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TOONDAH HARBOUR

CHAPTER 21
ECONOMIC ASSESSMENT

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21. Economic Environment

21.1. Introduction

The economic assessment technical studies were completed by Synergies Economic Consulting (Synergies). The technical report is provided as Appendix 2-R. Details of the key personnel involved in the study are provided in Appendix 1-F.

21.1.1 Scope of Study

Specific requirements for the economic assessment to address the EPBC Act EIS Guidelines and other legislative requirements include analysis of positive and negative economic impacts including:

- Economic costs and benefits of the Project, including the basis for their estimation through cost/benefit analysis or similar studies; and
- Employment opportunities expected to be generated by the Project (including construction and operational phases).

Economic impacts should be considered at the local, regional and national levels. Details of the relevant cost and benefits of alternative options to the proposed action should also be included.

To address these requirements the economic impact assessment (EIA) for the Project involves two key components:

1. Cost-benefit analysis – a comprehensive assessment of the economic benefits and costs to the community attributable to the Project; and
2. Economic impact analysis – assessment of the regional economic impacts of the Project during both the construction and operational phase on economic activity.

21.2. Cost-Benefit Analysis

The purpose of cost-benefit analysis is to assess the net impact of a proposed project or policy on the economic wellbeing of the community. Cost-benefit analysis is the most widely used method for appraising the net economic impact of a project proposal.

The first step in undertaking the cost-benefit analysis is to define the base case against which the development is to be assessed. As there are no agreed or viable alternative plans for the development of land within the Toondah Harbour PDA, for the purpose of the cost-benefit analysis, the base case is defined as the continuation of existing land uses within the PDA and surrounding areas. That is:

- The continued operation of vehicle and passenger ferry services between the Toondah Harbour Ferry Terminal and Minjerribah (North Stradbroke Island), with associated use of the turning basin, Fison Channel and car parking facilities;
- Continued provision of the parkland facilities located in GJ Walter Park;
- Continued use of the Emmett Drive public boat ramp; and
- The continuation of current activities within the Council-owned office facilities.

In terms of tourist visitations to Minjerribah, due to the constraints associated with the frequency and size of the ferry services operating between Minjerribah and Toondah Harbour, it has been assumed that ferry services will be unable to accommodate growth in tourist visitations and expenditure on Minjerribah from 2026 onwards. There is also not expected to be any material tourism-related developments elsewhere in the Redland City LGA under the base case.

The PDA overlaps with 42 ha of the MBRS. Moreton Bay is one of the largest estuarine bays in Australia and more than 120,000 ha of the Bay are included in the MBRS.

Based on the environmental assessment conducted as part of the EIS process, the Project has been identified as having the potential to impact on the following environmental attributes:

- Permanent impact on approximately 35 ha of intertidal habitats as a result of reclamation works and temporary impact on approximately 6.2 ha as a result of dredging works in the MBRS;
- The reclamation area contains a range of intertidal habitat types including mudflat, seagrass and mangroves that will be impacted by the Project (refer to Section 16.5).
- The PDA contains intertidal feeding habitat for several migratory shorebird species including the critically endangered eastern curlew and vulnerable bar-tailed godwit. The site provides less than 0.1% of the total available feeding habitat for these species in the MBRS. Two high tide roost sites are located adjacent to the PDA and by virtue of their location within a Ramsar wetland are automatically considered to provide high value habitat for migratory shorebirds. Neither of the roost sites will be significantly impacted by the Project;
- While potential habitat for 21 migratory marine species has been identified within 5 km of the PDA, similar or better habitat is present throughout Moreton Bay; and
- While migratory shorebird foraging habitat will be impacted by the Project these impacts are not expected to have any long-term effect on any species as Moreton Bay contains significant additional carrying capacity for foraging habitat (refer to Section 17.4.3). Temporary impacts to a small number of protected species are difficult to quantify as an economic cost and would not be large enough to alter the outcomes of the cost benefit analysis.

It is important to note that the habitat within the PDA is highly disturbed by activities in developed areas along the foreshore. Furthermore, water quality monitoring undertaken in Moreton Bay has identified significant increases in nutrient loads over the past 20 years. As the population of the SEQ region continues to grow, it is expected that water quality will continue to deteriorate, adversely affecting the ecological value of habitat within Moreton Bay. Any adverse impacts on the ecological value of this habitat as a result of the development must be assessed against this baseline.

The comparison of the project case against the base case resulted in the identification of the following economic benefits:

- Value of reclaimed land for retail, commercial, and residential use;
- Value of marina berths;
- Economic benefit derived from increased tourism expenditure in the region (both on Minjerribah and on the mainland);
- Avoided maintenance dredging costs incurred under the base case;
- Catalytic benefits for the region attributable to the development; and
- Economic benefit derived from enhanced common-use facilities to be provided as part of the development (e.g., plaza and parklands).

The assessment and quantification of these benefits is summarised in Table 21-1.

Table 21-1: Summary of Economic Benefits under the Project Case.

Benefit	Description	Estimate ($PV)
Value of retail, commercial, and residential development	▪ Economic benefit derived from the retail, commercial, and residential space to be created by the development	$1,241.1 million

Benefit	Description	Estimate ($PV)
	▪ Quantified based on expected market value of these facilities	
Value of marina berths	▪ Economic benefit derived from use of marina berths by vessel (commercial and recreational) owners ▪ Quantified based on expected market value of marina berths	$10.7 million
Value of increased tourism expenditure on Minjerribah	▪ Value add on additional expenditure by tourist visitors to Minjerribah under the project case ▪ Quantification of the benefit limited to 'incremental' international tourist visitors to Minjerribah under the project case	$9.1 million
Value of increased tourism expenditure on mainland and other locations	▪ Value add on additional expenditure by tourist visitors to the mainland development and other locations throughout southern Moreton Bay (in addition to Minjerribah) ▪ Not quantified due to high level of uncertainty regarding magnitude and timing of additional tourist visitors under the project case	Not quantified
Avoided maintenance dredging costs	▪ Under the base case, maintenance dredging will be required to maintain the existing channel and turning basin ▪ These costs will be avoided under the project case (noting the full cost of maintenance dredging has been included in the estimation of economic costs under the project case)	$11.1 million
Catalytic benefits	▪ Flow-on benefits for the Toondah Harbour PDA and surrounding area attributable to demand and supply-side catalytic impacts	Not quantified
Value of enhanced common use facilities and improved amenity	▪ Economic benefit derived from users of common-use facilities within the development	Not quantified
Total Economic Benefits		$1,272.0 million

Source: Synergies' modelling

As noted in the table above, the potential catalytic benefits from the Project and the economic benefit derived from the enhanced common use facilities under the project case have not been quantified in the cost-benefit analysis. For the catalytic benefits, this is due to the significant uncertainty associated with the timing and magnitude of these benefits, while for the enhanced common use facilities, it is due to the significant cost associated with quantifying this benefit (given they are unlikely to be material to the economic feasibility of the Project).

Noting the above, both of these benefits, while not quantified, represent benefits to the local community and users of the common use facilities and should be considered in assessing the overall economic feasibility of the Project.

The following economic costs have been identified in relation to the Project:

- Capital costs associated with the Project;
- The cost of up-front and ongoing dredging works;
- Operational costs to be incurred in operating and maintaining common use facilities to be developed as part of the Project; and
- Adverse environmental impacts associated with the loss of a portion of the MBRS as a result of the Project.

The assessment and quantification of these costs is summarised in Table 21-2.

Table 21-2: Summary of Economic Costs under the Project Case.

Cost	Description	Estimate ($PV)
Capital costs	Costs incurred in construction of Project, including buildings, marina, ferry terminal and other common-use facilities	$803.9 million
Relocation of trade college	Relocation of trade college to alternative premises Quantified assuming 50% of the market value of commercial space to be created by the Project	$3.51 million
Maintenance dredging costs	Maintenance dredging costs to be incurred as a result of the dredging of the Fison Channel and turning basin	$12.96 million
Maintenance of common-use infrastructure	Incremental costs to be incurred in maintaining the common-use infrastructure, including the bus interchange, car parking facilities, parklands, etc.	$34.43 million
Environmental costs	Economic cost attributable to destruction of wetlands and adverse impacts on threatened and migratory shorebird species and other marine flora and fauna	$4.59 million
Total economic costs		**$859.4 million**

Note: Totals may not add due to rounding.
Source: Synergies' modelling.

A key issue in assessing the economic cost attributable to the Project was in relation to the environmental cost associated with the loss of wetland habitat. Of the three impacts assessed (see above), an economic cost was only attributed to the loss of wetland habitat. This cost – estimated at $4.59 million in Present Value (PV) terms – was quantified having regard to the results of studies that have estimated the economic value of comparable wetlands.

The net economic impact of a project is assessed through two key metrics:

- Net Present Value (NPV) – calculated by subtracting total economic costs from total economic benefits; and
- Benefit Cost Ratio (BCR) – calculated by dividing total economic benefits by total economic costs.

These metrics are calculated by applying a discount rate to future economic benefits and costs attributable to the Project. The discount rate accounts for the social opportunity cost of capital. A real social discount rate of 7% is typically applied by government assessment entities (e.g., Infrastructure Australia, Building Queensland, Queensland Treasury), with sensitivity analysis performed at discount rates at 4% and 10%. It is important to note that 10% is a particularly high discount rate and is highly unlikely to represent an appropriate measure of the social opportunity cost of capital. Table

21-3 summarises the NPV and BCR estimates for the project case under the central real discount rate of 7%, with sensitivity analysis undertaken based on discount rates of 4% and 10%.

Table 21-3: Results from Cost-Benefit Analysis ($'000 2020 $s).

Economic impact	Discount Rate		
	4%	7%	10%
Economic benefits			
Value of retail, commercial, and residential development	$1,705,337	$1,241,076	$924,479
Value of marina berths	$14,118	$10,646	$8,126
Value of increased tourism expenditure on Minjerribah	$19,495	$9,132	$5,277
Avoided maintenance dredging costs	$19,500	$11,143	$7,800
Catalytic benefits	Not quantified		
Value of enhanced common use facilities	Not quantified		
Total economic benefits	**$1,758,450**	**$1,271,996**	**$945,682**
Economic costs			
Capital costs	$1,044,189	$803,941	$637,595
Maintenance dredging costs	$22,967	$12,962	$8,972
Maintenance of common-use infrastructure	$61,658	$34,431	$23,600
Trade college relocation costs	$3,606	$3,505	$3,409
Environmental costs	$4,719	$4,587	$4,462
Total economic costs	**$1,137,139**	**$859,426**	**$678,039**
NET PRESENT VALUE	**$621,311**	**$412,570**	**$267,643**
BENEFIT COST RATIO	**1.55**	**1.48**	**1.39**

Source: Synergies' modelling.

These results show that under the central discount rate of 7%, the project results in a positive NPV of $412.6 million, which is a BCR of 1.48. This means that, under a central discount rate of 7%, for every dollar invested, the economic return from the Project is $1.48. The results improve to $621.3 million and 1.55 under a lower discount rate of 4%. Even at a discount rate of 10% (noting this is unlikely to be a reasonable discount rate), the Project is assessed as resulting in an NPV $267.6 million with a BCR of 1.39.

Sensitivity analysis was conducted to assess the sensitivity of the results of the cost-benefit analysis to changes in key assumptions and parameters. As anticipated, given the breakdown of the costs and benefits presented above, in addition to the discount rate, the economic feasibility of the Project is most impacted by changes to the value of residential dwellings to be created by the Project and the capital cost incurred. The Project was found to be economically feasible for all sensitivities tested.

Given environmental impact assessment identified that the Project will generally minimise disturbance outside the direct Project footprint, with particular reference to the adjacent roost sites, the results of the cost-benefit analysis were not

sensitive to environmental impacts. As such, the environmental impacts of the Project are unlikely to affect the overall outcomes of the cost-benefit analysis.

21.3. Regional Economic Impact Analysis

Synergies estimated the economic contribution of the Project by:

- Developing nonlinear Input Output (I-O) models for the economies of Queensland, Minjerribah and Redland City LGA;
- Estimating economic activity in terms of capital costs and total output (turnover) to determine the incremental economic stimulus of the Project during the construction and operational periods respectively; and
- Introducing the economic stimulus amounts into respective I-O models to assess the direct and flow-on economic impacts of the Project.

21.3.1 Construction Impacts

The construction period impacts have been modelled for the Queensland economy, having regard to the scale of the Project. The construction activity occurs from 2021 to 2040. Final demand shocks were obtained by summing all construction expenditure over this period and discounting back to a Present Value estimate (at a rate of 7%).

The results highlight substantial positive direct impacts, with the sum of the flow-on impacts (indirect and induced impacts) being commensurate in magnitude. The results demonstrate that the direct impacts would:

- Increase overall gross output by $1,560 million;
- Increase overall GSP by $550 million; and
- Increase overall labour income by $270 million.

Employment represents the peak annual construction jobs impact over the period. The results suggest that at peak construction, the Project would support 390 annual jobs in the initial/direct impact stage, 200 jobs through indirect industrial support effects and 180 jobs from induced consumption effects. This gives a total possible annual employment impact of 770 jobs at peak in supplying industries and in other sectors supplying consumers (Table 21-4). When combined with the estimated employment impacts on Minjerribah (see below), this equates to peak employment well in excess of 1,000 FTEs.

Table 21-4: Construction period – Queensland Economic Impacts.

Indicator	Unit	Final demand	Industry effects	Consumption effects	Total impacts	Flow-on impacts
Gross output (turnover)	$ million	790	480	290	**1,560**	**770**
GSP	$ million	220	210	120	**550**	**330**
Income (wages paid)	$ million	100	110	60	**270**	**170**
Employment	Annual FTEs (Peak)	390	200	180	**770**	**380**

Notes: Expenditures discounted to 2020 dollars at 7% per annum. Numbers may not sum due to rounding.
Source: Synergies' analysis.

21.3.2 Operational Impacts

The operational impacts of the Project have been modelled based on the additional expenditure by tourist visitations to the region expected to eventuate as a result of the Project. This includes:

- Additional tourist expenditure on Minjerribah due to the establishment of a mainland destination and enhanced gateway to southern Moreton Bay and the alleviation of the constraints on the capacity and frequency of ferry services during peak periods; and
- Additional tourist expenditure at Toondah Harbour and other locations throughout southern Moreton Bay, attributable to the development of a mainland tourism hub.

Minjerribah (North Stradbroke Island)

To estimate the economic impacts attributable to additional tourist expenditure on Minjerribah, a specialised Minjerribah I-O model was developed based on available employment and industry structure data. This model was then applied to estimate the impact of increased tourism expenditure on the Minjerribah economy over the 2026 to 2030 period (being the period in which there is additional tourist visitation and expenditure to the island as a result of the Project). The results of this modelling are presented in Table 21-5.

Table 21-5: Operational Period – Minjerribah Economic Impacts.

Indicator	Unit	2026	2027	2028	2029	2030
Additional expenditure	$ million	15.98	32.77	50.40	68.90	88.32
Gross output (turnover)	$ million	26.65	56.69	86.69	118.51	151.91
GRP	$ million	15.20	31.00	47.68	65.18	83.53
Income (wages paid)	$ million	7.85	16.10	24.62	33.66	43.14
Employment	FTEs	65	133	204	279	357

Source: Synergies NSI Input-Output model.

According to the 2016 ABS Census, 844 people living on North Stradbroke Island (Minjerribah) were employed in 2016, of which 53% were in employment full time. The modelling results indicate that alleviating the constraints on increased tourism visitation and expenditure had the potential to create an additional 357 jobs (in FTE terms) out to 2030. This represents a critical source of growth for the Minjerribah economy, noting the loss of economic activity and employment following the cessation of sand mining in 2019.

Rest of Redland LGA

The impacts of increased tourist expenditure attributable to the Project at Toondah Harbour PDA and other locations throughout southern Moreton Bay were estimated using a nonlinear I-O model for Redland City LGA. Growth in tourist expenditure attributable to the Project was estimated by applying a 5% annual growth rate to day-tripper and overnight tourist visitations from 2026 and 2032 respectively.

As with the construction impacts, given the long time period over which the impacts of increased tourist expenditure will accrue, the impacts of the increased expenditure on the Redlands' economy were modelled by discounting future additional tourist expenditure at 7% to produce a PV estimate for total additional expenditure attributable to the Project. This was then applied to the Redland City LGA nonlinear I-O model to estimate impacts.

Table 21-6 summarises the results of the I-O modelling, showing that based on assumed profile of increased tourist visitations and expenditure, the Project will result in an increase of $440 million in gross regional output, $140 million in Gross Regional Product, and create additional employment of up to 135 FTEs.

Table 21-6: Operating Period – Redland LGA Economic Impacts.

Indicator	Unit	Final demand	Industry effects	Consumption effects	Total impacts	Flow-on impacts
Gross output (turnover)	$ million	280	70	90	**440**	**160**
GSP	$ million	100	20	20	**140**	**40**
Income (wages paid)	$ million	70	10	10	**90**	**20**
Employment	Annual FTEs (Peak)	107	14	14	**135**	**28**

Notes: Expenditures discounted to 2020 dollars at 7% per annum. Numbers may not sum due to rounding.
Source: Synergies analysis.

These beneficial impacts are particularly significant given the importance of facilitating the growth of the Minjerribah tourism industry following the cessation of sand mining in 2019, and subsequent loss of economic activity and employment, and the limited alternative drivers of employment growth throughout the Redland City LGA.