

Minta Farm Infrastructure Contributions Plan

Estimated Delivery Cost of Interim ICP Road Projects based on updated Cardno FLP Plans following the ICP Traffic Conclave



Charlton Degg

Expert Witness Statement Prepared by Adam Charlton

12 June 2020

Introduction and Background:

This expert report has been prepared based on instructions from King & Wood Mallesons on behalf of its client, Stockland Development Pty Ltd, and relates to the estimated cost of particular ICP road projects within the Minta Farm ICP.

Amendment C228 introduced the Minta Farm Precinct Structure Plan to the Casey Planning Scheme in December 2018. The PSP included a Public Infrastructure Plan and outline of the proposed transport projects proposed to form part of a future Infrastructure Contributions Plan (ICP).

An Interim Minta Farm ICP was subsequently gazetted in May 2019.

A different version of the ICP was later exhibited in July 2019.

Subsequent to the exhibited ICP traffic experts have met at the direction of the panel to discuss the merits of the functional design and as a result VPA's traffic consultant, Cardno have produced updated functional layout plans and costings for the subject ICP road projects.

Qualifications and Experience

In 1994, I obtained an Associate Diploma of Engineering (Mechanical) from Frankston College of TAFE.

In 1998, I obtained a Bachelor of Engineering (Civil Engineering) from Swinburne University of Technology.

I have approximately 22 years' experience as a consultant to land developers, particularly in relation to master planning, project co-ordination, project management, the development of servicing strategies, estimating development costs and feasibility studies.

I am currently a Director of Charlton Degg, Land Development Consultants, a company I founded in January 2015, and my principal place of business is carried on at Suite 1, Level 1, 84 Mt Eliza Way, Mt Eliza, 3930.

Instructions

On the 3rd June 2020 I received instructions from King & Wood Mallesons on behalf of its client, Stockland Pty Ltd to review the costs associated with delivery of specific ICP Road Projects following the Traffic conclave process, and the resultant amended functional layout designs and costings prepared by Cardno as follows:

RD-01	Primary Early Works Interim Arterial Road (N-S Arterial)
IN-01	Primary – Primary Intersection (N-S Arterial - Oshea Road)
IN-02 – Option 2	Primary – Industrial Connector Intersection
IN-03 – Option 2	Primary – Blvd Connector Intersection
IN-04	Primary – Connector Intersection
IN-05	Primary – Primary Intersection (N-S Arterial - Grices Road)

Costing Methodology and Assumptions

I have carried out my own cost estimates for each of the ICP transport projects mentioned above independently of the Cardno costings. In carrying out my costings I have undertaken/considered/assumed the following:

- 1) A thorough site inspection.
- 2) Review of readily available existing service information.
- 3) Earthworks quantities are based on preliminary modelling of the ultimate 41m carriageway and estimated quantities for intersection connector legs. Earthworks quantities make allowance for both bulk earthworks and boxing.
- 4) Bells Road will be predominantly built in fill, estimated to be up to 1.5m above the existing surface levels. Abutting development will need to consider the ultimate road levels, and match in appropriately. Whilst earthworks (and the associated costs) associated with the second carriageway is the responsibility of the road authority at a later date, Charlton Degg considers it necessary to undertake a minimum level of earthworks for the full extent of the ultimate 41m carriageway in order for intersections, watercourses and abutting development to be able to tie in at appropriate levels and avoid creating low lying areas and drainage issues. I have made allowances for the minimum level of earthworks, which is required in my opinion, however I remain of the opinion that these costs should not be funded by the ICP.
- 5) No allowance made for rock excavation based on my knowledge of the site.
- 6) Pavement rates are based on typical depths and compositions using Council generally accepted Design Traffic Loadings.
- 7) Construction rates are based on a number of arterial road and intersection projects which Charlton Degg has designed and managed the delivery of over the past 24 month period.
- 8) Allowance for drainage crossings of intersections to pass the 100 year ARI flows beneath the intersection.
- 9) Allowance for initial decommissioning of street lighting.
- 10) Allowance for temporary street lighting.

- 11) Allowance for night works surcharges where deemed applicable.
- 12) Allowance for temporary pavement at tie-ins.
- 13) Allowance for traffic signal 10 years maintenance.
- 14) Allowance for CCTV of drains to Council requirements.
- 15) Allowance for farm fencing, bollards and guard railing.
- 16) Allowance for service relocations.
- 17) Allowances for retaining walls.
- 18) CD has separated service conduits from its allowances for street lighting and traffic signals. This creates an apparent significant difference to the Cardno estimate for traffic signals and street lighting, however Cardno have presumably included the costs associated with service conduits within these items.
- 19) 5% Contingency.
- 20) 5% allowance for authority fees.
- 21) 12.5% allowance for consultancy fees.
- 22) Allowance for topsoiling and hydroseeding only. No allowance for street tree planting.

RD-01 Primary Early Works – Interim Arterial Road

The table below summarises my cost estimate, and compares it to the Cardno cost estimate for the above project based on the updated Cardno functional layout plan as a result of the traffic conclave.

RD-01	Charlton Degg	Cardno
Preliminaries	148,850.00	435,305.16
Demolition	50,000.00	-
Existing Services	25,000.00	-
Retaining Walls	-	-

Earthworks	1,190,000.00	549,547.52
Service Conduits	119,500.00	-
Drainage Works	789,450.00	604,457.59
Pavement Works	1,695,745.00	1,794,691.66
Concrete Works	638,150.00	537,979.86
Public Lighting	337,500.00	305,331.51
Traffic Signals	-	-
Signage, Line Marking Fencing	198,000.00	50,528.48
Reinstatement	205,600.00	1,598,777.88
Contingency	269,889.75	816,197.18
Consultants Fees	708,460.59	761,784.04
Authority Fees	283,384.24	231,255.87
Total	6,659,529.58	7,685,856.75

The items of significant difference are as follows:

Preliminaries

Cardno has a \$272,065 traffic management allowance that we do not believe is necessary. IN-01 and IN-05 (part of the early works package) will be built under traffic management and RD-01 will be built under greenfield conditions.

Earthworks

Cardno appears to have allowed for a nominal boxing allowance. CD has allowed for earthworks quantities based on a preliminary road grading and for the full width of the ultimate carriageway as per our assumption above.

Drainage Works

Cardno has adopted a lower rate generally for ordinary road drainage than CD.

Reinstatement, Landscaping and Fencing

CD has made allowance for topsoiling, hydroseeding and fencing. It has not made any allowance for street tree planting. We note however that the Cardno allowance for 'landscape' seems extraordinarily high and question what this is intended to allow for.

Contingency

CD has allowed 5% of construction costs whereas Cardno has allowed in the order of 11% of the total costs. In our opinion, based on the detail that has gone into this work to date, 5% of construction costs is appropriate.

IN-01 - Primary – Primary Intersection

The table below summarises my cost estimate, and compares it to the Cardno cost estimate for the above project based on the updated Cardno functional layout plan as a result of the traffic conclave.

IN-01	Charlton Degg	Cardno
Preliminaries	283,970.00	245,736.48
Demolition	64,850.00	37,398.00
Existing Services	140,000.00	26,666.20
Retaining Walls	-	-
Earthworks	450,000.00	255,178.44
Service Conduits	68,400.00	-
Drainage Works	392,350.00	212,403.72
Pavement Works	1,144,195.00	1,203,524.72
Concrete Works	317,600.00	287,079.98
Public Lighting	117,500.00	222,470.96
Traffic Signals	275,000.00	515,145.36
Signage, Line Marking Fencing	122,000.00	41,942.99
Reinstatement	32,500.00	269,713.63

Contingency	170,418.25	460,755.90
Consultants Fees	447,347.91	430,038.84
Authority Fees	178,939.16	130,547.51
Total	4,205,070.32	4,338,602.73

The items of significant difference are as follows:

Existing Services

CD has included a significantly higher nominal allowance for existing service protection and relocation noting that this intersection has been costed on the basis that it is delivered under live conditions some time after the early works package.

Earthworks

Cardno appears to have allowed for a nominal boxing allowance. CD has allowed for earthworks quantities based on a preliminary road gradings.

Drainage Works

Cardno has adopted a lower rate generally for ordinary road drainage than CD. CD has also made allowance for upsized drainage infrastructure to pass the 100 year ARI beneath this intersection which we believe needs to be considered.

Reinstatement, Landscaping and Fencing

CD has made allowance for topsoiling, hydroseeding and fencing. It has not made any allowance for street tree planting. We note however that the Cardno allowance for 'landscape' seems high and question what this is intended to allow for.

Contingency

CD has allowed 5% of construction costs whereas Cardno has allowed in the order of 11% of the total costs. In our opinion, based on the detail that has gone into this work to date, 5% of construction costs is appropriate.

IN-02 - Primary – Industrial Connector Intersection (Option 2)

The table below summarises my cost estimate, and compares it to the Cardno cost estimate for the above project based on the updated Cardno functional layout plan as a result of the traffic conclave.

IN-02 - Option 2	Charlton Degg	Cardno
Preliminaries	267,430.00	379,689.92
Demolition	77,150.00	141,001.50
Existing Services	115,000.00	-
Retaining Walls	-	-
Earthworks	450,000.00	357,184.04
Service Conduits	104,100.00	-
Drainage Works	638,450.00	445,355.58
Pavement Works	1,931,345.00	2,025,135.94
Concrete Works	334,300.00	392,933.08
Public Lighting	232,500.00	222,470.96
Traffic Signals	375,000.00	515,145.36
Signage, Line Marking Fencing	251,250.00	65,903.66
Reinstatement	120,800.00	580,993.87
Contingency	244,866.25	711,918.61
Consultants Fees	642,773.91	664,457.36
Authority Fees	257,109.56	201,710.27
Total	6,042,074.72	6,703,900.15

The items of significant difference are as follows:

Existing Services

CD has included a nominal allowance for existing service protection and relocation noting that this intersection has been costed on the basis that it is delivered under live conditions some time after the early works package. Cardno has made no allowances associated with existing services.

Earthworks

Cardno appears to have allowed for a nominal boxing allowance. CD has allowed for earthworks quantities based on a preliminary road gradings.

Drainage Works

Cardno has adopted a lower rate generally for ordinary road drainage than CD. CD has also made allowance for upsized drainage infrastructure to pass the 100 year ARI beneath this intersection which we believe needs to be considered.

Reinstatement, Landscaping and Fencing

CD has made allowance for topsoiling, hydroseeding and fencing. It has not made any allowance for street tree planting. We note however that the Cardno allowance for 'landscape' seems high and question what this is intended to allow for.

Contingency

CD has allowed 5% of construction costs whereas Cardno has allowed in the order of 11% of the total costs. In our opinion, based on the detail that has gone into this work to date, 5% of construction costs is appropriate.

IN-03 - Primary – Blvd Connector Intersection (Option 2)

The table below summarises my cost estimate, and compares it to the Cardno cost estimate for the above project based on the updated Cardno functional layout plan as a result of the traffic conclave.

IN-03 - Option 2	Charlton Degg	Cardno
Preliminaries	259,270.00	278,925.81
Demolition	62,450.00	68,406.84
Existing Services	115,000.00	-
Retaining Walls	-	-
Earthworks	450,000.00	243,847.44
Service Conduits	92,900.00	-
Drainage Works	541,650.00	310,645.18
Pavement Works	1,407,465.00	1,400,906.24
Concrete Works	268,000.00	342,824.99
Public Lighting	192,500.00	222,470.96
Traffic Signals	375,000.00	515,145.36
Signage, Line Marking Fencing	221,250.00	59,736.73
Reinstatement	87,800.00	322,588.89
Contingency	203,664.25	522,985.89
Consultants Fees	534,618.66	488,120.17
Authority Fees	213,847.46	148,179.34
Total	5,025,415.37	4,924,783.84

The items of significant difference are as follows:

Existing Services

CD has included a nominal allowance for existing service protection and relocation noting that this intersection has been costed on the basis that it is delivered under live conditions some time after the early works package. Cardno has made no allowances associated with existing services.

Earthworks

Cardno appears to have allowed for a nominal boxing allowance. CD has allowed for earthworks quantities based on a preliminary road gradings.

Drainage Works

Cardno has adopted a lower rate generally for ordinary road drainage than CD. CD has also made allowance for upsized drainage infrastructure to pass the 100 year ARI beneath this intersection which we believe needs to be considered.

Reinstatement, Landscaping and Fencing

CD has made allowance for topsoiling, hydroseeding and fencing. It has not made any allowance for street tree planting. We note however that the Cardno allowance for 'landscape' seems high and question what this is intended to allow for.

Contingency

CD has allowed 5% of construction costs whereas Cardno has allowed in the order of 11% of the total costs. In our opinion, based on the detail that has gone into this work to date, 5% of construction costs is appropriate.

IN-04 - Primary – Connector Intersection

The table below summarises my cost estimate, and compares it to the Cardno cost estimate for the above project based on the updated Cardno functional layout plan as a result of the traffic conclave.

IN-04	Charlton Degg	Cardno
Preliminaries	259,270.00	270,908.48
Demolition	39,350.00	55,755.54
Existing Services	115,000.00	-
Retaining Walls	-	-
Earthworks	381,250.00	238,525.40
Service Conduits	92,900.00	-
Drainage Works	517,350.00	297,471.00
Pavement Works	1,373,250.00	1,404,059.44
Concrete Works	232,150.00	318,215.33
Public Lighting	192,500.00	222,470.96
Traffic Signals	375,000.00	515,145.36
Signage, Line Marking Fencing	56,250.00	47,384.93
Reinstatement	83,850.00	287,328.01
Contingency	185,906.00	507,953.40
Consultants Fees	488,003.25	474,089.84
Authority Fees	195,201.30	143,920.13
Total	4,587,230.55	4,783,227.82

The items of significant difference are as follows:

Existing Services

CD has included a nominal allowance for existing service protection and relocation noting that this intersection has been costed on the basis that it is delivered under live conditions some time after the early works package. Cardno has made no allowances associated with existing services.

Earthworks

Cardno appears to have allowed for a nominal boxing allowance. CD has allowed for earthworks quantities based on a preliminary road gradings.

Drainage Works

Cardno has adopted a lower rate generally for ordinary road drainage than CD. CD has also made allowance for upsized drainage infrastructure to pass the 100 year ARI beneath this intersection which we believe needs to be considered.

Reinstatement, Landscaping and Fencing

CD has made allowance for topsoiling, hydroseeding and fencing. It has not made any allowance for street tree planting. We note however that the Cardno allowance for 'landscape' seems high and question what this is intended to allow for.

Contingency

CD has allowed 5% of construction costs whereas Cardno has allowed in the order of 11% of the total costs. In our opinion, based on the detail that has gone into this work to date, 5% of construction costs is appropriate.

IN-05 - Primary – Primary Intersection

The table below summarises my cost estimate, and compares it to the Cardno cost estimate for the above project based on the updated Cardno functional layout plan as a result of the traffic conclave.

IN-05	Charlton Degg	Cardno
Preliminaries	629,670.00	602,496.77
Demolition	123,050.00	414,701.80
Existing Services	700,000.00	560,050.00
Retaining Walls	75,000.00	-
Earthworks	643,750.00	631,462.52
Service Conduits	145,900.00	-
Drainage Works	1,060,350.00	827,195.97
Pavement Works	2,919,015.00	3,199,626.44
Concrete Works	486,550.00	500,853.71
Public Lighting	292,500.00	222,470.96
Traffic Signals	375,000.00	515,145.36
Signage, Line Marking Fencing	168,750.00	91,974.11
Reinstatement	120,850.00	567,733.19
Contingency	387,019.25	1,129,682.11
Consultants Fees	1,015,925.53	1,054,369.97
Authority Fees	406,370.21	320,076.60
Total	9,549,699.99	10,637,839.51

The items of significant difference are as follows:

Demolition

Cardno has a much greater allowance for demolition works than CD. CD's allowance is based on a quantity take-off for existing pavements which we believe will need to be removed to build the works, with rates recently obtained for similar works in the south east.

Retaining Walls

CD believes a retaining wall will be necessary along the existing shared pathway on the west side of the south leg of this intersection based on existing levels.

Earthworks

Cardno appears to have allowed for a nominal boxing allowance which is more appropriate in this case as levels will remain generally similar to the existing intersection levels. As a consequence CD's estimate is similar to Cardno's for this project.

Drainage Works

Cardno has adopted a lower rate generally for ordinary road drainage than CD. CD has also made allowance for upsized drainage infrastructure to pass the 100 year ARI beneath this intersection which we believe needs to be considered.

Reinstatement, Landscaping and Fencing

CD has made allowance for topsoiling, hydraseeding and fencing. It has not made any allowance for street tree planting. We note however that the Cardno allowance for 'landscape' seems high and question what this is intended to allow for.

Contingency

CD has allowed 5% of construction costs whereas Cardno has allowed in the order of 11% of the total costs. In our opinion, based on the detail that has gone into this work to date, 5% of construction costs is appropriate.

CU-01 - Culvert

Whilst this is not the subject of this cost review, Charlton Degg believes the exhibited ICP cost estimate of \$717,500 is based on an incorrect design assumption, and that the actual structure required by Melbourne Water will likely comprise of 5 cells of 3.6m x 1.5m box culverts. Our high level estimate is that this structure will cost significantly more than \$717,500. This culvert must be delivered as part of the early works package as the new interim arterial road will otherwise dam the land to the west of it.

In addition to the above, in order to provide an outfall for CU-01, a channel will need to be constructed from the culvert to the Cardinia Creek reserve. Ideally this would be constructed on the ultimate watercourse alignment in accordance with Melbourne Waters Minta Farm Drainage Strategy. We estimate that even a temporary channel could involve up to 50,000 cub.m of earthworks (cut). This work must also be delivered as part of the early works package.

Conclusion

The high level summary below indicates that CD's estimate for the 6 road projects is approximately 8% less than Cardo's when considered together.

ICP Project	CD Detailed Cost Estimate (Following Traffic Conclave) For Expert Evidence	Amended ICP Cardno Estimate (P90) (Following Traffic Conclave) Proposed to inform ICP
RD-01 Primary Early Works - Interim Arterial	6,659,529.58	7,685,857.00
IN-01	4,205,070.32	4,338,785.00
IN-02 (Option 2)	6,042,074.72	6,703,900.00
IN-03 (Option 2)	5,025,415.37	4,924,784.00
IN-04	4,587,230.55	4,783,228.00
IN-05	9,549,699.99	10,637,840.00
Total:	36,069,020.53	39,074,394.00

The main differences can be attributed to:

Earthworks CD higher by \$1.28m due to allowance for bulk fill across the ultimate road reserve area.

Drainage Works CD higher by \$1.20m due to generally higher drainage rates and additional allowance to upsize drainage at intersections to convey 100 year ARI flows beneath the road pavements.

Landscaping Cardno higher by \$2.31m. This comparison takes into consideration the sum of the reinstatement and signage line marking and fencing items as there is potentially some degree of overlap with these items.

Contingency Cardno higher by \$2.65m.

There are some minor variances with the other items of the cost estimates between CD's and Cardno's, however the above variances, on balance, account for over 80% of the total difference.

Whilst we acknowledge an outcome from the traffic conclave was that the Stockland and TMG preferred alignment of the N-S arterial was acceptable to the experts, and that Cardno had not updated the location of the road or intersections in its post conclave FLP updates, we note that when plotted together, IN-03 and IN-04 transitions to the early works interim arterial carriageway overlap. It is assumed that the updated FLP designs are fundamentally appropriate, and when redrafted to the correct locations, will not overlap.

Declaration:

I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the Panel.

A handwritten signature in blue ink, appearing to read 'A Charlton', with a stylized, cursive script.

Adam Charlton

APPENDIX A

***Charlton Degg Detailed Cost Estimates and
Comparison Tables***

APPENDIX B
Drg No. 1149_ICP/R01
Early Works Costing Plan

APPENDIX C
Drg No. 1149_ICP/R02
IN-02, IN-03 and IN-04 Costing Plan