



## 16 AFFORDABILITY ANALYSIS

### CHAPTER SUMMARY AND CONCLUSIONS:

- Similar to comparable rail projects, TEARC requires a large upfront capital commitment (\$391.7 m), accounting for 85.4% of the net risk-adjusted project costs in nominal terms.
- As TEARC is recommended to be delivered as a single works package under a traditional delivery model, staging of TEARC has not been assessed from an affordability perspective as this was identified as a sub-optimal project delivery/value for money outcome through DBC analysis.
- Therefore, the affordability result equals the net P90 risk-adjusted project costs of \$458.9m in nominal terms and \$370.2m in NPV terms.
- Incremental revenues under the 'with' TEARC case are negative. This is due to the not being any significant uplift in freight demand projected, and NTKs for the purpose of user charging are reduced, meaning less revenues are recovered. The user pays pricing per NTK has been assumed to be unchanged from the current average network rates.
- The Australian Government has allocated up to \$150m for the TEARC project, subject to an approved business case. The balance of funding required is yet to be secured but will also be dependent on the recommendations provided in Chapter 20.

This chapter brings together much of the detailed discussion in preceding chapters of the DBC to outline affordability considerations for TEARC.

The purpose is to present all relevant information to allow the Queensland Government to assess the affordability of TEARC over the whole of its life, by considering all of the costs and revenues of TEARC.

This chapter outlines the:

- approach taken to complete the affordability analysis for TEARC
- summary of costs and revenues of TEARC
- nominal net cash outflows required to fund TEARC
- sensitivity analysis on the cash flows and financial model inputs of TEARC.

### 16.1 Approach

TEARC affordability is measured by the net P90 risk-adjusted project costs to the Queensland Government of delivering TEARC through the preferred traditional delivery model. The impact of different factors on the affordability of TEARC to the Queensland Government were also assessed through sensitivity testing of changes to these factors, including:

- Costs (capital and ongoing costs)
- Revenues
- Escalation rates
- Discount rates.



## 16.2 Project Costs and Revenues

This section outlines the build-up of the affordability assessment that details the capital costs, ongoing costs and revenues for TEARC over the evaluation period.

Table 16.1 and Table 16.2 set out the P90 risk-adjusted capital and ongoing costs for the affordability analysis for TEARC.

Table 16.1 Capital Costs

CAPITAL COSTS	REAL (\$ M)	NOMINAL (\$ M)	NPV (\$ M)
Capital costs (P90 risk-adjusted)	345.5	391.7	340.2

Table 16.2 Ongoing Costs (Over then 30-year Period)

ONGOING COSTS	REAL (\$ M)	NOMINAL (\$ M)	NPV (\$ M)
Ongoing costs (P90 risk-adjusted)	36.0	65.9	29.3

Table 16.3 Revenues (Medium Revenue Scenario)

REVENUES	REAL (\$ M)	NOMINAL (\$ M)	NPV (\$ M)
Freight access revenue (medium demand scenario) (negative values)	0.8	1.3	0.6

As is evident above, the revenue assumptions described in Table 16.3, incremental revenue is negative as the volume of freight is not projected to increase sufficiently to offset the reduced distance that it would need to travel upon completion of TEARC. The assumptions underpinning the revenue derivation can be found in Chapter 7 Economic Analysis, and a discussion of user funding and access to rail assets is included in Chapter 3 Defining the Service Need for the Project.

## 16.3 Affordability Summary

TEARC affordability is measured by the net P90 risk-adjusted project costs to the Queensland Government of delivering TEARC through the preferred traditional delivery model.

The affordability results of TEARC are summarised in Table 16.4.

Table 16.4 Affordability Summary

	REAL (\$ M)	NOMINAL (\$ M)	NPV (\$ M)
Capital costs (P90 risk-adjusted)	345.5	391.7	340.2
Ongoing costs (P90 risk-adjusted)	36.0	65.9	29.3
<b>Total P90 risk-adjusted project costs</b>	<b>381.5</b>	<b>475.7</b>	<b>369.6</b>
Revenues (medium demand scenario) (negative values – reflect incremental revenue loss)	0.8	1.3	0.6
<b>TEARC affordability</b>	<b>382.3</b>	<b>458.9</b>	<b>370.2</b>

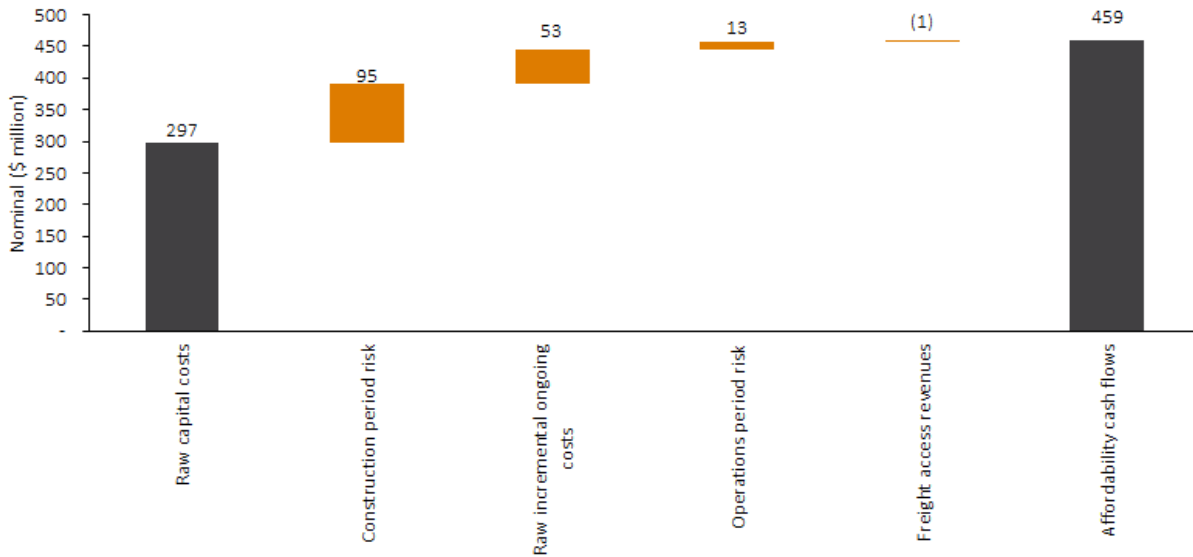
TEARC affordability is \$458.9m in nominal terms and \$370.2m in NPV terms. In accordance with the Building Queensland Business Case Development Framework (BCDF), the affordability assessment should also consider various staging options and delivery options, acknowledging that these will have implications for funding profiles of the State.



Given that TEARC is recommended to be delivered under a traditional (Construct Only contract) delivery model (Chapter 9), staging of TEARC has not been assessed from an affordability perspective, as this was identified as a sub-optimal project delivery/value for money outcome through DBC analysis. Therefore, the affordability result equals the net P90 risk-adjusted project costs determined in Chapter 8.

Figure 16.1 outlines the components that make up TEARC affordability in a waterfall chart.

Figure 16.1 Affordability Waterfall (Nominal)



As outlined in the affordability waterfall in Figure 16.1, TEARC has a high upfront capital cost commitment compared to its ongoing costs over the 30-year operations period.

Table 16.5 outlines the annual affordability cash flows, in nominal terms, for the first 10 years of TEARC.

Table 16.5 Affordability Cashflows (Nominal)

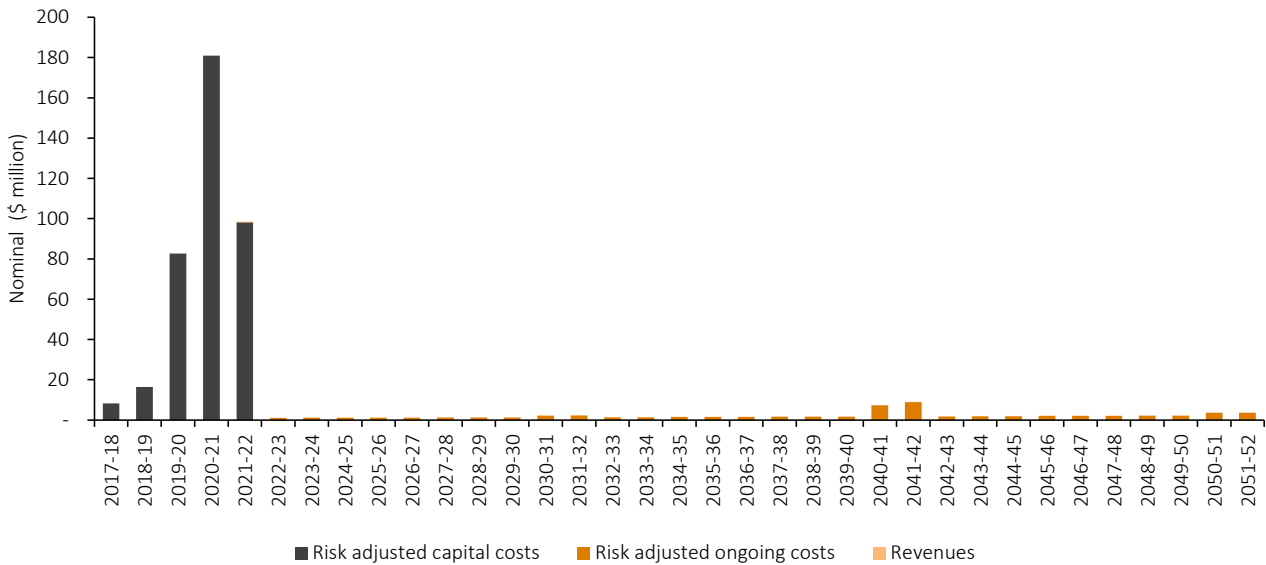
NOMINAL, \$ M	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27-52	TOTAL
Capital costs (P90 risk-adjusted)	5.3	8.2	16.4	82.7	181.0	98.1	-	-	-	-	-	391.7
Ongoing costs (P90 risk-adjusted)	-	-	-	-	-	0.2	1.0	1.1	1.1	1.2	61.4	65.9
Revenues (medium demand scenario) (negative values)	-	-	-	-	-	0.01	0.03	0.04	0.04	0.04	1.1	1.3
<b>Affordability cash flows</b>	<b>5.3</b>	<b>8.2</b>	<b>16.4</b>	<b>82.7</b>	<b>181.0</b>	<b>98.4</b>	<b>1.0</b>	<b>1.1</b>	<b>1.2</b>	<b>1.2</b>	<b>62.5</b>	<b>458.9</b>



The majority of TEARC costs incurs in FY20 to 22 where the main construction works take place. The ongoing costs over the 30-year period are not significant as compared to the high upfront costs for TEARC. In addition, the revenues are negative, although negligible.

Figure 16.2 outlines the annual affordability cash flows, in nominal terms, for the evaluation period of TEARC. The shape of the affordability cash flow profile reflects the high upfront capital costs, and lifecycle capital replacement works being scheduled at ten-year intervals.

Figure 16.2 Affordability Cashflows (Nominal)



### 16.4 Sensitivity Testing

TEARC has been tested against a range of sensitivity factors determined by the TEARC Project team and the financial and commercial advisor.



Table 16.6 demonstrates the impact of changes to key parameters on TEARC affordability in nominal terms.

Table 16.6 Sensitivity Testing on TEARC Affordability (Nominal)

SENSITIVITY ANALYSIS	BASE ASSUMPTION	NOMINAL (\$ M)	\$ CHANGE	% CHANGE
Capital costs increased by 10%	458.9	498.1	39.2	8.5
Capital costs reduced by 10%	458.9	419.8	(39.2)	(8.5)
Ongoing costs increased by 10%	458.9	465.5	6.6	1.4
Ongoing costs reduced by 10%	458.9	452.3	(6.6)	(1.4)
Revenues increased by 10%	458.9	459.1	0.1	0.0
Revenues decreased by 10%	458.9	458.8	(0.1)	0.0
Capital cost escalation increased by 1%	458.9	477.8	18.8	4.1
Capital cost escalation reduced by 1%	458.9	440.8	(18.1)	(3.9)
Ongoing cost escalation increased by 1%	458.9	476.6	17.6	3.8
Ongoing cost escalation reduced by 1%	458.9	445.2	(13.7)	(3.0)
CPI escalation increased by 1%	458.9	459.2	0.3	0.1
CPI escalation decreased by 1%	458.9	458.7	(0.2)	(0.1)

Table 16.7 demonstrates the impact of changes to key parameters on TEARC affordability in NPV terms.

Table 16.7 Sensitivity Testing on TEARC Affordability (NPV)

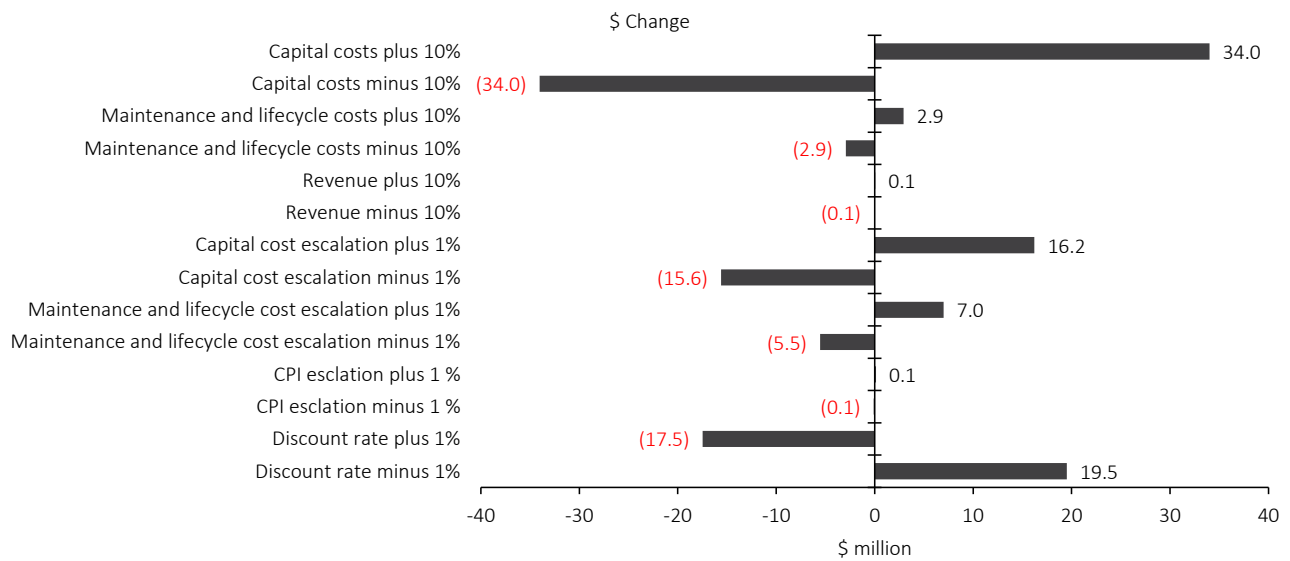
SENSITIVITY ANALYSIS	BASE ASSUMPTION	NPV (\$ M)	\$ CHANGE	% CHANGE
Capital costs increased by 10%	370.2	404.2	34.0	9.2
Capital costs reduced by 10%	370.2	336.1	(34.0)	(9.2)
Ongoing costs increased by 10%	370.2	373.1	2.9	0.8
Ongoing costs reduced by 10%	370.2	367.2	(2.9)	(0.8)
Revenues increased by 10%	370.2	370.2	0.1	0.0
Revenues decreased by 10%	370.2	370.1	(0.1)	(0.0)
Capital cost escalation increased by 1%	370.2	386.4	16.2	4.4
Capital cost escalation reduced by 1%	370.2	354.6	(15.6)	(4.2)
Ongoing cost escalation increased by 1%	370.2	377.2	7.0	1.9
Ongoing cost escalation reduced by 1%	370.2	364.6	(5.5)	(1.5)
CPI escalation increased by 1%	370.2	370.3	0.1	0.0
CPI escalation decreased by 1%	370.2	370.1	(0.1)	(0.0)
Discount rate increased by 1%	370.2	352.7	(17.5)	(4.7)
Discount rate reduced by 1%	370.2	389.7	19.5	5.3

Figure 16.3 shows the dollar change of TEARC affordability in NPV terms by adjusting the selected parameters.

All sensitivities undertaken indicate TEARC will still result in a significant NPV, predominately due to the high upfront capital costs.



Figure 16.3 Dollar Change of TEARC Affordability (NPV)



An alternate demand scenario was not considered beneficial, as revenue estimates were marginal relative to the Project costs.

### 16.5 Conclusion

As at the date of this DBC, the final form of the funding agreement between the State and the Commonwealth Government through the Department of Infrastructure and Regional Development has not been finalised. The TEARC financial assessment has established a net P90 risk-adjusted project cost to the Queensland Government of \$458.9m in nominal terms and \$370.2m in NPV terms (of which 85.4% of TEARC net costs in nominal terms are upfront capital requirements), which will need to be met should TEARC be approved.

The Australian Government has allocated up to \$150m for the TEARC project, subject to an approved business case. The balance of funding required is yet to be secured but will also be dependent on the recommendations provided in Chapter 20.

Following receipt of this DBC, TMR may seek funding for the procurement phase and arrange for funding discussions for delivery phase.

Given that TEARC is recommended to be delivered under a traditional delivery model, staging of TEARC has not been assessed from an affordability perspective as this was identified as a sub-optimal project delivery/value for money outcome through DBC analysis. Therefore, the affordability result equals the net P90 risk-adjusted project costs discussed in Chapter 8, being \$458.9m in nominal terms and \$370.2m in NPV terms.

Incremental revenues under the 'with' TEARC case are negative. This is because there is no significant uplift in freight demand projected, and NTKs for the purpose of user charging are reduced, meaning less revenues are recovered.

Sensitivity analysis has been conducted on key project parameters. The high upfront capital costs have the most financial impact to TEARC affordability. All sensitivities undertaken indicate that TEARC will still result in a significant net present cost.