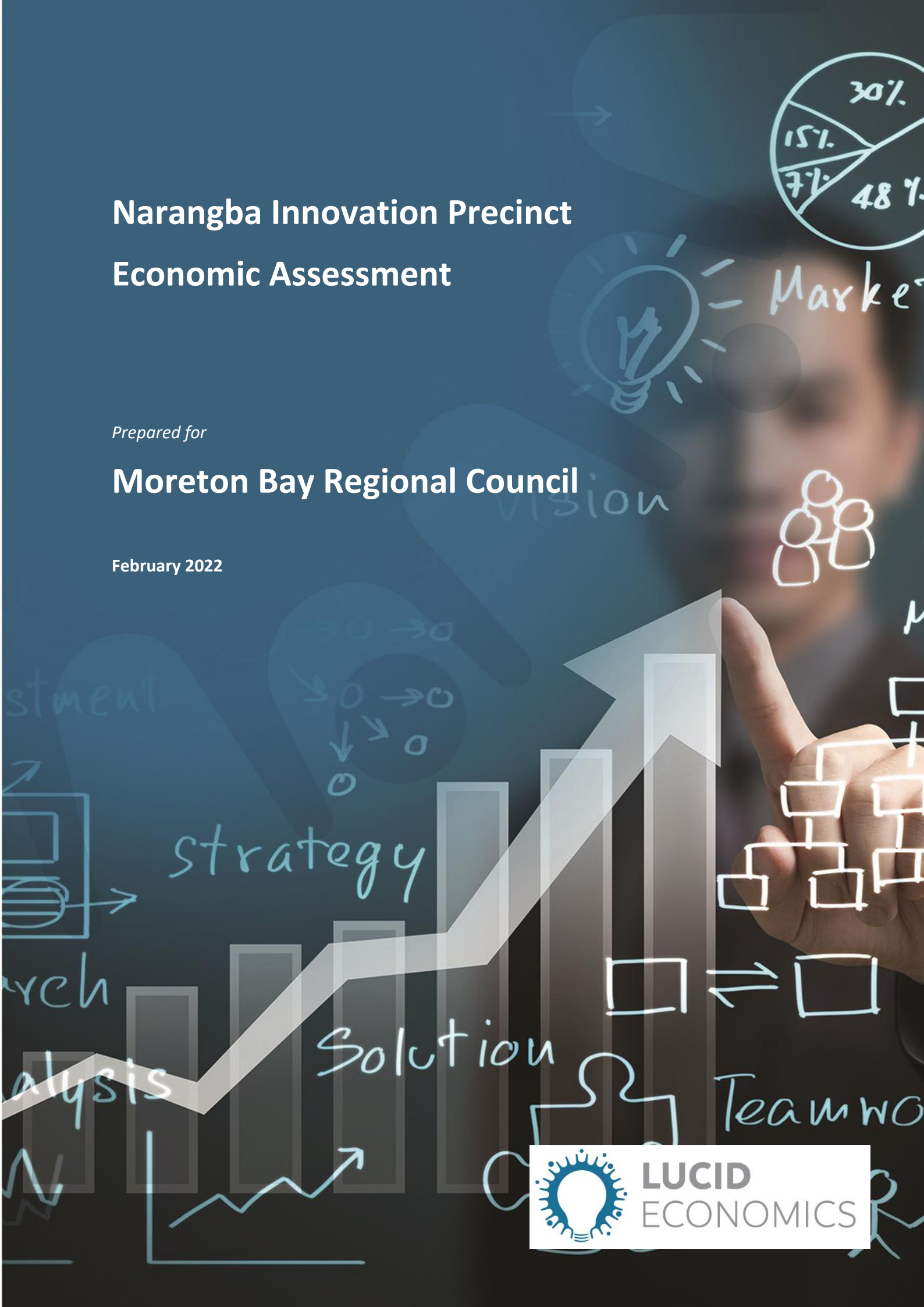
Narangba Innovation Precinct Economic Assessment

Prepared for

Moreton Bay Regional Council

February 2022



LUCID ECONOMICS

lucid

/'lu:sid/

adjective

1. expressed clearly; easy to understand

2. bright or luminous

LUCID ECONOMICS

Document Control

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Note: Research for this report was originally undertaken in September 2021. The analysis contained in this report used the most current information available at the time. Some data sets may have been updated since this time.

Executive Summary

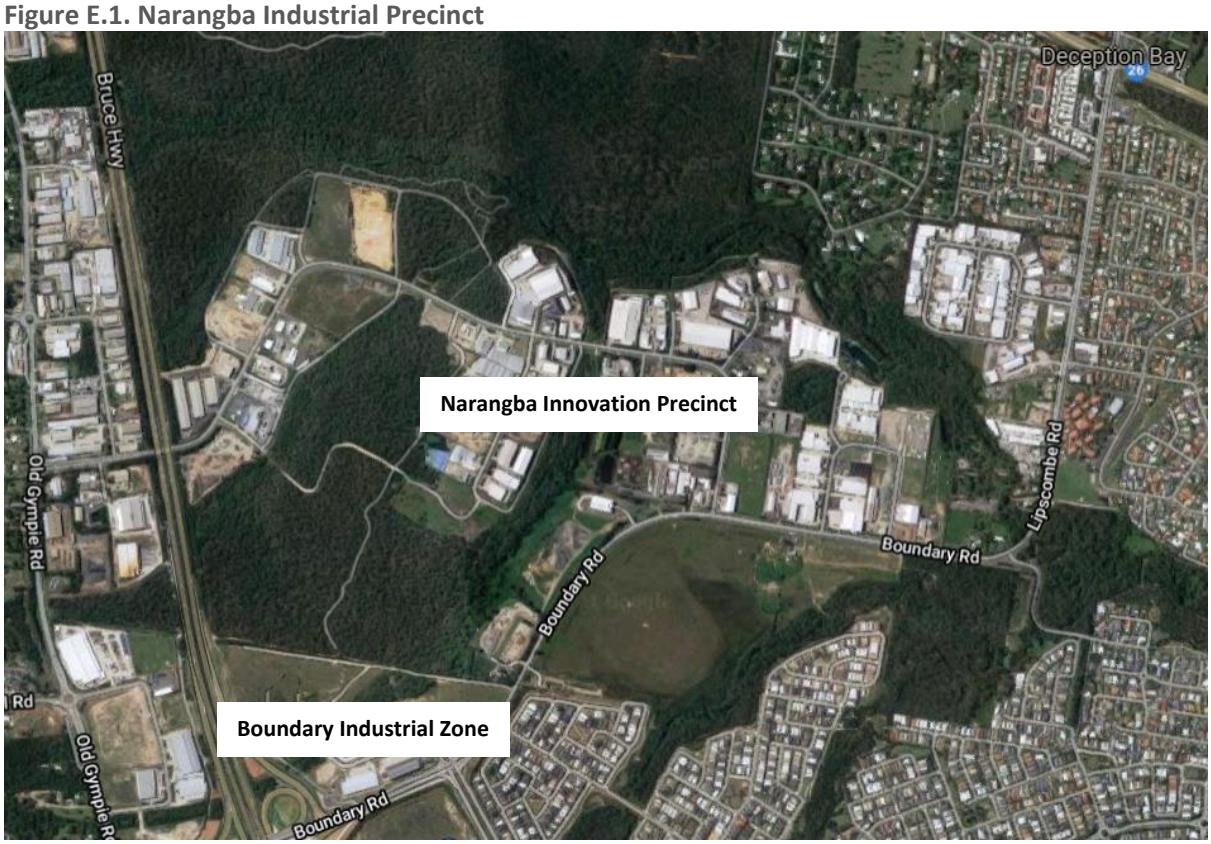
Introduction and Background

Lucid Economics was engaged by the Moreton Bay Regional Council (MBRC) to conduct an economic assessment on the Narangba Industrial Precinct. This assessment forms part of the Narangba Innovation Precinct Study (the Study), which has been undertaken by MBRC in response to the introduction of a Temporary Local Planning Instrument (TLPI) for the Narangba Innovation Precinct. The TLPI was enacted due to the misalignment of the MBRC Planning Scheme and *ShapingSEQ*, the State Government regional plan, regarding the Narangba Innovation Precinct. The Study seeks to better understand the environmental health impacts and economic value of the Narangba Innovation Precinct in order to guide future planning decisions about development in and around the precinct. The results of the Study will inform a future land use policy position regarding the future development of the area.

The Narangba Precinct

The Narangba Precinct is made up of two distinct areas; Narangba Innovation Precinct and the Boundary Industrial Zone (Figure E.1). In terms of this analysis, the area is characterised by the Narangba Destination Zone (DZ) (Figure E.2).

Figure E.1. Narangba Industrial Precinct



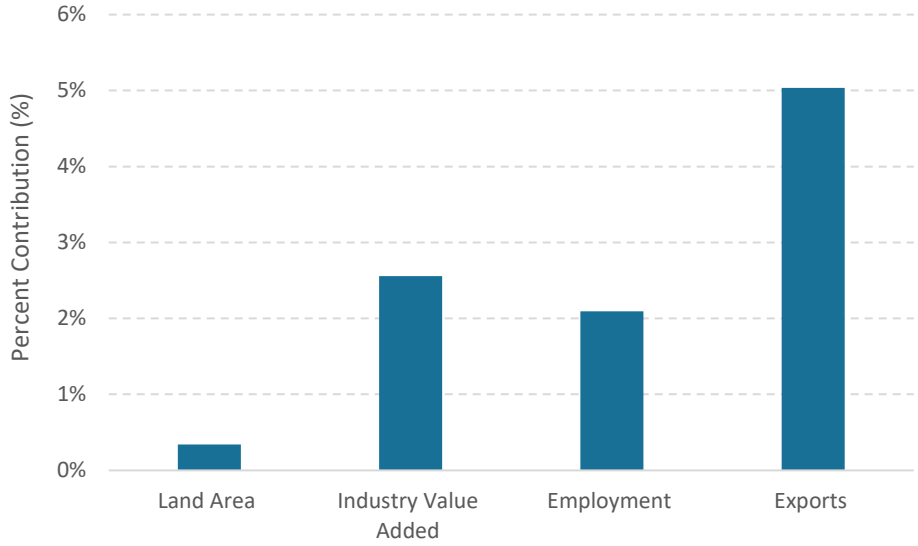
Source: Google Maps

Figure E.2. Narangba Destination Zone (DZ)

Source: ABS Maps

The Narangba Precinct produces a considerable economic contribution to the Moreton Bay region, providing a high level of industry value added, employment and exports, relative to its size (Figure E.3). The economic contribution of the precinct has also been growing at a rate above that of the Moreton Bay region (Table E.1).

Figure E.3. Narangba Precinct (DZ), % Contribution to Region (2020)



Source: ABS (2017); ABS (2021); EconomyID (2021); Lucid Economics

Table E.1. Narangba Precinct (DZ) Economic Contribution (2016-20)

	2016	2020	2016-20 Growth (%)	Avg Annual Growth (%)
Narangba				
Industry Value Added ($m)	$286.6	$332.9	16.1%	3.8%
Employment (No.)	2,118	2,265	7.0%	1.7%
Exports ($m)	$184.2	$220.8	19.9%	4.6%
MBRC				
Industry Value Added ($m)	$11,797.4	$13,026.0	10.4%	2.5%
Employment (No.)	102,500	108,208	5.6%	1.4%
Exports ($m)	$3,781.2	$4,382.9	15.9%	3.8%

Source: ABS (2017); ABS (2021); EconomyID (2021); Lucid Economics

Future Potential Scenarios

In order to inform future land use planning policy, the following future scenarios were developed:

- **Scenario 1**: Existing operations within the precinct can continue, however any expansion or greenfield developments will have to abide by the conditions in the MBRC Planning Scheme 2016.
- **Scenario 2**: Existing operations within the precinct can continue and expand, however any expansion or greenfield developments will have to abide by the conditions in the Temporary Local Planning Instrument (TLPI) 01 of 2020.
- **Scenario 3**: Existing operations within the precinct can continue and expand, and any new developments can be supported similar to what was previously supported under superseded Caboolture Shire Plan.
- **Scenario 4**: The existing MBRC Planning Scheme 2016 conditions (with no TLPI) are applied to all businesses within the zone, resulting in some existing operations closing and some planned future investment not occurring.

These scenarios provide a perspective on the future economic contribution of the Narangba Precinct, based on the existing economic contribution (2021). The scenarios are informed through the existing analysis and engagement with existing businesses. The scenarios consider expansion plans of existing businesses as well as potential greenfield developments. The scenarios do not include any anticipated industry growth trends nor any speculative developments. As such, the analysis considers only net potential increases to the existing economic contribution.

Scenario 1 acts as a baseline and represents the current economic contribution of the precinct. Scenarios 2 and 3 show the future potential for the precinct to expand and increase its economic contribution. Scenario 4 shows the potential loss of economic contribution if land use planning policy does not support expansion or new Special and High Impact industry, which would translate to some existing businesses closing in the region and some future planned investment not taking place locally.

The analysis shows that the Narangba Innovation Precinct makes an important economic contribution to the region that eclipses many other precincts and would be nearly impossible to replicate in another precinct in the Moreton Bay region.

Table E.2. Narangba Precinct, Economic Contribution Scenario Analysis

	Gross Regional Product ($m)	Employment (No.)
Scenario 1 (Business as Usual)		
Direct	$320.24	2,273
Indirect	$419.96	2,635
Total	**$740.20**	**4,908**
Scenario 2 (Limitations to New Developments)		
Direct	$335.63	2,345
Indirect	$436.29	2,711
Total	**$771.93**	**5,056**
Scenario 3 (Similar to Caboolture Shire Plan)		
Direct	$370.46	2,515
Indirect	$498.86	2,982
Total	**$869.31**	**5,498**
Scenario 4 (Closure of Some Businesses)		
Direct	$245.33	1,952
Indirect	$327.38	2,188
Total	**$572.71**	**4,140**

Source: Lucid Economics

Table E.3. Narangba Precinct, Economic Contribution Scenario Analysis, Variations from Base Case

	Gross Regional Product ($m)	Employment (No.)
Scenario 1 (Business as Usual)		
Direct	$0.00	0
Indirect	$0.00	0
Total	**$0.00**	**0**
Scenario 2 (Limitations to New Developments)		
Direct	$15.39	72
Indirect	$16.33	76
Total	**$31.73**	**148**
Scenario 3 (Similar to Caboolture Shire Plan)		
Direct	$50.22	242
Indirect	$78.90	347
Total	**$129.11**	**589**
Scenario 4 (Closure of Some Businesses)		
Direct	-$74.91	-322
Indirect	-$92.58	-446
Total	**-$167.49**	**-768**

Source: Lucid Economics

Table of Contents

1 Introduction

The Moreton Bay Regional Council (MBRC) is the third largest local government area in Australia (in terms of population). It is located directly north of the Brisbane City Council (the largest local government area in Australia) and has undergone considerable growth over the last twenty years.

In February 2021, Council launched the Moreton Bay Regional Economic Development Strategy (REDS) to deliver a bigger, bolder and brighter future for the region (Figure 1.1).

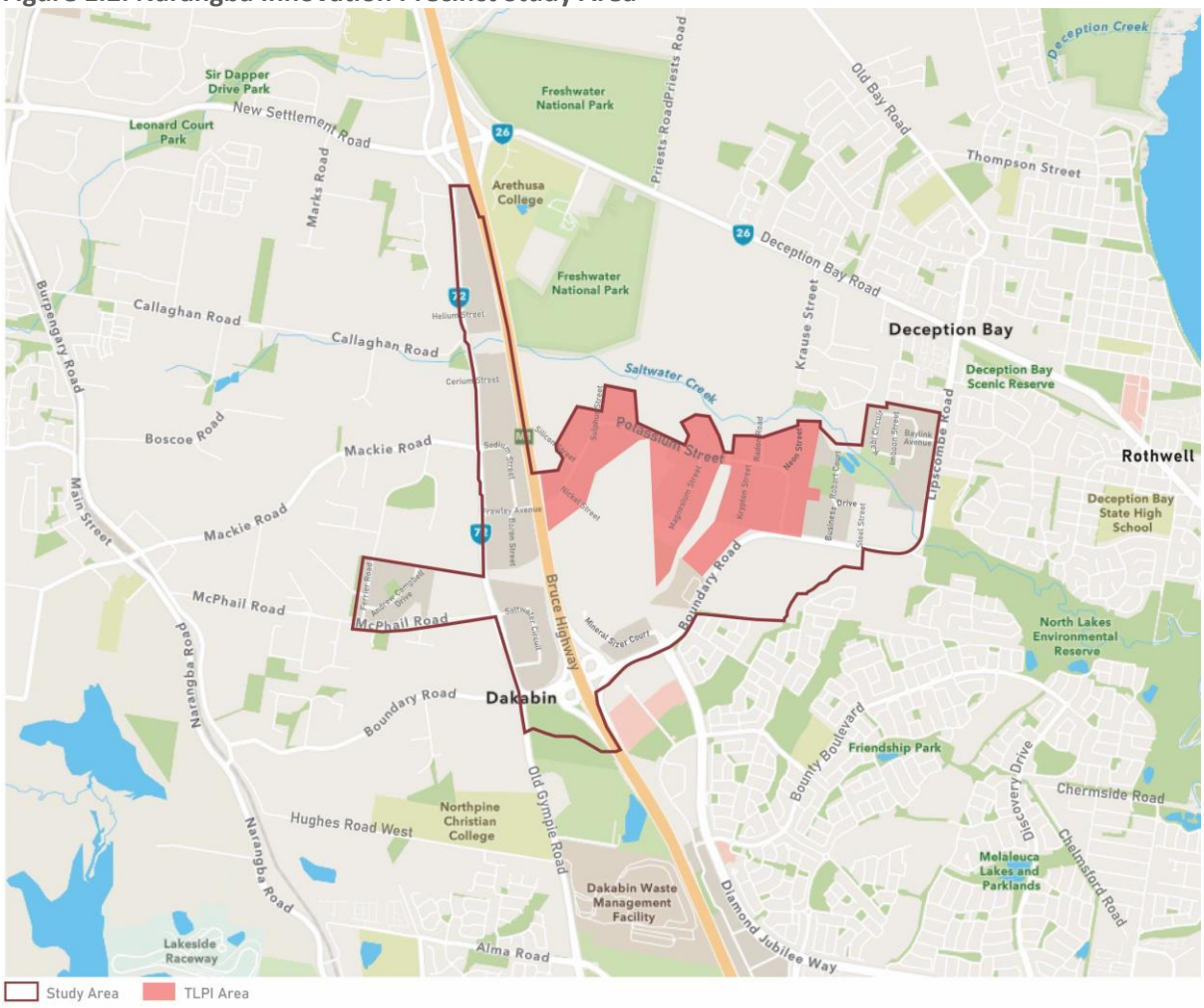
Figure 1.1. MBRC Regional Economic Development Strategy

Source: MBRC (2021a)

The Narangba Industrial Precinct was originally established in the 1970s for large scale, 'hard to locate' industries, such as Packer Leather that relocated to the site from the northern suburbs of Brisbane. The area was selected due to its access to the (then planned) Bruce Highway and having considerable buffer zones from any surrounding land uses, which made it ideal for heavy industry or 'hard to locate' industry.

MBRC is currently undertaking the Narangba Innovation Precinct Study (the Study) in response to the introduction of a Temporary Local Planning Instrument (TLPI), which was introduced in July 2020. The Study seeks to better understand the environmental health impacts and economic value of the Narangba Innovation Precinct to guide future planning decisions about development in and around the precinct. The results of the Study will inform a future land use policy position regarding the future development of the area.

Figure 1.2. Narangba Innovation Precinct Study Area



Source: MBRC (2021b)

MBRC engaged Lucid Economics to undertake an economic assessment of the precinct to better understand its current (and potential future) economic contribution to the region (as part of the Study). This assessment is required in order to inform further and future land use planning in the area as it relates to industrial and economic activities. Many of the businesses in the Narangba Industrial Precinct have been located there for many decades and over the more recent past, residential development has been allowed to encroach upon these industrial users, creating land use conflicts.

This assessment considers a number of perspectives, including:

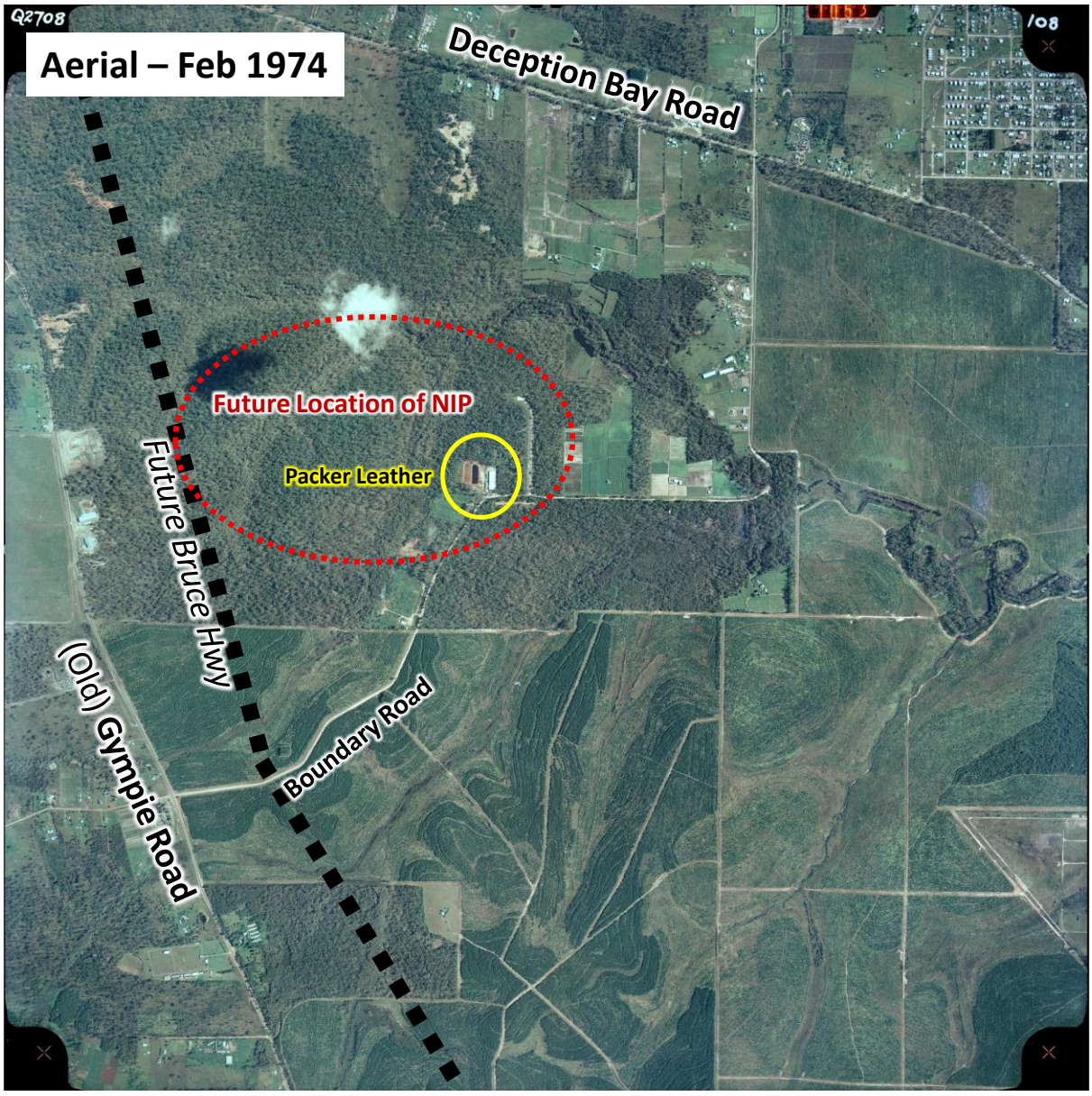
- Historical employment trends in the precinct
- Comparison of the precinct with others in the Moreton Bay region
- The precinct's economic contribution (historically, current and future)
- A variety of future economic scenarios for the precinct

2 Narangba Industrial Precinct

2.1 Overview

The Narangba Industrial Precinct was initially established in the 1970's by the State Government to accommodate large scale, 'hard to locate' industries (Figure 2.1).

Figure 2.1. Original Narangba Industrial Precinct (1974)

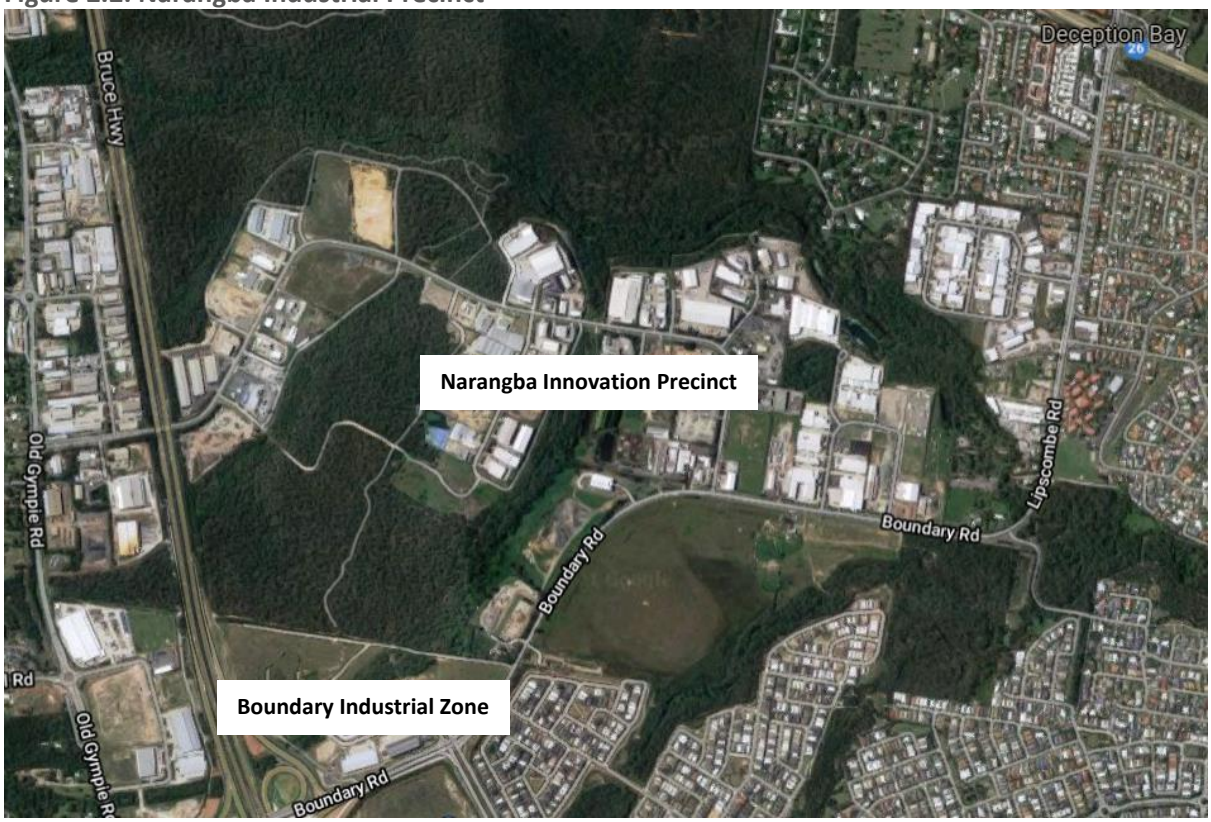


Source: MBRC (2021c)

Today, it is characterised by two distinct areas: the Narangba Innovation Precinct and the Boundary Industrial Zone (Figure 2.2). The area still has many of the original tenants as well as more recent arrivals in the Narangba Innovation Precinct and the Boundary Industrial Zone (located at the interchange of the Bruce Highway and Boundary Road).

For the purposes of this study (and the data available at a small geographic scale), both the Narangba Innovation Precinct and the Boundary Industrial Zone (combined referred to as the Narangba Industrial Precinct) are important.

Figure 2.2. Narangba Industrial Precinct



Source: Google Maps

The Queensland Government, through the South East Queensland Regional Plan 2017 (*ShapingSEQ*), recognises the Narangba Innovation Precinct as a Major Enterprise and Industrial area, which is a regionally significant industrial area and a major employment generator within the Moreton Bay region and South East Queensland (SEQ).

The MBRC Planning Scheme does not currently integrate *ShapingSEQ*, which means that current planning scheme provisions do not facilitate the outcomes sought by *ShapingSEQ* for the Narangba Innovation Precinct (East) as a major enterprise and industrial area.

The introduction of the MBRC Planning Scheme in 2016 changed the planning policy for the precinct. The Scheme does not support the establishment of new or expansion to existing Special industry uses. Industry operators identified issues with the MBRC Planning Scheme in that it is too limiting and prevents even minor changes to certain industry operations.

2.2 Temporary Local Planning Instrument

In 2005, there was a major industrial fire that raised serious community concerns about community health, safety and the environment. As a consequence Queensland Health commissioned *The Narangba Industrial Estate Health Impact Assessment* (Queensland Health, 2011) report in order to examine health, safety and amenity issues associated with Narangba industries (including air, noise and odour emissions) and the changes needed to better address health, safety, amenity and environmental concerns.

The MBRC Planning Scheme was accordingly informed by the recommendations of the 2011 Queensland Health Report and State Planning Policy 5/10: Air Noise and Hazardous Materials (SPP 5/10). In response to industry concerns, Council engaged an independent review of the MBRC Planning Scheme provisions and relevant State and Regional planning policies.

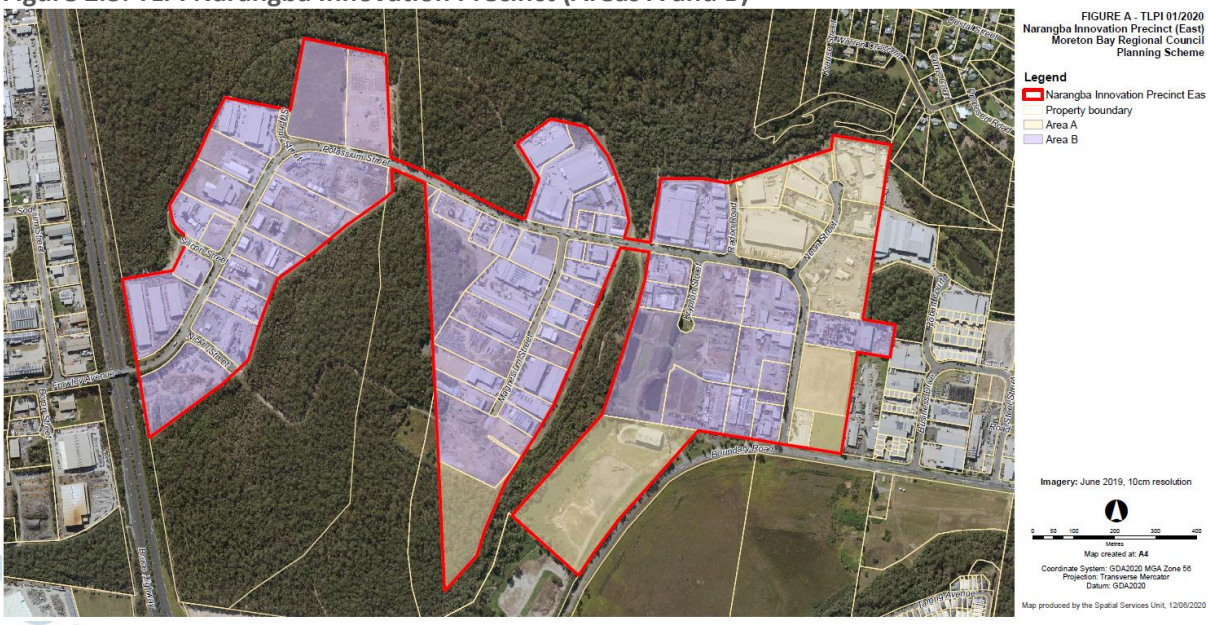
In July 2020, this review led to the *Temporary Local Planning Instrument (TLPI) 01/20 - Narangba Innovation Precinct (East)* in July 2020, which was made with the purpose to:

- Support new and existing high impact industry and existing special industry to enable new investment in industry to occur to provide economic benefits to the region and local area
- Protect sensitive land uses (such as residential uses) from adverse impacts including odour, air and noise emissions
- Provide a basis for land use decisions, in conjunction with community health and safety and emissions standards in other State approval or notification processes

The TLPI was established with a two year duration from the effective date (i.e. 3 July 2020), which is insufficient to support long-term capital investment from many of the existing businesses in the precinct. In response to the TLPI, the Moreton Bay Regional Council has undertaken the Narangba Innovation Precinct Study (the Study) which is the purpose for this economic assessment (refer Section 1).

The TLPI established two areas (Area A and Area B) with different planning requirements and performance outcomes identified for both areas (in the TLPI) (Figure 2.3).

Figure 2.3. TLPI Narangba Innovation Precinct (Areas A and B)



Source: MBRC (2020)

2.3 Geographic Boundary

Unfortunately, there is no Australian Statistical Geography Standard (ASGS) classification that aligns to the TLPI area, which limits the availability of official data for the precinct. The ASGS classification that most closely aligns with the Narangba Industrial Precinct is the local Destination Zone (DZ) as highlighted in Figure 2.4 below. In the context of this report (unless otherwise stated) this DZ is referred to as the Narangba Precinct. This economic assessment relies upon data for this DZ as the basis for most calculations.

Figure 2.4. Narangba Destination Zone (DZ)

Source: ABS Maps

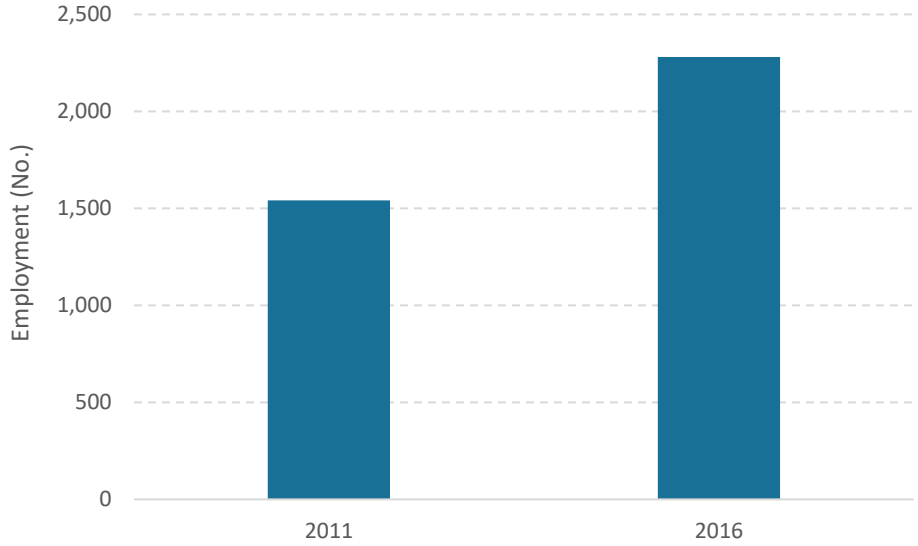
3 Economic Assessment

3.1 Historical Trends

From 2011 to 2016 employment in the Narangba Precinct increased from 1,541 to 2,280, an increase of 48% or an average annual growth rate of 8% (Figure 3.1). During this period employment in the MBRC area increased by an average annual rate of 5%.

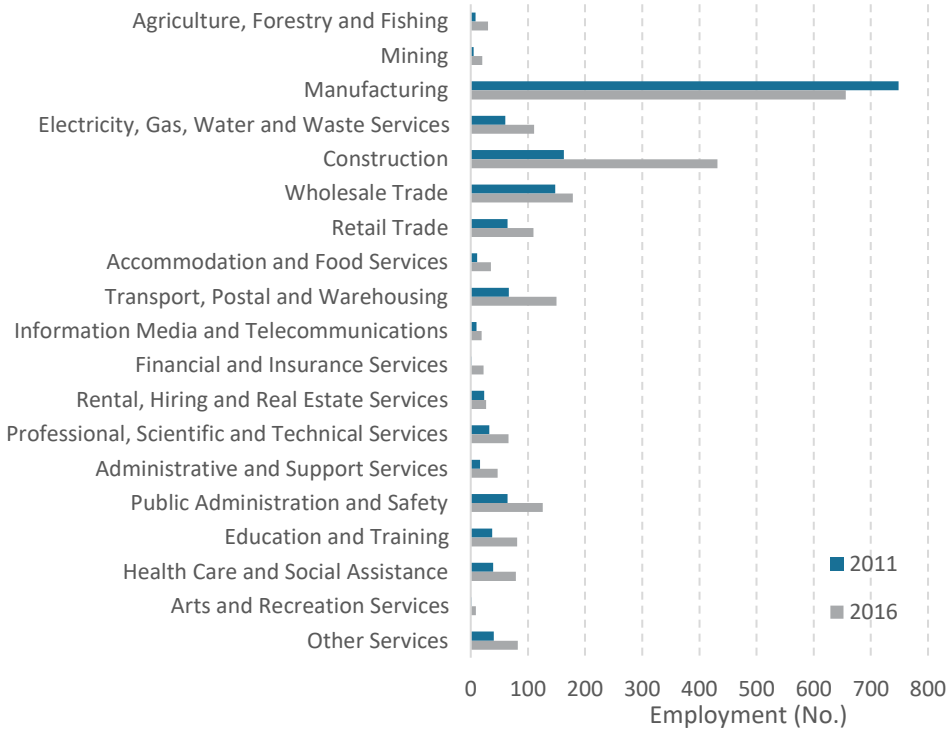
On an industry basis, the greatest gains were in the construction, transport and wholesale trade industries (Figure 3.2), which is in line with state and national trends as the construction sector expanded to meet local demands and the logistics function of the industrial sector overtook manufacturing.

Figure 3.1. Employment by Industry, Narangba Precinct (DZ)



Source: ABS (2017)

Figure 3.2. Employment by Industry, Narangba Precinct (DZ)



Source: ABS (2017)

3.2 Precinct Comparison

The table (Table 3.1) below compares various precincts in the Moreton Bay region. For a spatial description of the precincts please refer to **Appendix A**. The comparison shows that the Narangba Precinct (as defined by the DZ) is relatively smaller than the others, both in size and total industry value added (IVA) contribution to Gross Regional Product (GRP). However, on an employee basis, the precinct generates a greater IVA. The difference is due to the specific industry make-up within the Narangba Precinct and the fact that the industrial businesses in the precinct tend to have a greater proportion of exports and local value-adding through their processing of local (and imported) inputs. This fact is demonstrated most by the relatively lower employment density (i.e. jobs per hectare) compared the other precincts. North Lakes and Brendale (to a lesser extent) has a much higher proportion of employment from retail, restaurants and cafes, which (on average) have a greater number of employees but a much lower value added contribution to the economy of Moreton Bay (Figure 3.3).

Jobs in various industries have a greater value added contribution to the economy, which often includes industries (and businesses) that have more valuable local supply chains and export capacity. As highlighted in Figure 3.3, many of the industries that make up the Narangba Precinct (i.e. manufacturing; wholesale trade; electricity, gas, water and waste) have a much higher IVA contribution per employee than industries prevalent in North Lakes and Brendale (i.e. retail trade; accommodation and food services).

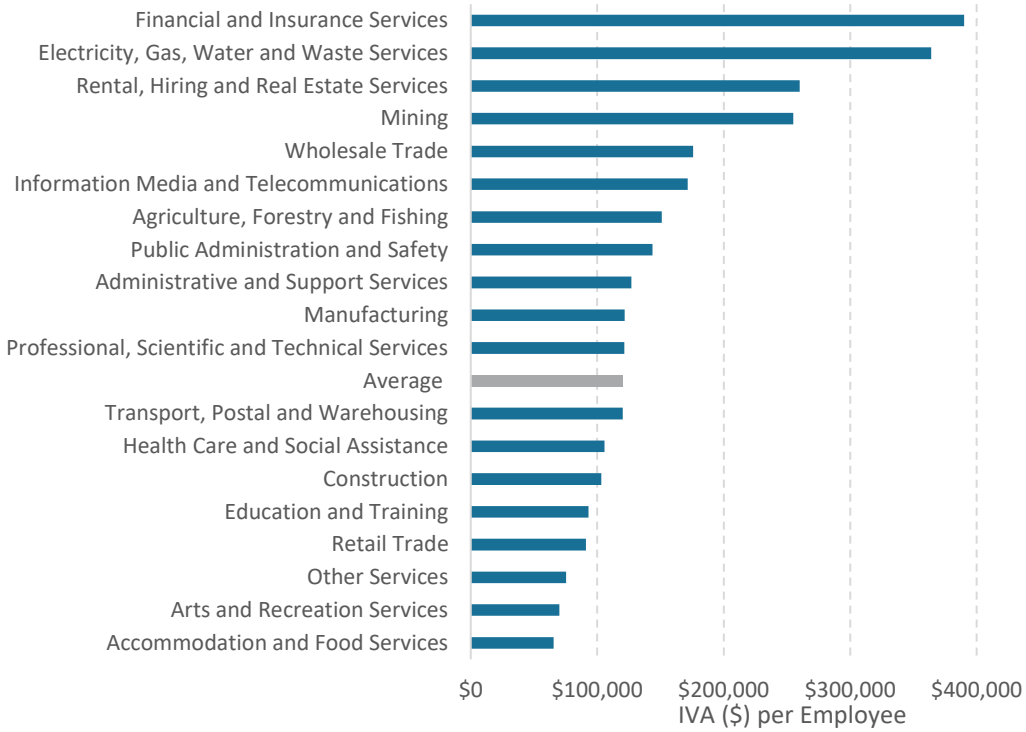
Furthermore, it should be noted that a large portion (approximately half) of the Narangba Precinct has not been developed and remains bushland. The majority of the Northlakes and Brendale areas have been developed.

Table 3.1. Precinct Comparison (2016)

	Narangba	North Lakes	Brendale Total	Brendale West and East	Brendale East
Area (ha)	691	1,178	1,074	648	304
Employment (No.)	2,118	8,756	9,017	8,205	5,579
IVA ($m)	$286.6	$1,013.4	$1,120.9	$1,021.9	$703.1
Job per ha	3	7	8	13	18
IVA per ha	$414,825	$860,293	$1,043,674	$1,576,971	$2,312,738
IVA per Employee	$135,337	$115,741	$128,016	$124,543	$126,021

Note: IVA – Industry value added. Area refers to the area of the DZ. Brendale Total includes South, West and East. Refer Appendix A.
Source: ABS (2017); Lucid Economics

Figure 3.3. IVA per Employee, Moreton Bay, by Industry (2020)



Source: EconomyID (2021)

A comparison with MBRC as a region and other relatively residential dominated precincts (Table 3.2) shows the employment and economic intensity of Narangba and the other precincts above.

Table 3.2. Precinct Comparison with Other Areas (2016)

Land Comparison	MBRC	Mango Hill	Griffin	Bray Park	Arana Hills
Area (sq km)	2042	27.41	22.53	10.75	11.38
Area (ha)	204,200	2,741	2,253	1,075	1,138
Employment (No.)	102,500	1,221	392	1,332	1,452
IVA ($m)	$11,797.4	$127.0	$45.3	$136.9	$169.7
Job per ha	0.5	0.4	0.2	1.2	1.3
IVA per ha	$57,774	$46,340	$20,121	$127,381	$149,100
IVA per Employee	$115,097	$104,029	$115,643	$102,804	$116,857

Note: IVA – Industry value added. Area refers to the area of the DZ, except for MBRC as the LGA area.
Source: ABS (2017); Lucid Economics

3.3 Economic Contribution

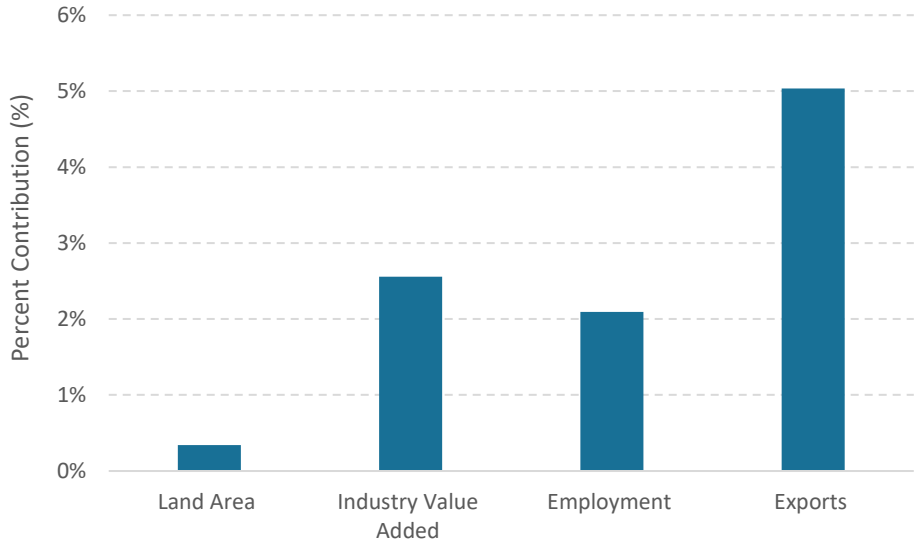
The Narangba Precinct makes an important economic contribution to the Moreton Bay regional economy. While relatively small in terms of its size (0.3% of the total area of the Moreton Bay region), it represented 2.6% of IVA, 2.1% of employment and 5.0% of exports in 2020 (Figure 3.4 and Table 3.3). Furthermore, the precinct's economic growth exceeded that of the Moreton Bay region from 2016 to 2020, outperforming the region in terms of IVA, employment and export growth (Table 3.4).

The relative economic contribution of the Narangba Precinct is demonstrative of the industries accommodated within the precinct. Has highlighted in Section 3.1, the precinct has a relatively high proportion of industrial firms (as demonstrated by the manufacturing, wholesale trade and transport sectors). Many of the manufacturers in the precinct export a considerable proportion (between 70%-90%) of their goods outside of the Moreton Bay region and some export substantially overseas. Figure 3.5 shows the average exports by industry from Moreton Bay (as a % of total production). As the figure shows, these manufacturers are greatly exceeding the average exports for the local manufacturing sector.

Many of the firms in the Narangba Innovation Precinct add a considerable amount of value to their products within their facilities, creating proportionally a greater share of contribution to Gross Regional Product than many other industries (such as retail, accommodation and food services, etc.) (refer Figure 3.3).

It should be noted that some individual businesses in the Narangba Innovation Precinct represent technology and processes that are either one of kind within Queensland or Australia. These businesses utilise the most advanced technology available in the world and produce goods that are nationally and/or globally competitive, which directly supports the ideals that are espoused in the MBRC REDS. Furthermore, there are waste disposal technologies within the precinct that do not exist anywhere else in Queensland. Beyond the technological value of these businesses to the local economy, they provide a valuable service to the environment of Queensland (and Australia) as well as the local community in the safe disposal of potentially hazardous materials.

Figure 3.4. Narangba Precinct (DZ), % Contribution to Region (2020)



Source: ABS (2017); ABS (2021); EconomyID (2021); Lucid Economics

Table 3.3. Narangba Precinct (DZ) Economic Contribution (% of Region)

	2016	2020
Area	0.3%	0.3%
Industry Value Added	2.4%	2.6%
Employment	2.1%	2.1%
Exports	4.9%	5.0%

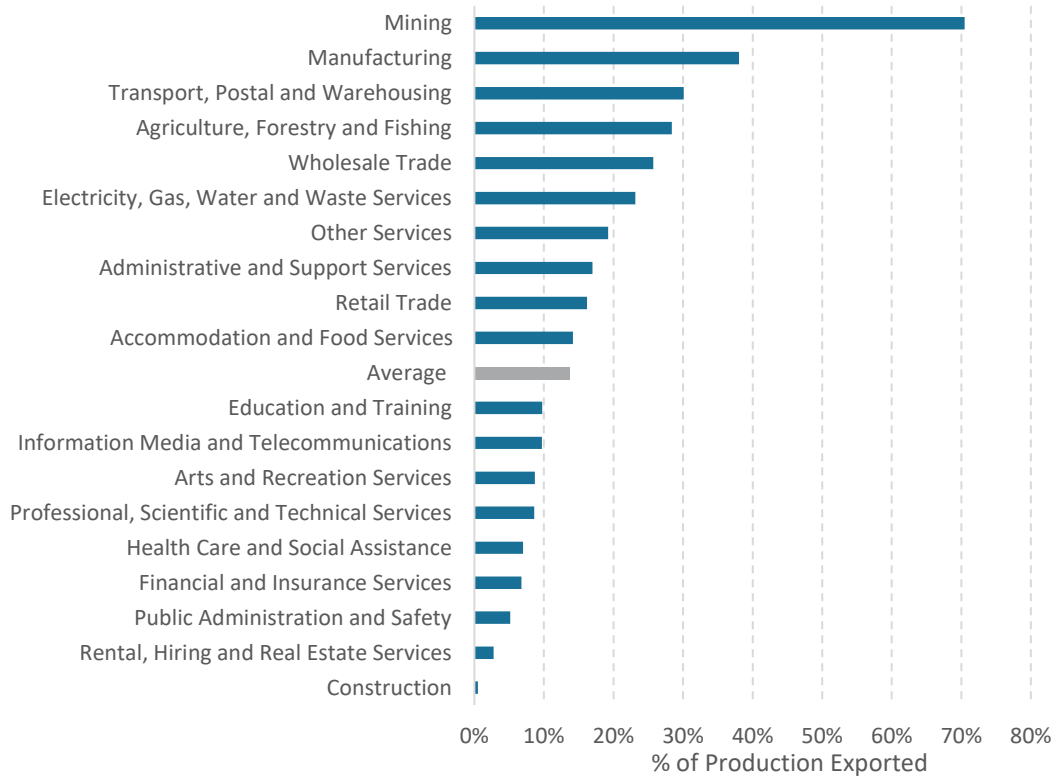
Source: ABS (2017); ABS (2021); EconomyID (2021); Lucid Economics

Table 3.4. Narangba Precinct (DZ) Economic Contribution (2016-20)

	2016	2020	2016-20 Growth (%)	Avg Annual Growth (%)
Narangba				
Industry Value Added ($m)	$286.6	$332.9	16.1%	3.8%
Employment (No.)	2,118	2,265	7.0%	1.7%
Exports ($m)	$184.2	$220.8	19.9%	4.6%
MBRC				
Industry Value Added ($m)	$11,797.4	$13,026.0	10.4%	2.5%
Employment (No.)	102,500	108,208	5.6%	1.4%
Exports ($m)	$3,781.2	$4,382.9	15.9%	3.8%

Source: ABS (2017); ABS (2021); EconomyID (2021); Lucid Economics

Figure 3.5. Industry Exports from Moreton Bay, % of Total Production (2020)



Source: EconomyID (2021)

3.4 Current Contribution (2021)

The current contribution of the Narangba Precinct is highlighted in the table below (Table 3.5). This outcome is based on consultation with existing businesses and consideration of businesses that have moved into the precinct since 2016[1] based on analysis of aerial imagery from 2016 and 2021 (Figure 3.6). Given the make-up of industries within the Narangba Precinct (i.e. manufacturing, wholesale trade, transport and waste services), consultation was conducted with businesses in the precinct from these sectors.

The analysis shows a decrease from 2020 levels, which is due to the effects of the COVID-19 pandemic.

Table 3.5. Narangba Precinct (DZ) Economic Contribution (2021)

	Narangba	MBRC (% Contribution)
Industry Value Added ($m)	$320.2	2.5%
Employment (No.)	2,273	2.1%
Exports ($m)	$226.9	5.2%

Source: ABS (2017); ABS (2021); EconomyID (2021); Lucid Economics

Beyond the direct contributions that the Narangba Precinct makes as highlighted above, there are important indirect (flow-on) impacts (i.e. indirect employment and revenue generated for suppliers) that the precinct generates for the Moreton Bay regional economy. Through consultation with individual businesses, most utilise very strong local supply chains (upwards of 70%-90%). As a benchmark, the average local supply chain usage for the Moreton Bay region is 60% and for the manufacturing industry it is 28% (EconomyID, 2021).

In order to determine the direct and indirect economic contribution to the Moreton Bay regional economy, in terms of Gross Regional Product and employment, a bespoke input-output (IO) model was developed. A summary of the modelling approach and assumptions are provided in **Appendix C**.

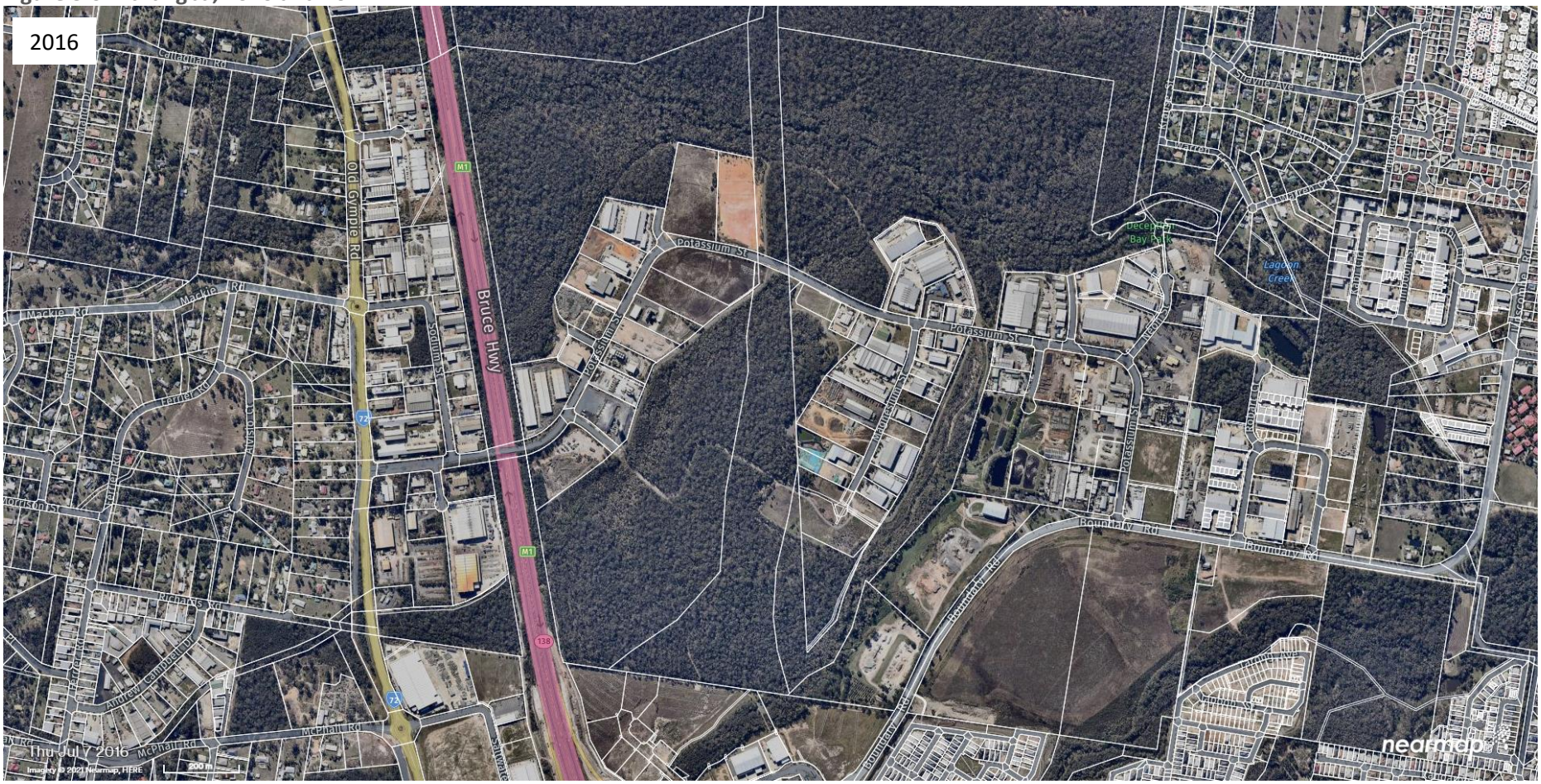
Table 3.6. Narangba Precinct (DZ) Economic Contribution (2021)

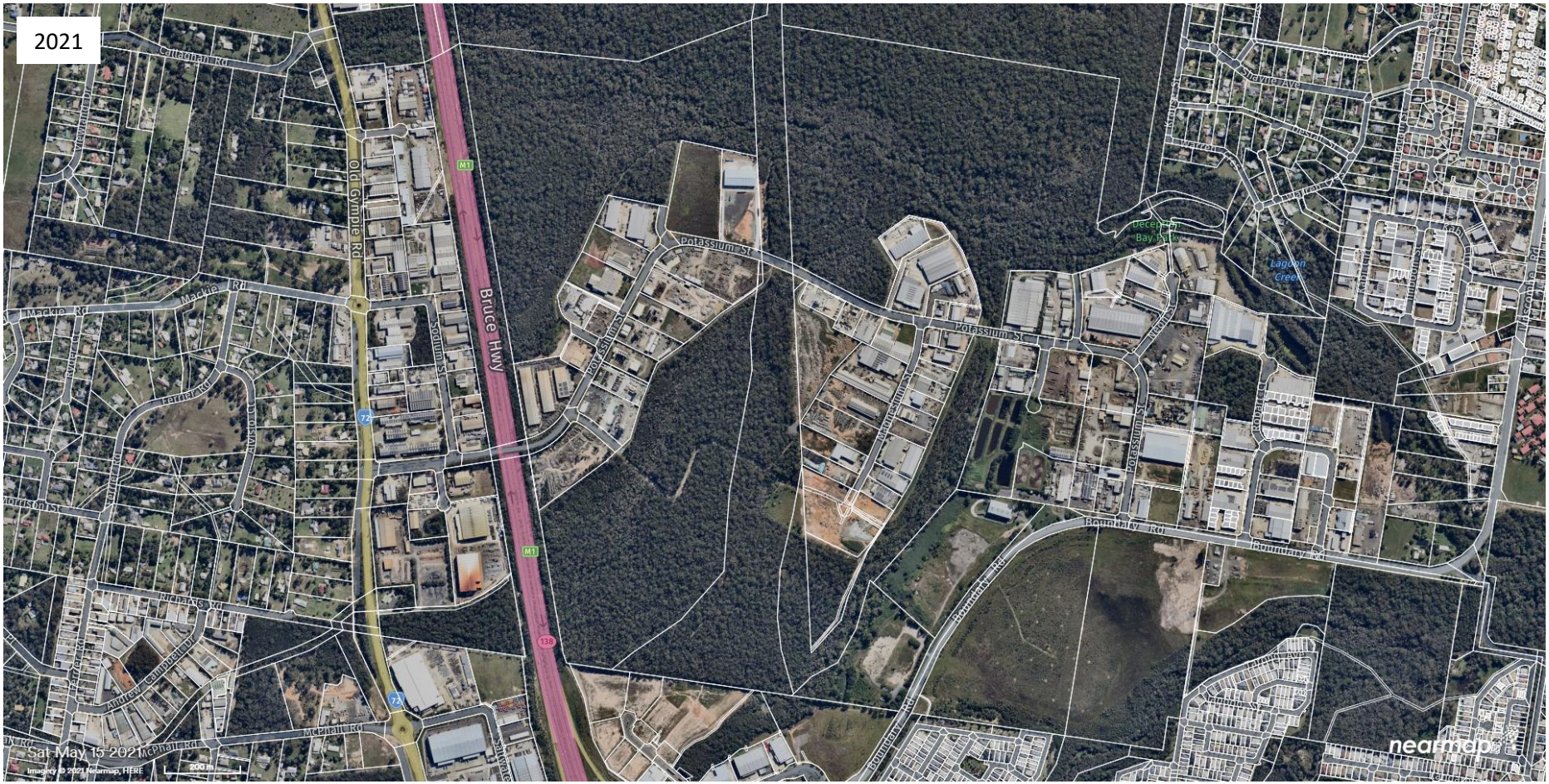
	Gross Regional Product ($m)	Employment (No.)
Direct	$320.24	2,273
Indirect	$419.96	2,635
Total	**$740.20**	**4,908**

Source: Lucid Economics

[1] 2016 was used as a base year due to the availability of employment data at a very small geographic level (i.e. destination zone).

Figure 3.6. Narangba, 2016 and 2021





Source: MBRC (2021c)

3.5 Future Planning Scenarios

Given the purpose of the Narangba Innovation Precinct Study and considerations for a future planning policy for the precinct, a number of future planning scenarios were considered in regard to the future potential economic contribution of the precinct, including:

- **Scenario 1**: Existing operations within the precinct can continue, however any expansion or greenfield developments will have to abide by the conditions in the MBRC Planning Scheme 2016.
- **Scenario 2**: Existing operations within the precinct can continue and expand, however any expansion or greenfield developments will have to abide by the conditions in the Temporary Local Planning Instrument 01 of 2020.
- **Scenario 3**: Existing operations within the precinct can continue and expand, and any new developments will be allowed in line with the superseded Caboolture Shire Plan.
- **Scenario 4**: The existing MBRC Planning Scheme 2016 conditions (with no Temporary Local Planning Instrument) are applied to all businesses within the zone, resulting in some existing operations closing and some planned future investment not occurring.

3.5.1 Future Scenarios

Scenario 1 (Business As Usual)
This scenario aligns with the existing MBRC Planning Scheme 2016 and would allow existing operations to continue, however, would preclude these operations expanding into the future and would also restrict future greenfield developments that do not align to the MBRC Planning Scheme 2016.

Under this scenario, some existing businesses would not be able to enact current expansion plans and some greenfield developments for Special and High Impact industries would not take place. It should be noted that for some existing businesses, current expansion plans are essential to business viability and without the ability to expand, the existing operations may be impacted and their operational viability diminished. It should be further noted that for this scenario, all existing operations have been assumed to continue at current rates of production.

Scenario 2 (Limitations to New Developments)
This scenario is the same as Scenario 1, however, existing businesses within the precinct would be allowed to expand. Future greenfield developments that do not align with the MBRC Planning Scheme 2016 or the Temporary Local Planning Instrument (TLPI) would not be allowed.

Scenario 3 (Similar to Caboolture Shire Plan)
This scenario would see the precinct continue to operate as it traditionally had under the superseded Caboolture Shire Plan, allowing Special and High Impact industries to establish and expand, which is not allowed in any other parts of the Moreton Bay region. Under this scenario all existing businesses would be allowed to expand and greenfield developments could take advantage of previous planning conditions under the Caboolture Shire Plan, which was superseded by the MBRC Planning Scheme 2016.

Scenario 4 (Closure of Some Businesses)

This scenario would see all business (existing and future) align to the MBRC Planning Scheme 2016, with no TLPI. Under this scenario, some businesses that require expansion to support their on-going business viability would be forced to close. Furthermore, the continuation of the MBRC Planning Scheme 2016, where new and expansions to Special and High Impact industries are not supported, would prevent some new planned investments from materialising. Under this scenario, the current (and any future) economic contribution from some of the current businesses and new planned future investments would not exist.

3.5.2 Additional Assumptions

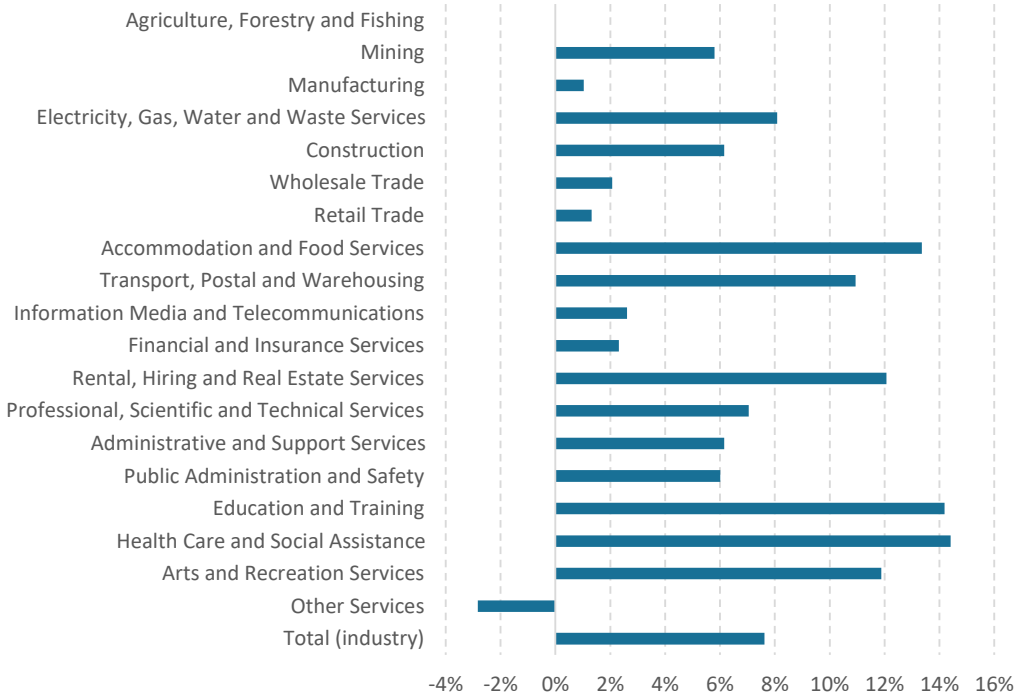
Beyond the assumptions outlined above (refer Section 3.3 and 3.4) and in **Appendix C**, a number of additional assumptions have been applied to the scenarios above, including:

- No future growth to existing businesses (beyond identified current expansion projects)
- No future greenfield developments (beyond those identified through consultation)
- No future change of use/re-use/redevelopment of any existing sites

Many of these assumptions are flawed, for example, some existing businesses not impacted by the TLPI or any future contemplated land use policy changes have future capacity to grow on their existing sites. These assumptions have been made to provide a fair comparison across the scenarios and to avoid speculation regarding future potential growth of individual businesses or alternative scenarios (i.e. potential re-use/redevelopment of sites) that may or may not eventuate. As such, the analysis uses the best information to date and provides a balanced and fair comparison across the scenarios in order to inform discussion regarding future land use planning policy.

Additionally, it should be noted that many of the industries in the Narangba Precinct (i.e. Waste Services and Transport, Postal and Warehousing) are anticipated to experience strong growth to 2025 (Figure 3.7), which indicates that the future economic contribution of the Narangba Precinct, under any scenario, is likely to increase.

Figure 3.7. Employment by Industry Projections, Greater Brisbane



Note: Projections for the Moreton Bay region are not available and the region is included in 'Greater Brisbane'.
Source: DESE (2021)

3.5.3 Outcomes

The outcomes of the scenario analysis are presented in the tables below (Table 3.7 and Table 3.8). As highlighted, Scenario 1 (Business as Usual) would enforce the provisions under the MBRC Planning Scheme 2016, preventing existing businesses (and some new ones) from expanding in the precinct. As such, this scenario delivers no change on the current economic contribution of the precinct.

Scenario 2 (Limitations to New Development) would allow some future expansion of existing activities, thereby increasing the economic contribution of the precinct (i.e. 5% direct increase in GRP and 3% direct increase in employment), but still limiting some future expansion potential. Scenario 3 (Similar to Caboolture Shire Plan) demonstrates the economic contribution of all future expansion projects identified (from existing businesses and future potential developments). It represents the maximum economic contribution from the precinct (i.e. 14% direct increase in GRP and 10% direct increase in employment). Scenario 4 (Closure of Some Businesses) represents the loss of many of the businesses that require confidence in the local planning scheme in order to support their ongoing business and any future plans for investment. This scenario demonstrates a greatly reduced economic contribution from the precinct (i.e. decrease of 31% in direct GRP and 16% in direct employment).

Table 3.7. Narangba Precinct, Economic Contribution Scenario Analysis

	Gross Regional Product ($m)	Employment (No.)
Scenario 1 (Business as Usual)		
Direct	$320.24	2,273
Indirect	$419.96	2,635
Total	**$740.20**	**4,908**
Scenario 2 (Limitations to New Developments)		
Direct	$335.63	2,345
Indirect	$436.29	2,711
Total	**$771.93**	**5,056**
Scenario 3 (Similar to Caboolture Shire Plan)		
Direct	$370.46	2,515
Indirect	$498.86	2,982
Total	**$869.31**	**5,498**
Scenario 4 (Closure of Some Businesses)		
Direct	$245.33	1,952
Indirect	$327.38	2,188
Total	**$572.71**	**4,140**

Source: Lucid Economics

Table 3.8. Narangba Precinct, Economic Contribution Scenario Analysis, Variations from Base Case

	Gross Regional Product ($m)	Employment (No.)
Scenario 1 (Business as Usual)		
Direct	$0.00	0
Indirect	$0.00	0
Total	**$0.00**	**0**
Scenario 2 (Limitations to New Developments)		
Direct	$15.39	72
Indirect	$16.33	76
Total	**$31.73**	**148**
Scenario 3 (Similar to Caboolture Shire Plan)		
Direct	$50.22	242
Indirect	$78.90	347
Total	**$129.11**	**589**
Scenario 4 (Closure of Some Businesses)		
Direct	-$74.91	-322
Indirect	-$92.58	-446
Total	**-$167.49**	**-768**

Source: Lucid Economics

3.6 Additional Considerations

Beyond the quantifiable economic contributions identified above, there are a number of other factors to consider in any future land use planning policy changes, including:

- **Greater risk of environmental and human harm**: the precinct currently functions as the only waste disposal site in Queensland for certain materials. If this capability were lost, then these materials would travel to the only alternative facilities in Victoria, which would require more handling and a much longer distance to travel. With increased handling and a longer distance to travel, there would be inherit increased risk of exposure of these materials to the environment (through spills), an increased risk of harm to humans and greater transport costs and emissions.
- **Increased waste of kangaroo pelts**: Packer Leather receives the vast majority of kangaroo pelts produced in Australia. If this capability was lost, then hundreds of thousands of kangaroo pelts would end up in waste facilities, as the kangaroo meat industry would continue (given the value of the meat exceeds that of the pelt).
- **Loss of technology**: some of the technology represented in the precinct is one of a kind in Queensland. The loss of any facilities would represent a loss in technology, innovation and, potentially, investment in contemporary emissions improvement/management to the region (and the State). Some companies in the precinct are considering expansion into technology that currently does not exist within the State. Changes to the land use planning policy position that unduly restricts industrial development and investment in the precinct could result in the State (and the region) 'missing out' on new technology and future innovations.

- **Loss of confidence**: future investment from businesses depends on having a high degree of confidence in the location. Any future changes to the land use planning policy position would not only affect the confidence of existing businesses to invest further into their sites and the precinct (and the region) but would also affect other existing businesses (in and around the precinct) as well as future investors considering the region as a potential location. Any changes would signal a potential future risk for businesses (even if they are not affected by any new changes) as this could create the perception that future industrial development is not supported in the precinct under the planning policy settings. These risks could encourage potential future investors to favour other locations in South East Queensland, or interstate.
- **Compromise in Brand Value and Regional Reputation**: any weakening in investor confidence would compromise the efforts of the REDS to attract investment from existing (or future) investors and potentially weaken the brand of the Moreton Bay region as an investment destination, compromising many of the goals and aspirations represented in the REDS. Through the REDS, there has been a resurgence in business and industry support for the region, which could be at risk if business and industry perceived any land use planning policy changes as a risk.

4 Summary

The Narangba Innovation Precinct was created to be a special industry precinct for heavy (or otherwise known as 'hard to locate') industry. The precinct has flourished as such and many current businesses in the precinct could not easily operate anywhere else in South East Queensland. All of these special industry facilities have been purpose built and cannot be easily replicated elsewhere (if there was suitable land identified). Furthermore, the cost to relocate these industries (as well as the cost of business interruption) would be extreme.

Not all businesses in the precinct are impacted by the special industry zoning. Many businesses, mostly involved in the construction or transport industry, could operate from any industrial zoning, however, these businesses often operate on very thin industry margins and therefore cannot afford to purchase land in other industrial precincts within the Moreton Bay region (particularly as many of these businesses require access to the Brisbane region and moving further north is not a viable option at the moment).

Many of the businesses in the Narangba Innovation Precinct represent the highest standard of technology and are leaders in their field (nationally and/or internationally). These businesses embody the traits espoused by the REDS.

The Narangba Industrial Precinct has outperformed the region in terms of growth in economic contribution (in terms of industry value added), employment and exports. The precinct makes a higher contribution than many other precincts (in terms of industry value added per employee). Most of the businesses within the precinct maintain very strong local supply chains and contribute strongly to the revenue of businesses in other parts of the Moreton Bay region. Many of the businesses in the precinct that contribute to its performance cannot operate from any other sites within the Moreton Bay region.

Any change to land use planning policy that restricts the current (and/or future) operations of these businesses places these businesses and their existing (and future potential) economic contribution to the region (and the State) at risk. Furthermore, for some of these businesses, future expansion is necessary for them to retain competitiveness and without the ability to expand, their on-going viability may be challenged.

The REDS provides clear direction and guidance to support economic and industry growth in high value-adding industry sectors that can contribute affectively to the future goals and targets identified in the REDS. The Narangba Innovation Precinct clearly has a strong role to play in contributing to the achieving the goals espoused in the REDS.

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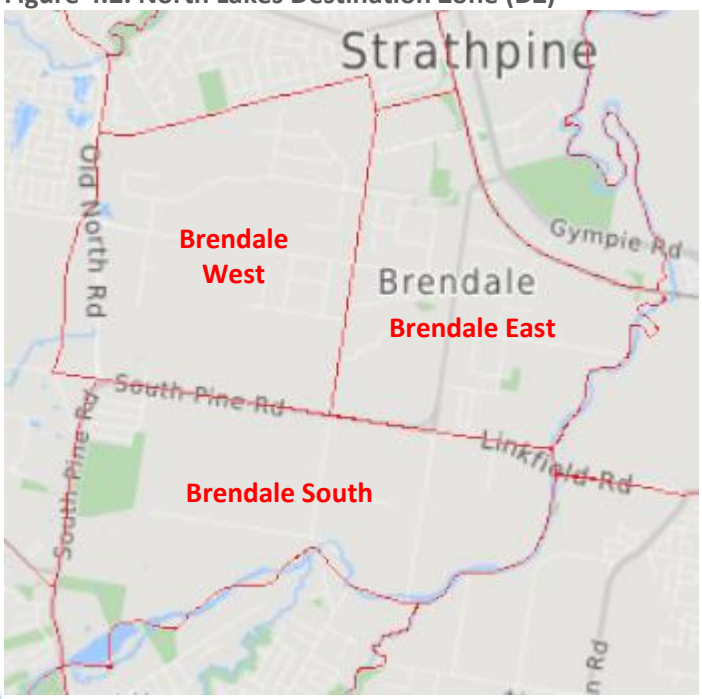
Appendix A: Comparative Areas

The following figures provide geographic boundaries uses in the comparative analysis.

Figure 4.1. North Lakes Destination Zone (DZ)

Source: ABS Maps

Figure 4.2. North Lakes Destination Zone (DZ)



Source: ABS Maps

Appendix B: Narangba Employment by Industry

The following table provides a detailed overview of employment by industry in the Narangba Precinct.

Table 4.1. Narangba Precinct (DZ), Employment by Industry (2016)

	Employment
Agriculture	5
Aquaculture	6
Forestry and Logging	5
Non-Metallic Mineral Mining and Quarrying	9
Manufacturing, nfd	80
Food Product Manufacturing	63
Textile, Leather, Clothing and Footwear Manufacturing	88
Wood Product Manufacturing	67
Printing (including the Reproduction of Recorded Media)	11
Petroleum and Coal Product Manufacturing	11
Basic Chemical and Chemical Product Manufacturing	101
Polymer Product and Rubber Product Manufacturing	12
Non-Metallic Mineral Product Manufacturing	5
Primary Metal and Metal Product Manufacturing	23
Fabricated Metal Product Manufacturing	44
Transport Equipment Manufacturing	75
Machinery and Equipment Manufacturing	38
Furniture and Other Manufacturing	31
Electricity Supply	11
Water Supply, Sewerage and Drainage Services	3
Waste Collection, Treatment and Disposal Services	94
Construction, nfd	16
Building Construction	63
Heavy and Civil Engineering Construction	50
Construction Services	288
Wholesale Trade, nfd	17
Basic Material Wholesaling	45
Machinery and Equipment Wholesaling	47
Motor Vehicle and Motor Vehicle Parts Wholesaling	15
Grocery, Liquor and Tobacco Product Wholesaling	11
Other Goods Wholesaling	35
Commission-Based Wholesaling	10
Retail Trade, nfd	12
Motor Vehicle and Motor Vehicle Parts Retailing	37
Food Retailing	6
Other Store-Based Retailing	51
Food and Beverage Services	25
Transport, Postal and Warehousing, nfd	7
Road Transport	64
Postal and Courier Pick-up and Delivery Services	61

	Employment
Warehousing and Storage Services	16
Information Media and Telecommunications, nfd	3
Publishing (except Internet and Music Publishing)	3
Insurance and Superannuation Funds	11
Rental and Hiring Services (except Real Estate)	14
Property Operators and Real Estate Services	3
Professional, Scientific & Technical Services (ex. Computer System Design & Related)	50
Computer System Design and Related Services	5
Administrative Services	10
Building Cleaning, Pest Control and Other Support Services	27
Public Administration	18
Public Order, Safety and Regulatory Services	101
Education and Training, nfd	12
Preschool and School Education	48
Tertiary Education	3
Adult, Community and Other Education	10
Hospitals	3
Medical and Other Health Care Services	14
Social Assistance Services	50
Repair and Maintenance	52
Personal and Other Services	23
Total	**2,118**

Note: nfd – not further defined
Source: ABS (2017)

Appendix C: Economic Contribution Modelling

Approach

This assessment leverages an Input-Output (IO) framework and is based on the latest IO tables produced by the Australian Bureau of Statistics (ABS) (). This assessment evaluates the current and future economic contribution of the precinct based on inputs from existing businesses as well as data from the 2016 Census. The assessment has focused solely on the economic activity generated from within the designated precinct.

The economic analysis identifies a various economic metrics. For this assessment, the following metrics have been identified:

- **Gross Regional Product**: value of the total economic output minus the costs of goods and services used as inputs, plus net taxes. Gross Regional Product (GSP) is a preferred measure of the economy as it focuses on the net contribution from the local economy. This value is the local equivalent to Gross State Product (GSP), at the state level, and Gross Domestic Product (GDP), at the national level.
- **Employment**: employment positions generated, expressed on a full-time equivalent (FTE) basis.

These metrics are measured in terms of the direct as well as the indirect (flow-on) impacts in the State. Indirect (flow-on) impacts are measured in two ways:

- **Type I**: Production effect or supply chain impacts linking to the direct impact.
- **Type II**: Consumption induced effect, which measures expenditure paid by employees related to the project in the broader economy.

Assumptions

The key driver for this assessment has been employment by industry. These assumptions have been derived through consultation with existing businesses, evaluation of 2016 employment by industry (place of work) data as well as employment by industry growth as detailed by Department of Education, Skills and Employment (DESE) for the Moreton North SA4 region. Employment by industry for the current precinct was determined by using the 2016 data as a baseline and increasing these estimates based on the DESE data and then augmenting these results for 2021 through analysis of 2016 and 2021 aerial imagery and consultation with existing businesses regarding current employment levels.

Employment was used as the key driver for economic modelling in the IO framework.

Table C.4.2. Employment by Industry, Narangba Precinct (DZ)

	2016	2021
Agriculture, Forestry and Fishing	16	32
Mining	9	12
Manufacturing	649	641
Electricity, Gas, Water and Waste Services	108	101
Construction	417	448
Wholesale Trade	180	278
Retail Trade	106	75
Accommodation and Food Services	25	19
Transport, Postal and Warehousing	148	174
Information Media and Telecommunications	6	6
Financial and Insurance Services	11	12
Rental, Hiring and Real Estate Services	17	19
Professional, Scientific and Technical Services	55	66
Administrative and Support Services	37	28
Public Administration and Safety	119	154
Education and Training	73	87
Health Care and Social Assistance	67	66
Arts and Recreation Services	0	0
Other Services	75	54
Total	**2,118**	**2,273**

Source: ABS (2017); DESE (2021); Lucid Economics

Input-Output Modelling Limitations

Input-output (IO) modelling is a common technique for economic impact assessment and has been used for a range of purposes, including to inform strategic or government policy decision making. However, IO modelling has certain limitations and weaknesses, including:

- **Lack of supply-side constraints**: IO multipliers assume that extra output can be produced in one area of activity without taking away resources from other activities. Actual impacts would be dependent on the availability of appropriate labour and capital and other productive inputs.
- **Fixed prices**: IO systems assume fixed prices, so that the effects of relative price changes play no role in the allocation of scarce resources between activities. Essentially, prices are fixed and do not change relative to changes in supply and demand. Actual impacts would be affected by relative price changes due to constraints on the availability of labour, capital and other inputs and policy changes as well as changes in demand.
- **Fixed ratios for intermediate inputs to production and outputs from production**: IO modelling uses fixed input structures for each industry so that changes in production technology and the use of inputs in production play no role in impact assessment. Actual impacts could be affected by changes in production technologies including in the use of domestic and imported inputs and the mix of outputs including in the supply of products to household, investment and export demands.

- **No allowance for household purchasers' marginal responses to change**: IO modelling assumes that consumption is fixed to initial budget shares, so that real budget shares remain unchanged with changes in household income and relative prices. In practice, the level and composition of household purchases would be affected by income and relative price changes.
- **Absence of budget constraints**: IO modelling assumes that consumption is unconstrained so that changes in household or government consumption occur without reducing demand elsewhere. In practice, the level of consumption expenditure by households and government would be budget constrained.

Despite its flaws, IO modelling has proven an effective tool in understanding the economic benefits of a specific project, strategy or policy.

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