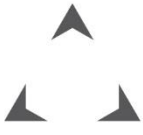
Fraser Coast Sports Precinct Business Case

Fraser Coast Regional Council

2016



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Executive Summary

Background & Need for the Project

Fraser Coast Regional Council (FCRC) is proposing to develop the Fraser Coast Sports Precinct (the project), a major sporting precinct on two adjoining Council owned parcels of land in Nikenbah. It will be a multi-stage development across over 60 hectares of land, and at full development will provide more than 60 sporting fields and playing surfaces catering to football (soccer), AFL, rugby league/ union, hockey, netball, tennis, touch football, Oz tag, Athletics, PCYC and Basketball.

The project responds to existing need within the local community for additional capacity and higher quality sporting fields and playing surfaces, as well as supporting amenities and facilities (e.g. lighting). It will also significantly enhance the capacity for Fraser Coast to host regional, state and even national competitions and carnivals.

In the longer term, the project will represent a key piece of infrastructure for meeting the need for additional sporting fields and playing surfaces to cater to the Fraser Coast and surrounding region's growing population.

Stage 1 of the project (for which funding is currently being sought) has planned construction activity worth a combined total of approximately $18.9 million, with construction activity anticipated to occur between mid-2016 and March 2019. Subsequent stages of development are expected to cost between approximately $16 million and approximately $35 million (average of $25.5 million used in this assessment, for a combined project cost of $44.4 million), with stages to be spaced over a number of years.

Purpose of this Study & Approach

This report provides a business case for Stage 1 of the Fraser Coast Sports Precinct (the project), as well as the overall precinct development including all stages. The report provides an overview of the need for the project and areas of disadvantage the project will address, the socio-economic benefits the project will deliver to the region, and the capacity of Council to deliver the project.

It is anticipated the findings of this report will be used to support funding applications for this project.

Findings

Economic Benefits of the Project

Construction of Stage 1 of the project, as well as all stages of the project, is estimated to deliver the following additional economic activity:

- Contribution of $13.1 million to the region's Gross Regional Product (GRP) for Stage 1, and $30.7 million including all stages.
- Provision of around 83 full time equivalent (FTE) jobs in the region for Stage 1, paying around $6.7 million in wages and salaries. For all stages construction of the project will support around 195 FTE jobs in the region, paying $15.7 million.

These benefits represent the total (in aggregate) benefit during the construction period, including both direct and flow-on impacts. The impacts for all stages are inclusive of Stage 1.

The project will deliver a major sporting precinct in the Fraser Coast providing suitable capacity and playing fields/ surfaces, as well as ancillary amenities and facilities, to meet the needs of local/ regional sporting teams, as well as regional, state and national sports events, competitions and carnivals (such as Masters Games, state championships, etc.). Once operational, the high quality precinct is expected to result in the attraction of major sporting competitions, events and carnivals, leading to increased visitation and visitor spend to the regional economy.

Once in steady state operations, the additional visitor activity and spend facilitated by the project is estimated to deliver the following additional economic activity:

- Contribution of $6.3 million per annum on average to the region's GRP for activity supported by Stage 1, and $25.0 million per annum for activity supported by all stages of the development.
- Provision of around 57 FTE jobs in the region for activity supported by Stage 1, paying around $3.3 million in wages and salaries. All stages of development is estimated to support 228 FTE jobs once in steady state operations, paying $13.0 million.

These operating benefits post project construction represent the total (in aggregate) benefit annually once in steady state operations, including both direct and flow-on impacts.

Table ES.1. Economic Activity Supported by Project (Direct + Flow-On)

Stage/ Phase (Time Period)	Gross Value Added ($M)	Incomes ($M)	Employment (FTEs)
Stage 1			
Construction (Total)	$13.1	$6.7	83
Operation (Average Annual)	$6.3	$3.3	57
All Stages			
Construction (Total)	$30.7	$15.7	195
Operation (Average Annual)	$25.0	$13.0	228

Note: Totals may not sum due to rounding.
Source: ABS (2015a), ABS (2015b), ABS (2012), FCRC (2015a), FCRC (2013), FCRC (unpublished), Engineers Plus (2015), TRA (2015), AEC.

In addition to the economic impacts outlined above, the Fraser Coast Sports Precinct would provide:

- **Enhanced Community Pride**: Hosting major regional, state and national sporting events, competitions and carnivals:
  - Provides an opportunity for the local and regional residents and community to showcase their talent.
  - Increases awareness of Fraser Coast and the catchment area in broader society, showcasing the region and highlighting why the region is a good place to visit, live and/ or do business.
  - Provides opportunities for locals to experience firsthand high profile athletes through the attraction of major domestic sporting (and other) events to the region (e.g. through pre-season training camps and/ or pre-season games). This can be an important element to developing and cementing aspirations and goals in local youth.
- **Amenity Benefits for Users**: The high quality facilities and playing surfaces at the precinct, and provision of multiple fields for a number of sporting codes and activities, will provide an enhanced experience for all sporting participants as well as spectators that use the facility. This will result in an amenity benefit for users of the Fraser Coast Sports Precinct.
- **Meet Future Demand**: The Fraser Coast Sports Precinct represents a significant sport and recreation precinct providing high quality sporting facilities that meet the needs of the existing and future local and regional population.

Cost Benefit Analysis

The cost benefit analysis examined the construction and operating costs associated with the project (Stage 1, as well as for all stages), the benefits from additional visitation and visitor spend anticipated to be induced by this expenditure, and leisure/ amenity benefits for users of the precinct.

The cost benefit analysis for Stage 1 of the project identified that at a 7% discount rate Stage 1 would be deemed economically **desirable** with the benefits outweighing the costs, providing a NPV of $15.6 million and a BCR of 1.82. Sensitivity analysis shows Stage 1 is relatively robust and not overly sensitive to assumptions relating to costs and benefits.

Stage 1 is more sensitive to the discount rate used, reflecting the benefits expected to be achieved are long term delivered primarily by upfront costs. Stage 1 has an Internal Rate of Return (IRR) of 12.6%.

Table ES.2. Cost Benefit Analysis Results, Stage 1

Discount Rate	PV Costs ($M)	PV Benefits ($M)	NPV ($M)	BCR
4%	$20.2	$57.1	$37.0	2.83
7%	**$19.1**	**$34.7**	**$15.6**	**1.82**
10%	$18.3	$23.5	$5.2	1.28

Note: NPV presented in the table may not exactly equal PV of Benefit less PV of Costs reported due to rounding.
Source: AEC

The project is more economically desirable when considering all stages of development, returning an NPV of $53.2 million and a BCR of 2.61. This highlights the need for upfront infrastructure to unlock the precinct (including trunk infrastructure and road access), with subsequent construction activity relatively smaller compared to the long term benefits the subsequent stages will deliver for the region.

Table ES.3. Cost Benefit Analysis Results, All Stages

Discount Rate	PV Costs ($M)	PV Benefits ($M)	NPV ($M)	BCR
4%	$39.1	$164.0	$124.9	4.20
7%	**$33.1**	**$86.3**	**$53.2**	**2.61**
10%	$29.0	$51.0	$22.0	1.76

Note: NPV presented in the table may not exactly equal PV of Benefit less PV of Costs reported due to rounding.
Source: AEC

Project Deliverability

Council is able to demonstrate that the project is **Investment Ready**, given that it owns the land upon which the $18.9 million (excluding GST) development will occur and that the majority of funds ($10.7 million, or 57%) to establish the project are confirmed as being available for this project once remaining grant funds ($8.2 million, or 43%) are approved and made available. Council is committed to the sporting precinct development, with construction anticipated to be completed by March 2019 if grant funds are made available.

Based on Council's 2015/16 long term financial forecast, it is evident that Council has sufficient capacity to financially undertake this project and to absorb any potential increase in operating expenditure within its long term financial forecast without a significant impact on its operating position.

Council has substantial experience in asset management, given its present responsibility in managing its vast asset networks of $1,216 million in Property, Plant and Equipment. Council is also able to demonstrate it has the ability to manage and deliver large projects, with over $60 million in capital works projects budgeted to be delivered in 2015/16 alone.

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1. Introduction

1.1 Background

Fraser Coast Regional Council (FCRC) is proposing to develop a major sporting precinct on two adjoining Council owned parcels of land in Nikenbah on the corner of Woods Road and Road 477. The Fraser Coast Sports Precinct (the project) will be a multi-stage development across over 60 hectares of land, and at full development will provide more than 60 sporting fields and playing surfaces catering to football (soccer), AFL, rugby league/ union, hockey, netball, tennis, touch football, Oz tag, Athletics, PCYC and Basketball.

The project responds to existing need within the local community for additional capacity and higher quality sporting fields and playing surfaces, as well as supporting amenities and facilities (e.g. lighting). It will also significantly enhance the capacity for Fraser Coast to host regional, state and even national competitions and carnivals.

In the longer term, the project will represent a key piece of infrastructure for meeting the need for additional sporting fields and playing surfaces to cater to the Fraser Coast and surrounding region's growing population.

1.2 Purpose of this Report

This report provides a business case for Stage 1 of the Fraser Coast Sports Precinct (the project), as well as the overall precinct development including all stages. The report provides an overview of the need for the project and areas of disadvantage the project will address, the socio-economic benefits the project will deliver to the region, and the capacity of Council to deliver the project.

It is anticipated the findings of this report will be used to support funding applications for this project.

1.3 Approach & Structure of the Report

This business case examines the following:

- Chapter 2 presents a description of the project, an overview of the benefits it will deliver, and the expected catchment area of the Sports Precinct once developed.
- Chapter 3 examines key areas of disadvantage within the Fraser Coast Sports Precinct's catchment area in which the project will aim to address. A range of socio-economic and demographic data sets are used to examine areas of disadvantage, including Socio-Economic Index for Areas (SEIFA) from the Australian Bureau of Statistics (ABS, 2012a), unemployment data from the Department of Employment (DoE, 2016), health statistics from Queensland Health (2014), and 2011 Census of Population and Housing data (ABS, 2012b).
- Chapter 4 presents an economic impact assessment using Input-Output modelling techniques to assess the economic impacts associated with construction and ongoing activities of the project. This includes the additional economic activity unlocked through increased attraction of major events and visitation. A description of Input-Output modelling and methodology is provided in **Appendix A**. Other socio-economic benefits not captured by Input-Output modelling are also described qualitatively, as well as how the project addresses areas of disadvantage identified in Chapter 3.
- Chapter 5 provides a Cost Benefit Analysis (CBA) of the project, examining the benefits and costs of the project and outlining the net benefit to the regional economy. A description of the CBA methodology is provided in **Appendix B**.
- Chapter 6 presents an analysis of the capacity of Council to deliver the project, outlining the anticipated implications to Council's operating budget as a result of the project.

2. Project Description

2.1 Description of Project

The Fraser Coast Sports Precinct (the project) is proposed to be developed on two adjoining, Council owned parcels of land in Nikenbah, on the corner of Woods Road and Road 477. The project will be developed over multiple stages, to meet demand for sporting facilities in the longer term.

The first phase of development (for which funding is currently being sought) will include Stage 1 of the overall Fraser Coast Sports Precinct, and will incorporate the following elements:

- Upgrades to Woods Road to cater for the development of the project.
- External water, sewerage and other infrastructure to service the site.
- Bulk earthworks for the entire site.
- Construction of twelve concrete based netball courts and associated sport specific infrastructure (including lighting, drainage, seating, etc.).
- Construction of eight football (soccer) fields and associated sport specific infrastructure (including lighting, drainage, seating, etc.).
- Construction of two satellite hubs to service each of the abovementioned sports. Each hub includes kiosk, first aid room, umpires room, club room, change rooms and amenities (both team and public).
- Construction of internal roads, lighting, carparking, landscaping, shade shelters, play equipment, etc.

Following completion of Stage 1, subsequent stages of development are expected to include construction of:

- Eight additional netball courts and associated sport specific infrastructure (including lighting, drainage, seating, etc.).
- Two additional football (soccer) fields and associated sport specific infrastructure (including lighting, drainage, seating, etc.).
- 20 tennis courts and associated sport specific infrastructure (including lighting, drainage, seating, etc.).
- Four full sized and one half-sized rugby league fields and associated sport specific infrastructure (including lighting, drainage, seating, etc.).
- Two AFL fields, including one premier fields designed to cater to higher level AFL and rugby league, including grassed viewing mounds and associated sport specific infrastructure (including lighting, drainage, seating, etc.).
- Two synthetic turf and three grass hockey fields and associated sport specific infrastructure (including lighting, drainage, seating, etc.).
- Hervey Bay Police Citizens Youth Club (PCYC)/ basketball facility.
- An athletics track.
- A clubhouse.
- Additional satellite hubs to service the sports and fields, including kiosk, first aid room, umpires room, club room, change rooms and amenities (both team and public).
- Additional internal roads, lighting, car-parking, landscaping, shade shelters, play equipment, etc.

Subsequent stages may also include a clubhouse, an indoor stadium, as well as a grandstand for one of the AFL fields (Premier Field).

Stage 1 of the project (for which funding is currently being sought) has planned construction activity worth a combined total of $18.9 million, with construction activity anticipated to occur from mid-2016 to March 2019 (FCRC, 2016; Engineers Plus,

unpublished[2]). Subsequent stages of development are expected to cost between approximately $16 million and approximately $35 million (average of $25.5 million used in this assessment, for a combined project cost of $44.4 million), with stages to be spaced over a number of years (FCRC, 2013; Engineers Plus, unpublished[1]).

2.2 What Will the Project Deliver?

The project will deliver a major sporting precinct in the Fraser Coast providing suitable capacity and playing fields/ surfaces, as well as ancillary amenities and facilities, to meet the needs of local/ regional sporting teams, as well as regional, state and national sports events, competitions and carnivals (such as Masters Games, state championships, etc.).

The precinct will be a cohesive sporting complex offering over 60 fields and playing surfaces for a wide range of sporting codes, including football (soccer), AFL, rugby league/ union, hockey, netball, tennis, touch football, Oz tag, Athletics, PCYC and Basketball. The Fraser Coast Sports Precinct will result in an increase in amenity of users through the provision of higher quality sporting facilities and playing surfaces, and will encourage and enable higher rates of sporting participation through enhanced user amenity as well as greater capacity and supply to meet the needs of the catchment area's growing population.

The high quality nature of the Fraser Coast Sports Precinct, combined with the capability of holding multiple sporting games at once across a range of sporting codes, is also expected to attract major sporting events and carnivals that would otherwise not be attracted to the catchment area.

2.3 Geographic Reach of the Project

The Fraser Coast Sports Precinct is designed to be a regional level sports facility capable of servicing major sporting needs across a large catchment area, encompassing the local government areas (LGAs) of Fraser Coast, Bundaberg, Gympie and North Burnett. This is expected to represent the primary catchment for the Sports Precinct, and is hereafter referred to as the Fraser Coast Sports Precinct catchment area (or FCSP Catchment).

3. Areas of Disadvantage & Project Need

3.1 Areas of Disadvantage

3.1.1 SEIFA

The Fraser Coast Sports Precinct catchment area is an area of high disadvantage. This is highlighted by each of the LGAs:

- Recording an index score for relative socio-economic advantage and disadvantage (IRSAD)[1] considerably lower than the national average in 2011 (where an index score of 1,000 represents the national average).
- Being ranked in the bottom quintile of LGAs in Australia in terms of IRSAD (where the bottom quintile includes LGAs ranked between 1 and 113 of the 564 LGAs examined across Australia).

Table 3.1 provides a summary of IRSAD scores and rank for each LGA in the catchment area in 2011 (ABS, 2012a), and highlights the LGA of Fraser Coast in particular is highly disadvantaged. The table also shows that each of the four LGAs recorded more than half its population within the first quintile (i.e. lowest and most disadvantaged quintile) of IRSAD, and more than 80% of population within the bottom two quintiles.

Table 3.1. Index of Relative Socio-Economic Advantage and Disadvantage

Local Government Area (LGA)	Index Score	LGA Rank (in Australia)	% of Population in First Quintile (0% to 20% of values)	% of Population in Second Quintile (21% to 40% of values)
Bundaberg	916.9	102	52.9%	30.8%
Fraser Coast	908.5	81	60.9%	23.9%
Gympie	915.6	98	51.8%	31.3%
North Burnett	917.1	104	65.6%	19.3%

Note: The LGA Rank represents a rank out of 564 LGAs across Australia, with a rank of 1 representing the lowest ranked LGA for relative socio-economic advantage and disadvantage and a rank of 564 representing the highest ranked LGA for relative socio-economic advantage and disadvantage. A lower index score and rank indicates the areas is relatively disadvantaged compared to an area with a higher score.
Source: ABS (2012a).

3.1.2 Other Relevant Measures of Disadvantage

3.1.2.1 Unemployment

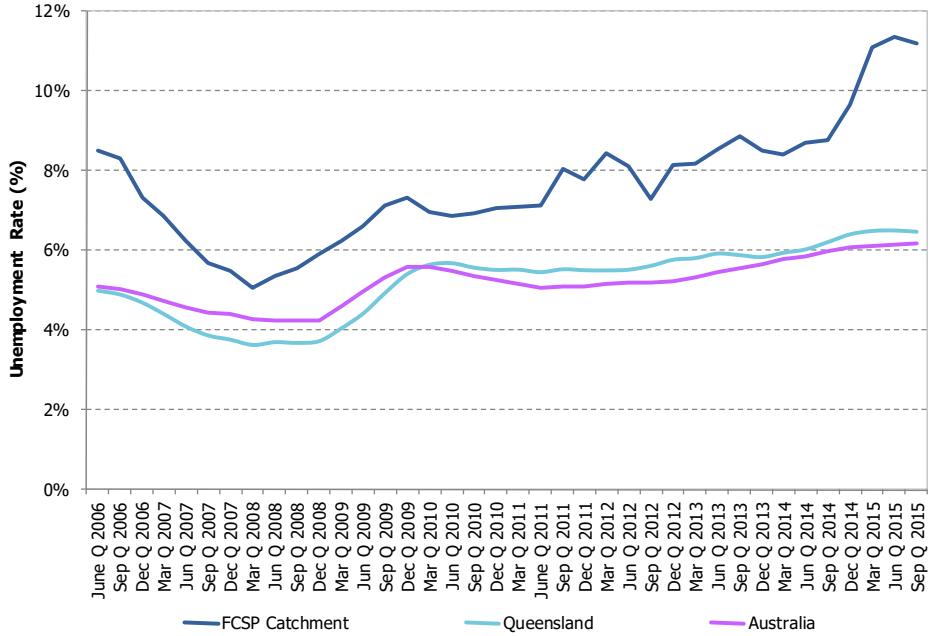
The Fraser Coast Sports Precinct catchment area has consistently recorded an unemployment rate well above the Queensland and national average since June 2006. The unemployment rate in this catchment area has increased sharply since the end of 2014, and in the September Quarter 2015 was as high as 11.2%. By comparison, Queensland recorded an unemployment rate of 6.5% and the national unemployment rate was 6.2% for the same quarter.

High levels of unemployment are particularly prevalent in the LGAs of Fraser Coast (12.2% in the September Quarter 2015), Bundaberg (11.1%) and Gympie (10.5%).

The considerable difference in unemployment rates for the Fraser Coast Sports Precinct catchment area compared to Queensland and Australia highlights considerable issues in the area in terms of finding and securing work. Existing job opportunities are not sufficient to meet the demand and skills of the local population, and the availability of suitable work has declined considerably over the past 12 months.

[1] The ABS (2012a) broadly defines relative socio-economic advantage and disadvantage in terms of people's access to material and social resources, and their ability to participate in society. It includes measures/ indicators of both advantage and disadvantage to develop a composite score of the relative overall advantage/ disadvantage of a region.

Figure 3.1. Unemployment Rate, Fraser Coast Sports Precinct Catchment Area



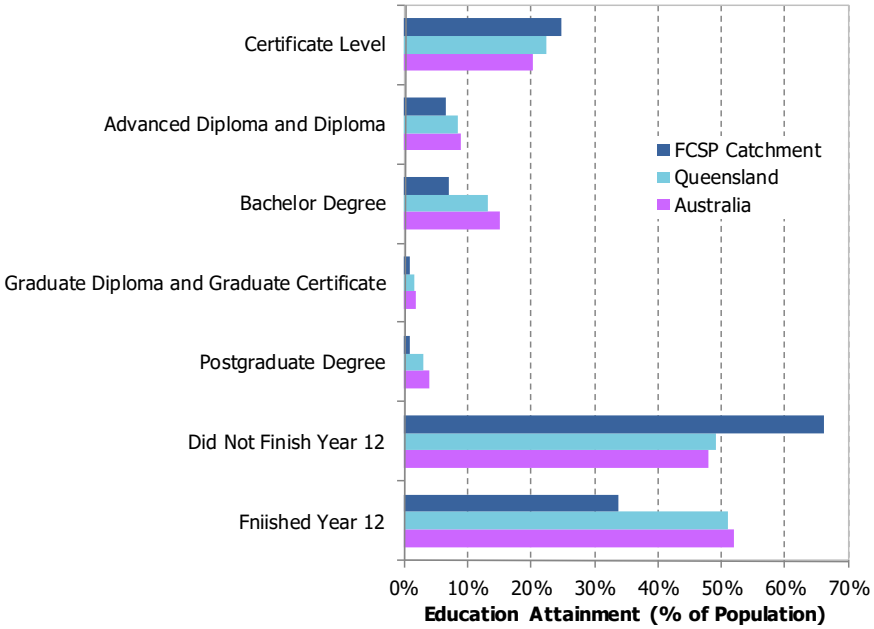
Note: FCSP Catchment = Fraser Coast Sports Precinct Catchment Area, including the LGAs of Bundaberg, Fraser Coast, Gympie and North Burnett.
Source: DoE (2016).

3.1.2.2 Education Attainment

Education attainment in the Fraser Coast Sports Precinct catchment area is well below both Queensland and Australian averages. Approximately one third of all residents of the Fraser Coast Sports Precinct catchment area aged 15 years or older had completed year 12 school education in 2011, compared to more than 50% in both Queensland and Australia.

Residents of the Fraser Coast Sports Precinct catchment area were also less likely to have attained all types of post school qualifications with the exception of Certificate level qualifications.

Figure 3.2. Level of Education Attainment, Fraser Coast Sports Precinct Catchment Area, 2011 (People Aged 15 Years and Over)



Note: FCSP Catchment = Fraser Coast Sports Precinct Catchment Area, including the LGAs of Bundaberg, Fraser Coast, Gympie and North Burnett.
Source: ABS (2012b).

3.1.2.3 Household Incomes

Household incomes in the Fraser Coast Sports Precinct catchment area are well below household incomes in Queensland and Australia on average. In 2011, the average weekly household income in the Fraser Coast Sports Precinct catchment area of $1,086 was approximately 30% below the state and national averages.

Low household incomes, combined with high joblessness and low education attainment, reflect a region that is highly disadvantaged in terms of economic resources to be actively and productively engaged in the community.

Table 3.2. Average Weekly Household Income, 2011

Local Government Area (LGA)	Weekly Household Income ($)
Bundaberg	$1,130
Fraser Coast	$1,058
Gympie	$1,063
North Burnett	$1,063
FCSP Catchment	**$1,086**
Queensland	**$1,547**
Australia	**$1,570**

Note: The average weekly household income was estimated by multiplying the number of respondents in each income category by the mid-point income of the category, and dividing the sum by total respondents.
Source: ABS (2012b).

3.1.2.4 Health

The Chief Health Officer's Report 2014 (Queensland Health, 2014) outlines the Wide Bay-Burnett region (of which the Fraser Coast Sports Precinct catchment area forms part of) recorded considerably higher rates of hospitalisation than the Queensland average (41,242 hospitalisations per 100,000 people compared to 39,089 in Queensland).

High rates of disease and illness increase the economic burden on society (e.g. through treatment costs, health system pressures and lost economic productivity of the individual) while also reducing the individual's wellbeing and quality of life.

Table 3.3. Hospitalisation Rates for Selected Conditions by Hospital and Health Service (HHS) and Queensland, 2009-10 to 2011-12

Cause	Rate per 100,000 People	
	Wide Bay-Burnett	Queensland
All Causes	**41,242**	**39,089**
Potentially Preventable Hospitalisations		
PPH - Acute	1,664	1,493
PPH - Chronic	1,586	1,394
PPH - Vaccine Preventable	60	84
Total PPHs	3,299	2,956
Specific Conditions		
Chronic Obstructive Pulmonary Disease (COPD)	350	274
Diabetes	267	246
Coronary Heart Disease	927	688
Road Transport Injury	305	236
Stroke	315	242
Pneumonia and Influenza	382	330
Asthma	163	164
Mental and Behavioural Disorders	916	1,583
Falls 65+	2,761	2,720

Source: Queensland Health (2014).

The Chief Health Officer's Report 2014 (Queensland Health, 2014) identifies that achieving good health means not just treating the illness or disease, but also preventing disease and proactively encouraging and helping people to make healthy choices. The positive impact

of participation in sport and active recreation on physical health and wellbeing is well documented, including benefits in terms of a reduction in burden of disease. The gross healthcare savings that could be achieved through increased physical activity has been estimated to be as high as $1.49 billion per year in Australia, and productivity gains as high as 1% of Gross Domestic Product (Frontier Economics, 2009).

The Australian Sports Commission (2015) outline that sport is a contributor to health, both physically and mentally, and reduces the incidence of chronic disease. They estimate a financial benefit to Australia of $434 million to the economy if physical inactivity could be reduced by 15% by 2018. With approximately 3.5 million adults assessed as "physically inactive" in 2011-12 (ABS, 2013), a reduction in physical inactivity of 15% equates to a benefit of approximately $835 per person.

In particular, risk factors for diabetes, coronary heart disease and stroke, all of which recorded higher rates of hospitalisation in Wide Bay-Burnett than in Queensland, can be lowered through regular physical activity.

The Australian Bureau of Statistics (ABS, 2013) undertook a survey of the Australian population regarding participation in physical activity and individual's health status. The survey found that adults in the least disadvantaged quintile were 1.5 times more likely to have met the "sufficiently physically active" threshold[2] (with 52% of respondents in this quintile sufficiently active) compared with those in the most disadvantaged quintile (34% of respondents in this quintile were sufficiently active).

3.2 Other Issue(s)/ Need(s) to be Addressed

As part of the Master Plan for the Fraser Coast Sports Precinct (FCRC, 2013), major sporting groups active in the Fraser Coast were surveyed regarding changes in membership over the past three years, the impediments to future growth, satisfaction with existing sporting facilities, and needs/ priorities for future facilities. The survey found:

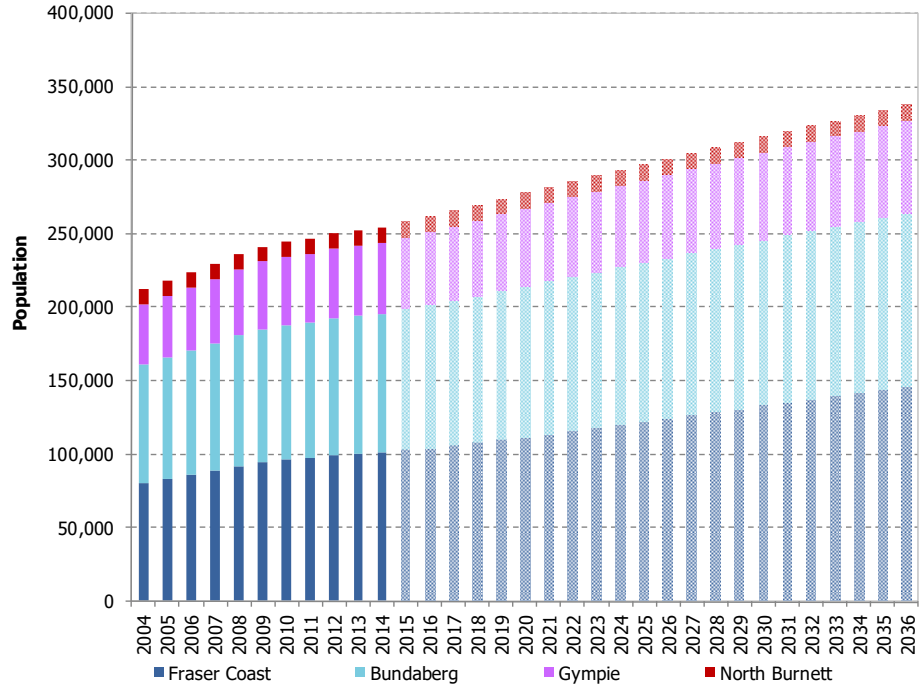
- Most local sporting clubs had experienced considerable growth in membership over the past three years.
- Key impediments to future growth identified by sporting clubs typically referred to inadequate facilities for specific uses and/ or insufficient sporting facility capacity available to meet future growth.
- Key priorities for future facilities were typically based around meeting the key impediments to growth, and included increased capacity/ additional fields, higher quality sporting fields/ playing surfaces, as well as lighting, clubhouse, change room, parking and other ancillary requirements to facilitate high volume usage.

Survey responses outlined in the Master Plan also identify the Fraser Coast can encounter difficulties in attracting major national, state or regional sporting competitions and events, primarily due to inadequate facilities to host such events.

In addition to the existing needs for additional and enhanced sporting facilities, Fraser Coast (and the surrounding region) will require additional sporting fields and playing surfaces to meet the demands of a growing population into the future. Fraser Coast's population is projected to grow by approximately 45,000 people between 2014 and 2036, while the Fraser Coast Sports Precinct's broader catchment area is projected to grow by approximately 83,500 people (Figure 3.3).

[2] The "sufficiently physically active" threshold for adults was based on the National Physical Guidelines for Australian adults, which recommends at least 30 minutes of moderate intensity physical activity on most, preferably all, days. This was translated to a measure of at least 150 minutes of moderate (or vigorous) physical activity over five or more sessions per week.

Figure 3.3. Fraser Coast Sports Precinct Catchment Area, Historic and Projected Population



Sources: ABS (2015a), Queensland Government (2014).

4. Economic Impact Assessment

4.1 Approach

Economic modelling in this section estimates the economic activity supported by construction and operational activity of the project. Input-Output modelling is used to examine the direct and flow-on[3] activity expected to be supported within the regional economy (geography examined are outlined in section 4.2). Modelling drivers used in the assessment are described in section 4.3. A description of the Input-Output modelling framework used is provided in **Appendix A**.

Input-output modelling describes economic activity by examining four types of impacts:

- **Output**: Refers to the gross value of goods and services transacted, including the costs of goods and services used in the development and provision of the final product. Output typically overstates the economic impacts as it counts all goods and services used in one stage of production as an input to later stages of production, hence counting their contribution more than once.
- **Value added**: Refers to the value of output after deducting the cost of goods and services inputs in the production process. Value added defines the true net contribution and is subsequently the preferred measure for assessing economic impacts.
- **Income**: Measures the level of wages and salaries paid to employees of the industry under consideration and to other industries benefiting from the project.
- **Employment**: Refers to the part-time and full-time employment positions generated by the economic stimulus, both directly and indirectly through flow-on activity, expressed in full time equivalent (FTE) positions[4].

The modelling examines the impacts for Stage 1 of the project (for which funding is currently being sought), as well as for the aggregate impact across all stages of the project.

4.2 Geographic Scope

The impact assessment examines the economic impacts of the Fraser Coast Sports Precinct across a catchment area encompassing the local government areas (LGAs) of Fraser Coast, Bundaberg, Gympie and North Burnett. This is expected to represent the primary catchment for the Sports Precinct.

4.3 Model Drivers

4.3.1 Construction Phase

Stage 1 of the project has planned construction activity worth a combined total of $18.9 million, with construction activity anticipated to occur between mid-2016 and March 2019. Subsequent stages of development are expected to cost between approximately $16 million and approximately $35 million (average of $25.5 million used in this assessment, for a combined project cost of $44.4 million), with stages to be spaced over a number of years.

For the purposes of modelling and clarity of reporting, the construction phase has been examined in terms of economic activity supported overall rather than on an annual basis. A breakdown of development costs is presented below.

For modelling purposes, the capital outlay for the project was disaggregated into relevant industries represented in the Input-Output model (based on the Australian and New Zealand Standard Industrial Classification (ANZSIC) categories). A summary of

[3] Both Type I and Type II flow-on impacts have been presented in this report. Refer to **Appendix A** for a description of each type of flow-on impact.

[4] Where one FTE is equivalent to one person working full time for a period of one year.

expenditure for development of the project is outlined in the table below, broken down by relevant industry.

Table 4.1. Construction Costs by Industry

Industry	Stage 1 ($M)	Total ($M)
Heavy and Civil Engineering Construction	$13.22	$31.07
Construction Services	$3.78	$8.88
Electrical Equipment Manufacturing	$0.76	$1.78
Professional, Scientific and Technical Services	$1.13	$2.66
Total	**$18.88**	**$44.38**

Note: Totals may not equal the sum of individual items due to rounding.
Source: FCRC (2016), FCRC (2013), Engineers Plus (unpublished[1] and unpublished[2]), AEC.

Of the above capital outlay, not all activity will be undertaken within the catchment area economy. For example, some professional services and marketing activities are likely to be sourced from major capital cities/ interstate.

The following table outlines assumptions used in the modelling to identify where relevant activity is anticipated occur.

Table 4.2. Location of Construction Phase Activity by Industry

Industry	Catchment Area
Heavy and Civil Engineering Construction	100%
Construction Services	100%
Electrical Equipment Manufacturing	25%
Professional, Scientific and Technical Services	50%

Source: FCRC (2016), FCRC (2013), Engineers Plus (unpublished[1] and unpublished[2]), AEC.

In interpreting the above table, it is important to recognise the location of where activity occurs can differ from where the labour or services used to undertake the activity are sourced from. For example, construction activity will (effectively) all occur on site. However, it may be that some labour and services will reside outside of the catchment area.

The following table outlines the assumptions used in the modelling regarding the location where goods and services are sourced.

Table 4.3. Source of Construction Phase Activity by Industry

Industry	Catchment Area
Heavy and Civil Engineering Construction	75%
Construction Services	75%
Electrical Equipment Manufacturing	25%
Professional, Scientific and Technical Services	50%

Source: FCRC (2016), FCRC (2013), Engineers Plus (unpublished[1] and unpublished[2]), AEC.

In undertaking economic modelling, the direct activity associated with the construction phase is based on where activity occurs (Table 4.2) rather than strictly where labour for these services is sourced from (Table 4.3). However, the amount of activity that is retained in the local economy is best considered in terms of where labour, goods and services are sourced, rather than where the activities they undertake are located. This refers to a 'retention' of incomes and profits within an economy, and reflects that labour and companies sourced from outside the catchment area economy are more likely to spend incomes earned within their local area than within the catchment area.

For the purposes of modelling, it has been assumed construction companies and sub-contractors sourced from outside the catchment area will contribute approximately one quarter (25%) of the level of Type I (production induced) flow-on activity within the economy that a locally sourced company does, and approximately 5% of Type II (consumption induced) flow-on activity. This reflects that construction companies working on site but sourced from outside the catchment area will contribute to local supply chains

in terms of sourcing some goods and services they require locally (Type I), as well as spending some wages and salaries locally on items such as food and drink (Type II).

4.3.2 Operations Phase

Additional activities anticipated to be observed following the delivery of this project on an ongoing annual basis as a result of its operation are outlined below.

Facility Operation

Operational costs, including maintenance and repair, of the Fraser Coast Sports Precinct are expected to be partially offset by a reduced requirement for ongoing maintenance and repairs at other sports grounds in Fraser Coast, as a number of local sports teams are expected to relocate to the new precinct.

Overall it has been assumed the net increase in operational costs for Council will be approximately 0.5% of total capital expenditure, per annum. For Stage 1, this equates to a net increase in annual operating expenditure of around $100,000. Once all stages are fully developed, this equates to a net increase in an annual operating expenditure of around $220,000 per annum.

Induced Visitor Spend

The high quality nature of the Fraser Coast Sports Precinct, combined with the capability of holding multiple sporting games at once across a range of sporting codes, is expected to attract major sporting events and carnivals that would otherwise not be attracted to the catchment area. A list of potential future events and carnivals that could reasonably be expected to be attracted and hosted at the facility at full development (i.e. all stages) is provided in **Appendix C**, including estimation of the number of visitors these events may attract to the region.

The table below outlines the proportion of total visitation estimates in **Appendix C** that are assumed to be captured by Stage 1, with full visitor capture occurring once all stages of development are complete. In estimating the proportion of visitors attracted by Stage 1, visitors have been apportioned based on the proportion of development across each sporting component completed during Stage 1, and applied to visitor estimates for each sporting component.

Table 4.4. Proportion of Total Induced Visitation by Stage

Sport	Stage 1	All Stages
Hockey	0%	100%
AFL	0%	100%
Football (Soccer)	80%	100%
Rugby League	0%	100%
Netball	60%	100%
Basketball	0%	100%
Touch Football	25%	100%
Oz Tag	25%	100%
Combined	**25%**	**100%**

Source: FCRC (unpublished), AEC.

Data from Tourism Research Australia's National Visitor Survey was used to identify the average expenditure per visitor by expenditure item for domestic overnight visitors in the 2014-15 financial year (TRA, 2016). Some exclusions of expenditure items were made (e.g. expenditure on domestic airfares as this would likely be made outside the relevant economies). Average expenditure estimates per person by expenditure item were rounded to the nearest $5, and are summarised in Table 4.5.

Table 4.5. Average Expenditure per Visitor by Expenditure Item

Industry	Overnight Visitors
Tours	$25
Rental vehicles	$15
Petrol	$70
Taxi and local public transport	$15
Accommodation	$165
Food and drink	$180
Shopping / gifts /souvenirs	$55
Entertainment	$20
Gambling	$5
Total	**$550**

Source: TRA (2016), AEC.

4.4 Model Results

4.4.1 Construction Phase

It is estimated the $18.9 million capital investment for Stage 1 of the project will directly deliver $13.5 million in industry output for businesses in the catchment area in total between mid-2016 and March 2019, with a further $15.9 million supported through flow-on activity.

A total of $13.1 million in gross value added (GVA) activity is estimated to be supported within the catchment area economy during Stage 1 of the construction phase in total. Around 83 FTE jobs for workers in the catchment area are estimated to be supported as a result of Stage 1 construction, providing $6.7 million in wages and salaries.

Across all stages of construction, a total of $30.7 million in GVA activity is estimated to be supported during construction, supporting 195 FTE jobs and paying $15.7 million in wages and salaries.

A summary of economic activity supported in the catchment area by the project in aggregate during Stage 1 construction (mid-2016 to March 2019) and for all stages of construction is provided in the table below. Note the impacts for all stages includes the impacts during Stage 1.

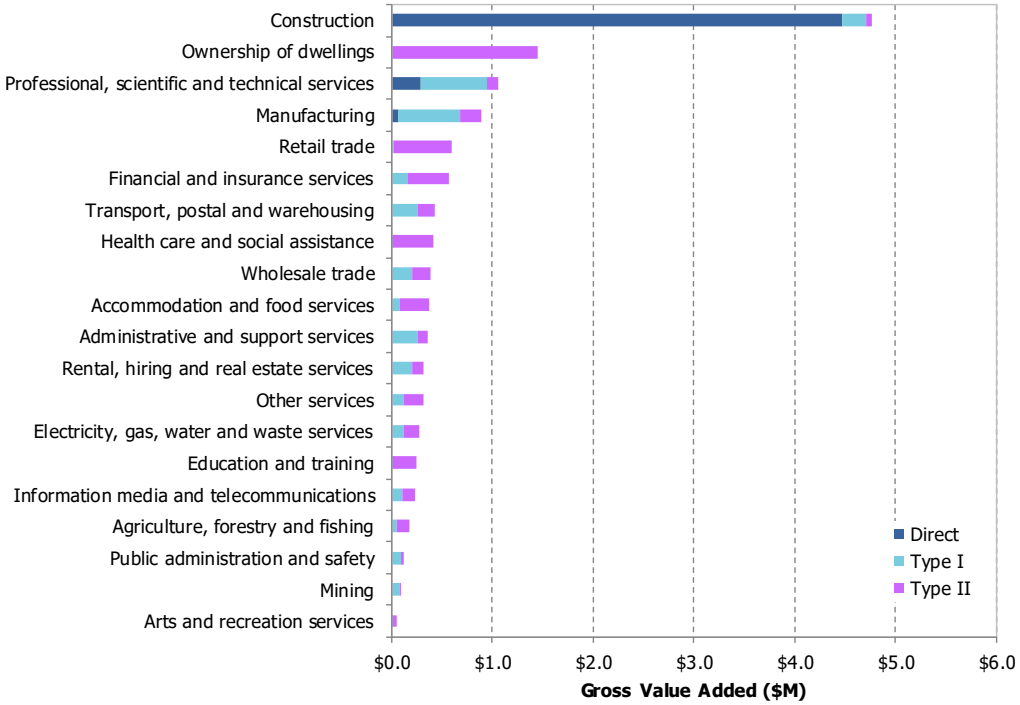
Table 4.6. Economic Activity Supported by Construction Phase, Stage 1 and Total, Catchment Area

Stage/ Impact	Output ($M)	Gross Value Added ($M)	Incomes ($M)	Employment (FTEs)
Stage 1				
Direct	$13.5	$4.8	$2.6	27
Type I Flow-On	$7.3	$3.2	$1.9	24
Type II Flow-On	$8.6	$5.0	$2.1	32
Total	**$29.4**	**$13.1**	**$6.7**	**83**
All Stages Total				
Direct	$31.7	$11.4	$6.2	63
Type I Flow-On	$17.2	$7.6	$4.5	56
Type II Flow-On	$20.2	$11.7	$5.0	76
Total	**$69.2**	**$30.7**	**$15.7**	**195**

Note: Totals may not sum due to rounding.
Source: ABS (2015b), ABS (2016), ABS (2012), FCRC (2016), FCRC (2013), Engineers Plus (unpublished[1] and unpublished[2]), AEC.

A breakdown of GVA supported by industry in the catchment area economy during Stage 1 of construction (mid-2016 to March 2019 in aggregate) is outlined in Figure 4.1 below. More than $4.5 million in GVA activity is estimated to be supported in the catchment area's construction industry during construction. Over $1.0 million in GVA is also estimated to be supported in the sector of ownership of dwellings and the industry of professional, scientific and technical services.

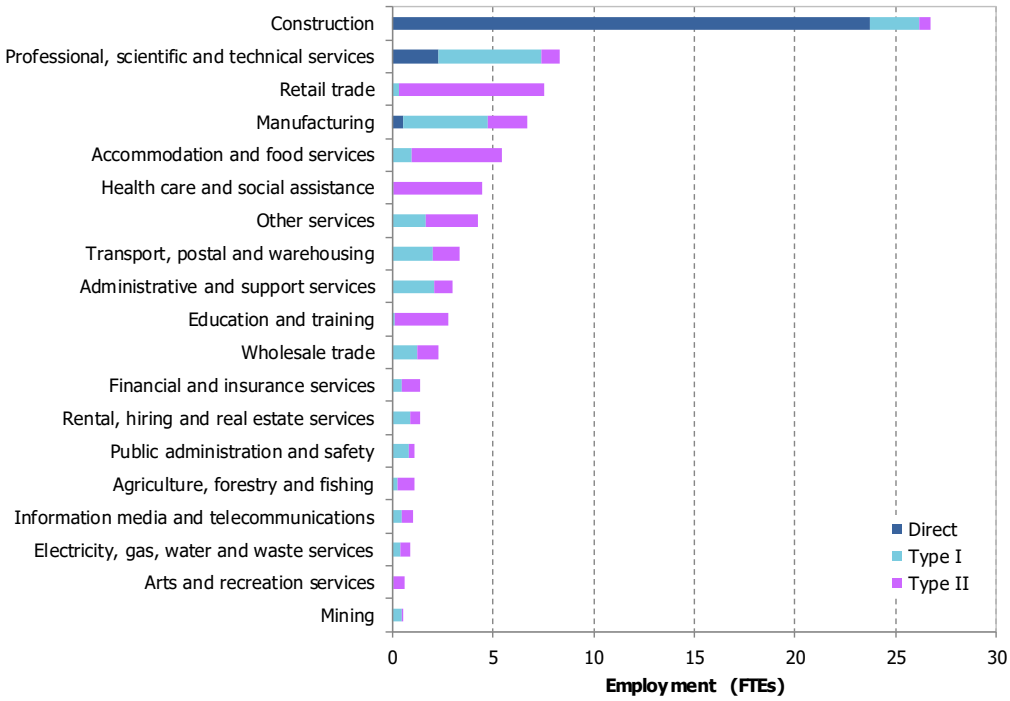
Figure 4.1. GVA Supported by Industry, Stage 1 Construction Phase, Catchment Area ($M)



Source: ABS (2015b), ABS (2016), ABS (2012), FCRC (2016), FCRC (2013), Engineers Plus (unpublished[1] and unpublished[2]), AEC.

A breakdown of FTE employment supported by industry during Stage 1 of construction is presented in Figure 4.2. The construction industry is estimated to have around 27 FTE jobs supported within the catchment area during Stage 1 of construction of the project (mid-2016 to March 2019 in aggregate).

Figure 4.2. Employment Supported by Industry, Stage 1 of Construction Phase, Catchment Area (FTEs)



Source: ABS (2015b), ABS (2016), ABS (2012), FCRC (2016), FCRC (2013), Engineers Plus (unpublished[1] and unpublished[2]), AEC.

4.4.2 Operations Phase

Operational activity associated with Stage 1 of the project, as well as expenditure of visitors attracted to the catchment area specifically to attend major events and carnivals held at the Sports Precinct that would otherwise not be expected to occur in the catchment area, is estimated to directly produce industry output of around $5.5 million within the catchment area economy on average each year once in steady state operations, and directly support around 34 FTE jobs per annum in the catchment area economy.

Economic modelling indicates this level of direct activity would support $11.8 million per annum on average in total industry output for businesses in the catchment area once in steady state operations (including direct and flow-on activity), and $6.3 million in gross value added (GVA) activity in the catchment area's economy. Approximately 57 FTE jobs per annum on average are estimated to be supported by Stage 1 once in steady state operations (including both direct and flow-on activity), paying around $3.3 million in wages and salaries to workers in the catchment area.

Once all stages are developed and in steady state operations, the Fraser Coast Sports Precinct is estimated to support a total of $25.0 million per annum on average in GVA activity within the catchment area (including direct and flow-on impacts), supporting 228 FTE jobs per annum and paying $13.0 million per annum in wages and salaries.

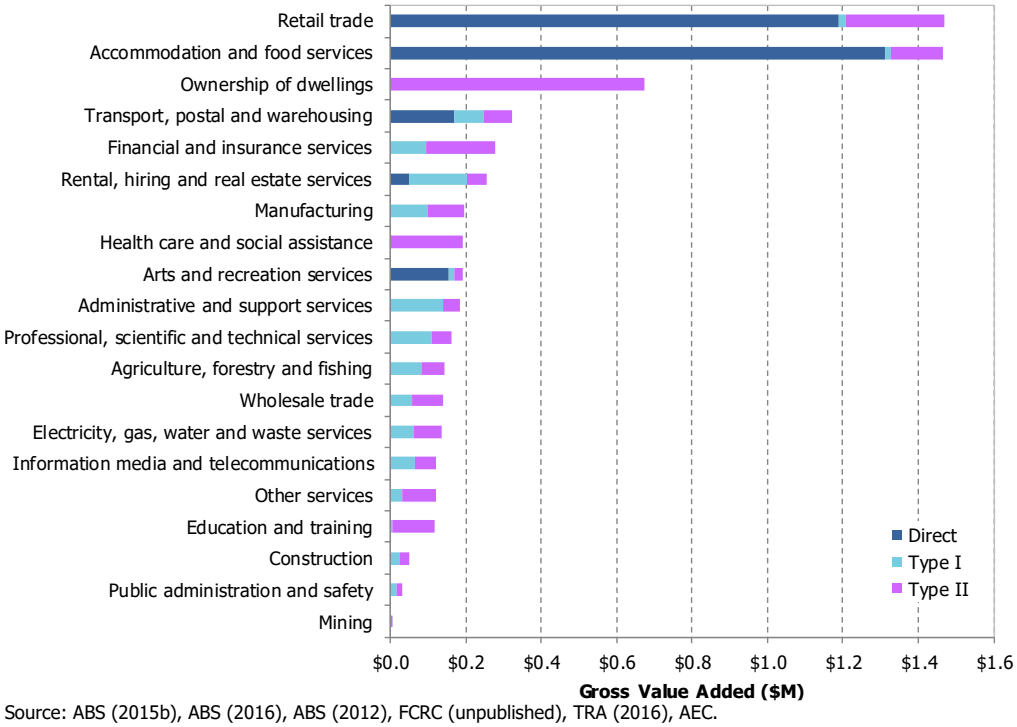
Table 4.7. Economic Activity Supported by Operations Phase, Annual Average, Catchment Area

Stage/ Impact	Output ($M)	Gross Value Added ($M)	Incomes ($M)	Employment (FTEs)
Stage 1				
Direct	$5.5	$2.9	$1.7	34
Type I Flow-On	$2.3	$1.1	$0.6	8
Type II Flow-On	$4.0	$2.3	$1.0	15
Total	**$11.8**	**$6.3**	**$3.3**	**57**
All Stages Total				
Direct	$22.0	$11.5	$6.9	137
Type I Flow-On	$9.1	$4.2	$2.2	31
Type II Flow-On	$15.9	$9.2	$3.9	60
Total	**$47.0**	**$25.0**	**$13.0**	**228**

Note: Totals may not sum due to rounding.
Source: ABS (2015b), ABS (2016), ABS (2012), FCRC (unpublished), TRA (2016), AEC.

A breakdown of average annual GVA by industry supported by Stage 1 once in steady state operations in the catchment area economy is outlined in Figure 4.3. More than $1.4 million in GVA activity is estimated to be supported in the catchment area industries of retail trade and accommodation and food services, as a result of induced visitor expenditure.

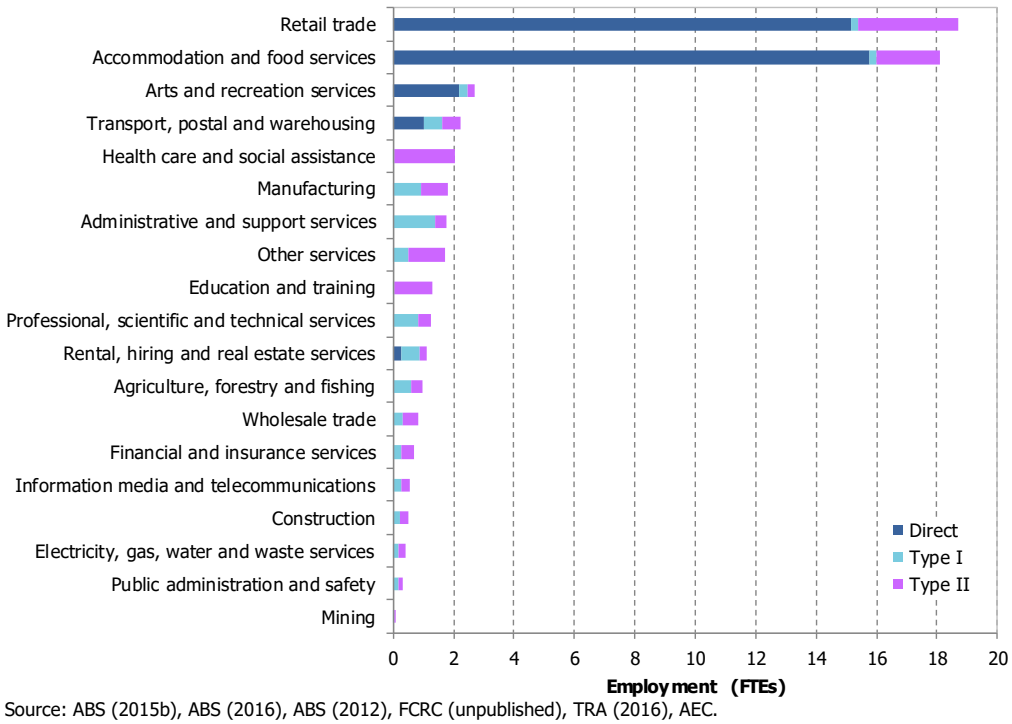
Figure 4.3. GVA Supported by Industry, Annual Average from Stage 1 Operations, Catchment Area ($M)



Source: ABS (2015b), ABS (2016), ABS (2012), FCRC (unpublished), TRA (2016), AEC.

The vast majority of employment supported by steady state operations of Stage 1 in the catchment area will be in the industries of retail trade and accommodation and food services.

Figure 4.4. Employment Supported by Industry, Annual Average from Stage 1 Operations, Catchment Area (FTEs)



Source: ABS (2015b), ABS (2016), ABS (2012), FCRC (unpublished), TRA (2016), AEC.

4.5 Other Socio-Economic Benefits

The economic impact assessment above outlines the transactional economic benefits that can be anticipated in the catchment area as a result of the project. However, Input-Output modelling does not appropriately measure less tangible social and community impacts that can be expected to occur. Other key socio-economic benefits of the project that can be expected include:

- **Enhanced Community Pride**: Hosting major sporting events and carnivals at the Fraser Coast Sports Precinct can improve the pride and sense of importance of local (and regional) residents regarding the community and region they live in. It can do so through the following avenues:
    - Providing an opportunity for the local and regional residents and community to showcase their talent through major local/ regional sporting events.
    - Increasing awareness of Fraser Coast and the catchment area through hosting major events and carnivals that attract participants and spectators from outside the region. It is an opportunity for residents, businesses and Council to showcase the region and extend the local 'brand', highlighting to broader society why the region is a good place to visit, live and/ or do business.
    - Providing opportunities for locals to experience firsthand high profile athletes through the attraction of major domestic sporting (and other) events to the region (e.g. through pre-season training camps and/ or pre-season games), as well as potential interaction with these role models at the event, functions or autograph signings. This can be an important element to developing and cementing aspirations and goals in local youth.
- **Amenity Benefits for Users**: The project will provide high quality sporting facilities in a consolidated location for use by Fraser Coast and broader regional residents. Aside from the benefits the project will deliver in terms of hosting major events, the high quality facilities and playing surfaces at the precinct, and provision of multiple fields for a number of sporting codes and activities, will provide an enhanced experience for all sporting participants as well as spectators that use the facility. This will result in an amenity benefit for users of the Fraser Coast Sports Precinct.
- **Meet Future Demand**: The Fraser Coast Sport and Recreation Precinct Master Plan (FCRC, 2013) outlines Fraser Coast requires additional and upgraded sporting facilities to meet the needs of sporting facility users as well as those of a growing population into the future. The Fraser Coast Sports Precinct represents a significant sport and recreation precinct providing high quality sporting facilities that meet the needs of the local and regional population.

4.6 How the Project Will Address Disadvantage in the Region

4.6.1 Attraction of Regional Level Events

Investment in a regional scale sporting facility that meets the requirements of regional, state and potentially national sporting events and carnivals is required in order to consistently attract such events to the Fraser Coast and broader region. No other facilities in the catchment area are suitable for hosting such events on a regular basis. Without the project the Fraser Coast Sports Precinct catchment area can be expected to miss out on the range of important economic and community benefits from attraction of major sporting events outlined in sections 4.4 and 4.5, depriving the region's residents of these opportunities and benefits.

4.6.2 Meet the Need for Additional Capacity & High Quality Regional Sporting Facilities

Stage 1 of the project will provide a high quality sporting facility with 12 netball courts and eight football fields, which will assist in catering to both the immediate and future need for increased sports facility capacity, as outlined in section 3.2. This capacity will be greatly increased as further stages of the precinct are developed.

Without the provision of additional capacity and high quality sporting facilities it is likely that participation in sports within the Fraser Coast Sports Precinct catchment area would be constrained. This would be due to issues in scheduling facilities to meet demand as well as lowered amenity of participants as facilities become crowded, degraded through overuse, or are of insufficient quality to cater to higher levels of sporting endeavour.

Constraints on sporting participation can lead to reduced health outcomes of residents (section 4.6.3) as well as reduced socialisation, amenity and general wellbeing.

4.6.3 Reduced Unemployment & Increased Household Incomes

The Fraser Coast Sports Precinct catchment area is an area of high unemployment, considerably above the Queensland and Australian average (section 3.1.2.1). Stage 1 of the project are estimated to generate 83 FTE jobs during construction and 57 FTE ongoing jobs once operational within the catchment area (section 4.4). At full development, the project is estimated to employ 195 FTEs during construction and 228 FTEs once operational.

While the employment supported specifically by the project would represent only a small reduction in the overall unemployment rate in the Fraser Coast Sports Precinct catchment area, new projects such as the Fraser Coast Sports Precinct that provide job opportunities for the local population are essential to meeting job needs of the existing and future population of the region.

The jobs supported by the project will also provide much needed incomes for local households, with an estimated $6.7 million in wages and salaries projected to be paid during construction of Stage 1, and $3.3 million in wages and salaries paid each year during operation for these stages (section 4.4). This will increase as further stages are developed.

4.6.4 Improved Health Outcomes

Undertaking regular physical activity is recognised as an important component of preventing a range of illnesses and diseases and improving health outcomes. Provision of appropriate facilities and services for undertaking physical activity is critical to encouraging higher rates of participation in physical activity within the Fraser Coast Sports Precinct catchment area and thereby improving health outcomes of local residents.

As outlined in section 3.1.2.4, there is a relationship between lower socio-economic status and reduced participation in physical activity. Each of the LGAs within the Fraser Coast Sports Precinct catchment area recorded more than half its population within the most disadvantaged quintile (section 3.1.1), highlighting the greater risk for residents in this catchment area to be insufficiently active for the purposes of improving or maintaining health.

SEIFA indexes (ABS, 2012a) applied to 2014 estimated resident population (ABS, 2015a) indicate there are approximately 214,000 residents in the Fraser Coast Sports Precinct catchment area in the first and second quintiles for disadvantage (section 3.1.1). Data from the Australian Bureau of Statistics' Australian Health Survey (ABS, 2013) suggests, based on national averages, this number of people in the first and second quintiles could correspond to approximately 54,800 people that are physically inactive within these two quintiles for disadvantage. Approximately 7,200 residents in the less disadvantaged quintiles are also estimated to be physically inactive based on national averages.

A lifetime financial benefit of $835 per person is estimated for reducing physical inactivity in the Australian population (section 3.1.2.4). A 5% reduction in physical inactivity in the Fraser Coast Sports Precinct catchment area is thereby estimated to provide a lifetime financial benefit of approximately $2.6 million through improved health outcomes. This includes benefits in terms of improved productivity and reduced burdens to health care.

4.6.5 Improved Education Outcomes

A range of literature has identified the positive effects of sport and recreation on cognitive function and academic performance, and are summarised in the Western Australian Government's "More than Winning" (WA Government, 2009). Studies have shown there is a positive link between academic performance and sports participation particularly in children.

The Fraser Coast Sports Precinct is expected to be used by a range of schools in the region for a variety of events and carnivals, and will also be a key sporting facility for both junior and senior sporting clubs throughout the year. Importantly, the Hervey Bay PCYC has confirmed their intention to relocate to the Fraser Coast Sports Precinct. This will increase the capacity for the precinct to engage the catchment area's children, with approximately 20,000 children attending the Hervey Bay PCYC during Before and After School Care and Vacation Programs. Location at the precinct will provide these children with the opportunity to participate in organised sporting activities for afternoon training and other organised or ad-hoc sports and recreation activities.

Given the Fraser Coast Sports Precinct catchment area has a very low rate of year 12 schooling completion and post school qualification completion (section 3.1.2.2), the provision of a high quality sports facility is likely to be of considerable benefit in the region in terms of improving education attainment.

Research by the OECD (2010) examining standardised Programme for International Student Assessment (PISA) test scores[5] against economic performance over 40 years across 23 OECD countries (including Australia), found that a one standard deviation increase in PISA scores (which equates to 100 points on the PISA scale) correlates with a 1.74 percentage point increase in Gross Domestic Product (GDP) growth. The Fraser Coast Sports Precinct catchment area is estimated to have approximately 39,400 children of school age in 2014 (ABS, 2015c), and to have produced $9.7 billion in Gross Regional Product (GRP) in 2014-15[6]. If just 10% of school children in the Fraser Coast Sports Precinct catchment area improved their PISA test scores by just 10 points, this would equate to a future increase in GRP of approximately $1.7 million per annum through improved academic performance. While there is insufficient research available to identify the exact increase in academic performance that may be achieved through the project, this gives an indication of the quantum of economic benefit that could be achieved through a small increase in academic performance.

4.6.6 Reduced Crime & Anti-Social Behaviour

A number of studies have found sport and recreation can assist in diverting youth from crime and anti-social behaviour, in particular in at-risk youth groups. For example:

- An Australian study by Kempe, Grenside and Lopez in 2003 found a 60% reduction in crime among participants of the Youth in Sport Program (operated by the NSW Department of Sports, Recreation and PCYC) (referenced in WA Government, 2009).
- A study in Canada found programs involving physical activity and recreation helped reduce anti-social behaviour, including a 17% reduction in crime in communities participating in the program (referenced in Morris *et al*, 2003).

While crime rates in the Fraser Coast Sports Precinct catchment area are below the Queensland average[7], there is potential for the project to assist in reducing crime rates and anti-social behaviour through provision of additional opportunities for sport participation. This would only serve to provide an overall benefit to community cohesion and wellbeing within a region of considerable disadvantage.

[5] PISA tests 15-years olds on Reading, Mathematics and Science.

[6] GRP estimates as per AEC's Gross Regional Product Model, 2014-15.

[7] The Fraser Coast Sports Precinct catchment area recorded 78 crimes per 1,000 people in 2013-14, compared to 93 per 1,000 people in Queensland (QPS, 2016).

5. Cost Benefit Analysis

5.1 Method & Approach

This assessment provides an overview of the net economic costs and benefits associated with the project between the financial years ending 30 June 2017 to 30 June 2066. A 50 year analysis has been undertaken to reflect the 10 to 20 year construction period (across all stages) and the long term public benefit such a facility would provide.

All years presented in the cost benefit analysis are for financial years ending June. The costs and benefits have been assessed against three real discount rates (4%, 7% and 10%) with the focus primarily on the standard 7% discount rate.

The geographical scope of the project impact is the Fraser Coast Sporting Precinct Catchment Area (as outlined in section 4.2), encompassing the LGAs of Fraser Coast, Bundaberg, Gympie and North Burnett. Costs and benefits assessed in this analysis relate to this catchment.

There are two scenarios compared in this assessment:

- The base case: which assumes the project does not proceed. The base case assumes no major regional sporting precinct is developed in the catchment area in the foreseeable future that is suitable for hosting and attracting major national, state and regional sporting events/ carnivals, and meeting the sporting needs of the growing catchment area community in one cohesive, high quality sporting precinct. Sporting needs of the catchment area population continues to be met by existing sporting facilities or, as needed, additional local-level facilities.
- The project case: which assumes the project proceeds. The Fraser Coast Sporting Precinct is expected to host major national, state and regional sporting events/ carnivals that would otherwise not be attracted to the catchment area, including potential for pre-season camps and matches for domestic professional sports. The facility is also the region's major sporting precinct for local and regional sporting teams and competitions. The high quality nature of the facility that meets the needs of local sporting teams and participants, combined with attracting major national, state and regional events/ carnivals, is also assumed to act as a catalyst for higher levels of sporting participation in the catchment area.

The cost benefit analysis below provides guidance on the net impact of the project case against the base case.

The cost benefit analysis examines the benefits and costs for Stage 1 of the project, as well as for the overall precinct development in the longer term.

Decision Criteria:

The Net Present Value (NPV) and Benefit Cost Ratio (BCR) will be the primary decision criteria for the economic appraisal. The NPV of a project expresses the difference between the present value (PV) of future benefits and PV of future costs, i.e.: NPV = PV Benefits – PV Costs. The BCR provides the ratio between the PV of benefits and PV of costs, i.e., BCR = PV Benefits / PV Costs.

Where the economic appraisal results in a:

- Positive NPV and BCR above 1: the project will be deemed as being desirable.
- NPV equal to zero and BCR of 1: the project will be deemed neutral (i.e., neither desirable nor undesirable).
- Negative NPV and BCR below 1: the project will be deemed undesirable.

The Internal Rate of Return (IRR), which indicates the discount rate which would return an NPV of $0 and a BCR of 1, is also reported.

Additional details regarding the approach used for this cost benefit analysis is presented in **Appendix B**.

5.2 Quantification & Valuation of Costs & Benefits

5.2.1 Costs

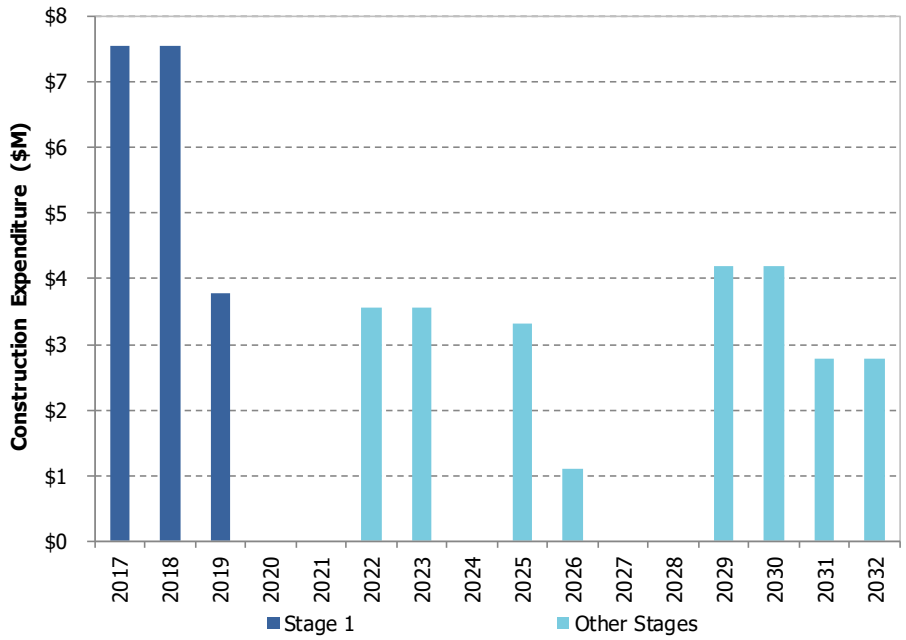
Construction Costs

Stage 1 of the Fraser Coast Sports Precinct (for which funding is currently being sought) are estimated to cost approximately $18.9 million in total (FCRC, 2016; Engineers Plus, unpublished[2]), and are expected to be completed by March 2019. For the purposes of the cost benefit analysis it is assumed:

- 40% ($7.55 million) is spent in the 2016-17 financial year.
- 40% ($7.55 million) is spent in the 2017-18 financial year.
- 20% ($3.78 million) is spent in the 2018-19 financial year (with construction finishing in March 2019).

The overall project development (including all stages) is estimated to cost approximately $44.4 million (FCRC, 2013; Engineers Plus, unpublished[1]). The following figure outlines the assumed timing for construction expenditure.

Figure 5.1. Construction Costs and Timing



Source: FCRC (2016), FCRC (2013), Engineers Plus (unpublished[1] and unpublished[2]), AEC.

Operating Costs

Operational costs, including maintenance and repair, of the Fraser Coast Sports Precinct are expected to be partially offset by a reduced requirement for ongoing maintenance and repairs at other sports grounds in Fraser Coast, as a number of local sports teams are expected to relocate to the new precinct.

Overall it has been assumed the net increase in operational costs for Council will be approximately 0.5% of total (cumulative) capital expenditure per annum.

5.2.2 Benefits

Economic Activity from Induced Visitor Spend

This benefit measures the net additional economic activity within the catchment area resulting from the additional induced visitor expenditure attracted through hosting major sporting events and carnivals at the proposed Fraser Coast Sports Precinct. In measuring this benefit, only the direct activity associated with induced visitor expenditure has been used. The net additional economic activity can be measured as the value added component

of direct visitor expenditure, and Input-Output transaction tables developed for this project (see **Appendix A**) were used to convert visitor expenditure to a value added estimate.

It has also been conservatively assumed that only 50% of the wages and salaries component of value added represents a net economic benefit to the catchment area. This reflects that not all employment supported by direct visitor expenditure would represent net new incomes for residents, and that people employed due to the project that would otherwise be unemployed would still contribute to economic activity without the project.

The high quality nature of the Fraser Coast Sports Precinct, combined with the capability of holding multiple sporting games at once across a range of sporting codes, is expected to attract and host major sporting events and carnivals that would otherwise not be attracted to the catchment area. A list of potential future events and carnivals that could reasonably be expected to be attracted and hosted at the facility at full development (i.e. all stages) is provided in **Appendix C**, including estimation of the number of visitors these events may attract to the region.

As the precinct will be developed over multiple stages (as outlined in section 5.2.1), the full benefit of the development is not expected to be achieved for many years. In understanding the ramp up of benefits, benefits have been apportioned to each stage of development based on the proportion of development across each sporting component, and then applied to visitor estimates for each sporting component.

Table 5.1. Timing of Benefits

Sport	Stage 1	Other Stages		
		A	B	C
Hockey	0%	0%	0%	100%
AFL	0%	0%	0%	100%
Football (Soccer)	80%	80%	80%	100%
Rugby League	0%	0%	80%	100%
Netball	60%	60%	60%	100%
Basketball	0%	0%	0%	100%
Touch Football	25%	50%	75%	100%
Oz Tag	25%	50%	75%	100%
Combined	**25%**	**31%**	**53%**	**100%**

Source: FCRC (unpublished), AEC.

Data from Tourism Research Australia's National Visitor Survey was used to identify the average expenditure per visitor by expenditure item for overnight visitors in the 2014-15 financial year (TRA, 2016). Some exclusions of expenditure items were made (e.g. expenditure on domestic airfares as this would likely be made outside the relevant economies). Average expenditure estimates per person by expenditure item were rounded to the nearest $5, providing an overall average spend of $550 per visitor.

Amenity Benefits for Users

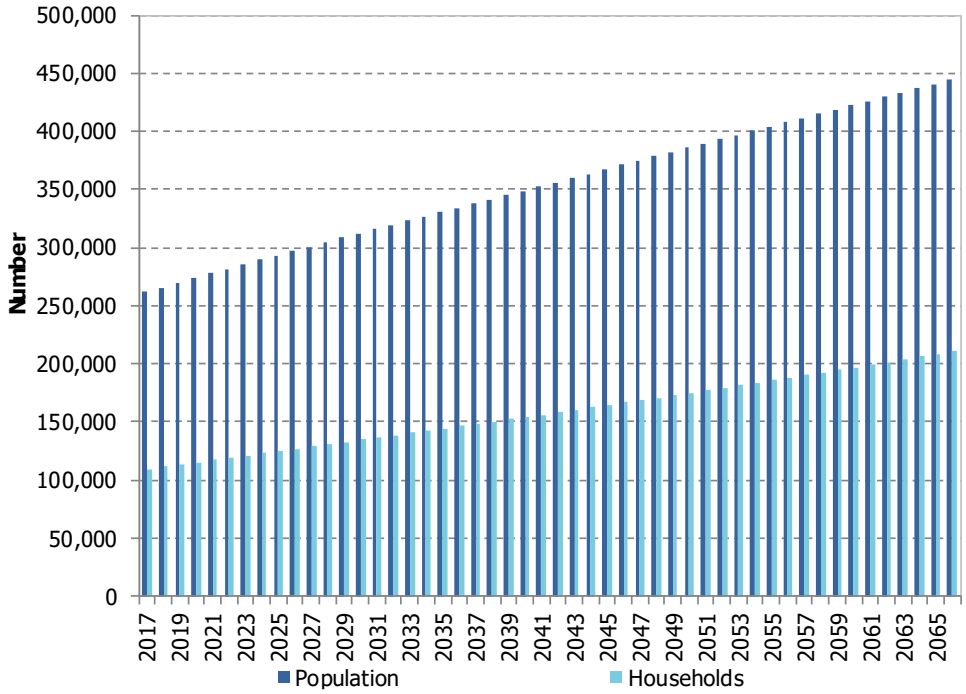
The Fraser Coast Sports Precinct will represent a high quality sporting precinct for the region, and once operational, is expected to result in an improvement in amenity for local/ regional users (both sports participants and spectators) of the facility compared to what they would otherwise generate without the project (either from using existing sports ground or from alternative uses of their leisure time). The precinct will result in an increase in amenity of users through the provision of higher quality sporting facilities and playing surfaces, and will encourage and enable higher rates of sporting participation through enhanced user amenity as well as greater capacity and supply to meet the needs of the catchment area's growing population.

A range of research and literature is available identifying the social and health benefits of physical recreation, including sporting activity. However, limited research is available quantifying and valuing the marginal increase in amenity users generate from higher quality sporting facilities and programs. One such study (Johnson *et al.*, 2006) found that households in the Alberta province of Canada were willing to pay $18.33 per household each year in 2006 Canadian dollars for small enhancements to sporting programs in the province aimed at providing improved quality of sporting activities and increasing

participation rates. This equates to approximately $25 to $30 per household in 2015 Australian dollar terms ($27.50 per household used).

An amenity benefit of $27.50 per household has been applied to household projections for the catchment area to 2066. Population projections were developed based on projections of population to 2036 for the four LGAs of Fraser Coast, Bundaberg, Gympie and North Burnett (Queensland Government, 2014), and average household sizes for the Wide Bay Statistical Area 4 (Queensland Government, 2013). Projections were extended to 2066 by assuming increases in population and households between 2031 and 2036 remain constant.

Figure 5.2. Population and Household Projections, Catchment Area



Source: Queensland Government (2014), Queensland Government (2013), AEC.

The timing of the amenity benefit of $27.50 per household has been scaled based on the proportion of the overall development completed (with 100% of benefit achieved once all stages developed). The scaling used is as per that used in the economic activity from visitor spend benefit above.

5.2.3 Costs & Benefits Not Included

In addition to the benefits and costs outlined above for inclusion in the cost benefit analysis, there are a range of other socio-economic benefits that may potentially arise but have not been quantified or valued due to data limitations. These include:

- Improved community pride and social interaction arising from provision of a high quality regional sports facility. This benefit is described in more detail in section 4.5.
- Research has linked participation in sport and physical activity with enhanced health outcomes and reduced economic burden on society. The project has the potential to increase sports participation, and thereby improve health outcomes in the region. This is outlined in section 4.6.4.
- Research has linked participation in sport to enhanced academic performance, in particular in youth. The project has the potential to increase sports participation, and thereby improve education attainment in the region. This benefit is described in more detail in section 4.6.5.
- Research has linked participation in sport to diverting at risk youth from criminal and anti-social behaviour. This is outlined in section 4.6.6.

While each of the above benefits have not been specifically included in the cost benefit analysis, the amenity benefit to households from the facility included in the modelling

includes some consideration of each of these benefits. Including them in the cost benefit analysis would therefore result in some double counting of benefits.

5.3 Cost Benefit Assessment

5.3.1 Stage 1

The table below outlines the present value (PV) of the identified costs and benefits associated with Stage 1 of the project between the financial year ended June 2017 and the financial year ended June 2066, at discount rates of 4%, 7% and 10%.

The CBA modelling for Stage 1 of the project at the discount rate of 7% is economically desirable, with the following results:

- A Net Present Value (NPV) of $15.6 million over the 50 year assessment period with aggregated present value (PV) benefits of approximately $34.7 million compared to an aggregated PV costs of approximately $19.1 million.
- A BCR of 1.82 highlighting that the project is very economically viable under the CBA modelling assumptions, returning $1.82 per every dollar cost.

In summary, the cost benefit analysis identifies that at a 7% discount rate Stage 1 of project would be deemed economically **desirable** with the benefits outweighing the costs. There is some variability in results across the discount rates examined, with the BCR ranging between 2.83 (4% discount rate) and 1.28 (10% discount rate). This reflects the high upfront costs of infrastructure, including key trunk infrastructure required for the site, compared to the longer term benefits achieved.

Stage 1 of the project has an Internal Rate of Return (IRR) of 12.6%.

Table 5.2. Summary of Cost Benefit Analysis Results, 2017 to 2066 (Financial Year Ended June), Stage 1 Only

Impact	Total Value ($M)	PV ($M) – 4% Discount Rate	PV ($M) – 7% Discount Rate	PV ($M) – 10% Discount Rate
Costs				
Construction Costs	$18.9	$18.3	$17.9	$17.5
Additional Operational Costs	$4.5	$1.9	$1.1	$0.8
Total Costs	**$23.3**	**$20.2**	**$19.1**	**$18.3**
Benefits				
Economic Activity from Visitor Spend	$89.6	$37.3	$23.1	$15.9
Leisure/ Amenity Benefit	$52.1	$19.8	$11.6	$7.6
Total Benefits	**$141.7**	**$57.1**	**$34.7**	**$23.5**
Summary				
Net Present Value (NPV)	**N/A**	**$37.0**	**$15.6**	**$5.2**
Benefit Cost Ratio (BCR)	**N/A**	**2.83**	**1.82**	**1.28**

Note: Totals presented in the table may not equal the sum of costs and benefits due to rounding.
Source: AEC.

5.3.2 All Stages

When including all stages of the project the economic desirability of the project is higher, with:

- A NPV of $53.2 million (7% discount rate) over the 50 year assessment period with aggregated present value (PV) benefits of approximately $86.3 million compared to an aggregated PV costs of approximately $33.1 million.
- A BCR of 2.61 (7% discount rate) highlighting that the project is very economically viable under the CBA modelling assumptions, returning $2.61 per every dollar cost.

- The CBA modelling results highlight that the project investment is economically desirable across the discount rate range of 4% to 10%, with an IRR of 15.5%.

The table below summarises the cost benefit analysis across all stages of the project between the financial year ended June 2017 and the financial year ended June 2066 at discount rates of 4%, 7% and 10%.

Table 5.3. Summary of Cost Benefit Analysis Results, 2017 to 2066 (Financial Year Ended June), All Stages

Impact	Total Value ($M)	PV ($M) – 4% Discount Rate	PV ($M) – 7% Discount Rate	PV ($M) – 10% Discount Rate
Costs				
Construction Costs	$44.4	$35.5	$31.0	$27.7
Additional Operational Costs	$9.4	$3.5	$2.0	$1.3
Total Costs	**$53.8**	**$39.1**	**$33.1**	**$29.0**
Benefits				
Economic Activity from Visitor Spend	$298.4	$104.7	$56.1	$33.6
Leisure/ Amenity Benefit	$181.6	$59.3	$30.2	$17.3
Total Benefits	**$480.0**	**$164.0**	**$86.3**	**$51.0**
Summary				
Net Present Value (NPV)	**N/A**	**$124.9**	**$53.2**	**$22.0**
Benefit Cost Ratio (BCR)	**N/A**	**4.20**	**2.61**	**1.76**

Note: Totals presented in the table may not equal the sum of costs and benefits due to rounding.
Source: AEC.

5.3.3 Sensitivity Analysis

The cost benefit analysis results in section 5.3.1 show Stage 1 of the project is somewhat sensitive to the discount rate used. This section examines the sensitivity of Stage 1 of the project to other key model inputs and assumptions used in the cost benefit analysis. Sensitivity analysis for all stages of development has not been undertaken, as this report is primarily to support funding applications for Stage 1.

Sensitivity analysis in this section has been undertaken using a Monte Carlo analysis, which assigns a probability distribution for each input parameter in the model and then examines multiple iterations using this distribution to identify the effect the input parameter has on the decision criteria (i.e. NPV). It reflects the 'probability' of achieving the key dependent output (see **Appendix B** for more details regarding Monte Carlo analysis) across the following key assumptions used in the economic analysis modelling (the base assumptions used are outlined in section 5.2.1 and 5.2.2):

- Costs:
  - Construction costs.
  - Additional operating costs.
- Benefits:
  - Economic activity from visitor spend.
  - Leisure/ amenity benefit for users.

Each of the above assumptions has been tested in isolation with all other inputs held constant, with the results reported in Table 5.4 in terms of the modelled change in NPV resulting from the variance in the base assumptions at a discount rate of 7%. The final row of Table 5.4 examines each assumption simultaneously to provide a 'combined' or overall sensitivity of the model findings to the assumptions used. Table 5.4 also outlines the distribution used allowing for a 10% confidence interval, with the '5%' and '95%' representing a 90% probability that the distribution and NPV will be within the range outlined in the table.

The ranges tested for:

- Construction and operating costs reflects a cost range between 20% lower than estimated and 30% higher than used in the cost benefit analysis.
- Economic activity from induced visitor expenditure and leisure/ amenity benefits for users reflect a normal distribution with a standard deviation of 20% of the base values used.

Table 5.4. Sensitivity Analysis Summary, Discount Rate 7%

Variable	Distribution of Tested Variable [(a)]		Net Present Value ($ Million)	
	5%	95%	5%	95%
Costs				
Construction Costs	117.7%	87.0%	$12.4	$17.9
Additional Operational Costs	117.7%	87.0%	$15.4	$15.8
Benefits				
Economic Activity from Visitor Spend	67.1%	132.9%	$8.0	$23.2
Leisure/ Amenity Benefit	67.1%	132.9%	$11.8	$19.4
Combined	**As above**	**As above**	**$6.3**	**$24.3**

Notes: (a) The percent distributions outlined in the table represent the deviation from the base assumptions for these variables using a +/- 5% confidence level.
Source: AEC.

The table shows that, at a discount rate of 7%, there is a 90% probability the project will provide an NPV of between $6.3 million and $24.3 million. Sensitivity testing returned a positive NPV on 99.7% of the iterations run in Monte Carlo analysis. This means that only under the worst extremities of the input parameters examined in this assessment would the project fail to return a positive NPV.

The NPV is influenced most strongly by the benefits associated with economic activity from visitor spend, which is estimated to account for 52.2% of the variability in the combined scenario, followed by the leisure/ amenity of users, which is estimated to account for 25.2% of the variability in the combined scenario. This highlights the importance of the project delivering the long term benefits outlined.

Sensitivity analysis shows the project is relatively robust and not overly sensitive to assumptions relating to costs and benefits. The project is more sensitive to the discount rate used, reflecting the benefits expected to be achieved are long term delivered primarily by upfront costs.

6. Project Deliverability

6.1 Financial Capability of Fraser Coast Council

Funding Summary:

- Council has committed 66% of the funds required for the project, with the remainder to be sourced through grant funding.
- Land is owned by the Council and construction is due to be completed by March, 2019.
- Future ongoing costs will be met by the Council.
- The Council 10 year financial forecast shows it has sufficient capacity to support this development and the ongoing operations of the facility.

6.1.1 Council Financial Forecast

The 2015/16 long term financial forecast for Fraser Coast Council shows the council is projecting operating surpluses for the next ten years. The table below shows the operating surplus (excluding depreciation and finance costs) of council is $49.9 million in 2015/16, increasing to $70.4 million in 2024/25.

Table 6.1. Long Term Financial Forecast (Summary) ($M)

Item	2015/16	2024/25
Operating Position		
Operating Revenue	$132.6	$191.0
Operating Expenses (excl. depreciation and finance costs)	$82.7	$120.6
Operating Surplus (excl. depreciation and finance costs)	**$49.9**	**$70.4**
Depreciation and finance costs	$44.7	$56.7
Operating Surplus	**$5.2**	**$13.7**
Cash Position		
Cash at year end	**$109.0**	**$118.7**
Balance Sheet		
Property, Plant & Equipment (WDV)	**$1,216**	**$1,279**

Source: FCRC (2015).

Council also shows it has sufficient cash available to absorb financial shocks, outside the constraints of this project. The ten year financial forecast shows that cash at year end is lowest at $92.8 million in 2018/19 and highest at $118.7 million in 2024/25.

The development project is ready to commence, with development costs as outlined in section 2.1 estimated at $18.9 million (excluding GST).

Council has confirmed that it has $10,695,990 (or 57%) to contribute to the project ($9 million from Council and $1,695,990 from Wide Bay Water) with the remaining $8,185,613.08 (or 43%) planned to be sourced from grant funds.

It is evident, based on the financial forecast, that Council has sufficient financial capacity to undertake this project should the grant funds be sourced to help facilitate construction.

6.1.2 Ongoing Costs Post Development

As outlined in section 5.2.1, the net increase in operational costs for Council is estimated at 0.5% of total capital expenditure per annum. That is, once operational it is expected that an additional $100,000 operating expense will be required to be funded overall, and is anticipated this modest additional annual expenditure will be absorbed within the long term financial forecast without a significant impact on the operating position.

Council's overall intent is to minimise the operating cost impact through reviewing existing sport ground budgets and seeking efficiencies or other opportunities to reduce costs. Given the Master Plan identifies that there will be relocation of sports from other areas within the

Local Government area, Council will assess all sports ground budgets with a view to implementing operational savings from those facilities associated with relocation of users. It is therefore envisaged that these cost savings will help to offset the new operational costs for the stage one development.

Council will consider the whole-of-life costs attached to the development and will incorporate required facility renewals into its long term plans, in particular the Financial Plan and Asset Management Plan. This is acknowledged in Council's *Strategic Long Term Financial Plan 2015/16* where a number of factors are identified that may impact on the financial plan (FCRC, 2015), including:

> *Future projects – There are a number of large key projects for the region that will impact on future capital works funding requirements and future operational costs and these are not yet fully factored into the long term financial plan. Once detailed planning and costing has been completed, these will be integrated into the plan.*

6.2 Project Delivery

Council has developed a Fraser Coast Sport and Recreation Precinct Master Plan (FCRC, 2013) which outlines the overall sport precinct. Council has confirmed the land is under its ownership and is freehold. To enable the successful delivery of the precinct, a number of stages have been created that can be undertaken at different times as funding becomes available and to ensure that the development can be undertaken in an achievable manner.

Stage 1 are ready to proceed to the development phase, with section 2.1 outlining the development and the Project Plan providing a summary of the project costs for the $18.9 million construction.

To demonstrate that Stage 1 of the sporting precinct project are **investment ready** and can be implemented on time, to scope, within budget and to the required standard, project plans have been prepared. In particular, Project Management, Procurement, Risk Management and Asset Management Plans have been prepared.

Council exhibits substantial experience in managing its vast asset networks of $1,216 million in Property, Plant and Equipment. It also demonstrates it can manage and deliver projects, with over $60 million in capital works projects budgeted to be delivered in 2015/16.

Given the Council owns the land and that 57% of funds for the project have already been confirmed as being available for this project, Council is committed to the sporting precinct development once grant funds are approved, with construction anticipated to be completed by March 2019.

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Appendix A: Input-Output Methodology

Input-Output Model Overview

Input-Output analysis demonstrates inter-industry relationships in an economy, depicting how the output of one industry is purchased by other industries, households, the government and external parties (i.e. exports), as well as expenditure on other factors of production such as labour, capital and imports. Input-Output analysis shows the direct and indirect (flow-on) effects of one sector on other sectors and the general economy. As such, Input-Output modelling can be used to demonstrate the economic contribution of a sector on the overall economy and how much the economy relies on this sector or to examine a change in final demand of any one sector and the resultant change in activity of its supporting sectors.

The economic contribution can be traced through the economic system via:

- **Direct impacts**, which are the first round of effects from direct operational expenditure on goods and services.
- **Flow-on impacts**, which comprise the second and subsequent round effects of increased purchases by suppliers in response to increased sales. Flow-on impacts can be disaggregated to:
    - **Industry Support Effects (Type I)**, which represent the production induced support activity as a result of additional expenditure by the industry experiencing the stimulus on goods and services in the intermediate usage quadrant, and subsequent round effects of increased purchases by suppliers in response to increased sales.
    - **Household Consumption Effects (Type II)**, which represent the consumption induced activity from additional household expenditure on goods and services resulting from additional wages and salaries being paid within the economic system.

These effects can be identified through the examination of four types of impacts:

- **Output**: Refers to the gross value of goods and services transacted, including the costs of goods and services used in the development and provision of the final product. Output typically overstates the economic impacts as it counts all goods and services used in one stage of production as an input to later stages of production, hence counting their contribution more than once.
- **Value added**: Refers to the value of output after deducting the cost of goods and services inputs in the production process. Value added defines the true net contribution and is subsequently the preferred measure for assessing economic impacts.
- **Income**: Measures the level of wages and salaries paid to employees of the industry under consideration and to other industries benefiting from the project.
- **Employment**: Refers to the part-time and full-time employment positions generated by the economic shock, both directly and indirectly through flow-on activity, and is expressed in terms of full time equivalent (FTE) positions.

Input-Output multipliers can be derived from open (Type I) Input-Output models or closed (Type II) models. Open models show the direct effects of spending in a particular industry as well as the indirect or flow-on (industrial support) effects of additional activities undertaken by industries increasing their activity in response to the direct spending.

Closed models re-circulate the labour income earned as a result of the initial spending through other industry and commodity groups to estimate consumption induced effects (or impacts from increased household consumption).

Model Development

Multipliers used in this assessment are derived from sub-regional transaction tables developed specifically for this project. The process of developing a sub-regional transaction table involves developing regional estimates of gross production and purchasing patterns

based on a parent table, in this case, the 2012-13 Australian transaction table (ABS, 2015b).

Estimates of gross production (by industry) in the study areas were developed based on the percent contribution to employment (by place of work) of the study areas to the Australian economy (ABS, 2012c), and applied to Australian gross output identified in the 2012-13 Australian table.

Industry purchasing patterns within the study area were estimated using a process of cross industry location quotients and demand-supply pool production functions as described in West (1993).

Where appropriate, values were rebased from 2012-13 (as used in the Australian national IO transaction tables) to 2015 values using the Consumer Price Index (ABS, 2016).

Modelling Assumptions

The key assumptions and limitations of Input-Output analysis include:

- **Lack of supply-side constraints**: The most significant limitation of economic impact analysis using Input-Output multipliers is the implicit assumption that the economy has no supply-side constraints so the supply of each good is perfectly elastic. That is, it is assumed that extra output can be produced in one area without taking resources away from other activities, thus overstating economic impacts. The actual impact is likely to be dependent on the extent to which the economy is operating at or near capacity.
- **Fixed prices**: Constraints on the availability of inputs, such as skilled labour, require prices to act as a rationing device. In assessments using Input-Output multipliers, where factors of production are assumed to be limitless, this rationing response is assumed not to occur. The system is in equilibrium at given prices, and prices are assumed to be unaffected by policy and any crowding out effects are not captured. This is not the case in an economic system subject to external influences.
- **Fixed ratios for intermediate inputs and production (linear production function)**: Economic impact analysis using Input-Output multipliers implicitly assumes that there is a fixed input structure in each industry and fixed ratios for production. That is, the input function is generally assumed linear and homogenous of degree one (which implies constant returns to scale and no substitution between inputs). As such, impact analysis using Input-Output multipliers can be seen to describe average effects, not marginal effects. For example, increased demand for a product is assumed to imply an equal increase in production for that product. In reality, however, it may be more efficient to increase imports or divert some exports to local consumption rather than increasing local production by the full amount. Further, it is assumed each commodity (or group of commodities) is supplied by a single industry or sector of production. This implies there is only one method used to produce each commodity and that each sector has only one primary output.
- **No allowance for economies of scope**: The total effect of carrying on several types of production is the sum of the separate effects. This rules out external economies and diseconomies and is known simply as the "additivity assumption". This generally does not reflect real world operations.
- **No allowance for purchasers' marginal responses to change**: Economic impact analysis using multipliers assumes that households consume goods and services in exact proportions to their initial budget shares. For example, the household budget share of some goods might increase as household income increases. This equally applies to industrial consumption of intermediate inputs and factors of production.
- **Absence of budget constraints**: Assessments of economic impacts using multipliers that consider consumption induced effects (type two multipliers) implicitly assume that household and government consumption is not subject to budget constraints.

Despite these limitations, Input-Output techniques provide a solid approach for taking account of the inter-relationships between the various sectors of the economy in the short-term and provide useful insight into the quantum of final demand for goods and services, both directly and indirectly, likely to be generated by a project.

In addition to the general limitations of Input-Output Analysis, there are two other factors that need to be considered when assessing the outputs of sub-regional transaction table developed using this approach, namely:

- It is assumed the sub-region has similar technology and demand/ consumption patterns as the parent (Australia) table (e.g. the ratio of employee compensation to employees for each industry is held constant).
- Intra-regional cross-industry purchasing patterns for a given sector vary from the national tables depending on the prominence of the sector in the regional economy compared to its input sectors. Typically, sectors that are more prominent in the region (compared to the national economy) will be assessed as purchasing a higher proportion of imports from input sectors than at the national level, and vice versa.

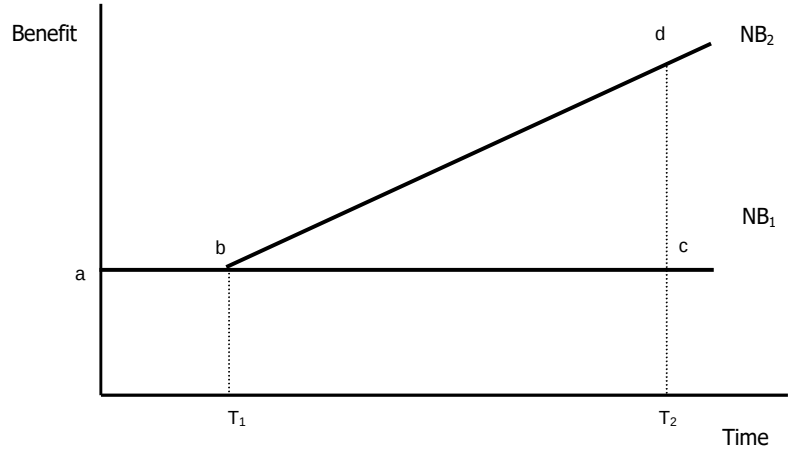
Appendix B: CBA Methodology

Step 1: Define the Scope and Boundary

To enable a robust determination of the net benefits of undertaking a given project, it is necessary to specify base case and alternative case scenarios. The base case scenario represents the 'without project' scenario and the alternative or 'with project' scenario examines the impact with the project in place.

The base case (without) scenario is represented by line NB_1 (bc) over time T_1 to T_2 in the figure below. The investment in the project at time T_1 is likely to generate a benefit, which is represented by line NB_2 (bd). Therefore the net benefit flowing from investment in the project is identified by calculating the area (bcd) between NB_1 and NB_2.

Figure B.1. With and Without Scenarios



Source: AEC

Step 2: Identify Costs and Benefits

A comprehensive quantitative specification of the benefits and costs included in the evaluation and their various timings is required and includes a clear outline of all major underlying assumptions. These impacts, both positive and negative, are then tabulated and where possible valued in dollar terms.

Some impacts may not be quantifiable. Where this occurs the impacts and their respective magnitudes will be examined qualitatively for consideration in the overall analysis.

Financing costs are not included in a CBA. As a method of project appraisal, CBA examines a project's profitability independently of the terms on which debt finance is arranged. This does not mean, however, that the cost of capital is not considered in CBA, as the capital expenses are included in the year in which the transaction occurs, and the discount rate (discussed below in Step 5) should be selected to provide a good indication of the opportunity cost of funds, as determined by the capital market.

Step 3: Quantify and Value Costs and Benefits

CBA attempts to measure the value of all costs and benefits that are expected to result from the activity in economic terms. It includes estimating costs and benefits that are 'unpriced' and not the subject of normal market transactions but which nevertheless entail the use of real resources. These attributes are referred to as 'non-market' goods or impacts. In each of these cases, quantification of the effects in money terms is an important part of the evaluation.

However, projects frequently have non-market impacts that are difficult to quantify. Where the impact does not have a readily identifiable dollar value, proxies and other measures should be developed as these issues represent real costs and benefits.

One commonly used method of approximating values for non-market impacts is 'benefit transfer'. Benefit transfer (BT) means taking already calculated values from previously conducted studies and applying them to different study sites and situations. In light of the significant costs and technical skills needed in collecting primary data, for many policy makers utilising BT techniques can provide an adequate solution.

Context is extremely important when deciding which values to transfer and from where. Factors such as population, number of households, and regional characteristics should be considered when undertaking benefit transfer. For example, as population density increases over time, individual households may value nearby open space and parks more highly. Other factors to be considered include, depending on the location of the original study, utilising foreign exchange rates, demographic data, and respective inflation rates.

Benefit transfer should only be regarded as an approximation. Transferring values from similar regions with similar markets is important, and results can be misleading if values are transferred between countries that have starkly different economies (for example a benefit transfer from the Solomon Islands to Vancouver would likely have only limited applicability). However, sometimes only an indicative value for environmental assets is all that is required.

Step 4: Tabulate Annual Costs and Benefits

All identified and quantified benefits and costs are tabulated to identify where and how often they occur. Tabulation provides an easy method for checking that all the issues and outcomes identified have been addressed and provides a picture of the flow of costs, benefits and their sources.

Step 5: Calculate the Net Benefit in Dollar Terms

As costs and benefits are specified over time it is necessary to reduce the stream of benefits and costs to present values. The present value concept is based on the time value of money – the idea that a dollar received today is worth more than a dollar to be received in the future. The present value of a cash flow is the equivalent value of the future cashflow should the entire cashflow be received today. The time value of money is determined by the given discount rate to enable the comparison of options by a common measure.

The selection of appropriate discount rates is of particular importance because they apply to much of the decision criteria and consequently the interpretation of results. The higher the discount rate, the less weight or importance is placed on future cash flows.

The choice of discount rates should reflect the weighted average cost of capital (WACC). For this analysis, a base discount rate of 7% has been used to represent the minimum rate of return, in line with Australian Government guidelines. As all values used in the CBA are in real terms, the discount rate does not incorporate inflation (i.e., it is a real discount rate, as opposed to a nominal discount rate).

To assess the sensitivity of the project to the discount rate used, discount rates either side of the base discount rate (7%) have also been examined (4% and 10%).

The formula for determining the present value is:

$$PV = \frac{FV_n}{(1+r)^n}$$

Where:

PV = present value today

FV = future value n periods from now

r = discount rate per period

n = number of periods

Extending this to a series of cash flows the present value is calculated as:

$$PV = \frac{FV_1}{(1+r)^1} + \frac{FV_2}{(1+r)^2} + \cdots + \frac{FV_n}{(1+r)^n}$$

Once the stream of costs and benefits have been reduced to their present values the Net Present Value (NPV) can be calculated as the difference between the present value of benefits and present value of costs. If the present value of benefits is greater than the present value of costs then the option or project would have a net economic benefit.

In addition to the NPV, the internal rate of return (IRR) and benefit-cost ratio (BCR) can provide useful information regarding the attractiveness of a project. The IRR provides an estimate of the discount rate at which the NPV of the project equals zero, i.e., it represents the maximum WACC at which the project would be deemed desirable. However, in terms of whether a project is considered desirable or not, the IRR and BCR will always return the same result as the NPV decision criterion.

Step 6: Senstivity Analysis

Sensitivity analysis allows for the testing of the key assumptions and the identification of the critical variables within the analysis to gain greater insight into the drivers to the case being examined.

A series of Monte Carlo analyses has been conducted in order to test the sensitivity of the model outputs to changes in key variables. Monte Carlo simulation is a computerised technique that provides decision-makers with a range of possible outcomes and the probabilities they will occur for any choice of action. Monte Carlo simulation works by building models of possible results by substituting a range of values – the probability distribution – for any factor that has inherent uncertainty. It then calculates results over and over, each time using a different set of random values from the probability functions. The outputs from Monte Carlo simulation are distributions of possible outcome values.

During a Monte Carlo simulation, values are sampled at random from the input probability distributions. Each set of samples is called an iteration, and the resulting outcome from that sample is recorded. Monte Carlo simulation does this hundreds or thousands of times, and the result is a probability distribution of possible outcomes. In this way, Monte Carlo simulation provides a comprehensive view of what may happen. It describes what could happen and how likely it is to happen.

Appendix C: Events Projections

The Fraser Coast Sports Precinct, once fully developed, will include:

- 20 netball courts.
- 20 tennis courts.
- 10 football (soccer) fields.
- 4 full sized and 1 half-sized rugby league fields.
- 2 synthetic turf and 3 grass hockey fields.
- 2 AFL fields.
- Hervey Bay PCYC/ basketball facility.
- Athletics track.

The high quality nature of the precinct, in combination with the ability to host multiple sporting games and carnivals at the one venue across multiple sporting codes, is expected to attract a number of high profile sporting events and carnivals to the region. This could include:

- Major national/ state events and carnivals, such as Masters Games and state (and potentially national) championships, across all age groups.
- Major regional sporting events and carnivals.
- Pre-season fitness and training camps for teams in major domestic sporting codes, such as the AFL (Brisbane Lions, Gold Coast Suns), NRL (Brisbane Broncos, Gold Coast Titans, North Queensland Cowboys), Rugby Union (Queensland Reds) and A-League (Brisbane Roar).
- Pre-season matches for major domestic sporting codes (e.g. AFL, NRL).
- In-season games for state-based sporting codes, such as the Intrust Super Cup (Queensland Rugby League).

A potential annual average schedule for hosted events at the Fraser Coast Sports Precinct once fully developed is presented in Table C.1. The table also outlines the number visitors the events could potentially bring to the regional economy. The below table assumes no major sporting events attracting visitors to the region are held at the tennis courts or athletics track.

Table C.1. Annual Events and Visitors at Full Development

Event	Number/ Annum	Participants					Visitors per Participant		Spectators			Total Visitors
		Teams	Per Team	Officials/ Other	% Visitors	Total Visitors	Per Visiting Participant	Total Visitors	Number	% Visitors	Total Visitors	
Hockey												
National/ State Events/ Carnivals	1.00	50	18	20	95%	874	0.50	437	-	-	-	1,311
Major Regional Events/ Carnivals	2.00	30	18	15	25%	278	0.50	139	-	-	-	417
AFL												
National/ State Events/ Carnivals	0.50	40	30	20	95%	580	0.50	290	-	-	-	870
Major Regional Events/ Carnivals	1.00	10	30	10	25%	78	0.50	39	-	-	-	117
Major Sports Camps	1.00	1	40	0	100%	40	2.00	80	-	-	-	120
Domestic Sports Code Pre-Season Games	1.00	2	35	20	100%	90	2.00	180	10,000	50%	5,000	5,270
Football (Soccer)												
National/ State Events/ Carnivals	1.00	60	20	20	95%	1,159	0.50	580	-	-	-	1,739
Major Regional Events/ Carnivals	2.00	30	15	10	25%	230	0.50	115	-	-	-	345
Major Sports Camps	0.25	1	20	0	100%	5	2.00	10	-	-	-	15
Domestic Sports Code Pre-Season Games	1.00	2	20	20	100%	60	2.00	120	10,000	50%	5,000	5,180
Rugby League												
National/ State Events/ Carnivals	1.00	60	28	10	95%	1,606	0.50	803	-	-	-	2,409
Major Regional Events/ Carnivals	2.00	20	25	10	25%	255	0.50	128	-	-	-	383
Major Sports Camps	1.00	1	30	0	100%	30	2.00	60	-	-	-	90
Domestic Sports Code Pre-Season Games	1.00	2	30	20	100%	80	2.00	160	10,000	50%	5,000	5,240
Domestic Sports Code In-Season Games	0.33	2	25	10	100%	20	2.00	40	-	-	-	60
Netball												
National/ State Events/ Carnivals	1.00	100	15	20	95%	1,444	0.50	722	-	-	-	2,166
Major Regional Events/ Carnivals	2.00	60	15	20	25%	460	0.50	230	-	-	-	690

Event	Number/ Annum	Participants					Visitors per Participant		Spectators			Total Visitors
		Teams	Per Team	Officials/ Other	% Visitors	Total Visitors	Per Visiting Participant	Total Visitors	Number	% Visitors	Total Visitors	
Basketball												
National/ State Events/ Carnivals	1.00	40	10	5	98%	397	1.00	397	50	25%	13	807
Major Regional Events/ Carnivals	2.00	12	10	5	98%	245	1.00	245	50	25%	25	515
Major Sports Camps	1.00	10	10	5	98%	103	1.00	103	50	25%	13	219
Domestic Sports Code Pre-Season Games	6.00	2	12	5	50%	87	0.50	44	200	25%	300	431
Domestic Sports Code In-Season Games	20.00	2	12	5	50%	290	0.50	145	300	25%	1,500	1,935
Touch Football												
National/ State Events/ Carnivals	1.00	220	15	10	90%	2,979	1.25	3,724	-	-	-	6,703
Oz Tag												
National/ State Events/ Carnivals	0.50	100	35	10	95%	1,677	0.5	834	-	-	-	2,501
TOTAL	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-	-	**39,532**

Source: FCRC (unpublished), AEC.

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