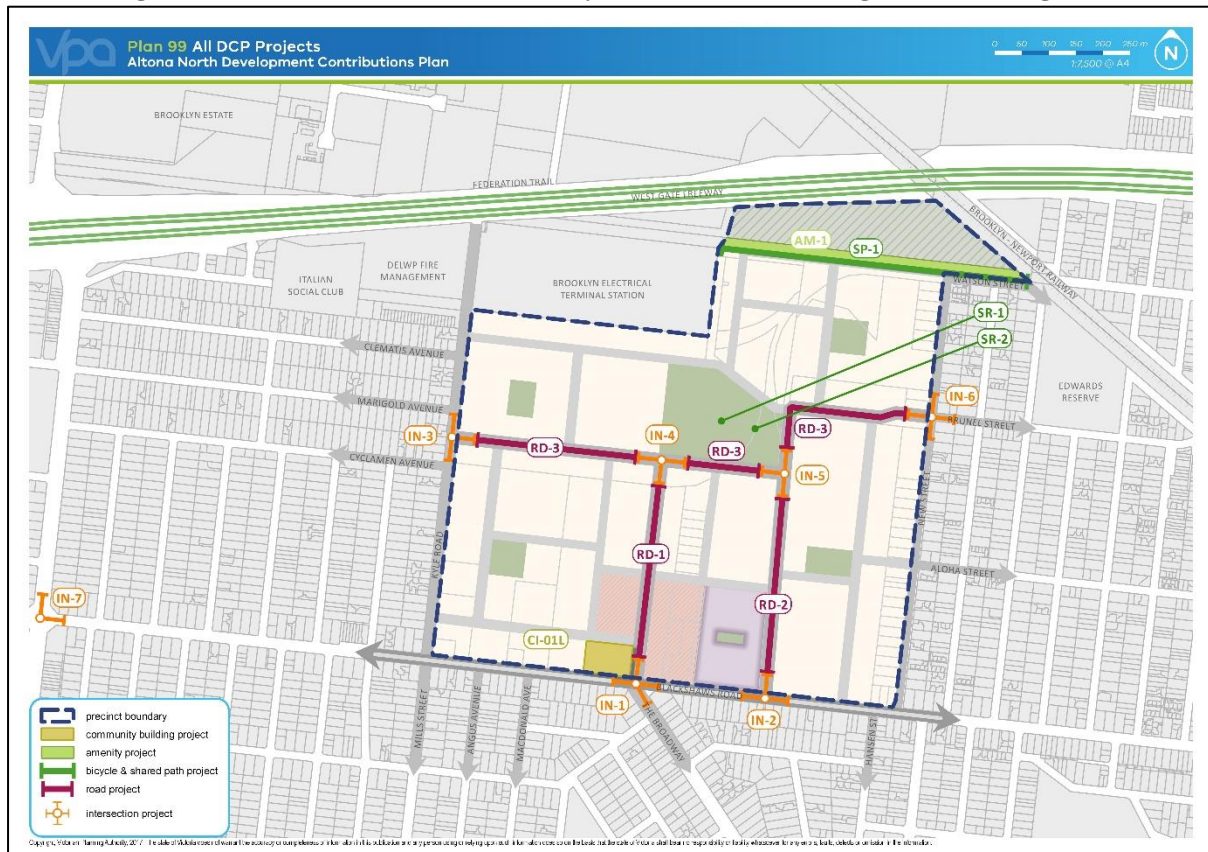




Figure 3: Draft Precinct Structure Plan, with key intersections and road segments to be designed.



## 2.1 Road Network

### 2.1.1 Blackshaws Road

Blackshaws Road is currently classified as a VicRoads Main Road (secondary arterial road) in accordance with the *Hobsons Bay City Council Road Register*. It is aligned in east west direction and provides connection between Grieve Parade to the west and Melbourne Road to the east.

Blackshaws Road is a two-lane, two-way road with a carriageway width of approximately 12.0m. On-street parallel parking is permitted on either side (with parking restrictions in some locations). Pedestrian footpaths are generally available on both sides of Blackshaws Road, with a short missing section between The Broadway and New Street on the north side.

A posted speed limit of 60km/h currently applies along Blackshaws Road.

### 2.1.2 Kyle Road

Kyle Road is a local road managed by the Hobsons Bay City Council. It is aligned in north south direction and provides connection between Blackshaws Road to the south and terminated just south of West Gate Freeway.

Kyle Road is a two-lane, two-way road with a carriageway width of approximately 12.0m. On-street parallel parking is permitted on either side. Pedestrian footpaths are generally available along Kyle Road.

A default urban speed limit of 50km/h currently applies along Kyle Road.

### **2.1.3 New Street**

New Street is a local road managed by Hobsons Bay City Council. It is aligned in north south direction and provides connection between Blackshaws Road to the south and residential properties to the north.

New Street is a two-way road with a carriageway width of approximately 7.0m. On-street parallel parking is generally permitted on either side.

Pedestrian footpaths are generally available along New Street.

A default urban speed limit of 50km/h currently applies along New Street. Traffic calming devices (i.e. speed cushions) are provided approximately every 90m.

### 3 DESIGN PHILOSOPHY

Functional road design plans have been prepared for the 10 key intersections, three (3) road segments, two (2) public transport projects, and seven (7) bicycle and shared path projects within the Altona North precinct. This design philosophy report provides guidance on the principles, guidelines and standards applied in preparing the functional designs.

#### 3.1 Road Cross Sections

The VPA has prepared a series of cross sections for roads of varying function for the Altona North Precinct. All functional road and intersection designs have been developed in line with these road cross sections.

##### 3.1.1 Connector Street

The VPA cross sections for Connector Street specifies a 26m road reserve for a Connector Street Boulevard and 25m road reserve for a Bus Capable Connector Street.

The cross section for a Connector Street Boulevard specify a 26m road reserve accommodating two 3.0m traffic lanes, two 2.1m parking lanes, 2.4m wide central median, 3.0m two-way bike path, two 1.8m pedestrian footpaths and 6.8m (2.4m + 2.0m + 2.4m) wide nature strip areas. The cross section for a Connector Boulevard is shown in Figure 4.

The cross section for a Connector Street specifies a 25m road reserve accommodating two 3.5m traffic lanes, two 2.1m parking lanes, 3.0m two-way bike path, two 1.8m pedestrian footpaths and 7.2m (2.6m + 2.0m + 2.6m) wide nature strip areas. The cross section for a Connector Boulevard is shown in Figure 5.

Reviewing the specified cross sections for each type of connector street, reveals each cross section is very similar, with minor alterations between the specified features below:

- The Bus Capable Connector Street has more width allocated to nature strips.
- The central median has been excluded from the Bus Capable Connector Street.
- The traffic lane widths on the Buss Capable Connector Street cross section has been increased to 3.5m to accommodate buses.

The NS Connector 1 (RD-01) has been designed in accordance with the Connector Street (26.0m) Boulevard cross section with the two-way bike path provided on the west side. The NS Connector 2 (RD-02) and EW Connector (RD-03) have been designed in accordance with the Connector Street (25.0m) Bus Capable cross section. Two-way bike path is provided on the west side of NS Connector 2 (RD-02) and on the north side of EW Connector (RD-03).

It should be noted that median breaks at access streets along RD-01 should be carefully considered to avoid cross intersections. Access from side streets could be restricted to left in / left out without median breaks along RD-01.

Figure 4: Standard cross section of a Connector Street (26.0m) Boulevard.

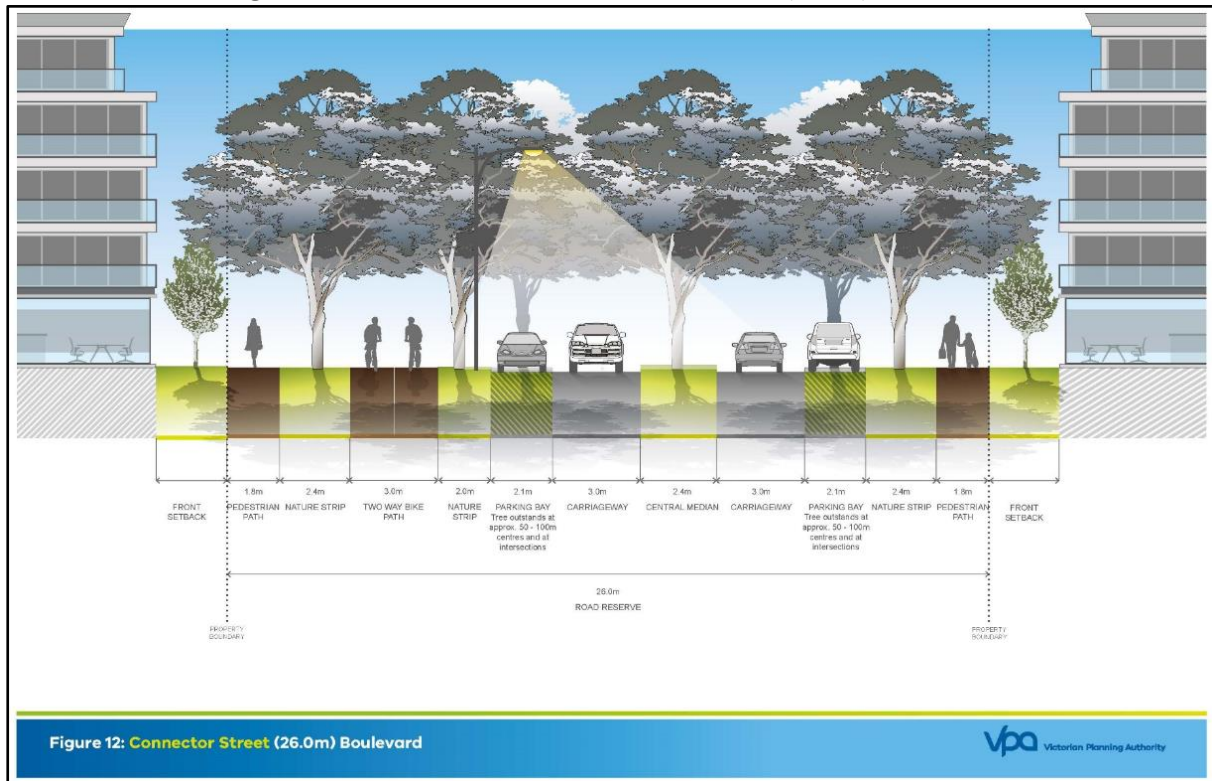
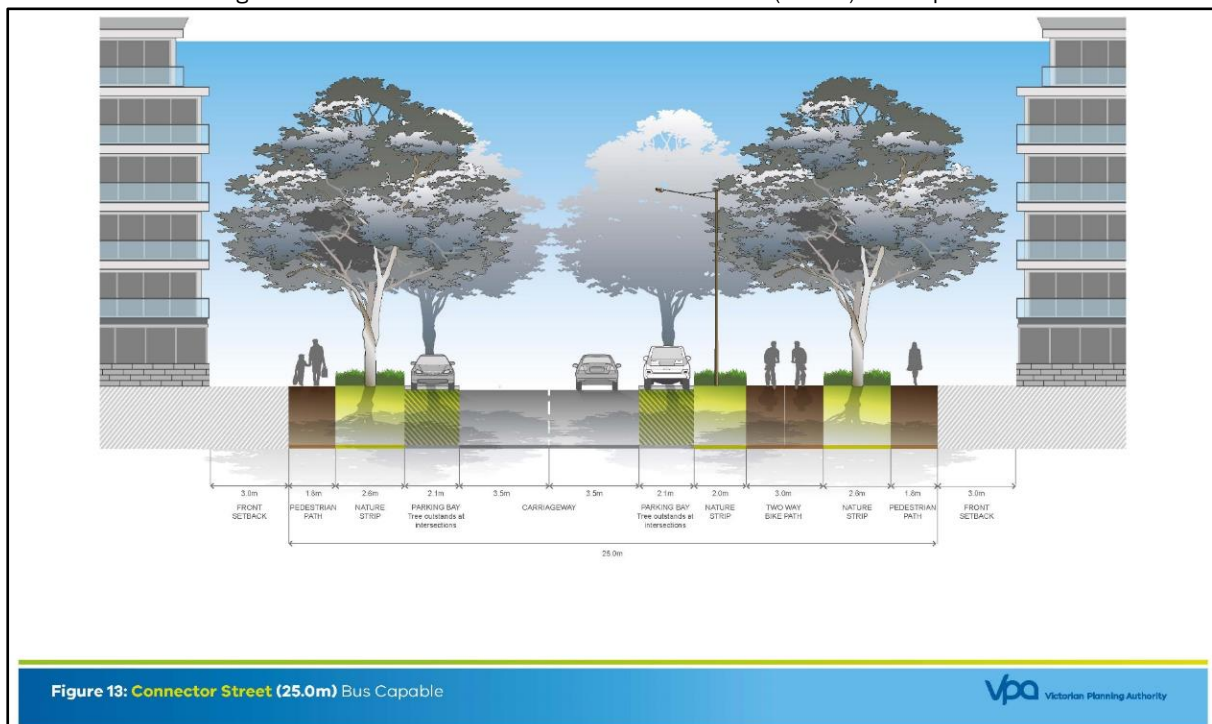


Figure 5: Standard cross section of a Connector Street (25.0m) Bus Capable.





### 3.2 Lane Geometry

*Austroads Guide to Road Design – Part 4A: Unsignalised and Signalised Intersections (AGRD4A)* provides guidance on the required length of deceleration turn lanes. AGRD4A specifies the required dimensions of deceleration turn lanes in terms of the deceleration length to ensure vehicles can safely slow to a stop from the approach speed and the additional length required to store a design vehicle while waiting to turn. The general turn lengths are outlined below:

- turn lane length of 30 – 40 m with a 15m taper for local roads operating at 50km/h
- turn lane length of 40 – 55m with a 20m taper for secondary arterial roads operating at 60km/h.

Additionally the turn lane lengths have also been established by GTA based on intersection analysis using SIDRA. It should be noted that the analysis undertaken by GTA does not specify turn lane lengths i.e. the 500m lane length specified on RD-01 may not truly reflect the possible intersection layout.

Therefore, the turn lane lengths applied were maximised for the space available between intersections along Blackshaws Road and to match as close as possible the turn lane lengths determined by GTA analysis.

In accordance with Section 3.1 of *Austroads Design Vehicles and Turning Path Templates Guide*, design vehicles whose dimensions and operating characteristics are used to establish lane widths and road geometry intersection layout. The design vehicle is not necessarily the largest of the vehicles that may operate at that intersections but it is intended to represent the majority of the vehicles allowed to operate.

A larger vehicle may not be precluded from using the intersection, but may need to operate with reduced clearances or encroach into adjacent lanes. While this may inconvenience some road users, however the low frequency of such occurrences makes this acceptable.

The design vehicle adopted in this assessment is a 12.5m bus at intersections along bus capable connector streets (RD-02 and RD-03), a 10.5m waste collection vehicle (which is greater than an 8.8m service vehicle usually emergency vehicles) along RD-01 and a 19.0m semi-trailer as the checking vehicle particularly in and around business and local town centre intersections and road lengths.

### 3.3 Public Transport

Several bus routes are currently operating in the vicinity of the subject area. These include bus route 432 operating between Newport and Yarraville, route 412 operating between Laverton Station and Footscray and route 471 operating between Williamstown and Sunshine Station.

VPA is proposing in-lane bus stops along Marigold Avenue and Brunel Street to facilitate bus movements along these streets.

Future bus routes may operate along RD-02 and RD-03, these roads are to be designed in line with the VPA cross section as discussed in Section 3.1 of the report to ensure accessibility for buses.

PTV requested bus priority along Marigold Avenue on approach to Millers Road. This will require detector loops and traffic signal reprogramming.



## 3.4 Road Alignment

### 3.4.1 Horizontal Road Alignment

The horizontal curve radii in the road alignment along RD-03 has been designed to allow two opposing buses to pass one another whilst travelling at or below 20km/h.

## 3.5 Pedestrian and Cyclist Facilities

Victoria Planning Authority specifies pedestrian and cyclist facilities along existing and proposed roads within the Altona North Precinct. This includes pedestrian footpaths, shared paths, off-road bicycle paths and on-road bicycle lanes.

The functional designs consider the VPA walking and cycling requirements and guidelines listed in section 3.6 of the *Altona North Comprehensive Development Plan (CDP)*. The following pedestrian and cyclist treatments are proposed within the subject area.

- Two-way off-road bike paths and separate pedestrian footpaths along:
  - NS Connector 1 (RD-01)
  - NS Connector 2 (RD-02)
  - EW Connector (RD-03)
- Off-road shared paths:
  - along the Bacchus Marsh Junction – Newport National Freight railway line between Watson Street and connecting into Federation Trail
  - pram crossing connection to the existing at-grade railway level crossing off-road path.
- On-road bike facilities:
  - Cyclamen Avenue - sharrows<sup>1</sup>
  - Aloha Street – sharrows<sup>1</sup>
  - The Broadway– bicycle lanes.
- Off-road bike parking facilities:
  - Spotswood Station Parkiteer - secure bike parking at railway stations

## 3.6 Impact on Existing Access Arrangements

Table 1 summarises the proposed and existing intersection treatments within the subject area. The impacts on the existing road network should be considered further during the detailed design.

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<sup>1</sup> As indicated in the *Supplement to Australian Standard AS 1742.9:2000 Manual of uniform traffic control devices Part 9: Bicycle facilities* "Sharrows" are pavement markings used to indicate a shared nature for bicycles and motor vehicles. They highlight cycling routes and recommend the lateral positioning of bike rider, while alerting all road users to the presence of bicycles on the road.

Table 1: Summary of proposed and existing intersection treatments.

DCP No.	Intersection	Existing Treatment	Proposed Treatment
IN-01	Blackshaws Road / The Broadway / NS Connector 1 (RD-01)	Sign Controlled T-Intersection	Introducing a northern leg and signalising the intersection.  RD1: two 3m lane approaches  Parking restrictions will be required along Blackshaws Road on both approaches and departures.
IN-02	Blackshaws Road / NS Connector 2 (RD-02)	-	Signalised intersection  RD2: two 3m lane approaches  Parking restrictions will be required along Blackshaws Road on both approaches and departures.
IN-03	Kyle Road / EW Connector (RD-03)	-	Roundabout  Raised pedestrian crossing on all three legs  Approach and departure lanes approx. 4m wide  13m central island including 1.8m annulus
IN-04	NS Connector 1 (RD-01) / EW Connector (RD-03)	-	Roundabout  Raised pedestrian crossing on the western leg  Approach and departure lanes approx. 4m wide  13m central island including 1.8m annulus
IN-05	NS Connector 2 (RD-02) / EW Connector (RD-03)	-	Roundabout  Raised pedestrian crossing on the western leg  Approach and departure lanes approx. 4m wide  13m central island including 1.8m annulus
IN-06	New Street / EW Connector (RD-03) / Brunel Street	EW Connector (RD-03)	Introducing a western leg and implementing a roundabout  Approach and departure lanes approx. 4m wide  13m central island including 1.8m annulus  Mountable island on south approach
IN-07	Millers Road / Blackshaws Road	Signalised Intersection	Extend the right-turn lane on the east approach of the intersection to 300m  Convert the through lane on the east approach of the intersection to a through and right turn lane  Modify the intersection phasing to have a split phasing for the east and west approaches
	Blackshaws Road / New Street	Sign Controlled T-Intersection	Sign controlled intersection with right turn lane treatments

### 3.7 Land Acquisition

New intersections and road length will require some land acquisition.

Upgrades to existing intersections and roads within the subject area generally do not require any land acquisition. The functional designs have been prepared to ensure the proposed upgrades are within the available road reserve.

#### 3.7.1 Splays

Splays of the property line at intersections of streets ensure safety by maintaining sufficient sight lines in accordance with the VPA's *Engineering Design and Construction Manual* which states that local streets could have minimum splay of 3m by 3m unless site conditions justify a variation to achieve safe sight lines across corners.

The connector streets and arterial road junctions have been designed with 5m by 5m corner splays which is in accordance with *Hobsons Bay Planning Scheme clause 56.06-7* which is generally required at junctions with arterial roads.

#### 3.7.2 Land Acquisition for Intersections

The land required at the proposed intersections are shown in Table 2.

Table 2: Land required for the DCP intersections.

DCP Item	Location	Area (ha)
IN-01	Blackshaws Road / NS Connector 1	0.33
IN-02	Blackshaws Road / NS Connector 2	0.21
IN-03	Kyle Road / EW Connector	0.08
IN-04	NS Connector 1 / EW Connector	0.20
IN-05	NS Connector 2 / EW Connector	0.20
IN-06	NS Connector 2 / New Street	0.08
IN-07	Blackshaws Road / Millers Road	
	Blackshaws Road / New Street	
	Blackshaws Road / Hansen Street	
	Blackshaws Road / Schutt Street	
Total		1.10

#### 3.7.3 Land Acquisition for Road Lengths

The land required at the proposed road lengths are shown in Table 3.

Table 3: Land required for the DCP road sections.

DCP Item	Location	Area
RD-01	North-South (NS) Connector 1	0.72
RD-02	North-South (NS) Connector 2	0.81
RD-03	East West (EW) Connector	2.04
Total		3.57

### 3.7.4 Land Acquisition for Impacted Properties

The land required at the proposed intersections are shown in Table 4.

Table 4: Land impacted by the proposed intersections and road lengths for affected properties.

Property No.	DCP Items	Area
		ha
40-68 Kyle Road	IN-03	0.08
	IN-04	0.20
	RD-03	1.04
	RD-01	0.04
Total		1.37
248 - 260 Blackshaws Road	IN-01	0.03
Total		0.03
232 - 246 Blackshaws Road	IN-01	0.25
	RD-01	0.68
Total		0.93
200 - 214 Blackshaws Road	IN-02	0.02
	IN-05	0.04
	RD-03	0.20
Total		0.26
188 - 198 Blackshaws Road	IN-02	0.13
	IN-05	0.16
	RD-02	0.81
	RD-03	0.22
Total		1.33
Road Reserve	IN-06	0.01
	RD-03	0.30
Total		0.31
48 New Street	IN-06	0.08
	RD-03	0.28
Total		0.35
50 - 58 New Street	IN-06	0.00
Total		0.00
Total Land Area		4.57

### 3.8 Services Affected by Proposed Works

A “Dial Before You Dig” enquiry of the services in the vicinity of the proposed works has been undertaken. A review of the services / utilities information indicates the following notable services are located within the subject area and may need to be either relocated or protected, refer to Table 5.

The estimates in Section 4 were based on concept plans. No consultation with the service authorities have been made to identify more accurate costs associated with the relocations of services.

Table 5: Impacted services.

DCP Item	Impacted Services	Location	Comments
IN-01	Two power poles (possibly three)	Along Blackshaws Road on the northern side of the carriageway.	<p>New power pole will need to be located taking into consideration the proposed footpath.</p> <p>A possible third power pole on the departure side of the intersection may also need relocation.</p> <p>One of the power poles has public lighting. Public lighting will be updated as part of public lighting scheme for the intersection.</p>
	One public light pole	Within south-east slip traffic island.	This pole is a rigid pole and will need to be updated as part of the public lighting scheme.
	Sewer	Along Blackshaws Road on the northern side of the carriageway possibly within the proposed footpath.	Relocate if possible or if pits remain within the footpath the pit lids need to be flush with the concrete footpath to ensure it is not a tripping hazard.
	Gas	Along Blackshaws Road on the northern side of the carriageway.	Gas services are likely to be located deep enough not to be impacted.
	Water	Along Blackshaws Road on the northern side of the carriageway.	Water services are likely to be located deep enough not to be impacted.
	Telstra Pits / Chamber	<p>Along Blackshaws Road on the northern side of the carriageway possibly within the proposed footpath.</p> <p>Telstra chamber is located within the intersection road pavement.</p>	<p>Relocate if possible or if pits remain within the footpath the pit lids need to be flush with the concrete footpath to ensure it is not a tripping hazard</p> <p>Telstra chamber will need to be relocated outside the pavement area.</p>
	Fire Hydrants / Water Valves	Within private property	These services need to be removed. This is particularly an issue when acquiring land required for widening to accommodate the intersection
IN-02	Five power poles	Along Blackshaws Road on the northern side of the carriageway.	<p>New power pole will need to be located taking into consideration the proposed footpath.</p> <p>Two of the power poles have public lighting. Public lighting will be updated as part of public lighting scheme for the intersection.</p>
	Gas	Along Blackshaws Road on the northern side of the carriageway.	Gas services are likely to be located deep enough not to be impacted.
	Water / Water Valves	<p>Along Blackshaws Road on the northern side of the carriageway.</p> <p>Three water valves are located within the pavement along the</p>	<p>Water services are likely to be located deep enough not to be impacted.</p> <p>Water valves will need to be relocated.</p>

DCP Item	Impacted Services	Location	Comments
		northern side of the Blackshaws Road.	
	Telstra Chamber / Pillar / Pit	Along Blackshaws Road on the northern side of the carriageway.  Telstra chamber and pillar are located within the intersection road pavement.	Relocate pits. If pits are proposed within the footpath the pit lids need to be flush with the concrete footpath to ensure it is not a tripping hazard  Telstra chamber and pillar will need to be relocated outside the pavement area.
	Fire Hydrants / Water Valves	Within private property	These services need to be removed. This is particularly an issue when acquiring land required for widening to accommodate the intersection
IN-03	One power pole (with flood light)	On the western side of Kyle Road.	Relocate power pole.  New power pole will need to be located taking into consideration the existing driveways and the proposed Kyle Road crossing.
	Telstra Pit	A Telstra pit is located within the proposed southern approach crossing.  Another pit is located within the circulating lanes of the roundabout.	Relocate pit. If the pit needs remain within the footpath the pit lid needs to be flush with the concrete footpath to ensure it is not a tripping hazard  Telstra line along the western side of Kyle Road may need to be realigned.
	Sewer Valve	On the western side of Kyle Road within the proposed footpath leading to the northern crossing of Kyle Road.	Relocate if possible or if valve remains within the footpath the lid needs to be flush with the concrete footpath to ensure it is not a tripping hazard.
	Overhead Power Lines	On the eastern side of Kyle Road over the new proposed leg of the roundabout.	The cables need to have a minimum height clearance above a roadway
IN-06	Three power poles	Two located along the western side of New Street and one on Brunel Street.	Relocate power poles.  New power pole will need to be located taking into consideration the existing driveways and the proposed footpaths / shared path.  Additional road reserve may be required on the north-west corner to allow for relocation of the power pole.  One of the power poles has public lighting. Public lighting will be updated as part of public lighting scheme for the intersection.
	Sewer	A sewer pit is located within the central island / outer annulus	Relocate if possible or if pits remain within the central island

DCP Item	Impacted Services	Location	Comments
		(which is traversable or mountable) of the proposed roundabout.	area ensure it is flush with the finish surface level.
	Gas	Along New Street on the eastern side of the carriageway.	Gas services are likely to be located deep enough not to be impacted.
	Water	Along New Street on the eastern side of the carriageway.	Water services are likely to be located deep enough not to be impacted.
	Telstra Pit	A pit is located within the circulating lanes of the roundabout.	Relocate pit. If the pit relocated within the footpath the pit lid needs to be flush with the concrete footpath to ensure it is not a tripping hazard  Telstra line / conduits along the western side of New Street may need to be realigned.
RD-01	One power pole	Along the proposed route.	Relocate power poles.  New power pole will need to be located taking into consideration the existing driveways and the proposed footpaths / shared path
RD-03	Seven power poles	Along the proposed route.	Relocate power poles.  New power pole will need to be located taking into consideration the existing driveways and the proposed footpaths / shared path.

Locations of underground services will need to be verified by service proving on-site and approvals to work within the vicinity of these services sought from the relevant service authority / company.

## 4 COST ESTIMATE

A high level cost estimate was undertaken for the functional designs within the subject area in Altona North. A summary of the estimate is provided in Attachment B.

The cost estimate included under road pavement rehabilitation, allow for re-sheeting of 80m on approach and 30m on departure at IN-01 and IN-02.

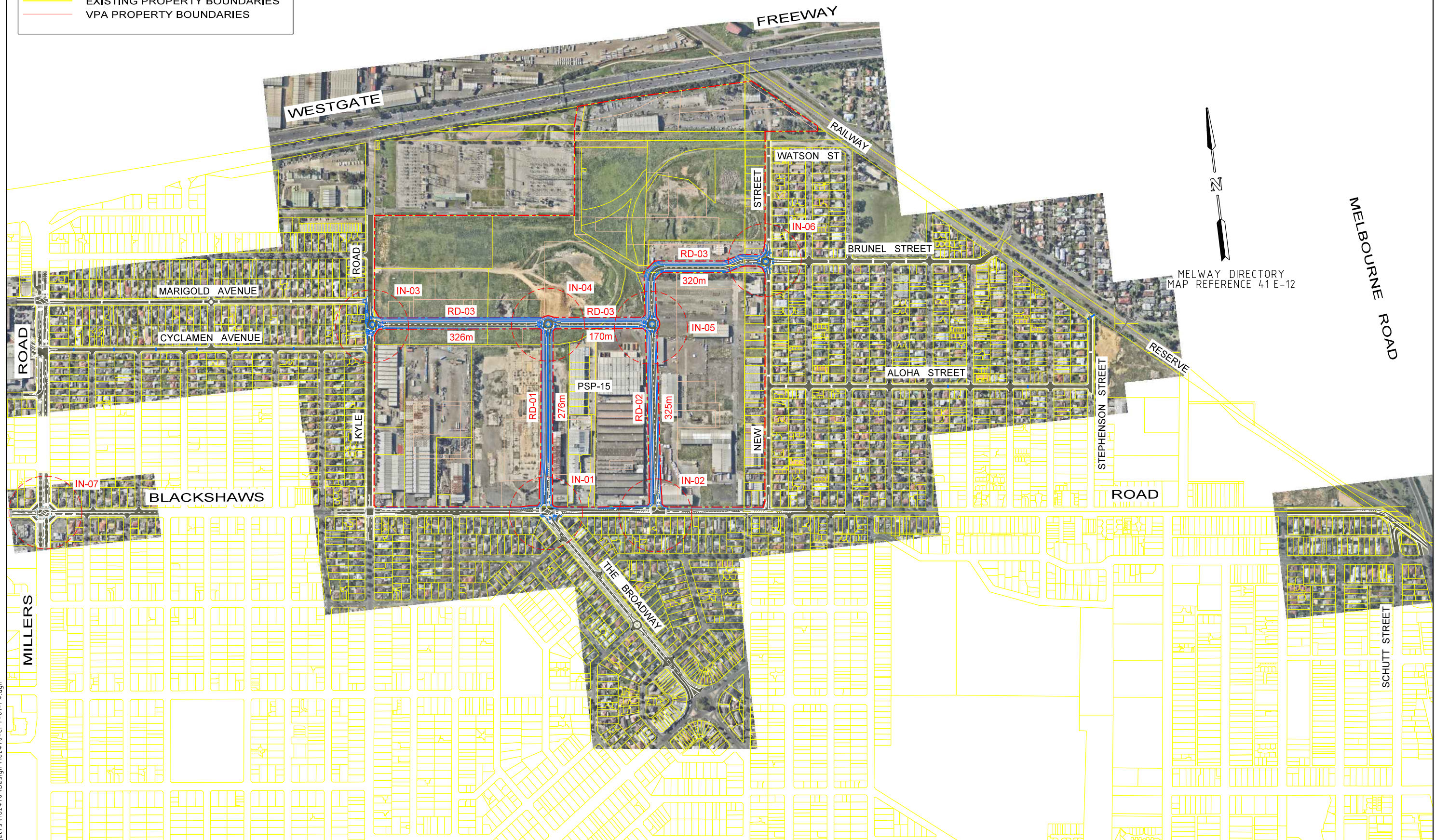
Traffic signal costs include i.e. supply and install of traffic signal hardware, installation of conduit / pits, detector pits controller and PROM.



## **ATTACHMENT A – FUNCTIONAL ROAD DESIGN**



- PAVEMENT
- FOOTPATH / VERGE
- SHARED PATH
- EXISTING PROPERTY BOUNDARIES
- VPA PROPERTY BOUNDARIES



MELWAY DIRECTORY  
MAP REFERENCE 41 E-12

1 BASE INFORMATION FROM AERIAL PHOTOGRAPHY FOR CONCEPTUAL PURPOSES ONLY.  
2 ALL DIMENSIONS ARE TO FACE OF KERB AND CHANNEL UNLESS OTHERWISE SHOWN.

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**ALTONA NORTH  
PRECINCT STRUCTURE PLAN - PSP15  
CITY OF HOBSON BAY  
CONCEPT LOCALITY PLAN**

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GENERAL NOTES  
1 BASE INFORMATION FROM AERIAL PHOTOGRAPHY FOR CONCEPTUAL PURPOSES ONLY.  
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ALTONA NORTH  
PRECINCT STRUCTURE PLAN - PSP15  
CITY OF HOBSON BAY  
LOCALITY PLAN - PSP15

SCALE  
1:4000 @ A3

SHEET NO.  
2

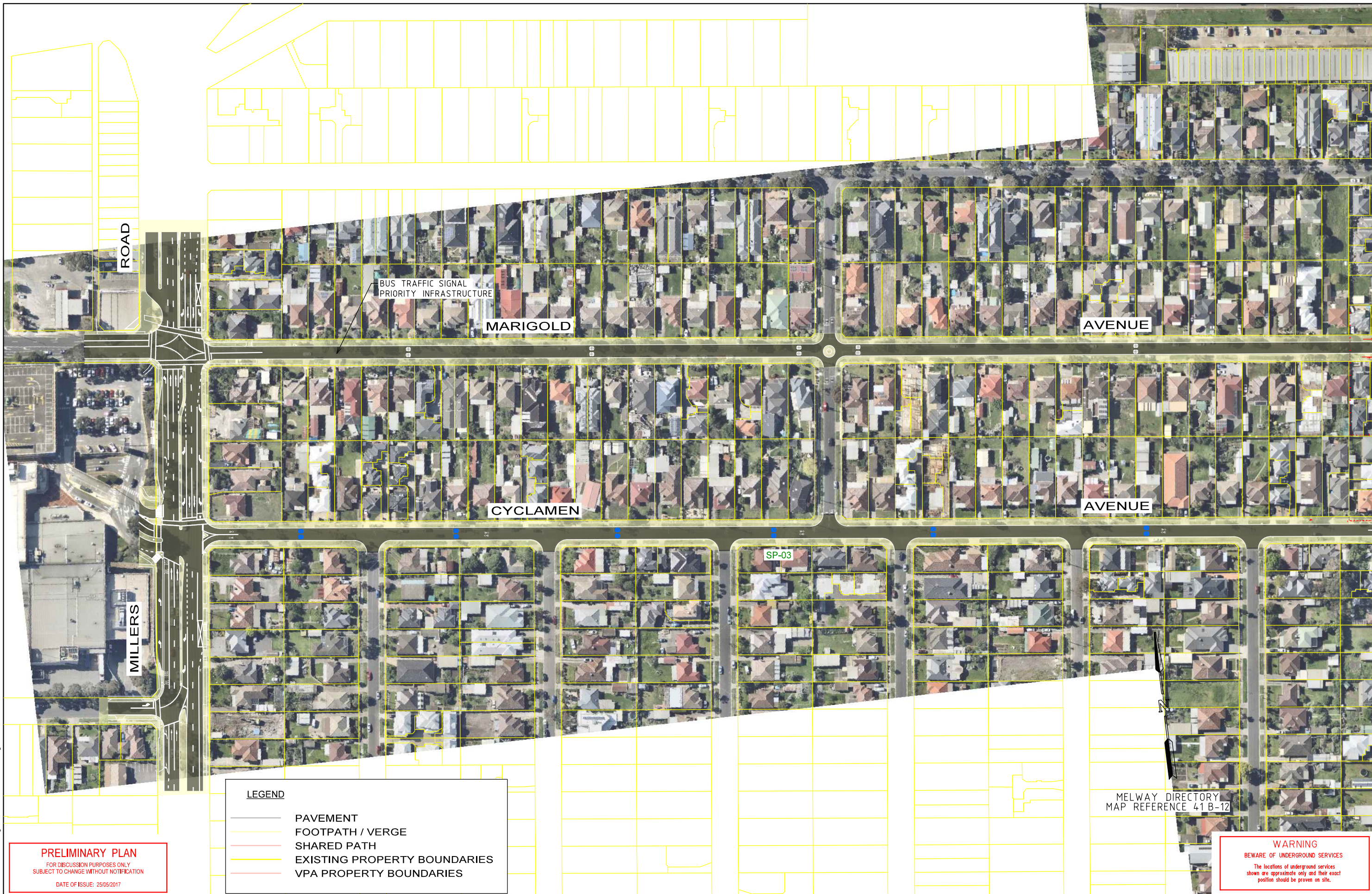
DRAWING NO.  
162470-CPT-02

ISSUE  
P4

ISSUE	APP'D	DATE	AMENDMENT
P4		25.05.17	CLIENT COMMENTS



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LEGEND	
	PAVEMENT
	FOOTPATH / VERGE
	SHARED PATH
	EXISTING PROPERTY BOUNDARIES
	VPA PROPERTY BOUNDARIES

GENERAL NOTES  
1 BASE INFORMATION FROM AERIAL PHOTOGRAPHY FOR CONCEPTUAL PURPOSES ONLY.  
2 ALL DIMENSIONS ARE TO FACE OF KERB AND CHANNEL UNLESS OTHERWISE SHOWN.

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ALTONA NORTH  
PRECINCT STRUCTURE PLAN - PSP15  
CITY OF HOBSON BAY  
CONCEPT PLAN PT-01 SP-02 & 03

SCALE  
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SHEET NO.  
3

DRAWING NO.  
162470-CPT-03

ISSUE  
P4

**WARNING**  
BEWARE OF UNDERGROUND SERVICES  
The locations of underground services shown are approximate only and their exact position should be proven on site.

ISSUE	APP'D	DATE	AMENDMENT
P4		25.05.17	CLIENT COMMENTS



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**LEGEND**

- PAVEMENT
- FOOTPATH / VERGE
- SHARED PATH
- EXISTING PROPERTY BOUNDARIES
- VPA PROPERTY BOUNDARIES

**PRELIMINARY PLAN**  
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**ALTONA NORTH  
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CITY OF HOBSON BAY  
CONCEPT PLAN

SCALE 1:8000 @ A3

SHEET NO. 4

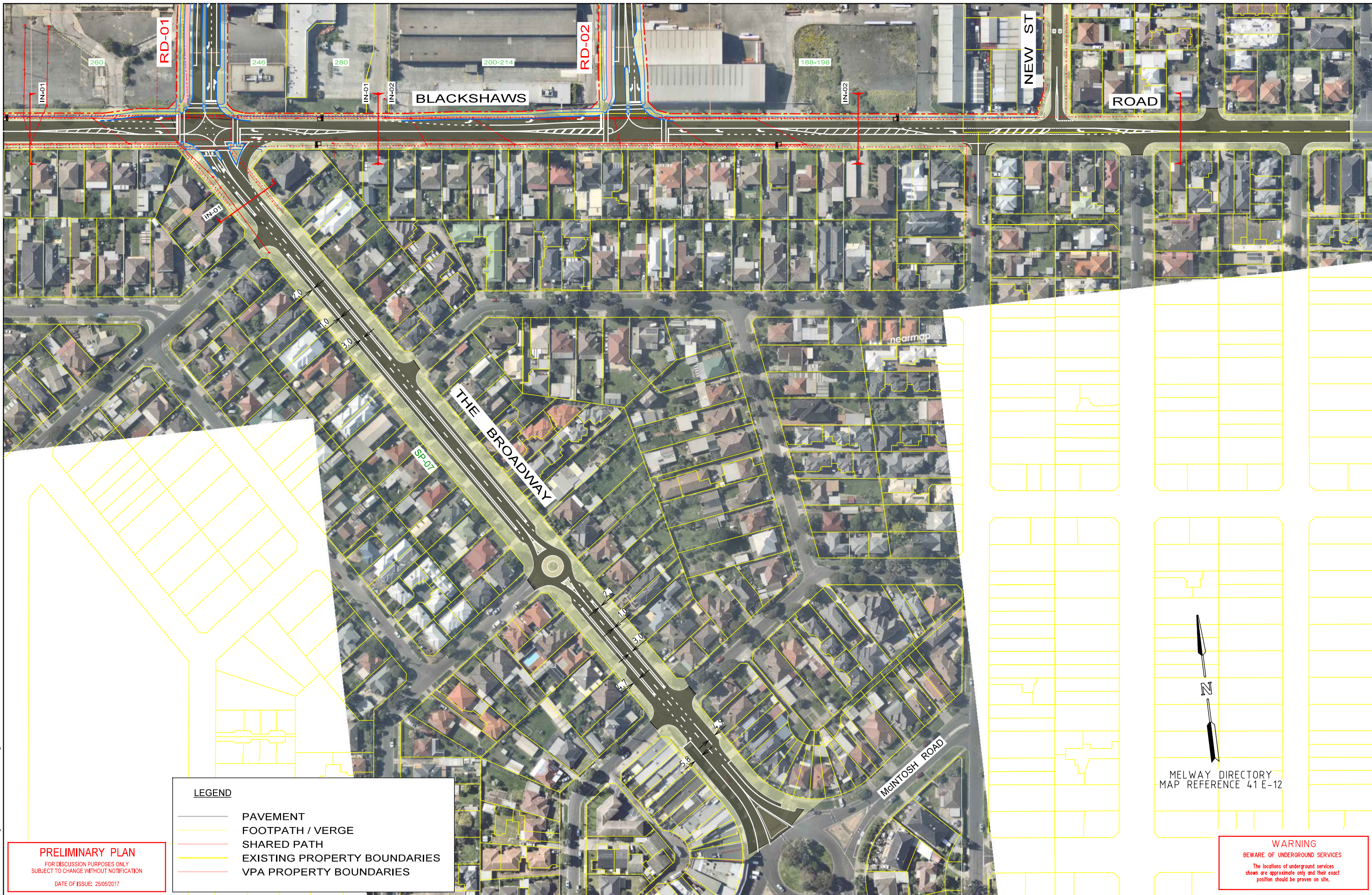
DRAWING NO. 162470-CPT-04

ISSUE P4

ISSUE	APP'D	DATE	AMENDMENT
P4		25.05.17	CLIENT COMMENTS



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**LEGEND**

- PAVEMENT
- FOOTPATH / VERGE
- SHARED PATH
- EXISTING PROPERTY BOUNDARIES
- VPA PROPERTY BOUNDARIES

**PRELIMINARY PLAN**  
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DATE OF ISSUE: 25/05/2017

MELWAY DIRECTORY  
MAP REFERENCE 41 E-12

**WARNING**  
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**ALTONA NORTH  
PRECINCT STRUCTURE PLAN - PSP15**  
CITY OF HOBSON BAY  
**CONCEPT PLAN SP-07**

SCALE  
1:2000 @ A3

SHEET NO.  
5

DRAWING NO.  
162470-CPT-05

ISSUE  
P4

ISSUE	APP'D	DATE	AMENDMENT
P4		25.05.17	CLIENT COMMENTS







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**LEGEND**

- PAVEMENT
- FOOTPATH / VERGE
- SHARED PATH
- EXISTING PROPERTY BOUNDARIES
- VPA PROPERTY BOUNDARIES

**GENERAL NOTES**

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of METRES

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PRECINCT STRUCTURE PLAN - PSP15**  
CITY OF HOBSON BAY  
**CONCEPT PLAN IN-02**

SCALE  
1:1000 @ A3

SHEET NO.  
7

DRAWING NO.  
162470-CPT-07

ISSUE  
P4



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CITY OF HOBSON BAY  
**CONCEPT PLAN IN-03**

SCALE  
1:1000 @ A3

SHEET NO.  
8

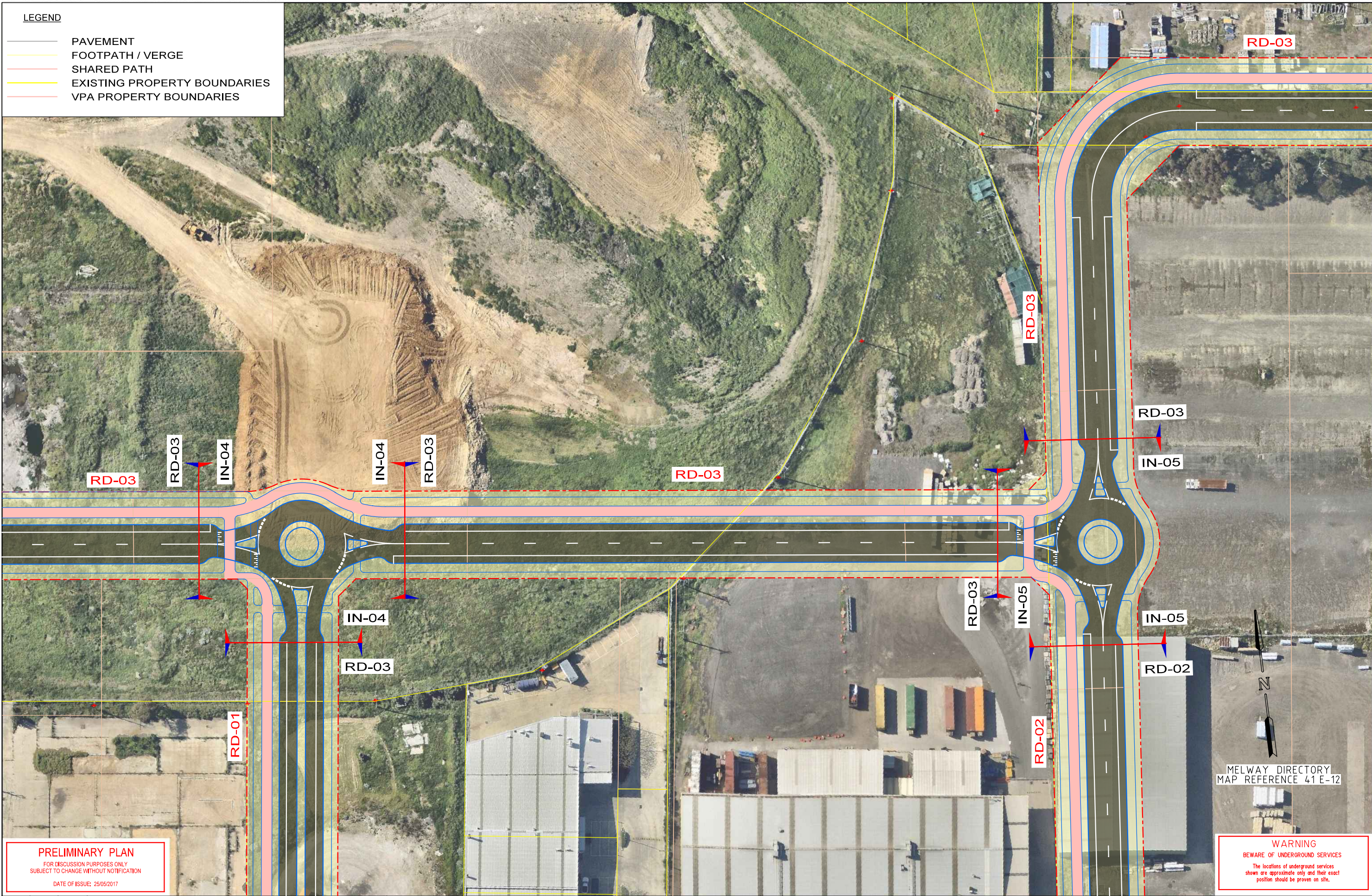
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162470-CPT-08

ISSUE  
P4

ISSUE	APP'D	DATE	AMENDMENT
P4		25.05.17	CLIENT COMMENTS



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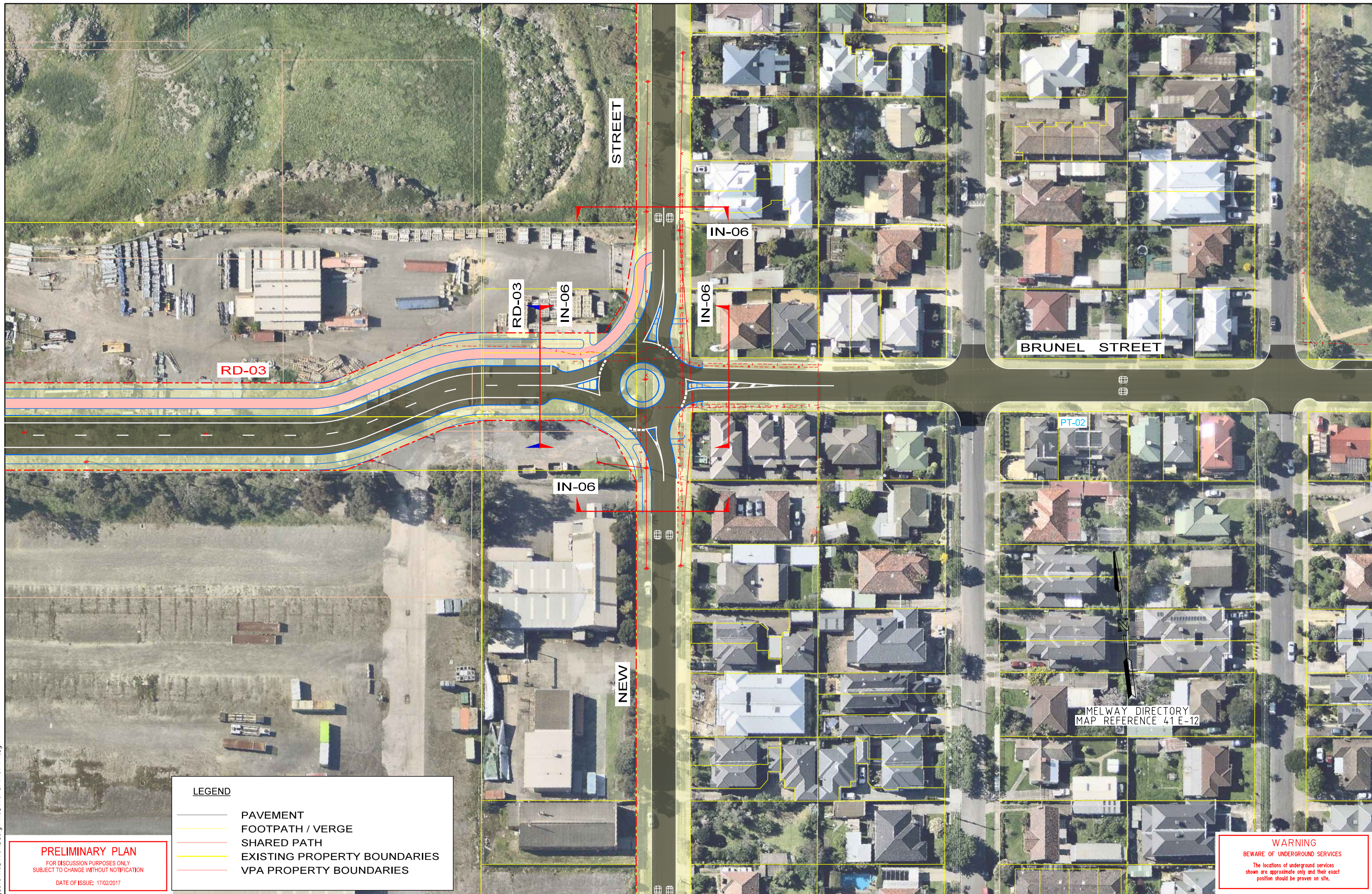
**ALTONA NORTH  
PRECINCT STRUCTURE PLAN - PSP15**  
CITY OF HOBSON BAY  
**CONCEPT PLAN IN-04 & 05**

SCALE 1:1000 @ A3  
SHEET NO. 9  
DRAWING NO. 162470-CPT-09  
ISSUE P4

P4	25.05.17	CLIENT COMMENTS	
ISSUE	APP'D	DATE	AMENDMENT



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P4		25.05.17	CLIENT COMMENTS
ISSUE	APP'D	DATE	AMENDMENT

GENERAL NOTES	
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SCALE	HOR 0 10 20	VER

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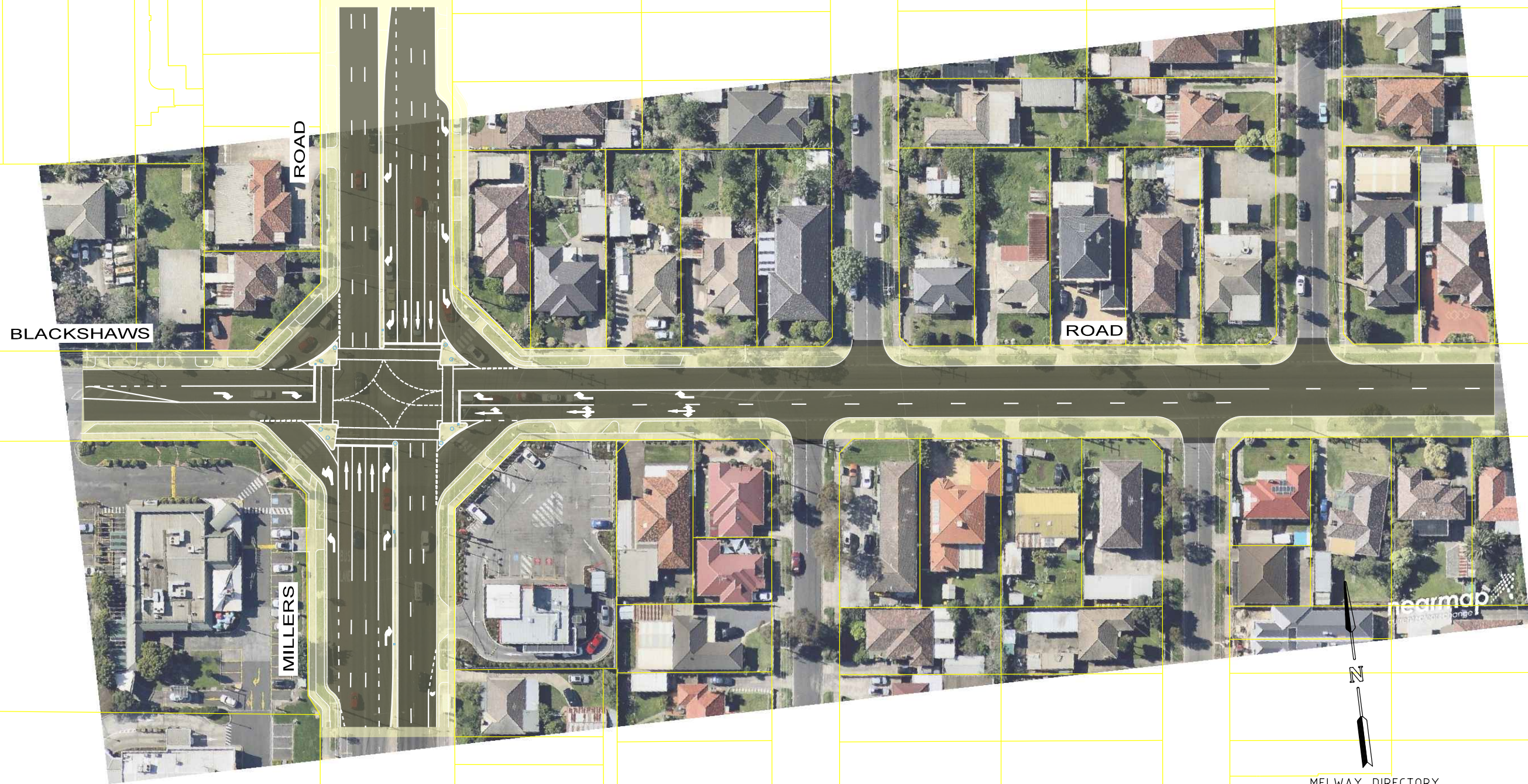
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SCALE	1:1000 @ A3	SHEET NO.	10	DRAWING NO.	162470-CPT-10	ISSUE	P4
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**LEGEND**

- PAVEMENT
- FOOTPATH / VERGE
- SHARED PATH
- EXISTING PROPERTY BOUNDARIES
- VPA PROPERTY BOUNDARIES

**PRELIMINARY PLAN**

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DATE OF ISSUE: 25/05/2017

MELWAY DIRECTORY  
MAP REFERENCE 55 B-1

**WARNING**  
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PRECINCT STRUCTURE PLAN - PSP15  
CITY OF HOBSON BAY  
CONCEPT PLAN IN-07**

SCALE 1:1000 @ A3

SHEET NO. 11

DRAWING NO. 162470-CPT-11

ISSUE P4

P4 25.05.17 CLIENT COMMENTS

ISSUE APP'D DATE AMENDMENT



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LEGEND			
— PAVEMENT			
— FOOTPATH / VERGE			
— SHARED PATH			
— EXISTING PROPERTY BOUNDARIES			
— VPA PROPERTY BOUNDARIES			
GENERAL NOTES			
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CLIENT COMMENTS			
ISSUE	APP'D	DATE	AMENDMENT
P4		25.05.17	

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**PRECINCT STRUCTURE PLAN - PSP15**  
CITY OF HOBSON BAY  
**CONCEPT PLAN**

SCALE 1:1000 @ A3	SHEET NO. 12	DRAWING NO. 162470-CPT-12	ISSUE P4
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				<div>GENERAL NOTES</div> <div>1 BASE INFORMATION FROM AERIAL PHOTOGRAPHY FOR CONCEPTUAL PURPOSES ONLY.</div> <div>2 ALL DIMENSIONS ARE TO FACE OF KERB AND CHANNEL UNLESS OTHERWISE SHOWN.</div>	<div>DESIGNED</div> <div>TRAFFICWORKS    DEC '16</div>	<div></div> <div>1st Floor 132 Upper Heidelberg Road IVANHOE VIC. 3079</div> <div>P.O. Box 417 IVANHOE VIC. 3079</div> <div>Tel (03) 9490 5900   Fax (03) 9490 5910   www.trafficworks.com.au</div>	<div>ALTONA NORTH</div> <div>PRECINCT STRUCTURE PLAN - PSP15</div> <div>CITY OF HOBSON BAY</div> <div>CONCEPT PLAN</div>			
					<div>APPROVED</div>					
P4		25.05.17	CLIENT COMMENTS				<div>SCALE   HOR 0    10    20</div> <div>of    </div>			



## **ATTACHMENT B – COST ESTIMATE**

DCP Item	Total Cost \$
<b>Road Segments</b>	
RD-01	\$ 1,501,547.28
RD-02	\$ 1,377,376.04
RD-03	\$ 3,596,424.25
Sub Total	\$ 6,475,347.57
<b>Intersections</b>	
IN-01	\$ 1,869,979.88
IN-02	\$ 1,722,501.88
IN-03	\$ 636,378.17
IN-04	\$ 753,279.28
IN-05	\$ 571,779.28
IN-06	\$ 679,734.73
IN-07	\$ 25,331.25
Blackshaws Road / New Street - Construction	\$ 14,917.50
Blackshaws Road / Schutt Street - Construction	\$ 9,506.25
Sub Total	\$ 6,283,408.20
<b>Public Transport Projects</b>	
Marigold Avenue - Bus Improvements	\$ 38,428.13
Brunel Street - Bus Improvements	\$ 25,991.84
Marigold Avenue and Millers Road - Bus Priority	\$ 37,062.50
Sub Total	\$ 101,482.47
<b>Cycling Shared Path projects</b>	
Federation Trail Link - Construction	\$ 302,805.00
Cyclamen Avenue Path - Blackshaws Road Cycle Lanterns	\$ 33,637.50
Cyclamen Avenue Path - Improvements	\$ 64,350.00
Cyclamen Avenue Path - Kyle Road Pram Ramps	\$ 52,065.00
Aloha Street Path - Speed Reduction Measures	\$ 24,862.50
Aloha Street Path - Pram Ramps on Stephenson Street	\$ 13,052.81
The Broadway Path - Bike Lanes	\$ 52,736.88
Spotswood Station Parkiteer	\$ 187,979.38
Sub Total	\$ 731,489.06
<b>Total Estimated Cost</b>	<b>\$ 13,591,727.30</b>



DCP Project Number:		RD-01C - North-South (NS) Connector 1 - Construction				
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b>WORKS</b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					
1.1	Preconstruction					
1.2	Pavement Excavation	1041	m3	30	31,228	
1.3	Set-Out	1	Item	25,000	25,000	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement	2815	m2	130	365,976	Incls excavation and sub surface drains
2.2	Rehabilitate Existing Pavement		item	50,000	0	Nominal Value
2.3	Raised Ped Crossings		Item	9,500	0	
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	Kerb and Channel	1104	LM	60	66,240	Incls excavation
3.2	H.S areas (Pedestrian & Cycle Paths etc)	1822	m2	60	109,296	Incls excavation
3.3	Ped Crossing Points	2	Item	5,000	10,000	Incls excavation
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes	552	LM	250	138,000	Includes connection to existing drain system Includes flush out pits
4.2	Drainage - pits/junctions	16	No.	2,500	39,429	
4.3	Drainage - Sub-soil drainage	1104	LM	40	44,160	
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>				0	
5.1	Traffic Signals		Item	150,000	0	Inc new lanterns/controller mod and installation
5.2	Traffic Safety (RSA)	1	Item	2,500	2,500	
<b>6</b>	<b>LANDSCAPE</b>				0	
6.1	Trees	55	No.	200	11,040	Incl top soil/seeding
6.2	Landscaping	2539	m2	25	63,480	
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting	6	Item	12,000	73,600	
<b>8</b>	<b>MISCELLANEOUS</b>				0	
8.1	Linemarking	828	Item	5	4,140	
8.2	Regulatory Signage	17	Item	300	4,968	
8.3	Excavation (rock)	422	Item	100	42228	
<b>9</b>	<b>SERVICES</b>				0	
9.1	Services relocation	1	Item	20,000	20,000	
9.2	Services protection		Item	10,000	0	
	<b>SUB-TOTAL WORKS</b>				\$ 1,051,284	
<b>10</b>	<b>DELIVERY</b>					
10.1	VicRoads		%		\$0	
10.2	Council	3.25	%		\$32,339	
10.3	Traffic/Environmental Management	5.5	%		\$54,728	
10.4	Survey/Design	5	%		\$49,753	
10.5	Supervision & Project Management	9	%		\$89,555	
10.6	Site Establishment	2.5	%		\$24,876	
10.7	Contingency	20	%		\$199,011	
	<b>SUB-TOTAL DELIVERY</b>				\$ 450,263	
	<b>TOTAL ESTIMATED COST</b>				\$ 1,501,547	

DCP Project Number: RD-02C - North-South (NS) Connector 2 - Construction						
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b><u>WORKS</u></b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					
1.1	Preconstruction					
1.2	Pavement Excavation	841	m3	30	25,235	
1.3	Set-Out	1	Item	25,000	25,000	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement	2275	m2	130	295,750	
2.2	Rehabilitate Existing Pavement		item	50,000	0	Nominal Value
2.3	Raised Ped Crossings		Item	9,500	0	
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	Kerb and Channel	650	LM	60	39,000	Incls excavation
3.2	H.S areas (Pedestrian & Cycle Paths etc)	2145	m2	60	128,700	Incls excavation
3.3	Ped Crossing Points	2	Item	5,000	10,000	Incls excavation
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes	650	LM	250	162,500	
4.2	Drainage - pits/junctions	19	No.	2,500	46,429	Includes connection to existing drain system
4.3	Drainage - Sub-soil drainage	650	LM	40	26,000	Includes flush out pits
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>				0	
5.1	Traffic Signals		Item	150,000	0	
5.2	Traffic Safety (RSA)	1	Item	2,500	2,500	
<b>6</b>	<b>LANDSCAPE</b>				0	
6.1	Trees	43	No.	200	8,667	
6.2	Landscaping	2340	m2	25	58,500	Incl top soil/seeding
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting	7	Item	12,000	86,667	
<b>8</b>	<b>MISCELLANEOUS</b>				0	
8.1	Linemarking	1300	Item	5	6,500	
8.2	Regulatory Signage	28	Item	300	8,357	
8.3	Excavation (rock)	341	Item	100	34125	
<b>9</b>	<b>SERVICES</b>				0	
9.1	Services relocation		Item	35,000	0	
9.2	Services protection		Item	10,000	0	
<b>SUB-TOTAL WORKS</b>					<b>\$ 963,929</b>	
<b>10</b>	<b><u>DELIVERY</u></b>					
10.1	VicRoads		%		\$0	
10.2	Council	3.25	%		\$29,695	
10.3	Traffic/Environmental Management	5.5	%		\$50,253	
10.4	Survey/Design	5	%		\$45,685	
10.5	Supervision & Project Management	9	%		\$82,232	
10.6	Site Establishment	2.5	%		\$22,842	
10.7	Contingency	20	%		\$182,739	
<b>SUB-TOTAL DELIVERY</b>					<b>\$ 413,447</b>	
<b>TOTAL ESTIMATED COST</b>					<b>\$ 1,377,376</b>	

DCP Project Number: RD-03C - East West(EW) Connector - Construction						
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b>WORKS</b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					
1.1	Preconstruction					
1.2	Pavement Excavation	2112	m3	30	63,360	
1.3	Set-Out	1	Item	25,000	25,000	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement	5712	m2	130	742,560	Incls excavation and sub surface drains
2.2	Rehabilitate Existing Pavement		item	50,000	0	Nominal Value
2.3	Raised Ped Crossings		Item	9,500	0	
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	Kerb and Channel	1632	LM	60	97,920	Incls excavation
3.2	H.S areas (Pedestrian & Cycle Paths etc)	5386	m2	60	323,136	Incls excavation
3.3	Ped Crossing Points	2	Item	5,000	10,000	Incls excavation
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes	1632	LM	250	408,000	Includes connection to existing drain system  Includes flush out pits
4.2	Drainage - pits/junctions	47	No.	2,500	116,571	
4.3	Drainage - Sub-soil drainage	1632	LM	40	65,280	
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>				0	
5.1	Traffic Signals		Item	150,000	0	
5.2	Traffic Safety (RSA)	1	Item	2,500	2,500	
<b>6</b>	<b>LANDSCAPE</b>				0	
6.1	Trees	109	No.	200	21,760	Incl top soil/seeding
6.2	Landscaping	5875	m2	25	146,880	
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting	18	Item	12,000	217,600	
<b>8</b>	<b>MISCELLANEOUS</b>				0	
8.1	Linemarking	3264	Item	5	16,320	
8.2	Regulatory Signage	70	Item	300	20,983	
8.3	Excavation (rock)	857	Item	100	85680	
<b>9</b>	<b>SERVICES</b>				0	
9.1	Services relocation	7	Item	20,000	140,000	
9.2	Services protection		Item	10,000	0	
<b>SUB-TOTAL WORKS</b>					2,503,551	
<b>10</b>	<b>DELIVERY</b>					
10.1	VicRoads		%		\$0	
10.2	Council	3.25	%		\$78,494	
10.3	Traffic/Environmental Management	5.5	%		\$132,835	
10.4	Survey/Design	5	%		\$120,760	
10.5	Supervision & Project Management	9	%		\$217,367	
10.6	Site Establishment	2.5	%		\$60,380	
10.7	Contingency	20	%		\$483,038	
<b>SUB-TOTAL DELIVERY</b>					\$ 1,092,874	
<b>TOTAL ESTIMATED COST</b>					\$ 3,596,424	

DCP Project Number: IN-01C - Blackshaws Road / NS Connector 1 - Construction						
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b>WORKS</b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					
1.1	Preconstruction					
1.2	Pavement Excavation	507	m3	30	15,208	
1.3	Set-Out	1	Item	20,000	20,000	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement	1371	m2	130	178,230	
2.2	Rehabilitate Existing Pavement	1	m2	50,000	50,000	Nominal Value
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	Kerb and Channel	650	LM	60	39,000	Incls excavation
3.2	H.S areas (Pedestrian & Cycle Paths etc)	1180	m2	60	70,800	Incls excavation
3.3	Pram Ramps	10	Item	1,500	15,000	Incls excavation
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes	300	LM	250	75,000	
4.2	Drainage - pits/junctions	8	No.	1,700	13,600	
4.3	Drainage - Sub-soil drainage	500	LM	40	20,000	Includes flush out pits
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>					
5.1	Traffic Signals	1	Item	180,000	180,000	Inc new lanterns/controller mod and installation
5.2	Traffic Safety (RSA)	1	Item	2,500	2,500	
<b>6</b>	<b>LANDSCAPE</b>					
6.1	Trees	8	Item	200	1,600	
6.2	Landscaping	1010	m2	25	25,250	Incl top soil/seeding
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting	6	Item	15,000	90,000	
<b>8</b>	<b>MISCELLANEOUS</b>				0	
8.1	Linemarking	1	Item	25,000	25,000	
8.2	Regulatory Signage	1	Item	8000	8000	
8.3	Excavation (rock)	206	Item	100	20565	
<b>9</b>	<b>SERVICES</b>					
9.1	Services relocation	1	Item	420,000	420,000	Relocating of poles, relocate sewer, Telstra service chamber and fire hydrant
9.2	Services protection	1	Item	20,000	20,000	
<b>SUB-TOTAL WORKS</b>					<b>1,289,753</b>	
<b>10</b>	<b>DELIVERY</b>					
10.1	VicRoads	1	%		\$12,545	
10.2	Council	3.25	%		\$40,773	
10.3	Traffic/Environmental Management	5.5	%		\$69,000	
10.4	Survey/Design	5	%		\$62,727	
10.5	Supervision & Project Management	9	%		\$112,909	
10.6	Site Establishment	2.5	%		\$31,364	
10.7	Contingency	20	%		\$250,909	
<b>SUB-TOTAL DELIVERY</b>					<b>\$ 580,227</b>	
<b>TOTAL ESTIMATED COST</b>					<b>\$ 1,869,980</b>	

DCP Project Number: IN-02C - Blackshaws Road / NS Connector 2 - Construction						
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b>WORKS</b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					
1.1	Preconstruction					
1.2	Pavement Excavation	388	m3	30	11,647	
1.3	Set-Out	1	Item	20,000	20,000	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement	1050	m2	130	136,500	
2.2	Rehabilitate Existing Pavement	1	m2	50,000	50,000	Nominal Value
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	Kerb and Channel	250	LM	60	15,000	Incls excavation
3.2	H.S areas (Pedestrian & Cycle Paths etc)	100	m2	60	6,000	Incls excavation
3.3	Pram Ramps	6	Item	1,500	9,000	Incls excavation
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes	160	LM	250	40,000	
4.2	Drainage - pits/junctions	6	No.	1,700	10,200	
4.3	Drainage - Sub-soil drainage	231	LM	40	9,240	Includes flush out pits
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>					
5.1	Traffic Signals	1	Item	150,000	150,000	Inc new lanterns/controller mod and installation
5.2	Traffic Safety (RSA)	1	Item	2,500	2,500	
<b>6</b>	<b>LANDSCAPE</b>					
6.1	Trees	6	No.	200	1,200	
6.2	Landscaping	830	Item	25	20,750	Incl top soil/seeding
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting	9	Item	15,000	135,000	
<b>8</b>	<b>MISCELLANEOUS</b>					
8.1	Linemarking	1	Item	25,000	25,000	
8.2	Regulatory Signage	1	Item	10,000	10,000	
8.3	Excavation (rock)	158	Item	100	15750	
<b>9</b>	<b>SERVICES</b>					Relocation only
9.1	Services relocation	1	Item	500,000	500,000	Relocating of poles, relocate sewer, Telstra service chamber and fire hydrant
9.2	Services protection	1	Item	20,000	20,000	
<b>SUB-TOTAL WORKS</b>					<b>1,187,787</b>	
<b>10</b>	<b>DELIVERY</b>					
10.1	VicRoads	1	%		\$11,561	
10.2	Council	3.25	%		\$37,575	
10.3	Traffic/Environmental Management	5.5	%		\$63,588	
10.4	Survey/Design	5	%		\$57,807	
10.5	Supervision & Project Management	9	%		\$104,053	
10.6	Site Establishment	2.5	%		\$28,904	
10.7	Contingency	20	%		\$231,228	
<b>SUB-TOTAL DELIVERY</b>					<b>\$ 534,715</b>	
<b>TOTAL ESTIMATED COST</b>					<b>\$ 1,722,502</b>	

DCP Project Number: IN-03C - Kyle Road / EW Connector - Construction						
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b>WORKS</b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					
1.1	Preconstruction					
1.2	Pavement Excavation	135	m3	30	4,049	
1.3	Set-Out	1	Item	10,000	10,000	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement	365	m2	130	47,450	Nominal Value
2.2	Rehabilitate Existing Pavement	1	item	50000	50000	
2.3	Raised Ped Crossings	2	Item	9,500	19,000	
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	Kerb and Channel	250	LM	60	15,000	Incls excavation
3.2	H.S areas (Pedestrian & Cycle Paths etc)	510	m2	60	30,600	Incls excavation
3.3	Pram Ramps	6	Item	1,500	9,000	Incls excavation
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes	0	LM	250	0	Includes connection to existing drain system Includes flush out pits
4.2	Drainage - pits/junctions	8	No.	2,500	20,000	
4.3	Drainage - Sub-soil drainage	100	LM	40	4,000	
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>				0	
5.1	Traffic Signals	0	Item	150,000	0	Inc new lanterns/controller mod and installation
5.2	Traffic Safety (RSA)	1	Item	2,500	2,500	
<b>6</b>	<b>LANDSCAPE</b>				0	
6.1	Trees	6	No.	200	1,200	Incl top soil/seeding and some tree planting
6.2	Landscaping	650	Item	25	16,250	
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting	5	Item	15,000	75,000	
<b>8</b>	<b>MISCELLANEOUS</b>				0	
8.1	Linemarking	1	Item	5,500	5,500	
8.2	Regulatory Signage	1	Item	8,000	8,000	
8.3	Excavation (rock)	20	Item	100	2024	
<b>9</b>	<b>SERVICES</b>				0	
9.1	Services relocation	1	Item	110,000	110,000	Relocating of poles, relocate sewer, Telstra pits and overhead power lines
9.2	Services protection	1	Item	10,000	10,000	
<b>SUB-TOTAL WORKS</b>					<b>439,573</b>	
<b>10</b>	<b>DELIVERY</b>					
10.1	VicRoads	1	%		\$4,255	
10.2	Council	3.25	%		\$13,830	
10.3	Traffic/Environmental Management	5.5	%		\$23,404	
10.4	Survey/Design	5	%		\$21,276	
10.5	Supervision & Project Management	9	%		\$38,297	
10.6	Site Establishment	2.5	%		\$10,638	
10.7	Contingency	20	%		\$85,105	
<b>SUB-TOTAL DELIVERY</b>					<b>\$ 196,805</b>	
<b>TOTAL ESTIMATED COST</b>					<b>\$ 636,378</b>	



DCP Project Number: IN-04C - NS Connector 1 / EW Connector - Construction						
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b>WORKS</b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					
1.1	Preconstruction					
1.2	Pavement Excavation	399	m3	30	11,980	
1.3	Excavation (mound)	3300	m3	55	181,500	
1.4	Set-Out	1	Item	5,000	5,000	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement	1080	m2	130	140,400	
2.2	Rehabilitate Existing Pavement	0	item	50,000	0	Nominal Value
2.3	Raised Ped Crossings	1	Item	9,500	9,500	
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	Kerb and Channel	265	LM	60	15,900	Incls excavation
3.2	H.S areas (Pedestrian & Cycle Paths etc)	715	m2	60	42,900	Incls excavation
3.3	Pram Ramps	6	Item	1,500	9,000	Incls excavation
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes	145	LM	250	36,250	
4.2	Drainage - pits/junctions	4	No.	1,700	6,800	Includes connection to drain system
4.3	Drainage - Sub-soil drainage	180	LM	40	7,200	Includes flush out pits
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>				0	
5.1	Traffic Signals		Item	150,000	0	Inc new lanterns/controller mod and installation
5.2	Traffic Safety (RSA)	1	Item	2,500	2,500	
<b>6</b>	<b>LANDSCAPE</b>				0	
6.1	Trees	6	No.	200	1,200	
6.2	Landscaping	310	Item	25	7,750	Incl top soil/seeding
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting	5	Item	15,000	75,000	
<b>8</b>	<b>MISCELLANEOUS</b>				0	
8.1	Linemarking	1	Item	3,250	3,250	
8.2	Regulatory Signage	1	Item	5,500	5,500	
8.3	Excavation (rock)	162	Item	100	16200	
<b>9</b>	<b>SERVICES</b>				0	services are assumed to be
9.1	Services relocation	0	Item	35,000	0	relocated during demolition
9.2	Services protection	0	Item	10,000	0	of site and preparation for construction
<b>SUB-TOTAL WORKS</b>					<b>577,830</b>	
<b>10</b>	<b>DELIVERY</b>					
10.1	VicRoads	1	%		\$3,794	
10.2	Council	3.25	%		\$12,329	
10.3	Traffic/Environmental Management	5.5	%		\$20,864	
10.4	Survey/Design	5	%		\$18,968	
10.5	Supervision & Project Management	9	%		\$34,142	
10.6	Site Establishment	2.5	%		\$9,484	
10.7	Contingency	20	%		\$75,870	
<b>SUB-TOTAL DELIVERY</b>					<b>\$ 175,449</b>	
<b>TOTAL ESTIMATED COST</b>					<b>\$ 753,279</b>	

DCP Project Number: IN-05C - NS Connector 2 / EW Connector - Construction						
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b>WORKS</b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					
1.1	Preconstruction					
1.2	Pavement Excavation	399	m3	30	11,980	
1.3	Set-Out	1	Item	5,000	5,000	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement	1080	m2	130	140,400	Incls excavation and sub surface drains
2.2	Rehabilitate Existing Pavement	0	item	50000	0	Nominal Value
2.3	Raised Ped Crossings	1	Item	9,500	9,500	
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	Kerb and Channel	265	LM	60	15,900	Incls excavation
3.2	H.S areas (Pedestrian & Cycle Paths etc)	715	m2	60	42,900	Incls excavation
3.3	Pram Ramps	6	Item	1,500	9,000	Incls excavation
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes	145	LM	250	36,250	
4.2	Drainage - pits/junctions	4	No.	1,700	6,800	Includes connection to drain system
4.3	Drainage - Sub-soil drainage	180	LM	40	7,200	Includes flush out pits
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>				0	
5.1	Traffic Signals		Item	150,000	0	Inc new lanterns/controller mod and installation
5.2	Traffic Safety (RSA)	1	Item	2,500	2,500	
<b>6</b>	<b>LANDSCAPE</b>				0	
6.1	Trees	6	No.	200	1,200	
6.2	Landscaping	310	Item	25	7,750	Incl top soil/seeding
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting	5	Item	15,000	75,000	
<b>8</b>	<b>MISCELLANEOUS</b>				0	
8.1	Linemarking	1	Item	3,250	3,250	
8.2	Regulatory Signage	1	Item	5,500	5,500	
8.3	Excavation (rock)	162	Item	100	16200	
<b>9</b>	<b>SERVICES</b>				0	Services are assumed to be relocated during demolition of site and preparation for construction.
9.1	Services relocation	0	Item	35,000	0	
9.2	Services protection	0	Item	10,000	0	
<b>SUB-TOTAL WORKS</b>					<b>396,330</b>	
<b>10</b>	<b>DELIVERY</b>					
10.1	VicRoads	1	%		\$3,794	
10.2	Council	3.25	%		\$12,329	
10.3	Traffic/Environmental Management	5.5	%		\$20,864	
10.4	Survey/Design	5	%		\$18,968	
10.5	Supervision & Project Management	9	%		\$34,142	
10.6	Site Establishment	2.5	%		\$9,484	
10.7	Contingency	20	%		\$75,870	
<b>SUB-TOTAL DELIVERY</b>					<b>\$ 175,449</b>	
<b>TOTAL ESTIMATED COST</b>					<b>\$ 571,779</b>	

DCP Project Number: IN-06C - NS Connector 2 / New Street - Construction						
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b>WORKS</b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					
1.1	Preconstruction					
1.2	Pavement Excavation	359	m3	30	10,760	
1.3	Set-Out	1	Item	5,000	5,000	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement	970	m2	130	126,100	
2.2	Rehabilitate Existing Pavement	0	item	50000	0	Nominal Value
2.3	Speed Cushions	4	Item	2,200	8,800	
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	Kerb and Channel	265	LM	60	15,900	Incls excavation
3.2	H.S areas (Pedestrian & Cycle Paths etc)	600	m2	60	36,000	Incls excavation
3.3	Pram Ramps	8	Item	1,500	12,000	Incls excavation
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes	145	LM	250	36,250	
4.2	Drainage - pits/junctions	4	No.	1,700	6,800	Includes connection to drain system
4.3	Drainage - Sub-soil drainage	300	LM	40	12,000	Includes flush out pits
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>				0	
5.1	Traffic Signals		Item	150,000	0	Inc new lanterns/controller mod and installation
5.2	Traffic Safety (RSA)	1	Item	2,500	2,500	
<b>6</b>	<b>LANDSCAPE</b>				0	
6.1	Trees	8	No.	200	1,600	
6.2	Landscaping	310	Item	25	7,750	Incl top soil/seeding
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting	5	Item	15,000	75,000	
<b>8</b>	<b>MISCELLANEOUS</b>				0	
8.1	Linemarking	1	Item	3,250	3,250	
8.2	Regulatory Signage	1	Item	5,500	5,500	
8.3	Excavation (rock)	146	Item	100	14550	
<b>9</b>	<b>SERVICES</b>					
9.1	Services relocation	1	Item	90,000	90,000	Services are assumed to be relocated during demolition of site and preparation for construction.
9.2	Services protection	0	Item	10,000	0	
<b>SUB-TOTAL WORKS</b>					<b>469,760</b>	
<b>10</b>	<b>DELIVERY</b>					
10.1	VicRoads	1	%		\$4,540	
10.2	Council	3.25	%		\$14,755	
10.3	Traffic/Environmental Management	5.5	%		\$24,970	
10.4	Survey/Design	5	%		\$22,700	
10.5	Supervision & Project Management	9	%		\$40,860	
10.6	Site Establishment	2.5	%		\$11,350	
10.7	Contingency	20	%		\$90,800	
<b>SUB-TOTAL DELIVERY</b>					<b>\$ 209,975</b>	
<b>TOTAL ESTIMATED COST</b>					<b>\$ 679,735</b>	

DCP Project Number: IN-07C - Blackshaws Road / Millers Road - Construction						
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b><u>WORKS</u></b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					
1.1	Preconstruction	1	Item	1,200	1,200	VicRoads approvals
1.2	Earthworks		m3		0	
1.3	Set-Out		Item	5,000	0	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement		m2	130	0	
2.2	Rehabilitate Existing Pavement		item	50,000	0	
2.3	Raised Ped Crossings		Item	9,500	0	
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	Kerb and Channel		LM	60	0	
3.2	H.S areas (Pedestrian & Cycle Paths etc)		m2	60	0	
4.2	Pram Ramps		Item	1,500	0	
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes		LM	320	0	
4.2	Drainage - pits/junctions		No.	1,700	0	
4.3	Drainage - Sub-soil drainage		LM		0	
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>				0	
5.1	Traffic Signals	1	Item	10,000	10,000	Prom Upgrade and installation
5.2	Traffic Safety (RSA)		Item	2,500	0	
<b>6</b>	<b>LANDSCAPE</b>				0	
6.1	Trees		No.		0	
6.2	Landscaping		Item	25	0	
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting		Item	15,000	0	
<b>8</b>	<b>MISCELLANEOUS</b>				0	
8.1	Linemarking	250	Item	10	2500	
8.2	Pavement Arrows	6	Item	250	1500	
8.3	Linemarking Water/sand blasting	250	Item	10	2500	
<b>9</b>	<b>SERVICES</b>				0	
9.1	Services relocation		Item	35,000	0	
9.2	Services protection		Item	10,000	0	
<b>SUB-TOTAL WORKS</b>					<b>17,700</b>	
<b>10</b>	<b><u>DELIVERY</u></b>					
10.1	VicRoads	1	%		\$165	Traffic Signal Plan Update
10.2	Council	3.25	%		\$536	
10.3	Traffic/Environmental Management	5.5	%		\$908	
10.4	Survey/Design	5	%		\$825	
10.5	Supervision & Project Management	9	%		\$1,485	
10.6	Site Establishment	2.5	%		\$413	
10.7	Contingency	20	%		\$3,300	
<b>SUB-TOTAL DELIVERY</b>					<b>\$ 7,631</b>	
<b>TOTAL ESTIMATED COST</b>					<b>\$ 25,331</b>	

		Blackshaws Road / New Street - Construction				
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b><u>WORKS</u></b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					
1.1	Preconstruction		Item	1,200	0	
1.2	Earthworks		m3		0	
1.3	Set-Out		Item	5,000	0	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement		m2	130	0	
2.2	Rehabilitate Existing Pavement		item	50,000	0	
2.3	Speed Cushions		Item	2,200	0	
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	Kerb and Channel		LM	60	0	
3.2	H.S areas (Pedestrian & Cycle Paths etc)		m2	60	0	
4.2	Pram Ramps		Item	1,500	0	
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes		LM	250	0	
4.2	Drainage - pits/junctions		No.	1,700	0	
4.3	Drainage - Sub-soil drainage		LM		0	
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>				0	
5.1	Traffic Signals		Item	10,000	0	
5.2	Traffic Safety (RSA)		Item	1,500	0	
<b>6</b>	<b>LANDSCAPE</b>					
6.1	Trees		No.		0	
6.2	Landscaping		Item	25	0	
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting		Item	15,000	0	
<b>8</b>	<b>MISCELLANEOUS</b>					
8.1	Linemarking	500	Item	10	5000	
8.2	Pavement Arrows	4	Item	250	1000	
8.3	Linemarking water/sand blasting	210	Item	10	2100	
8.4	Traffic Signs	6	Item	350	2100	
<b>9</b>	<b>SERVICES</b>					
9.1	Services relocation		Item	35,000	0	
9.2	Services protection		Item	10,000	0	
	<b>SUB-TOTAL WORKS</b>				10,200	
<b>10</b>	<b><u>DELIVERY</u></b>					
10.1	VicRoads	1	%		\$102	
10.2	Council	3.25	%		\$332	
10.3	Traffic/Environmental Management	5.5	%		\$561	
10.4	Survey/Design	5	%		\$510	
10.5	Supervision & Project Management	9	%		\$918	
10.6	Site Establishment	2.5	%		\$255	
10.7	Contingency	20	%		\$2,040	
	<b>SUB-TOTAL DELIVERY</b>				\$ 4,718	
	<b>TOTAL ESTIMATED COST</b>				\$ 14,918	

		Blackshaws Road / Schutt Street - Construction				
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b><u>WORKS</u></b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					
1.1	Preconstruction		Item	1,200	0	
1.2	Earthworks		m3		0	
1.3	Set-Out		Item	5,000	0	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement		m2	130	0	
2.2	Rehabilitate Existing Pavement		item	50,000	0	
2.3	Speed Cushions		Item	2,200	0	
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	Kerb and Channel		LM	60	0	
3.2	H.S areas (Pedestrian & Cycle Paths etc)		m2	60	0	
3.3	Pram Ramps		Item	1,500	0	
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes		LM	250	0	
4.2	Drainage - pits/junctions		No.	1,700	0	
4.3	Drainage - Sub-soil drainage		LM		0	
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>				0	
5.1	Traffic Signals		Item	10,000	0	
5.2	Traffic Safety (RSA)		Item	1,500	0	
<b>6</b>	<b>LANDSCAPE</b>				0	
6.1	Trees		No.		0	
6.2	Landscaping		Item	25	0	
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting		Item	15,000	0	
<b>8</b>	<b>MISCELLANEOUS</b>				0	
8.1	Linemarking	400	Item	10	4,000	
8.2	Linemarking Black water/sand blasting	150	Item	10	1,500	
8.3	Pavement Arrows	4	Item	250	1,000	
<b>9</b>	<b>SERVICES</b>				0	
9.1	Services relocation		Item	35,000	0	
9.2	Services protection		Item	10,000	0	
<b>SUB-TOTAL WORKS</b>					<b>6,500</b>	
<b>10</b>	<b><u>DELIVERY</u></b>					
10.1	VicRoads	1	%		\$65	
10.2	Council	3.25	%		\$211	
10.3	Traffic/Environmental Management	5.5	%		\$358	
10.4	Survey/Design	5	%		\$325	
10.5	Supervision & Project Management	9	%		\$585	
10.6	Site Establishment	2.5	%		\$163	
10.7	Contingency	20	%		\$1,300	
<b>SUB-TOTAL DELIVERY</b>					<b>\$ 3,006</b>	
<b>TOTAL ESTIMATED COST</b>					<b>\$ 9,506</b>	



		Marigold Avenue - Bus Improvements				
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b><u>WORKS</u></b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					Approvals from PTV and others
1.1	Preconstruction	1	Item	500	500	
1.2	Earthworks		m3		0	
1.3	Set-Out	1	Item	1,000	1,000	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement		m2	130	0	
2.2	Rehabilitate Existing Pavement		item	50,000	0	
2.3	Speed Cushions		Item	2,200	0	
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	DDA	35	m2	330	11,550	
3.2	H.S areas (Pedestrian & Cycle Paths etc)	45	m2	60	2,700	
3.3	Pram Ramps		Item	1,500	0	
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes		LM	250	0	
4.2	Drainage - pits/junctions		No.	1,700	0	
4.3	Drainage - Sub-soil drainage		LM		0	
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>				0	
5.1	Traffic Signals		Item	10,000	0	
5.2	Traffic Safety (RSA)		Item	1,500	0	
<b>6</b>	<b>LANDSCAPE</b>				0	
6.1	Trees		No.		0	
6.2	Landscaping		Item	25	0	
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting		Item	15,000	0	
<b>8</b>	<b>MISCELLANEOUS</b>				0	
8.1	Street Signs	20	Item	350	7,000	
8.2	Yellow Linemarking for bus stops	400	LM	10	4,000	
8.3	Arrows Linemarking		Item	250	0	
<b>9</b>	<b>SERVICES</b>				0	
9.1	Services relocation		Item	35,000	0	
9.2	Services protection		Item	10,000	0	
<b>SUB-TOTAL WORKS</b>					<b>26,750</b>	
<b>10</b>	<b><u>DELIVERY</u></b>					
10.1	VicRoads	1	%		\$253	
10.2	Council	3.25	%		\$821	
10.3	Traffic/Environmental Management	5.5	%		\$1,389	
10.4	Survey/Design	5	%		\$1,263	
10.5	Supervision & Project Management	9	%		\$2,273	
10.6	Site Establishment	2.5	%		\$631	
10.7	Contingency	20	%		\$5,050	
<b>SUB-TOTAL DELIVERY</b>					<b>\$ 11,678</b>	
<b>TOTAL ESTIMATED COST</b>					<b>\$ 38,428</b>	

		Brunel Street - Bus Improvements				
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b><u>WORKS</u></b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					
1.1	Preconstruction	1	Item	500	500	Approvals from PTV and others
1.2	Earthworks		m3		0	
1.3	Set-Out	1	Item	750	750	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement		m2	130	0	
2.2	Rehabilitate Existing Pavement		item	50,000	0	
2.3	Speed Cushions		Item	2,200	0	
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	DDA	23	m2	330	7,739	
3	H.S areas (Pedestrian & Cycle Paths etc)	30	m2	60	1809	
3.3	Pram Ramps		Item	1,500	0	
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes		LM	250	0	
4.2	Drainage - pits/junctions		No.	1,700	0	
4.3	Drainage - Sub-soil drainage		LM		0	
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>				0	
5.1	Traffic Signals		Item	10,000	0	
5.2	Traffic Safety (RSA)		Item	1,500	0	
<b>6</b>	<b>LANDSCAPE</b>				0	
6.1	Trees		No.		0	
6.2	Landscaping		Item	25	0	
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting		Item	15,000	0	
<b>8</b>	<b>MISCELLANEOUS</b>				0	
8.1	Street Signs	13	Item	350	4,690	
8.2	Yellow Linemarking for bus stops	268	Item	10	2,680	
8.3	Arrows Linemarking		Item	250	0	
<b>9</b>	<b>SERVICES</b>				0	
9.1	Services relocation		Item	35,000	0	
9.2	Services protection		Item	10,000	0	
<b>SUB-TOTAL WORKS</b>					<b>18,168</b>	
<b>10</b>	<b><u>DELIVERY</u></b>					
10.1	VicRoads	1	%		\$169	
10.2	Council	3.25	%		\$550	
10.3	Traffic/Environmental Management	5.5	%		\$930	
10.4	Survey/Design	5	%		\$846	
10.5	Supervision & Project Management	9	%		\$1,523	
10.6	Site Establishment	2.5	%		\$423	
10.7	Contingency	20	%		\$3,384	
<b>SUB-TOTAL DELIVERY</b>					<b>\$ 7,824</b>	
<b>TOTAL ESTIMATED COST</b>					<b>\$ 25,992</b>	

		Marigold Avenue and Millers Road - Bus Priority				
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b><u>WORKS</u></b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					
1.1	Preconstruction	1	Item	500	500	Approvals from PTV and others
1.2	Earthworks		m3		0	
1.3	Set-Out		Item	750	0	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement		m2	130	0	
2.2	Rehabilitate Existing Pavement		item	50,000	0	
2.3	Speed Cushions		Item	2,200	0	
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	DDA		m2	330	0	
3	H.S areas (Pedestrian & Cycle Paths etc)		m2	60	0	
3.3	Pram Ramps		Item	1,500	0	
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes		LM	250	0	
4.2	Drainage - pits/junctions		No.	1,700	0	
4.3	Drainage - Sub-soil drainage		LM		0	
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>				0	
5.1	Traffic Signals	1	Item	25,000	25,000	
5.2	Traffic Safety (RSA)		Item	1,500	0	
<b>6</b>	<b>LANDSCAPE</b>				0	
6.1	Trees		No.		0	
6.2	Landscaping		Item	25	0	
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting		Item	15,000	0	
<b>8</b>	<b>MISCELLANEOUS</b>				0	
8.1	Street Signs		Item	350	0	
8.2	Yellow Linemarking for bus stops		Item	10	0	
8.3	Arrows Linemarking		Item	250	0	
<b>9</b>	<b>SERVICES</b>				0	
9.1	Services relocation		Item	35,000	0	
9.2	Services protection		Item	10,000	0	
<b>SUB-TOTAL WORKS</b>					<b>25,500</b>	
<b>10</b>	<b><u>DELIVERY</u></b>					
10.1	VicRoads	1	%		\$250	
10.2	Council	3.25	%		\$813	
10.3	Traffic/Environmental Management	5.5	%		\$1,375	
10.4	Survey/Design	5	%		\$1,250	
10.5	Supervision & Project Management	9	%		\$2,250	
10.6	Site Establishment	2.5	%		\$625	
10.7	Contingency	20	%		\$5,000	
<b>SUB-TOTAL DELIVERY</b>					<b>\$ 11,563</b>	
<b>TOTAL ESTIMATED COST</b>					<b>\$ 37,063</b>	

		Federation Trail Link - Construction				
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b><u>WORKS</u></b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					
1.1	Preconstruction	1	Item	1,200	1,200	
1.2	Earthworks		m3		0	
1.3	Set-Out	1	Item	1,500	1,500	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement		m2	130	0	
2.2	Rehabilitate Existing Pavement		item	50,000	0	
2.3	Speed Cushions		Item	2,200	0	
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	Kerb and Channel		LM	60	0	
3.2	H.S areas (Pedestrian & Cycle Paths etc)	2000	m2	60	120,000	
3.3	Pram Ramps		Item	1,500	0	
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes		LM	250	0	
4.2	Drainage - pits/junctions		No.	1,700	0	
4.3	Drainage - Sub-soil drainage		LM		0	
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>				0	
5.1	Traffic Signals		Item	10,000	0	
5.2	Traffic Safety (RSA)	1	Item	2,500	2,500	
<b>6</b>	<b>LANDSCAPE</b>				0	
6.1	Trees		No.		0	
6.2	Landscaping		Item	25	0	
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting	3	Item	15,000	45,000	
<b>8</b>	<b>MISCELLANEOUS</b>				0	
8.1	Linemarking	670	Item	10	6,700	
8.2	Linemarking water/sand blasting		Item	250	0	
8.3	Street Signs	20	Item	300	6,000	
<b>9</b>	<b>SERVICES</b>				0	
9.1	Services relocation		Item	35,000	0	
9.2	Services protection	1	Item	25,000	25,000	
<b>SUB-TOTAL WORKS</b>					<b>207,900</b>	
<b>10</b>	<b><u>DELIVERY</u></b>					
10.1	VicRoads	1	%		\$2,052	
10.2	Council	3.25	%		\$6,669	
10.3	Traffic/Environmental Management	5.5	%		\$11,286	
10.4	Survey/Design	5	%		\$10,260	
10.5	Supervision & Project Management	9	%		\$18,468	
10.6	Site Establishment	2.5	%		\$5,130	
10.7	Contingency	20	%		\$41,040	
<b>SUB-TOTAL DELIVERY</b>					<b>\$ 94,905</b>	
<b>TOTAL ESTIMATED COST</b>					<b>\$ 302,805</b>	

		Cyclamen Avenue Path - Blackshaws Road Cycle Lanterns				
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b>WORKS</b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					
1.1	Preconstruction		Item	1,200	0	
1.2	Earthworks		m3		0	
1.3	Set-Out		Item	5,000	0	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement		m2	130	0	
2.2	Rehabilitate Existing Pavement		item	50,000	0	
2.3	Speed Cushions		Item	2,200	0	
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	Kerb and Channel		LM	60	0	
3.2	H.S areas (Pedestrian & Cycle Paths etc)		m2	60	0	
3.2	Pram Ramps	4	Item	1,500	6,000	Inc Bicycle rails to assist at pram crossings
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes		LM	250	0	
4.2	Drainage - pits/junctions		No.	1,700	0	
4.3	Drainage - Sub-soil drainage		LM		0	
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>				0	
5.1	Traffic Signals	1	Item	17,000	17,000	
5.2	Traffic Safety (RSA)		Item		0	
<b>6</b>	<b>LANDSCAPE</b>				0	
6.1	Trees		No.		0	
6.2	Landscaping		Item	25	0	
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting		Item	15,000	0	
<b>8</b>	<b>MISCELLANEOUS</b>				0	
8.1	Linemarking (sharows)		Item	500	0	
8.2	Linemarking Black water/sand blasting		Item	3	0	
8.3	Street Signs		Item	350	0	
<b>9</b>	<b>SERVICES</b>				0	
9.1	Services relocation		Item	35,000	0	
9.2	Services protection		Item	10,000	0	
<b>SUB-TOTAL WORKS</b>					<b>23,000</b>	
<b>10</b>	<b>DELIVERY</b>					
10.1	VicRoads	1	%		\$230	
10.2	Council	3.25	%		\$748	
10.3	Traffic/Environmental Management	5.5	%		\$1,265	
10.4	Survey/Design	5	%		\$1,150	
10.5	Supervision & Project Management	9	%		\$2,070	
10.6	Site Establishment	2.5	%		\$575	
10.7	Contingency	20	%		\$4,600	
<b>SUB-TOTAL DELIVERY</b>					<b>\$ 10,638</b>	
<b>TOTAL ESTIMATED COST</b>					<b>\$ 33,638</b>	

		Cyclamen Avenue Path - Improvements				
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b><u>WORKS</u></b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					
1.1	Preconstruction		Item	1,200	0	
1.2	Earthworks		m3		0	
1.3	Set-Out		Item	5,000	0	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement		m2	130	0	
2.2	Rehabilitate Existing Pavement		item	50,000	0	
2.3	Speed Cushions	12	Item	2,200	26,400	
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	Kerb and Channel		LM	60	0	
3.2	H.S areas (Pedestrian & Cycle Paths etc)		m2	60	0	
3.3	Pram Ramps		Item	1,500	0	
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes		LM	250	0	
4.2	Drainage - pits/junctions		No.	1,700	0	
4.3	Drainage - Sub-soil drainage		LM		0	
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>				0	
5.1	Traffic Signals		Item	17,000	0	
5.2	Traffic Safety (RSA)		Item		0	
<b>6</b>	<b>LANDSCAPE</b>				0	
6.1	Trees		No.		0	
6.2	Landscaping		Item	25	0	
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting		Item	15,000	0	
<b>8</b>	<b>MISCELLANEOUS</b>				0	
8.1	Linemarking (sharows)	10	Item	500	5,000	
8.2	Linemarking Black water/sand blasting		Item	3	0	
8.3	Street Signs	36	Item	350	12,600	
<b>9</b>	<b>SERVICES</b>				0	
9.1	Services relocation		Item	35,000	0	
9.2	Services protection		Item	10,000	0	
<b>SUB-TOTAL WORKS</b>					<b>44,000</b>	
<b>10</b>	<b><u>DELIVERY</u></b>					
10.1	VicRoads	1	%		\$440	
10.2	Council	3.25	%		\$1,430	
10.3	Traffic/Environmental Management	5.5	%		\$2,420	
10.4	Survey/Design	5	%		\$2,200	
10.5	Supervision & Project Management	9	%		\$3,960	
10.6	Site Establishment	2.5	%		\$1,100	
10.7	Contingency	20	%		\$8,800	
<b>SUB-TOTAL DELIVERY</b>					<b>\$ 20,350</b>	
<b>TOTAL ESTIMATED COST</b>					<b>\$ 64,350</b>	

		Cyclamen Avenue Path - Kyle Road Pram Ramps				
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b><u>WORKS</u></b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					
1.1	Preconstruction		Item	1,200	0	
1.2	Earthworks		m3		0	
1.3	Set-Out		Item	5,000	0	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement		m2	130	0	
2.2	Rehabilitate Existing Pavement		item	50,000	0	
2.3	Raised Intersection approach	2	Item	11,000	22,000	
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	Kerb and Channel		LM	60	0	
3.2	H.S areas (Pedestrian & Cycle Paths etc)	30	m2	60	1,800	
3.3	Pram Ramps	4	Item	1,500	6,000	Modify Pram Ramps
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes		LM	250	0	
4.2	Drainage - pits/junctions		No.	1,700	0	
4.3	Drainage - Sub-soil drainage		LM		0	
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>				0	
5.1	Traffic Signals		Item	17,000	0	
5.2	Traffic Safety (RSA)		Item		0	
<b>6</b>	<b>LANDSCAPE</b>				0	
6.1	Trees		No.		0	
6.2	Landscaping		Item	25	0	
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting		Item	15,000	0	
<b>8</b>	<b>MISCELLANEOUS</b>				0	
8.1	Linemarking	2	Item	1,500	3,000	
8.2	Linemarking Black water/sand blasting		Item	3	0	
8.3	Street Signs	8	Item	350	2,800	
<b>9</b>	<b>SERVICES</b>				0	
9.1	Services relocation		Item	35,000	0	
9.2	Services protection		Item	10,000	0	
<b>SUB-TOTAL WORKS</b>					<b>35,600</b>	
<b>10</b>	<b><u>DELIVERY</u></b>					
10.1	VicRoads	1	%		\$356	
10.2	Council	3.25	%		\$1,157	
10.3	Traffic/Environmental Management	5.5	%		\$1,958	
10.4	Survey/Design	5	%		\$1,780	
10.5	Supervision & Project Management	9	%		\$3,204	
10.6	Site Establishment	2.5	%		\$890	
10.7	Contingency	20	%		\$7,120	
<b>SUB-TOTAL DELIVERY</b>					<b>\$ 16,465</b>	
<b>TOTAL ESTIMATED COST</b>					<b>\$ 52,065</b>	



		Aloha Street Path - Speed Reduction Measures				
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b><u>WORKS</u></b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					
1.1	Preconstruction		Item	1,200	0	
1.2	Earthworks		m3		0	
1.3	Set-Out		Item	5,000	0	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement		m2	130	0	
2.2	Rehabilitate Existing Pavement		item	50,000	0	
2.3	Speed Cushions	4	Item	2,200	8,800	
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	Kerb and Channel		LM	60	0	
3.2	H.S areas (Pedestrian & Cycle Paths etc)		m2	60	0	
3.3	Pram Ramps		Item	1,500	0	
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes		LM	250	0	
4.2	Drainage - pits/junctions		No.	1,700	0	
4.3	Drainage - Sub-soil drainage		LM		0	
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>				0	
5.1	Traffic Signals		Item	17,000	0	
5.2	Traffic Safety (RSA)		Item		0	
<b>6</b>	<b>LANDSCAPE</b>				0	
6.1	Trees		No.		0	
6.2	Landscaping		Item	25	0	
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting		Item	15,000	0	
<b>8</b>	<b>MISCELLANEOUS</b>				0	
8.1	Linemarking (sharows)	8	Item	500	4,000	
8.2	Linemarking Black water/sand blasting		Item	3	0	
8.3	Street Signs	12	Item	350	4,200	
<b>9</b>	<b>SERVICES</b>				0	
9.1	Services relocation		Item	35,000	0	
9.2	Services protection		Item	10,000	0	
<b>SUB-TOTAL WORKS</b>					<b>17,000</b>	
<b>10</b>	<b><u>DELIVERY</u></b>					
10.1	VicRoads	1	%		\$170	
10.2	Council	3.25	%		\$553	
10.3	Traffic/Environmental Management	5.5	%		\$935	
10.4	Survey/Design	5	%		\$850	
10.5	Supervision & Project Management	9	%		\$1,530	
10.6	Site Establishment	2.5	%		\$425	
10.7	Contingency	20	%		\$3,400	
<b>SUB-TOTAL DELIVERY</b>					<b>\$ 7,863</b>	
<b>TOTAL ESTIMATED COST</b>					<b>\$ 24,863</b>	

		Aloha Street Path - Pram Ramps on Stephenson Street				
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b><u>WORKS</u></b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					
1.1	Preconstruction		Item	1,200	0	
1.2	Earthworks		m3		0	
1.3	Set-Out		Item	5,000	0	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement		m2	130	0	
2.2	Rehabilitate Existing Pavement		item	50,000	0	
2.3	Speed Cushions		Item	2,200	0	
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	Remove Existing Path and Pram Crossing	65	m2	25	1,625	
3.2	H.S areas (Pedestrian & Cycle Paths etc)	50	m2	60	3,000	
3.3	Pram Ramps	2	Item	1,800	3,600	Inc Bicycle rails to assist at pram crossings
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes		LM	250	0	
4.2	Drainage - pits/junctions		No.	1,700	0	
4.3	Drainage - Sub-soil drainage		LM		0	
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>				0	
5.1	Traffic Signals		Item	17,000	0	
5.2	Traffic Safety (RSA)		Item		0	
<b>6</b>	<b>LANDSCAPE</b>				0	
6.1	Trees		No.		0	
6.2	Landscaping		Item	25	0	
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting		Item	15,000	0	
<b>8</b>	<b>MISCELLANEOUS</b>				0	
8.1	Linemarking		Item	10	0	
8.2	Linemarking Black water/sand blasting		Item	3	0	
8.3	Street Signs	2	Item	350	700	
<b>9</b>	<b>SERVICES</b>				0	
9.1	Services relocation		Item	35,000	0	
9.2	Services protection		Item	10,000	0	
<b>SUB-TOTAL WORKS</b>					<b>8,925</b>	
<b>10</b>	<b><u>DELIVERY</u></b>					
10.1	VicRoads	1	%		\$89	
10.2	Council	3.25	%		\$290	
10.3	Traffic/Environmental Management	5.5	%		\$491	
10.4	Survey/Design	5	%		\$446	
10.5	Supervision & Project Management	9	%		\$803	
10.6	Site Establishment	2.5	%		\$223	
10.7	Contingency	20	%		\$1,785	
<b>SUB-TOTAL DELIVERY</b>					<b>\$ 4,128</b>	
<b>TOTAL ESTIMATED COST</b>					<b>\$ 13,053</b>	

		The Broadway Path - Bike Lanes				
Item	Description	Quantity	Unit	Rate \$	Amount \$	Comments
	<b><u>WORKS</u></b>					
<b>1</b>	<b>SITEWORKS AND EARTHWORKS</b>					
1.1	Preconstruction		Item	10,000	0	
1.2	Earthworks		m3		0	
1.3	Set-Out	1	Item	2,500	2,500	
<b>2</b>	<b>ROAD PAVEMENT</b>					
2.1	New pavement		m2	130	0	
2.2	Rehabilitate Existing Pavement		item	50,000	0	
2.3	Raised Ped Crossings		Item	9,500	0	
<b>3</b>	<b>CONCRETE WORKS</b>					
3.1	Kerb and Channel		LM	60	0	
3.2	H.S areas (Pedestrian & Cycle Paths etc)		m2	60	0	
3.3	Ped Crossing Points		Item	5,000	0	
<b>4</b>	<b>DRAINAGE</b>					
4.1	Drainage - pipes		LM	250	0	
4.2	Drainage - pits/junctions		No.	2,500	0	
4.3	Drainage - Sub-soil drainage		LM		0	
4.4	Drainage - WSUD		Item		0	
4.5	Drainage - Miscellaneous		Item		0	
<b>5</b>	<b>TRAFFIC</b>				0	
5.1	Traffic Signals		Item	150,000	0	
5.2	Traffic Safety (RSA)	1	Item	2,500	2,500	
<b>6</b>	<b>LANDSCAPE</b>				0	
6.1	Trees		No.		0	
6.2	Landscaping		Item	25	0	
<b>7</b>	<b>STREET LIGHTING</b>				0	
7.1	Street Lighting		Item	12,000	0	
<b>8</b>	<b>MISCELLANEOUS</b>				0	
8.1	Linemarking	1880	Item	5	9,400	
8.2	Bicycle Symbols	18	Item	250	4,500	
8.3	Green Overlay	70	Item	65	4,550	
8.4	Sharrows	8	Item	500	4,000	
8.5	Linemarking Removal (Water/sand) blasting	940	Item	10	9,400	
<b>9</b>	<b>SERVICES</b>				0	
9.1	Services relocation		Item	35,000	0	
9.2	Services protection		Item	10,000	0	
<b>SUB-TOTAL WORKS</b>					<b>36,850</b>	
<b>10</b>	<b><u>DELIVERY</u></b>					
10.1	VicRoads	1	%		\$344	
10.2	Council	3.25	%		\$1,116	
10.3	Traffic/Environmental Management	5.5	%		\$1,889	
10.4	Survey/Design	5	%		\$1,718	
10.5	Supervision & Project Management	9	%		\$3,092	
10.6	Site Establishment	2.5	%		\$859	
10.7	Contingency	20	%		\$6,870	
<b>SUB-TOTAL DELIVERY</b>					<b>\$ 15,887</b>	
<b>TOTAL ESTIMATED COST</b>					<b>\$ 52,737</b>	

