
**APPENDIX 7 - CASE STUDY
1 – INITIAL FEASIBILITY AND
OPTIONS ANALYSIS, CHARTER
KECK CRAMER**

Case Study 1 – Initial Feasibility and Options Analysis

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January 2018 – FINAL DRAFT

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Introduction/Background

In accordance with our agreed terms of reference, Mesh Urban Planning & Design (“Mesh”) has on behalf of The City of Port Phillip (“Port Phillip”) appointed Charter Keck Cramer (“Charter”) to prepare an initial Feasibility Study and Options Analysis. The scope of this advice incorporates the development site at 80 Munro Street which is currently privately owned and relates to an irregular shaped allotment of 9,709 sq.m., bounded by Munro, Montague and Johnson Streets. As per the Fishermans Bend Community Infrastructure Plan (CIP), community focused accommodation is proposed to be delivered through infrastructure hubs via two (2) delivery models; the first relating to the construction of a standalone facility; whilst the second relates to Community Hub facilities forming part of a larger mixed-use development. The subject site has been chosen for the purpose of undertaking Case Study 1 and Council have given no commitment or particular preference to deliver the sport and recreation hub on this site at this point in time. The Montague Sport and Recreation Hub will provide some 10,000 sq.m. (approx.) of accommodation comprising of an indoor multipurpose stadium with supporting infrastructure, youth services and multipurpose community rooms where the end users can integrate with the broader community (particularly Youth Services) and enjoy direct connection to the proposed Neighbourhood Park.

In order to provide this key Infrastructure Asset, a range of funding options are being considered to reduce/minimise Capital requirements whilst ensuring a practical solution that sees the effective delivery of key community infrastructure assets. In accordance with our formal instructions, Charter has considered the following four (4) delivery options available:

Option 1: Sport and Recreation Hub (Standalone Model). Government acquire the entire site and construct the Recreation Hub as a standalone facility.

Option 2: Separate Strata Allotment Retained and Recreational Hub Constructed (Mixed Use Development Model). Government acquire the entire site and achieve a permit for a larger Mixed-Use redevelopment incorporating the Recreational Hub; the balance of the site is then divested with construction of the Recreational Hub on the site undertaken independently.

Option 3: Government Leases Recreational Hub (Mixed Use Development Model). The site is retained by the existing owner and is redeveloped for a larger Mixed-Use precinct incorporating the Recreational Hub. Government then lease the facility from the land owner on a long term tenure and market levels.

Option 4: The site is retained by the existing owner and redeveloped for a larger mixed-use precinct incorporating the Recreational Hub, with an agreement to purchase the Recreational Hub at practical completion (Mixed-Use Development Model). The site is retained by the existing owner and is redeveloped for a larger mixed-use precinct incorporating the Recreational Hub, with an agreement for government to purchase the Recreational Hub at practical completion.

In completing this advice Charter has:

- Reviewed the relevant project documentation within the “Dropbox” link and the Case Study Design Specifics;
- Researched a wide range of market based information including leasing and sales evidence;
- Researched current development hurdles, metrics, construction timelines and funding hurdles so to inform accurate albeit initial feasibility testing;
- Reviewed and relied upon Preliminary Construction Cost Estimates (costs and timings) prepared by Charter’s Quantity Surveying Department along with initial valuation advice provided by Mr Claudio Petrocco of our office;
- Discussed various aspects of the scope of works as articulated herein with Mesh and Port Phillip;
- Undertaken high level financial analysis to calculate the estimated Net Present Value (NPV) of all future cashflows required by Port Phillip across each option. This analysis identifies the future capital funding requirement reverted to today’s dollars allowing appropriate benchmarking of the various options;
- Summarised our detailed investigations within this report.

This advice should not be construed as a formal valuation nor is it a report intended for mortgage security purposes, there being no liability accepted at this time for the correctness of title details, zoning, measurements, GFA’s or future occupation etc. or any other information usually researched in detail for the purposes of preparing formal valuation advice.

Introduction

Charter has completed an initial financial analysis for each of the nominated options to establish the NPV of future cashflows and the total cost to be incurred by Government under each scenario. The construction cost assumptions incorporated herein have been extracted from the Preliminary Construction Cost Estimates prepared by Charters Quantity Surveying Business Unit (12 December 2017), Indicative realisations underpinned by data from our Valuations department and our various financial modelling assumptions predicated on market based returns and performance indicators. In undertaking our analysis we have made the following key assumptions:

Key General Assumptions Applicable to Each Option

- Each participation option has been modelled over a theoretical 20 year period for our cashflow purposes at the nominated Discount rate of 7.50% p.a. In reality, some options may see Government holding the facility for a longer period (50-100 years) but to establish consistency across the various scenarios, we have considered the cashflows of all options across a 20 year period;
- Cost Estimates detailed within the Preliminary Construction Cost Estimate Report (QS) include provisions for Remediation, External Works, Planning & Design fees, Core Construction and Contingencies;
- Costs and revenues detailed herein are not subject to any escalations;
- We have assumed general cashflow timelines of 3 months settlement for each option, 18 months for town planning (to secure development approval) and 18 months (standalone)/30 months (Mixed-use) for construction;
- Stamp duty is payable on land purchase as per Victorian SRO with total acquisition costs assumed at 5.50%;
- Terminal Value of Asset under each scenario equal to the last terms escalated Rental Rate capitalised at a Terminal Yield of 8%;
- Commencing Rental Rate p.a. equivalent to 8% of the Market Value of the facility, with Market Value reflective of Cost to Construct under each model;
- Rental Value p.a. escalating in line with CPI over a 20 year period;
- Outgoings in commencing year payable at \$409,000 p.a. and escalating at CPI (as advised by Port Phillip);
- For the purposes of our assessment we have not considered any financing costs (i.e. interest). Whilst we understand there may be some portion of third party financing, in order to benchmark the various purchase/construction and leasing options on the basis of development fundamentals, we have disregarded such costs at this initial stage of investigation;
- In the scenarios where Government purchase the site via negotiation, we note that if a Public Acquisition Overlay (POA) was to be placed on the site, this will most likely extend the timelines, costs and statutory obligations associated to the Authority.

Financial Performance and Return Assumptions

- A Discount Rate of 7.50% has been adopted (as instructed by Council) for the purpose of our indicative NPV analysis which is supported by Charters current knowledge of broad domestic based investment scenarios and our assessment of the risk associated with the various options;
- A Terminal Yield of 8.00% has been adopted for the purposes of our NPV analysis which is predicated upon current investment market sales results for similar assets;
- An Alternative Investment Rate of 5.00% has been adopted for the analysis of the “Opportunity Cost” benefit to Government under the Option 3 – Leasing scenario;

Base Case General Cost, Revenue & Return Assumptions

Other key Cost assumptions are summarised as follows:

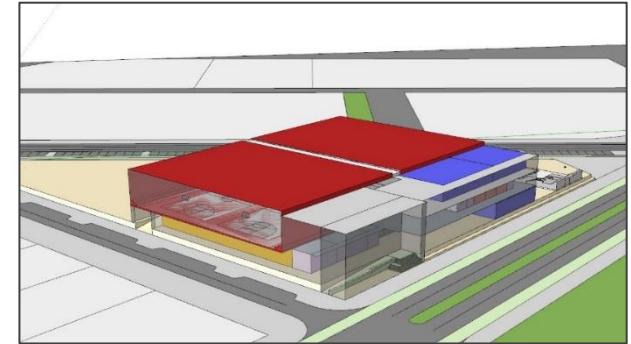
Total Construction Cost - Stand Alone Facility	\$66,430,000
Total Construction Cost – Mixed-Use Facility	\$311,635,000
- Sport & Rec Hub only	\$72,572,865
- Broader Mixed-use component	\$239,062,135
Selling Costs	2.0% plus GST

A summary of our indicative feasibility findings for each of the four (4) options are summarised as follows:

Option 1: Sport and Recreation Hub (Standalone Model)

Introduction

Government acquire the entire site from the current owner interests at current market value, achieve a planning permit and subsequently construct the Recreation Hub on the site as a standalone facility for the ongoing use as Community Infrastructure. Costs and timing of construction have been derived from a Preliminary Construction Cost Estimate Report prepared by Charter's Quantity Surveying Business Unit.



Initial Cash Flow Assumptions

- For our cost analysis, the following key assumptions have been adopted:
- Construction of a three level Standalone Recreational Hub of 10,385 sq.m.;
 - Total Construction cost (Excl. of land) of \$66.4m - as per Charter QS assessment subject to the various assumptions;
 - Assessed land value of \$24.2m adopted as purchase price;
 - Contamination on the site is remediated in parallel with the Planning Permit process (refer QS Costings);
 - Terminal capitalisation rate 6.00%, which varies from our base assumption and reflects generous underlying land parcel (9,709 sq.m.) not associated under the balance of options;

Strengths

- Outright purchase of the land allows Government absolute control in the design, planning process and delivery of a stand-alone Community Infrastructure Hub;
- Development of a prime purpose built Recreational Hub is not contingent upon the design and timing limitations associated with the third-party developer and larger Mixed-Use project;
- Timeline to occupancy significantly shorter in comparison to the larger Mixed-Use scenario;
- Full control of destiny and not subject to annual rental increases/market reviews;
- Flexibility – If at any point in the future the intended end user/occupant changes, the Government can re-design/expand/redevelop the facilities;
- Government retain asset and enjoy capital growth associated with land and buildings over what is likely to be a long term time horizon.

Cost & Timeframe

Indicative Project Costs (GST Incl.)

- (\$92.8m)** (including imputed land value - \$24.2m assessed by CKC & Construction Cost Estimates of \$66.43m + ancillary development costs)

Estimated NPV @ 7.50% discount rate over 20 years

- (\$55,289,920)**

Indicative Timeframe to Option Implementation:

▪ Settlement	3 months
▪ Town Planning Permit, Detailed Design & Remediation	18 months
▪ Core Construction	18 months
▪ Total	39 Months

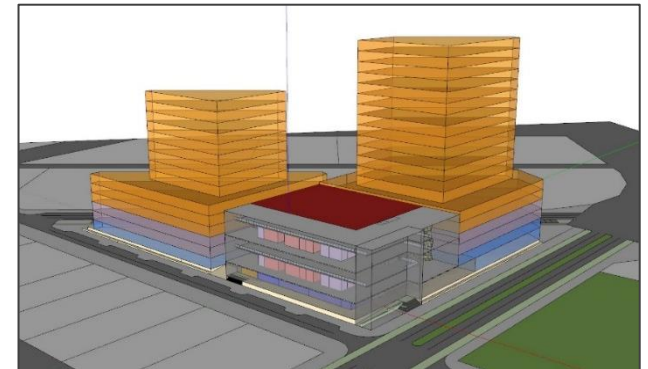
Weaknesses

- Significant upfront cost to Government in implementing this option (\$92.8m +/-);
- Substantial funding requirement over/above Government's annual capital allocation;
- Government as the owner potentially become exposed to environmental, planning and construction risk;
- More generally, the proposed option would represent an underutilisation of the site which is proposed to enjoy a 24 storey height limit.

Option 2: Separate Strata Allotment Retained and Recreational Hub Constructed [Mixed Use Development Model]

Introduction

Government acquire the entire site and achieve a permit for a larger Mixed-Use redevelopment incorporating the Recreational Hub; Government then retain the portion of the site allocated for the Recreational Hub and proceed to divest the balance to the open market for a third party developer to subsequently deliver in accordance with the endorsed plans. Government is to independently undertake construction of the Recreational Hub in Year 2 subject to the Costs outlined in Charter’s QS Estimates.



Initial Cash Flow Assumptions

- For the NPV analysis, the following key assumptions have been adopted:
- Government purchase site for \$24.2m (assessed value) and achieve a permit (incur planning fees) for Mixed-use development with GFA of 71,705 sq.m.;
 - Government divest the balance of the site to the open market for \$23.1m, which represents the approximate Residual Land Value of the Mixed-Use scheme feasibility analysis;
 - The Recreational Hub and balance of Mixed-Use built-form can be constructed independently of each other;
 - Third party developer undertakes construction on balance of the site in accordance with the permit;
 - Community Hub component cost of \$72,572,865 (excl. GST).

Strengths

- Outright purchase of the land allows Government absolute control in the design and planning process before divesting;
- Government has potential to add value by driving the planning process and achieving a favourable outcome before divestment;
- Capital is “unlocked” and received by divesting the balance of the site with an attractive mixed-use permit (\$23.1m);
- Significant capital relief by divesting the balance of the site;
- Government transfers construction and delivery risk of the mixed-use component onto third party developer;
- No construction cost obligations by Government for larger precinct;
- Completed Recreational Hub delivered under the control and timing of Government.
- Government enjoy full ownership rights of the asset moving forward;
- Government ultimately enjoy outright ownership of the facility and therefore benefit from future capital growth over what is likely to be a long time horizon.

Cost, NPV & Timeframe

Indicative initial (1-4 yr) Net Costs for Site and Construction (exc. outgoings/other consultants)

- (\$74.17m)

Estimated NPV @ 7.50% over 20 years

- (\$10,684,336)

Indicative Timeframe to Implement Option (Recreational Hub only)

▪ Settlement	3 months
▪ Detailed Design, Remediation, Planning	18 months
▪ Core Construction & Sale of site	18 months
▪ Final Fitout/Handover	1 Month
▪ Total	40 Months

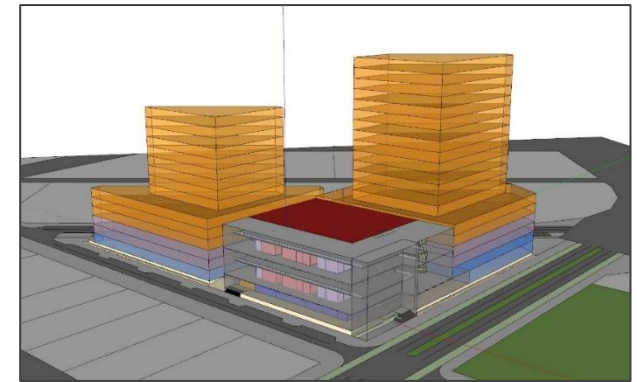
Weaknesses

- Significant upfront cost to the Government to acquire the site (\$24.2m);
- Government loses control over timing and delivery of the broader development;
- Government as the owner become exposed to some form of environmental, planning and construction risk;
- Strata ownership possibly restricts future use compared to outright ownership;

Option 3: Government Leases Community Hub (Mixed Use Development Model)

Introduction

The site is retained by the existing owner and is redeveloped for a larger Mixed-Use precinct incorporating the Recreational Hub as required by way of a Section 173 Agreement. Government then lease the facility from the land owner on a long term tenure at market levels and are relieved of all planning and delivery risk, although lose control of project timing and will not benefit from any capital growth associated with ownership.



Initial Cash Flow Assumptions

For the NPV analysis, the following key assumptions have been adopted:

- Government lease Recreation Hub of 10,956 Sq.m.;
- Site required to be developed with a mixed-use development incorporating the proposed Recreational Hub (ie. S173 Agreement);
- Market value represents construction cost plus builder's margin on cost to a third party delivering the facility, but does not reflect any form of development profits;
- In recognising the opportunity cost benefit of funds which would otherwise be allocated under an Option 1 scenario (\$92.8m), we have assumed Government benefit from a reinvestment rate on each years available funds at 5% p.a. after rent/outgoings;
- Government occupy the facility until available funds (initially \$92.8m) are entirely diminished (Year 17);
- Government enter into an initial lease (with options) with fixed annual reviews in line with CPI;

Strengths

- Significantly lower upfront capital cost than a develop and own scenario;
- Ongoing construction capital expenditure is the responsibility of the developer with no capital outlay required to purchase the land or construction;
- Government remove themselves of planning, design and construction risks;
- Opportunity Cost benefit as theoretically Government may invest unused funds which are not required for the site purchase or construction costs;
- Government may elect to relocate at the conclusion of the lease term;
- Government do not have to pay stamp duty;

Cost, NPV & Timeframe

Indicative Year 1 Rental Cost (exc. outgoings/other consultants)

- (\$6.38m)

Estimated NPV of net cashflows @ 7.50% over 17 years

- (\$53,366,746)

In recognising theoretical funds available that would otherwise be utilised by Government to purchase and construct rather than lease a new facility, the reinvestment return on these funds less than the annual rental rate/outgoings diminishes these funds entirely at **year 17** which reflects the maximum tenure available under this scenario.

Estimated Timeframe to occupation:

- | | |
|---------------------------------|-----------|
| ▪ Settlement | 3 months |
| ▪ Town Planning Permit | 18 months |
| ▪ Core Construction | 30 months |
| ▪ Final Fitout/handover/Leasing | 1 Months |
| ▪ Total | 52 Months |

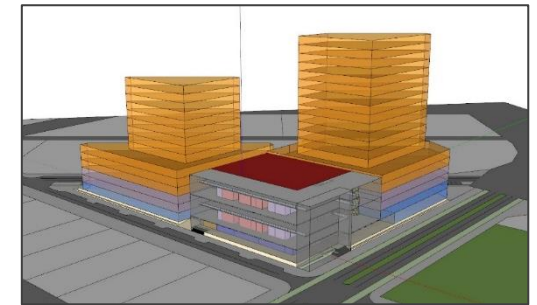
Weaknesses

- Assuming Government have access to similar capital that would be available under a traditional purchase and construct scenario (Options 1 - \$92.8m), differences in the reinvestment rate of 4% p.a. and the rental/outgoings p.a. see all funds, and therefore tenancy, diminished in Year 17;
- Government as the tenant do not enjoy the benefit of capital growth and are subject to rent escalations/market reviews;
- Government loses control over timing and delivery of the broader development with a development agreement possibly contingent on financing/pre-sale success of the residential components;

Option 4: Site is retained by the existing owner and redeveloped for a larger mixed-use precinct incorporating the Recreational Hub, with an agreement to purchase the Recreational Hub at practical completion (Mixed Use Development Model).

Introduction

Government work cooperatively with the current owner to assist in achieving a permit outcome on the site, with the developer. Subsequently delivering the entire precinct with an agreement from Government to purchase the Recreational Hub at cost from the developer. Government relieve themselves of delivery risk and benefit from a purpose-built facility at cost plus builders margin on cost.



Initial Cash Flow Assumptions

For the NPV analysis, the following key assumptions have been adopted:

- Government purchase the Recreation Hub of 10,956 Sq.m. upon completion at an agreed value which represents cost and builders margin on cost;
- Site required to be developed with a Mixed-Use development incorporating the proposed Recreational Hub (ie. S173 Agreement);
- Third party developer undertakes construction of the project, with a construction timeline and acquisition of the strata titled Recreational Hub at month 52.

Strengths

- Lower upfront capital cost than if Government develop and own;
- Government remove themselves of planning, design and construction obligations;
- Government transfers construction and delivery risk onto third party developer;
- No immediate capital required for Government until Recreational Hub is complete. Allows time for funding to be sourced;
- Completed Recreational Hub delivered to Government at an agreed purchase price.

Cost, NPV & Timeframe

Indicative Cost to acquire facility at Year 4 (Cost equal to value + margin on cost+ Acq. cost)

- Cost (\$72.5m) + Margin on cost (10%) + Acq Cost (\$4.39m): **(\$84.22m)**

Estimated NPV @ 7.50% over 20 years

- **(\$11,843,193)**

Indicative Timeframe to occupation

▪ Settlement	3 months
▪ Town Planning Permit	18 months
▪ Core Construction	30 months
▪ Final Fitout/handover/commissioning/Strata Acq	1 Months
▪ Total	52 Months

Weaknesses

- Government loses control over timing and delivery of the broader development with a Development Agreement possibly contingent on financing/pre-sale success of the residential component;
- Significant Capital output (\$84.2m) required at acquisition of Recreational Hub;
- Stamp Duty payable on the Recreational Hub facility;
- Government requirement to pay margin on cost for the Recreational Hub being constructed.

General Conclusions

Conclusions

We summarise our conclusions as follows:

- Government have a requirement to provide a Community Infrastructure Hub to support the Fishermans Bend precinct through two (2) delivery models; the first being a standalone Recreational Hub; and the second being a Recreational Hub forming part, although independent of, a larger Mixed-Use development on the site. The accommodation advised will provide GFA of 10,385 sq.m. and 10,956 sq.m. respectively with both options providing various indoor sporting courts/stadium with supporting infrastructure, youth services and multipurpose community rooms.
- Our initial options analysis has considered four (4) distinct funding options available for Government to consider in delivering the proposed Recreational Hub;
 1. Sport and Recreation Hub (Standalone Model);
 2. Strata Allotment Retained and Recreational Hub Constructed (Mixed Use Development Model);
 3. Government Leases Community Hub (Mixed Use Development Model);
 4. The site is retained by the existing owner and is redeveloped for a larger mixed-use precinct incorporating the Recreational Hub, with an agreement to purchase the Recreational Hub at practical completion (Mixed Use Development Model);

	Option 1	Option 2	Option 3	Option 4
NPV	(\$55.29m)	(\$10.68m)	(\$53.3m)	(\$11.84m)
Indicative Total Cost to Government	\$92.8m	\$74.14m (net)	\$6.38m (1 st Year Rent)	(\$82.4m)
Timeframe to Occupation	39 Months	40 Months	52 Months	52 Months
Considerations	<ul style="list-style-type: none"> - Significant Capital Outlay required; - Government accept planning, construction & delivery risk; 	<ul style="list-style-type: none"> - Government are to guide favourable planning outcome and generate Capital inflow by divesting balance of the site. 	<ul style="list-style-type: none"> - Lower initial funds required, although significant capital outlay over 18 year tenure without the benefit of asset ongoing. 	<ul style="list-style-type: none"> - Loss of control of timing and delivery of facility.

- Charter has undertaken financial cashflow analysis of the four (4) funding options available to the Government, determining an indicative Net Present Value (NPV) of all future cashflows over a 20 year period which allows the reader to appropriately benchmark the relevant costs/benefits against each scenario. At this initial stage the results are only indicative, but nonetheless will help guide Government's deliberations on the most appropriate funding model and indicate which option may warrant further rigorous interrogation.
- **Option 3 (leasing Scenario)** requires significantly less initial capital outlay in comparison to the balance of options and as such our analysis of this option considers the "opportunity cost" benefit which represents the funds that Government would theoretically have at their disposal assuming they do not undertake a scenario such as Option 1 – Purchase and construct (\$92.8m). In recognising a reinvestment return on these funds less than the annual rental rate/outgoings, we have determined that the facility could be occupied for a tenure of 17 years before these funds fully diminish. Under the assumption of a reinvestment rate on available funds (Opportunity cost) of 4% less all rental/outgoings, it is important to note that at the end of the 17 year tenure Government do not enjoy ownership of the asset and any capital appreciation associated with the same. Under Option 1, 2 & 4, Government ultimately hold ownership rights over the purpose-built Recreational Hub facility for ongoing use.

- Charter acknowledge that Government owned Community facilities often have more than financial based motivations for considering the development/ownership of real estate. Notwithstanding Charter has completed an initial NPV analysis (20 Yr) on options 1,2 &4, whilst the Option 3- Leasing scenario timeline has been funds driven (17 Years), with the result of this initial analysis favouring the **Option 2 Scenario - Strata Allotment Retained and Recreational Hub Constructed (Mixed Use Development Model)**.
- In considering the more qualitative metrics of the various scenarios, **Option 2 – Separate Strata Allotment Retained and Recreational Hub Constructed (Mixed-Use Development Model)** again presents the most favourable option as it allows Government to leverage their position in achieving a favourable Mixed-Use planning outcome across the site, sees capital inflow when the balance of the site is divested to the open market and importantly sees the Government enjoying continued ownership rights of the asset and benefiting from any associated capital growth. It is noted that whilst ownership has its benefits, Government will become exposed to various forms of market, planning and construction risk under this scenario.
- In summary this scope of work concluded that Port Phillip has identified a site which has the potential to deliver a purpose-built Recreational Hub which aligns with the initiatives of the Fishermans Bend Community Infrastructure Plan (CIP), with our analysis considering four (4) funding options considered available to the government in delivering this key infrastructure asset. After consideration of the various qualitative and quantitative metrics across the options, Charters analysis favours the **Option 2 - Separate Strata Allotment Retained and Recreational Hub Constructed (Mixed Use Development Model)** as an option which warrants further investigation as the preferred funding model for the Government;
- In summary, Charter has conducted this analysis on the basis of four (4) initial high level scenarios to assist Port Phillip with their deliberations, but we stress that this advice can only be considered as indicative at this stage and more robust investigations of the various options should be made before any decisions are made.

Statement of Limiting Conditions/Contact Details.

In terms of Charter Keck Cramer's ("Charter") standard reporting practice, we advise as follows:

- Charter has no pecuniary interest in any property, past, present or prospective and the advice expressed is free of any bias in this regard;
- Please note that this preliminary advice should not be construed as a formal valuation, nor is it a report intended for mortgage security purposes, there being no liability accepted at this time for the correctness of Title details, zoning, measurements, occupation and planning, or any other information usually researched in detail for the purpose of preparing formal advice;
- The advice has been prepared on the basis of specific instructions and information provided by Mesh/Port Phillip its particular circumstances and for its particular purposes. The contents and conclusions may therefore be inappropriate for any third party in the context of that third party's particular purpose and circumstances. Any third party should obtain its own independent advice rather than use or rely upon this report;
- This advice has been provided within a compressed timeframe to assist Mesh/Port Phillip with internal deliberations relating to the subject property. Accordingly further more detailed investigations are likely to be required.
- This document contains information which is directly derived from other sources, including the electronic data room without verification by us. We confirm that we are not instructed to verify that information. Further, the information is not adopted by Charter as our own, even where it is relied upon for this advice. Where the content of this document has been derived, in whole or in part, from sources other than Charter, we do not warrant or represent that such information is accurate or correct;
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- The analysis herein excludes any taxation considerations.

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**APPENDIX 8 - PRELIMINARY
CONSTRUCTION COST ESTIMATE
FOR CASE STUDY 2, COSSILL &
WEBLEY**



Fishermans Bend
Funding and Financing Infrastructure Case Studies
Fennell / Plummer Street Streetscape Upgrades
Cost Plan Notes

January 2018

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INTRODUCTION

The costs estimated herein are Cossill & Webley Consulting Engineers' Opinion of Probable Cost and are based on relevant experience and informal discussions with contractors, consultants and suppliers. The estimated costs are subject to variation upon formal advice from relevant authorities and detailed design, survey, traffic and geotechnical investigation.

1. CONSTRUCTION COSTS

1.1 Profit and Overheads

Allows for 8.5% of construction costs for Profit and Overheads, 0.5% for Environmental Management and 3% for Traffic Management in line with industry standards. Estimate assumes that an approximate 6m wide section of road is retained for local traffic only. The new carriageway is then constructed, and traffic diverted to the new carriageway for the remainder of the cross section to be constructed.

1.2 Demolition

The demolition cost estimate makes the following allowances and assumptions:

- Concrete kerbing, footpaths, asphalt and road pavement is removed and disposed off-site. There may be opportunity to re-use the existing pavement, however this will depend on the detailed pavement analysis and alignment of the existing and proposed carriageways.
- All trees are removed and disposed off-site
- All existing drainage is removed and disposed off-site. The existing drainage may have insufficient capacity for the increased density of the Urban Renewal area. In addition, the alignment of the drainage does not suit the new carriageway alignment.
- Removal and disposal off-site of sewer only in Fennell/Bridge/Plummer intersection realignment. Remainder of sewer anticipated to remain.
- Removal of existing water main. Existing water main clashes with the proposed WSUD and street trees. It is also likely that the water main will have insufficient capacity and need to be increased.
- Removal and disposal of existing gas main.

Providing a cost estimate to augment optic fibre is very difficult because it cannot be determined, without formal application to the telecommunications authority, how far the optic fibre will need to be re-hauled. The authorities can only 'splice' the optic fibre a limited number of times, because each time the fibre is spliced generates a small reduction in the network speed. There are existing underground Optus, UEComm and Telstra telecommunications networks, and above ground aerials on the above ground power lines. A nominal allowance has been made in the estimate. It is recommended that once the design has progressed an application be made to the authorities to determine the extent of optic fibre modifications and the subsequent cost.

1.3 Roadworks

1.3.1 The roadworks component of the lineal metre rate for Fennell / Plummer is derived using the following assumptions:

- Pavement profile consistent with the preliminary Douglas Partners pavement investigation.
- Removal and disposal of contaminated soil off-site. Soil is assumed to be 13% Category A, 30% Category B and 57% Category C.

- Barrier kerb BK2 profile
 - Concrete edge strip between bicycle path and pedestrian path, both edges of WSUD and between tram and southern pedestrian path
 - Asphalt bike path
 - Bluestone feature paving on pedestrian paths
 - Agricultural drain on either side of pavement to convey subsurface water and protect pavement
 - WSUD in central median is broken every 15m with a pole or street light. The break in median assumes an edge strip on each side
 - Street trees at 15m spacing on both sides of road and in WSUD median
 - Bins at 50m spacing on both sides of the road
 - Bench seating at 50m spacing on both sides of the road
- 1.3.2 The roadworks component of the lineal metre rate for Bridge St is derived using the following assumptions:
- Pavement profile consistent with the preliminary Douglas Partners pavement investigation
 - Removal and disposal of contaminated soil off-site. Soil is assumed to be 13% Category A, 30% Category B and 57% Category C.
 - Barrier kerb BK2 profile
 - Concrete edge strip between bicycle path and pedestrian path and between linear park and pedestrian path
 - Concrete bike path
 - Swanston Street style feature paving on pedestrian paths
 - Agricultural drain on either side of pavement to convey subsurface water and protect pavement
 - Street trees at 15m spacing on both sides of road and in linear park
 - Bins at 50m spacing on both sides of the road
 - Bench seating at 50m spacing on both sides of the road
 - Turf in linear park

1.4 Drainage

The stormwater drainage component of the estimate makes following allowances and assumptions:

- Cost estimate assumes a 900mm diameter 'barrel' drain running underneath the southern edge of the vehicle carriageway. A detailed hydrological assessment will be required to determine the required pipe size and will model the run-off from lots and the increased pervious area of the streetscape.
- There may be opportunity to retain the existing drainage in some areas within Fishermans bend, however a specific and detailed analysis is required to determine if the existing size and location is suitable.
- It is anticipated that the road will be crowned; therefore, drainage pits will be required on both sides of the road and a drainage pipe will be required to convey the stormwater from the northern pits underneath the road into the large barrel drain. The drainage pipes to convey the stormwater under the road into the large barrel drain are assumed to be 300mm diameter.
- Removal and disposal of contaminated soil assumes a 2.25m deep x 1.2m wide trench for the large barrel drain and a 1.5m deep x 0.6m wide trench for the smaller pipework feeding into the barrel drain.

1.5 Sewerage

Allowance for 300mm PVC sewer at a depth of 2-3m. Removal of contaminated soil assumes a trench width of 1.0m and trench depth of 2.5m. Boring/microtunneling could be investigated as an alternative construction methodology.

1.6 Potable Water

Allowance for 300mm PVC water main. Removal and disposal of contaminated material includes potable water, recycled water and gas as these are assumed to be constructed in a shared trench.

1.7 Recycled Water

Allowance for 225mm PVC water main.

1.8 Electricity

The electricity component of the estimate makes following allowances and assumptions:

- Electrical consultant provided a high-level estimate on the anticipated cost to underground all above ground power in the study area. The cost is for a power authority accredited contractor to lay new cable in a trench provided by the civil contractor, and to remove the existing above ground lines.
- Additional allowance is made for the civil works associated with the undergrounding of the electrical, including trenching, removal and disposal of contaminated soil, materials and installation of conduit and service pits.
- Removal and disposal of contaminated soil is for the Fennell Street section of the street only. The proposed electrical alignment in the Plummer St section is in existing private land, for which allowance has been made in a separate estimate.
- Street lights along the standard streetscape on both sides of the road and in the median at 40m spacing. Additional lights are allowed for at intersections.
- Traffic signals at the Fennell/Plummer and Bridge Street intersection, and Fennell/Plummer and Bertie Street intersection. Allowance is made for a 'stop-go' signal at intersections on the southern side of Fennell/Plummer to indicate whether a tram is approaching.

1.9 Smart Cities Communications

Allowance is made for a 100mm duct along the length of Fennell/Plummer, with service pits at 100m spacing. Optic fibre is excluded from the estimate and assumed to be hauled post-construction of streetscape works. Removal and disposal of contaminated soil allows for a 0.5m³/m trench.

1.10 Gas Reticulation

Allowance is made for 150mm gas to replace existing gas. It is anticipated that the pipe will be required to be upgraded as part of the increased density. An upgrade is expected to be funded by the gas authority.

1.11 Civic Plaza

Allowance is made for a high quality civic plaza. A per square metre rate allowance is applied to the plaza area, inclusive of the northern and southern sections of the plaza. Plaza is assumed to be constructed by a different contractor to the civil works. The square metre rate is inclusive of profit and overheads.

1.12 Contingency

Contingency allowance of 20% of construction costs.

2. Professional Fees

Allowance of 15% of construction costs for professional fees.

3. Average Square Metre Rate

3.1 Streetscape Works

Allows for the streetscape upgrade works including demolition and relocation works and all services, including undergrounding the electricity. No allowance for the civic plaza.

3.2 High Specification Civic Plaza

Allows for high specification civic plaza. Includes contractor overheads and 20% contingency. Excludes professional fees.

3.3 Medium Specification Civic Plaza

Allows for medium specification civic plaza. Includes contractor overheads and 20% contingency. Excludes professional fees.

4. Lineal Metre Rate

4.1 Streetscape Works

Allows for the streetscape upgrade works including demolition and relocation works and all services, including undergrounding the electricity. No allowance for the civic plaza.

5. Intersection Costs

The intersection costs for Bridge Street & Bertie Street allow for construction of the intersection and associated streetscape upgrade works (street furniture etc). If extrapolating the intersections costs to other areas within Fishermans Bend, the intersection cost should not be added on top of a cost derived from a per square metre or per lineal metre rate because this would be doubling up the costs for the intersection. When applying the intersection costs to a broader estimate, the length of standard road should be reduced consistent with the length of the intersection. The length of the intersection is measured from where the street begins to deflect from the standard cross section eg. start of a curve sweep or turning lane.

The intersection costs for single sided intersections, the mid-block crossing and the stopping bay can be added depending on the quantity of intersections in any given study area.

6. Extra Over for Intersections

Extra over cost for the Bridge and Bertie intersections are in addition to the standard per lineal metre rate derived in section 5. The extra over item costs are in addition to the construction of the standard cross section. The intention is to allow a cost estimate to be derived by adding the extra over intersections costs to the 'standard' streetscape cost based on a per metre or per square metre rate. For example, if the estimate was to be extrapolated to a section of streetscape upgrade outside the study area, a high-level estimate could be derived by measuring the length of the road and counting the required intersection quantities and types.

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