RECEIVED
24 OCT 2018

A thriving community
where everyone belongs

19 October 2018

Ms Martina Johnson
Director Outer Melbourne
Victorian Planning Authority
Level 25, 35 Collins Street
MELBOURNE VIC 3000

[redacted]

Dear Martina

Amendment C201 – Mount Atkinson and Tarneit Plains Infrastructure Contributions Plan

We would like to thank the VPA for providing us an extension of time to consider the Mount Atkinson and Tarneit Plains Infrastructure Contributions Plan and provide comment on this important document.

Council, at its ordinary meeting on 15 October 2018, resolved to endorse and submit Council's submission to the Victorian Planning Authority requesting changes to Planning Scheme Amendment C201. Please refer to copy of submission and Council minutes attached.

[redacted]

Att. Ordinary Meeting of Council Minutes 15 October 2018 and Melton City Council submission to the Mount Atkinson and Tarneit Plains ICP.

CITY OF MELTON

A Thriving Community Where Everyone Belongs

C201 Mt Atkinson and Tarneit Plains Infrastructure Contributions Plan

Exhibition Submission by Melton City Council, 15 October 2018

Contents

1. Introduction

The City of Melton welcomes the opportunity to comment on the Planning Scheme Amendment documentation for C201 which comprises the following:

1. Mt Atkinson and Tarneit Plains Infrastructure Contributions Plan, August 2018; and
2. Planning Scheme Ordinance including Infrastructure Contributions Overlay Schedule 3.

Melton City Council acknowledges the hard work that the Victorian Planning Authority (VPA) has undertaken to finalise the documentation associated with this Infrastructure Contributions Plan (ICP).

Melton City Council has had the cost estimates for the infrastructure projects peer reviewed to ensure that the cost estimates are reasonable and reflective of the actual construction costs.

This submission recommends changes that should be made to Mt Atkinson and Tarneit Plains ICP and ordinance related to C201.

2. Key Issues

There are a number of key issues which need to be considered and addressed prior to Melton City Council (MCC) providing support for the amendment. These are issues that are considered to have a significant impact on MCC's ability to implement the PSP and the ICP.

2.1 Discrepancies with the approved Precinct Structure Plans

A number of discrepancies have been identified between the proposed Infrastructure Contributions Plan (ICP) and the approved Mt Atkinson and Tarneit Plains Precinct Structure Plan. The PSP constitutes the strategic justification for the ICP. The information in the ICP and the PSP should match each other substantively and adopt consistent language.

In particular, Council is concerned that a number of the project descriptions in the ICP do not match the project descriptions in the PSP.

It is noted that the staging in the ICP for many of the projects do not match the staging in the PSP.

Given that the PSP is an incorporated document in the Melton Planning Scheme, Council requests that information in the ICP and the PSP be the same.

2.2 Transport Construction Project Costs

Melton City Council has undertaken a review of the transport projects in the Mt Atkinson and Tarneit Plains ICP. The review has found that whilst many of the projects have been identified as being benchmark projects, the Functional Layout Plans in the ICP for these projects are bespoke designs, and therefore should have be costed based on those designs.

WT Partnership have prepared detailed cost estimates based on the bespoke FLPs in the Mt Atkinson and Tarneit Plains ICP, which are attached at **Appendix One**. Council requests that the cost estimates prepared by WT Partnership are used for the ICP, as the benchmark costs are not based on these designs.

WT Partnership's review has found that the transport projects apportioned to the Mt Atkinson and Tarneit Plains ICP will cost $120,071,318 to deliver, whereas the VPA have estimated the delivery cost at $105,948,255. This results in a difference of $14,123,063 in the value of the transport projects.

The standard levy for Transport Construction in the ICP is $114,062 per hectare which raises $103,412,031. The standard levy has a shortfall of $16,659,287 which should be made up for by the supplementary levy.

The supplementary levy would need to be raised from $2,797 per net developable hectare proposed by the exhibition version of C201 to $18,375 per net developable hectare to cover the construction of the basic and essential transport projects.

The supplementary levy could applied to the three bridge projects (BR-01, BR-02, and BR-03), and the one culvert project (CU-01)

2.3 Community and Recreation Construction Levy

Melton City Council raises concerns with the current capped rate for the Community and Recreation Construction levy.

Exhibited ICP Project Cost Estimates

Using the Community and Recreation Project Costs in the exhibited ICP the community and recreation projects in the Mt Atkinson and Tarneit Plains ICP area will cost $60,113,990 to deliver, and Council will collect $35,567,313 from the Community and Recreation Construction levy to fund these projects, which results in a shortfall of $24,546,677. The levy will collect 59.2% of the money required to construct essential community and recreation infrastructure. This percentage is less than what is currently collected for community and recreation infrastructure in approved DCP's in the City of Melton.

Peer Review Project Cost Estimates

The VPA have used the benchmark costs for the Level 1 and Level 2 Community Centres, and have developed bespoke costs for the active open space reserves (and pavilions).

Melton City Council had the Community and Recreation projects in the *Review of Benchmark Infrastructure Costings* prepared by Cardno for the VPA peer reviewed by Turner and Townsend.

Turner and Townsend have prepared detailed cost estimates and have found the following differences in value for community and recreation projects:

Project	ICP Estimate	TT Estimate	Difference	% Difference
Level 1 Community Centre	6,398,000	6,451,000	- 53,000	- 0.8%
Level 2 Community Centre	7,648,000	7,730,000	- 82,000	- 1.1%
6ha Active Open Space (with pavilion)	10,347,000	11,042,000	- 695,000	- 6.7%
10ha Active Open Space (with pavilion)	14,655,000	12,872,000	1,783,000	12.2%

In the context of the Mt Atkinson and Tarneit Plains ICP context there are two Level One Community Centres, one Level Two Community Centre, two 10 hectare Active Open Space Reserves, and one six hectare Active Open Space Reserve.

Overall the differences in value between Turner and Townsend's cost estimates and the VPA's cost estimates are minor.

The 6 and 10 hectare active open space reserves have a bespoke value that Council thinks is reasonable as extensive earthworks that will need to be undertaken to create open space on the slopes of Mt Atkinson (it is noted that one of the reserves has a fall of eight metres across its length (east-west)).

Using the figures prepared by Turner and Townsend the community and recreation projects in the Mt Atkinson and Tarneit Plains ICP area will cost $57,418,000 to deliver, and Council will collect $35,567,313 from the Community and Recreation Construction levy to fund these projects, which results in a shortfall of $21,850,687. Based on the Turner and Townsend figures, the levy will collect 62% of the money required to construct essential community and recreation infrastructure. This percentage is less than what is currently collected for community and recreation infrastructure in approved DCP's in the City of Melton.

The cumulative community and recreation construction shortfall for Mt Atkinson and Tarneit Plains, and the Kororoit and Plumpton PSP areas is $57,830,894.

Council requests the Department of Environment, Land, Water and Planning (DELWP) work

with the Victorian Planning Authority and Growth area Councils to review the cost of delivering essential community infrastructure as part of the benchmark cost document being prepared by the VPA to ensure that the levy is fair and reasonable, and appropriate to deliver this essential infrastructure.

Council notes that it is currently exploring mechanisms and delivery models to help manage the funding contribution it makes to the delivery of infrastructure. However, there is a concern that an overall increased shortfall is unmanageable for Council particularly in a rate capping environment.

2.4 Mt Atkinson Indoor Recreation Centre

The previous Ministerial Direction released on 20 October 2016, allowed for the purchase of land for an *indoor sports facility* in Section 21, Table 5.

In the revised Ministerial Direction released on 2 July 2018, an *indoor sports facility* is no longer listed as a *public land allowable item*. Council has sought clarification from the VPA on this matter, and they have been informed by DELWP that the removal of this was an error and it will be reinstated as a *public land allowable item* in a future update of the Ministerial Direction.

Based on the information provided by DELWP to the VPA, we request that the indoor sports facilities remain as public land allowable items in the ICP (or are otherwise caught up by the remaining provisions). We request that the Ministerial Direction error to be rectified by DELWP prior to the ICP being approved and gazetted.

Should the Ministerial Direction not be updated prior to the gazettal of the ICP, it may result in difficulties for Council when negotiating the acquisition of land with landowners.

Council notes that a similar problem existed with Amendment C195 to the Melton Planning Scheme, the Kororoit and Plumpton Infrastructure Contributions Plan. We note that the Planning Panel for Amendment C195 recommended a clause be added to the Kororoit and Plumpton ICP to address this matter. The clause should:

a) Note that the Minister exempts the Infrastructure Contributions Plan from complying with Table 7 of Annexure 1 in respect of the Plumpton Aquatics Centre.
b) State that the exemption has been granted on the basis that 'land for indoor sports facilities' was unintentionally excluded from the Ministerial Direction when it was revised as a result of the commencement of the *Planning and Environment Amendment (Public Land Contributions) Act 2018*.
c) Confirms that the Precinct Structure Plan specifies that the relevant land is to be set aside for the purposes of 'indoor sports facilities'.

We request that a similar clause be added to the Mt Atkinson and Tarneit Plains ICP.

2.5 Implementation of the Infrastructure Contributions System

Melton City Council is concerned that there is still a lack of clarity on how the new Infrastructure Contributions system will operate, particularly how Councils are expected to implement the changes to public land contribution system. It is difficult to evaluate the appropriateness of the ICP in the absence of the Ministerial Direction as consistency with this direction is a key evaluative tool. For example, in relation to land credits and payment the note to the new Section 46GW states '*The method for calculating the land credit amount is specified in a Minister's direction applying to the approved infrastructure contributions plan'*. Council reserves its position in this regard.

Council seeks clarification on how the Infrastructure Contributions System will operate for the following matters:

- What process will be undertaken to calculate the rate that public land will be indexed? This has implications for the amount of money that Council will administer through the land equalisation and credit process.
- When is Council required to pay landowners the land credit for the over provision of land?

Council would like information on the reporting arrangements for the land credit and equalisation process. What information is required to be provided to the Minister for Planning on public land contributions?

In the Development Contributions system Councils are prohibited from placing money in accounts that accrue interest. Council interprets that the under the new system equalisation money can be held in an account that accrues interest, in order to minimise the risk to Council that land credits may exceed the land equalisation amount over time. Confirmation of this issue is sought.

3. Detailed Comments and Recommended Changes

In addition to the issues and recommendations outlined in Section 2, the following tables provide detailed comments on the draft documentation and recommended changes to each document which forms part of the C201.

- The Mt Atkinson and Tarneit Plains Infrastructure Contributions Plan; and
- Planning Scheme Ordinance, including ICO3 and associated mapping.

Table 1: Infrastructure Contributions Plan

Item No.	Section, Page no.	Comment	Recommended Change
1	General Comment	The wording in the Mt Atkinson PSP and the ICP should match, this includes information in the project descriptions, and the staging of projects.	VPA make changes to ensure that the information in the PSP and the ICP match. (Refer section 2 of this submission for detail)
	Section 2.2	**Planning and Environment Act 1987**	
2	p.5	Incorrect reference made to Clause 45.10 to the Infrastructure Contributions Overlay	Change reference to the Infrastructure Contributions Overlay from Clause 45.10 to Clause 45.11
	Table 5	**Monetary Component Standard Levy Transport Projects**	
		Road Projects	
3	p.12-13	The staging for road projects RD-01, RD-02, RD-04, RD-05, RD-07, RD-08, RD-11, and RD-12 do not match the staging in the approved PSP.	VPA make changes to ensure that the information in the PSP and the ICP match.
4	p.12-13	The project description for road project RD-01 does not match the description of this project in the approved PSP.	Change the description of this road project to match the description in the approved PSP: *Construction of a 2 lane carriageway, excluding intersections (interim treatment) within the existing Greigs Road reserve.*
5	p.12-13	The project description for road projects RD-02, RD-03, RD-04, RD-05, RD-06, RD-07, RD-08, RD-09, RD-10, RD-11, and RD-12 do not match the description of these projects in the approved PSP.	Change the description of the road projects to match the description in the approved PSP: *Construction of a 2 lane carriageway, excluding intersections (interim treatment).*
		Intersection Projects	
6	p.14-16	The staging for intersection projects IT-03, IT-05, IT-07, IT-08, IT-13, and IT-16 do not match the staging of these projects in the approved PSP.	VPA make changes to ensure that the information in the PSP and the ICP match.
		Bridge Projects	
7	P.16	The staging for culvert project CU-01 t does not match the staging for this project in the approved PSP.	VPA make changes to ensure that the information in the PSP and the ICP match.

Item No.	Section, Page no.	Comment	Recommended Change
		Pedestrian Crossing Projects	
8	p.16	PS-02 the title of this project does not match the PSP.	Change the project title of PS-02 to match the PSP. The title should be **Pedestrian Signals – Boulevard Connector Road**.
	Table 6	**Monetary Component Supplementary Levy Transport Projects**	
		Bridge and Culvert Projects	
9	p.17	The staging for culvert project CU-01 does not match the staging of this project in the approved PSP.	VPA make changes to ensure that the information in the PSP and the ICP match.
	Table 7	**Monetary Component Community and Recreation Projects**	
		Community Building Projects	
10	p.20	The staging for community building project CI-04 does not match the staging of this project in the approved PSP.	VPA make changes to ensure that the information in the PSP and the ICP match.
		Recreation Projects	
11	p.21	The staging of recreation projects OS-02 and OS-03 do not match the staging of these projects in the approved PSP.	VPA make changes to ensure that the information in the PSP and the ICP match.
	Plan 4	**Public Land Provision**	
12	p.23	Land is required for the provision of BR-02 (p.27), however this is not shown on Plan 4	Plan 4 should show project BR-02
	Table 8	**Public Purpose Land Component Projects**	
		Road Projects	
13	p.25	The staging of road projects RD-02, RD-04, RD-05, RD-07, RD-08, and RD-11 do not match the staging of these projects in the approved PSP.	VPA make changes to ensure that the information in the PSP and the ICP match.
		Intersection Projects	

Item No.	Section, Page no.	Comment	Recommended Change
14	p.26-27	The staging of intersection projects IT-03, IT-05, 17-07, IT-08, IT-13, and IT-16 do not match the staging of these projects in the approved PSP.	VPA make changes to ensure that the information in the PSP and the ICP match.
15	p.26-27	The project descriptions for intersection projects IT-02, IT-03, IT-04, IT-05, IT-06, IT-07, IT-08, IT-09, IT-10, IT-11, IT-12, IT-13, IT-14, IT-15 and IT-16 do not match the project descriptions of these projects in the approved PSP.	Simplify the project description of the intersection projects to read: *Purchase of land for an intersection at an ultimate standard.*
		Community and Recreation Projects	
16	p.27-28	The staging of community and recreation projects CI-04, OS-02, OS-03, OS-13, OS-19, OS-21, OS-25, OS-26, OS-31, OS-32, OS-33, and OS-36 do not match the staging of these projects in the approved PSP.	VPA make changes to ensure that the information in the PSP and the ICP match.
	Section 5.9.1	**Temporary Works**	
17	p.40	The Mt Atkinson ICP refers to Section 5.9.1 as *Temporary Works*, whereas the Plumpton and Kororoit ICP refers to it as *Interim and Temporary Works*. Council prefers the wording in the Plumpton and Kororoit ICP, as this is a more inclusive description.	Change the wording of section 5.9.1 to *Interim and Temporary Works*.
	Table 17	**Parcel Specific Land Use Budget**	
18	p.52	The net developable area for property R5 in Table 17 in the ICP do not match the areas in Appendix A in the Mt Atkinson and Tarneit Plains PSP. The net developable area for R5 in Table 17 in the ICP is 3.24 hectares, whereas the PSP identifies 3.56 hectares.	VPA make changes to ensure that the information in the PSP and the ICP match.
	Appendix 4	**Infrastructure Elements**	
19	p.63	IT-03 the ultimate kerb alignment of the intersection is not included.	IT-03 should be amended to include the ultimate kerb alignment.
20	p.64	IT-04 the industrial road width in the ICP (29.0m) does not match the cross-section in the PSP (26.0m).	IT-04 should be amended to match the industrial road cross-section width in the PSP.

Item No.	Section, Page no.	Comment	Recommended Change
21	p.65	IT-05 the secondary road width in the ICP (37.5m) does not match the cross-section in the PSP (34.0m).	IT-05 should be amended to match the secondary road cross-section in the PSP.
22	p.69	IT-09 the secondary road width in the ICP (37.5m) does not match the cross-section in the PSP (34.0m).	IT-09 should be amended to match the secondary road cross-section in the PSP.
23	p.69	IT-09 the connector road width in the ICP (33.3m – 31.0) does not match the cross-section in the PSP (31.0m – 28.0m).	IT-09 should be amended to match the connector road cross-section in the PSP.
24	p.70	IT-10 the industrial connector road width in the ICP (25.0m) does not match the cross-section in the PSP (26.0m).	IT-10 should be amended to match the industrial connector road cross-section width in the PSP.
25	p.71	IT-11 the industrial connector road width in the ICP (25.0m) does not match the cross-section in the PSP (26.0m).	IT-11 should be amended to match the industrial connector road cross-section width in the PSP.
26	p.72	IT-12 the two secondary road widths in the ICP (37.5m) do not match the cross-section in the PSP (34.0m).	IT-11 should be amended to match the secondary road cross-section in the PSP.
27	p.73	IT-13 the secondary road width in the ICP (37.5m) does not match the cross-section in the PSP (34.0m).	IT-13 should be amended to match the secondary road cross-section in the PSP.
28	p.74	IT-14 the ultimate kerb alignment of the intersection is not included.	IT-14 should be amended to include the ultimate kerb alignment.
29	p.75	IT-15 the secondary road width in the ICP (37.5m) does not match the cross-section in the PSP (34.0m).	IT-15 should be amended to match the secondary road cross-section in the PSP.
30	p.76	IT-16 the ultimate kerb alignment of the intersection is not included.	IT-16 should be amended to include the ultimate kerb alignment.

Table 2: Planning Scheme Ordinance

Item No.	Section, Page no.	Comment	Recommended Change
	Cl. 45.11	**Infrastructure Contribution Overlay , Schedule 3**	
31		No change requested.	-
	Cl. 61.03	**Planning Scheme Maps**	
32		No change requested.	-
	Cl. 81.01	**Incorporated Documents**	
33		No change requested.	-
		Explanatory Report	
34		No change requested.	-

4. Conclusion

Melton City Council officers are generally supportive of the proposed infrastructure projects which accompanies the amendment documentation, however cannot provide full support of the ICP documentation itself until the issues and comments contained within this submission have been resolved. Of particular note are the following:

- The ICP should match the approved PSP. Council has identified a number of discrepancies including the staging of projects, project descriptions, and land areas of projects;
- Given that the transport projects in the Mt Atkinson and Tarneit Plains ICP area based on bespoke designs, it is inappropriate for the VPA to use benchmark costs for these projects. Council requests that the VPA use the cost estimates prepared by WT Partnership that accompany this submission;
- The three bridge projects (BR-01, BR-02 and BR-03) and the culvert project (CU-01) should be supplementary levy items to ensure adequate money is collected to cover the cost of construction of the required transport projects. The supplementary levy should be increased to $18,375 per net developable hectare to cover the cost of constructing the transport projects;
- Review the arrangements relating to the *Mt Atkinson Indoor Recreation Centre* to add a clause that confirms that the land is required for the purpose of an indoor sports facility as per Amendment C195 (Plumpton and Kororoit Infrastructure Contributions Plan) to the Melton Planning Scheme; and
- Direction be provided to Councils on how the public land contribution system will operate:
    - Details to be provided on how the public land contributions will be indexed annually.
    - When should land equalisation be paid to Council, and when should land credit amounts be paid to landowners.
    - Can land equalisation money be held in an account that accrues interest.

Council recommends that the Department of Environment, Land, Water and Planning work with the Victorian Planning Authority and Councils to review the Community and Recreation Construction Levy, given the shortfall between the money collected and the actual cost of delivery of this infrastructure. For the Mt Atkinson and Tarneit Plains ICP area only 62% of the money required for the construction of essential community and recreation infrastructure will be collected. It is worth noting that the cumulative community and recreation construction shortfall for Mt Atkinson and Tarneit Plains, and the Kororoit and Plumpton PSPs which are all under the ICP systems is $57,830,894.

Council officers would welcome the opportunity to have further detailed discussion with the Victorian Planning Authority to resolve the issues outlined in the submission prior to any planning panel process in the interest of expediting the approval of the final ICP.

Cr Kesic left the Chamber at 8:09pm.

Cr Kesic returned to the Chamber at 8:12pm.

12.12 AMENDMENT C201 TO THE MELTON PLANNING SCHEME - MT ATKINSON AND TARNEIT PLAINS INFRASTRUCTURE CONTRIBUTIONS PLAN

Author: Matthew Milbourne - Senior Strategic Planner
Presenter: Laura-Jo Mellan - Manager City Design, Strategy & Environment

PURPOSE OF REPORT

To present Melton City Council's submission to Planning Scheme Amendment C201 to the Melton Planning Scheme – Infrastructure Contributions Plan for the Mt Atkinson and Tarneit Plains Precinct Structure Plan.

RECOMMENDATION:

That Council:

1. Endorse and submit **Appendix 2** to the Victorian Planning Authority requesting changes to the Infrastructure Contributions Plan for the Mt Atkinson and Tarneit Plains Precinct Structure Plan.
2. Authorise the General Manager Planning and Development and the Manager City Design, Strategy and Environment to negotiate and resolve issues with the Victorian Planning Authority.
3. Write to the Minister for Planning to request that the Community and Recreation Construction Levy be reviewed to ensure that the levy is fair and reasonable, and appropriate to deliver this essential infrastructure.

Motion

Crs Hardy/Kesic.

That the recommendation be adopted.

CARRIED

REPORT

1. Executive Summary

The Victorian Planning Authority (VPA) has recently released Amendment C201 to introduce the Mt Atkinson and Tarneit Plains Infrastructure Contributions Plan (ICP) into the Melton Planning Scheme. The ICP can be found at **Appendix 1**.

The ICP complements the Mt Atkinson and Tarneit Plains Precinct Structure Plan (PSP) that was incorporated into the Melton Planning Scheme on 12 September 2017. The ICP is the statutory mechanism which specifies the monetary and public land contributions that

developers will make to Council to provide essential works and services for new communities in the Mt Atkinson and Tarneit Plains PSP area.

It is noted that the proposed ICP exhibited as Amendment C201 will replace an existing ICP which was incorporated into the Melton Planning Scheme on 12 September 2017 with the PSP. The new ICP has been prepared in response to the changes made to *Planning and Environment Amendment (Public Land Contributions) Act 2018* which came into effect on 1 July 2018.

Officers have reviewed the information provided by the VPA in respect of the ICP and have prepared a detailed submission which is attached at **Appendix 2** to this report. In summary, there are four key issues identified in the submission:

- The VPA have used benchmark infrastructure costs for transport projects. However the transport project designs are specific to the Mt Atkinson and Tarneit Plains PSP. It is therefore considered that the costs should reflect the PSP specific designs and not be based on benchmark costs.
- The ICP levy will contribute only 62% of the money required to build community and recreation infrastructure projects. Whilst it is understood that the levy is a contribution only for these projects, it is a departure from the Development Contribution Plan system where Council was able to recover a greater proportion of money to construct this infrastructure.
- There are discrepancies between the exhibited ICP and the approved PSPs. Discrepancies include project descriptions, land areas, and the staging of projects.

The information contained in Amendment C201 to the Melton Planning Scheme provided by the VPA presents a financial risk to Council in the delivery of the required transport, and community and recreation infrastructure. Whilst recognising that the levies are intended to provide contributions to the delivery of infrastructure and it is expected that Council will also contribute, officers do not believe that the intention of the new ICP system was to place increased financial burdens on Council.

2. Background/Issues

The Mt Atkinson and Tarneit Plains PSP and ICP was incorporated into the Melton Planning Scheme on 12 September 2017.

The ICP system has replaced the Development Contribution Plan (DCP) system in respect of the collection of financial contributions to fund the construction of community, recreation and transport infrastructure, and purchase land identified in the preparation of the PSPs. Although all existing DCP's are still retained.

The ICP system was first implemented in June 2016. Initially the ICP system had three levies, which collected money for the purchase of land, the construction of transport projects, and the construction of community and recreation projects. Under this system money could be shared between the public land and transport levies if there was a surplus in one and a shortfall in the other.

The Mt Atkinson and Tarneit Plains ICP approved in 2017 was a standard levy ICP as it was sharing money between the public land and transport construction levies. The over-contribution of money in the public land levy was offsetting the under-contribution of money in the transport construction levy.

The Mt Atkinson and Tarneit Plains ICP approved in 2017 had a shortfall in the community and recreation construction levy as a supplementary levy is not allowed for community projects. The shortfall for the construction of community and recreation projects in the Mt Atkinson and Tarneit Plains ICP (2017) was estimated to be $8,161,656.

On 1 July 2018 the ICP system was changed by the *Planning and Environment Amendment (Public Land Contributions) Act* 2018.

The changes to the ICP system introduces a new public land contributions model for the ICP system. The new land contribution model requires land for public purposes to be provided as part of an infrastructure contributions when land is developed, and replaces the public land component of the standard levy.

The ICP that was approved in 2017 for the Mt Atkinson and Tarneit Plains PSP area was required to be changed to reflect the changes to the ICP system.

The rates for the transport construction levy, and the community and recreation construction levy are set by the Minister for Planning every year. The current rates for the 2018/19 financial year are detailed in Table 1 below:

Table 1: 2018/19 Infrastructure Levy Rates

Class of development	Community & Recreation Construction / hectare	Transport Construction / hectare	Total Levy Rate / hectare
Residential	$86,627	$114,062	**$200,689**
Commercial & Industrial	-	$114,062	**$114,062**

The VPA prepared cost estimates for the transport construction, and community and recreation construction projects.

If there is a shortfall between the amount being collected and the amount to be expended for the construction of transport projects, a supplementary levy can be applied to ensure that the cost of the construction of transport projects are fully recovered.

The community and recreation construction levy is a fixed rate, and it is not possible for community and recreation projects to be dealt with through a supplementary levy.

Exhibited C201
The exhibited Mt Atkinson and Tarneit Plains ICP standard levy rates and cost estimates for infrastructure projects are detailed in Table 2 below:

Table 2: Standard Levy Calculation

Class of development	Amount Collected	Project Values	Shortfall
Community & Recreation Construction Levy	$35,567,314	$60,113,990	**$24,546,676**
Transport Construction Levy	$103,412,031	$105,948,255	**$2,536,224**
Total	**$138,979,345**	**$166,062,245**	**$27,082,900**

Based on the deficit in the transport infrastructure construction levy, the VPA proposes a supplementary levy of $2,797 per net developable hectare to ensure that transport infrastructure construction is covered. The details of the supplementary levy proposed for the Mt Atkinson and Tarneit Plains ICP is detailed below in Table 3:

Table 3: Supplementary Levy Calculation

Class of development	Amount Collected	Project Values
Transport Construction Levy	$105,947,875	$105,948,255

As a supplementary levy cannot be applied to the community and recreation levy, the deficit for the community and recreation projects in Table 2 does not change.

Council officers have reviewed the information provided by the VPA in respect to the ICP and have prepared a detailed submission which is attached at **Appendix 2** to this report.

Council officers have had the transport designs and costs in the Mt Atkinson and Tarneit Plains ICP peer reviewed, which has revealed further shortfalls in the transport construction levy.

Council have identified the following high level issues with the ICP:

Shortfall in the Construction of Transport Projects
As the PSP was developed prior to the commencement of the *benchmark infrastructure costing* project by the VPA the design of the intersection and bridge projects did not ultilise the standard designs being prepared by the VPA. However the VPA has sought to apply the draft benchmark costs for these projects in the ICP.

Officers do not support the use of benchmark costs for the transport projects, as the VPA have used non-standard (bespoke) designs for these projects.

WT Partnership were engaged to provide costings for the transport projects, based on the designs prepared by the VPA to support the approved PSP.

There is a $14,123,063 difference between the VPA's cost estimate of $105,948,255 to construct the transport projects and WT Partnership's estimate of $120,071,318.

Based on the cost estimates prepared by WT Partnership the supplementary levy should be increased from $2,797 per net developable hectare to $18,375 per net developable hectare.

The supplementary could be applied to additional bridge and culvert projects in the ICP.

Shortfall in the Construction of Community and Recreation Projects
As noted above the community and recreation construction levy rate is a set rate, and it is not possible for community and recreation projects to be dealt with through a supplementary levy.

The VPA have used the draft benchmark costs prepared for Level 1 and Level 2 Community Centres. These costs were peer reviewed by Turner and Townsend, who arrived at similar costs for these projects. The cost estimates for these assets are not disputed.

The VPA have used bespoke costs for the 6 and 10 hectare active open space reserves. The peer review by Turner and Townsend arrived at similar costs for these projects. The cost estimates for these assets are not disputed.

The estimated costs of constructing the community and recreation projects prepared by the VPA, and the peer review estimates by Turner and Townsend are detailed in Table 4 below:

Table 4: Estimated Cost of Constructing Community and Recreation Projects

Cost Estimate for Community & Recreation projects	Levy Amount Collected	Project Values	Shortfall
VPA	$35,567,314	$60,113,990	**$24,546,676**
Turner and Townsend	$35,567,314	$57,418,000	**$21,850,686**

Based on Turner and Townsend's cost estimates, the community and recreation construction levy will only collect 62% of the money required to construct essential community and recreation infrastructure, which is a departure from the DCP system where Council was able to recover a greater proportion of the money required to construct this infrastructure.

Council officers recommend that Council write to the Minister for Planning to request that the Community and Recreation Construction Levy be reviewed to ensure that the levy is fair and reasonable, and appropriate to deliver this essential infrastructure.

Discrepancies with the Approved Precinct Structure Plan
A number of discrepancies have been identified between the proposed ICP and the approved PSP. Council requests that the information in the ICP and the PSP should match each other. Discrepancies include project descriptions, land areas, and the staging of projects. The VPA have indicated that some of these discrepancies are clerical errors.

3. Council and Wellbeing Plan Reference and Policy Reference

The Melton City Council 2017-2021 Council and Wellbeing Plan references:

3. A well planned and built City: A City with a clear vision to manage growth in a sustainable and accessible way

3.1 A City that strategically plans for growth and development.

4. Financial Considerations

Once development commences funds are expected to be collected by Council as outlined in the ICP. The ICP identifies the projects to be funded, the money to be collected, and expended in the delivery of essential community and recreation, and transport infrastructure.

Based on the current information provided by the VPA the information highlights a significant financial risk to Council. Whilst recognising that the levies are intended to provide contributions to the delivery if infrastructure and it is expected that Council will also contribute, Council officers do not believe the intention of the new ICP system was to place such financial burden on Council.

5. Consultation/Public Submissions

The VPA formally exhibited the ICP for one month with the submission closing on Friday, 14 September 2018.

Council's request for an extension of time to make a submission has been granted by the VPA to allow the submission to be presented to Council.

The VPA sent letters to landowners within the Mt Atkinson and Tarneit Plains PSP area and adjacent properties at the beginning of the exhibition period, notifying them on an opportunity to comment on the amendment documentation.

All affected parties were provided an opportunity to make a submission to the VPA on the ICP and associated amendment documentation.

6. Risk Analysis

The ICP presents financial risk to Council and has the potential to damage Council's reputation with the community if we cannot deliver the required services to the local community.

As outlined in this report and detailed at Appendix 2 there are actions that Council should take to mitigate the risk:

- Request the VPA use WT Partnership's detailed cost estimates that have been based on the specific transport project designs in the ICP.
- Advocate to the Minister for Planning to review and address the significant deficit in the community and recreation construction levy.

7. Options

Council has the option to:

- Endorse the submission and recommendations of this report and make a submission as detailed at Appendix 2 to the VPA on Amendment C201 to the Melton Planning Scheme.
- Not endorse the recommendations, and choose not to make a submission to Amendment C201 to the Melton Planning Scheme.

LIST OF APPENDICES

1. Amendment C201 Exhibition Documents - Planning Scheme - Ordinance, and the Mt Atkinson and Tarneit Plains Infrastructure Contributions Plan - dated August 2018
2. Melton City Council Submission to Amendment C201 - dated 15 October 2018

WT PARTNERSHIP

MT ATKINSON & TARNEIT PLAINS ICP – MELTON CITY COUNCIL

INDEPENDENT PEER REVIEW – DRAFT V0.1

19 September 2018

CONTENTS

APPENDICES

1 INTRODUCTION

1.1 DECLARATION

1.1.1 I, Sian McKenna, am an Associate Director of WTP Australia Pty Ltd (WT), an Australian owned quantity surveying practice. A copy of my Curriculum Vitae ("CV") is attached to this report at Appendix B.

1.1.2 WT provides specialist consultancy services to the construction and engineering industries. The principle services provided by WT are cost management and quantity surveying, asset and facilities management, project controls and contract support services.

1.1.3 We have prepared this joint report and have made all enquiries which we believe are desirable and appropriate. No matters of significance which we regard as relevant have to our knowledge, been withheld in making this statement.

1.1.4 In preparing this report we have had regard to the duties and responsibilities set out in Division 2 of Part 31 of the Uniform Civil Procedure Rules 2005 (UCPR) and we agree to be bound by the Expert Witness Code of Conduct in Schedule 7 of the UCPR. We have also had regard to the Guide to Expert Evidence.

1.1.5 This report does not purport to prove facts. All references to facts are to be read as references to assumed facts. Facts have been assumed for the purpose of carrying out the cost estimates and reaching the conclusions contained within this report. When a fact has been assumed based on the readings of a document, a reference to that document is generally provided to that document in the relevant section of this report.

1.1.6 We have used the reference material briefed to us in the email from Melton City Council dated 14 August 2018 regarding the Mt Atkinson & Tarneit Plains Infrastructure Contributions Plan.

1.1.7 We understand that the immediate use of this statement is for Melton City Council.

19 September 2018

Date

Mrs Sian McKenna

1.2 EXPLANATION OF EXPERTISE

1.2.1 In our role as quantity surveyors we provide independent advice to both private and government clients offering independent assurance/validation that the estimates submitted as a representation of the construction costs for projects are market-related and relative to those that would be received in a competitive tendering environment.

1.2.2 Specific examples of projects that have relevance to the options that have been considered in this report are as follows:

PROJECT NAME	CLIENT	COMPLETION DATE	RELEVANCE TO THE REPORT
Level Crossing Removal Project – Project Options Report & Reference Design Stage	LXRA	2015- 2018	Provision of P50/P90 risk adjusted cost estimates for 30 selected sites for various cost options including Reference Design
Melbourne Airport Capital Works Program	APAM	Ongoing	Provision of various civil works cost estimates
OSAR Western Region	VicRoads	2016 - 2017	Provision of independent estimates
Wyndham North	Wyndham City Council	2015	Expert costings evidence for Wyndham City
Melton Amendment C145 – Rockbank PSP AND DCP	Melton City Council	2016	Expert costings evidence for Melton City Council
Melton Amendment C146 & C147 – Plumpton & Kororoit PSP	Melton City Council	2016	Expert costings evidence for Melton City Council
Taylors Road, Plumpton & Kororoit PSP	Melton City Council	2017	Peer Review for Melton City Council
North East Link	North East Link Authority	2017 - current	Provision of independent estimates

1.3 BRIEF DESCRIPTION OF THE MATTER

1.3.1 WTP have been engaged by Melton City Council to prepare a peer review of the costs included as part of the Mt Atkinson & Tarneit Plains Infrastructure Contributions Plan report prepared by the Victorian Planning Authority (VPA).

1.4 INSTRUCTIONS

1.4.1 WT has been requested to prepare cost estimates for Mt Atkinson & Tarneit Plains bespoke transport projects, RD-01 to RD-12 (inclusive), IT-01 to IT-16 (inclusive), BR-01, BR-02 and BR-03, and determine any differences to those costings provided by the VPA.

1.5 DOCUMENTS EXAMINED BY WT PARTNERSHIP

1.5.1 In preparing this report, we have been provided with, and have examined the following relevant documents:

AUTHOR	DATE(S)	REV NO.	DESCRIPTION
Cardno	Received August 2018	D2 – 23 July 2018	Review of Benchmark Infrastructure Costings
VPA	August 2018	N/A	Mt Atkinson & Tarneit Plains ICP
Melton City Council	14 August 2018	N/A	Scope requirements as per email of 14 August 2018

2 EXECUTIVE SUMMARY

2.1.1 This report has been prepared for Melton City Council as an independent review of the Benchmarked Infrastructure Costings prepared by Cardno for the Victorian Planning Authority (VPA) and seeks to identify any differences in scope and estimated costs.

2.1.2 All costs in this report exclude Goods & Services Tax (GST).

2.1.3 In the absence of any design criteria provided, we have made assumptions as detailed in Section 5 of this report and our detailed cost estimates.

2.1.4 We have prepared independent cost estimates for the transport projects, RD-01 to RD-12 (inclusive), IT-01 to IT-16 (inclusive), BR-01, BR-02 and BR-03. These estimates have been prepared using first principles estimating based upon current day rates and benchmarking from our internal database to derive a base case cost estimate.

2.1.5 We note that HV transmission towers and overhead wires run through the Mt Atkinson and Tarneit Plains ICP. It is assumed that any clashes with this existing infrastructure have been considered in the planning process and therefore there is no requirement for relocation underground. As such, any costs for the relocation of HV Transmission towers and associated works are excluded from our estimates.

2.1.6 We note that whilst Delivery Costs for Traffic Management has been applied as per the percentage set by the VPA (5%) there is a likelihood that this will be higher to projects interfacing with the Western Freeway and Hopkins Road (IT-01, IT-02, IT-03, IT-04, IT-14 & IT-16).

2.1.7 The base case cost estimates, excluding delivery costs, have been used as the basis of our Monte Carlo risk-based modelling to provide a P50 and P90 output with which to compare to the Benchmarked Infrastructure costings.

2.1.8 We note that the risk model has been applied to the base case construction value only and therefore is a representation of inherent risk (quantifiable uncertainties) only.

2.1.9 We note that no risk register has been developed as an assessment of Contingent Risk and it is assumed that the Contingency percentage applied as part of the 'Delivery' costs seeks to cover those unmeasured items outside of the base case estimate.

It is worthwhile noting that by undertaking an independent full risk assessment of the Mt Atkinson & Tarneit Plains ICP including Contingent Risks, the issues unique to the Melton Region such as rock, environmental, cultural and heritage could be analysed with a view to providing Council with confidence that the contingency percentages set by the VPA (15% Roads & Intersections / 20% Bridges) are sufficient.

2.1.10 WT's Independent P90 Estimate of transport projects RD-01 to RD-12 (inclusive), IT-01 to IT-16 (inclusive), and BR-02 is **$114,559,768**. This exceeds the VPA's Cost Estimates of **$96,796,637** by **$17,763,131** or **18.4%.**

2.1.11 WT's Independent P50 Estimate of transport projects BR-03 & CU-01 is **$1,672,268**. This is under the VPA's Cost Estimates of **$3,428,266** by **$1,864,148** or **51.2%.**

2.1.12 Our costs are based upon current day costs excluding escalation.

2.1.13 A detailed breakdown of all our cost estimates are attached as Appendix A.

3 REVIEW OF BENCHMARK INFRASTRUCTURE COSTINGS

The table below is a summary comparison of the P90 costs for Mt Atkinson and Tarneit Plains transport projects.

	BY VPA	BY WTP		
DESCRIPTION	TOTAL COST (INCLUDING DELIVERY) (A)	TOTAL COST (INCLUDING DELIVERY) (B)	DIFFERENCE (A - B)	DIFFERENCE %
	P90	P90	P90	P90
	$	$	$	
RD-01 Greigs Road: Outer Metropolitan Ring Road to North-South connector road	1,047,490	1,366,216	(318,726)	(30.0%)
RD-02 Greigs Road: North-South connector road to Mt Atkinson Road	3,348,589	4,367,484	(1,018,895)	(30.0%)
RD-03 Greigs Road: Mt Atkinson Road to North-South connector road	520,366	678,701	(158,335)	(30.0%)
RD-04 Greigs Road: North-South connector road to North-South connector road	429,133	559,708	(130,575)	(30.0%)
RD-05 Greigs Road: North-South connector road to Hopkins Road	351,416	458,343	(106,927)	(30.0%)

RD-06 Mt Atkinson Road: Greigs Road to east-west connector boulevard	4,156,170	5,420,793	(1,264,623)	(30.0%)
RD-07 Mt Atkinson Road: East-west connector boulevard to east-west connector road	2,311,236	3,014,490	(703,254)	(30.0%)
RD-08 Mt Atkinson Road: East-west connector road to Riding Boundary Road	412,238	537,672	(125,434)	(30.0%)
RD-10 Riding Boundary Road: Mt Atkinson Road to North-South connector road	1,748,112	2,278,496	(530,384)	(30.0%)
RD-11 Riding Boundary Road: North-South connector road to Hopkins Road	1,422,559	1,855,410	(432,851)	(30.0%)
RD-12 Mt Atkinson Road: Riding Boundary Road to east-west connector road	2,855,255	3,724,040	(868,785)	(30.0%)
IT-01 - Hopkins Road/ East West Connector Road - T Signalised & Signalised Roundabout (Interim)	6,683,624	8,862,599	(2,178,974)	(-33%)
IT-02 - Primary Arterial to Connector Road - T Signalised (Interim)	4,924,404	5,797,139	(872,736)	(-18%)
IT-03 - Primary Arterial to Secondary Arterial - T-Signalised (Interim)	3,939,112	4,831,842	(892,730)	(-23%)
IT-04 - Primary Arterial to Connector Boulevard - Signalised (Interim)	3,662,096	4,600,758	(938,662)	(-26%)
IT-05 - Secondary / Connector Boulevard - Cross-Signalised (Interim)	4,383,158	3,335,125	1,048,034	24%
IT-06 - Secondary / Connector Boulevard - Cross-Signalised (Interim)	5,145,136	4,495,342	649,794	13%
IT-07 - Secondary / Connector Boulevard - Cross-Signalised (Interim)	4,383,158	3,186,801	1,196,358	27%
IT-08 - Secondary / Connector Boulevard - Cross-Signalised (Interim)	3,103,121	3,304,759	(201,638)	(-6%)

IT-09 - Secondary / Connector Boulevard - Cross-Signalised (Interim)	4,383,158	3,186,813	1,196,345	27%
IT-10 - Secondary / Connector Boulevard - Cross-Signalised (Interim)	4,383,158	4,219,799	163,360	4%
IT-11 - Secondary / Connector Boulevard - Cross-Signalised (Interim)	4,383,158	5,369,469	(986,310)	(-23%)
IT-12 - Intersection - Secondary / Connector Boulevard - Cross-Signalised (Interim)	5,145,136	5,240,095	(94,959)	(-2%)
IT-13 - Secondary / Connector Boulevard - Cross-Signalised (Interim)	4,383,158	4,785,172	(402,014)	(-9%)
IT-14 - Primary Arterial to Secondary Arterial - T Signalised (Interim)	3,709,458	5,719,293	(2,009,835)	(-54%)
IT-15 - Secondary / Connector Boulevard - Cross-Signalised (Interim)	4,383,158	3,489,954	893,204	20%
IT-16 - Primary Arterial to Connector Road - T Signalised (Interim)	3,929,867	6,029,587	(2,099,720)	(-53%)
BR-02 - Pedestrian & Cycle Bridge across Melbourne-Ballarat Rail Corridor	6,127,907	12,354,252	(6,226,344)	(-102%)
TOTALS	**$ 96,796,637**	**$ 114,559,768**	**$ (17,763,131)**	**(18.4%)**

The table below is a summary comparison of the P50 costs for Mt Atkinson and Tarneit Plains transport projects.

	BY VPA	BY WTP		
DESCRIPTION	TOTAL COST (INCLUDING DELIVERY) (A)	TOTAL COST (INCLUDING DELIVERY) (B)	DIFFERENCE (A - B)	DIFFERENCE %
	P50	P50	P50	P50
	$	$	$	
BR-03 - Level Crossing Upgrade at Intersection of Hopkins Road & Melbourne-Ballarat Rail Corridor	938,150	541,399	396,751	42.3%
CU-01 - Box Culvert 3000 x 3000	2,490,116	1,130,869	1,359,247	54.6%
TOTALS	$ 3,428,266	$ 1,672,268	$ 1,864,148	51.2%

3.1 ROADS (RD-01 TO RD-12 INCLUSIVE)

3.1.1 As highlighted above, the cost estimates indicate a 30% cost difference for the road transport projects. This is due to the common basis of assessment, outlined as follows:

- VPA estimated costs for RD-01 to RD-12 (inclusive) are summarised in Section 3.2, Table 5, Monetary Component Standard Levy Transport Projects of the Mt Atkinson & Tarneit Plains ICP and are based upon VPA Benchmark Costing Item-02 – Secondary Arterial Road.
- No drawings have been provided for reference of the road projects other than Plan 2 in Section 3.1 of the ICP, therefore the length of road project has been assumed using the following calculation:
- $\text{P90 Secondary Arterial Road \$/m} = \frac{\text{P90 Total Benchmark Cost Item}-02}{\textit{Standard Lengh of Road } (800m)}$
- $\text{Estimated Length of Road Project} = \frac{\text{VPA Total Estimated Cost}}{\text{P90 Secondary Arterial Road \$ /m}}$
- We have attempted to independently ascertain the length of road for the individual projects, but based upon the scaling of Plan 2 (1:30,000 @ A4) the accuracy makes it difficult to confirm the lengths as appropriate. Therefore, we have assumed the lengths derived from our calculations based upon VPA information noted above, as correct.
- VPA Benchmark Costing Item-02 – Secondary Arterial Road drawings indicate a road reserve of 34m wide. However, the width of road reserve for secondary arterial pavements at intersections are 37.5m, where an on-road bike path has been included in the scope.
- We note that HV transmission towers and overhead wires run through the Mt Atkinson and Tarneit Plains ICP. It is assumed that any clashes with this existing infrastructure have been considered in the planning process and therefore there is

no requirement for relocation or relocation underground. If so, this will incur significant costs.

3.1.2 This review of road projects is based upon our independent cost estimate submitted as part of the WT Independent Peer Review of VPA Benchmark Infrastructure Costings dated 17 September 2018. The following comments identify the cost variances found as part of that review for Item-02:

- Site preparation - although included as a line item in the benchmark cost estimate, quantities have not been allocated.
- Pavements – generally benchmark costing rates for pavements are low when compared to the rates used by WT.
- Subgrade preparation - although included as a line item in the benchmark cost estimate, costs have not been allocated.
- Landscaping and Topsoil Seeding – generally quantities are low based upon the overall site areas measured for site preparation less paved areas, and the assumption of 20% landscape planting / 80% topsoil seeding.
- Landscape maintenance - although included as a line item in the benchmark cost estimate, quantities have not been allocated.
- Delivery costs – these are percentage driven costs and are proportional to the variances in direct costs.

3.2 INTERSECTIONS

3.2.1 This review of intersection projects is based upon our independent cost estimates. The following comments identify the common cost variances found:

- Site preparation – although included as a line item in the benchmark cost estimate, quantities have not been allocated.
- Pavements – generally benchmark costing rates for pavements are low when compared to the rates used by WT.
- Subgrade preparation - although included as a line item in the benchmark cost estimate, costs have not been allocated.
- Concrete works – there appears to be inconsistent variances (+/-) in quantities for kerbs, shared user paths, cycle paths and traffic islands.
- Street lighting – the benchmark costing estimates include a quantity per intersection leg, however, no rate is applied to this quantity and therefore the cost of this item is not captured as part of the benchmark cost estimates.
- Landscaping and Topsoil Seeding – generally quantities are low based upon the overall site areas measured for site preparation less paved areas, and the assumption of 20% landscape planting / 80% topsoil seeding.
- Landscape maintenance – the rate included in the benchmark cost estimate is low when compared to WT assumption and basis of costs.
- Delivery costs – these are percentage driven costs and are proportional to the variances in direct costs.

3.3 INTERSECTIONS, IT-01, IT-02, IT-03 & IT-04

3.3.1 These are bespoke projects and no benchmark costing estimate has been applied.

3.3.2 Based upon our independent cost estimate, variances additional to those already highlighted in Section 3.2.1 include:

- Pavements – all pavements have been assumed as primary arterial due to them linking to Western Freeway on / off ramps.
- New items – demolition of existing pavements, tie-ins to existing pavements.

3.3.3 We note that whilst Delivery Costs for Traffic Management has been applied as per the percentage set by the VPA (5%) there is a likelihood that this will be higher based upon location and anticipated traffic volumes to primary arterial roads accessing the Western Freeway.

3.4 INTERSECTIONS, IT-05, IT-07, IT-08, IT-09, IT-10 & IT-11

3.4.1 Benchmark Costing Item-09 has been applied by VPA.

3.4.2 The extent of the intersections is generally less than that of Item-09 reflected by shorter 'legs' of both secondary and / or connector roads. This is presented by lower quantities in most instances.

3.4.3 A standard layout for an Industrial Connector road is not provided, however, we have assumed similar to Connector Boulevard as pavement depth is the same.

3.4.4 Based upon our independent cost estimate, variances additional to those already highlighted in Section 3.2.1 include:

- Inclusion of on road bike paths increase the width of road reserve from 34m to 37.5m
- Intersection layouts include for dedicated turning lanes from secondary arterial roads to connector roads.
- New items – demolition of existing property and relocation of overhead power poles have been included in our estimate.
- Concrete works – additional areas of shared user paths.

3.5 INTERSECTION, IT-06

3.5.1 Benchmark Costing Item-08 has been applied by VPA.

3.5.2 The extent of the intersection is less than that of Item-08 reflected by shorter 'legs' of both secondary and / or connector roads. This is presented by lower quantities in most instances.

3.5.3 Based upon our independent cost estimate, variances additional to those already highlighted in Section 3.2.1 include:

- Inclusion of on road bike paths increases the secondary arterial road reserve from 34m to 37.5m
- Intersection layouts include for dedicated turning lanes from secondary arterial roads to connector roads.

- New items – demolition of existing property has been included in our estimate.
- Concrete works – additional areas of shared user paths and traffic islands.

3.6 INTERSECTION, IT-12

3.6.1 Benchmark Costing Item-08 has been applied by VPA.

3.6.2 The extent of the intersection is less than that of Item-08 reflected by shorter 'legs' of both secondary and / or connector roads. This is presented by lower quantities in most instances.

3.6.3 Based upon our independent cost estimate, variances additional to those already highlighted in Section 3.2.1 include:

- Inclusion of on road bike paths increase the width of road reserve from 34m to 37.5m
- Concrete works – additional areas of shared user paths.

3.7 INTERSECTION, IT-13

3.7.1 Benchmark Costing Item-09 has been applied by VPA.

3.7.2 A standard layout for an Industrial Connector road or Local Access Road is not provided, however, we have assumed similar to Connector Boulevard as pavement depth is the same.

3.7.3 Based upon our independent cost estimate, variances additional to those already highlighted in Section 3.2.1 include:

- Lower quantities generally with exception to Traffic islands.

3.8 INTERSECTION, IT-14

3.8.1 This is a bespoke project and no benchmark costing estimate has been applied.

3.8.2 Based upon our independent cost estimate, variances additional to those already highlighted in Section 3.2.1 include:

- Pavements – new pavement to Hopkins Road is measured as primary arterial.
- New items – demolition of existing pavements, tie-ins to existing pavements.

3.8.3 We note that whilst Delivery Costs for Traffic Management has been applied as per the percentage set by the VPA (5%) there is a likelihood that this will be higher based upon Hopkins Road being an existing primary arterial road.

3.9 INTERSECTION, IT-15

3.9.1 Benchmark Costing Item-09 has been applied by VPA. This represents a cross-signalised intersection however, IT-15 is a T-intersection.

3.9.2 The extent of the intersection is less than that of Item-09 reflected by shorter 'legs' of both secondary and / or connector roads. This is presented by lower quantities in most instances.

3.9.3 Based upon our independent cost estimate, variances additional to those already highlighted in Section 3.2.1 include:

- Concrete works – additional areas of traffic islands.
- Traffic Signals – costs have been based on a T-intersection rather than a cross-intersection.

3.10 INTERSECTION, IT-16

3.10.1 This is a bespoke project and no benchmark costing estimate has been applied.

3.10.2 Based upon our independent cost estimate, variances additional to those already highlighted in Section 3.2.1 include:

- Pavements – new pavement to Hopkins Road is measured as primary arterial rather than secondary pavements.
- New item – demolition of existing pavements, tie-ins to existing pavements.
- Protection of high pressure gas pipeline – length of pipeline impacted along Hopkins Road is comparable to intersections IT-03, IT-04 & IT-14, therefore costs included in the VPA estimate was deemed to be low and have been adjusted to be consistent with these intersections.

3.10.3 We note that whilst Delivery Costs for Traffic Management has been applied as per the percentage set by the VPA (5%) there is a likelihood that this will be higher based upon Hopkins Road being an existing primary arterial road.

3.11 BRIDGE, BR-01

3.11.1 BR-01 included for information only

3.11.2 Melton ICP advise this is a shared item with the Kororoit and Plumpton PSP

3.12 BRIDGE, BR-02

3.12.1 This is a bespoke project and no benchmark costing estimate has been applied.

3.12.2 Based upon our independent cost estimate, variances include:

- Bridge, main span – Super T construction is generally limited to a maximum span of 38m. The single span of 46m shown over the rail corridor exceeds this and therefore our estimate is based upon steel girder construction, and includes for temporary works, night working and anti- throw screens.
- Super T beams to ramps - drawings indicate 1000 deep Super T beams, however, this is not possible for spans of 32m therefore, our estimate is based upon 1800 deep Super T beams.
- New item – pier protection barriers
- Delivery costs – these are percentage driven costs and are proportional to the variances in direct costs.

3.13 CULVERT, CU-01

3.13.1 This is a bespoke project and no benchmark costing estimate has been applied.

3.13.2 No reference drawings are provided for CU-01 therefore the box culvert configuration is unknown and, on this basis, we are unable to verify the quantities used.

3.13.3 In comparison to the rates WT has applied to the quantities, there appears to be errors in the way rates have been applied and therefore overall cost could be overstated.

3.13.4 Based upon our benchmarked costing review, variances include:

- Box Culverts – generally benchmark costing rates for box culvert units are low when compared to the rates used by WT.
- Head Walls / Wing Walls – rates used appear to be low based on our assumption of 350mm thick walls with reinforcement ration of 350 kg/m3.
- Delivery costs – these are percentage driven costs and are proportional to the increase in direct costs

3.13.5 A detailed breakdown of all our cost estimates are attached as Appendix A.

4 ESTIMATE METHODOLOGY

The methodology that we have assumed in the preparation of the estimates are as follows:

4.1 COST ESTIMATES

4.1.1 Identification and review of the appropriate drawing(s) for each respective item as per the information /documentation provided (Section 1.5 refers).

4.1.2 Identification and quantification of the various measurable components that make up the cost estimate for each respective item (i.e. area of pavement / bridge deck, length of kerb / pipework, etc.).

4.1.3 Where alternate units of measurement have been used in the preparation of our cost estimates or where new items have been added, it has been noted in our detailed comments.

4.1.4 Our cost estimates are generally based upon 'first principles' estimating methods based upon current day rates and reflect the 'base case (or 'most likely') cost estimate. These have been benchmarked against rates from current projects of a similar nature within our cost database.

4.1.5 Delivery costs have been included as a percentage consistent with those applied by the VPA.

4.2 RISK

4.2.1 The objective of risk analysis is to ascertain an appropriate level of cost contingency, based upon confidence levels. In the case of the Benchmark Infrastructure Costings report, VPA has included for P50 and P90 confidence levels which is consistent with many infrastructure projects.

4.2.2 The base case cost estimate excluding delivery costs has been used as the basis of our Monte Carlo risk based modelling to provide a P50 and P90 output with which to compare to the Benchmarked Infrastructure costings.

4.2.3 We note that the risk model has been applied to the base case construction value only and therefore is a representation of inherent risk (quantifiable uncertainties) only.

4.2.4 It appears that no formal assessment of Contingent Risk has been undertaken and it is assumed that the Contingency percentage applied as part of the 'Delivery' costs seeks to cover those unmeasured items outside of the base case estimate.

4.2.5 Alternatively, by undertaking a risk assessment of the Mt Atkinson and Tarneit Plains ICP, the issues unique to the region (ie. Rock, contamination, environmental or cultural and heritage) could be assessed and therefore, offer confidence that the Contingent risk included in the project estimates have been adequately covered.

4.2.6 All outputs of the risk modelling have been generated using Pallisade @RISK software for the Monte Carlo simulation for probabilistic cost estimation.

5 ESTIMATE INCLUSIONS & ASSUMPTIONS

The assumptions that we have used in the preparation of the estimates are as follows:

5.1 GENERALLY

5.1.1 Interpretation of design guidelines contained within the Benchmark Costings Report has been accepted.

5.1.2 As the Items represent generic transport projects, the cost estimates assume natural site profiles.

5.2 ROADS

5.2.1 Site preparation has been included based upon the overall length of the road (800m) x the road reserve width as indicated on the respective section drawing of each road type.

5.2.2 Road pavement composition as per Table 3-3 Pavement makeup of the Cardno Benchmark Infrastructure Costing report.

5.2.3 Subgrade preparation has been included as a measured item based upon pavement areas rather than as a percentage as per Item Costing Sheets.

5.2.4 Drainage - The drawings provided for Benchmark Costing Item-02 indicate location of drainage pipes and size.

5.2.5 Tree planting – The drawings provided do not indicate trees therefore quantities have been calculated based upon the spacing of trees indicated on the respective drawing of each road type.

5.2.6 Landscaping has been assumed as a split of 20% planting and 80% topsoil seeding. These quantities are calculated to the overall site area less paved areas.

5.2.7 Street Lighting – we have applied a different pricing methodology, based upon the number of light poles, calculated at 50m spacing along the length of the road alignment. We have assumed that no lighting is required to Shared User Paths or Cycle Paths.

5.2.8 Signage – we have assumed that no signage is required to Items 1-4 (Roads).

5.3 INTERSECTIONS

5.3.1 Site preparation has been included to the Ultimate project boundaries shown on the drawings.

5.3.2 Road pavement composition as per Table 3-3 Pavement makeup of the Cardno Benchmark Infrastructure Costing report.

5.3.3 Subgrade preparation has been included as a measured item based upon pavement areas rather than as a percentage as per Benchmark Costings Report.

5.3.4 Drainage - The drawings provided do not indicate drainage pipes therefore sizing and layouts have been assumed similar to the Benchmark Cost item referenced by VPA. Generally, 450mm pipe has been assumed along length of road, with 300mm dia. pipe at 50m spacing typically used as cross drainage. Pits are also assumed at 50m spacing.

5.3.5 Traffic signals have been costed as an item per intersection.

5.3.6 Tree planting – The drawings provided do not indicate trees therefore quantities have been calculated based upon the spacing of trees indicated on the respective drawing of each road type.

5.3.7 based upon the number of trees indicated on the respective drawing of each intersection type.

5.3.8 Landscaping has been assumed as a split of 20% planting and 80% topsoil seeding. These quantities are calculated to the overall site area less paved areas.

5.3.9 Street Lighting – our pricing is based upon the number of light poles, as indicated on the respective drawing of each intersection type.

5.4 BRIDGES

5.4.1 Drawings provided have been used as the basis for our measurement. The following assumptions are reflected in our cost estimate:

- Piers – 1200mm diameter to ramps; 1500mm diameter to main span
- 1800 deep super T beams to spans over 32m to a maximum of 38m
- Pedestrian bridge over Rail corridor – single span shown of 46m, therefore, steel girder construction assumed in lieu of super T construction
- Anti-throw screens to rail bridges
- Pier protection barriers – assumed as 1200 wide x 2000 high

5.5 CULVERTS

5.5.1 Wing walls & head walls are assumed to be 350mm thick with reinforcement at 350kg/m3

5.5.2 Road pavement has been excluded as part of the culvert costings. This is absent from the VPA costs and we therefore, assume that this is included for elsewhere as part of road or intersection projects.

5.5.3 No allowance has been included for additional earthworks to suit interfaces with road projects

5.6 DELIVERY COSTS

The VPA have set the percentages for delivery costs, and these have been applied in the preparation of the estimates as follows:

5.6.1 Allowance for Survey & Design - 5% of total direct cost.

5.6.2 Allowance for Contingency - 15% of total direct cost (20% for Bridges).

5.6.3 Allowance for Traffic Management - 5% of total direct cost.

5.6.4 Allowance for Supervision & Project Management - 9% of total direct cost

5.6.5 Allowance for Council Fees - 3.25% of total direct cost.

5.6.6 Allowance for Vic Roads Fees - 1% of total direct cost.

5.6.7 Allowance for Environmental Management - 0.5% of total direct cost.

5.6.8 Allowance for Site Establishment - 2.5% of total direct cost.

6 ESTIMATE EXCLUSIONS

The exclusions that we have used in the preparation of the estimates are as follows:

6.1 Lighting to footpaths

6.2 Allowance for site remediation

6.3 Contamination removal

6.4 Relocation of existing services unless noted otherwise

6.5 Relocation of overhead HV power transmission towers and cables

6.6 Underpinning of adjacent footings

6.7 Rock excavation

6.8 Works outside the site boundary

6.9 Adjoining owner issues

7 CONCLUSION

We conclude that the costs prepared by VPA for the Mt Atkinson and Tarneit Plains Roads and Intersections projects are low by approx. 18%, the reasons are detailed in our report.

The costs of bridge project BR-02 are also low, though this is based upon construction methodology which we recommend is clarified in future discussions.

We recommend VPA review the cost estimate for project CU-01 as there would appear to be an error in the way rates have been applied.

Whilst there are many differences of quantity or scope, variances are also driven by differences in pricing. As we have noted in previous reports, the State Government's ongoing appetite to procure and deliver major infrastructure projects is putting increasing pressure on the Victorian market, and therefore, unlikely that demand for labour, plant and material resources is going to reduce in the medium term.

Should you require any further assistance in the above matters please do not hesitate to contact Mrs Sian McKenna of WT Partnership.

APPENDIX A
COST ESTIMATES

Independent Peer Review
Mt Atkinson & Tarneit Plains ICP
Summary

DRAFT FOR DISCUSSION

WT PARTNERSHIP

Description	By VPA Total Cost (Including Delivery) (A)		By WTP Total Cost (Including Delivery) (B)		Diff. (A - B)		Difference %		Comments
	P50	P90	P50	P90	P50	P90	P50	P90	
	$	$	$	$	$	$			
RD-01 Greigs Road: Outer Metropolitan Ring Road to North-South connector road		1,047,490		1,366,216	0	(318,726)		-30%	- VPA costs have been taken from Section 3.2, Table 5 of the Mt Atkinson & Tarneit Plains ICP Report dated August 2018 - WT assessment is based upon our assessment of Benchmark Cost Item-02 for secondary arterial roads (refer WT separate report)
RD-02Greigs Road: North-South connector road to Mt Atkinson Road		3,348,589		4,367,484	0	(1,018,895)		-30%	
RD-03Greigs Road: Mt Atkinson Road to North-South connector road		520,366		678,701	0	(158,335)		-30%	
RD-04Greigs Road: North-South connector road to North-South connector road		429,133		559,708	0	(130,575)		-30%	
RD-05Greigs Road: North-South connector road to Hopkins Road		351,416		458,343	0	(106,927)		-30%	
RD-06Mt Atkinson Road: Greigs Road to east-west connector boulevard		4,156,170		5,420,793	0	(1,264,623)		-30%	
RD-07Mt Atkinson Road: East-west connector boulevard to east-west connector road		2,311,236		3,014,490	0	(703,254)		-30%	
RD-08Mt Atkinson Road: East-west connector road to Riding Boundary Road		412,238		537,672	0	(125,434)		-30%	
RD-09Riding Boundary Road: North-South connector road to Mt Atkinson Road		1,142,102		1,489,616	0	(347,514)		-30%	
RD-10Riding Boundary Road: Mt Atkinson Road to North-South connector road		1,748,112		2,278,496	0	(530,384)		-30%	
RD-11Riding Boundary Road: North-South connector road to Hopkins Road		1,422,559		1,855,410	0	(432,851)		-30%	
RD-12Mt Atkinson Road: Riding Boundary Road to east-west connector road		2,855,255		3,724,040	0	(868,785)		-30%	
IT-01 - Hopkins Road/ East West Connector Road - T Signalised & Signalised Roundabout (Interim)	5,908,993	6,683,624	8,102,673	8,862,599	(2,193,680)	(2,178,974)	-37%	-33%	Bespoke Project - new items included for site preparation, demolition of existing pavements, subgrade preparation & tie-ins to existing pavements - all pavements have been assumed as primary arterial pavements due to roads linking with Western Fwy - quantites differ for pavements, drainage & linemarking - higher pavement rates
IT-02 - Primary Arterial to Connector Road - T Signalised (Interim)	4,300,544	4,924,404	5,321,584	5,797,139	(1,021,040)	(872,736)	-24%	-18%	Bespoke Project - new items included for site preparation, demolition of existing pavements, subgrade preparation & tie-ins to existing pavements - all pavements have been assumed as primary arterial pavements due to roads linking with Western Fwy and Hopkins Road - quantites differ for pavements, drainage & linemarking - higher pavement rates
IT-03 - Primary Arterial to Secondary Arterial - T-Signalised (Interim)	3,481,276	3,939,112	4,500,893	4,831,842	(1,019,617)	(892,730)	-29%	-23%	Bespoke Project - new items included for site preparation, demolition of existing pavements, subgrade preparation & tie-ins to existing pavements - all pavements have been assumed as primary arterial - quantites differ for pavements, drainage & linemarking - higher pavement rates
IT-04 - Primary Arterial to Connector Boulevard - Signalised (Interim)	3,245,040	3,662,096	4,289,459	4,600,758	(1,044,420)	(938,662)	-32%	-26%	Bespoke Project - new items included for site preparation, demolition of existing pavements, subgrade preparation & tie-ins to existing pavements - all pavements have been assumed as primary arterial - quantites differ for pavements, drainage & linemarking - higher pavement rates
IT-05 - Secondary / Connector Boulevard - Cross-Signalised (Interim)	3,972,466	4,383,158	3,096,832	3,335,125	875,633	1,048,034	22%	24%	Benchmark Costing Item-09 apllied by VPA - differences include dedicated left-turn lanes lanes from Greigs Road into the connector roads and inclusion of on road bike path to Greigs Road - Additional areas of SUP's shown to NW & SW - shorter 'legs' of intersection for both secondary arterial and connector roads - new items included for site preparation, demolition of existing pavements, subgrade preparation & overhead power relocation
IT-06 - Secondary / Connector Boulevard - Cross-Signalised (Interim)	4,720,246	5,145,136	4,110,202	4,495,342	610,044	649,794	13%	13%	Benchmark Costing Item-08 apllied by VPA - differences include dedicated left-turn lanes lanes from Greigs Road into the connector roads and inclusion of on road bike path to Greigs Road - Additional areas of SUP's - shorter 'legs' of intersection for both secondary arterial and connector roads - new items included for site preparation, demolition of existing properties, subgrade preparation - higher rates for pavements - inclusion of street lighting costs
IT-07 - Secondary / Connector Boulevard - Cross-Signalised (Interim)	3,972,466	4,383,158	2,948,695	3,186,801	1,023,770	1,196,358	26%	27%	Benchmark Costing Item-09 apllied by VPA - differences include dedicated left-turn lanes lanes from Greigs Road into the connector roads - inclusion of on road bike path to Greigs Road increases cross section of road from 34m to 37.5m - Additional areas of SUP's shown - shorter 'legs' of intersection for both secondary arterial and connector roads - higher rates for pavements - inclusion of street lighting costs
IT-08 - Secondary / Connector Boulevard - Cross-Signalised (Interim)	2,812,365	3,103,121	2,157,668	3,304,759	654,697	(201,638)	23%	-6%	
IT-09 - Secondary / Connector Boulevard - Cross-Signalised (Interim)	3,972,466	4,383,158	2,966,887	3,186,813	1,005,579	1,196,345	25%	27%	Benchmark Costing Item-09 apllied by VPA - differences include dedicated left-turn lanes lanes from Mt Atkinson Road into the connector roads - inclusion of on road bike path to Mt Atkinson Road increases cross section of road from 34m to 37.5m - Additional areas of SUP's shown - shorter 'legs' of intersection for both secondary arterial and connector roads - higher rates for pavements - inclusion of street lighting costs
IT-10 - Secondary / Connector Boulevard - Cross-Signalised (Interim)	3,972,466	4,383,158	3,923,504	4,219,799	48,961	163,360	1%	4%	
IT-11 - Secondary / Connector Boulevard - Cross-Signalised (Interim)	3,972,466	4,383,158	5,018,643	5,369,469	(1,046,177)	(986,310)	-26%	-23%	Benchmark Costing Item-09 apllied by VPA - differences include dedicated left-turn lanes lanes from Riding Boundary Road into the connector roads - inclusion of on road bike path to Riding Boundary Road - Additional areas of SUP's shown - shorter 'legs' of intersection for secondary arterial roads - overall quantity of pavement is similar however, appears to be a difference in demarcation of secondary & collector pavements - higher rates for pavements - inclusion of street lighting costs
IT-12 - Intersection - Secondary / Connector Boulevard - Cross-Signalised (Interim)	4,720,246	5,145,136	4,796,785	5,240,095	(76,539)	(94,959)	-2%	-2%	Benchmark Costing Item-08 applied by VPA - differences include on road bike path to all secondary roads - Additional areas of SUP's - shorter 'legs' of intersection for secondary arterial - higher rates for pavements - inclusion of street lighting costs
IT-13 - Secondary / Connector Boulevard - Cross-Signalised (Interim)	3,972,466	4,383,158	4,484,440	4,785,172	(511,975)	(402,014)	-13%	-9%	

Independent Peer Review
Mt Atkinson & Tarneit Plains ICP
Summary

DRAFT FOR DISCUSSION

Description	By VPA Total Cost (Including Delivery) (A)		By WTP Total Cost (Including Delivery) (B)		Diff. (A - B)		Difference %		Comments
IT-14 - Primary Arterial to Secondary Arterial - T Signalised (Interim)	3,282,262	3,709,458	5,331,240	5,719,293	(2,048,978)	(2,009,835)	-62%	-54%	Bespoke Project - new items included for site preparation, demolition of existing pavements, subgrade preparation & tie-ins to existing pavements - all pavements have been assumed as primary arterial pavements due to roads linking with Western Fwy - quantites differ for pavements, drainage & linemarking - higher pavement rates
IT-15 - Secondary / Connector Boulevard - Cross-Signalised (Interim)	3,972,466	4,383,158	3,271,383	3,489,954	701,082	893,204	18%	20%	Benchmark Costing Item-09 apllied by VPA, however this is a T intersection not cross section. therefore lower quantities in most cases - Traffic signals based upon a T-intersection - higher rates for pavements - inclusion of street lighting costs
IT-16 - Primary Arterial to Connector Road - T Signalised (Interim)	3,428,082	3,929,867	5,604,802	6,029,587	(2,176,719)	(2,099,720)	-63%	-53%	Bespoke Project - new items included for site preparation, demolition of existing pavements & subgrade preparation - New pavement to Hopkins Road measured as primary arterial pavement in lieu of secondary pavements as per VPA estimate - quantities generally higher for most measured items - higher pavement rates - estimated costs for HP gas protection works appear low
BR-02 - Pedestrian & Cycle Bridge across Melbourne-Ballarat Rail Corridor	5,347,911	6,127,907	11,527,926	12,354,252	(7,006,341)	(6,226,344)	-131%	-102%	Bespoke project: - Steel girder construction assumed to main span rather than super T as length of span (46m) does not facilitate super T construction; - rate includes for temporary works, night works, anti-throw screens due to in and around rail corridor
TOTALS	**69,054,224**	**96,796,637**	**81,453,617**	**114,559,768**	**(13,225,718)**	**(17,763,131)**			
						(18.4%)			
BR-03 - Level Crossing Upgrade at Intersection of Hopkins Road & Melbourne-Ballarat Rail Corridor	938,150		541,399	594,961	396,751		42.3%	n/a	Cost applied in Section 3.2 of the VPA Mt Atkinson & Tarneit Plains ICP Report appears inconsistent with those costs applied to Roads & Intersections where P50 / P90 analysis has been undertaken : - Costs represent full level crossing however, drawings prvided indicate this is an upgrade to an existing crossing. - if only pedestrian crossing is required then rate is high.
CU-01 - Box Culvert 3000 x 3000	2,490,116		1,130,869	1,269,187	1,359,247		54.6%		- No reference drawings are provided for CU-01 therefore the box culvert configuration is unknown and on this basis we are unable to verify the quantities used. - In comparison to the rates WT has applied to the quanitites, there appears to be errors in the way rates have been applied and therefore overall cost could be overstated.
TOTALS	**3,428,266**	**-**	**1,672,268**	**1,864,148**	**1,755,998**	**0**			
				% Difference	**51.2%**				
BR-01 - Pedestrian & Cycle Bridge across Western Fwy	7,678,564		7,678,564						BR-01 included for information only. Melton ICP advise this is a shared item with the Kororoit and Plumpton PSP.

WT PARTNERSHIP

DRAFT FOR DISCUSSION

VPA							WTP			
ICP Project ID	Project Description	Treatment	Estimated Total Cost (P90)	UoM	Estimated Length of Project	Assumed Rate per lm of road corridor	Estimated Total Cost (P90)	UoM	Estimated Length of Project	Assumed Rate per lm of road corridor
			$		m	$	$		m	$
									assumed same as VPA	
Item 2	road	Interim	2,702,456	m	800	3,378.07	3,525,719	m	800	4,407.15
Mt Atkinson & Tarneit Plains ICP Costings										
RD-01	Greigs Road: Outer Metropolitan Ring Road to North-South connector road	Interim	1,047,490	m	310	3,379.00	1,366,216	m	310	4,407.15
RD-02	Greigs Road: North-South connector road to Mt Atkinson Road	Interim	3,348,589	m	991	3,379.00	4,367,484	m	991	4,407.15
RD-03	Greigs Road: Mt Atkinson Road to North-South connector road	Interim	520,366	m	154	3,379.00	678,701	m	154	4,407.15
RD-04	Greigs Road: North-South connector road to North-South connector road	Interim	429,133	m	127	3,379.00	559,708	m	127	4,407.15
RD-05	Greigs Road: North-South connector road to Hopkins Road	Interim	351,416	m	104	3,379.00	458,343	m	104	4,407.15
RD-06	Mt Atkinson Road: Greigs Road to east-west connector boulevard	Interim	4,156,170	m	1,230	3,379.00	5,420,793	m	1,230	4,407.15
RD-07	Mt Atkinson Road: East-west connector boulevard to east-west connector road	Interim	2,311,236	m	684	3,379.00	3,014,490	m	684	4,407.15
RD-08	Mt Atkinson Road: East-west connector road to Riding Boundary Road	Interim	412,238	m	122	3,379.00	537,672	m	122	4,407.15
RD-09	Riding Boundary Road: North-South connector road to Mt Atkinson Road	Interim	1,142,102	m	338	3,379.00	1,489,616	m	338	4,407.15
RD-10	Riding Boundary Road: Mt Atkinson Road to North-South connector road	Interim	1,748,112	m	517	3,381.26	2,278,496	m	517	4,407.15
RD-11	Riding Boundary Road: North-South connector road to Hopkins Road	Interim	1,422,559	m	421	3,379.00	1,855,410	m	421	4,407.15
RD-12	Mt Atkinson Road: Riding Boundary Road to east-west connector road	Interim	2,855,255	m	845	3,379.00	3,724,040	m	845	4,407.15
				m	5,843			m	5,843	

Mt Atkinson & Tarneit Plains ICP Costings - Independent Peer Review

IT-01 - Hopkins Road/ East West Connector Road - T Signalised & Signalised Roundabout (Interim)

DRAFT FOR DISCUSSION

WT PARTNERSHIP

		VPA						WTP						Difference		
Item	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)	Qty	Unit	Rate	Amount	Amount (P50)	Amount (P90)	(P50)	(P90)	Comments
Siteworks & Earthworks	Site Preparation	-	%	2.39	-	2.86	-	14,856	m2	2.50	37,140	40,953	44,793	(40,953)	(44,793)	Quantity missing; Rate includes for site clearance & topsoil removal to suit Ultimate design standard to full width of road reserve
	Demolition of existing pavements							9,315	m2	25.00	232,875	256,781	280,864	(256,781)	(280,864)	New item - Demolition of Freeway access roads assumed
	Earthworks	10,337	m3	35.43	366,171	43.40	448,617	11,785	m3	39.00	459,628	506,812	554,344	(140,640)	(105,727)	Quantity low based upon differences to pavement areas (refer comments below)
Road Pavements	Primary Arterial Pavement	9,825	m2	157.08	1,543,344	179.51	1,763,735	16,483	m2	155.00	2,554,865	2,817,136	3,081,347	(1,273,792)	(1,317,613)	Quantity is low based upon WT measured areas; all pavements assumed as primary arterial due to location and being links to the Western Fwy Rate is low based upon nominated pavement depth
	Secondary Arterial Pavement	-	m2	123.23	-	134.34	-		m2	141.00	0			-	-	
	Collector Arterial Pavement	6,190	m2	91.07	563,732	91.57	566,788		m2	126.00	0			563,732	566,788	Quantity is high; all pavements assumed as primary arterial pavements
	Subgrade preparation	-	%	15.21	-	19.27	-	16,483	m2	2.50	41,208	45,438	49,699	(45,438)	(49,699)	Quantity missing; Rate - pricing methodology differs, m2 v %
	Pavement rehab	-	m2	45.90	-	45.90	-		m2		0			-	-	
	Pavement other	-	m2	-	-	-	-		m2		0			-	-	
Concrete Works	Kerb & channel	2,600	m	50.42	131,090	60.18	156,463	2,246	m	55.00	123,530	130,837	143,107	253	13,356	quantity is low based upon WT measured lengths
	Cycle path	-	m2	59.60	-	74.98	-		m2	50.00	0			-	-	
	SUP / Footpath	-	m2	58.44	-	73.25	-		m2	50.00	0			-	-	
	Traffic Island	5,450	m2	71.43	389,312	79.84	435,130	2,323	m2	60.00	139,380	147,624	161,469	241,688	273,660	Quantity high; extent of islands at intersection to be confirmed
Drainage	Drainage pipe - 300mm CR backfilled	348	m	162.30	56,480	184.12	64,073	828	m	225.00	186,345	205,474	224,745	(148,994)	(160,673)	Cross drainage assumed @ 50m spacing
	Drainage pipe - 375mm CR backfilled	-	m	226.68	-	259.12	-		m	260.00	0			-	-	
	Drainage pipe - 450mm CR backfilled	895	m	291.67	261,042	339.56	303,903	1,010	m	290.00	292,900	322,968	353,258	(61,926)	(49,355)	assumed both sides of roads
	Drainage pipe - 525mm CR backfilled	-	m	375.71	-	420.12	-		m	355.00	0			-	-	
	Drainage - pits	56	no.	2,325.57	130,232	2,609.42	146,128	40	no.	2,150.00	86,860	103,349	113,042	26,883	33,086	Quantity assumes pits @ 50m centres based upon length of pipework; Rate assumes for 600 x 900 JP, max depth 1.5m.
	Drainage - Subsoil drainage	2,600	m	23.05	59,922	28.75	74,749	2,246	m	45.00	101,070	111,445	121,898	(51,523)	(47,149)	rate low - allowances include for pits and risers
	Drainage - culvert	-	no.	-	-	-	-		no.		0			-	-	
Traffic	Traffic Signals	3	Item	88,375.88	265,128	107,549.70	322,649	1	Item	300,000.00	300,000	330,797	361,821	(65,669)	(39,172)	
	Traffic Signal conduit	-	m	45.71	-	58.40	-		m		0			-	-	
Landscape	Tree Planting	119	no.	259.62	30,894	356.37	42,408	102	no.	250.00	25,500	27,008	29,541	3,886	12,867	assumes trees @15m spacing along road length
	Landscaping	910	m2	20.72	18,852	24.96	22,713	1,073	m2	15.00	16,095	17,047	18,646	1,805	4,067	Quantity is low - area used assumes overall site area (as per Site Preparation) less paved areas;
	Topsoil seeding	910	m2	7.00	6,366	8.51	7,745	4,292	m2	5.50	23,606	25,002	27,347	(18,636)	(19,603)	Assume 20% landscape planting & 80% topsoil seeding
Street Lighting	Street lighting (all inclusive)	-	m	207.67	-	253.39	-	18	no.	12,000.00	220,800	243,466	266,300	(243,466)	(266,300)	Rate - pricing methodology differs; Quantity based upon 50m spacing along road length + intersection; Note: lighting requirements to Cycle path & SUP is exclude
	Street lighting - Intersections	-	Item / pe	-	-	-	-		Item / per leg		0			-	-	
Misc.	Regulatory signage	26	Item	329.29	8,562	384.82	10,005	18	Item	350.00	6,300	6,947	7,598	1,615	2,407	
	Linemarking	16,015	m2 of pa	2.40	38,480	3.07	49,161	16,483	m2 of pa	2.50	41,208	43,645	47,738	(5,165)	1,423	
	Landscape maintenance	2	Item	75,000.00	150,000	75,000.00	150,000	1	Item	104,000.00	104,000	107,895	118,014	42,105	31,986	allowance for maintenance during DLP assumes 104 wks x $1000 (assumes 1 man + vehicle x 1 day/wk)
	Tactile pavers (hazard only)	66	Item	337.14	22,251	394.00	26,004	20	Item	320.00	6,400	7,057	7,719	15,194	18,285	
Other	High pressure gas protection slab and relocation of other services	1	Item	141,500.00	141,500	141,500.00	141,500	1	Item	141,500.00	141,500	156,026	170,659	(14,526)	(29,159)	Melton CC advise that potable water pipe located along southern edge of Greigs Road reserve - IT-01 would not appear to impact this service though existing light poles and underground power will need to be removed / relocated
	Tie ins to existing pavements				-		-	3	no.	25,000.00	75,000	82,699	90,455	(82,699)	(90,455)	Assumes tie ins to Western Fwy Entry / Exit ramps & Hopkins Road
					-		-				0	-	-	-	-	
Delivery	Surveying & Design	1	%	5.00	209,168	5.00	236,588	1	%	5.00	260,810	$ 286,820.27	$ 313,720.31	(77,652)	(77,132)	% driven item
	Contingency	1	%	15.00	627,504	15.00	709,765	1	%	15.00	782,431	$ 860,460.80	$ 941,160.92	(232,957)	(231,396)	% driven item
	Traffic Management	1	%	5.00	209,168	5.00	236,588	1	%	5.00	260,810	$ 286,820.27	$ 313,720.31	(77,652)	(77,132)	% driven item
	Supervision & Project Management	1	%	9.00	376,502	9.00	425,859	1	%	9.00	469,459	$ 516,276.48	$ 564,696.55	(139,774)	(138,837)	% driven item
	Council Fees	1	%	3.25	135,959	3.25	153,783	1	%	3.25	169,527	$ 186,433.17	$ 203,918.20	(50,474)	(50,136)	% driven item
	Vic Roads Fees	1	%	1.00	41,834	1.00	47,318	1	%	1.00	52,162	$ 57,364.05	$ 62,744.06	(15,530)	(15,426)	% driven item
	Environmental Management	1	%	0.50	20,917	0.50	23,659	1	%	0.50	26,081	$ 28,682.03	$ 31,372.03	(7,765)	(7,713)	% driven item
	Site Establishment	1	%	2.50	104,584	2.50	118,294	1	%	2.50	130,405	$ 143,410.13	$ 156,860.15	(38,826)	(38,566)	% driven item
TOTAL	Excluding Delivery				**4,183,358**		**4,731,769**				**5,216,209**	**$ 5,736,405**	**$ 6,274,406**	**(1,553,048)**	**(1,542,637)**	
	Including Delivery				**5,908,993**		**6,683,624**				**7,367,896**	**$ 8,102,673**	**$ 8,862,599**	**(2,193,680)**	**(2,178,974)**	

DRAFT FOR DISCUSSION

WT PARTNERSHIP

		VPA						WTP						Difference		
Item	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)	Qty	Unit	Rate	Amount	Amount (P50)	Amount (P90)	(P50)	(P90)	Comments
Siteworks & Earthworks	Site Preparation	-	%	2.39	-	2.86	-	11,040	m2	2.50	27,600	30,440	33,160	(30,440)	(33,160)	Quantity missing; Rate includes for site clearance & topsoil removal to suit Ultimate design standard to full width of road reserve.
	Demolition of existing pavements							4,480	m2	25.00	112,000	123,524	134,562	(123,524)	(134,562)	New item - Demolition of Hopkins Road assumed
	Earthworks	6,865	m3	35.43	243,195	43.40	297,952	7,179	m3	39.00	279,965	308,772	336,365	(65,576)	(38,412)	Quantity low based upon differences to pavement areas (refer comments below)
Road Pavements	Primary Arterial Pavement	8,640	m2	157.08	1,357,200	179.51	1,551,009	10,040	m2	155.00	1,556,200	1,716,321	1,869,697	(359,121)	(318,688)	Quantity is low based upon WT measured areas; Rate is low based upon nominated pavement depth.
	Secondary Arterial Pavement	-	m2	123.23	-	134.34	-		m2	141.00	0			-	-	
	Collector Arterial Pavement	1,285	m2	91.07	117,027	91.57	117,661		m2	126.00	0			117,027	117,661	Quantity is high; all pavements assumed as primary arterial pavements
	Subgrade preparation	-	%	15.21	-	19.27	-	10,040	m2	2.50	25,100	27,683	30,156	(27,683)	(30,156)	Quantity missing; Rate - pricing methodology differs, m2 v %
	Pavement rehab	-	m2	45.90	-	45.90	-		m2		0			-	-	
	Pavement other	-	m2	-	-	-	-		m2		0			-	-	
Concrete Works	Kerb & channel	1,370	m	50.42	69,074	60.18	82,444	1,335	m	55.00	73,425	77,785	84,736	(8,711)	(2,292)	
	Cycle path	-	m2	59.60	-	74.98	-		m2	50.00	0			-	-	
	SUP / Footpath	-	m2	58.44	-	73.25	-		m2	50.00	0			-	-	
	Traffic Island	5,145	m2	71.43	367,524	79.84	410,778	805	m2	60.00	48,300	51,168	55,740	316,357	355,038	Quantity high; extent of islands at intersection to be confirmed
Drainage	Drainage pipe - 300mm CR backfilled	205	m	162.30	33,272	184.12	37,744	552	m	225.00	124,200	136,979	149,220	(103,708)	(111,476)	Cross drainage assumed @ 50m spacing
	Drainage pipe - 375mm CR backfilled	-	m	226.68	-	259.12	-		m	260.00	0			-	-	
	Drainage pipe - 450mm CR backfilled	540	m	291.67	157,500	339.56	183,361	690	m	290.00	200,100	220,689	240,410	(63,189)	(57,050)	assumed both sides of roads
	Drainage pipe - 525mm CR backfilled	-	m	375.71	-	420.12	-		m	355.00	0			-	-	
	Drainage - pits	25	no.	2,325.57	58,139	2,609.42	65,236	28	no.	2,150.00	59,340	70,620	76,931	(12,481)	(11,695)	Quantity assumes pits @ 50m centres based upon length of pipework; Rate assumes for 600 x 900 JP, max depth 1.5m.
	Drainage - Subsoil drainage	5,145	m	23.05	118,577	28.75	147,916	1,335	m	45.00	60,075	66,256	72,177	52,321	75,739	Quantity high; Rate low - allowances include for pits and risers
	Drainage - culvert	-	no.	-	-	-	-		no.		0			-	-	
Traffic	Traffic Signals	3	Item	88,375.88	265,128	107,549.70	322,649	1	Item	300,000.00	300,000	330,868	360,435	(65,740)	(37,786)	check rate used for Benchmark costings
	Traffic Signal conduit	-	m	45.71	-	58.40	-		m		0			-	-	
Landscape	Tree Planting	37	no.	259.62	9,606	356.37	13,186	68	no	250.00	17,000	18,009	19,619	(8,404)	(6,433)	assumes trees @15m spacing along road length
	Landscaping	-	m2	20.72	-	24.96	-	935	m2	15.00	14,025	14,858	16,185	(14,858)	(16,185)	Quantity is low - area used assumes overall site area (as per Site Preparation) less paved areas; Assume 20% landscape planting & 80% topsoil seeding
	Topsoil seeding	-	m2	7.00	-	8.51	-	3,740	m2	5.50	20,570	21,791	23,739	(21,791)	(23,739)	
Street Lighting	Street lighting (all inclusive)	-	m	207.67	-	253.39	-	15	no.	12,000.00	177,600	195,874	213,378	(195,874)	(213,378)	Rate - pricing methodology differs, but overall ok Note: lighting requirements to Cycle path & SUP is
	Street lighting - Intersections	-	Item / p	-	-	-	-		Item / per leg		0			-	-	
Misc.	Regulatory signage	6	Item	329.29	1,976	384.82	2,309	8	Item	350.00	2,800	3,088	3,364	(1,112)	(1,055)	as per Benchmarked Costing Item 12
	Linemarking	9,925	m2 of pa	2.40	23,847	3.07	30,467	10,040	m2 of pa	2.50	25,100	26,590	28,967	(2,743)	1,500	
	Landscape maintenance	1	Item	75,000.00	75,000	75,000.00	75,000	1	Item	104,000.00	104,000	107,918	117,562	(32,918)	(42,562)	allowance for maintenance during DLP assumes 104 wks x $1000 (assumes 1 man + vehicle x 1 day/wk)
	Tactile pavers (hazard only)	18	Item	337.14	6,069	394.00	7,092	20	Item	320.00	6,400	7,059	7,689	(990)	(597)	
Other	High pressure gas protection slab and relocation of other services	1	Item	141,500.00	141,500	141,500.00	141,500	1	Item	141,500.00	141,500	156,059	170,005	(14,559)	(28,505)	Melton CC advise that HP gas pipeline easement runs along Hopkins Road though not at this location - existing light poles and underground power will need to be removed / relocated, this could also impact the rail crossing to the south of the intersection
	Tie ins to existing pavements				-		-	2	no.	25,000.00	50,000	55,145	60,073	(55,145)	(60,073)	Assumes tie ins to Sheahan Road & Hopkins Road
					-		-				0	-	-	-	-	
Delivery	Surveying & Design	1	%	5.00	152,232	5.00	174,315	1	%	5.00	171,265	$ 188,374.67	$ 205,208.48	(36,143)	(30,893)	% driven item
	Contingency	1	%	15.00	456,695	15.00	522,946	1	%	15.00	513,795	$ 565,124.01	$ 615,625.43	(108,429)	(92,680)	% driven item
	Traffic Management	1	%	5.00	152,232	5.00	174,315	1	%	5.00	171,265	$ 188,374.67	$ 205,208.48	(36,143)	(30,893)	% driven item
	Supervision & Project Management	1	%	9.00	274,017	9.00	313,767	1	%	9.00	308,277	$ 339,074.41	$ 369,375.26	(65,057)	(55,608)	% driven item
	Council Fees	1	%	3.25	98,951	3.25	113,305	1	%	3.25	111,322	$ 122,443.54	$ 133,385.51	(23,493)	(20,081)	% driven item
	Vic Roads Fees	1	%	1.00	30,446	1.00	34,863	1	%	1.00	34,253	$ 37,674.93	$ 41,041.70	(7,229)	(6,179)	% driven item
	Environmental Management	1	%	0.50	15,223	0.50	17,432	1	%	0.50	17,127	$ 18,837.47	$ 20,520.85	(3,614)	(3,089)	% driven item
	Site Establishment	1	%	2.50	76,116	2.50	87,158	1	%	2.50	85,633	$ 94,187.33	$ 102,604.24	(18,072)	(15,447)	% driven item
TOTAL	Excluding Delivery				**3,044,633**		**3,486,304**				**3,425,300**	**$ 3,767,493**	**$ 4,104,170**	**(722,860)**	**(617,866)**	
	Including Delivery				**4,300,544**		**4,924,404**				**4,838,237**	**$ 5,321,584**	**$ 5,797,139**	**(1,021,040)**	**(872,736)**	

DRAFT FOR DISCUSSION

WT PARTNERSHIP

		VPA						WTP						Difference		
Item	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)	Qty	Unit	Rate	Amount	Amount (P50)	Amount (P90)	(P50)	(P90)	Comments
Siteworks & Earthworks	Site Preparation	-	%	2.39	-	2.86	-	8,320	m2	2.50	20,800	23,015	24,707	(23,015)	(24,707)	Quantity missing; Rate includes for site clearance & topsoil removal to suit Ultimate design standard to full width of road reserve.
	Demolition of existing pavements							3,880	m2	25.00	97,000	107,329	115,221	(107,329)	(115,221)	New item - Demolition of Hopkins Road assumed
	Earthworks	4,746	m3	35.43	168,144	43.40	206,002	4,855	m3	39.00	189,339	209,502	224,906	(41,358)	(18,904)	Quantity low based upon differences to pavement areas (refer comments below)
Road Pavements	Primary Arterial Pavement	5,449	m2	157.08	855,897	179.51	978,120	6,790	m2	155.00	1,052,450	1,164,523	1,250,151	(308,627)	(272,031)	Quantity is low based upon WT measured areas; Rate is low based upon nominated pavement depth.
	Secondary Arterial Pavement	1,340	m2	123.23	165,081	134.34	179,970		m2	141.00	0			165,081	179,970	Quantity is high; all pavements assumed as primary arterial pavements due to inclusion of turning lanes
	Collector Arterial Pavement	-	m2	91.07	-	91.57	-		m2	126.00	0			-	-	
	Subgrade preparation	-	%	15.21	-	19.27	-	6,790	m2	2.50	16,975	18,783	20,164	(18,783)	(20,164)	Quantity missing; Rate - pricing methodology differs, m2 v %
	Pavement rehab	-	m2	45.90	-	45.90	-		m2		0			-	-	
	Pavement other	-	m2	-	-	-	-		m2		0			-	-	
Concrete Works	Kerb & channel	1,200	m	50.42	60,503	60.18	72,214	1,635	m	55.00	89,925	95,575	102,603	(35,072)	(30,389)	
	Cycle path	-	m2	59.60	-	74.98	-		m2	50.00	0			-	-	
	SUP / Footpath	533	m2	58.44	31,152	73.25	39,042	530	m2	50.00	26,500	28,165	30,236	2,987	8,806	
	Traffic Island	1,354	m2	71.43	96,752	79.84	108,139	430	m2	60.00	25,800	27,421	29,437	69,331	78,702	Quantity high; extent of islands at intersection to be confirmed
Drainage	Drainage pipe - 300mm CR backfilled	195	m	162.30	31,649	184.12	35,903	204	m	225.00	45,900	50,788	54,522	(19,139)	(18,619)	Cross drainage assumed @ 50m spacing
	Drainage pipe - 375mm CR backfilled	-	m	226.68	-	259.12	-		m	260.00	0			-	-	
	Drainage pipe - 450mm CR backfilled	580	m	291.67	169,167	339.56	196,943	510	m	290.00	147,900	163,650	175,683	5,517	21,260	assumed one side of road only as per Interim layouts
	Drainage pipe - 525mm CR backfilled	-	m	375.71	-	420.12	-		m	355.00	0			-	-	
	Drainage - pits	32	no.	2,325.57	74,418	2,609.42	83,501	20	no.	2,150.00	43,860	52,367	56,218	22,051	27,283	Quantity assumes pits @ 50m centres based upon length of pipework; Rate assumes for 600 x 900 JP, max depth 1.5m.
	Drainage - Subsoil drainage	2,000	m	23.05	46,094	28.75	57,499	1,635	m	45.00	73,575	81,410	87,396	(35,316)	(29,897)	rate low - allowances include for pits and risers
	Drainage - culvert	-	no.	-	-	-	-		no.		0			-	-	
Traffic	Traffic Signals	3	Item	88,375.88	265,128	107,549.70	322,649	1	Item	250,000.00	250,000	276,622	296,962	(11,494)	25,687	T-intersection
	Traffic Signal conduit	-	m	45.71	-	58.40	-		m		0			-	-	
Landscape	Tree Planting	6	no.	259.62	1,558	356.37	2,138	12	no.	250.00	3,000	3,188	3,423	(1,631)	(1,285)	as per Benchmarked Costing Item 12
	Landscaping	261	m2	20.72	5,409	24.96	6,516	890	m2	15.00	13,350	14,189	15,232	(8,780)	(8,716)	Quantity is low - area used assumes overall site area (as per Site Preparation) less paved areas;
	Topsoil seeding	261	m2	7.00	1,827	8.51	2,222	3,560	m2	5.50	19,580	20,810	22,340	(18,984)	(20,118)	Assume 20% landscape planting & 80% topsoil seeding
Street Lighting	Street lighting (all inclusive)	-	m	207.67	-	253.39	-	17	no.	12,000.00	206,400	228,379	245,172	(228,379)	(245,172)	Rate - pricing methodology differs, but overall ok Note: lighting requirements to Cycle path & SUP is as per Item 12 - T interse
	Street lighting - Intersections	-	Item / p	-	-	-	-		Item / per leg		0			-	-	Rate & quantity is missing
Misc.	Regulatory signage	9	Item	329.29	2,964	384.82	3,463	8	Item	350.00	2,800	3,098	3,326	(135)	137	as per Benchmarked Costing Item 12
	Linemarking	6,788	m2 of pa	2.40	16,310	3.07	20,838	6,790	m2 of pa	2.50	16,975	18,042	19,368	(1,731)	1,470	
	Landscape maintenance	1	Item	75,000.00	75,000	75,000.00	75,000	1	Item	104,000.00	104,000	108,270	116,231	(33,270)	(41,231)	allowance for maintenance during DLP assumes 104 wks x $1000 (assumes 1 man + vehicle x 1 day/wk)
	Tactile pavers (hazard only)	18	Item	337.14	6,069	394.00	7,092	8	no.	320.00	2,560	2,833	3,041	3,236	4,051	as per Benchmarked Costing Item 12
Other	High pressure gas protection slab and relocation of other services	1	Item	391,500.00	391,500	391,500.00	391,500	1	Item	391,500.00	391,500	433,190	465,042	(41,690)	(73,542)	Melton CC advise the following: - A HP gas pipeline easement runs along Hopkins Road - gas requires a 6m minimum protection zone over asset therefore assume concrete protection slab is required to width of easement - A potable water pipe is located on the southern edge of Greigs Road
	Tie ins to existing pavements				-		-	2	no.	25,000.00	50,000	55,324	59,392	(55,324)	(59,392)	Assumes tie ins to Hopkins Road
					-		-				0	-	-	-	-	
Delivery	Surveying & Design	1	%	5.00	123,231	5.00	139,438	1	%	5.00	144,509	$ 159,323.64	$ 171,038.66	(36,093)	(31,601)	% driven item
	Contingency	1	%	15.00	369,693	15.00	418,313	1	%	15.00	433,528	$ 477,970.92	$ 513,115.98	(108,278)	(94,803)	% driven item
	Traffic Management	1	%	5.00	123,231	5.00	139,438	1	%	5.00	144,509	$ 159,323.64	$ 171,038.66	(36,093)	(31,601)	% driven item
	Supervision & Project Management	1	%	9.00	221,816	9.00	250,988	1	%	9.00	260,117	$ 286,782.55	$ 307,869.59	(64,967)	(56,882)	% driven item
	Council Fees	1	%	3.25	80,100	3.25	90,634	1	%	3.25	93,931	$ 103,560.37	$ 111,175.13	(23,460)	(20,541)	% driven item
	Vic Roads Fees	1	%	1.00	24,646	1.00	27,888	1	%	1.00	28,902	$ 31,864.73	$ 34,207.73	(7,219)	(6,320)	% driven item
	Environmental Management	1	%	0.50	12,323	0.50	13,944	1	%	0.50	14,451	$ 15,932.36	$ 17,103.87	(3,609)	(3,160)	% driven item
	Site Establishment	1	%	2.50	61,616	2.50	69,719	1	%	2.50	72,255	$ 79,661.82	$ 85,519.33	(18,046)	(15,801)	% driven item
TOTAL	Excluding Delivery				**2,464,620**		**2,788,752**				**2,890,189**	**$ 3,186,473**	**$ 3,420,773**	**(721,853)**	**(632,021)**	
	Including Delivery				**3,481,276**		**3,939,112**				**4,082,392**	**$ 4,500,893**	**$ 4,831,842**	**(1,019,617)**	**(892,730)**	

ection

DRAFT FOR DISCUSSION

WT PARTNERSHIP

		VPA						WTP						Difference		
Item	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)	Qty	Unit	Rate	Amount	Amount (P50)	Amount (P90)	(P50)	(P90)	Comments
Siteworks & Earthworks	Site Preparation	-	%	2.39	-	2.86	-	8,160	m2	2.50	20,400	22,577	24,215	(22,577)	(24,215)	Quantity missing; Rate includes for site clearance & topsoil removal to suit Ultimate design standard to full width of road reserve.
	Demolition of existing pavements							3,520	m2	25.00	88,000	97,389	104,457	(97,389)	(104,457)	New item - Demolition of Hopkins Road assumed
	Earthworks	4,457	m3	35.43	157,900	43.40	193,452	4,437	m3	39.00	173,026	191,487	205,384	(33,587)	(11,932)	Overall quantity difference is minimal based upon differences to pavement areas (refer comments below)
Road Pavements	Primary Arterial Pavement	5,465	m2	157.08	858,425	179.51	981,008	6,205	m2	155.00	961,775	1,064,389	1,141,635	(205,965)	(160,627)	Quantity low based upon differences to pavement areas (refer comments below)
	Secondary Arterial Pavement	-	m2	123.23	-	134.34	-		m2	141.00	0			-	-	
	Collector Arterial Pavement	1,028	m2	91.07	93,624	91.57	94,132		m2	126.00	0			93,624	94,132	Quantity high - all pavements taken as primary arterial
	Subgrade preparation	-	%	15.21	-	19.27	-	6,205	m2	2.50	15,513	17,168	18,413	(17,168)	(18,413)	Quantity missing; Rate - pricing methodology differs, m2 v %
	Pavement rehab	-	m2	45.90	-	45.90	-		m2		0			-	-	
	Pavement other	-	m2	-	-	-	-		m2		0			-	-	
Concrete Works	Kerb & channel	1,222	m	50.42	61,597	60.18	73,520	1,670	m	55.00	91,850	97,639	104,725	(36,042)	(31,205)	
	Cycle path	237	m2	59.60	14,103	74.98	17,743	200	m2	50.00	10,000	10,630	11,402	3,473	6,341	
	SUP / Footpath	228	m2	58.44	13,325	73.25	16,699	270	m2	50.00	13,500	14,351	15,392	(1,026)	1,307	
	Traffic Island	605	m2	71.43	43,217	79.84	48,303	390	m2	60.00	23,400	24,875	26,680	18,342	21,623	Quantity high; extent of islands at intersection to be confirmed
Drainage	Drainage pipe - 300mm CR backfilled	205	m	162.30	33,272	184.12	37,744	192	m	225.00	43,200	47,809	51,279	(14,538)	(13,535)	Cross drainage assumed @ 50m spacing
	Drainage pipe - 375mm CR backfilled	-	m	226.68	-	259.12	-		m	260.00	0			-	-	
	Drainage pipe - 450mm CR backfilled	540	m	291.67	157,500	339.56	183,361	480	m	290.00	139,200	154,052	165,232	3,448	18,129	
	Drainage pipe - 525mm CR backfilled	-	m	375.71	-	420.12	-		m	355.00	0			-	-	
	Drainage - pits	25	no.	2,325.57	58,139	2,609.42	65,236	19	no.	2,150.00	41,280	49,296	52,874	8,843	12,362	Quantity assumes pits @ 50m centres based upon length of pipework; Rate assumes for 600 x 900 JP, max depth 1.5m.
	Drainage - Subsoil drainage	1,255	m	23.05	28,917	28.75	36,072	1,670	m	45.00	75,150	83,168	89,204	(54,251)	(53,132)	rate low - allowances include for pits and risers
	Drainage - culvert	-	no.	-	-	-	-		no.					-	-	
Traffic	Traffic Signals	3	Item	88,375.88	265,128	107,549.70	322,649	1	Item	250,000.00	250,000	276,673	296,752	(11,546)	25,897	T-intersection
	Traffic Signal conduit	-	m	45.71	-	58.40	-		m		0			-	-	
Landscape	Tree Planting	5	no.	259.62	1,298	356.37	1,782	12	no.	250.00	3,000	3,189	3,421	(1,891)	(1,639)	as per Benchmarked Costing Item 12
	Landscaping	750	m2	20.72	15,538	24.96	18,719	923	m2	15.00	13,845	14,718	15,786	820	2,934	Quantity is low - area used assumes overall site area (as per Site Preparation) less paved areas; Assume 20% landscape planting & 80% topsoil seeding
	Topsoil seeding	750	m2	7.00	5,247	8.51	6,383	3,692	m2	5.50	20,306	21,586	23,152	(16,339)	(16,769)	
Street Lighting	Street lighting (all inclusive)	-	m	207.67	-	253.39	-	17	no.	12,000.00	204,000	225,765	242,150	(225,765)	(242,150)	Rate - pricing methodology differs, quantity as per Benchmark Item 12 Note: lighting requirements to Cycle path & SUP is
	Street lighting - Intersections	-	Item / p	-	-	-	-		Item / per leg		0			-	-	
Misc.	Regulatory signage	6	Item	329.29	1,976	384.82	2,309	8	Item	350.00	2,800	3,099	3,324	(1,123)	(1,015)	as per Benchmarked Costing Item 12
	Linemarking	6,493	m2 of pa	2.40	15,600	3.07	19,931	6,205	m2 of pa	2.50	15,513	16,490	17,687	(890)	2,244	
	Landscape maintenance	1	Item	75,000.00	75,000	75,000.00	75,000	1	Item	104,000.00	104,000	108,290	116,148	(33,290)	(41,148)	allowance for maintenance during DLP assumes 104 wks x $1000 (assumes 1 man + vehicle x 1 day/wk)
	Tactile pavers (hazard only)	18	Item	337.14	6,069	394.00	7,092	10	no.	320.00	3,200	3,541	3,798	2,527	3,294	as per Benchmarked Costing Item 12
Other	High pressure gas protection slab and relocation of other services	1	Item	391,500.00	391,500	391,500.00	391,500	1	Item	391,500.00	391,500	433,270	464,714	(41,770)	(73,214)	Melton CC advise the following: - A HP gas pipeline easement runs along Hopkins Road - gas requires a 6m minimum protection zone over asset therefore assume concrete protection slab is required to width of easement
	Tie ins to existing pavements				-		-	2	no.	25,000.00	50,000	55,335	59,350	(55,335)	(59,350)	Assumes tie ins to Hopkins Road
					-		-				0	-	-	-	-	
Delivery	Surveying & Design	1	%	5.00	114,869	5.00	129,632	1	%	5.00	137,723	$ 151,839.26	$ 162,858.71	(36,971)	(33,227)	% driven item
	Contingency	1	%	15.00	344,606	15.00	388,895	1	%	15.00	413,169	$ 455,517.78	$ 488,576.12	(110,912)	(99,681)	% driven item
	Traffic Management	1	%	5.00	114,869	5.00	129,632	1	%	5.00	137,723	$ 151,839.26	$ 162,858.71	(36,971)	(33,227)	% driven item
	Supervision & Project Management	1	%	9.00	206,764	9.00	233,337	1	%	9.00	247,901	$ 273,310.67	$ 293,145.67	(66,547)	(59,809)	% driven item
	Council Fees	1	%	3.25	74,665	3.25	84,261	1	%	3.25	89,520	$ 98,695.52	$ 105,858.16	(24,031)	(21,598)	% driven item
	Vic Roads Fees	1	%	1.00	22,974	1.00	25,926	1	%	1.00	27,545	$ 30,367.85	$ 32,571.74	(7,394)	(6,645)	% driven item
	Environmental Management	1	%	0.50	11,487	0.50	12,963	1	%	0.50	13,772	$ 15,183.93	$ 16,285.87	(3,697)	(3,323)	% driven item
	Site Establishment	1	%	2.50	57,434	2.50	64,816	1	%	2.50	68,861	$ 75,919.63	$ 81,429.35	(18,485)	(16,613)	% driven item
TOTAL	Excluding Delivery				**2,297,373**		**2,592,634**				**2,754,457**	**$ 3,036,785**	**$ 3,257,174**	**(739,412)**	**(664,540)**	
	Including Delivery				**3,245,040**		**3,662,096**				**3,890,671**	**$ 4,289,459**	**$ 4,600,758**	**(1,044,420)**	**(938,662)**	

DRAFT FOR DISCUSSION

WT PARTNERSHIP

		VPA						WTP						Difference		
Item	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)	Qty	Unit	Rate	Amount	Amount (P50)	Amount (P90)	(P50)	(P90)	Comments
Siteworks & Earthworks	Site Preparation			2.39	-	2.68	-	9,405	m2	2.50	23,513	25,996	27,996	(25,996)	(27,996)	Quantity missing; Rate includes for site clearance & topsoil removal to suit Ultimate design standard to full width of road reserve.
	Demolition of existing pavements							220	m2	25.00	5,500	6,081	6,549	(6,081)	(6,549)	New item - Demolition of Greigs Road assumed
	Earthworks	6,266	m3	35.43	221,985	40.30	252,550	4,114	m3	39.00	160,450	177,395	191,045	44,590	61,505	Quantity high based upon differences to pavement areas (refer comments below)
Road Pavements	Primary Arterial Pavement	-	m2	157.08	-	170.80	-		m2	155.00	0			-	-	
	Secondary Arterial Pavement	6,970	m2	123.23	858,905	130.03	906,277	5,340	m2	141.00	752,940	832,458	896,514	26,447	9,763	Quantity high; Extent of Intersection IT-05 is less than Benchmark Cost Item-09 Rate is low based upon nominated pavement depth.
	Collector Arterial Pavement	3,440	m2	91.07	313,286	100.18	344,614	440	m2	126.00	55,440	61,295	66,012	251,991	278,603	
	Subgrade preparation	-	%	15.21	-	17.70	-	5,780	m2	2.50	14,450	15,976	17,205	(15,976)	(17,205)	Quantity missing; Rate - pricing methodology differs, m2 v %
	Pavement rehab	-	m2	45.90	-	-	-		m2		0			-	-	
	Pavement other	-	m2	-	-	-	-		m2		0			-	-	
Concrete Works	Kerb & channel	3,000	m	50.42	151,257	56.39	169,161	950	m	55.00	52,250	55,489	59,759	95,768	109,402	Quantity high but extent of IT-05 is less than Benchmark Cost Item-09
	Cycle path	1,090	m2	59.60	64,964	69.01	75,218	1,251	m2	50.00	62,550	66,427	71,539	(1,463)	3,680	Quantity low; additional Cycle path areas indicated (similar to Ultimate treatment)
	SUP / Footpath	1,910	m2	58.44	111,628	67.50	128,916	375	m2	50.00	18,750	19,912	21,444	91,715	107,471	Quantity high but extent of IT-05 is less than Benchmark Cost Item-09
	Traffic Island	105	m2	71.43	7,500	76.57	8,040	290	m2	60.00	17,400	18,479	19,900	(10,978)	(11,860)	Quantity low; extent of islands at intersection to be confirmed
Drainage	Drainage pipe - 300mm CR backfilled	280	m	162.30	45,444	175.64	49,180	116	m	225.00	26,100	28,856	31,077	16,588	18,103	Quantities are high but extent of IT-05 is less than Benchmark Cost Item-09
	Drainage pipe - 375mm CR backfilled	-	m	226.68	-	246.52	-		m	260.00	0			-	-	
	Drainage pipe - 450mm CR backfilled	790	m	291.67	230,417	320.95	253,552	290	m	290.00	84,100	92,982	100,137	137,435	153,416	
	Drainage pipe - 525mm CR backfilled	-	m	375.71	-	402.87	-		m	355.00	0			-	-	
	Drainage - pits	32	no.	2,325.57	74,418	2,499.15	79,973	6	no.	2,150.00	12,900	15,390	16,574	59,028	63,399	Quantity assumes pits @ 50m centres based upon length of pipework; Rate assumes for 600 x 900 JP, max depth 1.5m.
	Drainage - Subsoil drainage	3,540	m	23.05	81,586	26.53	93,931	950	m	45.00	42,750	47,265	50,902	34,322	43,029	Quantity high but extent of IT-05 is less than Benchmark Cost Item-09 Rate low - allowances include for pits and risers
	Drainage - swale								m	25.00	0			-	-	
	Drainage - culvert		no.	-	-	-	-		no.		0			-	-	
Traffic	Traffic Signals	4	Item	88,375.88	353,504	100,101.03	400,404	1	Item	300,000.00	300,000	331,683	357,205	21,820	43,199	X-intersection
	Traffic Signal conduit	-	m	45.71	-	53.47	-		m		0			-	-	
Landscape	Tree Planting	88	no.	259.62	22,846	318.78	28,053	20	no.	250.00	5,000	5,310	5,719	17,536	22,334	
	Landscaping	5,890	m2	20.72	122,021	23.31	137,302	386	m2	15.00	5,787	6,146	6,619	115,875	130,683	Quantity high - area used assumes overall site area (as per Site Preparation) less paved areas;
	Topsoil seeding	5,890	m2	7.00	41,206	7.92	46,661	1,543	m2	5.50	8,488	9,014	9,707	32,193	36,954	Assume 20% landscape planting & 80% topsoil seeding
Street Lighting	Street lighting (all inclusive)	-	m	207.67	-	235.63	-	10	no.	12,000.00	120,000	132,673	142,882	(132,673)	(142,882)	Rate - pricing methodology differs
	Street lighting - Intersections	4	Item / p	-	-	-	-		Item / per leg		0			-	-	Rate missing - refer item above
Misc.	Regulatory signage	10	Item	329.29	3,293	363.25	3,632	10	Item	350.00	3,500	3,870	4,167	(577)	(535)	as per Benchmark Cost Item-09
	Linemarking	10,410	m2 of p	2.40	25,012	2.81	29,258	5,780	m2 of pa	2.50	14,450	15,346	16,527	9,667	12,732	Quantity high based upon differences to pavement areas
	Landscape maintenance	1	Item	75,000.00	75,000	86,250.00	86,250	1	Item	104,000.00	104,000	108,184	116,508	(33,184)	(30,258)	allowance for maintenance during DLP assumes 104 wks x $1000 (assumes 1 man + vehicle x 1 day/wk)
	Tactile pavers (hazard only)	24	Item	337.14	8,091	422.86	10,149	16	Item	320.00	5,120	5,661	6,096	2,431	4,052	as per Benchmark Cost Item-09
Other	Overhead electrical - relocation				-		-	1	Item	100,000.00	100,000	110,561	119,068	(110,561)	(119,068)	OH poles & wires run along Greigs Road, likely to be impacted by projects (HV assumed)
					-						0	-	-	-	-	
Delivery	Surveying & Design	1	%	5.00	140,618	5.00	155,156	1	%	5.00	99,772	$ 109,622.38	$ 118,057.51	30,996	37,099	% driven item
	Contingency	1	%	15.00	421,855	15.00	465,468	1	%	15.00	299,316	$ 328,867.14	$ 354,172.52	92,988	111,296	% driven item
	Traffic Management	1	%	5.00	140,618	5.00	155,156	1	%	5.00	99,772	$ 109,622.38	$ 118,057.51	30,996	37,099	% driven item
	Supervision & Project Management	1	%	9.00	253,113	9.00	279,281	1	%	9.00	179,589	$ 197,320.29	$ 212,503.51	55,793	66,777	% driven item
	Council Fees	1	%	3.25	91,402	3.25	100,851	1	%	3.25	64,852	$ 71,254.55	$ 76,737.38	20,147	24,114	% driven item
	Vic Roads Fees	1	%	1.00	28,124	1.00	31,031	1	%	1.00	19,954	$ 21,924.48	$ 23,611.50	6,199	7,420	% driven item
	Environmental Management	1	%	0.50	14,062	0.50	15,516	1	%	0.50	9,977	$ 10,962.24	$ 11,805.75	3,100	3,710	% driven item
	Site Establishment	1	%	2.50	70,309	2.50	77,578	1	%	2.50	49,886	$ 54,811.19	$ 59,028.75	15,498	18,549	% driven item
TOTAL	Excluding Delivery				**2,812,365**		**3,103,121**				**1,995,437**	**$ 2,192,448**	**$ 2,361,150**	**619,917**	**741,971**	
	Including Delivery				**3,972,466**		**4,383,158**				**2,818,555**	**$ 3,096,832**	**$ 3,335,125**	**875,633**	**1,048,034**	

Mt Atkinson & Tarneit Plains ICP Costings - Independent Peer Review
IT-06 - Secondary / Connector Boulevard - Cross-Signalised (Interim)
Benchmark Item 8

DRAFT FOR DISCUSSION

WT PARTNERSHIP

		VPA						WTP						Difference		
Item	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)	Qty	Unit	Rate	Amount	Amount (P50)	Amount (P90)	(P50)	(P90)	Comments
Siteworks & Earthworks	Site Preparation	-		2.39	-	2.68	-	13,380	m2	2.50	33,450	36,905	40,363	(36,905)	(40,363)	Quantity missing; Rate includes for site clearance & topsoil removal to suit Ultimate design standard to full width of road reserve.
	Demolition of existing property							1	item	5,000.00	5,000	5,516	6,033	(5,516)	(6,033)	New item - Demolition of farm outbuildings
	Earthworks	9,867	m3	35.43	349,538	40.30	397,666	6,246	m3	39.00	243,594	268,755	293,938	80,784	103,727	Quantity high based upon differences to pavement areas (refer comments below)
Road Pavements	Primary Arterial Pavement	-	m2	157.08	-	170.80	-		m2	155.00	0			-	-	
	Secondary Arterial Pavement	13,800	m2	123.23	1,700,559	130.03	1,794,350	8,700	m2	141.00	1,226,700	1,353,405	1,480,224	347,153	314,125	Quantity high; Extent of Intersection IT-06 is less than Benchmark Cost Item-08 Rate is low based upon nominated pavement depth.
	Collector Arterial Pavement	-	m2	91.07	-	100.18	-		m2	126.00	0			-	-	
	Subgrade preparation	-	%	15.21	-	17.70	-	8,700	m2	2.50	21,750	23,997	26,245	(23,997)	(26,245)	Quantity missing; Rate - pricing methodology differs, m2 v %
	Pavement rehab	-	m2	45.90	-	-	-		m2		0			-	-	
	Pavement other	-	m2	-	-	-	-		m2		0			-	-	
Concrete Works	Kerb & channel	2,000	m	50.42	100,838	56.39	112,774	1,455	m	55.00	80,025	84,807	92,754	16,031	20,020	Quantity high but extent of IT-06 is less than Benchmark Cost Item-08
	Cycle path	-	m2	59.60	-	69.01	-	190	m2	50.00	9,500	10,068	11,011	(10,068)	(11,011)	Quantity low; additional Cycle path areas indicated (similar to Ultimate treatment)
	SUP / Footpath	1,700	m2	58.44	99,354	67.50	114,742	1,670	m2	50.00	83,500	88,490	96,782	10,865	17,960	Quantity high but extent of IT-06 is less than Benchmark Cost Item-08
	Traffic Island	680	m2	71.43	48,575	76.57	52,071	545	m2	60.00	32,700	34,654	37,901	13,921	14,169	Quantity high; extent of islands at intersection to be confirmed
Drainage	Drainage pipe - 300mm CR backfilled	260	m	162.30	42,198	175.64	45,667	136	m	225.00	30,600	33,761	36,924	8,437	8,743	Quantities are high but extent of IT-06 is less than Benchmark Cost Item-08
	Drainage pipe - 375mm CR backfilled	-	m	226.68	-	246.52	-		m	260.00	0			-	-	
	Drainage pipe - 450mm CR backfilled	900	m	291.67	262,500	320.95	288,857	340	m	290.00	98,600	108,784	118,978	153,716	169,879	
	Drainage pipe - 525mm CR backfilled	-	m	375.71	-	402.87	-		m	355.00	0			-	-	
	Drainage - pits	40	no.	2,325.57	93,023	2,499.15	99,966	7	no.	2,150.00	15,050	17,917	19,596	75,106	80,370	Quantity assumes pits @ 50m centres based upon length of pipework; Rate assumes for 600 x 900 JP, max depth 1.5m.
	Drainage - Subsoil drainage	3,100	m	23.05	71,446	26.53	82,256	1,455	m	45.00	65,475	72,238	79,007	(792)	3,249	Quantity high but extent of IT-06 is less than Benchmark Cost Item-08
	Drainage - swale							0	m	25.00	0			-	-	
	Drainage - culvert	-	no.	-	-	-	-		no.		0			-	-	
Traffic	Traffic Signals	4	Item	88,375.88	353,504	100,101.03	400,404	1	Item	300,000.00	300,000	330,987	362,002	22,517	38,403	X-intersection
	Traffic Signal conduit	-	m	45.71	-	53.47	-		m		0			-	-	
Landscape	Tree Planting	60	no.	259.62	15,577	318.78	19,127	48	no.	250.00	12,000	12,717	13,909	2,860	5,218	
	Landscaping	3,000	m2	20.72	62,150	23.31	69,933	455	m2	15.00	6,825	7,233	7,911	54,917	62,022	Quantity is high - area used assumes overall site area (as per Site Preparation) less paved areas;
	Topsoil seeding	3,000	m2	7.00	20,988	7.92	23,766	1,820	m2	5.50	10,010	10,608	11,602	10,380	12,164	Assume 20% landscape planting & 80% topsoil seeding
Street Lighting	Street lighting (all inclusive)	-	m	207.67	-	235.63	-	20	no.	12,000.00	240,000	264,790	289,601	(264,790)	(289,601)	Rate - pricing methodology differs
	Street lighting - Intersections	4	Item / p	-	-	-	-		Item / per leg		0			-	-	Rate missing - refer item above
Misc.	Regulatory signage	16	Item	329.29	5,269	363.25	5,812	16	item	350.00	5,600	6,178	6,757	(910)	(945)	as per Benchmark Cost Item-08
	Linemarking	13,800	m2 of p	2.40	33,158	2.81	38,786	8,700	m2 of pa	2.50	21,750	23,050	25,210	10,108	13,577	Quantity high based upon differences to pavement areas
	Landscape maintenance	1	Item	75,000.00	75,000	86,250.00	86,250	1	Item	104,000.00	104,000	107,957	118,073	(32,957)	(31,823)	allowance for maintenance during DLP assumes 104 wks x $1000 (assumes 1 man + vehicle x 1 day/wk)
	Tactile pavers (hazard only)	24		337.14	8,091	422.86	10,149	20	Item	320.00	6,400	7,061	7,723	1,030	2,426	
Other					-		-				0			-	-	
					-		-				0	-	-			
					-		-				0	-	-			
Delivery	Surveying & Design	1	%	5.00	167,088	5.00	182,129	1	%	5.00	132,626	$ 145,493.87	$ 159,127.17	21,594	23,002	% driven item
	Contingency	1	%	15.00	501,265	15.00	546,386	1	%	15.00	397,879	$ 436,481.60	$ 477,381.50	64,783	69,005	% driven item
	Traffic Management	1	%	5.00	167,088	5.00	182,129	1	%	5.00	132,626	$ 145,493.87	$ 159,127.17	21,594	23,002	% driven item
	Supervision & Project Management	1	%	9.00	300,759	9.00	327,832	1	%	9.00	238,728	$ 261,888.96	$ 286,428.90	38,870	41,403	% driven item
	Council Fees	1	%	3.25	108,607	3.25	118,384	1	%	3.25	86,207	$ 94,571.01	$ 103,432.66	14,036	14,951	% driven item
	Vic Roads Fees	1	%	1.00	33,418	1.00	36,426	1	%	1.00	26,525	$ 29,098.77	$ 31,825.43	4,319	4,600	% driven item
	Environmental Management	1	%	0.50	16,709	0.50	18,213	1	%	0.50	13,263	$ 14,549.39	$ 15,912.72	2,159	2,300	% driven item
	Site Establishment	1	%	2.50	83,544	2.50	91,064	1	%	2.50	66,313	$ 72,746.93	$ 79,563.58	10,797	11,501	% driven item
TOTAL	Excluding Delivery				**3,341,767**		**3,642,574**				**2,652,529**	**$ 2,909,877**	**$ 3,182,543**	**431,890**	**460,031**	
	Including Delivery				**4,720,246**		**5,145,136**				**3,746,697**	**$ 4,110,202**	**$ 4,495,342**	**610,044**	**649,794**	

Mt Atkinson & Tarneit Plains ICP Costings - Independent Peer Review
IT-07 - Secondary / Connector Boulevard - Cross-Signalised (Interim)
Benchmark Item 9

WT PARTNERSHIP

DRAFT FOR DISCUSSION

		VPA						WTP						Difference		
Item	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)	Qty	Unit	Rate	Amount	Amount (P50)	Amount (P90)	(P50)	(P90)	Comments
Siteworks & Earthworks	Site Preparation			2.39	-	2.68	-	9,550	m2	2.50	23,875	26,391	28,523	(26,391)	(28,523)	Quantity missing; Rate includes for site clearance & topsoil removal to suit Ultimate design standard to full width of road reserve.
	Earthworks	6,266	m3	35.43	221,985	40.30	252,550	4,190	m3	39.00	163,418	180,642	195,229	41,343	57,321	Quantity high based upon differences to pavement areas (refer comments below)
Road Pavements	Primary Arterial Pavement	-	m2	157.08	-	170.80	-		m2	155.00	0			-	-	
	Secondary Arterial Pavement	6,970	m2	123.23	858,905	130.03	906,277	5,400	m2	141.00	761,400	841,652	909,615	17,253	(3,338)	Quantity high; Extent of Intersection IT-07 is less than Benchmark Cost Item-09 Rate is low based upon nominated pavement depth.
	Collector Arterial Pavement	3,440	m2	91.07	313,286	100.18	344,614	520	m2	126.00	65,520	72,426	78,274	240,860	266,340	
	Subgrade preparation	-	%	15.21	-	17.70	-	5,920	m2	2.50	14,800	16,360	17,681	(16,360)	(17,681)	Quantity missing; Rate - pricing methodology differs, m2 v %
	Pavement rehab	-	m2	45.90	-	-	-		m2		0			-	-	
	Pavement other	-	m2	-	-	-	-		m2		0			-	-	
Concrete Works	Kerb & channel	3,000	m	50.42	151,257	56.39	169,161	885	m	55.00	48,675	51,682	55,856	99,575	113,305	Quantity high but extent of IT-07 is less than Benchmark Cost Item-09
	Cycle path	1,090	m2	59.60	64,964	69.01	75,218	380	m2	50.00	19,000	20,174	21,803	44,790	53,415	Quantity low; additional Cycle path areas indicated (similar to Ultimate treatment)
	SUP / Footpath	1,910	m2	58.44	111,628	67.50	128,916	1,230	m2	50.00	61,500	65,300	70,573	46,328	58,343	Quantity high but extent of IT-07 is less than Benchmark Cost Item-09
	Traffic Island	105	m2	71.43	7,500	76.57	8,040	220	m2	60.00	13,200	14,016	15,147	(6,515)	(7,107)	Quantity low; extent of islands at intersection to be confirmed
Drainage	Drainage pipe - 300mm CR backfilled	280	m	162.30	45,444	175.64	49,180	112	m	225.00	25,200	27,856	30,105	17,588	19,074	Quantities are high but extent of IT-07 is less than Benchmark Cost Item-09
	Drainage pipe - 375mm CR backfilled	-	m	226.68	-	246.52	-		m	260.00	0			-	-	
	Drainage pipe - 450mm CR backfilled	790	m	291.67	230,417	320.95	253,552	280	m	290.00	81,200	89,759	97,006	140,658	156,546	
	Drainage pipe - 525mm CR backfilled	-	m	375.71	-	402.87	-		m	355.00	0			-	-	
	Drainage - pits	32	no.	2,325.57	74,418	2,499.15	79,973	6	no.	2,150.00	12,900	15,387	16,630	59,031	63,343	Quantity assumes pits @ 50m centres based upon length of pipework; Rate assumes for 600 x 900 JP, max depth 1.5m.
	Drainage - Subsoil drainage	3,540	m	23.05	81,586	26.53	93,931	885	m	45.00	39,825	44,023	47,577	37,564	46,354	Quantity high - extent of IT-07 is less than Benchmark Cost Item -09 Rate low - allowances include for pits and risers
	Drainage - swale								m	25.00	0			-	-	
	Drainage - culvert		no.	-	-	-	-		no.		0			-	-	
Traffic	Traffic Signals	4	Item	88,375.88	353,504	100,101.03	400,404	1	Item	300,000.00	300,000	331,620	358,398	21,883	42,006	X-intersection
	Traffic Signal conduit	-	m	45.71	-	53.47	-		m		0			-	-	
Landscape	Tree Planting	88	no.	259.62	22,846	318.78	28,053	38	no.	250.00	9,500	10,087	10,901	12,759	17,151	
	Landscaping	5,890	m2	20.72	122,021	23.31	137,302	360	m2	15.00	5,400	5,734	6,197	116,288	131,105	Quantity is high - area used assumes overall site area (as per Site Preparation) less paved areas;
	Topsoil seeding	5,890	m2	7.00	41,206	7.92	46,661	1,440	m2	5.50	7,920	8,409	9,088	32,797	37,573	Assume 20% landscape planting & 80% topsoil seeding
Street Lighting	Street lighting (all inclusive)	-	m	207.67	-	235.63	-	10	no.	12,000.00	120,000	132,648	143,359	(132,648)	(143,359)	Rate - pricing methodology differs
	Street lighting - Intersections	4	Item / p	-	-	-	-		Item / per leg		0			-	-	Rate missing - refer item above
Misc.	Regulatory signage	10	Item	329.29	3,293	363.25	3,632	10	Item	350.00	3,500	3,869	4,181	(576)	(549)	
	Linemarking	10,410	m2 of pa	2.40	25,012	2.81	29,258	5,920	m2 of pa	2.50	14,800	15,714	16,983	9,298	12,275	Quantity high based upon differences to pavement areas
	Landscape maintenance	1	Item	75,000.00	75,000	86,250.00	86,250	1	Item	104,000.00	104,000	108,163	116,897	(33,163)	(30,647)	allowance for maintenance during DLP assumes 104 wks x $1000 (assumes 1 man + vehicle x 1 day/wk)
	Tactile pavers (hazard only)	24	Item	337.14	8,091	422.86	10,149	16	Item	320.00	5,120	5,660	6,117	2,432	4,032	
Other					-		-				0			-	-	
					-		-				0	-	-			
					-		-				0	-	-			
Delivery	Surveying & Design	1	%	5.00	140,618	5.00	155,156	1	%	5.00	95,038	$ 104,378.60	$ 112,807.10	36,240	42,349	% driven item
	Contingency	1	%	15.00	421,855	15.00	465,468	1	%	15.00	285,113	$ 313,135.79	$ 338,421.30	108,719	127,047	% driven item
	Traffic Management	1	%	5.00	140,618	5.00	155,156	1	%	5.00	95,038	$ 104,378.60	$ 112,807.10	36,240	42,349	% driven item
	Supervision & Project Management	1	%	9.00	253,113	9.00	279,281	1	%	9.00	171,068	$ 187,881.47	$ 203,052.78	65,231	76,228	% driven item
	Council Fees	1	%	3.25	91,402	3.25	100,851	1	%	3.25	61,774	$ 67,846.09	$ 73,324.62	23,556	27,527	% driven item
	Vic Roads Fees	1	%	1.00	28,124	1.00	31,031	1	%	1.00	19,008	$ 20,875.72	$ 22,561.42	7,248	8,470	% driven item
	Environmental Management	1	%	0.50	14,062	0.50	15,516	1	%	0.50	9,504	$ 10,437.86	$ 11,280.71	3,624	4,235	% driven item
	Site Establishment	1	%	2.50	70,309	2.50	77,578	1	%	2.50	47,519	$ 52,189.30	$ 56,403.55	18,120	21,174	% driven item
TOTAL	Excluding Delivery				**2,812,365**		**3,103,121**				**1,900,753**	**$ 2,087,572**	**$ 2,256,142**	**724,793**	**846,979**	
	Including Delivery				**3,972,466**		**4,383,158**				**2,684,813**	**$ 2,948,695**	**$ 3,186,801**	**1,023,770**	**1,196,358**	

Mt Atkinson & Tarneit Plains ICP Costings - Independent Peer Review
IT-08 - Secondary / Connector Boulevard - Cross-Signalised (Interim)
Benchmark Item 9

DRAFT FOR DISCUSSION

WT PARTNERSHIP

		VPA						WTP						Difference		
Item	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)	Qty	Unit	Rate	Amount	Amount (P50)	Amount (P90)	(P50)	(P90)	Comments
Siteworks & Earthworks	Site Preparation			2.39	-	2.68	-	10,050	m2	2.50	25,125	27,744	30,084	(27,744)	(30,084)	Quantity missing; Rate includes for site clearance & topsoil removal to suit Ultimate design standard to full width of road reserve.
	Earthworks	6,266	m3	35.43	221,985	40.30	252,550	4,403	m3	39.00	171,724	189,623	205,617	32,362	46,933	Quantity high based upon differences to pavement areas (refer comments below)
Road Pavements	Primary Arterial Pavement	-	m2	157.08	-	170.80	-		m2	155.00	0			-	-	
	Secondary Arterial Pavement	6,970	m2	123.23	858,905	130.03	906,277	5,750	m2	141.00	810,750	895,258	970,767	(36,353)	(64,490)	Quantity high; Extent of Intersection IT-08 is less than Benchmark Cost Item-09 Rate is low based upon nominated pavement depth.
	Collector Arterial Pavement	3,440	m2	91.07	313,286	100.18	344,614	455	m2	126.00	57,330	63,306	68,645	249,980	275,969	
	Subgrade preparation	-	%	15.21	-	17.70	-	6,205	m2	2.50	15,513	17,129	18,574	(17,129)	(18,574)	Quantity missing; Rate - pricing methodology differs, m2 v %
	Pavement rehab	-	m2	45.90	-	-	-		m2		0			-	-	
	Pavement other	-	m2	-	-	-	-		m2		0			-	-	
Concrete Works	Kerb & channel	3,000	m	50.42	151,257	56.39	169,161	950	m	55.00	52,250	55,420	60,094	95,837	109,067	Quantity high but extent of IT-08 is less than Benchmark Cost Item-09
	Cycle path	1,090	m2	59.60	64,964	69.01	75,218	415	m2	50.00	20,750	22,009	23,865	42,955	51,353	Quantity low; additional Cycle path areas indicated (similar to Ultimate treatment)
	SUP / Footpath	1,910	m2	58.44	111,628	67.50	128,916	1,280	m2	50.00	64,000	67,883	73,608	43,745	55,308	Quantity high but extent of IT-08 is less than Benchmark Cost Item-09
	Traffic Island	105	m2	71.43	7,500	76.57	8,040	250	m2	60.00	15,000	15,910	17,252	(8,409)	(9,212)	Quantity low; extent of islands at intersection to be confirmed
Drainage	Drainage pipe - 300mm CR backfilled	280	m	162.30	45,444	175.64	49,180	112	m	225.00	25,200	27,827	30,174	17,617	19,006	Quantity high but extent of IT-08 is less than Benchmark Cost Item-09
	Drainage pipe - 375mm CR backfilled	-	m	226.68	-	246.52	-		m	260.00	0			-	-	
	Drainage pipe - 450mm CR backfilled	790	m	291.67	230,417	320.95	253,552	280	m	290.00	81,200	89,664	97,226	140,753	156,326	
	Drainage pipe - 525mm CR backfilled	-	m	375.71	-	402.87	-		m	355.00	0			-	-	
	Drainage - pits	32	no.	2,325.57	74,418	2,499.15	79,973	6	no.	2,150.00	12,900	15,371	16,667	59,047	63,306	Quantity assumes pits @ 50m centres based upon length of pipework; Rate assumes for 600 x 900 JP, max depth 1.5m.
	Drainage - Subsoil drainage	3,540	m	23.05	81,586	26.53	93,931	950	m	45.00	42,750	47,206	51,188	34,380	42,743	Quantity high - extent of IT-08 is less than Benchmark Cost Item -09 Rate low - allowances include for pits and risers
	Drainage - swale								m	25.00	0			-	-	
	Drainage - culvert		no.	-	-	-	-		no.		0			-	-	
Traffic	Traffic Signals	4	Item	88,375.88	353,504	100,101.03	400,404	1	Item	300,000.00	300,000	331,270	359,211	22,233	41,193	X-intersection
	Traffic Signal conduit	-	m	45.71	-	53.47	-		m		0			-	-	
Landscape	Tree Planting	88	no.	259.62	22,846	318.78	28,053	40	no.	250.00	10,000	10,607	11,501	12,240	16,552	
	Landscaping	5,890	m2	20.72	122,021	23.31	137,302	380	m2	15.00	5,700	6,046	6,556	115,975	130,746	Quantity is high - area used assumes overall site area (as per Site Preparation) less paved areas;
	Topsoil seeding	5,890	m2	7.00	41,206	7.92	46,661	1,520	m2	5.50	8,360	8,867	9,615	32,339	37,046	Assume 20% landscape planting & 80% topsoil seeding
Street Lighting	Street lighting (all inclusive)	-	m	207.67	-	235.63	-	10	no.	12,000.00	120,000	132,508	143,684	(132,508)	(143,684)	Rate - pricing methodology differs
	Street lighting - Intersections	4	Item / p	-	-	-	-		Item / per leg		0			-	-	Rate missing - refer item above
Misc.	Regulatory signage	10	Item	329.29	3,293	363.25	3,632	10	Item	350.00	3,500	3,865	4,191	(572)	(558)	as per Benchmark Cost Item-09
	Linemarking	10,410	m2 of p	2.40	25,012	2.81	29,258	6,205	m2 of pa	2.50	15,513	16,454	17,841	8,559	11,417	Quantity high based upon differences to pavement areas
	Landscape maintenance	1	Item	75,000.00	75,000	86,250.00	86,250	1	Item	104,000.00	104,000	108,049	117,162	(33,049)	(30,912)	allowance for maintenance during DLP assumes 104 wks x $1000 (assumes 1 man + vehicle x 1 day/wk)
	Tactile pavers (hazard only)	24	Item	337.14	8,091	422.86	10,149	16	Item	320.00	5,120	5,654	6,131	2,438	4,018	as per Benchmark Cost Item-09
Other					-		-				0			-	-	
					-		-				0	-	-			
					-		-				0	-	-			
Delivery	Surveying & Design	1	%	5.00	140,618	5.00	155,156	1	%	5.00	98,334	$ 107,883.40	$ 116,982.62	32,735	38,173	% driven item
	Contingency	1	%	15.00	421,855	15.00	465,468	1	%	15.00	295,003	$ 323,650.21	$ 350,947.85	98,205	114,520	% driven item
	Traffic Management	1	%	5.00	140,618	5.00	155,156	1	%	5.00	98,334	$ 107,883.40	$ 116,982.62	32,735	38,173	% driven item
	Supervision & Project Management	1	%	9.00	253,113	9.00	279,281	1	%	9.00	177,002	$ 194,190.13	$ 210,568.71	58,923	68,712	% driven item
	Council Fees	1	%	3.25	91,402	3.25	100,851	1	%	3.25	63,917	$ 70,124.21	$ 76,038.70	21,278	24,813	% driven item
	Vic Roads Fees	1	%	1.00	28,124	1.00	31,031	1	%	1.00	19,667	$ 21,576.68	$ 23,396.52	6,547	7,635	% driven item
	Environmental Management	1	%	0.50	14,062	0.50	15,516	1	%	0.50	9,833	$ 10,788.34	$ 11,698.26	3,273	3,817	% driven item
	Site Establishment	1	%	2.50	70,309	2.50	77,578	1	%	2.50	49,167	$ 53,941.70	$ 58,491.31	16,367	19,087	% driven item
TOTAL	Excluding Delivery				**2,812,365**		**3,103,121**				**1,966,684**	**$ 2,157,668**	**$ 2,339,652**	**654,697**	**763,469**	
	Including Delivery				**3,972,466**		**4,383,158**				**2,777,941**	**$ 3,047,706**	**$ 3,304,759**	**924,760**	**1,078,400**	

Mt Atkinson & Tarneit Plains ICP Costings - Independent Peer Review
IT-09 - Secondary / Connector Boulevard - Cross-Signalised (Interim)
Benchmark Item 9

WT PARTNERSHIP

DRAFT FOR DISCUSSION

		VPA						WTP								
Item	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)	Qty	Unit	Rate	Amount	Amount (P50)	Amount (P90)	Difference (P50)	Difference (P90)	Comments
Siteworks & Earthworks	Site Preparation			2.39	-	2.68	-	10,155	m2	2.50	25,388	28,094	30,176	(28,094)	(30,176)	Quantity missing; Rate includes for site clearance & topsoil removal to suit Ultimate design standard to full width of road reserve.
	Earthworks	6,266	m3	35.43	221,985	40.30	252,550	4,108	m3	39.00	160,218	177,298	190,440	44,688	62,110	Quantity high based upon differences to pavement areas (refer comments below)
Road Pavements	Primary Arterial Pavement	-	m2	157.08	-	170.80	-		m2	155.00	0			-	-	
	Secondary Arterial Pavement	6,970	m2	123.23	858,905	130.03	906,277	4,800	m2	141.00	676,800	748,950	804,467	109,956	101,810	Quantity high; Extent of Intersection IT-09 is less than Benchmark Cost Item-09 Rate is low based upon nominated pavement depth.
	Collector Arterial Pavement	3,440	m2	91.07	313,286	100.18	344,614	1,090	m2	126.00	137,340	151,981	163,247	161,305	181,367	Quantity high; Extent of Intersection IT-09 is less than Benchmark Cost Item-09 Rate is low based upon nominated pavement depth.
	Subgrade preparation	-	%	15.21	-	17.70	-	5,890	m2	2.50	14,725	16,295	17,503	(16,295)	(17,503)	Quantity missing; Rate - pricing methodology differs, m2 v %
	Pavement rehab	-	m2	45.90	-	-	-		m2		0			-	-	
	Pavement other	-	m2	-	-	-	-		m2		0			-	-	
Concrete Works	Kerb & channel	3,000	m	50.42	151,257	56.39	169,161	1,070	m	55.00	58,850	62,554	67,191	88,703	101,970	Quantity high but extent of IT-07 is less than Benchmark Cost Item-09
	Cycle path	1,090	m2	59.60	64,964	69.01	75,218	390	m2	50.00	19,500	20,727	22,264	44,237	52,954	Quantity low; additional Cycle path areas indicated (similar to Ultimate treatment)
	SUP / Footpath	1,910	m2	58.44	111,628	67.50	128,916	1,200	m2	50.00	60,000	63,776	68,504	47,851	60,412	Quantity high but extent of IT-07 is less than Benchmark Cost Item-09
	Traffic Island	105	m2	71.43	7,500	76.57	8,040	230	m2	60.00	13,800	14,669	15,756	(7,168)	(7,716)	Quantity low; extent of islands at intersection to be confirmed
Drainage	Drainage pipe - 300mm CR backfilled	280	m	162.30	45,444	175.64	49,180	114	m	225.00	25,650	28,384	30,488	17,060	18,691	Quantities are high but extent of IT-07 is less than Benchmark Cost Item-09
	Drainage pipe - 375mm CR backfilled	-	m	226.68	-	246.52	-		m	260.00	0			-	-	
	Drainage pipe - 450mm CR backfilled	790	m	291.67	230,417	320.95	253,552	285	m	290.00	82,650	91,461	98,241	138,956	155,312	
	Drainage pipe - 525mm CR backfilled	-	m	375.71	-	402.87	-		m	355.00	0			-	-	
	Drainage - pits	32	no.	2,325.57	74,418	2,499.15	79,973	6	no.	2,150.00	12,900	15,404	16,546	59,014	63,427	Quantity assumes pits @ 50m centres based upon length of pipework; Rate assumes for 600 x 900 JP, max depth 1.5m.
	Drainage - Subsoil drainage	3,540	m	23.05	81,586	26.53	93,931	1,070	m	45.00	48,150	53,283	57,233	28,303	36,698	Quantity high - extent of IT-09 is less than Benchmark Cost Item -09 Rate low - allowances include for pits and risers
	Drainage - swale								m	25.00	0			-	-	
	Drainage - culvert		no.	-	-	-	-		no.		0			-	-	
Traffic	Traffic Signals	4	Item	88,375.88	353,504	100,101.03	400,404	1	Item	300,000.00	300,000	331,981	356,590	21,522	43,814	X-intersection
	Traffic Signal conduit	-	m	45.71	-	53.47	-		m		0			-	-	
Landscape	Tree Planting	88	no.	259.62	22,846	318.78	28,053	38	no.	250.00	9,500	10,098	10,846	12,748	17,206	
	Landscaping	5,890	m2	20.72	122,021	23.31	137,302	489	m2	15.00	7,335	7,797	8,375	114,224	128,927	Quantity is high - area used assumes overall site area (as per Site Preparation) less paved areas;
	Topsoil seeding	5,890	m2	7.00	41,206	7.92	46,661	1,956	m2	5.50	10,758	11,435	12,283	29,771	34,379	Assume 20% landscape planting & 80% topsoil seeding
Street Lighting	Street lighting (all inclusive)	-	m	207.67	-	235.63	-	10	no.	12,000.00	120,000	132,793	142,636	(132,793)	(142,636)	Rate - pricing methodology differs
	Street lighting - Intersections	4	Item / p	-	-	-	-		Item / per leg		0			-	-	Rate missing - refer item above
Misc.	Regulatory signage	10	Item	329.29	3,293	363.25	3,632	10	Item	350.00	3,500	3,873	4,160	(580)	(528)	as per Benchmark Cost Item-09
	Linemarking	10,410	m2 of p	2.40	25,012	2.81	29,258	5,890	m2 of pa	2.50	14,725	15,652	16,812	9,361	12,446	Quantity high based upon differences to pavement areas
	Landscape maintenance	1	Item	75,000.00	75,000	86,250.00	86,250	1	Item	104,000.00	104,000	108,281	116,307	(33,281)	(30,057)	allowance for maintenance during DLP assumes 104 wks x $1000 (assumes 1 man + vehicle x 1 day/wk)
	Tactile pavers (hazard only)	24	Item	337.14	8,091	422.86	10,149	16	Item	320.00	5,120	5,666	6,086	2,426	4,063	as per Benchmark Cost Item-09
Other					-		-				0			-	-	
					-		-				0	-	-			
					-		-				0	-	-			
Delivery	Surveying & Design	1	%	5.00	140,618	5.00	155,156	1	%	5.00	95,545	$ 105,022.54	$ 112,807.55	35,596	42,348	% driven item
	Contingency	1	%	15.00	421,855	15.00	465,468	1	%	15.00	286,636	$ 315,067.63	$ 338,422.66	106,787	127,045	% driven item
	Traffic Management	1	%	5.00	140,618	5.00	155,156	1	%	5.00	95,545	$ 105,022.54	$ 112,807.55	35,596	42,348	% driven item
	Supervision & Project Management	1	%	9.00	253,113	9.00	279,281	1	%	9.00	171,982	$ 189,040.58	$ 203,053.59	64,072	76,227	% driven item
	Council Fees	1	%	3.25	91,402	3.25	100,851	1	%	3.25	62,105	$ 68,264.65	$ 73,324.91	23,137	27,527	% driven item
	Vic Roads Fees	1	%	1.00	28,124	1.00	31,031	1	%	1.00	19,109	$ 21,004.51	$ 22,561.51	7,119	8,470	% driven item
	Environmental Management	1	%	0.50	14,062	0.50	15,516	1	%	0.50	9,555	$ 10,502.25	$ 11,280.76	3,560	4,235	% driven item
	Site Establishment	1	%	2.50	70,309	2.50	77,578	1	%	2.50	47,773	$ 52,511.27	$ 56,403.78	17,798	21,174	% driven item
TOTAL	Excluding Delivery				**2,812,365**		**3,103,121**				**1,910,908**	**$ 2,100,451**	**$ 2,256,151**	**711,914**	**846,970**	
	Including Delivery				**3,972,466**		**4,383,158**				**2,699,158**	**$ 2,966,887**	**$ 3,186,813**	**1,005,579**	**1,196,345**	

Mt Atkinson & Tarneit Plains ICP Costings - Independent Peer Review
IT-10 - Secondary / Connector Boulevard - Cross-Signalised (Interim)
Benchmark Item 9

DRAFT FOR DISCUSSION

WT PARTNERSHIP

		VPA						WTP						Difference		
Item	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)	Qty	Unit	Rate	Amount	Amount (P50)	Amount (P90)	(P50)	(P90)	Comments
Siteworks & Earthworks	Site Preparation			2.39	-	2.68	-	14,070	m2	2.50	35,175	38,901	41,839	(38,901)	(41,839)	Quantity missing; Rate includes for site clearance & topsoil removal to suit Ultimate design standard to full width of road reserve.
	Earthworks	6,266	m3	35.43	221,985	40.30	252,550	5,580	m3	39.00	217,601	240,654	258,828	(18,669)	(6,278)	Quantity high based upon differences to pavement areas (refer comments below)
Road Pavements	Primary Arterial Pavement	-	m2	157.08	-	170.80	-		m2	155.00	0			-	-	
	Secondary Arterial Pavement	6,970	m2	123.23	858,905	130.03	906,277	6,655	m2	141.00	938,355	1,037,764	1,116,134	(178,859)	(209,857)	Quantity high; Extent of Intersection IT-10 is less than Benchmark Cost Item-09 Rate is low based upon nominated pavement depth.
	Collector Arterial Pavement	3,440	m2	91.07	313,286	100.18	344,614	1,260	m2	126.00	158,760	175,579	188,838	137,707	155,776	Quantity high; Extent of Intersection IT-10 is less than Benchmark Cost Item-09 Rate is low based upon nominated pavement depth.
	Subgrade preparation	-	%	15.21	-	17.70	-	7,915	m2	2.50	19,788	21,884	23,536	(21,884)	(23,536)	Quantity missing; Rate - pricing methodology differs, m2 v %
	Pavement rehab	-	m2	45.90	-	-	-		m2		0			-	-	
	Pavement other	-	m2	-	-	-	-		m2		0			-	-	
Concrete Works	Kerb & channel	3,000	m	50.42	151,257	56.39	169,161	1,550	m	55.00	85,250	90,561	97,400	60,696	71,760	Quantity high but extent of IT-10 is less than Benchmark Cost Item-09
	Cycle path	1,090	m2	59.60	64,964	69.01	75,218	1,600	m2	50.00	80,000	84,984	91,402	(20,020)	(16,184)	Quantity low; additional Cycle path areas indicated (similar to Ultimate treatment)
	SUP / Footpath	1,910	m2	58.44	111,628	67.50	128,916	665	m2	50.00	33,250	35,322	37,989	76,306	90,927	Quantity high but extent of IT-10 is less than Benchmark Cost Item-09
	Traffic Island	105	m2	71.43	7,500	76.57	8,040	630	m2	60.00	37,800	40,155	43,187	(32,655)	(35,147)	Quantity low; extent of islands at intersection to be confirmed
Drainage	Drainage pipe - 300mm CR backfilled	280	m	162.30	45,444	175.64	49,180	224	m	225.00	50,400	55,739	59,949	(10,295)	(10,769)	Quantities are high but extent of IT-10 is less than Benchmark Cost Item-09
	Drainage pipe - 375mm CR backfilled	-	m	226.68	-	246.52	-		m	260.00	0			-	-	
	Drainage pipe - 450mm CR backfilled	790	m	291.67	230,417	320.95	253,552	560	m	290.00	162,400	179,605	193,168	50,812	60,384	
	Drainage pipe - 525mm CR backfilled	-	m	375.71	-	402.87	-		m	355.00	0			-	-	
	Drainage - pits	32	no.	2,325.57	74,418	2,499.15	79,973	11	no.	2,150.00	23,650	28,223	30,355	46,195	49,618	Quantity assumes pits @ 50m centres based upon length of pipework; Rate assumes for 600 x 900 JP, max depth 1.5m.
	Drainage - Subsoil drainage	3,540	m	23.05	81,586	26.53	93,931	1,550	m	45.00	69,750	77,139	82,965	4,447	10,966	Quantity high - extent of IT-10 is less than Benchmark Cost Item -09 Rate low - allowances include for pits and risers
	Drainage - swale								m	25.00	0			-	-	
	Drainage - culvert		no.	-	-	-	-		no.		0			-	-	
Traffic	Traffic Signals	4	Item	88,375.88	353,504	100,101.03	400,404	1	Item	300,000.00	300,000	331,782	356,837	21,722	43,567	X-intersection
	Traffic Signal conduit	-	m	45.71	-	53.47	-		m		0			-	-	
Landscape	Tree Planting	88	no.	259.62	22,846	318.78	28,053	54	no.	250.00	13,500	14,341	15,424	8,505	12,629	
	Landscaping	5,890	m2	20.72	122,021	23.31	137,302	652	m2	15.00	9,780	10,389	11,174	111,632	126,128	Quantity is high - area used assumes overall site area (as per Site Preparation) less paved areas;
	Topsoil seeding	5,890	m2	7.00	41,206	7.92	46,661	2,608	m2	5.50	14,344	15,238	16,388	25,969	30,273	Assume 20% landscape planting & 80% topsoil seeding
Street Lighting	Street lighting (all inclusive)	-	m	207.67	-	235.63	-	12	no.	12,000.00	144,000	159,255	171,282	(159,255)	(171,282)	Rate - pricing methodology differs
	Street lighting - Intersections	4	Item / p	-	-	-	-		Item / per leg		0			-	-	Rate missing - refer item above
Misc.	Regulatory signage	10	Item	329.29	3,293	363.25	3,632	10	Item	350.00	3,500	3,871	4,163	(578)	(531)	as per Benchmark Cost Item-09
	Linemarking	10,410	m2 of p	2.40	25,012	2.81	29,258	7,915	m2 of pa	2.50	19,788	21,020	22,608	3,992	6,650	Quantity high based upon differences to pavement areas
	Landscape maintenance	1	Item	75,000.00	75,000	86,250.00	86,250	1	Item	104,000.00	104,000	108,216	116,388	(33,216)	(30,138)	allowance for maintenance during DLP assumes 104 wks x $1000 (assumes 1 man + vehicle x 1 day/wk)
	Tactile pavers (hazard only)	24	Item	337.14	8,091	422.86	10,149	20	Item	320.00	6,400	7,078	7,613	1,013	2,536	
Other					-		-				0			-	-	
					-		-				0	-	-			
					-		-				0	-	-			
Delivery	Surveying & Design	1	%	5.00	140,618	5.00	155,156	1	%	5.00	126,375	$ 138,885.11	$ 149,373.41	1,733	5,783	% driven item
	Contingency	1	%	15.00	421,855	15.00	465,468	1	%	15.00	379,124	$ 416,655.33	$ 448,120.22	5,199	17,348	% driven item
	Traffic Management	1	%	5.00	140,618	5.00	155,156	1	%	5.00	126,375	$ 138,885.11	$ 149,373.41	1,733	5,783	% driven item
	Supervision & Project Management	1	%	9.00	253,113	9.00	279,281	1	%	9.00	227,474	$ 249,993.20	$ 268,872.13	3,120	10,409	% driven item
	Council Fees	1	%	3.25	91,402	3.25	100,851	1	%	3.25	82,143	$ 90,275.32	$ 97,092.71	1,127	3,759	% driven item
	Vic Roads Fees	1	%	1.00	28,124	1.00	31,031	1	%	1.00	25,275	$ 27,777.02	$ 29,874.68	347	1,157	% driven item
	Environmental Management	1	%	0.50	14,062	0.50	15,516	1	%	0.50	12,637	$ 13,888.51	$ 14,937.34	173	578	% driven item
	Site Establishment	1	%	2.50	70,309	2.50	77,578	1	%	2.50	63,187	$ 69,442.56	$ 74,686.70	867	2,891	% driven item
TOTAL	Excluding Delivery				**2,812,365**		**3,103,121**				**2,527,490**	**$ 2,777,702**	**$ 2,987,468**	**34,663**	**115,653**	
	Including Delivery				**3,972,466**		**4,383,158**				**3,570,080**	**$ 3,923,504**	**$ 4,219,799**	**48,961**	**163,360**	

DRAFT FOR DISCUSSION

WT PARTNERSHIP

		VPA						WTP						Difference		
Item	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)	Qty	Unit	Rate	Amount	Amount (P50)	Amount (P90)	(P50)	(P90)	Comments
Siteworks & Earthworks	Site Preparation			2.39	-	2.68	-	18,480	m2	2.50	46,200	51,147	54,722	(51,147)	(54,722)	Quantity missing; Rate includes for site clearance & topsoil removal to suit Ultimate design standard to full width of road reserve.
	Earthworks	6,266	m3	35.43	221,985	40.30	252,550	7,260	m3	39.00	283,147	313,464	335,377	(91,479)	(82,827)	Quantity low based upon differences to pavement areas (refer comments below)
Road Pavements	Primary Arterial Pavement	-	m2	157.08	-	170.80	-		m2	155.00	0			-	-	
	Secondary Arterial Pavement	6,970	m2	123.23	858,905	130.03	906,277	7,715	m2	141.00	1,087,815	1,204,290	1,288,475	(345,385)	(382,199)	Quantity low but overall pavement quantities are similar. Differences likely due to assumed demarcation point of secondary / collector pavements Rate is low based upon nominated pavement depth.
	Collector Arterial Pavement	3,440	m2	91.07	313,286	100.18	344,614	2,790	m2	126.00	351,540	389,180	416,386	(75,895)	(71,771)	Quantity high but overall pavement quantities are similar. Differences likely due to assumed demarcation point of secondary / collector pavements Rate is low based upon nominated pavement depth.
	Subgrade preparation	-	%	15.21	-	17.70	-	10,505	m2	2.50	26,263	29,074	31,107	(29,074)	(31,107)	Quantity missing; Rate - pricing methodology differs, m2 v %
	Pavement rehab	-	m2	45.90	-	-	-		m2		0			-	-	
	Pavement other	-	m2	-	-	-	-		m2		0			-	-	
Concrete Works	Kerb & channel	3,000	m	50.42	151,257	56.39	169,161	2,230	m	55.00	122,650	130,425	139,542	20,832	29,618	Quantity high compared to WT measured lengths
	Cycle path	1,090	m2	59.60	64,964	69.01	75,218	940	m2	50.00	47,000	49,979	53,473	14,985	21,745	Quantity high compared to WT measured areas
	SUP / Footpath	1,910	m2	58.44	111,628	67.50	128,916	1,955	m2	50.00	97,750	103,947	111,213	7,681	17,703	Minor difference in quantity
	Traffic Island	105	m2	71.43	7,500	76.57	8,040	700	m2	60.00	42,000	44,662	47,785	(37,162)	(39,744)	Quantity low; extent of islands at intersection to be confirmed
Drainage	Drainage pipe - 300mm CR backfilled	280	m	162.30	45,444	175.64	49,180	276	m	225.00	62,100	68,749	73,555	(23,305)	(24,376)	
	Drainage pipe - 375mm CR backfilled	-	m	226.68	-	246.52	-		m	260.00	0			-	-	
	Drainage pipe - 450mm CR backfilled	790	m	291.67	230,417	320.95	253,552	690	m	290.00	200,100	221,525	237,011	8,891	16,541	
	Drainage pipe - 525mm CR backfilled	-	m	375.71	-	402.87	-		m	355.00	0			-	-	
	Drainage - pits	32	no.	2,325.57	74,418	2,499.15	79,973	14	no.	2,150.00	30,100	35,957	38,471	38,461	41,502	Quantity assumes pits @ 50m centres based upon length of pipework; Rate assumes for 600 x 900 JP, max depth 1.5m.
	Drainage - Subsoil drainage	3,540	m	23.05	81,586	26.53	93,931	2,230	m	45.00	100,350	111,095	118,861	(29,508)	(24,930)	Quantity high compared to WT measured lengths Rate low - allowances include for pits and risers
	Drainage - swale								m	25.00	0			-	-	
	Drainage - culvert		no.	-	-	-	-		no.		0			-	-	
Traffic	Traffic Signals	4	Item	88,375.88	353,504	100,101.03	400,404	1	Item	300,000.00	300,000	332,122	355,339	21,382	45,066	X-intersection
	Traffic Signal conduit	-	m	45.71	-	53.47	-		m		0			-	-	
Landscape	Tree Planting	88	no.	259.62	22,846	318.78	28,053	70	no.	250.00	17,500	18,609	19,910	4,237	8,143	
	Landscaping	5,890	m2	20.72	122,021	23.31	137,302	876	m2	15.00	13,140	13,973	14,950	108,048	122,352	Quantity is high - area used assumes overall site area (as per Site Preparation) less paved areas;
	Topsoil seeding	5,890	m2	7.00	41,206	7.92	46,661	3,504	m2	5.50	19,272	20,494	21,926	20,713	24,735	Assume 20% landscape planting & 80% topsoil seeding
Street Lighting	Street lighting (all inclusive)	-	m	207.67	-	235.63	-	20	no.	12,000.00	240,000	265,697	284,271	(265,697)	(284,271)	Rate - pricing methodology differs
	Street lighting - Intersections	4	Item / p	-	-	-	-		Item / per leg		0			-	-	Rate missing - refer item above
Misc.	Regulatory signage	10	Item	329.29	3,293	363.25	3,632	10	Item	350.00	3,500	3,875	4,146	(582)	(513)	as per Benchmark Cost Item-09
	Linemarking	10,410	m2 of p	2.40	25,012	2.81	29,258	10,505	m2 of pa	2.50	26,263	27,927	29,880	(2,915)	(621)	Quantity high based upon differences to pavement areas
	Landscape maintenance	1	Item	75,000.00	75,000	86,250.00	86,250	1	Item	104,000.00	104,000	108,327	115,899	(33,327)	(29,649)	allowance for maintenance during DLP assumes 104 wks x $1000 (assumes 1 man + vehicle x 1 day/wk)
	Tactile pavers (hazard only)	24	Item	337.14	8,091	422.86	10,149	24	Item	320.00	7,680	8,502	9,097	(411)	1,052	
Other					-		-				0			-	-	
					-		-				0	-	-			
					-		-				0	-	-			
Delivery	Surveying & Design	1	%	5.00	140,618	5.00	155,156	1	%	5.00	161,418	$ 177,651.07	$ 190,069.70	(37,033)	(34,914)	% driven item
	Contingency	1	%	15.00	421,855	15.00	465,468	1	%	15.00	484,255	$ 532,953.22	$ 570,209.09	(111,098)	(104,741)	% driven item
	Traffic Management	1	%	5.00	140,618	5.00	155,156	1	%	5.00	161,418	$ 177,651.07	$ 190,069.70	(37,033)	(34,914)	% driven item
	Supervision & Project Management	1	%	9.00	253,113	9.00	279,281	1	%	9.00	290,553	$ 319,771.93	$ 342,125.45	(66,659)	(62,845)	% driven item
	Council Fees	1	%	3.25	91,402	3.25	100,851	1	%	3.25	104,922	$ 115,473.20	$ 123,545.30	(24,071)	(22,694)	% driven item
	Vic Roads Fees	1	%	1.00	28,124	1.00	31,031	1	%	1.00	32,284	$ 35,530.21	$ 38,013.94	(7,407)	(6,983)	% driven item
	Environmental Management	1	%	0.50	14,062	0.50	15,516	1	%	0.50	16,142	$ 17,765.11	$ 19,006.97	(3,703)	(3,491)	% driven item
	Site Establishment	1	%	2.50	70,309	2.50	77,578	1	%	2.50	80,709	$ 88,825.54	$ 95,034.85	(18,516)	(17,457)	% driven item
TOTAL	Excluding Delivery				**2,812,365**		**3,103,121**				**3,228,369**	**$ 3,553,021**	**$ 3,801,394**	**(740,656)**	**(698,273)**	
	Including Delivery				**3,972,466**		**4,383,158**				**4,560,071**	**$ 5,018,643**	**$ 5,369,469**	**(1,046,177)**	**(986,310)**	

Mt Atkinson & Tarneit Plains ICP Costings - Independent Peer Review
IT-12 - Intersection - Secondary / Connector Boulevard - Cross-Signalised (Interim)
Benchmark Item 8

DRAFT FOR DISCUSSION

WT PARTNERSHIP

		VPA						WTP						Difference		
Item	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)	Qty	Unit	Rate	Amount	Amount (P50)	Amount (P90)	(P50)	(P90)	Comments
Siteworks & Earthworks	Site Preparation	-		2.39	-	2.68	-	15,870	m2	2.50	39,675	43,754	47,798	(43,754)	(47,798)	Quantity missing; Rate includes for site clearance & topsoil removal to suit Ultimate design standard to full width of road reserve.
	Earthworks	9,867	m3	35.43	349,538	40.30	397,666	7,408	m3	39.00	288,908	318,614	348,060	30,924	49,606	Quantity high based upon differences to pavement areas (refer comments below)
Road Pavements	Primary Arterial Pavement	-	m2	157.08	-	170.80	-		m2	155.00	0			-	-	
	Secondary Arterial Pavement	13,800	m2	123.23	1,700,559	130.03	1,794,350	10,440	m2	141.00	1,472,040	1,623,398	1,773,429	77,161	20,921	Quantity high; Extent of Intersection IT-12 is less than Benchmark Cost Item-08 Rate is low based upon nominated pavement depth.
	Collector Arterial Pavement	-	m2	91.07	-	100.18	-		m2	126.00	0			-	-	
	Subgrade preparation	-	%	15.21	-	17.70	-	10,440	m2	2.50	26,100	28,784	31,444	(28,784)	(31,444)	Quantity missing; Rate - pricing methodology differs, m2 v %
	Pavement rehab	-	m2	45.90	-	-	-		m2		0			-	-	
	Pavement other	-	m2	-	-	-	-		m2		0			-	-	
Concrete Works	Kerb & channel	2,000	m	50.42	100,838	56.39	112,774	1,570	m	55.00	86,350	91,471	99,925	9,367	12,849	Quantity high but extent of IT-12 is less than Benchmark Cost Item-08
	Cycle path	-	m2	59.60	-	69.01	-		m2	50.00	0			-	-	
	SUP / Footpath	1,700	m2	58.44	99,354	67.50	114,742	1,980	m2	50.00	99,000	104,872	114,564	(5,517)	178	Quantity low; additional Cycle path areas indicated (similar to Ultimate treatment)
	Traffic Island	680	m2	71.43	48,575	76.57	52,071	615	m2	60.00	36,900	39,088	42,701	9,486	9,370	Quantity high; extent of islands at intersection to be confirmed
Drainage	Drainage pipe - 300mm CR backfilled	260	m	162.30	42,198	175.64	45,667	312	m	225.00	70,200	77,418	84,573	(35,220)	(38,906)	Difference in quantity overall is minor
	Drainage pipe - 375mm CR backfilled	-	m	226.68	-	246.52	-		m	260.00	0			-	-	
	Drainage pipe - 450mm CR backfilled	900	m	291.67	262,500	320.95	288,857	780	m	290.00	226,200	249,458	272,513	13,042	16,344	
	Drainage pipe - 525mm CR backfilled	-	m	375.71	-	402.87	-		m	355.00	0			-	-	
	Drainage - pits	40	no.	2,325.57	93,023	2,499.15	99,966	16	no.	2,150.00	34,400	40,936	44,720	52,086	55,246	Quantity assumes pits @ 50m centres based upon length of pipework; Rate assumes for 600 x 900 JP, max depth 1.5m.
	Drainage - Subsoil drainage	3,100	m	23.05	71,446	26.53	82,256	1,570	m	45.00	70,650	77,914	85,115	(6,469)	(2,859)	Quantity high compared to WT measured lengths Rate low - allowances include for pits and risers
	Drainage - swale								m	25.00	0			-	-	
	Drainage - culvert	-	no.	-	-	-	-		no.		0			-	-	
Traffic	Traffic Signals	4	Item	88,375.88	353,504	100,101.03	400,404	1	Item	300,000.00	300,000	330,847	361,423	22,657	38,981	Rate - pricing methodology differs
	Traffic Signal conduit	-	m	45.71	-	53.47	-		m		0			-	-	
Landscape	Tree Planting	60	no.	259.62	15,577	318.78	19,127	50	no.	250.00	12,500	13,241	14,465	2,336	4,662	
	Landscaping	3,000	m2	20.72	62,150	23.31	69,933	567	m2	15.00	8,505	9,009	9,842	53,141	60,091	Quantity is high - area used assumes overall site area (as per Site Preparation) less paved areas;
	Topsoil seeding	3,000	m2	7.00	20,988	7.92	23,766	2,268	m2	5.50	12,474	13,214	14,435	7,774	9,331	Assume 20% landscape planting & 80% topsoil seeding
Street Lighting	Street lighting (all inclusive)	-	m	207.67	-	235.63	-	14	no.	12,000.00	168,000	185,274	202,397	(185,274)	(202,397)	Rate - pricing methodology differs
	Street lighting - Intersections	4	Item / p	-	-	-	-		Item / per leg		0			-	-	Rate missing - refer item above
Misc.	Regulatory signage	16	Item	329.29	5,269	363.25	5,812	12	Item	350.00	4,200	4,632	5,060	637	752	
	Linemarking	13,800	m2 of pa	2.40	33,158	2.81	38,786	10,440	m2 of pa	2.50	26,100	27,648	30,203	5,510	8,583	Quantity high based upon differences to pavement areas
	Landscape maintenance	1	Item	75,000.00	75,000	86,250.00	86,250	1	Item	104,000.00	104,000	107,911	117,884	(32,911)	(31,634)	allowance for maintenance during DLP assumes 104 wks x $1000 (assumes 1 man + vehicle x 1 day/wk)
	Tactile pavers (hazard only)	24		337.14	8,091	422.86	10,149	24	Item	320.00	7,680	8,470	9,252	(378)	896	
Other					-		-				0			-	-	
					-		-				0	-	-			
					-		-				0	-	-			
Delivery	Surveying & Design	1	%	5.00	167,088	5.00	182,129	1	%	5.00	154,694	$ 169,797.71	$ 185,490.09	(2,709)	(3,361)	% driven item
	Contingency	1	%	15.00	501,265	15.00	546,386	1	%	15.00	464,082	$ 509,393.12	$ 556,470.28	(8,128)	(10,084)	% driven item
	Traffic Management	1	%	5.00	167,088	5.00	182,129	1	%	5.00	154,694	$ 169,797.71	$ 185,490.09	(2,709)	(3,361)	% driven item
	Supervision & Project Management	1	%	9.00	300,759	9.00	327,832	1	%	9.00	278,449	$ 305,635.87	$ 333,882.17	(4,877)	(6,050)	% driven item
	Council Fees	1	%	3.25	108,607	3.25	118,384	1	%	3.25	100,551	$ 110,368.51	$ 120,568.56	(1,761)	(2,185)	% driven item
	Vic Roads Fees	1	%	1.00	33,418	1.00	36,426	1	%	1.00	30,939	$ 33,959.54	$ 37,098.02	(542)	(672)	% driven item
	Environmental Management	1	%	0.50	16,709	0.50	18,213	1	%	0.50	15,469	$ 16,979.77	$ 18,549.01	(271)	(336)	% driven item
	Site Establishment	1	%	2.50	83,544	2.50	91,064	1	%	2.50	77,347	$ 84,898.85	$ 92,745.05	(1,355)	(1,681)	% driven item
TOTAL	Excluding Delivery				**3,341,767**		**3,642,574**				**3,093,882**	**$ 3,395,954**	**$ 3,709,802**	**(54,187)**	**(67,228)**	
	Including Delivery				**4,720,246**		**5,145,136**				**4,370,108**	**$ 4,796,785**	**$ 5,240,095**	**(76,539)**	**(94,959)**	

Mt Atkinson & Tarneit Plains ICP Costings - Independent Peer Review
IT-13 - Secondary / Connector Boulevard - Cross-Signalised (Interim
Benchmark Item 9

DRAFT FOR DISCUSSION

WT PARTNERSHIP

		VPA						WTP						Difference		
Item	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)	Qty	Unit	Rate	Amount	Amount (P50)	Amount (P90)	(P50)	(P90)	Comments
Siteworks & Earthworks	Site Preparation			2.39	-	2.68	-	16,720	m2	2.50	41,800	46,301	49,406	(46,301)	(49,406)	Quantity missing; Rate includes for site clearance & topsoil removal to suit Ultimate design standard to full width of road reserve
	Earthworks	6,266	m3	35.43	221,985	40.30	252,550	6,330	m3	39.00	246,888	273,471	291,810	(51,486)	(39,260)	Quantity high based upon differences to pavement areas (refer comments below)
Road Pavements	Primary Arterial Pavement	-	m2	157.08	-	170.80	-		m2	155.00	0			-	-	
	Secondary Arterial Pavement	6,970	m2	123.23	858,905	130.03	906,277	6,570	m2	141.00	926,370	1,026,116	1,094,929	(167,211)	(188,652)	Quantity high; Rate is low based upon nominated pavement depth.
	Collector Arterial Pavement	3,440	m2	91.07	313,286	100.18	344,614	2,700	m2	126.00	340,200	376,831	402,102	(63,545)	(57,487)	Quantity high; Rate is low based upon nominated pavement depth.
	Subgrade preparation	-	%	15.21	-	17.70	-	9,270	m2	2.50	23,175	25,670	27,392	(25,670)	(27,392)	Quantity missing; Rate - pricing methodology differs, m2 v %
	Pavement rehab	-	m2	45.90	-	-	-		m2		0			-	-	
	Pavement other	-	m2	-	-	-	-		m2		0			-	-	
Concrete Works	Kerb & channel	3,000	m	50.42	151,257	56.39	169,161	1,910	m	55.00	105,050	111,770	119,265	39,487	49,895	Quantity high compared to WT measured lengths
	Cycle path	1,090	m2	59.60	64,964	69.01	75,218	980	m2	50.00	49,000	52,135	55,631	12,829	19,588	Quantity high compared to WT measured area
	SUP / Footpath	1,910	m2	58.44	111,628	67.50	128,916	1,400	m2	50.00	70,000	74,478	79,472	37,150	49,443	Quantity high compared to WT measured area
	Traffic Island	105	m2	71.43	7,500	76.57	8,040	530	m2	60.00	31,800	33,834	36,103	(26,334)	(28,063)	Quantity low; extent of islands at intersection to be confirmed
Drainage	Drainage pipe - 300mm CR backfilled	280	m	162.30	45,444	175.64	49,180	268	m	225.00	60,300	66,793	71,272	(21,349)	(22,092)	Difference in quantity overall is minor
	Drainage pipe - 375mm CR backfilled	-	m	226.68	-	246.52	-		m	260.00	0			-	-	
	Drainage pipe - 450mm CR backfilled	790	m	291.67	230,417	320.95	253,552	670	m	290.00	194,300	215,221	229,654	15,196	23,898	
	Drainage pipe - 525mm CR backfilled	-	m	375.71	-	402.87	-		m	355.00	0			-	-	
	Drainage - pits	32	no.	2,325.57	74,418	2,499.15	79,973	13	no.	2,150.00	27,950	33,407	35,648	41,011	44,325	Quantity assumes pits @ 50m centres based upon length of pipework; Rate assumes for 600 x 900 JP, max depth 1.5m.
	Drainage - Subsoil drainage	3,540	m	23.05	81,586	26.53	93,931	1,910	m	45.00	85,950	95,205	101,589	(13,618)	(7,658)	Quantity high compared to WT measured lengths Rate low - allowances include for pits and risers
	Drainage - swale								m	25.00	0			-	-	
	Drainage - culvert		no.	-	-	-	-		no.		0			-	-	
Traffic	Traffic Signals	4	Item	88,375.88	353,504	100,101.03	400,404	1	Item	300,000.00	300,000	332,302	354,587	21,201	45,817	Rate - pricing methodology differs
	Traffic Signal conduit	-	m	45.71	-	53.47	-		m		0			-	-	
Landscape	Tree Planting	88	no.	259.62	22,846	318.78	28,053	68	no.	250.00	17,000	18,087	19,300	4,759	8,752	
	Landscaping	5,890	m2	20.72	122,021	23.31	137,302	908	m2	15.00	13,620	14,491	15,463	107,530	121,839	Quantity is high - area used assumes overall site area (as per Site Preparation) less paved areas;
	Topsoil seeding	5,890	m2	7.00	41,206	7.92	46,661	3,632	m2	5.50	19,976	21,254	22,679	19,953	23,982	Assume 20% landscape planting & 80% topsoil seeding
Street Lighting	Street lighting (all inclusive)	-	m	207.67	-	235.63	-	16	no.	12,000.00	192,000	212,674	226,936	(212,674)	(226,936)	Rate - pricing methodology differs
	Street lighting - Intersections	4	Item / p	-	-	-	-		Item / per leg		0			-	-	Rate missing - refer item above
Misc.	Regulatory signage	10	Item	329.29	3,293	363.25	3,632	12	Item	350.00	4,200	4,652	4,964	(1,359)	(1,332)	
	Linemarking	10,410	m2 of p	2.40	25,012	2.81	29,258	9,270	m2 of pa	2.50	23,175	24,657	26,311	355	2,947	Quantity high based upon differences to pavement areas
	Landscape maintenance	1	Item	75,000.00	75,000	86,250.00	86,250	1	Item	104,000.00	104,000	108,386	115,654	(33,386)	(29,404)	allowance for maintenance during DLP assumes 104 wks x $1000 (assumes 1 man + vehicle x 1 day/wk)
	Tactile pavers (hazard only)	24	Item	337.14	8,091	422.86	10,149	20	Item	320.00	6,400	7,089	7,565	1,002	2,584	
Other					-		-				0			-	-	
					-		-				0	-	-			
					-		-				0	-	-			
Delivery	Surveying & Design	1	%	5.00	140,618	5.00	155,156	1	%	5.00	144,158	$ 158,741.25	$ 169,386.63	(18,123)	(14,231)	% driven item
	Contingency	1	%	15.00	421,855	15.00	465,468	1	%	15.00	432,473	$ 476,223.74	$ 508,159.89	(54,369)	(42,692)	% driven item
	Traffic Management	1	%	5.00	140,618	5.00	155,156	1	%	5.00	144,158	$ 158,741.25	$ 169,386.63	(18,123)	(14,231)	% driven item
	Supervision & Project Management	1	%	9.00	253,113	9.00	279,281	1	%	9.00	259,484	$ 285,734.24	$ 304,895.93	(32,621)	(25,615)	% driven item
	Council Fees	1	%	3.25	91,402	3.25	100,851	1	%	3.25	93,702	$ 103,181.81	$ 110,101.31	(11,780)	(9,250)	% driven item
	Vic Roads Fees	1	%	1.00	28,124	1.00	31,031	1	%	1.00	28,832	$ 31,748.25	$ 33,877.33	(3,625)	(2,846)	% driven item
	Environmental Management	1	%	0.50	14,062	0.50	15,516	1	%	0.50	14,416	$ 15,874.12	$ 16,938.66	(1,812)	(1,423)	% driven item
	Site Establishment	1	%	2.50	70,309	2.50	77,578	1	%	2.50	72,079	$ 79,370.62	$ 84,693.32	(9,061)	(7,115)	% driven item
TOTAL	Excluding Delivery				**2,812,365**		**3,103,121**				**2,883,154**	**$ 3,174,825**	**$ 3,387,733**	**(362,460)**	**(284,612)**	
	Including Delivery				**3,972,466**		**4,383,158**				**4,072,454**	**$ 4,484,440**	**$ 4,785,172**	**(511,975)**	**(402,014)**	

DRAFT FOR DISCUSSION

WT PARTNERSHIP

		VPA						WTP						Difference		
Item	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)	Qty	Unit	Rate	Amount	Amount (P50)	Amount (P90)	(P50)	(P90)	Comments
Siteworks & Earthworks	Site Preparation	-	%	2.39	-	2.86	-	14,145	m2	2.50	35,363	39,114	41,961	(39,114)	(41,961)	Quantity missing; Rate includes for site clearance & topsoil removal to suit Ultimate design standard to full width of road reserve.
	Demolition of existing pavements							3,100	m2	25.00	77,500	85,721	91,961	(85,721)	(91,961)	Demolition of Hopkins Road assumed
	Earthworks	4,694	m3	35.43	166,279	43.40	203,717	6,698	m3	39.00	261,216	288,926	309,956	(122,647)	(106,239)	Quantity low based upon differences to pavement areas (refer comments below)
Road Pavements	Primary Arterial Pavement	5,426	m2	157.08	852,328	179.51	974,041	7,920	m2	155.00	1,227,600	1,357,822	1,456,656	(505,494)	(482,615)	Quantity is low based upon WT measured areas; Rate is low based upon nominated pavement depth.
	Secondary Arterial Pavement	1,282	m2	123.23	158,016	134.34	172,268	1,630	m2	141.00	229,830	254,210	272,714	(96,194)	(100,446)	Quantity is low based upon WT measured areas; Rate is low based upon nominated pavement depth.
	Collector Arterial Pavement	-	m2	91.07	-	91.57	-		m2	126.00	0			-	-	
	Subgrade preparation	-	%	15.21	-	19.27	-	9,550	m2	2.50	23,875	26,408	28,330	(26,408)	(28,330)	Quantity missing; Rate - pricing methodology differs, m2 v %
	Pavement rehab	-	m2	45.90	-	45.90	-		m2		0			-	-	
	Pavement other	-	m2	-	-	-	-		m2		0			-	-	
Concrete Works	Kerb & channel	929	m	50.42	46,817	60.18	55,879	1,630	m	55.00	89,650	95,247	102,180	(48,430)	(46,301)	quantity is low based upon WT measured lengths
	Cycle path	-	m2	59.60	-	74.98	-		m2	50.00	0			-	-	
	SUP / Footpath	427	m2	58.44	24,931	73.25	31,245	1,588	m2	50.00	79,400	84,357	90,498	(59,427)	(59,253)	quantity is low based upon WT measured areas
	Traffic Island	194	m2	71.43	13,850	79.84	15,480	60	m2	60.00	3,600	3,825	4,103	10,025	11,377	quantity is high based upon WT measured areas
Drainage	Drainage pipe - 300mm CR backfilled	195	m	162.30	31,649	184.12	35,903	328	m	225.00	73,710	81,529	87,463	(49,881)	(51,561)	quantity is low based upon WT measured lengths
	Drainage pipe - 375mm CR backfilled	-	m	226.68	-	259.12	-		m	260.00	0			-	-	
	Drainage pipe - 450mm CR backfilled	580	m	291.67	169,167	339.56	196,943	630	m	290.00	182,700	202,081	216,790	(32,914)	(19,847)	quantity is low based upon WT measured lengths
	Drainage pipe - 525mm CR backfilled	-	m	375.71	-	420.12	-		m	355.00	0			-	-	
	Drainage - pits	32	no.	2,325.57	74,418	2,609.42	83,501	25	no.	2,150.00	54,180	64,665	69,372	9,753	14,129	Quantity assumes pits @ 50m centres based upon length of pipework; Rate assumes for 600 x 900 JP, max depth 1.5m.
	Drainage - Subsoil drainage	969	m	23.05	22,322	28.75	27,846	1,630	m	45.00	73,350	81,131	87,036	(58,808)	(59,191)	rate low - allowances include for pits and risers
	Drainage - culvert	-	no.	-	-	-	-		no.		0			-	-	
Traffic	Traffic Signals	3	Item	88,375.88	265,128	107,549.70	322,649	1	Item	250,000.00	250,000	276,520	296,647	(11,392)	26,002	Rate - pricing methodology differs
	Traffic Signal conduit	-	m	45.71	-	58.40	-		m		0			-	-	
Landscape	Tree Planting	9	no.	259.62	2,337	356.37	3,207	86	no.	250.00	21,500	22,842	24,505	(20,506)	(21,298)	
	Landscaping	174	m2	20.72	3,613	24.96	4,353	1,209	m2	15.00	18,141	19,274	20,677	(15,660)	(16,323)	Quantity is low - area used assumes overall site area (as per Site Preparation) less paved areas; Assume 20% landscape planting & 80% topsoil seeding
	Topsoil seeding	174	m2	7.00	1,220	8.51	1,484	4,838	m2	5.50	26,607	28,268	30,326	(27,048)	(28,841)	
Street Lighting	Street lighting (all inclusive)	-	m	207.67	-	253.39	-	10	no.	12,000.00	120,000	132,729	142,391	(132,729)	(142,391)	Rate - pricing methodology differs Note: lighting requirements to Cycle path & SUP is
	Street lighting - Intersections	-	Item / p	-	-	-	-		Item / per leg		0			-	-	Rate missing - refer item above
Misc.	Regulatory signage	9	Item	329.29	2,964	384.82	3,463	9	Item	350.00	3,150	3,484	3,738	(521)	(274)	
	Linemarking	6,708	m2 of pa	2.40	16,118	3.07	20,592	9,550	m2 of pa	2.50	23,875	25,366	27,212	(9,248)	(6,620)	Quantity low based upon differences to pavement areas
	Landscape maintenance	1	Item	75,000.00	75,000	75,000.00	75,000	1	Item	104,000.00	104,000	108,229	116,107	(33,229)	(41,107)	allowance for maintenance during DLP assumes 104 wks x $1000 (assumes 1 man + vehicle x 1 day/wk)
	Tactile pavers (hazard only)	18	Item	337.14	6,069	394.00	7,092	12	Item	320.00	3,840	4,247	4,556	1,821	2,536	
Other	High pressure gas protection slab and relocation of other services	1	Item	391,500.00	391,500	391,500.00	391,500	1	Item	391,500.00	391,500	433,030	464,549	(41,530)	(73,049)	Melton CC advise the following: - A HP gas pipeline easement runs along Hopkins Road - gas requires a 6m minimum protection zone over asset therefore assume concrete protection slab is required to width of easement
	Tie ins to existing pavements				-		-	2	no.	25,000.00	50,000	55,304	59,329	(55,304)	(59,329)	Assumes tie ins to Hopkins Road
					-		-				0	-	-			
Delivery	Surveying & Design	1	%	5.00	116,186	5.00	131,308	1	%	5.00	171,229	$ 188,716.46	$ 202,452.86	(72,530)	(71,145)	% driven item
	Contingency	1	%	15.00	348,559	15.00	393,925	1	%	15.00	513,688	$ 566,149.39	$ 607,358.57	(217,591)	(213,434)	% driven item
	Traffic Management	1	%	5.00	116,186	5.00	131,308	1	%	5.00	171,229	$ 188,716.46	$ 202,452.86	(72,530)	(71,145)	% driven item
	Supervision & Project Management	1	%	9.00	209,135	9.00	236,355	1	%	9.00	308,213	$ 339,689.63	$ 364,415.14	(130,554)	(128,060)	% driven item
	Council Fees	1	%	3.25	75,521	3.25	85,350	1	%	3.25	111,299	$ 122,665.70	$ 131,594.36	(47,145)	(46,244)	% driven item
	Vic Roads Fees	1	%	1.00	23,237	1.00	26,262	1	%	1.00	34,246	$ 37,743.29	$ 40,490.57	(14,506)	(14,229)	% driven item
	Environmental Management	1	%	0.50	11,619	0.50	13,131	1	%	0.50	17,123	$ 18,871.65	$ 20,245.29	(7,253)	(7,114)	% driven item
	Site Establishment	1	%	2.50	58,093	2.50	65,654	1	%	2.50	85,615	$ 94,358.23	$ 101,226.43	(36,265)	(35,572)	% driven item
TOTAL	Excluding Delivery				**2,323,725**		**2,626,165**				**3,424,586**	**$ 3,774,329**	**$ 4,049,057**	**(1,450,604)**	**(1,422,892)**	
	Including Delivery				**3,282,262**		**3,709,458**				**4,837,228**	**$ 5,331,240**	**$ 5,719,293**	**(2,048,978)**	**(2,009,835)**	

Mt Atkinson & Tarneit Plains ICP Costings - Independent Peer Review

IT-15 - Secondary / Connector Boulevard - Cross-Signalised (Interim)

Benchmark Item 9

this is a T intersection and therefore Item 15 wpould appear to be more appropriate

DRAFT FOR DISCUSSION

WT PARTNERSHIP

		VPA						WTP						Difference		
Item	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)	Qty	Unit	Rate	Amount	Amount (P50)	Amount (P90)	(P50)	(P90)	Comments
Siteworks & Earthworks	Site Preparation			2.39	-	2.68	-	11,360	m2	2.50	28,400	31,459	33,560	(31,459)	(33,560)	Quantity missing; Rate includes for site clearance & topsoil removal to suit Ultimate design standard to full width of road reserve.
	Earthworks	6,266	m3	35.43	221,985	40.30	252,550	4,381	m3	39.00	170,874	189,277	201,923	32,709	50,627	Quantity low based upon differences to pavement areas (refer comments below)
Road Pavements	Primary Arterial Pavement	-	m2	157.08	-	170.80	-		m2	155.00	0			-	-	
	Secondary Arterial Pavement	6,970	m2	123.23	858,905	130.03	906,277	4,855	m2	141.00	684,555	758,281	808,944	100,625	97,333	Quantity high; Extent of Intersection IT-15 is less than Benchmark Cost Item-09 Rate is low based upon nominated pavement depth.
	Collector Arterial Pavement	3,440	m2	91.07	313,286	100.18	344,614	1,370	m2	126.00	172,620	191,211	203,986	122,075	140,628	Quantity high; Extent of Intersection IT-15 is less than Benchmark Cost Item-09 Rate is low based upon nominated pavement depth.
	Subgrade preparation	-	%	15.21	-	17.70	-	6,225	m2	2.50	15,563	17,239	18,390	(17,239)	(18,390)	Quantity missing; Rate - pricing methodology differs, m2 v %
	Pavement rehab	-	m2	45.90	-	-	-		m2		0			-	-	
	Pavement other	-	m2	-	-	-	-		m2		0			-	-	
Concrete Works	Kerb & channel	3,000	m	50.42	151,257	56.39	169,161	1,320	m	55.00	72,600	77,246	82,407	74,011	86,754	Quantity high but extent of IT-15 is less than Benchmark Cost Item-09
	Cycle path	1,090	m2	59.60	64,964	69.01	75,218	485	m2	50.00	24,250	25,802	27,526	39,162	47,693	Quantity high but extent of IT-15 is less than Benchmark Cost Item-10
	SUP / Footpath	1,910	m2	58.44	111,628	67.50	128,916	1,400	m2	50.00	70,000	74,480	79,456	37,148	49,460	Quantity high but extent of IT-15 is less than Benchmark Cost Item-11
	Traffic Island	105	m2	71.43	7,500	76.57	8,040	570	m2	60.00	34,200	36,389	38,820	(28,888)	(30,779)	Quantity low; extent of islands at intersection to be confirmed
Drainage	Drainage pipe - 300mm CR backfilled	280	m	162.30	45,444	175.64	49,180	208	m	225.00	46,800	51,840	55,304	(6,396)	(6,124)	Quantities are high but extent of IT-15 is less than Benchmark Cost Item-09
	Drainage pipe - 375mm CR backfilled	-	m	226.68	-	246.52	-		m	260.00	0			-	-	
	Drainage pipe - 450mm CR backfilled	790	m	291.67	230,417	320.95	253,552	520	m	290.00	150,800	167,041	178,202	63,376	75,351	
	Drainage pipe - 525mm CR backfilled	-	m	375.71	-	402.87	-		m	355.00	0			-	-	
	Drainage - pits	32	no.	2,325.57	74,418	2,499.15	79,973	10	no.	2,150.00	21,500	25,698	27,415	48,720	52,557	Quantity assumes pits @ 50m centres based upon length of pipework; Rate assumes for 600 x 900 JP, max depth 1.5m.
	Drainage - Subsoil drainage	3,540	m	23.05	81,586	26.53	93,931	1,320	m	45.00	59,400	65,797	70,193	15,789	23,737	Quantity high - extent of IT-15 is less than Benchmark Cost Item -09 Rate low - allowances include for pits and risers
	Drainage - swale								m	25.00	0			-	-	
	Drainage - culvert		no.	-	-	-	-		no.		0			-	-	
Traffic	Traffic Signals	4	Item	88,375.88	353,504	100,101.03	400,404	1	Item	250,000.00	250,000	276,925	295,427	76,579	104,977	This is a T-intersection not a cross-intersection;
	Traffic Signal conduit	-	m	45.71	-	53.47	-		m		0			-	-	
Landscape	Tree Planting	88	no.	259.62	22,846	318.78	28,053	46	no.	250.00	11,500	12,236	13,053	10,610	14,999	
	Landscaping	5,890	m2	20.72	122,021	23.31	137,302	536	m2	15.00	8,040	8,555	9,126	113,467	128,176	Quantity is high- area used assumes overall site area (as per Site Preparation) less paved areas;
	Topsoil seeding	5,890	m2	7.00	41,206	7.92	46,661	2,144	m2	5.50	11,792	12,547	13,385	28,660	33,277	Assume 20% landscape planting & 80% topsoil seeding
Street Lighting	Street lighting (all inclusive)	-	m	207.67	-	235.63	-	12	no.	12,000.00	144,000	159,509	170,166	(159,509)	(170,166)	Rate - pricing methodology differs
	Street lighting - Intersections	4	Item / p	-	-	-	-		Item / per leg		0			-	-	Rate missing - refer item above
Misc.	Regulatory signage	10	Item	329.29	3,293	363.25	3,632	10	Item	350.00	3,500	3,877	4,136	(584)	(503)	
	Linemarking	10,410	m2 of p	2.40	25,012	2.81	29,258	6,225	m2 of pa	2.50	15,563	16,558	17,665	8,454	11,593	Quantity high based upon differences to pavement areas
	Landscape maintenance	1	Item	75,000.00	75,000	86,250.00	86,250	1	Item	104,000.00	104,000	108,388	115,630	(33,388)	(29,380)	allowance for maintenance during DLP assumes 104 wks x $1000 (assumes 1 man + vehicle x 1 day/wk)
	Tactile pavers (hazard only)	24	Item	337.14	8,091	422.86	10,149	16	Item	320.00	5,120	5,671	6,050	2,420	4,098	
Other					-		-				0			-	-	
					-		-				0	-	-			
					-		-				0	-	-			
Delivery	Surveying & Design	1	%	5.00	140,618	5.00	155,156	1	%	5.00	105,254	$ 115,801.18	$ 123,538.20	24,817	31,618	% driven item
	Contingency	1	%	15.00	421,855	15.00	465,468	1	%	15.00	315,761	$ 347,403.53	$ 370,614.60	74,451	94,854	% driven item
	Traffic Management	1	%	5.00	140,618	5.00	155,156	1	%	5.00	105,254	$ 115,801.18	$ 123,538.20	24,817	31,618	% driven item
	Supervision & Project Management	1	%	9.00	253,113	9.00	279,281	1	%	9.00	189,457	$ 208,442.12	$ 222,368.76	44,671	56,912	% driven item
	Council Fees	1	%	3.25	91,402	3.25	100,851	1	%	3.25	68,415	$ 75,270.76	$ 80,299.83	16,131	20,552	% driven item
	Vic Roads Fees	1	%	1.00	28,124	1.00	31,031	1	%	1.00	21,051	$ 23,160.24	$ 24,707.64	4,963	6,324	% driven item
	Environmental Management	1	%	0.50	14,062	0.50	15,516	1	%	0.50	10,525	$ 11,580.12	$ 12,353.82	2,482	3,162	% driven item
	Site Establishment	1	%	2.50	70,309	2.50	77,578	1	%	2.50	52,627	$ 57,900.59	$ 61,769.10	12,409	15,809	% driven item
TOTAL	Excluding Delivery				**2,812,365**		**3,103,121**				**2,105,076**	**$ 2,316,024**	**$ 2,470,764**	**496,342**	**632,357**	
	Including Delivery				**3,972,466**		**4,383,158**				**2,973,419**	**$ 3,271,383**	**$ 3,489,954**	**701,082**	**893,204**	

DRAFT FOR DISCUSSION

WT PARTNERSHIP

		VPA						WTP						Difference		
Item	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)	Qty	Unit	Rate	Amount	Amount (P50)	Amount (P90)	(P50)	(P90)	Comments
Siteworks & Earthworks	Site Preparation	-	%	2.39	-	2.86	-	16,550	m2	2.50	41,375	45,726	49,191	(45,726)	(49,191)	Quantity missing; Rate includes for site clearance & topsoil removal to suit Ultimate design standard to full width of road reserve
	Demolition of existing pavements							3,100	m2	25.00	77,500	85,649	92,141	(85,649)	(92,141)	Demolition of Hopkins Road assumed
	Earthworks	5,896	m3	35.43	208,851	43.40	255,875	7,045	m3	39.00	274,774	303,667	326,682	(94,816)	(70,807)	Quantity low based upon differences to pavement areas (refer comments below)
Road Pavements	Primary Arterial Pavement	6,161	m2	157.08	967,776	179.51	1,105,976	8,810	m2	155.00	1,365,550	1,509,144	1,623,521	(541,368)	(517,546)	Quantity is low based upon WT measured areas; Rate is low based upon nominated pavement depth
	Secondary Arterial Pavement	2,347	m2	123.23	289,255	134.34	315,343		m2	141.00	0			289,255	315,343	Hopkins Road assumed to be a primary arterial road in lieu of secondary arterial
	Collector Arterial Pavement	-	m2	91.07	-	91.57	-	1,395	m2	126.00	175,770	194,253	208,975	(194,253)	(208,975)	Rate is low based upon nominated pavement depth; Industrial Connector road noted on drawings - although no cross section is provided, parking bays along length of road has been assumed
	Subgrade preparation	-	%	15.21	-	19.27	-	10,205	m2	2.50	25,513	28,195	30,332	(28,195)	(30,332)	Quantity missing; Rate - pricing methodology differs, m2 v %
	Pavement rehab	-	m2	45.90	-	45.90	-		m2		0			-	-	
	Pavement other	-	m2	-	-	-	-		m2		0			-	-	
Concrete Works	Kerb & channel	1,022	m	50.42	51,522	60.18	61,494	1,704	m	55.00	93,720	99,488	107,029	(47,967)	(45,534)	quantity is low based upon WT measured lengths
	Cycle path	430	m2	59.60	25,628	74.98	32,243	816	m2	50.00	40,800	43,311	46,594	(17,683)	(14,351)	quantity is low based upon WT measured areas
	SUP / Footpath	424	m2	58.44	24,763	73.25	31,035	813	m2	50.00	40,650	43,152	46,422	(18,389)	(15,388)	quantity is low based upon WT measured areas
	Traffic Island	530	m2	71.43	37,860	79.84	42,315	975	m2	60.00	58,500	62,101	66,807	(24,241)	(24,492)	quantity is low based upon WT measured areas
Drainage	Drainage pipe - 300mm CR backfilled	205	m	162.30	33,272	184.12	37,744	341	m	225.00	76,635	84,694	91,112	(51,422)	(53,368)	
	Drainage pipe - 375mm CR backfilled	-	m	226.68	-	259.12	-		m	260.00	0			-	-	
	Drainage pipe - 450mm CR backfilled	540	m	291.67	157,500	339.56	183,361	655	m	290.00	189,950	209,924	225,834	(52,424)	(42,474)	quantity is low based upon WT measured lengths
	Drainage pipe - 525mm CR backfilled	-	m	375.71	-	420.12	-		m	355.00	0			-	-	
	Drainage - pits	25	no.	2,325.57	58,139	2,609.42	65,236	26	no.	2,150.00	56,330	67,175	72,266	(9,036)	(7,031)	Quantity assumes pits @ 50m centres based upon length of pipework; Rate assumes for 600 x 900 JP, max depth 1.5m.
	Drainage - Subsoil drainage	1,062	m	23.05	24,473	28.75	30,528	1,704	m	45.00	76,680	84,743	91,166	(60,270)	(60,638)	rate low - allowances include for pits and risers
	Drainage - culvert	-	no.	-	-	-	-		no.		0			-	-	
Traffic	Traffic Signals	3	Item	88,375.88	265,128	107,549.70	322,649	1	Item	250,000.00	250,000	276,289	297,228	(11,161)	25,421	
	Traffic Signal conduit	-	m	45.71	-	58.40	-		m		0			-	-	
Landscape	Tree Planting	17	no.	259.62	4,413	356.37	6,058	52	no.	250.00	13,000	13,800	14,846	(9,387)	(8,788)	as per Benchmark Cost Item-13
	Landscaping	1,205	m2	20.72	24,964	24.96	30,076	1,368	m2	15.00	20,523	21,786	23,437	3,177	6,638	Quantity is low - area used assumes overall site area (as per Site Preparation) less paved areas; Assume 20% landscape planting & 80% topsoil seeding
	Topsoil seeding	1,205	m2	7.00	8,430	8.51	10,255	5,473	m2	5.50	30,100	31,953	34,375	(23,523)	(24,120)	
Street Lighting	Street lighting (all inclusive)	-	m	207.67	-	253.39	-	14	no.	12,000.00	168,000	185,666	199,738	(185,666)	(199,738)	Rate - pricing methodology differs, Note: lighting requirements to Cycle path & SUP is exclude
	Street lighting - Intersections	-	Item / pe	-	-	-	-		Item / per leg		0			-	-	
Misc.	Regulatory signage	6	Item	329.29	1,976	384.82	2,309	6	Item	350.00	2,100	2,321	2,497	(345)	(188)	as per Benchmark Cost Item-13
	Linemarking	8,508	m2 of pa	2.40	20,443	3.07	26,118	10,205	m2 of pa	2.50	25,513	27,083	29,135	(6,640)	(3,018)	
	Landscape maintenance	1	Item	75,000.00	75,000	75,000.00	75,000	1	Item	104,000.00	104,000	108,139	116,335	(33,139)	(41,335)	allowance for maintenance during DLP assumes 104 wks x $1000 (assumes 1 man + vehicle x 1 day/wk)
	Tactile pavers (hazard only)	18	Item	337.14	6,069	394.00	7,092	20	Item	320.00	6,400	7,073	7,609	(1,004)	(517)	
Other	High pressure gas protection slab and relocation of other services	1	Item	141,500.00	141,500	141,500.00	141,500	1	Item	391,500.00	391,500	432,668	465,460	(291,168)	(323,960)	Melton CC advise the following: - A HP gas pipeline easement runs along Hopkins Road - gas requires a 6m minimum protection zone over asset therefore assume concrete protection slab is required to width of easement - Length of road impacted by IT-16 is comparable to other intersections along Hopkins Road and therefore cost allowed changed to be consistent with IT-03, IT-04 & IT-14
												-	-	-	-	
					-		-					-	-			
Delivery	Surveying & Design	1	%	5.00	121,348	5.00	139,110	1	%	5.00	180,244	$ 198,400.05	$ 213,436.71	(77,052)	(74,326)	% driven item
	Contingency	1	%	15.00	364,044	15.00	417,331	1	%	15.00	540,732	$ 595,200.16	$ 640,310.13	(231,156)	(222,979)	% driven item
	Traffic Management	1	%	5.00	121,348	5.00	139,110	1	%	5.00	180,244	$ 198,400.05	$ 213,436.71	(77,052)	(74,326)	% driven item
	Supervision & Project Management	1	%	9.00	218,426	9.00	250,399	1	%	9.00	324,439	$ 357,120.10	$ 384,186.08	(138,694)	(133,787)	% driven item
	Council Fees	1	%	3.25	78,876	3.25	90,422	1	%	3.25	117,159	$ 128,960.03	$ 138,733.86	(50,084)	(48,312)	% driven item
	Vic Roads Fees	1	%	1.00	24,270	1.00	27,822	1	%	1.00	36,049	$ 39,680.01	$ 42,687.34	(15,410)	(14,865)	% driven item
	Environmental Management	1	%	0.50	12,135	0.50	13,911	1	%	0.50	18,024	$ 19,840.01	$ 21,343.67	(7,705)	(7,433)	% driven item
	Site Establishment	1	%	2.50	60,674	2.50	69,555	1	%	2.50	90,122	$ 99,200.03	$ 106,718.35	(38,526)	(37,163)	% driven item
TOTAL	Excluding Delivery				**2,426,961**		**2,782,206**				**3,604,882**	**$ 3,968,001**	**$ 4,268,734**	**(1,541,040)**	**(1,486,528)**	
	Including Delivery				**3,428,082**		**3,929,867**				**5,091,896**	**$ 5,604,802**	**$ 6,029,587**	**(2,176,719)**	**(2,099,720)**	

WT PARTNERSHIP

DRAFT FOR DISCUSSION

		VPA						WTP								
Item	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)	Qty	Unit	Rate	Amount	Amount (P50)	Amount (P90)	Difference (P50)	Difference (P90)	Comments
Sitew orks & Earth	Site Preparation	-		37.08	-	57.52	-		Item		0			-	-	
	Earthworks	-	m3	46.78	-	51.50	-		m3		0			-	-	
On Structure Works	Retaining walls, abutments, footings	3	No.	238,163.38	714,490	354,810.89	1,064,433		No.					714,490	1,064,433	refer items below
	Bridge deck	-	m2	1,080.00	-	1,826.52	-		m2					-	-	
	Guard rails / balustrade	-	Item	2,385.00	-	2,949.31	-		Item					-	-	
	Transistion slab	2	No	30,000.00	60,000	30,000.00	60,000		No					60,000	60,000	refer items below
	Asphalt	-	m2	40.00	-	40.00	-		m2					-	-	
	Concrete footway	-	m2	38.46	-	50.86	-		m2					-	-	
	Kerb & channel	-	m	42.50	-	46.16	-		m					-	-	
	Overall Super T Cost - main span	330	m2	4,352.00	1,436,160	4,848.72	1,600,078	238	m2	9,350.00	2,228,012	2,321,838	2,488,268	(885,678)	(888,190)	Bridge cost based upon steel girder as length of span (46m) does not facilitate super T construction; rate includes for night works, anti-throw screens
	Overall Super T Cost - Ramps							995	m2	4,700.00	4,678,662	4,875,691	5,225,182	(4,875,691)	(5,225,182)	Design indicates 1000 deep Super T beams but 1800 deep costed to reflect spans of 32m between landings
	Ramps on embankment							236	m2	1,500.00	353,910	368,814	395,251	(368,814)	(395,251)	Rate includes for imported fill, retaining walls, pavement and barriers
Off Structure Works	Guard rails / balustrade	450	m	145.00	65,250	184.24	82,907		m		0			65,250	82,907	refer items above
	Scour protection	-	Item	-	-	-	-		Item		0			-	-	
	GREAT terminal	-	No.	5,050.00	-	5,109.84	-		No.		0			-	-	
	Off structure barrier	2	Item	1,395.56	2,791	2,301.98	4,604		m		0			2,791	4,604	refer items above
	Pier protection barriers				-		-	20	m	2,400.00	48,000	50,021	53,607	(50,021)	(53,607)	assumed 1200 wide x 2000 high x 2 No.
											0			-	-	
Other	Occupations Costs	1	Item	250,000.00	250,000	250,000.00	250,000	1	Item	250,000.00	250,000	265,978	285,043	(15,978)	(35,043)	assumed 1 weekend only
	Ramp	1	Item	1,128,000.00	1,128,000	1,128,000.00	1,128,000		Item		0			1,128,000	1,128,000	refer items above
											0					
Delivery	Surveying & Design	1	%	5.00	182,835	5.00	209,501	1	%	5.00	377,929	$ 394,117.14	$ 422,367.57	-	-	% driven item
	Contingency	1	%	20.00	731,338	20.00	838,004	1	%	20.00	1,511,717	$ 1,576,468.57	$ 1,689,470.30	-	-	% driven item
	Traffic Management	1	%	5.00	182,835	5.00	209,501	1	%	5.00	377,929	$ 394,117.14	$ 422,367.57	-	-	% driven item
	Supervision & Project Management	1	%	9.00	329,102	9.00	377,102	1	%	9.00	680,273	$ 709,410.86	$ 760,261.63	-	-	% driven item
	Council Fees	1	%	3.25	118,842	3.25	136,176	1	%	3.25	245,654	$ 256,176.14	$ 274,538.92	-	-	% driven item
	Vic Roads Fees	1	%	1.00	36,567	1.00	41,900	1	%	1.00	75,586	$ 78,823.43	$ 84,473.51	-	-	% driven item
	Environmental Management	1	%	0.50	18,283	0.50	20,950	1	%	0.50	37,793	$ 39,411.71	$ 42,236.76	-	-	% driven item
	Site Establishment	1	%	2.50	91,417	2.50	104,751	1	%	2.50	188,965	$ 197,058.57	$ 211,183.79	-	-	% driven item
TOTAL	Excluding Delivery				**3,656,691**		**4,190,022**				**7,558,584**	**7,882,343**	**8,447,351**			
	Including Delivery				**5,347,911**		**6,127,907**				**11,054,428**	**$ 11,527,926**	**$ 12,354,252**			

WT PARTNERSHIP

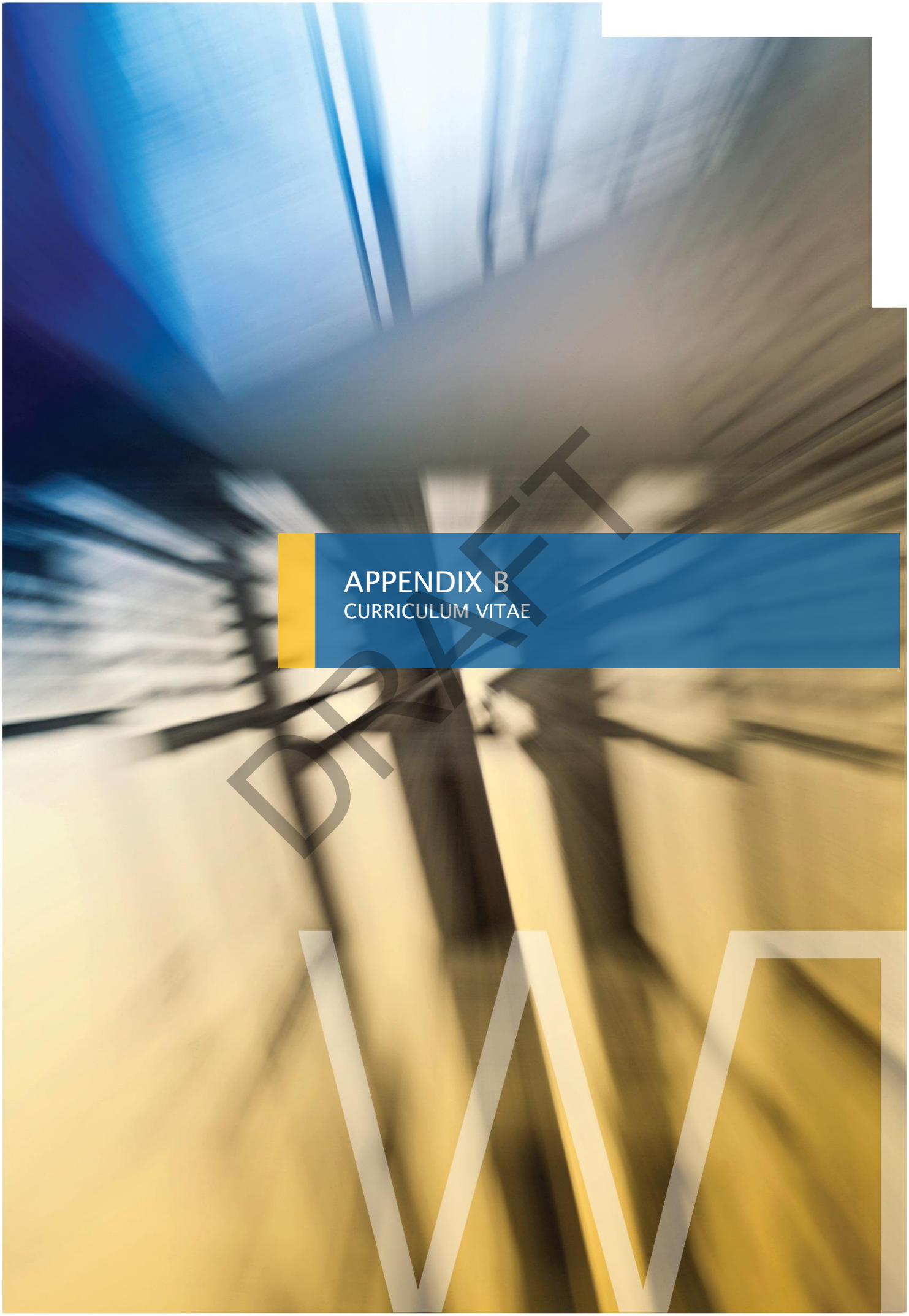
		VPA						WTP						Difference		
Item	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)	Qty	Unit	Rate	Amount	Amount (P50)	Amount (P90)	(P50)	(P90)	Comments
Siteworks & Earthworks	Site Access	1	Item	50,000.00	50,000			1	Item	10,000.00	10,000	10,377	11,404	39,623	(11,404)	
	Crossing construction / materials	1	Item	500,000.00	500,000			1	Item	370,000.00	370,000	383,953	421,938	116,047	(421,938)	Rate would appear to include for provision of boom gates, and new power connections, however these already exist therefore reduced cost assumed
	Testing & Commissioning	1	Item	70,000.00	70,000			1	Item	30,000.00	30,000	31,131	34,211	38,869	(34,211)	
Misc.														-	-	
														-	-	
											0					
Delivery	Surveying & Design	1	Item	50,000.00	50,000.00			1	%	5.00	20,500	$ 21,273.05	$ 23,377.65	-	-	% driven item
	Council Fees	1	%	3.25	20,150.00			1	%	3.25	13,325	$ 13,827.48	$ 15,195.47	-	-	% driven item
	Vic Roads Fees	1	%	1.00	6,200.00			1	%	1.00	4,100	$ 4,254.61	$ 4,675.53	-	-	% driven item
	Vic Track Fees	1	%	1.00	6,200.00			1	%	1.00	4,100	$ 4,254.61	$ 4,675.53	-	-	% driven item
	Traffic Management	1	%	5.00	31,000.00			1	%	5.00	20,500	$ 21,273.05	$ 23,377.65	-	-	% driven item
	Environmental Management	1	%	0.50	3,100.00			1	%	0.50	2,050	$ 2,127.31	$ 2,337.77	-	-	% driven item
	Supervision & Project Management	1	%	10.00	62,000.00			1	%	9.00	36,900	$ 38,291.49	$ 42,079.77	-	-	% driven item
	Site Establishment	1	%	2.50	15,500.00			1	%	2.50	10,250	$ 10,636.53	$ 11,688.83	-	-	% driven item
	Contingency	1	%	20.00	124,000.00			1	%	20.00	82,000	$ 85,092.20	$ 93,510.60	-	-	% driven item
TOTAL	Excluding Delivery				**620,000.00**		-				**410,000**	**425,461**	**467,553**			
	Including Delivery				**938,150.00**		-				**521,725**	**$ 541,399**	**$ 594,961**			

Mt Atkinson & Tarneit Plains ICP Costings - Independent Peer Review
CU-01 - Box Culvert 3000 x 3000

WT PARTNERSHIP

DRAFT FOR DISCUSSION

		VPA						WTP						Difference		
Item	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)	Qty	Unit	Rate	Amount	Amount (P50)	Amount (P90)	(P50)	(P90)	Comments
Siteworks & Earthworks	Site Preparation	1	Item	15,000.00	15,000			1	Item	4,000.00	4,000	4,450	4,994	10,550	(4,994)	- No reference drawings are provided for CU-01 therefore the box culvert configuration is unknown. - Based upon our review of the culverts included as part of the Benchmark Costing Items, it is possible that there will be quantity variances however in this instance we are unable to verify the quanitites used. - We note that the rates used appear to be incorrectly applied for earthworks items and for line items from 'foundation slab' through to 'linemarking'. - Based upon our benchmark costing review there are also variances to rates used particularly for precast units and head / wing walls, & vehicle barriers.
	Diversion Works	1	Item	15,000.00	15,000			1	Item	15,000.00	15,000	15,713	17,635	(713)	(17,635)	
	Waterway reshaping	1	Item	12,000.00	12,000			1	Item	4,000.00	4,000	4,277	4,800	7,723	(4,800)	
	Stripping of topsoil	250	m2	3,000.00	750,000			250	m2	2.80	700	733	823	749,267	(823)	
	Excavation	1,150	m3	5.00	5,750			1,150	m3	39.00	44,850	49,897	56,000	(44,147)	(56,000)	
	Formation of batters	200	m3	35.00	7,000			200	m3	16.00	3,200	3,560	3,996	3,440	(3,996)	
Drainage Structures	Box Culverts units 1800 x 3000	69	No.	6,633.61	457,719			69	No.	7,155.00	493,695	549,254	616,434	(91,535)	(616,434)	
	Link slab 1800 x 3000	-	No.	2,184.00	-			-	No.	2,920.00	0			-	-	
	Foundation slab (250mm)	300	m2	1,299.00	389,700			300	m2	224.00	67,200	74,763	83,907	314,937	(83,907)	
	Granular bedding 150mm thick crushed r	300	m2	200.00	60,000			300	m2	16.50	4,950	5,400	6,060	54,600	(6,060)	
	Apron slab	-	m2	18.00	-			-	m2	240.50	0			-	-	
	Wing wall	60	m2	200.00	12,000			60	m2	900.00	54,000	56,568	63,487	(44,568)	(63,487)	
	Head wall	18	m2	500.00	9,000			18	m2	900.00	16,200	17,321	19,440	(8,321)	(19,440)	
On Structure Works	Structural fill	50	m3	500.00	25,000			50	m3	80.00	4,000	4,104	4,606	20,896	(4,606)	
	Vehicle barrier	30	lm	70.00	2,100			30	lm	350.00	10,500	11,682	13,110	(9,582)	(13,110)	
	Signs	1	Item	145.00	145			1	Item	1,100.00	1,100	1,224	1,373	(1,079)	(1,373)	
	Line marking	1	item	2,500.00	2,500			1	m2/pave	1,500.00	1,500	1,669	1,873	831	(1,873)	
					-						0			-	-	
Delivery	Surveying & Design	1	%	5.00	88,145.70	5.00	-	1	%	5.00	36,245	$ 40,030.75	$ 44,926.98	48,115	(44,927)	% driven item
	Contingency	1	%	15.00	264,437.11	15.00	-	1	%	15.00	108,734	$ 120,092.25	$ 134,780.94	144,345	(134,781)	% driven item
	Traffic Management	1	%	5.00	88,145.70	5.00	-	1	%	5.00	36,245	$ 40,030.75	$ 44,926.98	48,115	(44,927)	% driven item
	Supervision & Project Management	1	%	9.00	158,662.27	9.00	-	1	%	9.00	65,241	$ 72,055.35	$ 80,868.57	86,607	(80,869)	% driven item
	Council Fees	1	%	3.25	57,294.71	3.25	-	1	%	3.25	23,559	$ 26,019.99	$ 29,202.54	31,275	(29,203)	% driven item
	Vic Roads Fees	1	%	1.00	17,629.14	1.00	-	1	%	1.00	7,249	$ 8,006.15	$ 8,985.40	9,623	(8,985)	% driven item, should this not be Melbourne Water in lieu of Vic Roads?
	Environmental Management	1	%	0.50	8,814.57	0.50	-	1	%	0.50	3,624	$ 4,003.07	$ 4,492.70	4,811	(4,493)	% driven item
	Site Establishment	1	%	2.50	44,072.85	2.50	-	1	%	2.50	18,122	$ 20,015.37	$ 22,463.49	24,057	(22,463)	% driven item
TOTAL	Excluding Delivery				**1,762,914**		**0**				**724,895**	**$ 800,615**	**$ 898,540**	**962,299**	**(898,540)**	
	Including Delivery				**2,490,116**		**0**				**1,023,914**	**$ 1,130,869**	**$ 1,269,187**	**1,359,247**	**(1,269,187)**	



APPENDIX B
CURRICULUM VITAE

WT PARTNERSHIP

www.wtpartnership.com.au

SIAN MCKENNA

ASSOCIATE DIRECTOR

SIAN'S EXTENSIVE EXPERIENCE IN MAJOR PROJECTS, ALONG WITH HER ADAPTABILITY AND PROFESSIONALISM, MAKES A GREAT ADDITION TO ANY PROJECT TEAM

PERSONAL DETAILS

YEARS OF EXPERIENCE: 23

COUNTRIES WORKED: Australia, United Kingdom

QUALIFICATIONS & AFFILIATIONS:
Bachelor of Science (Honours) Quantity Surveying, Nottingham Trent University, UK

Australian Institute of Quantity Surveyors

National Association Women in Construction - Treasurer (VIC/TAS)

Sian joined WTP having worked a number of years in the UK with major contractor, Balfour Beatty, as a Contract Administrator.

Sian has experience in a wide range of projects of varying size and complexity, throughout many sectors including commercial, industrial, residential, health, education and commercial office fitout.

Over the past 12 years Sian has gained significant cost engineering and cost management expertise with secondments to the Eastlink project, Melbourne Airport and Port of Melbourne.

As a leader of our Infrastructure team Sian's experience focuses on the provision of cost planning, cost management, financial reporting and risk management of major infrastructure projects.

PROFESSIONAL EXPERIENCE

MAJOR PROJECTS:

Aviation and Ports

Port of Melbourne Webb Dock Redevelopment - $1 Billion

Western Sydney Airport

Melbourne Airport airside and landside infrastructure projects including:

A380 Runway Widening

Qantas Domestic Terminal

T2 Arrivals Duty Free refurbishment

T2 (International) Expansion Project

T4 Domestic Terminal

Taxiway and Apron upgrades

Roads

Eastlink Freeway

Melrose Drive duplication (Melbourne Airport)

APAC Drive on ramp (Melbourne Airport)

Western Distributor Proposal (Lend Lease)

Outer Suburban Arterial Roads (OSARs) – Western Region

North East Link – Independent Review

Plumpton & Kororoit Precinct Structure Plan – Transport Projects Peer Review (Melton City Council)

Rail

Level Crossing Removal Project

Western Sydney Airport Rail Link

Civic & Government

Federation Square

Tarrawarra Museum of Art

Justice

Hammersmith Magistrates Court, London, UK

Corrs Chambers Westgarth Office Fitout, Bourke Place

Retail

DFO Retail Precinct, Spencer Street Station

Sport

MCG Northern Stand Redevelopment

VRC Flemington

Commercial

National Australia Bank Construction Risk Department (Secondment)

Shell International HQ Refurbishment, London, UK

Toyota Distribution Plant, Altona

Residential

Verve, 501 Swanston Street

Health

Williamstown Hospital Redevelopment Stages 1 & 2


DRAFT
wtpartnership.com.au
Oceania | Asia | Europe | North America