



ISG Projects

City to the Lake



Parkes Way Improvement Project

RAPID APPRAISAL REPORT

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1. Introduction

1.1 Background

The Land Development Authority (LDA) has requested ISG Projects undertake a rapid appraisal of Parkes Way arterial roadway options. Each of the options assessed seeks to address the disconnect between West Basin and the City Hill precinct of Canberra that exists as a result of Parkes Way.

The aim of this rapid appraisal is to recommend a small number of options for further analysis. This analysis would be undertaken as part of a full business case to be prepared in line with the ACT Government's *The Capital Framework*.

The rapid appraisal includes both qualitative and quantitative assessments. The quantitative assessment incorporates a high level economic analysis and includes the calculation of a benefit cost ratio for each option. The qualitative assessment applies the assessment criteria developed during the first part of the Investment Logic Workshop (ILW).

1.2 Context

Parkes Way is a key arterial road connecting eastern and western Canberra through Civic. Adjacent to West Basin, Parkes Way is a divided four lane roadway with additional on and off ramps including clover-leaf ramps. It is situated in a cutting, has limited pedestrian crossings and creates a significant barrier between the City Hill precinct of Civic and West Basin.

The Parkes Way project is a key piece of enabling infrastructure required to deliver the City to the Lake (CTL) vision. The project seeks to enhance the connectivity between the City Hill Precinct and the lake, and in doing so, help activate a number of land parcels for development. The development of this land will help offset the cost of the enabling infrastructure.

Parkes Way presently performs a key east-west arterial road function for the regional transport network. The LDA has advised that the Parkes Way project cannot compromise this functionality.

2. Investment Logic and Criteria Development

2.1 Workshop Outputs

The first part of the ILW was held on 23 March 2015. As part of the workshop project benefits were identified and summarised by theme. These are listed in Table 1, below.

Table 1: Indicative Benefits

Benefits	
Value Uplift <ul style="list-style-type: none"> • More land • Higher value 	Metropolitan Transport <ul style="list-style-type: none"> • Decrease journey times across network • Reduce accidents • Reduced 'rat running'
Connectivity and extension of public realm <ul style="list-style-type: none"> • Increase activity at waterfront • Economic benefits to CBD and Canberra 	Local Transport <ul style="list-style-type: none"> • Increase active transport modes • Improve safety

The benefits are the gains made from solving the problem/s the project is seeking to address. Identifying the benefits helps to underpin project objectives.

Project objectives, therefore, can be summarised as:

- To increase land value, particularly in the West Basin precinct;
- To enhance the public realm, connectivity, economic development and activity; and
- To maintain regional and local transport functionality.

The workshop resolved that ISG Projects take the problem themes and benefits identified, and incorporate them into a draft Investment Logic Map (ILM). A draft ILM, covering the Problem and Benefits, has been included at **Appendix A**. A copy of the working group draft criteria and measures is located at **Appendix B**.

The workshop also sought to identify the criteria by which options would be evaluated. These were split into mandatory and evaluative criteria. These are summarised in Tables 2 and 3, below.

Table 2: Mandatory or Threshold Criteria

Additional Criteria	Measures
Costs	High level cost estimates
NCA Criteria	Capital and Operating <ul style="list-style-type: none"> • Adherence to the National Capital plan • Landscape structure • Planning/ works approval • Design excellence • Urban design excellence

Table 3: Evaluation Criteria

Criteria	Measure	Owner
Undervalued Land	Developable site area (potential developable area in sqm)	IWB
	Gross Floor Area (potential density in sqm)	IWB
	Gross realisable land value (value to the LDA)	RH
Level of Connectivity	Number (all modes)	RB/TX
	Connections (all modes)	RB/TX
	Pedestrian footpath width	RB/TX
	No. of visits	RB/TX
Pedestrian Comfort and Security	% route with passive surveillance	RB/TZ
Spatial Accessibility	Qualitative measure (Low , Medium, High)	RB/IWB
Journey Times	Full network vehicle travel/time	RB
Reduction in Accidents	Number by mode	RB
Metro Level Adherence to Hierarchy	Adherence to hierarchy measure	RB
Vehicle Emissions	Vehicle emissions	RB
Local Area Traffic/ Road Hierarchy	Traffic/ Road hierarchy measure	RB
Road Safety	Road safety measure	RB
Capacity	Capacity measures	RB
Cost	Capex and Opex	RB
Adherence to NCP	<ul style="list-style-type: none"> • NCP Published criteria • NCA's interpretation 	IWB/RB/SM

3. Options

Seven options were identified by LDA for the purposes of this rapid appraisal.

The Options are listed below:

- Option 1:** Base case - do nothing.
- Option 2:** Single large deck with 650m tunnel; 1,500m uni-directional service roads, signals at Coranderrk Street and Anzac Parade.
- Option 3:** Single large deck with 450m tunnel; 1,200m uni-directional service roads; land bridge at Allara Street; signals at Coranderrk Street and Anzac Parade.
- Option 4:** 5 bridges (one 50m and four 30m wide); bi-directional service road at West Basin edge, signals at Coranderrk St and Anzac Parade.
- Option 5:** 5 bridges (one 50m and four 30m wide) + grade separate Anzac Parade, bi-directional service road at West Basin edge, signals at Coranderrk Street.
- Option 6:** 5 bridges (one 50m and four 30m wide) + grade separate Anzac Parade and Coranderrk Street, bi-directional service road at West Basin edge.
- Option 7:** Two decks with two tunnels (400m and 200m); single-point interchange at Commonwealth Avenue; signals at Coranderrk Street and Anzac Parade.

More detail in respect of the options is provided at **Appendix D**.

The base case - the do nothing option - was not assessed as part of this rapid appraisal. This was because it was assumed that leaving Parkes Way in its current condition would mean that no development either side of the road corridor could occur, and that the objectives of the CTL would not be achieved.

It is noted, however, that an analysis of short listed options against the base case will be required as part of the business case.

4. Criteria

The assessment criteria to be applied in the rapid appraisal analysis builds on that identified at the ILW.

The criteria can be divided into (i) threshold criteria and (ii) evaluative criteria. The evaluative criteria can then be considered as being either qualitative or quantitative.

4.1 Threshold Criteria

From the workshop it was clear that there were some criteria that should be regarded as threshold criteria, meaning that the option must meet this criteria or it cannot be considered further.

The workshop identified threshold criteria as including a potential funding cap due to ACT Government budget limitations, and the requirements of the NCA who will be the statutory planning authority for the project.

Whilst 'costs' were listed as a threshold criteria at the workshop, a fixed or pre-determined upper limit cost of the project has not been set. Therefore, for the purposes of the rapid appraisal, cost has been included as an evaluative criteria, specifically linked to the benefit cost calculations.

Threshold criteria related to arterial transport network functionality were also developed. This criteria could be considered to be linked to the NCA requirements as there are specific National Capital Plan (NCP) policies regarding transport functionality. No option was to be considered further if it reduces the existing level of road functionality. It is understood that the existing performance of Parkes Way is generally adequate, albeit with some peak hour ingress and egress congestion points.

In summary, the threshold criteria, therefore, are:

- NCA – NCP Requirements; and
- Transport Requirements - Maintaining Existing Transport Functionality.

4.1.2 NCA – NCP Threshold Requirements

The NCP incorporates Principles, Policies and Standards for all areas covered by the NCP. The area encompassing the Parkes Way project is included within 1.3 City Hill Precinct, 1.4 West Basin, and 1.5 Constitution Avenue and related appendices.

The Objectives, Principles and Policies covered in Sections 1,3, 1.4 and 1.5 have been re-printed and are included at **Appendix C** to this paper. The NCP, at Section 6, includes Principles, Policies and Standards for Transport. These have also been included in **Appendix C**.

Whilst there is a plethora of NCP requirements to consider for each of the City Hill, West Basin and Constitution Avenue Precincts, they can be clustered around a small number of key issues namely (i) activity and (ii) connectivity.

Specific examples are provided below.

Activity

- The planning and development of the City Hill Precinct must stimulate high levels of human activity, including accessibility, density and variety of use [NCP City Hill 1.3.1.(3)]
- Provide a mix of land uses that contribute to the creation of a 24 hour community with dynamic activity patterns including retail, restaurants and hotels close to public transport, employment areas, cultural attraction and the parklands of Lake Burley Griffin [NCP Constitution Avenue 1.5.3 (e)]
- Encourage a density of residents, workers and visitors that will help ensure public spaces are popular across the day and evening [NCP West Basin Precinct Guidelines, Place Principles - Vibrant]

Connectivity

- Create a public domain that forms a linked sequence of spaces that are accessible, safe, comfortable, and pedestrian-scaled, that promotes walking and use of public transport and minimizes reliance on cars [NCP Constitution Avenue 1.5.3 (k)]
- An integrated, permeable network of well-designed public spaces, paths and streets that support vibrant public life and high connectivity [NCP West Basin Precinct Guidelines. Vision (2)]
- Design public spaces and streets that encourage and support walking, cycling and public transport over cars [NCP West Basin Precinct Guidelines, Place Principles - Connected]
- Provide multiple connections across Parkes Way, accessible to a full range of transport modes [NCP West Basin Precinct Guidelines, Theme 2 – Integrated Structure & Movement]

Therefore, the qualitative assessment criteria for the NCP requirements, based on the elements outlined above, are as follows:

Table 4: Threshold Criteria – National Capital Plan Requirements

Criteria			Degree of satisfaction of National Capital Plan requirements	
Theme	Activity	Connectivity		
Description	The level of support or encouragement the particular Option is like to give to enhancing activity and vibrancy within the City to the Lake area.	The effectiveness of the links proposed. How well they draw activity to and from the City Hill Precinct through to West Basin, and through the Constitution Avenue Precinct. How well they support and project the Griffin Geometry, and how well the support key vistas, links and spaces.		

4.1.3 Transport Threshold Requirements

Maintaining the existing functionality of Parkes Way will be a requirement for all options, therefore this may be regarded as a threshold criteria.

Parkes Way is recognised as a key east-west arterial route, in both the NCP and in ACT Government strategies. Ensuring that key arterial routes, and other roads within the road hierarchy, and effectively planned and maintained, are key outcomes sought.

Therefore, the qualitative assessment criteria for the transport requirements, based on the elements outlined above, is as follows:

Table 5: Threshold Criteria - Transport

Criteria		Meets NCP Transport Principles and Standards	
Theme	Transport Functionality		
Description	Maintains regional arterial road function.	Meets requirements of the transport network hierarchy.	

4.2 Evaluative Assessment Criteria

The evaluation criteria, from Table 3, has been split been quantitative and qualitative measures, and is proposed as follows.

Table 6: Evaluative or General Assessment Criteria

Quantitative Criteria	Theme	Measures
Cost Benefit	Value for Money	BCR

Qualitative Criteria	Theme	Measures
Under-valued land	Activity/ Value Uplift	Developable site area (potential developable area in sqm)
		Gross Floor Area (potential density in sqm) Gross realizable land value (value to the LDA)
Level of Connectivity	Public Realm and Connectivity	Number (all modes)
		Connections (all modes)
		Pedestrian footpath width
		No. of visits
Pedestrian Comfort and Security	Public Realm and Connectivity	% route with passive surveillance
Spatial Accessibility	Public Realm and Connectivity	Qualitative measure (Low , Medium, High)
Journey Times	Transport Functionality	Full network vehicle travel/time
Reduction in Accidents		Number by mode
Metro Level Adherence to Hierarchy		Adherence to hierarchy measure
Vehicle Emissions		Vehicle emissions
Local Area Traffic/ Road Hierarchy		Traffic/road hierarchy measure
Road Safety		Road safety measure

4.3 Qualitative Interpretations for Evaluative Criteria

The following questions have been prepared to help inform the assessment of qualitative measures. They have been based on the criteria and themes as described in Table 6, above.

Activity

- Perceived contribution to increased attractiveness of future residential areas abutting the Parkes Way corridor.
- Likely desirability of the area as a location to live and/or work, and how this might contribute to demand.
- Influence of specific treatment of each option to creating increased liveability, demand and value uplift. Will this occur anyway because of the works at West Basin and City Hill Precincts?

Connectivity

- How well does the option contribute to enhancing the public realm?
- How well does the option enhance physical connectivity to the key activity nodes?
- Are the vistas, visual access and support for visually reinforcing the Griffin geometry enhanced? If so, by how much?
- How high will the perceived level of pedestrian safety, security and comfort be?

Transport Network Functionality

- Will the option improve travel times and reduce emissions?
- Is the option likely to improve transport safety above the current level?
- Will the resultant transport network represent an improvement to the functioning of the network and to integration of the transport network with the land use pattern?

5. Assessment

5.1 Qualitative Assessment

The qualitative assessment allows for a broad range of qualitative attributes, such as functionality and amenity outcomes, to be combined with quantitative factors, such as financial, economic and physical information, in order to determine which option or options should be progressed for assessment in the business case.

5.1.1 Steps

The overall steps in the qualitative assessment process are as follows:

1. Establish the decision context. What are the aims of the assessment.
2. Identify the options.
3. Identify the objectives and criteria that reflect the value associated with the consequences of each option.
4. Assign weights for each of the criteria to reflect their relative importance to the decision.
5. Describe the expected performance of each option against the criteria.
6. Combine the weights and scores for each of the criteria to derive an overall value for each option.
7. Examine the results.
8. Conduct a sensitivity analysis of the results to changes in the scores and weights.

Steps 1 to 3 have been covered in the earlier sections of this paper.

Steps 4 to 8 are discussed in the remainder of this section.

5.1.2 Managing the Risk of Double Counting

There is a risk of double counting when undertaking any qualitative assessment. This occurs because of the linked nature, or interdependencies, associated with the benefits.

The impact of double counting will be to give more weight to some criteria than originally intended. The same issue covered by one criterion may also be covered by another. It also could lead to inconsistencies in assessment with double counting applied in some, but not all, assessments.

For this qualitative assessment the main risks of double counting was considered to be:

- Increased land value being influenced by improved public realm amenity and connectivity; and
- Improved connectivity also resulting in improved local transport functionality.

Section 4.3 ‘Qualitative Interpretations for Evaluation Criteria’ seeks to help clarify what is meant by the various themes resultant criteria and therefore assisted to minimise the risk of double counting.

5.1.3 Weightings

A weighting has been applied to each criterion. This is to reflect the relative importance of each criterion to the assessment process. The weightings add up to 100%. A score from 1 (low) to 10 (high) was applied for each criterion, and then multiplied by the weighting. The result is a score out of 100. By theme the respective weightings are as follows:

1. Activity – 30%;
2. Connectivity - 50%; and
3. Transport Functionality - 20%.

Table 7: Assessment Criteria Weightings

Criteria	Weighting
Stimulates activity, attracts people, supports a vibrant centre	30%
Increased connectivity	20%
Increase in pedestrian comfort and safety	15%
Increase spatial accessibility	15%
Reduced regional travel times, emissions and accidents	5%
Support of regional road network functionality	5%
Improve local network capacity and safety	5%
Support of local road network functionality	5%
Total	100%

The highest weighting, 50%, was assigned to the connectivity theme, as this was considered to be a key driver of the project. The activity theme was the next highest weighted at 30%. This theme was seen as a key part of the successful delivery of the overall CTL initiative.

For the transport functionality theme, theme 3, there was a question as to whether or not it should be assessed within the qualitative assessment step. This was because maintaining the functionality of the existing road network is already a threshold criterion. The driver behind the project is not improving road network. The road network is considered to be largely operating successfully, albeit there are some congestion points during peak periods. However, some options will have a better impact on the road network than others.

Balancing the consideration that some options will have a greater positive impact on transport functionality as compared to other options, with whether transport functionality should be considered within the qualitative assessment at all. It was concluded that some consideration within the qualitative assessment process was required. As such a weighting of 20% was applied to this theme.

5.1.4 Qualitative Assessment Summary

A summary of the assessment results is provided in the table below. The full list of the weighted results, by assessment criteria, is provided in the table over page.

Table 8: Qualitative Assessment - Results

Options	Total
2 Single large deck with 650m tunnel, 1,500m uni-directional service roads, signals at Coranderrk St and Anzac Parade	81.8
7 Two decks with two tunnels 400m and 200m, single point interchange at Commonwealth Avenue, signals at Coranderrk Street and Anzac Parade	78.3
6 5 bridges (one 50m, four 30m) + grade separate Anzac Parade and Coranderrk Street, bi-directional service road at West Basin edge	77.0
3 Single large deck with 450m tunnel, 1,200m uni-directional service roads, land bridge at Allara Street, signals at Coranderrk Street and Anzac Parade	76.8
5 5 bridges (one 50m, four 30m) + grade separate Anzac Parade, bi-directional service road at West Basin edge, signals at Coranderrk Street	71.5
4 5 bridges (one 50m, four 30m), bi-directional service road at West Basin edge, signals at Coranderrk Street and Anzac Parade	69.0

Table 9: Parkes Way Options – Qualitative Assessment – Weightings Applied

Option	Themes	THEME 1 Activity	THEME 2 Connectivity			THEME 3 Transport Functionality				Total
	Criteria	Stimulates activity, attracts people, supports a vibrant centre	Increase connectivity	Increase pedestrian comfort and security	Increase spatial accessibility	Reduce regional travel times, emissions, accidents	Support of regional road network functionality	Improve local road network capacity and safety	Support of local road network functionality	
	Weightings (%)	30	20	15	15	5	5	5	5	
2	Single large deck with 650m tunnel, 1,500m uni-directional service roads, signals at Coranderrk St and Anzac Pde	27.0	18.0	13.5	14.3	0.5	1.5	3.5	3.5	81.8
3	Single large deck with 450m tunnel, 1,200m uni-directional service roads, land bridge at Allara St, signals at Coranderrk St and Anzac Pde	25.5	16.0	12.8	13.5	0.5	1.5	3.5	3.5	76.8
4	5 bridges (one 50m, four 30m), bi-directional service road at West Basin edge, signals at Coranderrk St and Anzac Pde	21.0	13.0	11.3	11.3	2.5	3.0	3.5	3.5	69.0
5	5 bridges (one 50m, four 30m) + grade separate Anzac Pde, bi-directional service road at West Basin edge, signals at Coranderrk St	21.0	13.0	11.3	11.3	3.5	3.5	4.0	4.0	71.5
6	5 bridges (one 50m, four 30m) + grade separate Anzac Pde and Coranderrk St, bi-directional service road at West Basin edge	22.5	14.0	12.0	12.0	4.0	4.0	4.0	4.5	77.0
7	Two decks with two tunnels 400m and 200m, single point interchange at Commonwealth Avenue, signals at Coranderrk St and Anzac Pde	25.5	17.0	12.8	13.5	1.0	2.5	3.0	3.0	78.3

5.1.5 Qualitative Assessment Conclusions

The results of the weighted qualitative assessment indicate that Option 2 produces the best outcome, scoring 81.8 as compared to the next highest scores of 78.3 and 76.8 recorded for Options 7 and 3, respectively. All three options involve substantial decking and tunnelling. The decking afforded the most connectivity and provided the greatest opportunities for good design and development outcomes. Such outcomes would also encourage more activity through increasing the liveability and desirability of the area for prospective purchasers.

Option 2 produced a better result, as compared to the other major deck options - Options 3 and 7 – as there was no disconnect between decks. Connectivity was achieved through a single large deck. The other two variants had a gap creating a barrier between east-west connectivity.

The difference between the three multi-bridge options – Options 4, 5, and 6 – was based on the respective treatments of Coranderrk Street and Anzac Parade intersections. Option 4 having signalised treatments only, Option 5 incorporating grade separation of Anzac Parade and signalisation of the Coranderrk intersection, while Option 6 assumed grade separations of both Coranderrk Street and Anzac Parade intersections.

The results of the assessment reflected the intersection treatments, namely signalisation only scored lower than one grade separation, which in turn scored lower than dual grade separation. It is noteworthy that the proportional difference between these results are not even, namely dual grade separations scored significantly more than the other two variants.

Options 4, 5, and 6 were seen as having a significantly better impact on regional transport functionality, as compared to Options 2, 3, and 7.

5.1.6 Sensitivity Testing

The sensitivity test aims to determine robustness of the qualitative assessment and weightings.

For the sensitivity testing, adjustments were made to weightings by theme, with weightings in the separate tests favouring theme 1, theme 2 and theme 3, respectively.

The adjustments by theme are summarised in the below table.

Table 10: Sensitivity Testing – Weightings by Theme

Theme	Weightings as Applied	Theme 1 Weighted	Theme 2 Weighted	Theme 3 Weighted
i. Activity	30%	60%	20%	15%
ii. Connectivity	50%	25%	65%	25%
iii. Transport Functionality	20%	15%	15%	60%
Total	100%	100%	100%	100%

The weighting adjustments by assessment criteria applied as part of the sensitivity tests were as follows:

Table 11: Sensitivity Testing – Weightings by Criteria

Criteria	Weighting	Theme 1 Weighted	Theme 2 Weighted	Theme 3 Weighted
i. Stimulates activity, attracts people, supports a vibrant centre	30%	60%	20%	15.0%
ii. Increased connectivity	20%	10%	25%	10%
iii. Increase in pedestrian comfort and safety	15%	7.5%	20%	7.5%
iv. Increase spatial accessibility	15%	7.5%	20%	7.5%
v. Reduced regional travel times, emissions and accidents	5%	3.75%	3.75%	15%
vi. Support of regional road network functionality	5%	3.75%	3.75%	15%
vii. Improve local network capacity and safety	5%	3.75%	3.75%	15%
viii. Support of local road network functionality	5%	3.75%	3.75%	15%
Total		100%	100%	100%

The results of the sensitivity testing are outlined in the following two tables.

Table 12 illustrates the revised scores and Table 13 illustrates the respective rankings.

The results of the tests show that that adjusting weightings to favour either theme 1 or theme 2 resulted in some minor changes in the scores, but generally there was little practical difference to the rankings.

Increasing the weighting for theme 2 (connectivity) from 50% (original) to 65% (test) slightly increases the scores for most of the options. Increasing the weighting to theme 1 (activity) from 30% (original) to 60% (test) also slightly increases the scores for the most of the options. Slight declines, or the same result, were recorded for Options 5 and 6. However, the relativities between the options stay approximately the same.

Table 12: Sensitivity Testing - Results

Option	Criteria	Original Weighted Scores	Theme 1 Weighted	Theme 2 Weighted	Theme 3 Weighted
1	Base case - do nothing	0.0	0.0	0.0	0.0
2	Single large deck with 650m tunnel, 1,500m uni-directional service roads, signals at Coranderrk Street and Anzac Parade	81.8	83.6	84.3	63.4
3	Single large desk with 450m tunnel, 1,200m uni-directional service roads, land bridge at Allara Street, signals at Coranderrk Street and Anzac Parade	76.8	78.9	78.8	60.9
4	5 bridges (one 50m, four 10m), bi-directional service road at West Basin edge, signals at Coranderrk Street and Anzac Parade	69.0	69.1	69.6	65.8
5	5 bridges (one 50m, four 10m) + grade separate Anzac Parade, bi-directional service road at West Basin edge, signals at Coranderrk Street	71.5	71.0	71.5	73.3
6	5 bridges (one 50m, four 10m) + grade separate Anzac Parade and Coranderrk Street, bi-directional service road at West Basin edge	77.0	76.4	76.9	79.8
7	Two decks with two tunnels 400m and 200m, single point interchange at Commonwealth Avenue, signals at Coranderrk St and Anzac Pde	78.3	79.8	80.4	62.9

The third sensitivity test, changing the weighting for theme 3 (transport functionality) from 20% to 60%, had a significant impact to the final scores and resultant rankings.

Changing the weightings by the quantum applied has the effect of re-focusing the qualitative assessment to favour road projects.

Under the weighting scenario applied in test 3, Option 6, the only option that incorporates grade separations of both Coranderrk Street and Anzac Parade, is the highest ranked option, followed by the other grade separation option, Option 5, then Option 4. These options perform better than Options 2, 3 and 7 as they have the highest positive impact on regional transport functionality. The options that involved decking and tunnelling score poorly on regional transport functionality, in particular.

Table 13: Sensitivity Testing – Rankings

Option	Criteria	Original Weighted Scores	Theme 1 Weighted	Theme 2 Weighted	Theme 3 Weighted
		Rankings	Rankings	Rankings	Rankings
1	Base case - do nothing	7	7	7	7
2	Single large deck with 650m tunnel, 1,500m uni-directional service roads, signals at Coranderrk Street and Anzac Parade	1	1	1	4
3	Single large desk with 450m tunnel, 1,200m uni-directional service roads, land bridge at Allara Street, signals at Coranderrk Street and Anzac Parade	3	3	3	6
4	5 bridges (one 50m, four 10m), bi-directional service road at West Basin edge, signals at Coranderrk Street and Anzac Parade	6	6	6	3
5	5 bridges (one 50m, four 10m) + grade separate Anzac Pde, bi-directional service road at West Basin edge, signals at Coranderrk Street	5	5	5	2
6	5 bridges (one 50m, four 10m) + grade separate Anzac Parade and Coranderrk Street, bi-directional service road at West Basin edge	4	4	4	1
7	Two decks with two tunnels 400m and 200m, single point interchange at Commonwealth Avenue, signals at Coranderrk Street and Anzac Parade	2	2	2	5

The sensitivity testing shows that the weightings applied for theme 1 (activity) and theme 2 (connectivity) are robust with changes in weighting having little impact on the results. Changes to the weightings for theme 3 (transport functionality) can have a significant impact on the rankings. The degree to which the project is considered a CTL facilitation project, as compared to a road network upgrade project, will impact the outcomes of the qualitative assessment.

5.2 Quantitative Assessment

The quantitative assessment seeks to apply a \$ value to the benefits derived from each of the options. The quantified benefits are then compared with the estimated capital cost.

For the purposes of this rapid appraisal, net present value has not been calculated. Rather, benefits and costs are estimated in nominal terms only.

5.2.1 Costs

The costs assumed for each option have been supplied by the LDA. Where the cost estimate included a range, the mid-point was adopted.

The costs are capital costs only. No operational costs have been included within this rapid appraisal.

Table 14: Cost Estimates

	Option	Cost Estimate ⁽¹⁾ (\$m)
2	Single large deck with 650m tunnel, 1,500m uni-directional service roads, signals at Coranderrk Street and Anzac Parade	██████
3	Single large deck with 450m tunnel, 1,200m uni-directional service roads, land bridge at Allara Street, signals at Coranderrk Street and Anzac Parade	██████
4	5 bridges (one 50m, four 30m), bi-directional service road at West Basin edge, signals at Coranderrk Street and Anzac Parade	██████
5	5 bridges (one 50m, four 30m) + grade separate Anzac Pde, bi-directional service road at West Basin edge, signals at Coranderrk Street	██████
6	5 bridges (one 50m, four 30m) + grade separate Anzac Parade and Coranderrk Street, bi-directional service road at West Basin edge	██████
7	Two decks with two tunnels 400m and 200m, single point interchange at Commonwealth Avenue, signals at Coranderrk Street and Anzac Parade	██████

⁽¹⁾ Mid-point for LDA supplied estimated cost range.

5.2.2 Scenarios

Two scenarios were examined in the quantitative assessment.

These scenarios were based on different land development patterns, principally the size of the development blocks that could be developed under each option.

Scenario 1 adopted the development blocks as applied in the CTL Master Plan Feasibility report (ISG Projects for LDA, 2014). Scenario 2 applied the block sizes as per Attachment D of the rapid appraisal project brief.

Scenario 1 has a total development area of 133,941 m², split between the City Hill Precinct and West Basin at 81,021 m² and 52,920m², respectively. The developable land area for Scenario 2 was 141,000m², with 91,500m² being within the City Hill Precinct and 49,500m² within West Basin.

The key differences between the Scenarios is that each development block is slightly larger for the City Hill Precinct in Scenario 2, as compared to Scenario 1. Further, an additional 1 hectare has been added to Block T1 + T2 (I equivalent). For West Basin, the development blocks are largely the same size except for Block U (C equivalent) which is 10,422 m² in Scenario 1 but only 3,500 m² in Scenario 2.

A full breakdown of the development parcels by Scenario is provided at **Appendix E**.

5.2.3 Assumptions

A number of assumptions have been made when calculating a dollar value attributable to the benefits for each option.

Firstly, no benefits have been attributed to transport related factors such as travel time savings or reductions in emissions. Therefore, all benefits are those derived from development opportunities.

The development opportunities are either (i) the amount of land that each respective option activates, or (ii) the corresponding development density by development block activated by each respective option.

Land uses for which values were attributed were residential, retail and commercial.

The density assumptions applied were as those outlined in the CTL Master Plan Feasibility Report 2014, as developed by MacroPlan and refined by Hills Tallis and ISG Projects. This was done on a block by block basis. The shape and size of the individual block were influenced by the impact of each respective option.

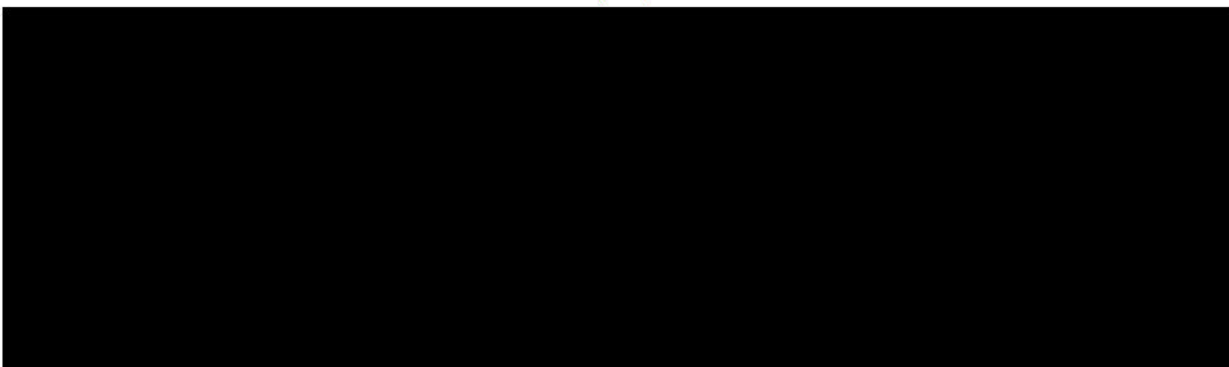
In assessing the options it was assumed that the northern property boundary of the West Basin Precinct would remain unchanged. Some options afforded different treatments at this boundary, however, the overall size of the development area of West Basin was assumed to remain unchanged.

It was assumed that no land in West Basin will be approved for development (by the NCA) unless the minimum required level of connectivity is achieved. Therefore, all residential, retail and commercial development designated for West Basin in the CTL Master Plan were included in the benefits calculations.

Some CTL development blocks are unaffected by Parkes Way, therefore, they have not been included within the assessment. This includes development blocks N and O of Scenario 1 (or equivalent of I + J and K + L in Scenario 2). Block J in Scenario 1 (equivalent to Block S in Scenario 2) which includes the proposed stadium is not included as the stadium is proposed irrespective of block size.

The Gross Floor Area m2 (GFA) estimates applied to each development block were in the same proportion as tested in the CTL Master Plan Feasibility Report. The same proportions were applied for both Scenarios. This also assumes that the amount of floorspace able to be developed is directly proportional to the size of the land parcel.

The number of apartments that were developable in each development block were also assumed to be consistent with the CTL Master Plan Feasibility report.



The values attributed to the retail floorspace, commercial floor space are consistent with that included in the MacroPlan 2014 report. These are summarised in the below table.

Table 15: Estimated value of Retail and Commercial Floor Space

Floor Space	Nominal Value (Per m ²) ⁽¹⁾
Retail	[REDACTED]
Commercial	[REDACTED]

⁽¹⁾ Source: MacroPlan report August 2014

Unimproved residential land values have been applied and these were are consistent with assumptions used in West Basin Foreshore Construction Business Case March 2015, which in turn were based on the valued estimated in the MacroPlan 2014 report. These values are summarised over page.

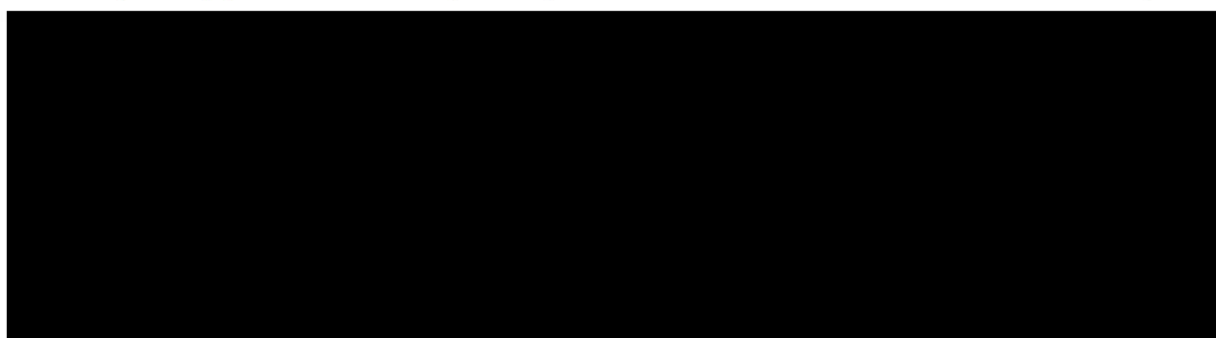
Table 16: Estimated Unimproved Land Value

Land	Value of Undeveloped Land Per Apartment ⁽¹⁾
West Basin	██████████
Centre (City Hill)	██████████

⁽¹⁾ Source: MacroPlan Report August 2014; ISG Projects’ inputs into West Basin Foreshore Construction Project Business Case.

5.2.4 Value of Benefits

Table 17, below, provides a summary of the present value of the benefits estimated for each option.



A summary of the benefits by land use is provided at Appendix F.

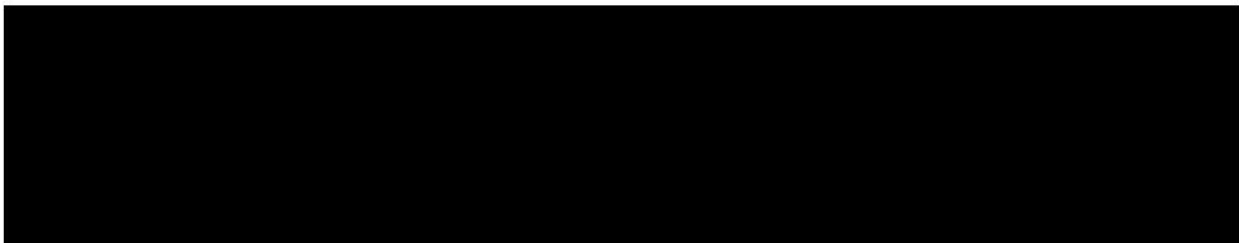
Table 17: Estimated Value of Benefits by Option

Options		Scenario 1	Scenario 2
2	Single large deck with 650m tunnel, 1,500m uni-directional service roads, signals at Coranderrk Street and Anzac Parade	██████████	██████████
3	Single large deck with 450m tunnel, 1,200m uni-directional service roads, land bridge at Allara Street, signals at Coranderrk Street and Anzac Parade	██████████	██████████
4	5 bridges (one 50m, four 30m), bi-directional service road at West Basin edge, signals at Coranderrk Street and Anzac Parade	██████████	██████████
5	5 bridges (one 50m, four 30m) + grade separate Anzac Parade, bi-directional service road at West Basin edge, signals at Coranderrk Street	██████████	██████████
6	5 bridges (one 50m, four 30m) + grade separate Anzac Parade and Coranderrk Street, bi-directional service road at West Basin edge	██████████	██████████
7	Two decks with two tunnels 400m and 200m, single point interchange at Commonwealth Avenue, signals at Coranderrk Street and Anzac Parade	██████████	██████████

⁽¹⁾ Source: MacroPlan report August 2014; ISG Projects inputs into West Basin Foreshore Construction Project Business Case.

5.2.5 Benefit Cost Ratio

Table 18, below, provides a summary of the Benefit Cost Ratios (BCRs) calculated for each option.



All options that included decking and tunnelling performed poorly, with BCRs of under 0.5 common. The costs of constructing these options significantly outweighed the value of the benefits that could be attributed to each of the respective options.

Table 18: Benefit Cost Ratio by Option

Options		Scenario 1	Scenario 2
2	Single large deck with 650m tunnel, 1,500m uni-directional service roads, signals at Coranderrk Street and Anzac Parade	■	■
3	Single large deck with 450m tunnel, 1,200m uni-directional service roads, land bridge at Allara St, signals at Coranderrk Street and Anzac Parade	■	■
4	5 bridges (one 50m, four 30m), bi-directional service road at West Basin edge, signals at Coranderrk Street and Anzac Parade	■	■
5	5 bridges (one 50m, four 30m) + grade separate Anzac Parade, bi-directional service road at West Basin edge, signals at Coranderrk Street	■	■
6	5 bridges (one 50m, four 30m) + grade separate Anzac Pde and Coranderrk Street, bi-directional service road at West Basin edge	■	■
7	Two decks with two tunnels 400m and 200m, single point interchange at Commonwealth Avenue, signals at Coranderrk Street and Anzac Parade	■	■

5.3 Value-for-Money Assessment

The value of money assessment is based on how well the respective options meets the qualitative criteria, as defined by the MCA qualitative outcomes, when compared to the BCR derived from quantified benefits and costs.

Figures 2 and 3 illustrate the BCR score as compared to the Qualitative Score for each option in Scenario 1 (Figure 1) and Scenario 2 (Figure 2).

Figure 1: BCR Versus Qualitative Score for Scenario 1

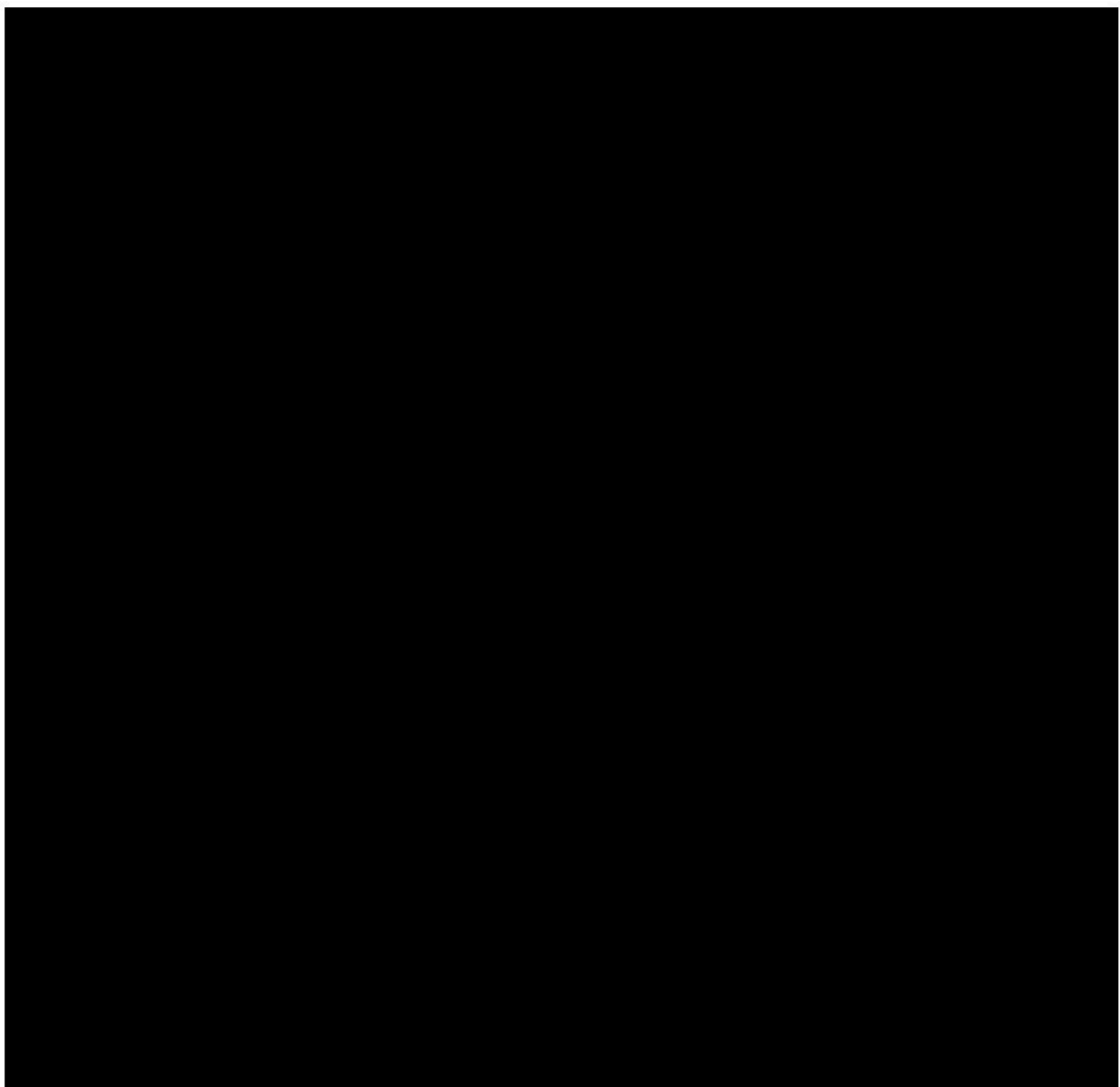
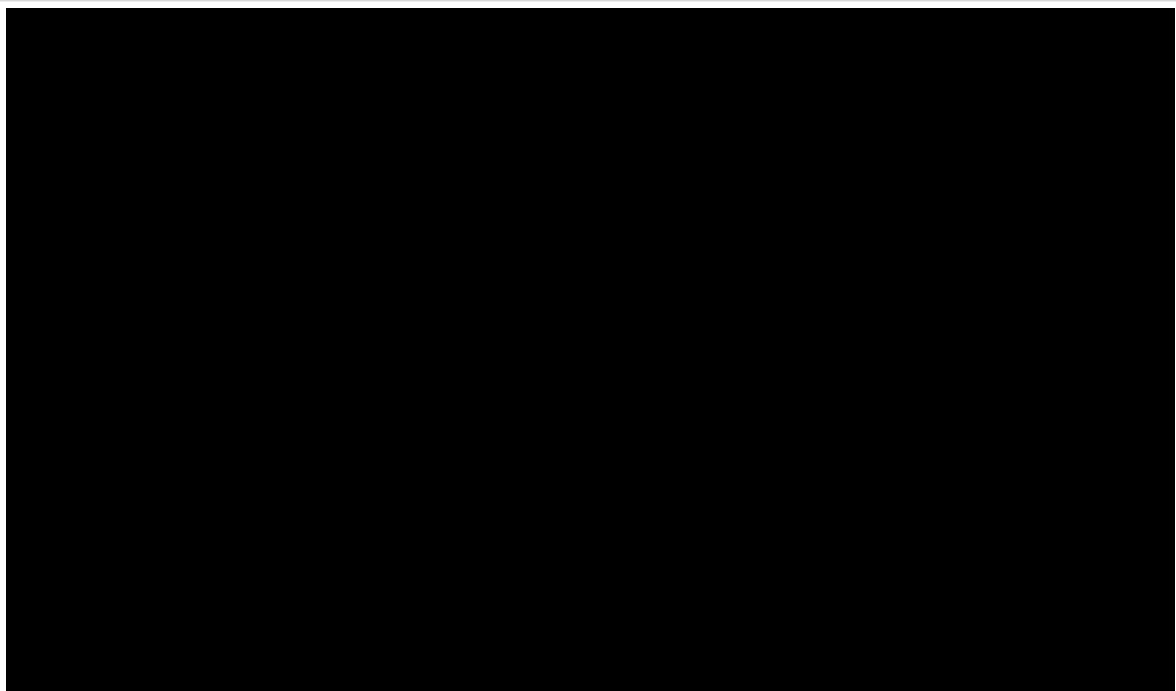


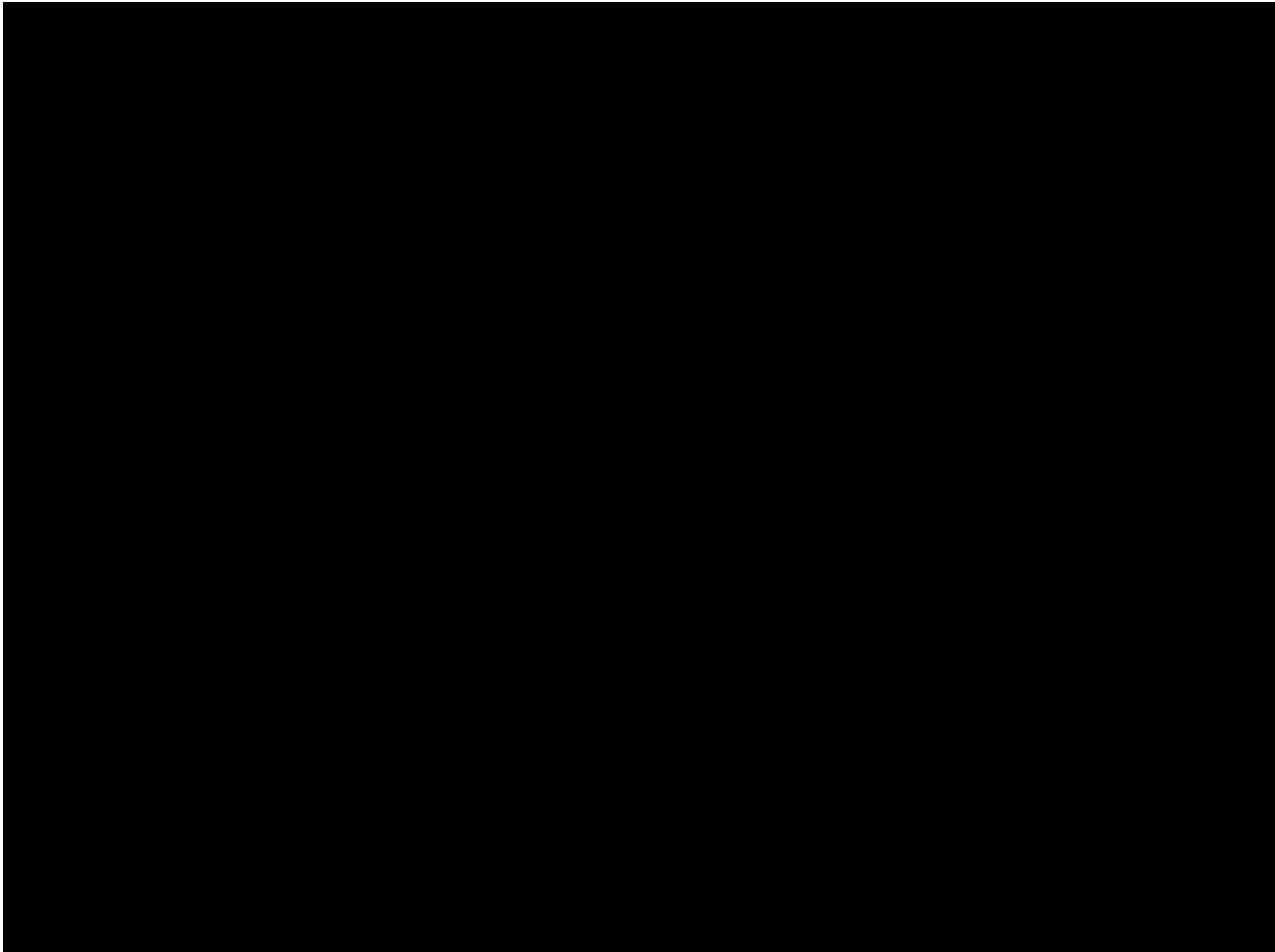
Figure 2: BCR Versus Qualitative Score for Scenario



Figure 3: Capital Cost Estimate versus Qualitative Score



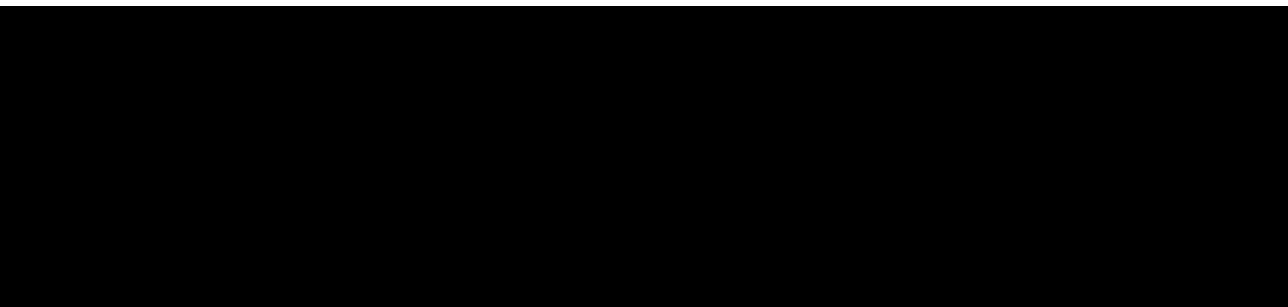
5.3.1 Value for Money Summary



The above results are based on a high level rapid appraisal only. Detailed costings were not undertaken and it is possible that more detailed costing could change the estimate cost thus influencing the BCR calculations. All options were assumed to meet the threshold criteria of maintaining the arterial road function and delivering the CTL Master Plan vision.

6. Recommendation

6.1 Preferred Option or Options



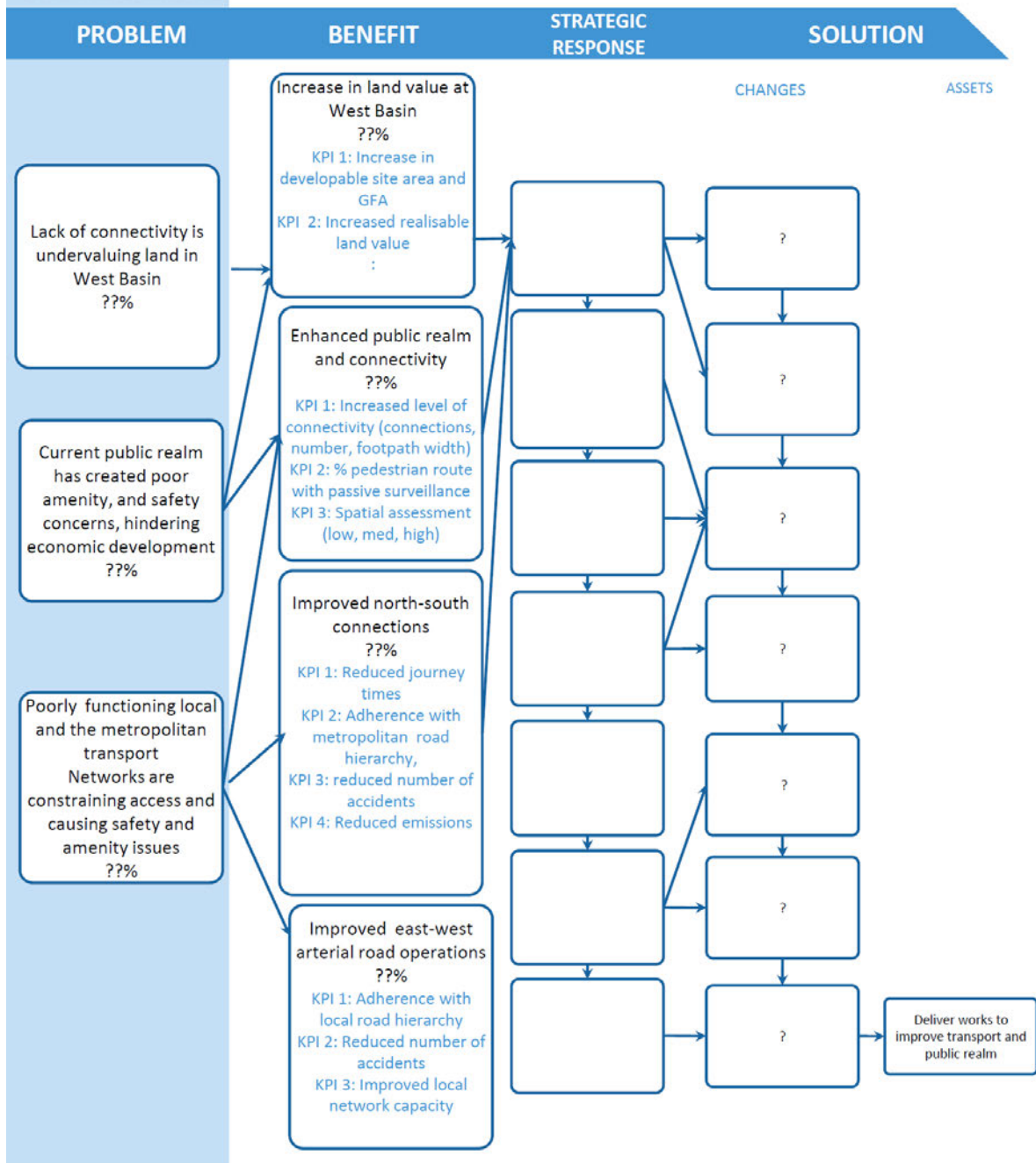


Appendices

Appendix A | Draft Investment Map

PARKES WAY IMPROVEMENTS

DRAFT INVESTMENT LOGIC MAP – MARCH 2015



Appendix B | Investment Logic Working Groups

Criteria and Measures for Investigation

Table B1: Working Group One Criteria

Criteria	Measures
Under Valued Land	<ul style="list-style-type: none"> • Site area • Gross floor area • Revenue – gross realisation (GFA x land value)
Public Realm and Connectivity	
(a) Increased Waterfront Activity	<ul style="list-style-type: none"> • Level of connectivity (Qualitative. Number and frequency, width, gradient, number of visits) • Pedestrians • Cyclists • vehicles
(b) Spatial Accessibility	<p>Activation, sight distances, views to lake, directness of route</p> <ul style="list-style-type: none"> • Pedestrians • Cyclists • Pedestrian Comfort and Security • Passive surveillance • Shade • Amenity rating
(c) Economic Benefits to CBD & Canberra	<ul style="list-style-type: none"> • Number of residents in CBD
	<ul style="list-style-type: none"> • Tourism
	<ul style="list-style-type: none"> • Number of visitors to West Basin/ Cttl
	<ul style="list-style-type: none"> • Length of stay/ occupancy rates
	<ul style="list-style-type: none"> • Events / Number of events/ Total attendance at events
	<ul style="list-style-type: none"> • Increase in jobs
	<ul style="list-style-type: none"> • Night time and weekend economy
	<ul style="list-style-type: none"> • Student numbers

Table B2: Working Group Two Criteria

Criteria	Measures
Metropolitan Transport	
<ul style="list-style-type: none"> Journey Times 	<ul style="list-style-type: none"> Full network travel time (VHT/VKT) Key Origin and Destination Analysis, Travel Time (VHT/VKT) Resilience and reliability; redundancy in the network during road closures Non-peak assessment
<ul style="list-style-type: none"> Reduced accidents 	<ul style="list-style-type: none"> Corridor conflict assessment Severity Vehicle and active transport
<ul style="list-style-type: none"> Compliance with transport hierarchy 	<ul style="list-style-type: none"> % change with options Varying corridors
<ul style="list-style-type: none"> Congestion 	<ul style="list-style-type: none"> Vehicle emissions
Local Transport	
<ul style="list-style-type: none"> Adherence with transport hierarchy 	<ul style="list-style-type: none"> % change with options
<ul style="list-style-type: none"> Achieving mode shift 	<ul style="list-style-type: none"> Targets Provision of footpaths and cycle paths
<ul style="list-style-type: none"> Safety 	<ul style="list-style-type: none"> Quality of footpaths and cycle paths Legibility of footpaths and cycle paths
<ul style="list-style-type: none"> Capacity 	<ul style="list-style-type: none"> Intersection capacity Travel times – key routes

Appendix C | National Capital Plan Extracts

S 1.4 WEST BASIN

1.4.1 BACKGROUND

WEST BASIN

West Basin is central to the implementation of The Griffin Legacy. West Basin will be a vibrant cultural and entertainment precinct on a waterfront promenade. The area will create a new city neighbourhood, extending the city to the lake with a cosmopolitan mixture of shops, businesses, cafes and recreation and tourist activities and accommodation.

1.4.2 PRINCIPLES FOR WEST BASIN

1. Create a legible network of paths and streets that extends the city to the lake.
2. Create a vibrant public waterfront promenade in the Central National Area.
3. Enhance the range of tourism and recreation experiences available on Lake Burley Griffin.
4. Enhance continuous public access to the lake shore with links to the surrounding national attractions.
5. Provide a mix of land uses.
6. Realise key elements of the geometry and intent of the 1918 Griffin Plan at West Basin.
7. Develop a built environment which demonstrates design excellence.
8. Achieve best practice environmentally sustainable development.

1.4.3 POLICIES FOR WEST BASIN

- a. Extend the city grid of streets and paths to enhance connectivity and accessibility to the lake.
- b. Create a waterfront promenade involving reclamation of a part of the lake and the construction of a new lake wall.
- c. Develop West Basin with a mix of uses and create a public domain which demonstrates urban design excellence.
- d. Provide continuous public access around West Basin linking the Parliamentary Zone and other national attractions.
- e. Contribute to the visitor and recreation experience of the Lake Burley Griffin parklands with an active waterfront promenade, permitting a high level of tourist, entertainment, accommodation and leisure uses.
- f. Enhance Commonwealth and Edinburgh Avenues as important physical, visual and symbolic links of Canberra.
- g. Reinforce Commonwealth Avenue, a significant approach route and vista to Parliament House, as a corridor of activity leading pedestrians from the city into the Parliamentary Zone.
- h. Develop a significant public building, cultural attraction or landscape space on the water axis at the western shore of West Basin.
- i. Implement best practice environmental design and management, including water sensitive urban design.

Note: Additional principles specific to West Basin are set out in Appendix T9

1.5 CONSTITUTION AVENUE

1.5.1 BACKGROUND

CONSTITUTION AVENUE

Constitution Avenue is central to the implementation of The Griffin Legacy. Constitution Avenue will become an elegant and vibrant mixed use grand boulevard linking London Circuit to Russell, increasing the vitality of the Central National Area and completing the National Triangle. This will be supported by an integrated transport system, broad tree-lined footpaths and outdoor dining and street parking.

1.5.2 PRINCIPLES FOR CONSTITUTION AVENUE

1. Establish Constitution Avenue as a diverse and active grand boulevard lined with shops, cafes and a mix of commercial, entertainment and residential uses.
2. Establish Constitution Avenue as a prestigious address for National Capital Uses.
3. Link education and high-tech employment clusters located in the corridor between the Australian National University and the Canberra International Airport.
4. Complete the base of the National Triangle.
5. Support Constitution Avenue with an integrated transport system and mix of land uses contributing to the life of the National Triangle.
6. Establish Constitution Avenue with higher density development, public transport, broad tree-lined footpaths and outdoor dining and street parking.
7. Develop a built environment which demonstrates design excellence.
8. Achieve best practice environmentally sustainable development.

1.5.3 POLICIES FOR CONSTITUTION AVENUE

- a. Built form and landscape design should respond to the primacy of the geometry of Constitution Avenue and the Russell apex of the National Triangle with building form emphasising the alignments of Constitution Avenue, Kings Avenue and Parkes Way.
- b. Reinforce the city's three-dimensional structure based on its topography and the landscape containment of the inner hills.
- c. Develop Constitution Avenue (generally east of Anzac Parade) as a prestigious setting for national capital uses, related employment and amenities.
- d. Reduce the barrier created by Parkes Way and its high speed intersections along its length by changing the character of Parkes Way to become a boulevard addressed with prestigious buildings, at grade pedestrian crossings and appropriately scaled road reserves and intersections.
- e. Provide a mix of land uses that contributes to the creation of a 24 hour community with dynamic activity patterns including retail, restaurants, residential and hotels close to public transport, employment areas, cultural attractions and the parklands of Lake Burley Griffin.
- f. Integrate public transport priority in the design of Constitution Avenue including provision for future light rail.
- g. Development should include a high level of access to a diversity of uses and activities, have cohesion and diversity in design character and detail, and be able to respond to changes over time.
- h. Provide a transition in building scale and use to protect the amenity of adjoining residential areas.

- i. Ensure conveniently located parking in a manner that does not dominate the public domain. All basement and service vehicle entries are to be located from secondary street frontages.
- j. Create an open and legible network of paths and streets that extends and connects City Hill and the adjoining suburbs of Reid and Campbell to Constitution Avenue, Kings and Commonwealth Parks and Lake Burley Griffin.
- k. Create a public domain that forms a linked sequence of spaces that are accessible, safe, comfortable, and pedestrian-scaled, that promotes walking and use of public transport and minimises reliance on cars.
- l. Integrate perimeter security, if required, with streetscape elements that enhance the public domain.
- m. Architectural character should develop a contemporary palette of styles and materials, reflecting the varied land uses and providing activity and interest, particularly at street level. Particular attention should be paid to building form and roof profiles in areas of high visibility.
- n. Design proposals should be site responsive, taking maximum advantage of varying characteristics and features of each site, complementing adjoining development – both existing and proposed – and expressing physical and environmental features.
- o. The street network, building form and facilities should be inherently flexible to accommodate changing uses and demands across the site and within buildings over time.
- p. Development should command high standards of urban design, sustainability, architecture and social inclusion reflecting the character of the national capital and providing a model for city development in Australia in the 21st century.

Note: Additional principles specific to Constitution Avenue and Anzac Parade are set out in Appendix TB

National Capital Plan – Section 6. Transport

6. TRANSPORT

6.1 BACKGROUND

The National Capital Plan is required to set out general principles and policies to be implemented throughout the Territory, for planning national and arterial road systems.

The interaction between land use activities and transport is important. The disposition and size of the centres for major employment and other uses places different demands and stresses on the transport system and the physical fabric of the City.

The hierarchical system of roads, developed successfully in the new towns of Canberra, provides a high standard of safety and service to all road users.

The overall transport system comprises the road network, car parking facilities and public transport. The efficiency of the road system depends, not only on the physical provision of infrastructure, but also on the operational policies adopted for the use and control of facilities including public transport.

The main elements of the national and arterial road systems are shown in the General Policy Plan at Figure 1.

The National road system are those roads and highways which support the role of Canberra as the National Capital by:

- providing the principal means of access between the National Capital and the State capitals, and between Canberra and the major national highways
- being designed for symbolic, formal or National Capital purposes
- being roads whose principal purpose is to provide access to National Capital facilities and vantage points within the Territory or, being roads located on land declared as National Land under the Act.

Roads which provide principally for intra and intertown traffic collection and distribution are arterial roads, which in the ACT have been classified under earlier planning policies as parkways (or freeways) and arterial roads. The main elements are shown on the General Policy Plan (Figure 1).

The arterial road system supports the urban structure of Canberra by:

- forming the principal access between town centres, industrial centres, major retail centres and residential areas
- providing access between the separate towns of the urban area.

Standards used in the planning of national and arterial roads should reflect the transport and symbolic functions that they perform and support the urban design, environmental, heritage and land use requirements of the corridor in which they are located.

The National Capital Plan defines the national and arterial road systems within Canberra and the Territory. The effective operation of these systems of roads depends on the planning and design of the total road network.

To ensure the efficiency of the national and arterial road systems, planning and design of all roads should meet nationally recognised practices and standards consistent with the traffic function of the road.

Efficient operation of the national and arterial road systems also requires that an effective public transport and priority system be established. It is important that the provision of public transport and the implementation of related policies by the ACT Government keeps pace with residential, commercial and industrial development needs. These policies should aim to minimise the consumption of energy and to enhance the physical environment of the Territory.

Provision will be made for the Very Fast Train route through the ACT following resolution of land use, transport and environmental concerns. After resolution of those concerns, a specific route would be the subject of an amendment to the National Capital Plan.

The General Policy Plan (Figure 1) identifies some of the arterial roads as "proposed". Final alignments of these roads are not yet determined. Some flexibility as to the precise alignments shown on this plan for proposed arterial roads must be expected. However, the interpretation placed on the intent of the Plan shall, in each case, be the subject of consultation with the Authority to ensure that detailed proposals are not inconsistent with the Plan.

Some of the proposed roads were the subject of the Gungahlin External Travel Study, initiated by the National Capital Development Commission and completed by the National Capital Planning Authority.

The final resolution of the location, scale and timing of these roads will depend on the outcome of consideration of the proposals by the Commonwealth Joint Parliamentary Committee on the Australian Capital Territory; similar consideration by the ACT Government; and environmental impact assessments. Final roads as approved following these processes will be incorporated in the National Capital Plan at an appropriate future time.

6.2 PRINCIPLE FOR TRANSPORT

Transport planning and provision will:

- reserve a route for the development of a public transport service to link major employment nodes. As far as practicable the service will be segregated from other transport systems and will operate with priority of right-of-way
- incorporate nationally recognised practices and standards consistent with the role and function of each road, or additional standards set out for the Designated Areas of this Plan.

6.3 POLICIES AND STANDARDS FOR TRANSPORT

- a. The National and Arterial Roads System will:
 - generally not provide frontage access to development except where such access will meet appropriate design standards and road safety needs
 - generally intersect with the local road network through distributor roads.
- b. A corridor between Civic, the town centres and major employment nodes, suitable for priority or segregated right-of-way for use by public transport services will be reserved against a possible future need to develop a system of inter town and express routes suitable for buses or other technologies as appropriate.
- c. Transport strategies should promote the convenience and efficiency of public transport use.
- d. The final alignment of proposed arterial roads shall be subject to consultation with the Authority and to a determination by the Authority that proposals are not inconsistent with the Plan.

Appendix D | Options

Rapid Appraisal Report- Option 2

Option 1a and 1b: 650m tunnel with 1,500m uni directional service roads merging with the mainline east of Coranderrk Street. Parkes Way is lowered for the grade separated extension of Marcus Clarke Street. Option 1a has a free right turn from Parkes Way southbound into Commonwealth Ave. Option 1b does not.

Construction period and staging: Four to five year two stage project. Coranderrk Street intersection could be constructed independently followed by the 650m long tunnel and service roads.



Rapid Appraisal Report- Option 3

Option 2: 450m tunnel with 1200m uni directional service roads that merge with the mainline west of Coranderrk Street. Parkes Way is lowered for the grade separated extension of Marcus Clarke Street. A free right turn from Parkes Way into Commonwealth Ave southbound is provided.

Construction period and staging: Four to five year two stage project. Coranderrk Street intersection could be constructed independently followed by the tunnel and service roads.



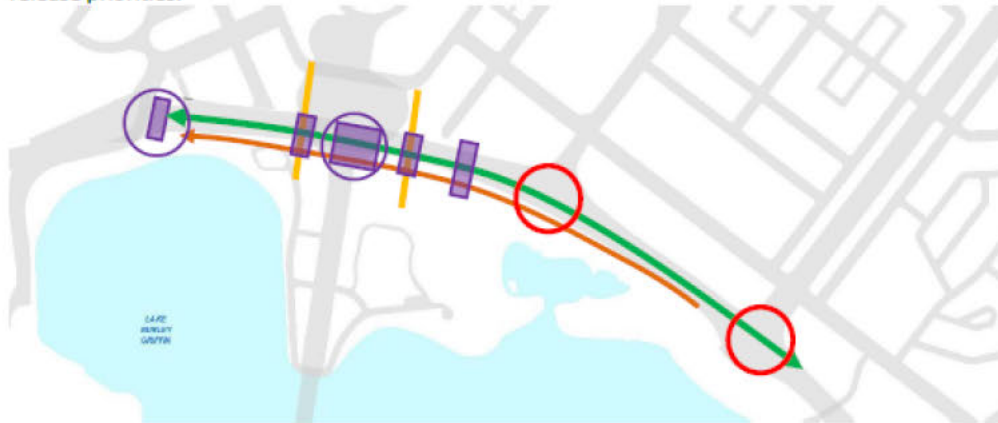
LEGEND

-  Land bridge (landscaping, cycle and pedestrian connections)
-  Parkes Way mainline
-  Signalised intersections on Parkes Way mainline
-  New local collector road
-  Signalised intersection of local collector road with urban arterials
-  Extension of City road grid to the Lake

Rapid Appraisal Report- Option 4

Option 3: Five land bridges of between 10 and 50 metres wide. Bi-directional local collector road forms the northern edge of West Basin. Vertical alignment of Parkes Way is unchanged and the extension of the City street grid is limited to the mirror image of East and West Rows. A signalised right turn from Parkes Way into Commonwealth Ave southbound. Existing grade separated platforms of Edinburgh and Commonwealth Avenues are upgraded for pedestrian, bicycle and public realm benefits and the podium level of a future stadium extends to Commonwealth Park.

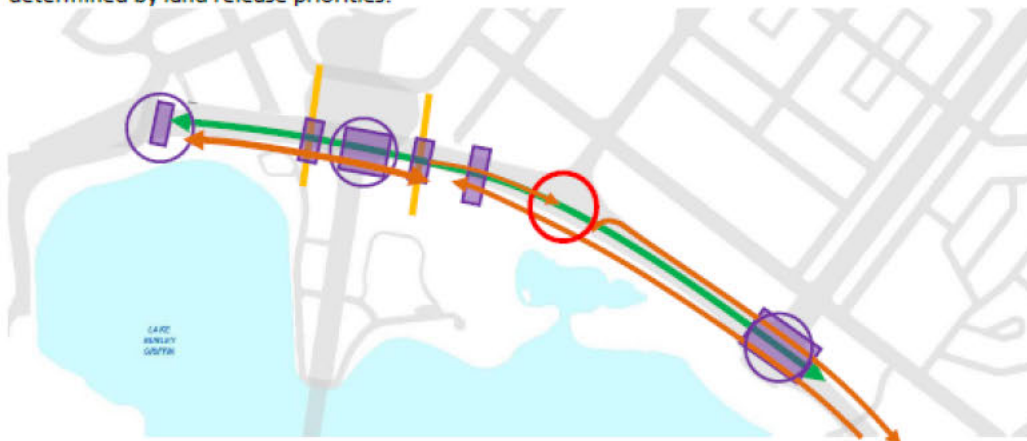
Construction period and staging: Two to three year project with up to five stages determined by land release priorities.








Rapid Appraisal Report- Option 5

Option 4: As for Option 3 but with an additional land bridge created by grade separating Anzac Parade. Note that the grade separation of Anzac involves the removal of the pedestrian underpass to the west and Wendouree Drive underpass and Kings Park access road to the east.

Construction period and staging: Three to four year total construction time with up to six stages determined by land release priorities.



LEGEND

-  Land bridge (landscaping, cycle and pedestrian connections)
-  Parkes Way mainline
-  Signalised intersections on Parkes Way mainline
-  New local collector road
-  Signalised intersection of local collector road with urban arterials
-  Extension of City road grid to the Lake

Rapid Appraisal Report- Option 6

Option 5: As for Option 4 but including the complex grade separation of Coranderrk Street. The natural low point, overland flow path and short ramp distances to Constitution Ave are specific complications.

Construction period and staging: Four year total construction time with up to six stages determined by land release priorities.










Rapid Appraisal Report- Option 7

Option 7: 400m long western tunnel, 200m open at Commonwealth Avenue for a single point urban interchange and a 200m long eastern tunnel.

Construction period and staging: Four to five year project with a complex staging program. Coranderrk Street could be constructed independently followed by the two tunnels and service roads.



LEGEND

-  Land bridge (landscaping, cycle and pedestrian connections)
-  Parkes Way mainline
-  Signalised intersections on Parkes Way mainline
-  New local collector road
-  Signalised intersection of local collector road with urban arterials
-  Extension of City road grid to the Lake
-  Single point interchange between arterial and sub-arterial



Appendix F | Benefits by Land Use