FEDERAL BLACKSPOT PROGRAM – 2020-21

Ferguson Street, Melbourne Road to The Strand/Nelson Place, Williamstown

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Executive Summary

The report documents the project development process that has been undertaken at Ferguson Street, between Melbourne Road and The Strand/Nelson Place, Williamstown. Ferguson Street connects Kororoit Creek Road/Station Road/Railway Place in the west and The Strand/Nelson Place in the east. Surrounding land use along the corridor is predominantly commercial with some public use land, public park recreational land use and general residential land use.

The subject area of Ferguson Street carries 3,000 vehicles per day (two way) and has a posted speed limit of 40 km/h.

Ferguson Street is part of the Principal Bicycle Network (PBN).

A review of the crash data indicates a predominant crash trend involving cyclists, eight of the 14 crashes involved cyclists. Two of the eight bicycle crashes occurred at the roundabout at Nelson Place/The Strand and both were right near type crashes and involved cars turning right and not giving way to bicycles traveling north. The remaining six bicycle crashes occurred at various locations along the site and site inspections indicate that cyclists are not using the on-road bicycle lanes.

To address the crashes, the following treatments are proposed:

1. Installation of a wombat crossing at the existing pedestrian crossing near Melbourne Road. This will also act as a gateway treatment to the Ferguson Street shopping precinct and encourage lower speeds
2. Installation of raised wombat crossing near Bath Place to address pedestrian crashes
3. Installation of electronic 40 km/h speed limit signs near Melbourne Road and Nelson Place and painted 40 text on the pavement on the through traffic lane at various locations
4. Between Melbourne Road and Douglas Parade, narrowing down the through traffic lanes, and installation of a separated bicycle lane with painted buffer areas
5. Modification of the median opening at Bath Place
6. Bicycle lane improvements including green pavement treatments and sharrows at conflict areas and reinstating bicycle path linemarking to improve visibility and safety of cyclists.

The proposal has a total estimated cost (TEC) of $296,000 with a BCR of 5.9.

1. Background

Ferguson Street is a local road managed by Hobsons Bay City Council and is orientated in an east to west direction between Kororoit Creek Road/Station Road/Railway Place and The Strand/Nelson Place. Surrounding land use along the corridor is predominantly commercial with some public use land, public park recreational land use and general residential land use.

Ferguson Street is mainly configured as a divided carriageway, comprising one lane of traffic in each direction, kerbside parallel parking, and bicycle lanes on both sides of the road. From Kororoit Creek Road/Station Road/Railway Place to Douglas Parade the centre median is grassed with large mature trees and some median openings. East of Douglas Parade to The Strand/Nelson Place there is 90 Degrees angle parking in the centre of the road that is accessible from either carriageway and large mature trees within kerbed islands at a number of locations in the centre of the road. There is a 40km/h area posted speed limit along Ferguson Street from Melbourne Road to the Strand/Nelson Place. West of Melbourne Road Ferguson Street has a 60km/h posted speed limit.

Department of Transport open data portal indicates that Ferguson Street has a two-way traffic volume of 3,000 vehicles per day.

Bus service 415 operates on Ferguson Street. Bus service 472 specifically operates on Ferguson Street between Melbourne Road and Kororoit Creek Road/Station Road/Railway Place.

Ferguson Street is part of the Principal Bicycle Network (PBN).

The section of Ferguson Street proposed for treatment in this report is from Melbourne Road to The Strand/Nelson Place. Refer to **Appendix A** for the site location plan.

2. Problem

Based on the crash history for the five-year period ending December 2019, there were a total of 14 crashes (not including three crashes at Melbourne Road), resulting in five serious injury and nine other injury crashes.

Refer to **Appendix B** for the collision diagram and crash matrix.

A review of the crash data indicates a crash trend involving cyclists (eight of the 14 crashes). Two of the eight bicycle crashes occurred at the roundabout at Nelson place/The Strand and both were right near type crashes, involving cars turning right and failing to give way to cyclists traveling north. The remaining six bicycle crashes occurred at various locations along the road and site inspections indicate that cyclists were not using the on-road bicycle lanes. The bicycle lane linemarking is faded, particularly west of Douglas Parade to The Strand/Nelson Place. Ferguson Street is on the Principal Bicycle Network and site inspections confirmed that many cyclists use the bicycle paths.

Site inspections also indicate a high level of pedestrian activity and two of the 14 crashes involved pedestrians and have occurred at Lyon Street and Bath Place. Three of the 14 crashes have been rear end type crashes, and these have occurred near Rosny Place and Lyon Street. The road environment between Melbourne Road and Douglas Parade does not lend itself to a 40 km/h speed limit.

3. Recommended Solution

The following treatments are proposed on Ferguson Street to address the crash history and the problems that have been identified from the analysis:

1. Installation of a wombat crossing at the existing pedestrian crossing near Melbourne Road. This will also act as a gateway treatment to the Ferguson Street shopping precinct and encourage lower speeds

2. Installation of raised wombat crossing near Bath Place to address pedestrian crashes
3. Installation of electronic 40 km/h speed limit signs near Melbourne Road and Nelson Place and painted 40 text on the pavement on the through traffic lane at various locations
4. Between Melbourne Road and Douglas Parade, narrowing down the through traffic lanes, and installation of a separated bicycle lane with painted buffers
5. Modification of the median opening at Bath Place
6. Bicycle lane improvements including green pavement treatments and sharrows at conflict areas and reinstating bicycle path linemarking to improve visibility and safety of cyclists.

Refer to **Appendix E** for the concept plans outlining the proposed treatments at the intersection.

The project has a total estimated cost (TEC) of $296,000 with a BCR of 5.9.

Refer to **Appendix C** for the risk-based cost estimates and **Appendix D** for the BCR analysis.

A CRF of 25% with a project life of 5 years has been applied to the installation of green pavement at conflict points along the length of Ferguson Street. A CRF of 73% with a project life of 20 years has been applied to the pedestrian crashes at Bath Place and a CRF of 20% with a project life of 20 years has been applied to the installation of traffic calming along Ferguson Street. Then each of the estimated project benefits were totalled and then divided by the total estimated cost to give an overall project BCR of 5.9.

The rates considered in the project estimate were checked with recent rates quoted for similar type works.

Based on the scale of the project, it is estimated that the project will be delivered over one year.

An alternative option of installing speed humps along the route was considered, however, as this is a bus route this treatment was rejected.

4. Benefits

The proposal seeks to introduce road safety treatments that will increase the prominence of cyclists along the route and to alter the road environment such that it lends itself greater to lower speeds. This will reduce the likelihood of crashes occurring. The safety of pedestrians will also be improved by the raising of the pedestrian crossings.

5. Strategic Response

5.1. Movement and Place

Under the Movement and Place framework, Ferguson Street is classified with a Movement value of M4 between Melbourne Road and Douglas Parade and between Ryans Lane and Nelson Place and M3 between Douglas Parade and Ryans Lane. These movement ratings indicate that Ferguson Street is a corridor providing for movement of people and goods within a municipality and moderate movement of people & goods on routes connecting municipalities or primary access to municipal level places.

A review of the mode classifications for Ferguson Street indicate the following:


General Traffic (GT4)


Trams (N/A)


Cycling (N/A)


Bus - B4 between Melbourne Road and Douglas Parade and between Ryans Lane and Nelson Place) & B3 - between Douglas Parade and Ryans Lane


Walking (W2)

Further to this, Ferguson Street has a place value of P5 between Melbourne Road and Lenore Crescent, indicating that it is a place of local significance and a rating of P3 between Lenore Crescent and Nelson Place indicating that it is a place of municipal significance.

			Place				
			State	Municipal			Local
			Regional		Neighbourhood		
			P1	P2	P3	P4	P5
Movement	State	M1					
	Regional	M2					
	Municipal	M3					Ferguson St (Douglas Pd to Ryans Ln)
	Neighbourhood	M4			Ferguson Street (Melbourne Rd to Lenore Cr)		Ferguson (Lenore Cr to Douglas Pd)
	Local	M5					

Ferguson Street has a General Traffic 4 and Walking 2 rating. The proposed raised pedestrian crossing and speed calming treatments on Ferguson Street are suited to movement of people within a municipality. This proposal will support the Movement and Place rating of Ferguson Street.

The installation of bicycle lanes with painted medians and painted sharrows will provide a higher level of safety particularly for cyclists.

5.2. Transport Integration Act

As identified in the Transport Integration Act, the proposed treatments will provide a safe transport system by reducing the likelihood of serious injury crashes. Furthermore, construction of the proposed treatments will facilitate investment in Victoria.

It is also noted that the proposed treatments are compatible with the current and future land use.

Refer to **Appendix G** for the Transport Integration Act (TIA).

6. Community and Stakeholders Engagement

No community consultation has been undertaken at this stage.

Prior to commencement of any works, community consultation will be required to inform residents and businesses of any disruptive works that will be occurring

7. Projects Risks

7.1. Underground services

A Dial Before You Dig enquiry indicates that the following underground services are near the site:

- AusNet Gas Services Pty Ltd
- City West Water Ltd.
- Jemena Electricity Networks (Vic)
- Melbourne Water
- NBN Co, VicTas
- Nextgen, NCC – VIC
- Optus and/or Uecomm, Vic
- Telstra VICTAS
- TPG Telecom (VIC)

Prior to commencement of any works, the location of underground services needs to be verified on site and approvals to work within the vicinity of these services sought from the relevant service authority/company.

A risk assessment has been undertaken which outlines a full assessment of potential project risks and mitigating treatments.

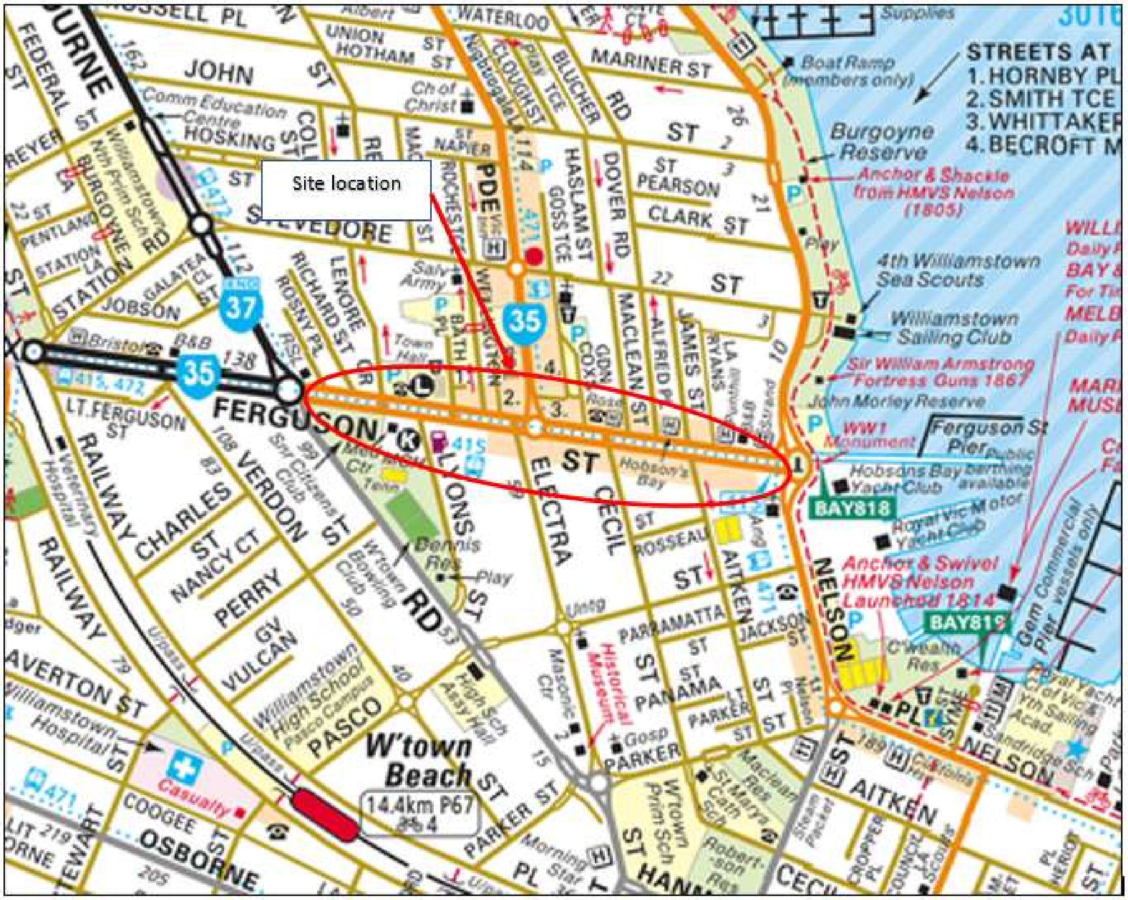
Refer to **Appendix F** for the risk assessment.

8. Approvals Required

Signed:

Proposed by:  Engineer Mizan Rahman	Date: 5/11/2020
Recommended by:  Acting Council Director Matthew Irving	Date: 5/11/2020
Endorsed by: Regional office engineer	Date:
Approved by: Regional office manager	Date:

Appendix A – Locality Plan



Appendix B – Crash Diagram

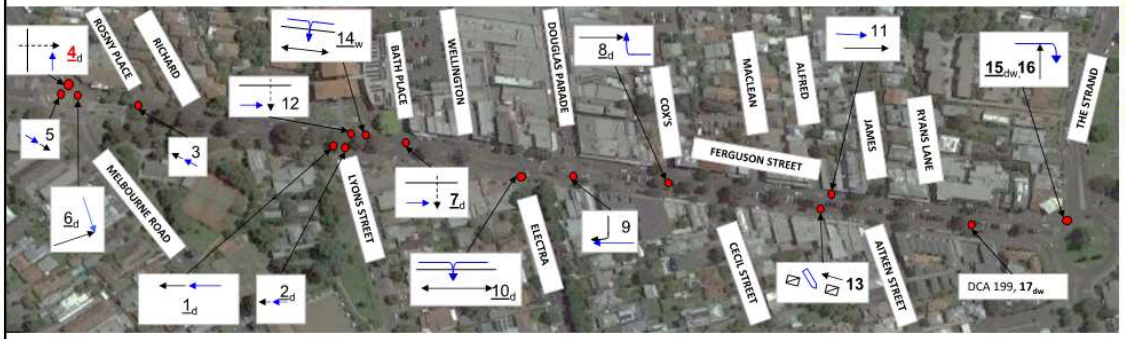
POLICE DETAILS

RCIS DETAILS

1 W*-W^ 130 01/07/15 Wed Dark 6:30:00 PM Unk. Other injury
2 NW*-NW^ 130 13/10/19 Sun Dark 12:45:00 AM Dry Other injury
3 NW^-NW* 130 20/11/19 Wed Day 5:00:00 PM Dry Other injury
4 E*- 100 06/05/16 Fri Dark 6:00:00 PM Dry Fatal accident
5 SE^-SE* 130 04/10/16 Tue Day 3:12:00 PM Dry Serious injury
6 E^-SE* 110 06/04/19 Sat Dusk 6:55:00 PM Dry Other injury
7 E- 100 14/09/18 Fri Dark 8:18:00 PM Dry Serious injury
8 E^-W* 121 11/04/17 Tue Dark 10:30:00 PM Dry Other injury
9 S^-W* 111 29/03/18 Thu Day 3:00:00 PM Dry Other injury
10 S*-W^ 148 12/06/15 Fri Dusk 8:30:00 AM Dry Other injury
11 E*-E^ 133 21/01/16 Thu Day 7:00:00 AM Dry Other injury
12 E*- 100 27/02/18 Tue Day 7:30:00 PM Dry Other injury
13 NK*-NW* 143 15/05/19 Wed Day 2:40:00 PM Dry Serious injury
14 NK*-E^ 148 16/08/19 Fri Day 1:18:00 PM Wet Other injury
15 N^-E* 113 24/03/15 Tue Dark 6:00:00 AM Wet Serious injury
16 N^-E* 113 15/09/16 Thu Day 7:15:00 AM Dry Serious injury
17 NK*- 199 26/08/18 Sun Dark 8:45:00 PM Wet Serious injury

NOTES

Crashes to be treated
Bicycle Crashes - 6,8,9,10,11,12,14,15,16
Pedestrian crashes - 4,7,12



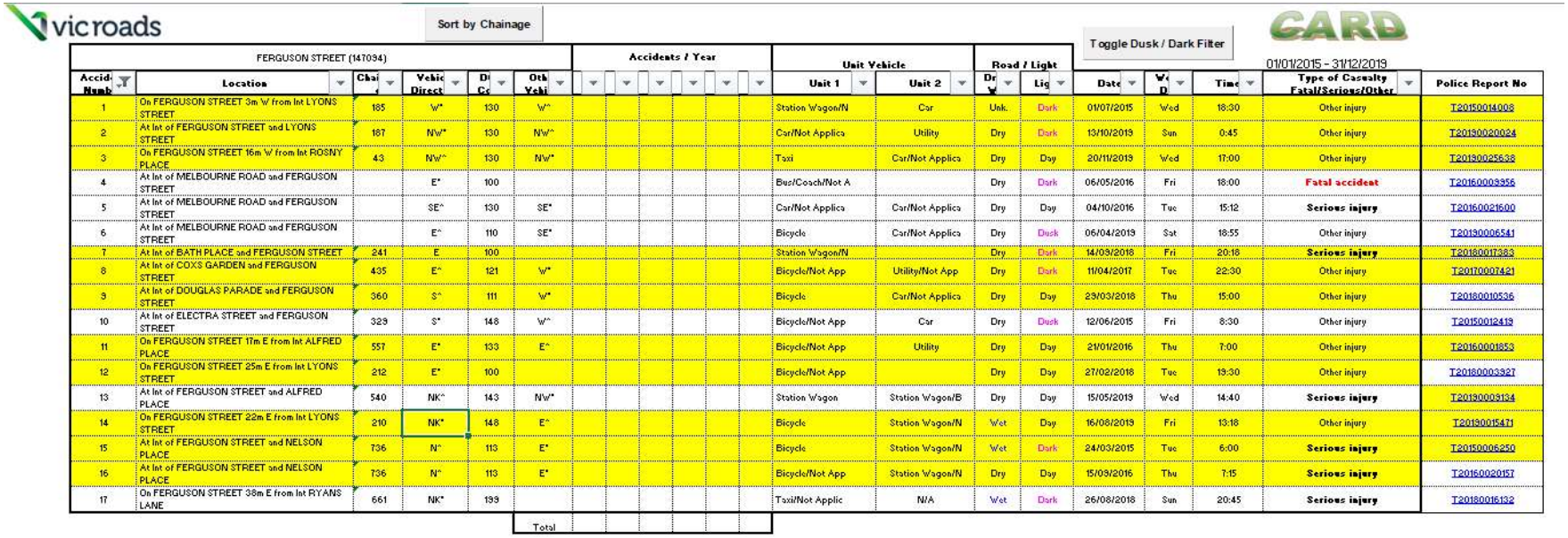
vicroads

Unit 1 → Wet or Dark/Dusk
Unit 2 → Fatal Accident
Serious Injury Accident
Other Injury accident

GARD

Date Range	01/01/2015 - 31/12/2019	COLLISION DIAGRAM	
Location	FERGUSON STREET (147094)		
Map Ref	56 B8	Weather & Light Filter	All Crashes
Council	HOBSONS BAY		

Crash Matrix:



vicroads

Sort by Chainage

Toggle Dusk / Dark Filter

CARD

01/01/2015 - 31/12/2019

FERGUSON STREET (147034)						Accidents / Year						Unit Vehicle		Road / Light						
Accid Numb	Location	Chai	Vehic Direct	Di Co	Oth Vehi							Unit 1	Unit 2	Dr W	Lig	Date	W D	Time	Type of Casualty Fatal/Serious/Other	Police Report No
1	On FERGUSON STREET 3m W from Int LYONS STREET	185	W*	130	W^							Station Wagon/N	Car	Unk.	Dark	01/07/2015	Wed	18:30	Other injury	T20150014008
2	At Int of FERGUSON STREET and LYONS STREET	187	NW*	130	NW^							Car/Not Applica	Utility	Dry	Dark	13/10/2019	Sun	0:45	Other injury	T20190020024
3	On FERGUSON STREET 16m W from Int ROSNY PLACE	43	NW^	130	NW*							Taxi	Car/Not Applica	Dry	Day	20/11/2019	Wed	17:00	Other injury	T20190025638
4	At Int of MELBOURNE ROAD and FERGUSON STREET		E*	100								Bus/Coach/Not A		Dry	Dark	06/05/2016	Fri	18:00	Fatal accident	T20160009356
5	At Int of MELBOURNE ROAD and FERGUSON STREET		SE^	130	SE*							Car/Not Applica	Car/Not Applica	Dry	Day	04/10/2016	Tue	15:12	Serious injury	T20160021600
6	At Int of MELBOURNE ROAD and FERGUSON STREET		E^	110	SE*							Bicycle	Car/Not Applica	Dry	Dusk	06/04/2019	Sat	18:55	Other injury	T20190006541
7	At Int of BATH PLACE and FERGUSON STREET	241	E	100								Station Wagon/N		Dry	Dark	14/09/2018	Fri	20:18	Serious injury	T20180017383
8	At Int of COXS GARDEN and FERGUSON STREET	435	E^	121	W*							Bicycle/Not App	Utility/Not App	Dry	Dark	11/04/2017	Tue	22:30	Other injury	T20170007421
9	At Int of DOUGLAS PARADE and FERGUSON STREET	360	S^	111	W*							Bicycle	Car/Not Applica	Dry	Day	29/03/2018	Thu	15:00	Other injury	T20180010536
10	At Int of ELECTRA STREET and FERGUSON STREET	329	S*	148	W^							Bicycle/Not App	Car	Dry	Dusk	12/06/2015	Fri	8:30	Other injury	T20150012419
11	On FERGUSON STREET 17m E from Int ALFRED PLACE	557	E*	133	E^							Bicycle/Not App	Utility	Dry	Day	21/01/2016	Thu	7:00	Other injury	T20160001853
12	On FERGUSON STREET 25m E from Int LYONS STREET	212	E*	100								Bicycle/Not App		Dry	Day	27/02/2018	Tue	13:30	Other injury	T20180003927
13	At Int of FERGUSON STREET and ALFRED PLACE	540	NK^	143	NW*							Station Wagon	Station Wagon/B	Dry	Day	15/05/2019	Wed	14:40	Serious injury	T20190009134
14	On FERGUSON STREET 22m E from Int LYONS STREET	210	NK*	148	E^							Bicycle	Station Wagon/N	Wet	Day	16/08/2019	Fri	13:18	Other injury	T20190015471
15	At Int of FERGUSON STREET and NELSON PLACE	736	N^	113	E*							Bicycle	Station Wagon/N	Wet	Dark	24/03/2015	Tue	6:00	Serious injury	T20150006250
16	At Int of FERGUSON STREET and NELSON PLACE	736	N^	113	E*							Bicycle/Not App	Station Wagon/N	Dry	Day	15/09/2016	Thu	7:15	Serious injury	T20160020157
17	On FERGUSON STREET 38m E from Int RYANS LANE	661	NK*	199								Taxi/Not Applic	N/A	Wet	Dark	26/08/2018	Sun	20:45	Serious injury	T20180016132
					Total															

Appendix C – Project Cost Estimates

Project Name	Federal Blackspot Program
Location	Ferguson Street, Williamstown
Prepared by	Trafficworks
Business Area	
Estimate Date	21/10/2020

P90 Cost (excluding On Cost)		$282,000	**Contingency = $29,000**
On Cost and Program Management	**5.0%**	$14,100	
Total Estimated Investment (TEI)		**$296,000**	

P50 Cost (exluding On Cost)		$253,000
On Cost and Program Management	**5.0%**	$12,650
P50 Cost (including On Cost)		**$266,000**

NOTE: +++ This Risk Based Estimate Template is to be used for Federal BlackSpot Program Only+++

Endorsement of Risk Based Estimate				
Position		**Name (print)**	**Signature**	**Date**
Development Project Manager				
Development Team Leader				
Delivery Project Manager				
Delivery Team Leader				

Attachments:

VicRoads Cost Estimate and Time Simulator (VR_CostSim)
Version 1.0

Project:	Federal Blackspot Program
Location:	Ferguson Street, Williamstown
Start Date:	1/07/2021

Estimate Prepared By:	Trafficworks
Business Area:	
Estimate Date:	21/10/2020

Estimate Approved By:	
Business Area:	
Date:	

DESCRIPTION OF WORK:

1.Raise existing pedestrian crossing near Melbourne Road to act as a gateway treatment to Ferguson Street precinct and encourage lower speeds and raise pedestrian crossing near Bath Place
2.Install electronic 40km/h signs near Melbourne Road and Nelson Place and paint 40 on through lane at various locations along the site
3.Between Melbourne Road and Douglas Parade narrow through lanes, install separated bike lane with painted medians either side of bike path
4.Improve the bike lanes including, green pavement treatment and painted sharrows at conflict areas and reinstating bike path linemarking to improve visibility and safety of cyclists.

ESTIMATE NOTES:

Project Cost Estimate Input

Project:	Federal Blackspot Program
Location:	Ferguson Street, Williamstown
Estimate Prepared By:	Trafficworks
Business Area:	
Estimate Date:	21/10/2020
Estimate Approved By:	
Business Area:	
Date:	

Funding Source	State and Federal
Check Federal Cost Items?	No
Items to use in Time sheet:	Level 1 cost items
Correlate by:-	Level 1
No of Iterations	50000

ITEM	Description	Level 1 Category	Level 2 Category	UNIT	Prob of Occurrence	QUANTITY				RATE				BASE ESTIMATE COST	COMMENTS
						Risk Profile - Quantity	Likely Quantity	Lowest Quantity	Highest Quantity	Risk Profile -Rate	Likely Rate	Lowest Rate	Highest Rate		
A	PROJECT & PROGRAM MANAGEMENT														
A1	PROJECT PLANNING														
A2	PROJECT DEVELOPMENT														
A2.1	DOT adminsitration - development, delivery and reporting	A - PROJECT & PROGRAM MANAGEMENT	A2 - Project Management - Development	%	100%	User defined	1	1	1	User defined	4.00	4.00	4.00	8,302	
A2.2	Traffic Investigations	A - PROJECT & PROGRAM MANAGEMENT	A2 - Project Management - Development	item	100%	User defined				User defined					
A2.3	Consultancy/ Concept Design	A - PROJECT & PROGRAM MANAGEMENT	A2 - Project Management - Development	item	100%	Constant Value	1	1	1	-20% , +30%	2,500.00	2,000.00	3,250.00	2,500	
A2.4	Before and After Study	A - PROJECT & PROGRAM MANAGEMENT	A2 - Project Management - Development	item	100%	User defined				User defined					
A2.5	Cultural Heritage Study	A - PROJECT & PROGRAM MANAGEMENT	A2 - Project Management - Development	item	100%	User defined				User defined					
A2.6	Service proofing (development)	A - PROJECT & PROGRAM MANAGEMENT	A1 - Project Management - Planning	item	100%	User defined				User defined					
A3	PROJECT MANAGEMENT CONSTRUCTION														
A3.1	VicRoads Project Delivery Management	A - PROJECT & PROGRAM MANAGEMENT	A3 - Project Management - Construction	%	100%	User defined				User defined					
A3.2	Network Operations Advice	A - PROJECT & PROGRAM MANAGEMENT	A3 - Project Management - Construction	item	100%	User defined				Constant Value					
A3.3	Signal Operations Advice	A - PROJECT & PROGRAM MANAGEMENT	A3 - Project Management - Construction	item	100%	User defined				Constant Value					
A3.4	Council - Contract Administration	A - PROJECT & PROGRAM MANAGEMENT	A3 - Project Management - Construction	item	100%	User defined	1	1	1	-30% , +30%	3,000.00	2,100.00	3,900.00	3,000	
A4	STAKEHOLDER MANAGEMENT														
A4.1	Stakeholder Management	A - PROJECT & PROGRAM MANAGEMENT	A4 - Stakeholder Management	item	100%	Constant Value	1	1	1	-30% , +30%	2,000.00	1,400.00	2,600.00	2,000	
A4.2	Letter Drops	A - PROJECT & PROGRAM MANAGEMENT	A4 - Stakeholder Management												
A4.3	Consultants	A - PROJECT & PROGRAM MANAGEMENT	A4 - Stakeholder Management												
A5	PROGRAM ADMINISTRATION														
A5.1	Overhead costs - unsuccessful jobs	A - PROJECT & PROGRAM MANAGEMENT	A5 - Program Administration												
A5.2	On costs - Road Safety Department (3%) [DO NOT INCLUDE HERE - Refer Cover Sheet]	A - PROJECT & PROGRAM MANAGEMENT	A5 - Program Administration												This item does not calculated accurately on this sheet. Therefore this item is included to the Final Summary Sheet
A5.3	On costs - State (4%) [DO NOT INCLUDE HERE - Refer Cover Sheet]	A - PROJECT & PROGRAM MANAGEMENT	A5 - Program Administration												This item does not calculated accurately on this sheet. Therefore this item is included to the Final Summary Sheet
B	DESIGN AND INVESTIGATION														
B1	PLANNING ACTIVITIES														
B1.1	Detail Site Investigations	B - DESIGN AND INVESTIGATION	B1 - Planning Activities	Item	100%	User defined				User defined					
B1.2	Landscape designs	B - DESIGN AND INVESTIGATION	B1 - Planning Activities	Item	100%	User defined				User defined					
B1.3	Functional Design	B - DESIGN AND INVESTIGATION	A1 - Project Management - Planning	Item	100%	Constant Value	1	1	1	-10% , +20%	4,500.00	4,050.00	5,400.00	4,500	
B2	GROUND SURVEYS														
B2.1	Feature surveys	B - DESIGN AND INVESTIGATION	B2 - Ground Surveys	Item	100%	Constant Value	1	1	1	-10% , +30%	6,000.00	5,400.00	7,800.00	6,000	
B2.2	Service Proofing (detail)	B - DESIGN AND INVESTIGATION	B2 - Ground Surveys	Item	100%	Constant Value	1	1	1	-20% , +20%	1,000.00	800.00	1,200.00	1,000	
B3	ENVIRONMENTAL STUDIES														
B3.1	Detailed Cultural Heritage Studies		B3 - Environmental Studies	Item	100%	Constant Value				User defined					
B3.2	Detailed Flora and Fauna Studies		B3 - Environmental Studies	Item	100%	Constant Value				User defined					
B4	REFERENCE DESIGN		B4 - Reference Design												
B4.1	Reference Design														
B4.2	Reference Design 2														
B5	DETAILED DESIGN														
B5.1	Detailed road design (including final plans)	B - DESIGN AND INVESTIGATION	B5 - Detailed Design	Item	100%	Constant Value	1	1	1	-10% , +20%	5,000.00	4,500.00	6,000.00	5,000	
B5.2	Road Safety Audit	B - DESIGN AND INVESTIGATION	B5 - Detailed Design	Item	100%	User defined	1	1	1	-10% , +30%	2,250.00	2,025.00	2,925.00	2,250	
C	LAND ACQUISITION														
C1	PROPERTY MANAGEMENT	C - LAND ACQUISITION	C1 - Property Management	Item	100%	Constant Value				User defined					
C1.1	Property Services	C - LAND ACQUISITION	C1 - Property Management												
C1.2	Title survey	C - LAND ACQUISITION	C1 - Property Management												
C1.3	Developing Plan of Subdivision	C - LAND ACQUISITION	C2 - Land Compensation												
C2	LAND COMPENSATION	C - LAND ACQUISITION	C2 - Land Compensation												
C2.1	Compensation Payments	C - LAND ACQUISITION	C2 - Land Compensation												
C2.2	Stamp Duties	C - LAND ACQUISITION	C2 - Land Compensation												
D	PRECONSTRUCTION AND CONSTRUCTION WORKS	D - PRECONSTRUCTION & CONSTRUCTION WORKS													
D1	CONTRACTOR MANAGEMENT	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D1 - Contractor Management												
D1.1	Site Establishment	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D1 - Contractor Management	%	100%	Constant Value	1	1	1	-20% , +20%	10.00	8.00	12.00	20,754	
D1.2	Site Management & Supervision	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D1 - Contractor Management	week	100%	-5% , +30%				-5% , +50%					
D1.3	Prepare & Maintain Quality System	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D1 - Contractor Management												
D1.4	Service Relocation Management, programming, co-ordination of all service asset works including associated documentation	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D1 - Contractor Management												
D1.5	As Constructed Plans	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D1 - Contractor Management	Item	100%	Constant Value				User defined					
D1.6	Environment Management Plan	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D1 - Contractor Management												
D2	CONTRACTOR'S OFFSITE OVERHEAD & MARGIN	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D2 - Contractor's Offsite Overhead & Margin												
D2.1	Contractors Off-site overhead and margins	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D2 - Contractor's Offsite Overhead & Margin												
D3	SPECIAL CONTRACTING COSTS	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D3 - Special Contracting Costs												
D3.1	Special Contractors Cost	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D3 - Special Contracting Costs												
D4	DETAILED DESIGN	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D4 - Detailed Design												
D4.1	Contractors Detail Designs	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D4 - Detailed Design												
D5	SITE PREPARATION	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D5 - Site Preparation												
D5.1	Building Demolition	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D5 - Site Preparation												
D5.2	Dams, Access Tracks, etc	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D5 - Site Preparation												

Project Cost Estimate Input

Project:	Federal Blackspot Program
Location:	Ferguson Street, Williamstown
Estimate Prepared By:	Trafficworks
Business Area:	
Estimate Date:	21/10/2020
Estimate Approved By:	
Business Area:	
Date:	

Funding Source	State and Federal
Check Federal Cost Items?	No
Items to use in Time sheet:	Level 1 cost items
Correlate by:-	Level 1
No of Iterations	50000

ITEM	Description	Level 1 Category	Level 2 Category	UNIT	Prob of Occurrence	QUANTITY				RATE				BASE ESTIMATE COST	COMMENTS
						Risk Profile - Quantity	Likely Quantity	Lowest Quantity	Highest Quantity	Risk Profile -Rate	Likely Rate	Lowest Rate	Highest Rate		
D5.3	Fencing (establishing ROW)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D5 - Site Preparation												
D5.4	Fencing (establishing ROW) - Cyclone Fencing	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D5 - Site Preparation												
D5.5	Survey Set outs	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D5 - Site Preparation	Item	100%	Constant Value				User defined					
D6	**UTILITY SERVICE RELOCATIONS**	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D6 - Utility Service Relocations												
D6.1	Power	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D6 - Utility Service Relocations												
D6.2	Telecommunications (Telstra / Optus)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D6 - Utility Service Relocations	Item	100%	Constant Value				User defined					
D6.3	Gas	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D6 - Utility Service Relocations												
D6.4	Water	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D6 - Utility Service Relocations												
D6.5	Sewerage	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D6 - Utility Service Relocations												
D7	**TRAFFIC MANAGEMENT**	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D7 - Traffic Management												
D7.1	Provision for Traffic Control	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D7 - Traffic Management	week	100%	Constant Value	3	3	3	-5% , +50%	5,000.00	4,750.00	7,500.00	15,000	
D7.2	Electronic Variable Message Sign	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D7 - Traffic Management	week	100%	-5% , +30%				-5% , +50%					
D8	**RAIL MANAGEMENT**	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D8 - Rail Management												
D8.1	Rail Management	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D8 - Rail Management												
D9	**ENVIRONMENTAL MANAGEMENT**	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D9 - Environmental Management												
D9.1	Silt Traps	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D9 - Environmental Management												
D9.2	Debris fencing	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D9 - Environmental Management												
D10	**ENVIRONMENTAL OFFSETS**	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D10 - Environmental Offsets												
D10.1	Planting trees	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D10 - Environmental Offsets												
D10.2	Habitats welfare	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D10 - Environmental Offsets												
D11	**EARTHWORKS**	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D11 - Earthworks												
D11.1	Lump Sum Allowance for Formation Construction	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D11 - Earthworks	Item	100%	Constant Value				User defined					
D11.2	Clearing & Grubbing	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D11 - Earthworks	m2	100%	-5% , +30%		0	0	-5% , +50%					
D11.3	Removal of Trees (significant), Includes grub up & cart away	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D11 - Earthworks	item	100%	-5% , +30%		0	0	-5% , +50%					
D11.4	Stripping & Stockpiling of Topsoil	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D11 - Earthworks	m2	100%	-5% , +30%		0	0	-5% , +50%					
D11.5	Treat Unsuitable Material - Excavate/Replace	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D11 - Earthworks	m3 solid	100%	-5% , +30%		0	0	-5% , +50%					
D11.6	Excavation in Rock	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D11 - Earthworks	m3 solid	100%	-5% , +30%		0	0	-5% , +50%					
D11.7	Earthworks - Cut to Fill	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D11 - Earthworks	m3 solid	100%	-5% , +30%		0	0	-5% , +50%					
D11.8	Earthworks - Cut to Waste (place "on-site")	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D11 - Earthworks	m3 solid	100%	-5% , +30%		0	0	-5% , +50%					
D11.9	Earthworks - Cut to waste (place "off site")	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D11 - Earthworks	m3 solid	100%	-5% , +30%		0	0	-5% , +50%					
D11.10	Earthworks - Import to Fill (type B material)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D11 - Earthworks	m3 solid	100%	-5% , +30%		0	0	-5% , +50%					
D11.11	Construct Table Drains & Verges	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D11 - Earthworks	m	100%	-5% , +30%		0	0	-5% , +50%					
D11.12	Construct Runoff Drains	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D11 - Earthworks	m	100%	-5% , +30%		0	0	-5% , +50%					
D11.13	Remove & replacement of unsuitable subgrade material	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D11 - Earthworks	Item	100%	-5% , +30%		0	0	-5% , +50%					
D11.14	Topsoiling (include fertilising & seeding)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D11 - Earthworks	m2	100%	-5% , +30%		0	0	-5% , +50%					
D11.15	Landscaping - Supply, Plant & Maintain	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D11 - Earthworks	Item	100%	User defined				User defined					
D12	**DRAINAGE WORKS**	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage												
D12.1	Lump Sum Allowance for drainage works	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	Item	100%	Constant Value	1	1	1	-10% , +20%	15,000.00	13,500.00	18,000.00	15,000	
D12.2	Supply & Install 450x300 RC Box Culvert	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m	100%	-5% , +30%		0	0	-5% , +50%					
D12.3	Supply & Install 600x300 RC Box Culvert	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m	100%	-5% , +30%		0	0	-5% , +50%					
D12.4	Supply & Install 600x450 RC Box Culvert	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m	100%	-5% , +30%		0	0	-5% , +50%					
D12.5	Supply & Install 750x300 RC Box Culvert	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m	100%	-5% , +30%		0	0	-5% , +50%					
D12.6	Supply & Install 900x450 RC Box Culvert	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m	100%	-5% , +30%		0	0	-5% , +50%					
D12.7	Supply & Install 900x600 RC Box Culvert	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m	100%	-5% , +30%		0	0	-5% , +50%					
D12.8	Supply & Install 1200x300 RC Box Culvert	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m	100%	-5% , +30%		0	0	-5% , +50%					
D12.9	Supply & Install 1200x450 RC Box Culvert	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m	100%	-5% , +30%		0	0	-5% , +50%					
D12.10	Supply & Install 1200x600 RC Box Culvert	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m	100%	-5% , +30%		0	0	-5% , +50%					
D12.11	Supply & Install 1200x900 RC Box Culvert	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m	100%	-5% , +30%		0	0	-5% , +50%					

Project Cost Estimate Input

Project:	Federal Blackspot Program
Location:	Ferguson Street, Williamstown
Estimate Prepared By:	Trafficworks
Business Area:	
Estimate Date:	21/10/2020
Estimate Approved By:	
Business Area:	
Date:	

Funding Source	State and Federal
Check Federal Cost Items?	No
Items to use in Time sheet:	Level 1 cost items
Correlate by:-	Level 1
No of Iterations	50000

ITEM	Description	Level 1 Category	Level 2 Category	UNIT	Prob of Occurrence	QUANTITY				RATE				BASE ESTIMATE COST	COMMENTS
						Risk Profile - Quantity	Likely Quantity	Lowest Quantity	Highest Quantity	Risk Profile -Rate	Likely Rate	Lowest Rate	Highest Rate		
D12.12	Supply & Install 1800x900 RC Box Culvert	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m	100%	-5% , +30%		0	0	-5% , +50%					
D12.13	Supply & Install Class 2 300mm dia RCP	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m	100%	-5% , +30%		0	0	-5% , +50%					
D12.14	Supply & Install Class 2 375mm dia RCP	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m	100%	-5% , +30%		0	0	User defined					
D12.15	Supply & Install Class 3 375mm dia RCP	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m	100%	User defined				User defined					
D12.16	Supply & Install Class 2 450mm dia RCP	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m	100%	-5% , +30%		0	0	-5% , +50%					
D12.17	Supply & Install Class 2 600mm dia RCP	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m	100%	-5% , +30%		0	0	-5% , +50%					
D12.18	Supply & Install Class 2 750mm dia RCP	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m	100%	-5% , +30%		0	0	-5% , +50%					
D12.19	Supply & Install Class 2 900mm dia RCP	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m	100%	-5% , +30%		0	0	User defined					
D12.20	Supply & Install Square Endwalls	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	No.	100%	-5% , +30%		0	0	-5% , +50%					
D12.21	Supply & Install Driveable Culvert Endwalls	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	No.	100%	-5% , +30%		0	0	-5% , +50%					
D12.22	Supply & Install Sloping Endwalls	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	No.	100%	-5% , +30%		0	0	-5% , +50%					
D12.23	Supply & Install Wingwalls	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	No.	100%	-5% , +30%		0	0	-5% , +50%					
D12.24	Supply & Install Subsurface Drains (Fabric around trench) Type 2	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m	100%	-5% , +30%		0	0	-5% , +50%					
D12.25	Supply & Install Subsurface Drains (100mm sockfitted) Type 3	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m	100%	-5% , +30%		0	0	-5% , +50%					
D12.26	Supply & Install Subsurface Drain Risers	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	No.	100%	-5% , +30%		0	0	-5% , +50%					
D12.27	Supply & Install Subsurface Drain Pit	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	No.	100%	-5% , +30%		0	0	-5% , +50%					
D12.28	Supply & Install Subsurface Drain Outlets	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	No.	100%	-5% , +30%		0	0	-5% , +50%					
D12.29	Supply & Install Junction Pits	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	No.	100%	-5% , +30%		0	0	-5% , +50%					
D12.30	Supply & Install SEP's (1.5m x 600 x 450)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	No.	100%	User defined				-5% , +30%					
D12.31	Supply & Install End Entry Pits	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	No.	100%	-5% , +30%		0	0	-5% , +50%					
D12.32	Supply & Install Inlet Catch Pits	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	No.	100%	-5% , +30%		0	0	-5% , +50%					
D12.33	Supply & Install Grated Pits	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	No.	100%	-5% , +30%		0	0	-5% , +50%					
D12.34	Supply & Install Side Entry Grated Pits	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	No.	100%	-5% , +30%		0	0	-5% , +50%					
D12.35	Supply & Install Gatic Lid	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	No.	100%	-5% , +30%		0	0	-5% , +50%					
D12.36	Supply & Place Rock Beaching	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m2	100%	-5% , +30%		0	0	-5% , +50%					
D12.37	Supply & Install Drainage Blankets	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m2	100%	-5% , +30%		0	0	-5% , +50%					
D12.38	Supply & Install Erosion Matting	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D12 - Drainage	m2	100%	-5% , +30%		0	0	-5% , +50%					
D13	**PAVEMENT CONSTRUCTION**	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements												
D13.1	Construct 3.7m long raised pavement, including linemarking, signage, RRPMs	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	m	100%	-5% , +20%				-10% , +30%					
D13.2	Construct raised pedestrian crossing, including linemarking, signage, RRPMs	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	each	100%	Constant Value	2	2	2	-20% , +30%	20,000.00	16,000.00	26,000.00	40,000	allows for raised zebra crossing at Bath Place and near Melbourne Road
D13.3	Asphalt build out of median and kerb ramps to match to new levels of raised pedestrian crossing	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	m2	100%	-5% , +30%	60	57	78	-10% , +20%	134.00	120.60	160.80	8,040	
D13.4	Construct granular pavement, including double application seal (550mm depth)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	m2	100%	-5% , +30%		0	0	-5% , +50%					
D13.5	Construct granular pavement, including double application seal (700mm depth)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	m2	100%	-5% , +30%		0	0	-5% , +50%					
	Individual Pavement Components														
D13.6	Rip, Mix & Compact Existing Pavement to 250mm	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	m2	100%	-5% , +30%		0	0	-5% , +50%					
D13.7	Profiling	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	day	100%	-5% , +30%		0	0	User defined					
D13.8	Cold Planning	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	m2	100%	-5% , +30%		0	0	User defined					
D13.9	Insitu Subgrade Stabilisation 150mm depth	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	m2	100%	-5% , +30%		0	0	-5% , +50%					
D13.10	Insitu Pavement Stabilisation up to 200mm	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	m2	100%	-5% , +30%		0	0	-5% , +50%					
D13.11	SAMI Seal	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	m2	100%	-5% , +30%		0	0	-5% , +50%					
D13.12	Asphalt - Supply & Place Intermediate Asphalt Layer	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	Tonne	100%	-5% , +30%		0	0	-5% , +50%					
D13.13	Asphalt - Supply & Place Base Asphalt Layer	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	Tonne	100%	-5% , +30%		0	0	User defined					
D13.14	Regulation - GG7 (Gap Graded 7)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	Tonne	100%	-5% , +30%		0	0	-5% , +50%					
D13.15	Regulation - Type SI	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	Tonne	100%	-5% , +30%		0	0	-5% , +50%					
D13.16	Patching - Remove & Replace 0-100mm Type SI Size 14	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	Tonne	100%	-5% , +30%		0	0	-5% , +50%					
D13.17	Patching - Remove & Replace100-200mm Type SI Size 20	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	Tonne	100%	-5% , +30%		0	0	-5% , +50%					
D13.18	Supply & Place CTCR	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	Tonne	100%	-5% , +30%		0	0	-5% , +50%					
D13.19	Supply and Place Class 1 Crushed rock	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	Tonne	100%	-5% , +30%		0	0	-5% , +50%					
D13.20	Supply and Place Class 2 Crushed rock	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	Tonne	100%	-5% , +30%		0	0	-5% , +50%					
D13.21	Supply and Place Class 3 Crushed rock	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	Tonne	100%	-5% , +30%		0	0	-5% , +50%					
D13.22	Supply and Place Class 4 Crushed rock	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	Tonne	100%	-5% , +30%		0	0	-5% , +50%					
D13.23	Supply and Place Type A Fill	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	Tonne	100%	-5% , +30%		0	0	-5% , +50%					
D13.24	Supply and Place Type B Fill	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	Tonne	100%	-5% , +30%		0	0	-5% , +50%					

Project Cost Estimate Input

Project:	Federal Blackspot Program
Location:	Ferguson Street, Williamstown
Estimate Prepared By:	Trafficworks
Business Area:	
Estimate Date:	21/10/2020
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Business Area:	
Date:	

Funding Source	State and Federal
Check Federal Cost Items?	No
Items to use in Time sheet:	Level 1 cost items
Correlate by:-	Level 1
No of Iterations	50000

ITEM	Description	Level 1 Category	Level 2 Category	UNIT	Prob of Occurrence	QUANTITY				RATE				BASE ESTIMATE COST	COMMENTS
						Risk Profile - Quantity	Likely Quantity	Lowest Quantity	Highest Quantity	Risk Profile -Rate	Likely Rate	Lowest Rate	Highest Rate		
D13.25	Crack Sealing existing pavement	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	m	100%	-5% , +30%		0	0	-5% , +50%					
D13.26	Saw cutting of existing pavement	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	m	100%	-5% , +30%		0	0	-5% , +50%					
D13.27	Construct Private Entrances (concrete pavement)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	No.	100%	-5% , +30%		0	0	-5% , +50%					
D13.28	Construct Private Entrances (sealed bell mouth)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	No.	100%	-5% , +30%		0	0	-5% , +50%					
	Pavement Surfacing														
D13.29	Lump Sum Allowance	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	Item	100%	User defined				User defined					
D13.30	Primer seal - 10mm	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	m2	100%	-5% , +30%		0	0	-5% , +50%					
D13.31	Final Seal - 7mm	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	m2	100%	-5% , +30%		0	0	-5% , +50%					
D13.32	Final Seal - 14mm	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	m2	100%	-5% , +30%		0	0	-5% , +50%					
D13.33	Double application Seal - Size 14/7	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	m2	100%	-5% , +30%		0	0	-5% , +50%					
D13.34	Geofabric/Geotextile Seal - Size 10mm	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	m2	100%	-5% , +30%		0	0	-5% , +50%					
D13.35	Asphalt - Supply & Place Wearing Course - Standard (H/HG)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	Tonne	100%	-5% , +30%		0	0	User defined					
D13.36	Asphalt - Supply & Place Wearing Course (SMA)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	Tonne	100%	-5% , +30%		0	0	-5% , +50%					
D13.37	Shoulder Sealing - Existing / New	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	m2	100%	-5% , +30%		0	0	-5% , +50%					
D13.38	Water Blasting <1000m2	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	m2	100%	-5% , +30%		0	0	-5% , +50%					
D13.39	Water Blasting >1000m2	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	m2	100%	-5% , +30%		0	0	-5% , +50%					
D13.40	Coloured Surfacing Treatments (e.g. Bus Bays & Bicycle Lanes)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	m2	100%	-5% , +30%	425	403.75	552.5	-10% , +20%	60.00	54.00	72.00	25,500	
D13.41	Calcine Bauxite Skid Resistant Overlay	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D13 - Pavements	m2	100%	-5% , +30%		0	0	-5% , +50%					
D14	**STRUCTURES & CONCRETE WORKS**	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures												
D14.1	Lump Sum Allowance for structural works	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	Item	100%	User defined				User defined					
D14.2		D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	m	100%	User defined	1	1	1	-10% , +30%					
D14.3	Kerb outstand at Lyons Street	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	Item	100%	User defined	1	1	1	-10% , +30%	5,000.00	4,500.00	6,500.00	5,000	
D14.4		D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	m2	100%	User defined	1	1	1	-10% , +30%					
D14.5	Deck Overlay	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	m3	100%	User defined				User defined					
D14.6	Bored Piles Supporting Railing Ends	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	m3	100%	User defined				User defined					
D14.7	Removal of Redundant Items	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	Item	100%	User defined				User defined					
D14.8	Drilling & Epoxying in of Steel Dowels Through Deck	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	No.	100%	User defined				User defined					
D14.9	Bridge Railing on Deck - Supply & Erect	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	m	100%	User defined				User defined					
D14.10	Supply and Install Gantry	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	Item	100%	User defined				User defined					
D14.11	Cattle, Pedestrian or Animal Underpass	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	Item	100%	User defined				User defined					
D14.12	Remove Kerb and Channel	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	m	100%	-5% , +30%		0	0	User defined					
D14.13	Remove Concrete Paving	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	m2	100%	-5% , +30%				-20% , +30%					
D14.14	Supply & Cast Edge Strip	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	m	100%	-5% , +30%		0	0	User defined					
D14.15	Supply & Cast Kerb & Channel (SM2 & SM3)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	m	100%	-5% , +30%				-10% , +20%					
D14.16	Concrete paving (75mm depth) with bedding	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	m2	100%	-5% , +30%		0	0	User defined					
D14.17	Concrete paving (150mm depth) with bedding	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	m2	100%	-5% , +30%		0	0	User defined					
D14.18	Concrete paving (200mm depth) with bedding	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	m2	100%	-5% , +30%		0	0	User defined					
D14.19	Concrete annulus to Roundabout (150mm depth) with bedding	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	m2	100%	-5% , +30%		0	0	-5% , +50%					
D14.20	Construct Bicycle/Pedestrian Path	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	m2	100%	-5% , +30%		0	0	-5% , +50%					
D14.21	Median Paving/Patterned Concrete	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	m2	100%	User defined				User defined					
D14.22	Relocate Bus Shelter	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	No	100%	-5% , +30%		0	0	-5% , +50%					
D14.23	Bus Bays (reinforced concrete)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	No.	100%	-5% , +30%		0	0	-5% , +50%					
D14.24	3 m hgt Noise Fence	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	lin m	100%	-5% , +30%		0	0	-5% , +50%					
D14.25	4 m hgt Noise Fence	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	lin m	100%	-5% , +30%		0	0	-5% , +50%					
D14.26	5 m hgt Noise Fence	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	lin m	100%	-5% , +30%		**0**	**0**	**-5% , +50%**					
D14.27	6 m hgt Noise Fence	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	lin m	100%	-5% , +30%		**0**	**0**	**-5% , +50%**					
D14.28	7 m hgt Noise Fence	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	lin m	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D14.29	8 m hgt Noise Fence	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	lin m	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D14.30	9 m hgt Noise Fence	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	lin m	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D14.31	Absorptive Barriers	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	m2	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D14.32	Acylic Panelling	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	m2	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D14.33	Retaining wall	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D14 - Structures	m	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					

Project Cost Estimate Input

Project:	Federal Blackspot Program
Location:	Ferguson Street, Williamstown
Estimate Prepared By:	Trafficworks
Business Area:	
Estimate Date:	21/10/2020
Estimate Approved By:	
Business Area:	
Date:	

Funding Source	State and Federal
Check Federal Cost Items?	No
Items to use in Time sheet:	Level 1 cost items
Correlate by:-	Level 1
No of Iterations	50000

ITEM	Description	Level 1 Category	Level 2 Category	UNIT	Prob of Occurrence	QUANTITY				RATE				BASE ESTIMATE COST	COMMENTS
						Risk Profile - Quantity	Likely Quantity	Lowest Quantity	Highest Quantity	Risk Profile -Rate	Likely Rate	Lowest Rate	Highest Rate		
D15	**BUILDING CONSTRUCTION WORKS**	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D15 - Buildings												
D15.1	Buildings	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D15 - Buildings	item	100%	**User defined**				**User defined**					
D16	**NOISE ATTENUATION WORKS**	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D16 - Noise Attenuation												
D16.1	Noise Attenuation Works	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D16 - Noise Attenuation												
D17	**TRAFFIC SIGNALS & LIGHTING**	D - PRECONSTRUCTION & CONSTRUCTION WORKS													
	Signal Installation														
D17.1	POS - standard undivided	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	per site	100%	**User defined**				**-5% , +20%**					
D17.2	POS - standard divided	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	per site	100%	**User defined**				**-5% , +20%**					
D17.3	POS - puffin undivided	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	per site	100%	**User defined**				**-5% , +20%**					
D17.4	POS - puffin divided	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	per site	100%	**User defined**				**-5% , +20%**					
D17.5	POS - pelican undivided	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	per site	100%	**User defined**				**-5% , +20%**					
D17.6	POS - pelican divided	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	per site	100%	**User defined**				**-5% , +20%**					
D17.7	Intersection Signals - cross	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	per site	100%	**Constant Value**				**-5% , +20%**					
D17.8	Intersection Signals - T	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	per site	100%	**User defined**				**-5% , +20%**					
D17.9	Intersection Signals - divided cross	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	per site	100%	**User defined**				**-5% , +20%**					
D17.10	Intersection Signals - divided T	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	per site	100%	**User defined**				**-5% , +20%**					
D17.11	Ramp Metering Signals	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	per site	100%	**User defined**				**-5% , +20%**					
D17.12	CCTV Camera System	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	per site	100%	**User defined**				**-5% , +20%**					
D17.13	Internally Illuminated Multi Message Signs for Ramp Metering	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	per site	100%	**User defined**				**-5% , +20%**					
D17.14	New Signal Pedestal - 2B	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**User defined**					
D17.15	New Signal Pedestal Mastarm or JUP	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**User defined**					
D17.16	New Signal Pedestal - JUMA	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**User defined**					
D17.17	New Signal Pedestal - Type 3	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.18	Relocate Signal Pedestal - 2A	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.19	Relocate Signal Pedestal - 2B	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.20	Relocate Signal Pedestal - 2C	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.21	Relocate Signal Pedestal - JUP	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.22	Relocate Signal Pedestal - JUMA	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.23	New Pedestal Foundation - 3.0m base	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.24	New Pedestal Foundation - 0.7m base	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.25	Lanterns - 1 aspect	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.26	Lanterns - 2 aspect	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.27	Lanterns - 3 aspect	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**User defined**					
D17.28	Lanterns - 4 aspect	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**User defined**					
D17.29	Lanterns - 5 aspect	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**User defined**					
D17.30	Lanterns - 6 aspect	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**User defined**					
D17.31	Lanterns - 2 aspect (LED)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.32	Lanterns - 3 aspect (LED)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.33	Lanterns - 4 aspect (LED)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.34	Lanterns - 5 aspect (LED)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.35	Lanterns - 6 aspect (LED)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.36	Lanterns - Pedestrian	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.37	Lanterns - Pedestrian (LED)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.38	Give Way to Pedestrian Lantern	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**User defined**					
D17.39	Audio Tactiles - Variable	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**User defined**					
D17.40	Audio Tactiles - Constant	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.41	Detector Loops - Standard (vehicle)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.42	Detectors - PUFFIN / Wheelchair	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.43	PUFFIN unit only	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.44	Supply & Install Detector Pit	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.45	Conduit Pit (standard)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**User defined**					
D17.46	Conduit Pit (heavy duty)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.47	Relocate Conduit Cable Pit	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					

Project Cost Estimate Input

Project:	Federal Blackspot Program
Location:	Ferguson Street, Williamstown
Estimate Prepared By:	Trafficworks
Business Area:	
Estimate Date:	21/10/2020
Estimate Approved By:	
Business Area:	
Date:	

Funding Source	State and Federal
Check Federal Cost Items?	No
Items to use in Time sheet:	Level 1 cost items
Correlate by:-	Level 1
No of Iterations	50000

ITEM	Description	Level 1 Category	Level 2 Category	UNIT	Prob of Occurrence	QUANTITY				RATE				BASE ESTIMATE COST	COMMENTS
						Risk Profile - Quantity	Likely Quantity	Lowest Quantity	Highest Quantity	Risk Profile -Rate	Likely Rate	Lowest Rate	Highest Rate		
D17.48	Conduit - Bore under road, supply & Install 1/100mm Underground Conduit, Backfill & Reinstate	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	m	100%	**User defined**				**-5% , +20%**					
D17.49	Conduit - Open trench through footpath/paved area, supply & Install 1/100mm Underground Conduit, Backfill & Reinstate	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	m	100%	**User defined**				**-5% , +20%**					
D17.50	Conduit - Open trench through grassed/unpaved area, supply & Install 1/100mm Underground Conduit, Backfill & Reinstate	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	m	100%	**User defined**				**-5% , +20%**					
D17.51	Conduit - Open trench through footpath/paved area, supply & Install 1/50mm Underground Conduit, Backfill & Reinstate	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	m	100%	**User defined**				**-5% , +20%**					
D17.52	Conduit - Open trench through grassed/unpaved area, supply & Install 1/50mm Underground Conduit, Backfill & Reinstate	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	m	100%	**User defined**				**-5% , +20%**					
D17.53	Conduit - Open trench through footpath/paved area, supply & Install 1/32mm Underground Conduit, Backfill & Reinstate	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	m	100%	**User defined**				**User defined**					
D17.54	Conduit - Open trench through grassed/unpaved area, supply & Install 2/100mm Underground Conduit, Backfill & Reinstate	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	m	100%	**User defined**				**User defined**					
D17.55	Conduit - Bore under road, supply & Install 2/100mm Underground Conduit, Backfill & Reinstate	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	m	100%	**User defined**				**User defined**					
D17.56	2 Core Cable	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	L.m	100%	**User defined**				**-5% , +20%**					
D17.57	13 Core Cable	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	L.m	100%	**User defined**				**-5% , +20%**					
D17.58	29/33 Core Cable	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	L.m	100%	**User defined**				**-5% , +20%**					
D17.59	51 Core Cable	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	L.m	100%	**User defined**				**-5% , +20%**					
D17.60	Pillar Mounted Point of Supply	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	item	100%	**User defined**				**-5% , +20%**					
D17.61	Point of Supply on Pole	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	item	100%	**User defined**				**-5% , +20%**					
D17.62	New Controller - POS	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.63	New Controller - Signals	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.64	New Controller Base	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
D17.65	Reprogramming - Simple	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	Item	100%	**User defined**				**-5% , +20%**					
D17.66	Reprogramming - Standard	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	Item	100%	**User defined**				**-5% , +20%**					
D17.67	Reprogramming - Complex	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	Item	100%	**User defined**				**-5% , +20%**					
D17.68	Red Light Camera	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +20%**					
	Street Lighting														
D17.70	Retirement of Existing Poles	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	No.	100%	**User defined**				**-5% , +50%**					
D17.71	New Lighting Pole (all inclusive)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	No.	100%	**User defined**				**-5% , +50%**					
D17.72	Brackets - Single	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	No.	100%	**User defined**				**-5% , +50%**					
D17.73	Brackets - Double	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	No.	100%	**User defined**				**-5% , +50%**					
D17.74	Lamps (globes) - 150W	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	No.	100%	**User defined**				**-5% , +50%**					
D17.75	Lamps (globes) - 250W	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	No.	100%	**User defined**				**-5% , +50%**					
D17.76	Pole (supply & install) - SB (8.5m with footing)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	No.	100%	**-20% , +30%**				**-5% , +50%**					
D17.77	Pole (supply & install) - SB (11m with footing)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	No.	100%	**User defined**				**-5% , +50%**					
D17.78	Pole (supply & install) - IA (8.5m with footing)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	No.	100%	**User defined**				**-5% , +50%**					
D17.79	Pole (supply & install) - IA (11m with footing)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	No.	100%	**User defined**				**-5% , +50%**					
D17.80	Meter Cabinets - Supply and Install	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	No.	100%	**User defined**				**-5% , +50%**					
D17.81	Cable (supply and install)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	m	100%	**User defined**				**-5% , +50%**					
D17.82	Conduit - Bore under road, supply & Install 1/100mm Underground Conduit, Backfill & Reinstate	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	m	100%	**User defined**				**-5% , +50%**					
D17.83	Conduit - Open trench through footpath/paved area, supply & Install 1/100mm Underground Conduit, Backfill & Reinstate	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	m	100%	**User defined**				**-5% , +50%**					
D17.84	Conduit - Open trench through grassed/unpaved area, supply & Install 1/100mm Underground Conduit, Backfill & Reinstate	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	m	100%	**User defined**				**-5% , +50%**					
D17.85	Conduit - Open trench through footpath/paved area, supply & Install 1/50mm Underground Conduit, Backfill & Reinstate	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	m	100%	**User defined**				**-5% , +50%**					
D17.86	Conduit - Open trench through grassed/unpaved area, supply & Install 1/50mm Underground Conduit, Backfill & Reinstate	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	m	100%	**User defined**				**-5% , +50%**					
D17.87	Conduit - Open trench through footpath/paved area, supply & Install 1/32mm Underground Conduit, Backfill & Reinstate	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	m	100%	**User defined**				**-5% , +50%**					
D17.88	Conduit - Open trench through grassed/unpaved area, supply & Install 2/100mm Underground Conduit, Backfill & Reinstate	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	m	100%	**User defined**				**-5% , +50%**					
D17.89	Conduit - Bore under road, supply & Install 2/100mm Underground Conduit, Backfill & Reinstate	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	m	100%	**User defined**				**-5% , +50%**					
D17.90	Conduit Pit (standard)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +50%**					
D17.91	Conduit Pit (heavy duty)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +50%**					
D17.92	Relocate Conduit Cable Pit	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +50%**					
D17.93	Transformer	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	Item	100%	**User defined**				**-5% , +50%**					
D17.94	Solar Panel	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D17 - Traffic Signals & Lighting	each	100%	**User defined**				**-5% , +50%**					
D18	**INTELLIGENT TRANSPORT SYSTEMS**	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D18 - Intelligent Transport Systems												
D18.1	Intelligent Transport System	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D18 - Intelligent Transport Systems	Item	100%	**User defined**				**User defined**					
D19	**RAIL TRACK WORKS**	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D19 - Rail Track												
D19.1	Rail Track Works	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D19 - Rail Track	Item	100%	**User defined**				**User defined**					

Project Cost Estimate Input

Project:	Federal Blackspot Program
Location:	Ferguson Street, Williamstown
Estimate Prepared By:	Trafficworks
Business Area:	
Estimate Date:	21/10/2020
Estimate Approved By:	
Business Area:	
Date:	

Funding Source	State and Federal
Check Federal Cost Items?	No
Items to use in Time sheet:	Level 1 cost items
Correlate by:-	Level 1
No of Iterations	50000

ITEM	Description	Level 1 Category	Level 2 Category	UNIT	Prob of Occurrence	QUANTITY				RATE				BASE ESTIMATE COST	COMMENTS
						Risk Profile - Quantity	Likely Quantity	Lowest Quantity	Highest Quantity	Risk Profile -Rate	Likely Rate	Lowest Rate	Highest Rate		
D20	**RAIL POWER WORKS**	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D20 - Rail Power												
D20.1	Rail Power Works	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D20 - Rail Power	Item	100%	**User defined**				**User defined**					
D21	**RAIL SIGNALLING WORKS**	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D21 - Rail Signalling												
D21.1	Rail Signalling Works	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D21 - Rail Signalling	Item	100%	**User defined**				**User defined**					
D22	**RAIL COMMUNICATIONS WORKS**	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D22 - Rail Communications												
D22.1	Rail Communications Works	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D22 - Rail Communications	Item	100%	**User defined**				**User defined**					
D23	**SIGNAGE, LINEMARKING, ROAD FURNITURE**	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture												
D23.1	Lump Sum Allowance for Re Linemarking	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	Item	100%	**User defined**	**1**	**1**	**1**	**-5% , +30%**	**15,000.00**	**14,250.00**	**19,500.00**	15,000	
D23.2	Linemarking for Separated Bike Paths, chevron linemarking and narrowed through lanes	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	**-5% , +30%**	**590**	**560.5**	**767**	**-5% , +50%**	**25.00**	**23.75**	**37.50**	14,750	
D23.3	RRPM's - Supply & Install	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	each	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**	**15.00**	**14.25**	**22.50**		
	Guard fence & Wire Rope Safety Barrier														
D23.4	Guard fence - Supply & Erect (Armco) (<1km length)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	**-5% , +30%**		**0**	**0**	**User defined**	**170.00**	**160.00**	**250.00**		2014 reviewed Rates
D23.5	Guard fence - Supply & Erect (Armco) (>1km length)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	**-5% , +30%**		**0**	**0**	**User defined**	**140.00**	**130.00**	**180.00**		2014 reviewed Rates
D23.6	Guard fence - Supply & Erect (New Jersey)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**		**0.00**	**0.00**		
D23.7	Breakaway Cable End Terminal (BCTA/BCTB) (<10 terminals)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	No.	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.8	Breakaway Cable Terminal (BCTA/BCTB) (>10 terminals)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	No.	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.9	GREAT Guard Fence Terminal - Supply & Install	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	No.	100%	**User defined**				**User defined**					
D23.10	X-Tension Terminal - Supply & Install	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	No.	100%	**User defined**				**User defined**					
D23.11	Trailing Terminal - Supply & Install	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	No.	100%	**User defined**				**User defined**					
D23.12	Wire Rope Safety Barrier (<200m length)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	**-5% , +30%**		**0**	**0**	**User defined**					
D23.13	Wire Rope Safety Barrier (>200m length)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.14	Wire Rope Safety Barrier - End Terminals (<10 terminals)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	No.	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.15	Wire Rope Safety Barrier - End Terminals (>10 terminals)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	No.	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.16	Install stac cushions	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
	Signage														
D23.17	Manufacture & Erect New Signing (Electronic Signs)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	Each	100%	**User defined**	**3**	**3**	**3**	**-10% , +10%**	**10,000.00**	**9,000.00**	**11,000.00**	30,000	
D23.18	Remove Store & Re-erect Existing Signing Allowance	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	Each	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.19	Supply and Install Single Metal Sign Posts	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	each	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.20	Supply and Install Parking/No standing signs	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	unit	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.21	Supply and Install Double Sign Posts	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	each	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.22	Supply and install medium signs	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	unit	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.23	Supply and install double frangible posts	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	each	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.24	Supply and install large sign (i.e. direction sign)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	unit	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
	Extruded Thermoplastic Linemarking														
D23.25	Linemarking - Select Road Standard...	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	Item	100%	**-5% , +30%**				**-5% , +50%**					
D23.26	Statcon holding bar blocks	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	block	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.27	Statcon stop lines 300mm wide	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.28	Statcon giveway blocks	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	block	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.29	Statcon roundabout blocks	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	block	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.30	Statcon centreline 100mm wide	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.31	Standard stripe	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.32	Semi-barrier	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.33	Double-barrier	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.34	Edgeline 100mm wide	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.35	Single Solid Centreline 100mm wide	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.36	Continuity Stripes 100mm wide	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.37	Edgeline 150mm wide	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.38	Single Solid Centreline 150mm wide	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.39	Continuity Stripes 150mm wide	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.40	Turn Lines	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.41	Lane Lines	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					
D23.42	Profiled Edgline (<20km)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	**-5% , +30%**		**0**	**0**	**-5% , +50%**					

Project Cost Estimate Input

Project:	Federal Blackspot Program
Location:	Ferguson Street, Williamstown
Estimate Prepared By:	Trafficworks
Business Area:	
Estimate Date:	21/10/2020
Estimate Approved By:	
Business Area:	
Date:	

Funding Source	State and Federal
Check Federal Cost Items?	No
Items to use in Time sheet:	Level 1 cost items
Correlate by:-	Level 1
No of Iterations	50000

ITEM	Description	Level 1 Category	Level 2 Category	UNIT	Prob of Occurrence	QUANTITY				RATE				BASE ESTIMATE COST	COMMENTS
						Risk Profile - Quantity	Likely Quantity	Lowest Quantity	Highest Quantity	Risk Profile -Rate	Likely Rate	Lowest Rate	Highest Rate		
D23.43	Profiled Edgline (>20km)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	-5% , +30%		0	0	-5% , +50%					
	Cold Applied Plastic Roadmarking														
D23.44	Chevron bars 600mm wide	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	-5% , +30%		0	0	-5% , +50%					
D23.45	Straight ahead arrows	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	each	100%	-5% , +30%		0	0	-5% , +50%					
D23.46	Turn arrows	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	each	100%	-5% , +30%		0	0	-5% , +50%					
D23.47	Combination turn / straight ahead arrows	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	each	100%	-5% , +30%		0	0	-5% , +50%					
D23.48	Combination straight / double turn arrows	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	each	100%	-5% , +30%		0	0	-5% , +50%					
D23.49	Double turn arrows	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	each	100%	-5% , +30%		0	0	-5% , +50%					
D23.50	U-turn arrows	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	each	100%	-5% , +30%		0	0	-5% , +50%					
D23.51	Pedestrian Lines 150mm wide	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	-5% , +30%		0	0	-5% , +50%					
D23.52	Stop Bars 600mm wide	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	-5% , +30%		0	0	-5% , +50%					
D23.53	Keep Clear	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	each	100%	-5% , +30%		0	0	-5% , +50%					
D23.54	Small Bicycle Symbol	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	each	100%	-5% , +30%		0	0	-5% , +50%					
D23.55	Large Bicycle Symbol	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	each	100%	-5% , +30%		0	0	-5% , +50%					
D23.56	Rail Crossing	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	each	100%	-5% , +30%		0	0	-5% , +50%					
D23.57	Transit Lane / Bus Lane	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	each	100%	-5% , +30%		0	0	-5% , +50%					
	Linemarking Removal														
D23.58	Blacking out - with paint	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m2	100%	-5% , +30%		0	0	-5% , +50%	60.00	57.00	90.00		
D23.59	Blacking out - with grit blasting	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m2	100%	-5% , +30%		0	0	-5% , +50%	60.00	57.00	90.00		
D23.60	Blacking out - with painted grit	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m2	100%	-5% , +30%		0	0	-5% , +50%	70.00	66.50	105.00		
D23.61	Water blasting	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	Item	100%	-5% , +30%		0	0	-5% , +50%		0.00	0.00		
D23.62	Grinding	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m2	100%	-5% , +30%	100	95	130	-5% , +50%	60.00	57.00	90.00	6,000	
	DDA														
D23.63	Lump Sum Allowance	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	Item	100%	-5% , +30%		0	0	-5% , +50%		0.00	0.00		
D23.64	Supply and Install stick down TGSI	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m²	100%	-5% , +30%		0	0	-5% , +50%	350.00	332.50	525.00		
D23.65	Supply and install ceramic TGSI	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m²	100%	-5% , +30%		0	0	-5% , +50%	750.00	712.50	1,125.00		
D23.66	Reconstruct Kerb Ramp & Install TGSI	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	No.	100%	-5% , +30%		0	0	-5% , +50%	1,700.00	1,615.00	2,550.00		
D23.67	Reconstruct Kerb Ramp & Install TGSI (corner with LT slip lane)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	No.	100%	-5% , +30%		0	0	-5% , +50%	1,700.00	1,615.00	2,550.00		
D23.68	Reconstruct Kerb Ramp & Install TGSI (corner no LT slip lane)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	No.	100%	-5% , +30%		0	0	-5% , +50%	1,700.00	1,615.00	2,550.00		
D23.69	Reconstruct Median (1.5m wide with TGSI)	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	m	100%	-5% , +30%		0	0	-5% , +50%	1,500.00	1,425.00	2,250.00		
D23.70	Flush Crosswalk Through Median	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	each	100%	-5% , +30%		0	0	-5% , +50%	1,500.00	1,425.00	2,250.00		
D23.71	Relocate side entry pits	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	each	100%	-5% , +30%		0	0	-5% , +50%	3,000.00	2,850.00	4,500.00		
D23.72	Zebra Crossing	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	each	100%	-5% , +30%		0	0	-5% , +50%	1,000.00	950.00	1,500.00		
D23.73	Tram Stop	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	Item	100%	-5% , +30%		0	0	-5% , +50%	3,000.00	2,850.00	4,500.00		
D23.74	Bus stop	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	Item	100%	-5% , +30%		0	0	-5% , +50%	3,000.00	2,850.00	4,500.00		
D23.75	Flashing lights	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D23 - Signage, Linemarking, Road Furniture	Item	100%	-5% , +30%		0	0	-5% , +50%	2,000.00	1,900.00	3,000.00		
D24	**LANDSCAPING WORKS**	D - PRECONSTRUCTION & CONSTRUCTION WORKS													
D24.1	Fencing - Pedestrian	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D24 - Landscaping	m	100%	-5% , +30%		0	0	User defined	300.00	250.00	550.00		
D24.2	Landscaping	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D24 - Landscaping	Item	100%	User defined				User defined					
D25	**MAINTENANCE**	D - PRECONSTRUCTION & CONSTRUCTION WORKS													
D25.1	Works Maintenance to Practical Completion	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D25 - Maintenance	Item	100%	User defined				User defined					
D25.2	Defects Management	D - PRECONSTRUCTION & CONSTRUCTION WORKS	D25 - Maintenance	Item	100%	User defined				User defined					
E	**CONTINGENT RISKS**	E - CONTINGENT RISKS													
E1	Dayworks	E - CONTINGENT RISKS	E1 - Project Risks	item	100%	Constant Value	1	1	1	-30% , +30%	5,000.00	3,500.00	6,500.00	5,000	
E1.1	Service Protection	E - CONTINGENT RISKS	E1 - Project Risks	item	100%	Constant Value	1	1	1	-30% , +30%	2,000.00	1,400.00	2,600.00	2,000	
E1.2	Removal of Trees	E - CONTINGENT RISKS	E1 - Project Risks	item	100%	User defined				User defined					
E1.3	Drainage Works	E - CONTINGENT RISKS	E1 - Project Risks	item	100%	User defined				-30% , +30%					
E1.4	Industry Escalation	E - CONTINGENT RISKS	E1 - Project Risks	%D	100%	User defined				User defined					
														Total = $236,596	

Project Cost Estimate Input

Project:	Federal Blackspot Program
Location:	Ferguson Street, Williamstown
Estimate Prepared By:	Trafficworks
Business Area:	
Estimate Date:	21/10/2020
Estimate Approved By:	
Business Area:	
Date:	

Funding Source	State and Federal
Check Federal Cost Items?	No
Items to use in Time sheet:	Level 1 cost items
Correlate by:-	Level 1
No of Iterations	50000

ITEM	Description	Level 1 Category	Level 2 Category	UNIT	Prob of Occurrence	QUANTITY				RATE				BASE ESTIMATE COST	COMMENTS
						Risk Profile - Quantity	Likely Quantity	Lowest Quantity	Highest Quantity	Risk Profile -Rate	Likely Rate	Lowest Rate	Highest Rate		

Project:	Federal Blackspot Program
Location:	Ferguson Street, Williamstown
Estimate Prepared By:	Trafficworks
Business Area:	
Estimate Date:	21/10/20
Estimate Approved By:	
Business Area:	
Date:	

Item	Base	P50*	P90*
A Project & Program Management	$15,802	$17,000	$19,000
B Design and Investigation	$18,750	$20,000	$22,000
C Land Acquisition		$0	$0
D Preconstruction & Construction	$195,044	$208,000	$232,000
SUB-TOTAL (Inherent Risks)	**Base Cost Estimate = $229,596**	$245,000	$273,000
E Contingent Risks		$8,000	$9,000
TOTAL (No Escalation)		$253,000	$282,000
Escalation		$0	$0
TOTAL (Including Escalation)		**Project Cost Estimate = $253,000**	**Total Capital Cost = $282,000**
			Output on-cost = $14,100
			Total Estimated Investment (TEI) = $296,100

Base Risk Allocation (Project Cost Estimate minus Base Cost Estimate) = $23,404

Contingency (Total Capital Cost minus Project Cost Estimate) = $29,000

	Base	P50*	P90*
A - PROJECT & PROGRAM MANAGEMENT			
A2 - Project Management - Development	$ 10,802	$ 11,621	$ 12,988
A3 - Project Management - Construction	$ 3,000	$ 3,228	$ 3,607
A4 - Stakeholder Management	$ 2,000	$ 2,152	$ 2,405
SUB-TOTAL	**$ 15,802**	**$ 17,000**	**$ 19,000**
B - DESIGN AND INVESTIGATION			
A1 - Project Management - Planning	$ 4,500	$ 4,800	$ 5,280
B2 - Ground Surveys	$ 7,000	$ 7,467	$ 8,213
B5 - Detailed Design	$ 7,250	$ 7,733	$ 8,507
SUB-TOTAL	**$ 18,750**	**$ 20,000**	**$ 22,000**
D - PRECONSTRUCTION & CONSTRUCTION WORKS			
D1 - Contractor Management	$ 20,754	$ 22,133	$ 24,686
D7 - Traffic Management	$ 15,000	$ 15,996	$ 17,842
D12 - Drainage	$ 15,000	$ 15,996	$ 17,842
D13 - Pavements	$ 73,540	$ 78,425	$ 87,474
D14 - Structures	$ 5,000	$ 5,332	$ 5,947
D23 - Signage, Linemarking, Road Furniture	$ 65,750	$ 70,118	$ 78,208
SUB-TOTAL	**$ 195,044**	**$ 208,000**	**$ 232,000**
E - CONTINGENT RISKS			
E1 - Project Risks	$ 7,000	$ 8,000	$ 9,000
SUB-TOTAL	**$ 7,000**	**$ 8,000**	**$ 9,000**

***Note: The P50 and P90 values in the tables above are proportioned to ensure they add to the total P50 and P90 total capital cost values.**
True P50 and P90 values are detailed in the Est_Confidence sheet.

Appendix D – BCR Calculations

FEDERAL BLACKSPOT PROJECT SUBMISSIONS 2020-21

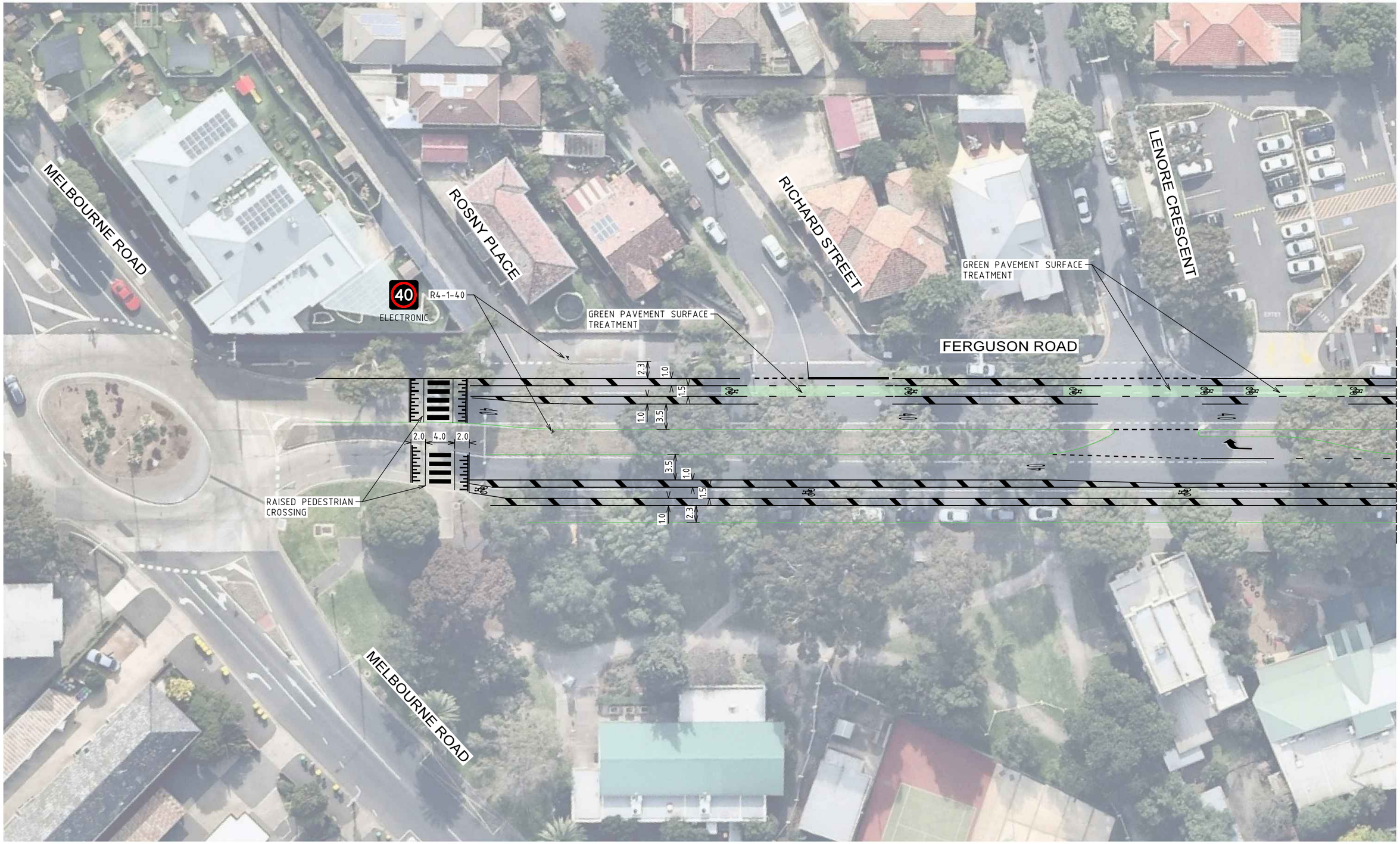
Project Number	vBid Number	VicRoads REGION	LGA	Federal Electorate	Road Name	Road Classification	AADT vpd	Pt1 X Coords	Pt1 Y Coords	Pt 2 X Coords	Pt 2 Y Coords	Project Length (km)	Intersecting Road (or start for Blacklength)	Intersecting road (end for blacklength)	Locality	Map Directory Reference	PROBLEM DIAGNOSIS (please descibe problems/issues - NOT listing the number or types of crashes)
		Metro Northwest	Hobsons Bay City Council	Gellibrand	**Ferguson St**	Local	6300	(-37°51'30")	144°53'39"	(-37°51'34")	144°54'7"	0.69	Melbourne Road	Nelson Place	Williamstown	56 B8; 56 D8	Low prominance of bike users on road bike lane has led to bike crashes.
		Metro Northwest	Hobsons Bay City Council	Gellibrand	**Ferguson St**	Local	6300	(-37°51'30")	144°53'39"	(-37°51'34")	144°54'7"	1.69	Melbourne Road	Nelson Place	Williamstown	56 B8; 56 D8	Vehicles and cyclists travelling along Ferguson Street failing to give way to pedestrians at the pedestrian crossing near Bath Place.
		Metro Northwest	Hobsons Bay City Council	Gellibrand	**Ferguson St**	Local	6300	(-37°51'30")	144°53'39"	(-37°51'34")	144°54'7"	0.69	Melbourne Road	Nelson Place	Williamstown	56 B8; 56 D8	Road environment does not lend itself to lower speeds

BCR > 4

PROJECT DESCRIPTION (major scope items incl. length and % of TEC - follow example) CAM: Chevron Alignment Marker; DCE: Drivable Culvert Endwall DDA: Disability Discrimination Act; FCRT: Fully Controlled Right Turn JUMA: Joint Use Mast Arm; RRPM: Reflective Raised Pavement Markers	Crash Period (Must be 1/1/15 to 31/12/19)	Fatal Crash No	Serious Injury Crash No	Other Injury Crash No	All Casualty Crash No	Fatality No	Serious Injury No	Other Injury No	All Casualty No	Definitions for Classifying Accidents (DCA)	Untreated Serious Casualty Crash No	Untreated Serious Casualties No	CRF	TEC	Yr 1	Yr 2	TEC check	BCR	Cost per Serious Casualty Saved
1. Install green pavement treatment at conflict areas to improve visibility and safety of cyclists. 2. Install sharrow linemarking through the roundabout at Douglas Parade Crashes addressed:8,9,11,15,16	1/1/15 to 31/12/19	0	2	3	5	0	2	7	9	1x111 2x113 1x121 1x133			25	**$59,200**			$0	**5.5**	**$101,391.52**
Raise existing pedestrian crossing at Bath Place. Crashes addressed: 7,12,14	1/1/15 to 31/12/20	0	1	2	3	0	2	6	8	2x100 1x148			73	**$88,800**			$0	**14.6**	**$26,042.34**
Install Traffic Calming treatments to create a slower speed environment, between Melbourne Road and Bath Place, including: 1. Raising existing ped crossing near Melbourne Rd to act as gateway to Ferguson St precinct 2. Install electronic 40km/h signs near Melbourne Rd and Nelson Pl 3. Narrow through lane, install separated bike lane with painted chevron either side of bike path 4. install kerb outstands, west of Lyons Street 5. Reinstate faded linemarking 6. Reconfiguration of median opening at Bath Place Crashes addressed:1,2,3	1/1/15 to 31/12/19	0	0	3	3	0	0	4	4	3x130			20	**$148,000**			$0	**0.8**	**#DIV/0!**
														$296,000				**5.9**	

No of Serious Casualties Saved per Year per $100m Invested	Number of Serious Casualty Crashes (FSI) Saved over Project Life	Number of Serious Casualties (DSI) Saved over Project Life	Project Life Span n years (refer CRF tab)	Speed Zone (km/h)	Mtc cost Onlu use values from table	Estimated Discounted Project COST Disc @ 7% ($)	WTP COST per FATAL Crash ($)	HC COST per Serious Injury Crash ($)	WTP COST per Other Injury Crash ($)	No of Fatal Crashes p.a.	No of Serious Injury Crashes p.a.	No of Other Injury Crashes p.a.	No of Serious Casualty Crashes p.a.	Estimated First Year BENEFIT ($)	Estimated Project BENEFIT Disc @ 7% ($)	Predicted No. of Fatal Crashes Saved p.a.	Predicted No. of Serious Injury Crashes Saved p.a.	Predicted No. of Other Injury Crashes Saved p.a.	Predicted No. of Serious Casualty Crashes Saved p.a.	Predicted No. of Fatalities Saved p.a.	Predicted No. of Serious Injuries Saved p.a.	Predicted No. of Other Injuries Saved p.a.	Predicted No. of Serious Casualties Saved p.a.
168.9	0.5	0.6	5	40	$0	$59,200	$8,553,120	$646,700	$98,700	0.00	0.40	0.60	0.40	$79,475	$325,863	0.00	0.10	0.15	0.10	0.000	0.117	0.198	0.12
164.4	2.9	3.4	20	40	$80	$89,648	$8,553,120	$646,700	$98,700	0.00	0.20	0.40	0.20	$123,239	$1,305,591	0.00	0.15	0.29	0.15	0.000	0.170	0.385	0.17
0.0	0.0	0.0	20	40	$140	$149,483	$8,553,120	$646,700	$98,700	0.00	0.00	0.60	0.00	$11,844	$125,476	0.00	0.00	0.12	0.00	0.000	0.000	0.158	-
					$220	$298,331									$1,756,930								

Appendix E – Concept Plans



Drawing Record

ISSUE	DRAWN	APP'D	DATE	AMENDMENT
P1	GL	BCh	14.09.20	PRELIMINARY ISSUE FOR COMMENT

WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION
DATE OF ISSUE: 14/09/20

Notes & Legend

1. AERIAL IMAGE FROM NEARMAP UNDER LICENSE AGREEMENT WITH TRAFFICWORKS PTY LTD.
2. ALL DIMENSIONS ARE TO FACE OF KERB UNLESS SHOWN OTHERWISE.

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P.O. Box 417 IVANHOE VIC. 3079
Tel (03) 9490 5900 Fax (03) 9490 5910 www.trafficworks.com.au

CLIENT
HOBSONS BAY CITY COUNCIL

N E S W
WILLIAMSTOWN

SCALE OF METRES
0 5 10

Ferguson Street

Hobsons Bay City Council

Concept Plan

SHEET NO.	DRAWING NO.	ISSUE
1	200062-CTP-01	P1

22/09/2020 9:49:12 AM 200062-CTP-01 C:\CADDrive\2021 Projects\200062\Design\200062-CTP-01-P1.dgn

FOR CONTINUATION REFER TO SHEET No. 1

FOR CONTINUATION REFER TO SHEET No. 3

Drawing Record

ISSUE	DRAWN	APP'D	DATE	AMENDMENT
P1	GL	BCh	14.09.20	PRELIMINARY ISSUE FOR COMMENT

WARNING
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Ferguson Street

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Concept Plan

SHEET NO.	DRAWING NO.	ISSUE
2	200062-CTP-02	P1

22/09/2020 9:49:13 AM 200062-CTP-02 C:\CADDrive\2021 Projects\200062\Design\200062-CTP-01-P1.dgn

Drawing Record

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3	200062-CTP-03	P1

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Drawing Record

ISSUE	DRAWN	APP'D	DATE	AMENDMENT
P1	GL	BCh	14.09.20	PRELIMINARY ISSUE FOR COMMENT

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Ferguson Street
Hobsons Bay City Council
Concept Plan

SHEET NO.	DRAWING NO.	ISSUE
4	200062-CTP-04	P1

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Appendix F – Risk Assessment

VicRoads Metro North West Region
Project Risk Assessment

Project Title:	Ferguson Street Melbourne Road to The Strand/Nelson Place, Williamstown
Project Scope:	Painted green pavement, painted kerb outstands, traffic calming and raised pedestrian crossings
Preliminary Estimate:	TEC $296,000

RISK CONTEXT				RISK ASSESSMENT			RISK TREATMENT			RESIDUAL RISK		
Risk Description	**Potential Cause(s)**	**Project Objective**	**Potential Impact(s)**	**Likelihood**	**Consequence**	**Risk Rating**	**Required action(s)**	**Responsibility**	**Target Date**	**Likelihood**	**Consequence**	**Risk Rating**
Safety Benefit Anticipated safety benefit(s) will not be realised	Project changes may introduce other safety hazards or unwanted behaviours	Maximise community benefit	Community will not get the best safety and/or investment outcome	**Rare**	**Minor**	Low	Proposal is based on proven treatments that will improve road safety. The proposed treatments are to be reviewed and accepted by Council and DoT. Undertake a Road Safety Audit on the proposed treatment.	Project development engineer	Pre-bid	**Rare**	**Insignificant**	Low
Suitability of Treatment Project option is not the best solution to the identified problem	Other options not properly considered	Maximise community benefit	Community will not get the best safety and/or investment outcome	**Unlikely**	**Minor**	Low	Liaise closely with the Council's traffic team to determine the most favourable treatment option.	Project development engineer	Pre-bid	**Unlikely**	**Insignificant**	Low
Asset Value	This is an unlikely risk, due to the nature of the proposed treatments	N/A	N/A				N/A					
Stakeholders Project impacts on local residents	The proposal conflicts with stakeholder values	Ensure stakeholders are on-board	The project will not have stakeholder support	**Possible**	**Moderate**	Medium	Consult with DoT, PTV, local residents and local businesses	Project development engineer consult with DoT Project delivery engineer consult with local residents and local businesses	During project development	**Unlikely**	**Insignificant**	Low
Political Project is not delivered on time or within budget	Conflict between policy objectives Insufficient consultation with key stakeholders	Support the Government's policy agenda	The project will not support other government policy initiatives	**Unlikely**	**Minor**	Low	Council to undertake internal consultation with their project development teams. Undertake community consultation and review concerns from the community.	Project development engineer	Pre-bid	**Rare**	**Insignificant**	Low
Heritage	This is an unlikely risk, due to the nature of the proposed treatments	N/A	N/A				N/A					
Environment	This is an unlikely risk, due to the nature of the proposed treatments	N/A	N/A				N/A					
Community Concerns Community complaint over increased congestion and wait times	The proposal will increase travel time	Ensure that increased delays and congestion are within an acceptable range	The project will not have community support	**Possible**	**Minor**	Low	Undertake community consultation and review concerns from the community. Set up VMS's on Ferguson Street and Melbourne Road to indicate road closure works will occur prior to construction.	Project delivery engineer	During project delivery	**Unlikely**	**Minor**	Low
Land Acquisition Government does not hold title to land required to complete the project	N/A	N/A	N/A				The proposal does not seek to extend the road reservation.					

VicRoads Metro North West Region
Project Risk Assessment

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RISK CONTEXT				RISK ASSESSMENT			RISK TREATMENT			RESIDUAL RISK		
Risk Description	**Potential Cause(s)**	**Project Objective**	**Potential Impact(s)**	**Likelihood**	**Consequence**	**Risk Rating**	**Required action(s)**	**Responsibility**	**Target Date**	**Likelihood**	**Consequence**	**Risk Rating**
Services Unknown services exist that will impinge on the project	Services may be located within the vicinity of the proposed works	Ensure project budgets and timeframes are met	Project budgets and timeframes may be exceeded	**Possible**	**Moderate**	Medium	Project development engineer to undertake a Dial Before You Dig enquiry. Project delievery engineer to undertake their own Dial Before You Dig enquiry and arranage service detection prior to excavation works An allowance has been made for service protection.	Project development engineer: DBYD Project delievery engineer: service proofing	Pre-bid: DBYD During project delievery: service proofing	**Rare**	**Moderate**	Low
Permits Council does not possess the permits required to deliver the project	Requirement for permits from various services, which may delay/stop works	Comply with all legal and planning requirements	Requirement to receive permits from services will increase costs and/or delay the project	**Unlikely**	**Insignificant**	Low	Acquire the necessary permits to work within the road reserve.	Project delivery engineers	Post-bid	**Rare**	**Insignificant**	Low
Pavement Unforeseen requirement to replace existing pavement	The proposal includes road excavation works	Maximise whole of life asset value	Additional administration required to justify/seek additional funding, which will delay the project and increase project overhead costs	**Unlikely**	**Minor**	Low	Ensure that services are not affected which may require replacement of pavement.	Project delivery engineers	Post-bid	**Rare**	**Minor**	Low
Design & Constructability *Does the proposed treatment meet standards*	No preliminary design completed not visiting site to determine all risks lack of understanding of the standards applicable to the treatment	Treatment complies with standards	Changes to scope may not achieve the best safety outcome or delay project & or increase costs	**Possible**	**Major**	Medium	Undertake a preliminary design that addresses identified deficiencies and in accordance to the relevant standards and guidelines. Undertake a Road Safety Audit at the detailed design stage.	Project development manager. Program delivery manager to ensure works are conducted according to the scope.	Post-bid	**Unlikely**	**Minor**	Low
Budget Project budget will be insufficient to complete approved scope of works	Extraordinary site conditions Restricted working hours Unknown services Market conditions Unforeseen costs Higher than expected Tender Poor project management	Deliver 90% of Improvement Projects within TEC	Additional administration required to justify/seek additional funding will delay the project and increase project overhead costs	**Unlikely**	**Moderate**	Medium	Complete a risk based cost estimate and ensure rates/quantaties are checked by project delivery. Assess the adequacy of the project budget. Monitor and manage actual project costs.	Project delivery manager	During project development, and before any construction contracts are let. Ongoing during project delivery	**Unlikely**	**Minor**	Low
Schedule Project will not be complete by the date planned	Approval delays Permit delays Community resistance Land acquisition issues Heritage/environment issues Resource(s) availability Poor project management	Complete all Improvement Projects within the FY(s) for which funding was approved	VicRoads does not meet annual expenditure target and Treasury approval will be required to carry over project funding approval into the next FY	**Unlikely**	**Minor**	Low	Discuss project with project delivery to ensure timeframes are achievable, based on other planned projects within the financial year. Assess the adequacy of the schedule. Monitor and manage work performed against the baseline project schedule.	Project delivery manager	During project development, and before any construction contracts are let. Ongoing during project delivery	**Rare**	**Minor**	Low
Traffic Management Project construction activities will cause unforeseen traffic congestion	Lane closures during works. Insufficient public notice(s) Inadequate detour planning/signage	Minimise community disruption	Community pressure requires changes to project delivery strategy that will delay the project and increase project costs	**Possible**	**Moderate**	Medium	Refer project to the DoT Region and the Council traffic team for ruling on acceptable working hours and lane closures.	Project development/delivery engineers	During project development, and before any construction contracts are let. Ongoing during project delivery	**Unlikely**	**Minor**	Low

Original Risk Assessment undertaken by :

Original Risk Assessment reviewed by:

VicRoads Metro North West Region
Project Risk Assessment

Project Title:	Ferguson Street Melbourne Road to The Strand/Nelson Place, Williamstown
Project Scope:	Painted green pavement, painted kerb outstands, traffic calming and raised pedestrian crossings
Preliminary Estimate:	TEC $296,000

RISK CONTEXT				RISK ASSESSMENT			RISK TREATMENT			RESIDUAL RISK		
Risk Description	Potential Cause(s)	Project Objective	Potential Impact(s)	Likelihood	Consequence	Risk Rating	Required action(s)	Responsibility	Target Date	Likelihood	Consequence	Risk Rating
				Team Leader Development								

Reassessment completed prior to tender by:

Risk assessment prior to tender reviewed by: Team Leader Delivery

Risk Assessment completed prior to Practical Completion by:
Project Officer :

Asset Manager:

Appendix G – TIA Checklist

Road Safety and Network Access

In development of project proposals, Councils are to provide information on the following items as part of the Transport Integration Act. (prints in A3 landscape)

	Transport system objectives	Council to provide advice? (Y or N)	Insert proposal objectives that relate to the various components of the transport system objectives. Note that one proposal objective may relate to a number of transport system objective components. Insert NA where there is no correlation.
1.	**Facilitate access to social and economic opportunities to support individual and community wellbeing**		
a)	Minimise barriers to access so that so far as is possible the transport system is available to as many persons as wish to use it.	N	N/A
b)	Provide tailored infrastructure, services and support for persons who find it difficult to use the transport system.	N	N/A
2.	**Facilitate economic prosperity**		
a)	Enable efficient and effective access for persons and goods to places of employment, markets and services.	N	The proposed treatments seek to address existing crash trends. It is anticipated that the proposal will not result in adverse impacts to the operation of the road.
b)	Increase efficiency through reducing costs and improving timeliness.	Y	The project will be competitively tendered. The delivery team will attempt to combine similar projects into a single tender, to ensure the project could be delivered at a lower cost. The project will be delegated to a project delivery engineer to ensure committed timeframes are achieved.
c)	Foster competition by providing access to markets.	N	N/A
d)	Facilitate investment in Victoria.	Y	The construction of the proposal will facilitate investment in Victoria. It is expected that a number of work crews will be employed during the construction of this phase.
e)	Support financial sustainability.	N	The additional maintenance costs associated with the treatments are considered negligible.
3.	**Actively contribute to environmental sustainability**		
a)	Protect, conserve and improve the natural environment.	N	N/A
b)	Avoid, minimise and offset harm to the local and global environment, including through transport-related emissions and pollutants and the loss of biodiversity.	N	N/A

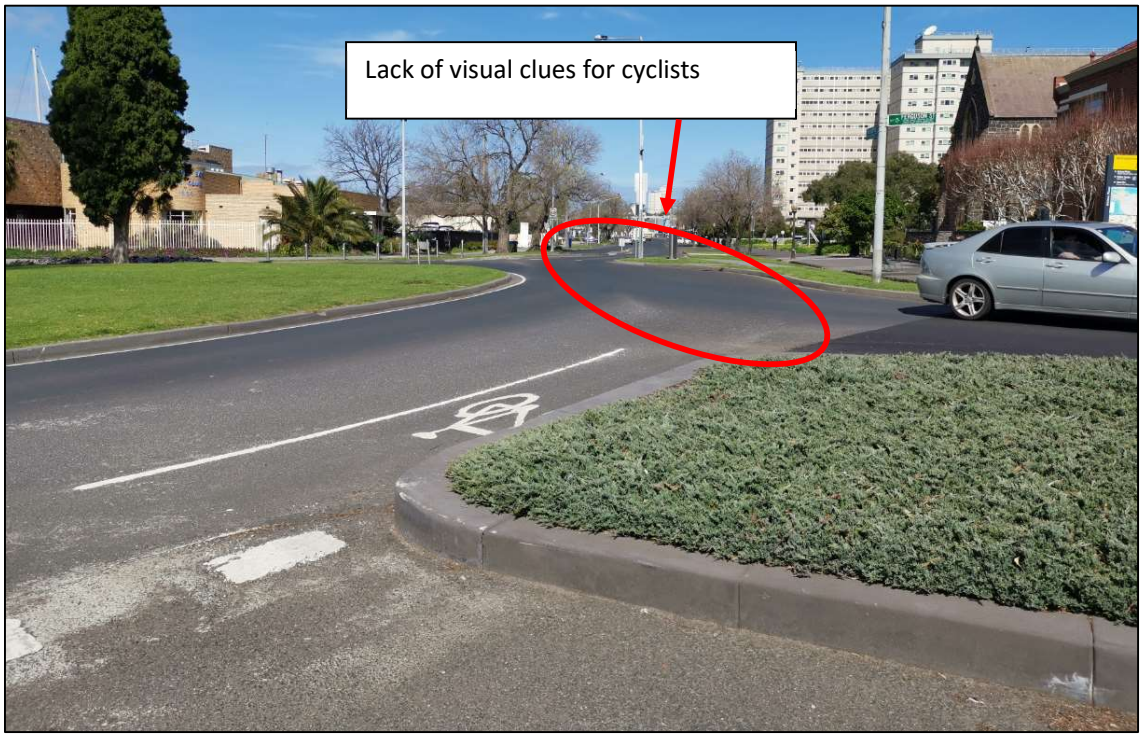
c)	Promote forms of transport and the use of forms of energy and transport technologies which have the least impact on the natural environment.	N	N/A
d)	Improve the environmental performance of all forms of transport and the forms of energy used in transport.	N	N/A
4.	**Provide for effective integration of transport and land use and facilitate access to social and economic opportunities**		
a)	Provide for the effective integration of transport and land use and facilitate access to social and economic opportunities.	N	N/A
b)	Maximise access to residences, employment, markets, services and recreation.	Y	This proposal seeks to improve safety for road users.
c)	Plan and develop the transport system more effectively.	N	N/A
d)	Reduce the need for private motor vehicle transport and the extent of travel.	N	N/A
e)	Facilitate better access to, and greater mobility within, local communities.	Y	The proposed treatments seek to address existing crash trends at the site.
f)	Ensure that transport decisions are made having regard to the current and future impact on land use.	Y	The proposed treatment solution is compatible with the current and future land use.
g)	Ensure that land use decisions are made having regard for the current and future development and operation of the transport system.	Y	The proposed treatment solution is compatible with the current and future land use.
h)	Provide transport infrastructure and services in a timely manner to support changing land use and associated transport demand.	N	N/A
i)	Improve the amenity of communities and minimise impacts of the transport system on adjacent land uses.	N	N/A
5.	**Facilitate network-wide efficient, coordinated and reliable movements of persons and goods at all times**		
a)	Balance efficiency across the network so as to optimise the network capacity of all modes of transport and reduce journey times.	N	The proposed treatments seek to address existing crash trends. It is anticipated that the proposal will not result in adverse impacts to the operation of the road or nearby intersections.
b)	Maximise the efficient use of resources including infrastructure, land, services and energy.	N	N/A
c)	Facilitate integrated and seamless travel within and between different modes of transport.	N	N/A

d)	Provide predictable and reliable services and journey times and minimise any inconvenience caused by disruptions to the transport system.	N	N/A
6.	**Provide a safe transport system that supports health and wellbeing**		
a)	Improve safety performance through safe transport infrastructure	Y	The proposed treatment solution is expected to reduce the likelihood of crashes and create a safer environment.
b)	Improve safety performance through safe forms of transport	Y	The proposal should provide safer access.
c)	Improve safety performance through safe transport system user behaviour	Y	
d)	Avoid and minimise the risk of harm to persons arising from the transport system	Y	The proposed treatment solution is expected to reduce the likelihood of crashes and create a safer environment.
e)	Promote forms of transport and the use of forms of energy which have the greatest benefit for, and least negative impact on, health and wellbeing	N	N/A

Appendix H – Site Photographs

Nelson Place at Ferguson Street, northbound facing on southern leg of roundabout, cyclist have no defined path to ride in and hence lose conspicuity,

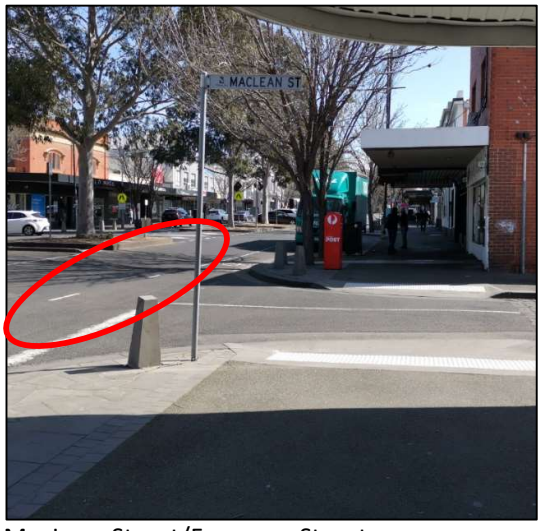
At Ferguson Street, in eastbound lane looking south, here is the location where drivers have not been giving way to cyclists from the south. The photograph shows the bike lane markings does not continue south and cyclists may be overlooked.



Various side roads of Ferguson Street where the bike path crosses. Note bike lane has faded and does not raise prominence of cyclists.

James Street/Ferguson Street


Alfred Place/Ferguson Street



MacLean Street/Ferguson Street


Coxs Garden/Ferguson Street

At Douglas Parade/Ferguson Street, no indication of cyclists within roundabout:

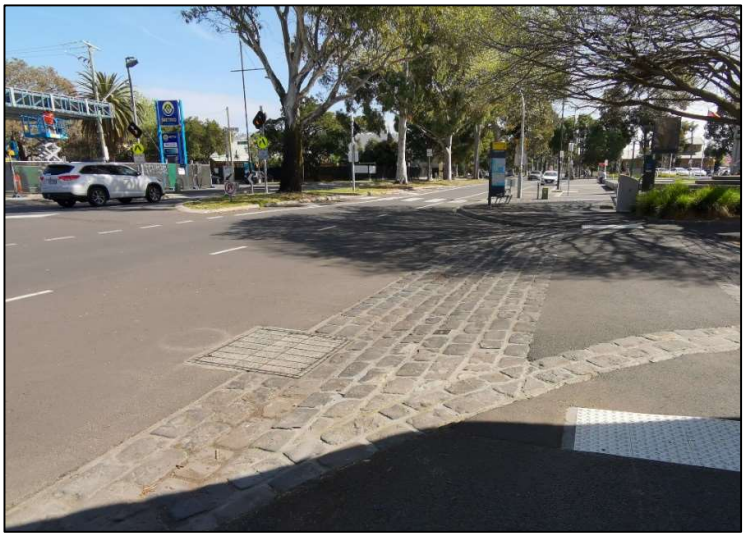
On westbound lane of Ferguson Street facing north.

On westbound lane of Ferguson Street facing west.

On eastbound lane of Ferguson Street, facing east.

At Wellington Parade/Ferguson Street, no indication of bike lane.

At Bath Place / Ferguson Street, no indication of bike lane.



Pedestrian Crossing near Melbourne Road. Vehicles that have crossed the roundabout at Melbourne Road and entered Ferguson Street are met with this type of road environment that does not lend itself to a 40km/h speed environment. Raising the pedestrian crossing, installing electronic 40km/h signs and installing separated bike lanes would help reduce through speeds.

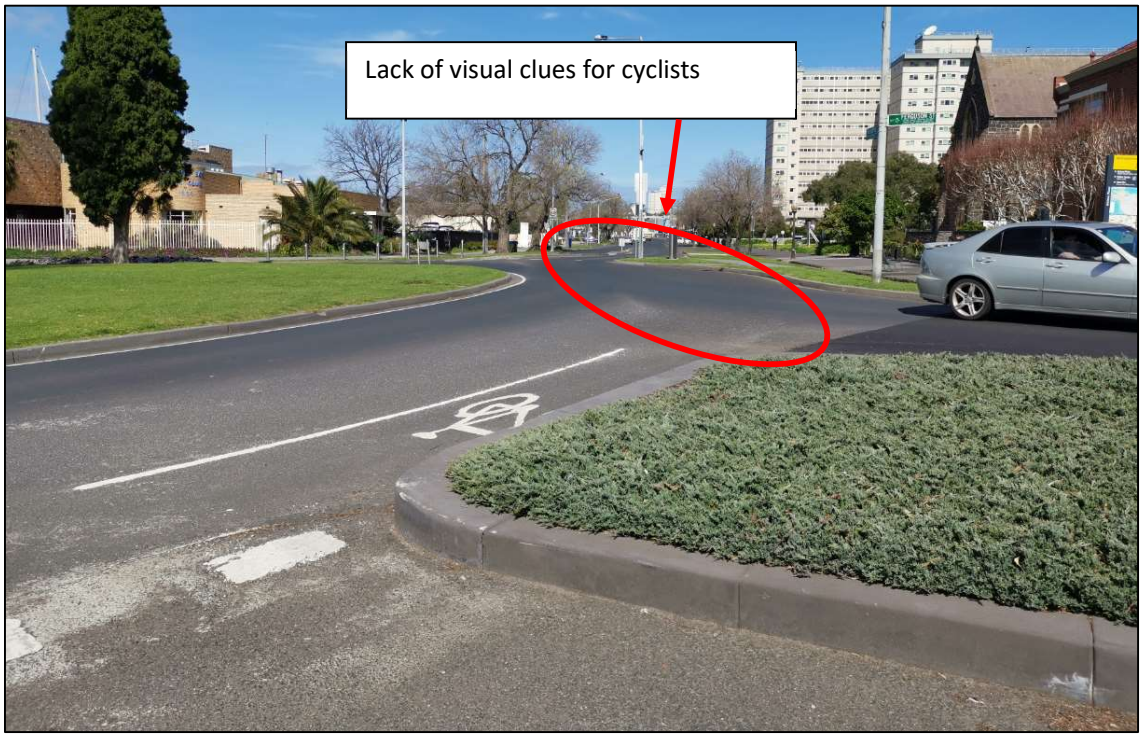
At Lyons Street/Ferguson Street, installing kerb outstand on the western side of the intersection will bring the give way line further north and provide better sight distance for entering traffic.

At Cecil Place/Ferguson Street, faded bike path markings.

At Aitken Street/Ferguson Street, faded bike path markings.

Nelson Place at Ferguson Street, northbound facing on southern leg of roundabout, cyclist have no defined path to ride in and hence lose conspicuity,

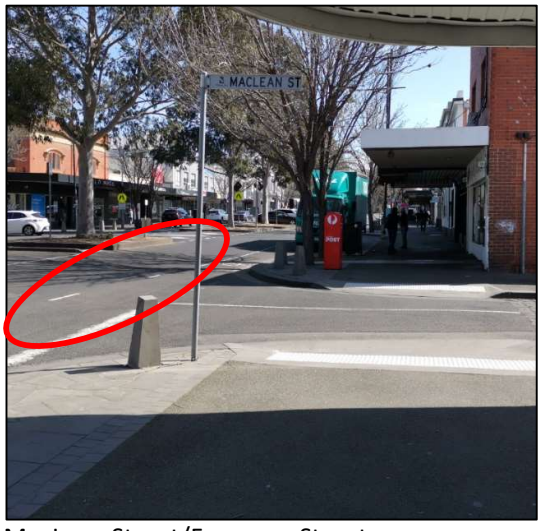
At Ferguson Street, in eastbound lane looking south, here is the location where drivers have not been giving way to cyclists from the south. The photograph shows the bike lane markings does not continue south and cyclists may be overlooked.



Various side roads of Ferguson Street where the bike path crosses. Note bike lane has faded and does not raise prominence of cyclists.

James Street/Ferguson Street


Alfred Place/Ferguson Street



MacLean Street/Ferguson Street


Coxs Garden/Ferguson Street

At Douglas Parade/Ferguson Street, no indication of cyclists within roundabout:

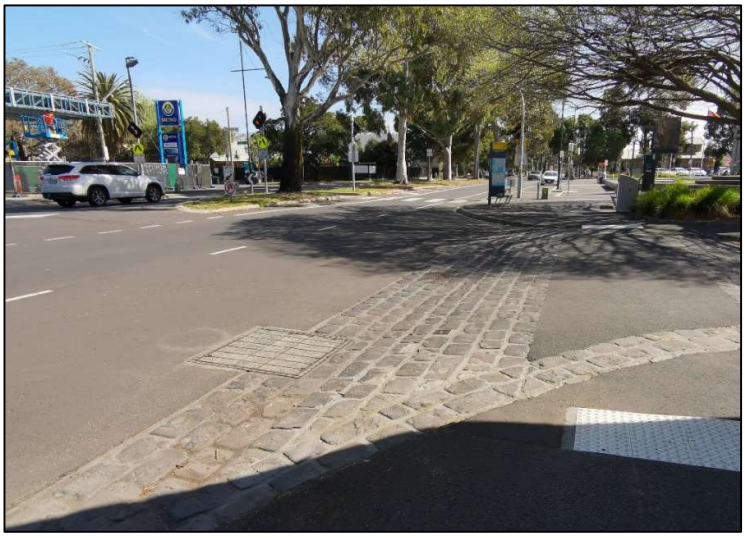
On westbound lane of Ferguson Street facing north.

On westbound lane of Ferguson Street facing west.

On eastbound lane of Ferguson Street, facing east.

At Wellington Parade/Ferguson Street, no indication of bike lane.

At Bath Place / Ferguson Street, no indication of bike lane.



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