ETHOS URBAN

Mackay Industrial Land Study

Prepared for Mackay Regional Council

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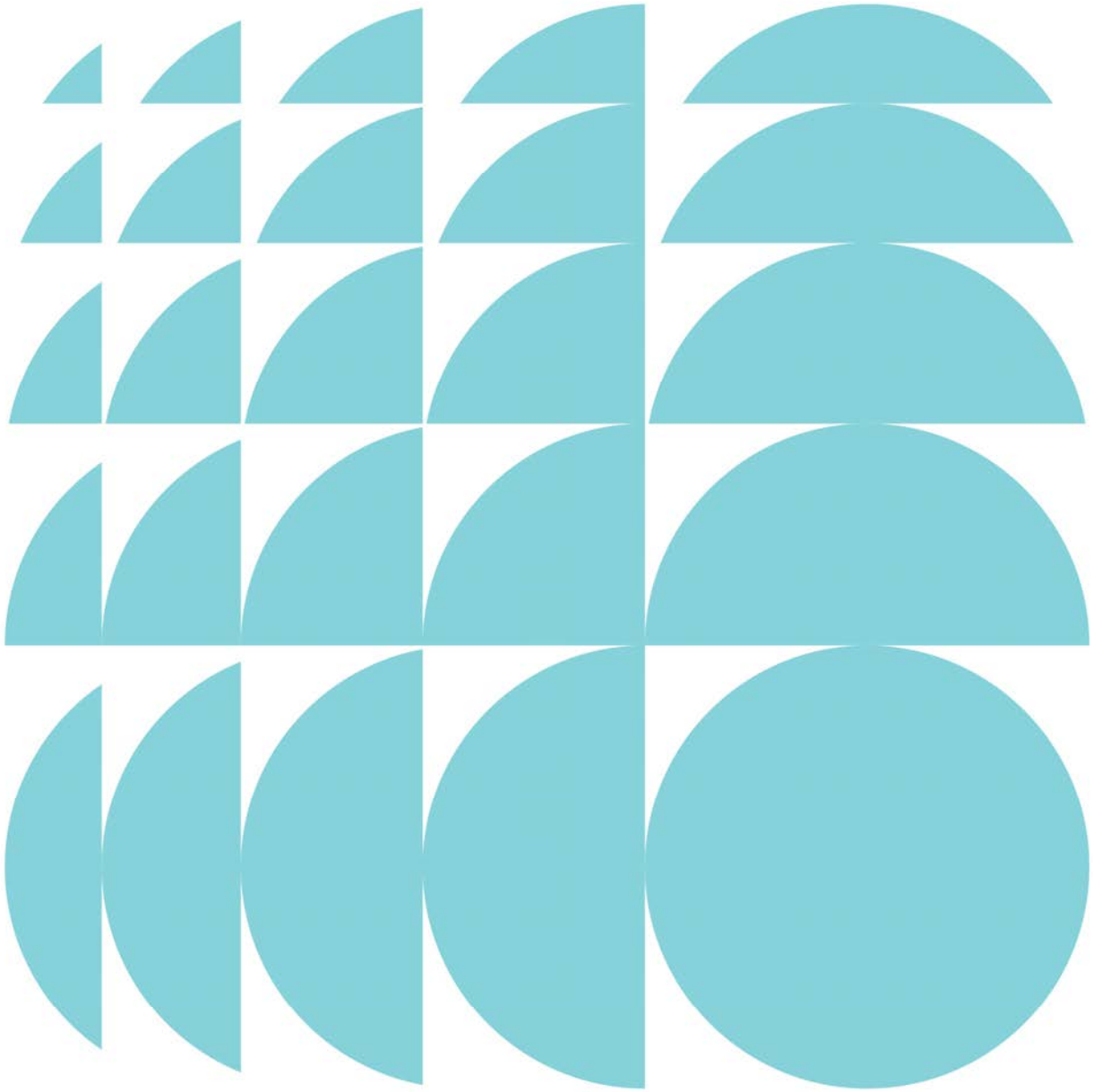

Authorship

Report stage	Author	Date	Review	Date
Full Draft Report	Malcolm Spence, Chris Harris, Rajiv Mahendran	26 July 2020	Chris McNeill	27 July 2020
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Every effort has been made to ensure the accuracy of the material and the integrity of the analysis presented in this report. However, Ethos Urban Pty Ltd accepts no liability for any actions taken on the basis of report contents.

COVID-19 is a rapidly evolving global health and economic crisis. In these once-in-a-generation circumstances, the outlook for international, Australian, and local economies in the short, medium, and long-term is highly uncertain.

Accordingly, this assessment considers three future economic scenarios - steady state, high and low demand for industrial land in Mackay – then analyses the land supply implications of each demand scenario.

This assessment does not predict which of these scenarios is most likely to occur.

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Executive Summary

This independent report has examined demand for, and supply of, industrial land in area within the boundaries of the Mackay Regional Council (MRC) over the next two decades.

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The key findings from the analysis of industrial land demand and supply in Mackay include:

Section 1 – Economic Overview

- The economy of Mackay is structured differently from the major competing regional cities of Townsville and Rockhampton. Mackay businesses service mining activities in the Bowen Basin, which in turn is the key driver of demand for industrial land. Townsville has a higher dependence on government services and the defence industry while the main industrial contributor to Rockhampton's economy is the Stanwell power station, manufacturing and transport.
- Mackay's economic advantages include significant bulk port and coal terminal facilities, and a strong industrial base through the world class companies and research institutions in the Mining Equipment, Technology and Services (METS) sector. Given these existing strengths it is difficult to foresee a major shift in these industries from Mackay to alternative locations.
- Key industries operating in Mackay have a high dependence on international markets. Coal was Australia's second highest commodity export by value in 2019 (behind iron ore), earning $A64 billion, or 18% of total commodity exports.
- The top 3 exports (iron ore, coal and natural gas) contributed 58% of goods exported from Australia, while the top 20 exports contributed 83%.
- Sugar products ranked #99 in export terms, valued at $194 million.
- China was the #1 ranked destination, purchasing $148.5 billion worth of goods, or 41% of the total. Japan ranked 2nd, purchasing 16% of goods exported. China and Japan combined purchased 57% of Australian goods exports in 2019.
- The top 10 countries accounted for 88% of total goods exported.
- Mackay's current population is approximately 117,000 people. The Mackay region experienced strong growth during the Bowen Basin mining construction boom. In the 5-year periods 2001 to 2006 and 2006 to 2011, annual population growth exceeded 2,400 persons. However, since mining construction activity has slowed, population growth has slowed to less than 300 in 2019-20. Employment has followed similar patterns.
- The implications for Mackay, are broadly, that with a high dependence on the export-oriented coal market, there will be significant risk and the key drivers of demand for industrial land are therefore beyond the control of local authorities.

Section 2 – Market Analysis

- Australia was the 4th largest producer of coal in 2018, behind China, India and the United States. Australia's total coal production level was 86% below that of China.
- Two-thirds of global coal produced (by energy content) was thermal coal, while 17% was coking coal, However, Australia had the highest share of coking coal production. Almost half of Australia's coal production was coking coal, while Russia (26%) had the second highest share of coking coal relative to domestic coal output.
- Around 80% of Bowen Basin coal exported is coking coal.
- Australian coal is internationally regarded because of its high quality, which is likely to underpin future demand.
- Investment in coal mining is strongly related to international coal prices. The coking coal price peaked at around $US300 per tonne in 2008-09 but has since fallen sharply in 2020 due to COVID-19 impacts on demand.
- Thermal coal produces around 38% of world electricity, with natural gas accounting for 23 % of production. The thermal coal share of electricity production has been relatively flat, while the share captured by gas has increased significantly.
- The outlook for thermal coal is mixed. Developing countries (China and India in particular) are likely to remain dependent on coal for electricity generation for the next decade or more, while developed countries move to de-carbonise the electricity sector. Among developed countries, Japan is an exception, having moved to an increased dependence on coal following the Fukushima nuclear accident.
- A key issue for Australian thermal coal markets will be whether China preferences locally mined coal over imported coal.
- While thermal coal as an electricity source is under pressure, coking coal is likely to remain a major component in the production of steel. The blast furnace basic oxygen furnace (BF-BOF) method uses coked coal. Around 70% of world steel is produced by the BF-BOF method and in Asia, the BF-BOF method accounts for 80% of steel production.
- Japan has been a strong and consistent importer of Australian coking coal, purchasing almost 1/3 of exports since 1990-91. Both China and India have overtaken Japan in recent years as importers of Australian coking coal. These trends reflect the rise of China as the world's major steel producer. China's 2019 crude steel production of 993 million tonnes (53% of global output) was greater than the output of all other countries combined. Both Japan and India only produced about 10% of China's output.
- Demand for coking coal is more assured than demand for thermal coal since a transition to the Electric Arc Furnace (EAF) steel production method is likely to be gradual as older mills are decommissioned.
- However, with predictions that China may have reached 'peak steel' and low prospects for growth in the Japanese steel industry, increased demand for Australian coking coal may not eventuate.
- The Mining Equipment, Technology and Services (METS) sector contributes significantly to Australian and regional economies, and was valued at $237 billion in 2015-16

- The Mackay-Whitsunday METS cluster is predominantly located in the Paget industrial estate. The Mackay METS cluster, a service hub for Bowen Basin mines, is highly regarded domestically and internationally as a leader in coal mining innovation and efficiency

- Future demand for industrial land in Mackay from the METS sector will depend on continued international demand for coking coal. In addition, a recent trend emerging from the COVID-19 pandemic is a move to increasingly onshore manufacturing capabilities to secure supply chains servicing the mining industry.

- The METS sector will continue to be the key driver of demand for high impact industrial land in Mackay.

- Australian sugar is a mature industry, and in the face of slowing global demand and the increased production capabilities of other countries, it is not expected that the Australian industry will experience sustained growth. Accordingly, future demand for additional industrial land in Mackay from the sugar industry is likely to be low.

- Unless there are active plans to extend the processing capacity of the existing meat processing facility in Mackay, it is unlikely that the beef industry will generate significant future demand for industrial land.

- New and emerging industries may seek to establish in Mackay, in view of the highly skilled METS sector, sugar and biofuel expertise, transport links and strong educational and research capacity. Potential new businesses that may require industrial land could include warehousing transport and logistics facilities (e.g. supermarket distribution centre); defence associated manufacturing or maintenance facilities; and aquaculture processing.

Section 3 – Summary of Industrial Precinct Profiles

- A detailed survey of all industrial land covered by the Mackay Regional Council Planning Scheme was conducted in March and April 2020. MRC databases were updated with the development status of each land parcel, as well as the type of industry on each occupied block.

- Definitions and key assumptions underpinning statistics generated from the updated database are as follows:

- **Zoned Areas** refers to the area of land according to industrial zonings categories in the Planning Scheme.

- **Developed Land** is land already occupied and deemed to be unavailable for future industrial uses, as follows:

    - **Developed Industrial**

    a Land occupied by sugar mills.

    b Land occupied by an industrial use aligned with the zoning of the area. This category includes vacant sheds.

    c Land occupied by industrial outdoor storage or hardstands.

    d Land reserved for the expansion of the MRC Paget Depot

    - **Developed Non-Industrial**

    a Land occupied by a residential, commercial or community use, notwithstanding any potential to repurpose these uses to industrial.

- **Future Land Supply** is defined as land available for future industrial uses, as follows:
    - **Gross Vacant Land** is the difference between Zoned Areas and Total Developed Land.
    - **Allowance for Servicing Infrastructure** is land set aside for roads, stormwater and sewage works and other servicing infrastructure.
    - **Vacant Land with DA's** is land with existing Developments Approvals, which includes DA's for sheds and outdoor storage.
    - **Net Vacant Land** (NVL) is Gross Vacant Land less both the Allowance for Servicing Infrastructure and Vacant Land with DA's.
- Excluding any land parcel with an existing development approval from Net Vacant Land (future supply) represents a **conservative** approach to determining future land supply.
- However, this definition of Net Vacant Land is not a measure of market availability, that is, NVL does not identify land available for sale or lease at any particular time.
- Based on the survey:
    - A total of 1,168.9ha of zoned industrial land includes industry investigation areas (294.7ha). In addition, the 705.0ha proposed Rosella Estate, which is currently zoned Rural, has been identified as a potential long-term industrial area.
    - Developed land totals 720.1ha (or 61.6% of 1,168.9ha) of industrial zoned land, including land occupied by sugar mills (198.5ha);land occupied by high or low impact zoned aligned uses (466.5ha); occupied land in industry investigation zones (29.0ha); land occupied by non-industrial uses (26.1ha).
    - Gross vacant land totalled448.8ha (excluding Rosella)
    - Net Vacant Land totalled 348.2ha, comprising high impact industry zoned land (96.9ha); low impact industry zoned land (45.4ha); industry investigation land (206.0ha)
    - A further 500ha of land is estimated to be available for future industrial use in the Rosella estate.
    - Vacant sheds (excluded from future supply) occupied 7.4ha and had a Gross Floor Area of 36,000m^2.
- Across the MRC Planning Scheme (excluding Rosella), the proportion of Zoned Land classified as Net Vacant Land is 29.8%. However, areas already zone high impact or low impact net vacant land comprising 16.3% of total land, while Industry Investigation Areas have net vacant land of 69.9%.
- Of the 142.3ha of NVL in industrial zoned precincts, 121.4ha (or 85.3%) is in Paget. Paget is 25.1% vacant. The vacant land in Paget is a mix of high impact industrial (95.9ha) and low impact industrial (25.5ha).
- Elsewhere, Mirani (8.9ha) and North Eton (7.7ha) are the only other two industry zoned areas with more than 2ha of NVL. However, since both of these low impact industrial zoned precincts are more than 25km from Mackay CDB, they have poor access to the resident workforce, road and port infrastructure and mutual benefits derived from clustered industrial activity. Accordingly, development of these areas would need to be driven by unique local demand for industrial land, an unlikely prospect in the immediate future.

- Among industry investigation precincts, Boundary Road East (26.2ha net vacant) and Paget South (also known as Bakers Creek: 66.9ha net vacant) would be logical extensions to the industrial holdings in Paget. Paget South comprises three potential high impact quadrants and one low impact quadrant. Some development has already occurred in parts of Paget South.

- Elsewhere, industry investigation precincts at Cowleys Road (also known as Ooreala: 46.2ha net vacant) and Glenella (13.8ha net vacant) would be suitable for low impact uses if demand was sufficient.

- Marian and Sarina industry investigation precincts are located 25-30km from Mackay and are close to sugar mill operations. Unless demand for industrial land from sugar or other agriculture eventuates, these precincts are unlikely to be required before 2040.

- Industrial development is possible on land occupied by Mackay Regional Airport and on land around the Port of Mackay managed by North Queensland Bulk Ports. These areas are not managed under the MRC planning scheme and have their own land use plans to guide development. While these areas can accommodate industrial uses there is a strong preference for industrial uses to have some synergies with airport or port operations.

- Of the 694.0ha of developed industrial land under the MRC planning scheme, businesses classified as Manufacturing were the largest category, occupying 56.1% (389.2ha) of land. Manufacturing also contributed the largest share of Gross Floor Area (GFA) at 49.3%.

- The next largest industry category was Transport, Postal and Warehousing, occupying 9.9% (68.4ha) of land and 8.1% of GFA.

- Aggregating the areas occupied by all businesses noted as serving the mining industry, an estimated 30% of developed industrial land and 37% of GFA was directly connected to mining.

Section 4 – Industrial Land Take-Up Patterns

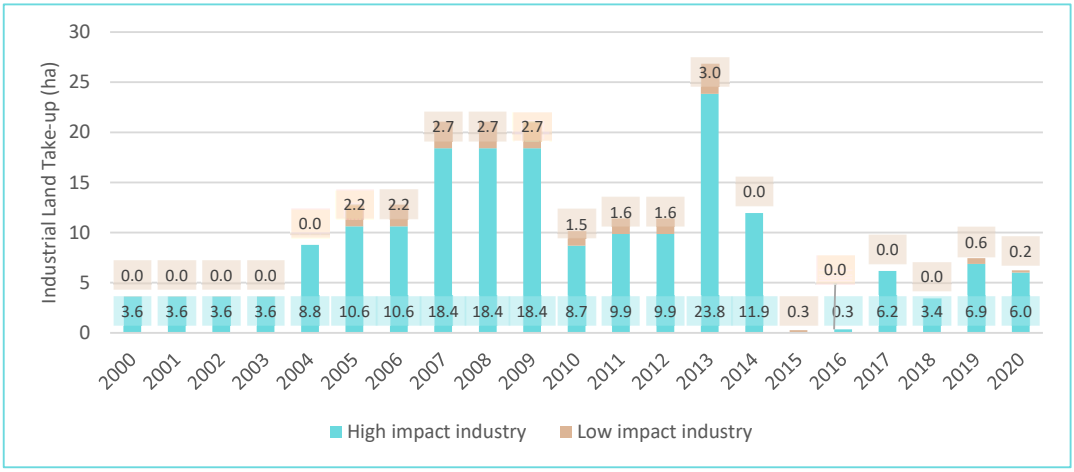
- Aerial imagery of the Paget Estate was analysed to estimate the take-up of industrial land over the period 2000 to 2020.

- The definition of ‘take-up’ adopted was as follows:

    - *“Take-up of an industrial land parcel is considered to occur at the date of first visual evidence of significant construction of buildings or outdoor storage facilities on the site, and where visual evidence in subsequent years confirms construction was completed.”*

- The following chart and table illustrate the take-up patterns observed in Paget:

Historical Industrial Land Take-up, Paget Precinct, 2000 to 2020



Note: Figures refer to June of each year; 2020 (as at March)

Source: Mackay Regional Council, Ethos Urban

Average Annual take of High and Low Impact Industrial Zoned Land, 2000-2020

	Average Annual Take-up (ha)	
Period	**High Impact**	**Low Impact**
2000 - 2004 (5 years)	4.6	0.0
2005 – 2009 (5 years)	15.3	2.5
2010 – 2014 (5 years)	12.8	1.5
2015 – 2020 (6 years)	3.9	0.2
2000 – 2020 (21 years)	**8.9**	**1.0**

Source: Mackay Regional Council, Ethos Urban

- Both the Figure and Table show modest take-up of high impact industrial land in Paget between 2000 and 2004 (4.6ha per year) before a substantial and sustained increase between 2005 and 2014 (14.1ha per year). Since that time, take-up declined significantly, although over the last 4 years (2017-2020) annual take-up has averaged 5.6ha.
- Low impact industrial land take-up in Paget averaged 1.0ha per year over the whole period, peaking at 3.0ha in 2013.
- The pattern of take-up of industrial land generally followed changes in gross production, which in turn, was related to mining construction.
- Indicative costs to construct water, sewer, stormwater and roads to service Paget to date total approximately $160 million. A further $122 million in road infrastructure is expected to be required as the estate reaches maximum capacity.
- This trunk infrastructure cost estimate excludes internal roads, usually funded by developer contributions, and also excludes electricity and telecommunication infrastructure.

Section 5 - Stakeholder Consultations

- To obtain ‘on-the-ground’ intelligence about industrial land supply and demand issues in Mackay, a number of stakeholders were interviewed.
- The key points arising from these interviews are summarised in Section 5.

Section 6 – Industrial Land Demand Scenarios

- In view of the previous analysis of historical industrial land demand and supply patterns and current economic uncertainties, three future demand scenarios have been constructed to 'stress test' the adequacy of future supply in Mackay:
  - **Steady State Demand** broadly predicated on current levels of mining production; current levels of agricultural output; relatively low population growth; and minimal demand from new industries.
  - **Increased Demand** broadly predicated on a significant expansion of coal mining in the Bowen and Galilee Basins; increased demand for local agricultural products; high population growth; and the introduction of new industries requiring industrial land to the Mackay economy.
  - **Decreased Demand** broadly predicated on a winding back of coal production; decreased demand for local agricultural products; low population growth; and no new industries being established in the local economy.
- Population growth is the key driver of demand of **low impact industrial land** in Mackay. Based on the current low impact industrial land provision of 1.10ha per 1,000 population, the three demand scenarios constructed for this study are as follows:

  Steady State Demand

  - Population increases from 118,000 to 134,500 by 2041 (825 per year)
  - Allow for take-up of **1.0ha per year** of low impact land (20.0ha over the period)

  High Growth Demand

  - Population increases from 118,000 to 150,500 by 2041 (1,625 per year)
  - Allow for take-up of **2.0ha per year** of low impact land (40.0ha over the period)

  Low Growth Demand

  - Population increases from 118,000 to 122,500 by 2041 (225 per year)
  - Allow for take-up of **0.5ha per year** of low impact land (10.0ha over the period)
- Demand for **high impact industrial land** is more complex than demand for low impact land. For the purposes of quantifying future demand, five drivers for high impact land have been identified:
  - Ongoing servicing of existing coal mines in the Bowen Basin.
  - New mines in the Bowens and Galilee Basins and/or expansion of existing mines.
  - Transfer of METS manufacturing capabilities from offshore to local production to enhance supply chain integrity.
  - Sugar industry and other agricultural activities.
  - New industries.

- These scenarios and projected supply responses are summarised in the table below:

Projected Take-up of High Impact Industrial Land by Demand Scenario – 2021 to 2040

Demand Driver	Steady State	High Growth	Low Growth
Coal production	Steady at around 4ha pa	Allow 5ha pa	2ha pa, declining to 1ha pa after 2030
New Mines	Periodic spikes additional 4ha every 5 years	Periodic spikes additional 8ha every 5 years	Periodic spikes additional 1ha every 5 years
METS export	Additional 1ha pa up to 2028	Additional 2ha pa up to 2028	No additional take up
Sugar/Other Agriculture	no additional take up	Allow 1 ha pa	No additional take up
New Industries	Allow 1 ha pa	Allow 1.5ha pa	Allow 0.5ha pa

Source: Ethos Urban

- The high impact industrial land required to meet these demand levels would be as follows:
    - Steady State high impact land take-up would total 140ha over the 20 years, peaking at 10ha per year, and averaging 7ha per year over the period.
    - High Growth high impact land take-up would total 220ha over the 20 years, peaking at 17ha per year, and averaging 11ha per year over the period.
    - Low Growth high impact land take-up would total 50ha over the 20 years, peaking at 3.5ha per year, and averaging 2.5ha per year over the period.

Section 7 – Adequacy of Industrial Land Supply

- An estimated 848.3ha of Net Vacant Land at June 2020 comprises:
    - 542.8ha of high impact land, of which 95.9ha is in Paget and 445.9ha is in industry investigation areas and Rosella.
    - 305.5ha of low impact industrial land, of which 25.5ha is in Paget, 16.6 ha is in Mirani and 260.1ha is in industry investigation areas and Rosella.
- Under the **Low Growth** and **Steady State** demand scenarios for **low impact industrial land** (0.5ha and 1.0ha per year take-up, respectively), NVL in Paget would be sufficient to satisfy this demand without needing to consume low impact land in other precincts.
- Under the **High Growth** demand scenario for low impact industrial land (2.0ha per year take-up), the supply of low impact land in Paget would be exhausted by 2032. A further 16.0ha would be needed by 2040.
- In these high growth circumstances, assuming a seven-year lead time between zoning land to industrial and delivering fully serviced zoned land, MRC would need to rezone one or more industry investigations area to low impact industrial at approximately 2025.
- Candidates for new low impact zones include: South West Sector of Paget South (Bakers Creek); Cowley Road (Ooralea); or Glenella.
- The decision to rezone one or more areas would depend on population growth patterns and the cost and efficiency of providing trunk infrastructure.
- A number of factors will drive the demand and take-up of **high impact industrial land**, mainly related to mining in the Bowen and Galilee Basins. Unlike low impact industries, high impact

industries tend to cluster so as to take advantage of economies of scale, more efficient use of specialised trunk infrastructure (particularly roads capable of handling heavy transport) and opportunities for collaboration and knowledge sharing.

- Accordingly, because of this clustering factor, a sequential pattern of high impact industrial land take-up is modelled as follows:
  - Paget will be developed and filled first (NVL 95.9ha).
  - The next precinct to be developed will be the Boundary Road East investigation area (26.2ha), immediately to the east of Paget.
  - The next precincts to be taken up will be sectors in the Paget South investigation area: in order, the North West sector (16.8ha) first then the South East sector (13.5ha).
  - The smaller North East sector in Paget South (5.0ha) would possibly be held back for infrastructure reasons and the impact of crossing the North Queensland rail line.
  - If required, Rosella (350ha) would commence after Paget South approached capacity.
- All models, which are essentially simplified representations of highly complex real-world interactions have practical limitations. Accordingly, the results of the sequential modelling approach should be regarded as indicative.
- Under the **steady state scenario:**
  - Demand for high impact industrial land is projected to range between 5-10ha per year, and total 140ha over 20 years at an average of 7.0ha per year.
  - Applying the sequential take-up approach to demand under the steady state scenario would result in Paget being exhausted by 2033. Boundary Road East would have sufficient land for the next two years, after which Paget South would need to be brought onstream. Land in Rosella would be needed by 2040.
  - This scenario would require MRC to rezone Boundary Road East at around 2027, rezone Paget South at approximately 2029, and rezone Rosella in the early 2030's
- Under the **high growth scenario:**
  - Demand for high impact industrial land is projected to range between 7-17ha per year, and total 220ha over 20 years at an average of 11.0ha per year.
  - Paget would be exhausted by 2028, Boundary Road East exhausted by 2029, Paget South exhausted by 2032, and Rosella to come onstream in 2033.
  - This scenario would require MRC to rezone Boundary Road East and Paget South in the early 2020's, and rezone Rosella at around 2027.
- Under the **low growth scenario:**
  - Demand for high impact industrial land is projected to range between 1.5-2.5ha per year, and total 50ha over 20 years at an average of 2.5ha per year.
  - Paget would have sufficient capacity to meet this demand without utilising industry investigation zoned land.

- The primary purpose of these three scenarios is to stress test the adequacy of industrial land supply in Mackay. Notwithstanding this purpose:
    - The high growth scenario is predicated on another mining boom similar to what occurred in the Bowen Basin in the decade from 2003. The probability of those boom conditions being repeated in the next two decades, in our opinion, is quite low.
    - Equally, the low growth scenario is likely to be unduly pessimistic in the longer term. While a period of low growth over the next few years is a realistic prospect, it is unrealistic to expect that exceptionally low growth (contraction) would persist for 20 years.
    - The steady state scenario (or similar) is probably most likely to occur but will be subject to economic fluctuations and cycles over the next two decades.

Section 8 – Recommendations

- The timing of when new industrial land needs to become available to developers and businesses is a complex decision. If new land becomes available:
    - **too far in arrears of demand**, a likely consequence is a spike in land prices, deterring businesses from expanding or locating in Mackay.
    - **too far in advance of demand**, serviced industrial land would remain vacant for an unacceptably long time period. This situation would represent an overcommitment of scarce capital funding to trunk infrastructure that could otherwise have been directed to alternative (higher benefit) uses.
- The ideal situation is to have the overall supply of industrial land in advance of demand, but not so far ahead that large portions of serviced industrial land remain idle. This balance is difficult to achieve in practice:
    - The take-up of industrial land (demand) varies considerably from year to year and future take-up will be more difficult to predict because of current uncertainties associated with COVID-19.
    - The minimum time between industrial land being released and becoming available to establish industrial businesses is **at least 5-7 years** to allow for trunk infrastructure provision.
- Two intelligence gathering initiatives - a top-down understanding of demand factors, particularly trends in international markets, and a comprehensive bottom-up understanding of local supply issues – would greatly enhance MRC's capability to plan the release of new industrial land supply.
- Accordingly, we **recommend**:
    - *MRC prepare an annual review of industrial land demand and supply in the Mackay region, which would cover, at minimum:*
    - ***On the demand side**:*

    a Trends and outlook for international demand for coal, sugar and other relevant commodities.

    b Production of Bowen and Galilee Basin mines and coal exported through Port of Hay Point.

c *Committed and planned investments in Bowen and Galilee Basin mines.*

d *Trends in the METS sector, such as onshoring manufacturing capabilities*.

e *Population growth patterns.*

- *On the supply side:*

  a *Take-up of high impact and low impact industrial land in the previous 12 months, sourced from an updated census of land supply.*

  b *Trends in land sales, prices and leasing in existing industrial precincts.*

- This annual review could be prepared by MRC without engaging external consultants, since much of the information required is publicly available or maintained by Council.

- In view of the economic advantages derived through the clustering of high impact industrial businesses, **we recommend:**

- *As Paget approaches capacity, the sequence of new high impact industrial land releases should be:*

  - *Boundary Road East Investigation Area*

  - *Paget South Investigation Area – North West Precinct*

  - *Paget South Investigation Area – North East Precinct*

  - *Rosella.*

- As noted in Section 7, the earliest Paget would be exhausted is by 2028 under the high growth demand scenario, although this scenario looks unlikely to eventuate in current market conditions. Under the steady state scenario, Paget would be exhausted by 2033.

- In view of the up to 7-year lead time to ensure appropriate planning, assess proposed developments, complete operational works and establish serviced lots, Council needs to consider timely planning to release industrial land.

- Under the high growth scenario, the planning for the Boundary Road East area for high impact industry would need to start around 2022. The planning for the Paget South precincts would be required by 2023.

- Under the steady state scenario, the planning for the Boundary Road East area for high impact industry would need to start around 2027. The planning for the Paget South precincts would be required by 2028.

Introduction

Mackay is a major regional services centre for mining and resources activities in the coal-rich Bowen Basin. The mining industry directly contributes an estimated 16.1% of the output of Mackay's economy, while other industries including manufacturing and transport and logistics provide key support. Mining activities generate significant demand for industrial land in Mackay.

Agriculture is also an important industry – the Port of Mackay hosts one of the world's largest bulk sugar terminals, exporting almost 1 million tonnes in 2018-19.

Over the last 20 years, Mackay has experienced substantial demand for industrial land. Council has responded to this demand by applying industrial zonings to significant land parcels and by identifying new areas that could be zoned industrial in future years.

In order to plan for the next 20 years, Council now needs further detailed and thorough analysis of industrial land market drivers, trends and requirements in the council area, to guide appropriate strategic planning initiatives.

The purpose of the study, as described in the consultant's brief, is to:

- Provide a concise overview and analysis of the Mackay region's current and future industrial land supply.
- Identify industrial land demand, including historical industrial land take-up rates (i.e. industrial land sales and subsequent development), changes in recent take-up rates and future demand (based on relevant population and economic growth forecasts and analysis).
- Prepare a market analysis of industry sectors that identifies unique demands for industrial land (e.g. Mining Equipment, Technology and Services (METS) sector), including targeted consultation with the industry stakeholders.
- Identify different types of industrial land required, being low impact, high impact and/or outdoor storage (hardstand sites), and related planning scheme responses.
- Present an overview of the historical timeline to develop the Paget industrial estate, including the land take-up over time, type of trunk infrastructure investment and cost. This piece of work will inform the future timeline required to bring a similar major industrial area (up to 500ha) to the market and will enable Council to take advantage of emerging market opportunities and related demand for industrial land.
- Review the Industry Investigation Zoned land in the planning scheme and the ability to satisfy the demand for industrial land, with due consideration of identified demand and any available studies of these Industry Investigation Zones.
- Investigate non-industrial zoned land that may be suitably located for future industrial use and considered as industry investigation areas in the Mackay region.
- Provide an economic comparison of leading industries by employment and Gross Regional Product (GRP) between the Mackay, Rockhampton and Townsville regions since 2001 that establishes the position of the Mackay region, in order to identify industry sectors that will benefit from provision of industrial land, and
- Provide a summary of key issues and actions to support the provision of industrial land in the Mackay Regional Council area, including responses through the planning scheme.

This Report

Ethos Urban was engaged to provide this independent assessment of industrial land in the Mackay region, and our report contains the following sections:

Section 1: **Economic Overview** discusses the main characteristics of the Mackay economy, its dependence on international trade, and identifies the key sectors influencing industrial land demand.

Section 2: **Market Analysis** analyses in more detail the key factors driving industrial land demand including coal mining, agriculture, and population growth patterns.

Section 3: **Summary of Industrial Precincts** provides analysis of the current status of all industrial land in Mackay, including developed and vacant zoned lots, industry investigation areas and potential industrial land outside the Mackay planning scheme. Occupied industrial land is further analysed in line with the ABS's ANZSIC industry classification categories.

Section 4: **Industrial Land Take-up Patterns closely** examines the relationship between industrial land take-up in the mining sector in the Paget estate. Other take-up patterns are also examined.

Section 5: **Stakeholder Consultations** reports on discussions with key stakeholders, including MRC staff, industry groups and selected businesses currently occupying industrial land.

Section 6: **Industrial Land Demand Scenarios** presents three future industrial land demand scenarios – steady state, high demand growth and low demand growth based on the key demand drivers identified earlier.

Section 7: **Adequacy of Industrial Land Supply** assesses whether existing industrial land supply is sufficient to meet demand generated by the three scenarios. It further quantifies appropriate supply responses for the three demand scenarios.

Section 8: **Conclusions and Recommendations** draws together the key conclusions of the analysis and recommends actions to be initiated by MRC.

Appendix A: **Detailed Precinct Profiles** provides more detailed profiles of industrial precincts than in Section 3.

Appendix B: **Land Not Required Before 2040** comments on submissions by landowners to have parcels zoned to industrial in excess of requirements.

1 Economic Overview

This Section considers the main characteristics of the Mackay economy relative to significant cities nearby, its dependence on international trade, population and employment trends, and discusses the key sectors influencing industrial land demand.

1.1 Regional Context

Mackay is located approximately 950 km north of Brisbane in the Mackay-Isaac-Whitsunday region of Central Queensland. Originally built around the sugar industry, Mackay has more recently become the principal regional services centre for coal mining and resources activities in the nearby Bowen Basin.

The regional context of Mackay is shown in Figure 1.1, which notes the location of Mackay relative to other towns and cities, the extent of the Bowen Basin and the yet to be developed Galilee Basin. Mackay's current population is approximately 117,000 people, while Townsville (population 195,000) to the north and Rockhampton (population 87,000) to the south are the largest nearby regional cities. Townsville and Rockhampton, to varying extents, compete with Mackay for regional investment.

However, the structure of the three regional economies differs significantly, as illustrated in Table 1.1, which quantifies economic activity by industry sector as measured by output (gross revenue). Other measures of the size of the city's economies are also noted (value added and gross regional product).

Table 1.1: Output by Industry Sector, Mackay, Townsville and Rockhampton, 2018-19

	Mackay		Townsville		Rockhampton	
Industry sector	**$m**	**Share**	**$m**	**Share**	**$m**	**Share**
Agriculture, Forestry & Fishing	739.6	4.2%	343.3	1.5%	199.4	2.0%
Mining	2,809.6	16.1%	721.3	3.2%	525.2	5.3%
Manufacturing	2,698.5	15.5%	2,405.1	10.6%	937.8	9.5%
Electricity, Gas, Water & Waste Services	467.3	2.7%	1,682.0	7.4%	1,676.6	16.9%
Construction	1,878.9	10.8%	2,303.1	10.2%	957.5	9.7%
Wholesale Trade	830.9	4.8%	649.3	2.9%	347.1	3.5%
Retail Trade	641.2	3.7%	897.3	4.0%	408.3	4.1%
Accommodation & Food Services	487.3	2.8%	659.4	2.9%	250.2	2.5%
Transport, Postal & Warehousing	1,189.3	6.8%	1,663.8	7.3%	902.5	9.1%
Information Media & Telecommunications	186.0	1.1%	646.6	2.9%	114.9	1.2%
Financial & Insurance Services	511.0	2.9%	601.5	2.7%	344.4	3.5%
Rental, Hiring & Real Estate Services	1,658.9	9.5%	2,136.0	9.4%	676.0	6.8%
Professional, Scientific & Technical Services	599.7	3.4%	1,032.3	4.6%	346.3	3.5%
Administrative & Support Services	427.8	2.5%	643.7	2.8%	233.6	2.4%
Public Administration & Safety	464.9	2.7%	2,682.5	11.8%	436.2	4.4%
Education & Training	555.4	3.2%	1,083.4	4.8%	475.1	4.8%
Health Care & Social Assistance	783.3	4.5%	1,732.4	7.7%	748.1	7.6%
Arts & Recreation Services	80.8	0.5%	256.6	1.1%	50.4	0.5%
Other Services	440.0	2.5%	500.9	2.2%	269.4	2.7%
Total Output	**17,450.5**	**100.0%**	**22,640.4**	**100.0%**	**9,898.9**	**100.0%**
Value Added	**8,538.0**		**10,243.2**		**4,417.9**	
Gross Regional Product	**9,132.0**		**11,740.0**		**5,120.0**	

Source: REMPLAN, Economy id, Ethos Urban

Townsville's economic output, at $22.6 billion in 2018-19, was 30% larger than Mackay, but Rockhampton's output was 43% lower than Mackay. In terms of industry contributions to output, mining and manufacturing contributed 32% of output in Mackay, but less than 15% in each of Townsville and Rockhampton.

Mackay's bulk cargo port, located just north of the city centre, is the fourth largest Queensland commodity port by throughput. The top 3 cargos by tonnage in 2018-19 were 1.6 million tonnes of fuel, 908,000 tonnes of sugar and 46,000 tonnes of grain.

In addition, separate terminals at Hay Point and Dalrymple Bay, approximately 18 km south of Mackay city centre, together form one of the largest coal export ports in the world. In 2018-19, the terminals exported a combined total of 118.3 million tonnes of coal from the Bowen Basin.

In contrast, a key part of Townsville's economy is the defence industry. The city accommodates more than 15,000 defence personnel in four major defence establishments and is earmarked for further defence related investment. A $5 million Defence Supply Chain Hub announced by the Queensland government in September 2019 will be located in a new industry precinct in the Townsville CBD.

Townsville is the main service centre for mining projects in the North East and the North West Minerals Province. The city provides labour, engineering and logistical support. Townsville City houses three mineral processing refineries and a trading port specialising in the export of base metals. In 2018/19 the port of Townsville exported almost 2 million tonnes of mainly zinc and copper.

The port is also a major export facility for beef cattle and sugar.

In the future, Townsville could become a competitor to Mackay as a mining services centre for new coal mines in the yet undeveloped Galilee Basin. The Abbot point coal terminal, 25 km north of Bowen and 160 km south of Townsville, currently exports around 28.9 million tonnes but has significant expansion capacity due to its a natural deep-water setting. The Carmichael Rail Network (CRN) linking new mines in the Galilee Basin to Abbott Point is under construction. CRN would encourage the port's expansion and potentially foster some mining services support industry in competition with Mackay.

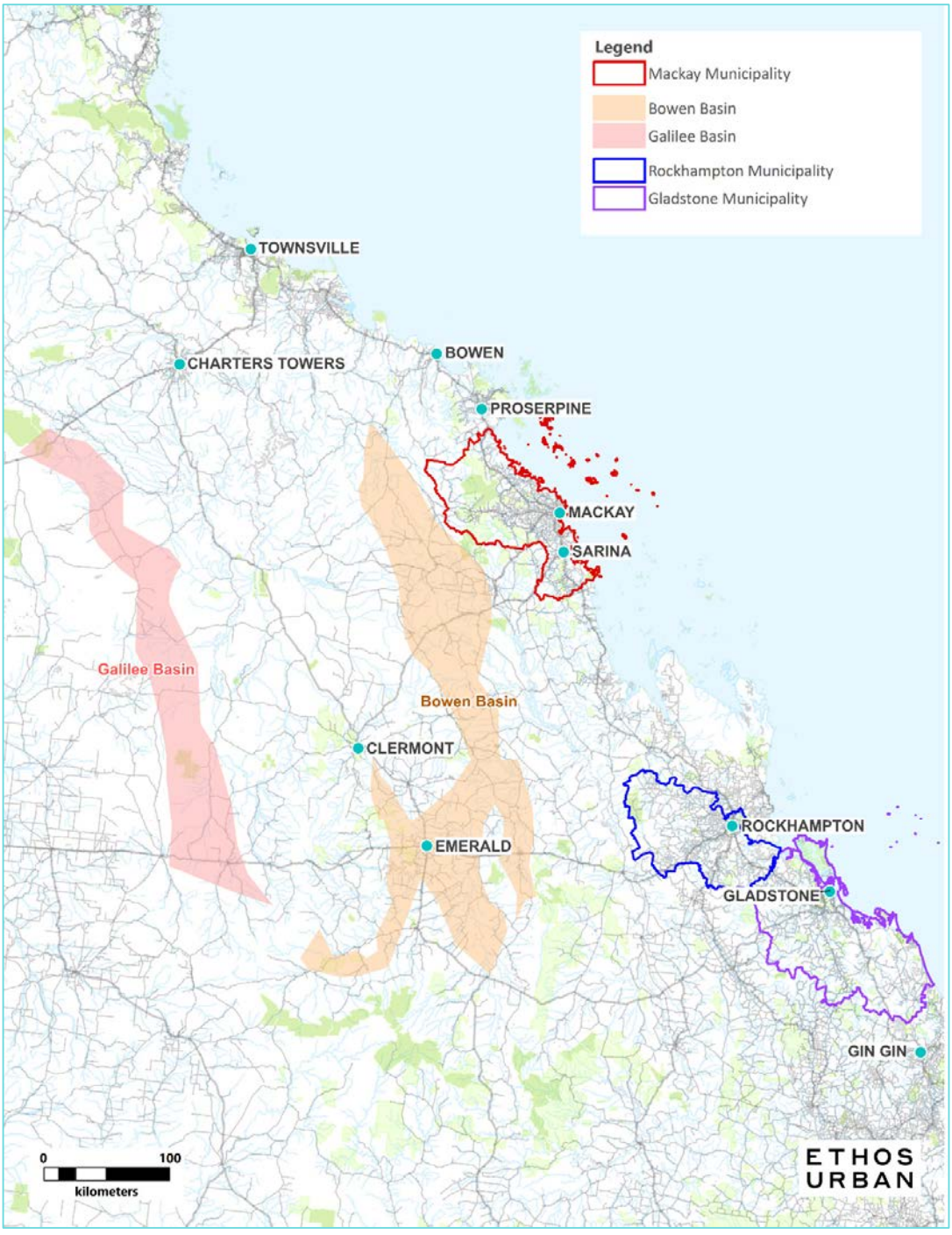
However, without new coal mines being developed in the Galilee Basin, the current mining service specialisations – Mackay servicing coal mining and Townsville servicing mining of zinc and copper – would seem likely to remain intact.

Currently, Rockhampton's main contributor to economic output arises from Electricity, Gas, Water & Waste Services, principally through the1,445 MW Stanwell power station, located 23 km south-west of the city. Other key industries include manufacturing (predominantly food)) and transport (including rail maintenance).

Rockhampton is serviced by a small general cargo port located 62 km east of Rockhampton on the southern tip of the Fitzroy River Delta. The nearest major port is in Gladstone, which comprises eight main wharf centres and 20 wharves. In 2018-19, Gladstone port had a throughput (imports and exports) of 124 million tonnes – 70% was coal, while 21% was LNG.

Current industrial businesses in Rockhampton are less focussed on mining support than in Mackay due to the structure of Rockhampton's economy Given Mackay's existing strengths as a well-established mining support services centre for Bowen Basin mines, it is difficult to foresee a major shift in these industries from Mackay to Rockhampton.

Figure 1.1: Regional Context



Source: Ethos Urban

Note: Galilee and Bowen Basin regions are approximate only.

1.2 Local Context

A closer view of industrial land in Mackay (Figure 1.2) shows land zoned as high impact, low impact and industry investigation as well as ports that fall outside the Mackay Regional Planning Scheme.

1.2.1 Regulation of Industrial Development

Industrial development, from a planning perspective, is regulated by various entities across the Mackay LGA. These entities include the Mackay Regional Council (MRC), North Queensland Bulk Ports Corporation (NQBP) and Mackay Airport Pty Ltd. The specific entities and their associated statutory frameworks are discussed below.

MRC primarily regulates industrial development via the Mackay Regional Council Planning Scheme 2017 v2.2. MRC has jurisdiction over land across the entire LGA with the exception of land regulated by the other entities identified above or land regulated by other legislation such as the Mackay Waterfront Priority Development Area under the Economic Development Act 2012. The planning scheme is required by the Planning Act 2016. In some instances, industrial development may be required to be referred to State or other referral agencies if development is assessable as per the planning scheme or Planning Act 2016.

Industrial zones specified by the MRC Planning Scheme, and the examples of envisaged uses within each zone, include:

- **High Impact Industrial Zone** – Accommodates a mix of large scale, medium and high impact industrial development as well as other complementary industrial activities. The location of land within this zone allows sufficient separation from sensitive uses and zones (e.g. residential areas) to ensure industrial development does not result in unreasonable nuisances or adverse impacts. Land within the high impact industrial zone is further categorised as land within and outside a Sugar mill precinct. High impact industrial zoned land outside a Sugar mill precinct primarily envisages medium and high impact industrial development. High impact industrial land within a Sugar mill precinct envisages sugar industries related activities but can also accommodate a wider range of uses such as low impact industry development, service industry and warehouses.

- **Low Impact Industrial Zone** – Accommodates a mix of service industry and low impact industry development. Low impact industrial zoned land in some instances also provides for the transition between high impact industrial zoned land and sensitive uses and zones. By way of categorising development as accepted or code assessable development, the following uses are envisaged within the low impact industry zone: low impact industry, hardware and trade supplies, research and technology industry, service industry, warehouses, marine industry and other compatible uses.

- **Industry Investigation Zone** – Protects land for future industrial development. Industry investigation zoned land is identified as land set aside for future industrial development, ensuring sensitive and incompatible non-residential developments do not compromise the use of land for this purpose. The interim use of this land is to provide for low intensity uses such as agriculture until the land is required for industrial development, including plans for providing associated trunk infrastructure.

- **Special Purpose Zone Code** – Identifies land which has special characteristics that apply to the land. Of relevance to this study, the special purpose zone identifies land regulated by other plans including strategic port land and airport land. See below for further detail.

In addition, tracts of land (e.g. land zoned Rural) may be identified as an ‘Investigation Area’ for future industrial land in the medium to long-term, prior to being zoned as Industry Investigation or more formally as Low or High Impact Industry land. Council would normally engage with landowners

about future plans and commission studies to inform the rezoning, for example, structure planning, geotechnical investigations, and precinct-wide stormwater management investigations.

North Queensland Bulk Ports Corporation (NQBP) regulates industrial development via the Port of Mackay and Port of Hay Point Land Use Plans. Land Use Plans are required by all port authorities for Strategic Port Land both for land use planning purposes and development assessment. The Transport Infrastructure Act 1994 (in conjunction with the Government Owned Corporations Act 1993, and the Sustainable Planning Act 2009) establishes the regime under which port authorities operate. The respective land use plans apply to strategic port land located at the Port of Mackay and Port of Hay Point.

Mackay Airport Pty Ltd regulates industrial development via the Mackay Airport Land Use Plan. Land Use Plans are required under the Airport Assets (Restructuring and Disposal) Act 2008. The Mackay Airport Land Use Plan applies to airport land which includes the airport and adjoining properties in ownership of the Mackay Airport Pty Ltd.

1.2.2 Local Context Features

High impact industry zones, totalling 687ha are concentrated in the Paget estate, which mainly services the mining industry. Paget is located south of the Mackay CBD, as shown in Figure 1.2. Other high impact industry zones are mainly associated with sugar milling and distributed throughout the council area.

Low impact industry zones, accommodating local services, are generally smaller in nature and widely dispersed throughout Mackay. Low impact industry zones account for 187ha of industrial zoned land.

A further 295ha of land is currently zoned Industry Investigation, while land yet to be earmarked for industrial purposes (the Rosella Estate) totals 705ha.

Finally, industrial land, outside the MRC Planning Scheme around the Port of Mackay Port of Hay Point and Mackay Airport, totals approximately 4,020ha.

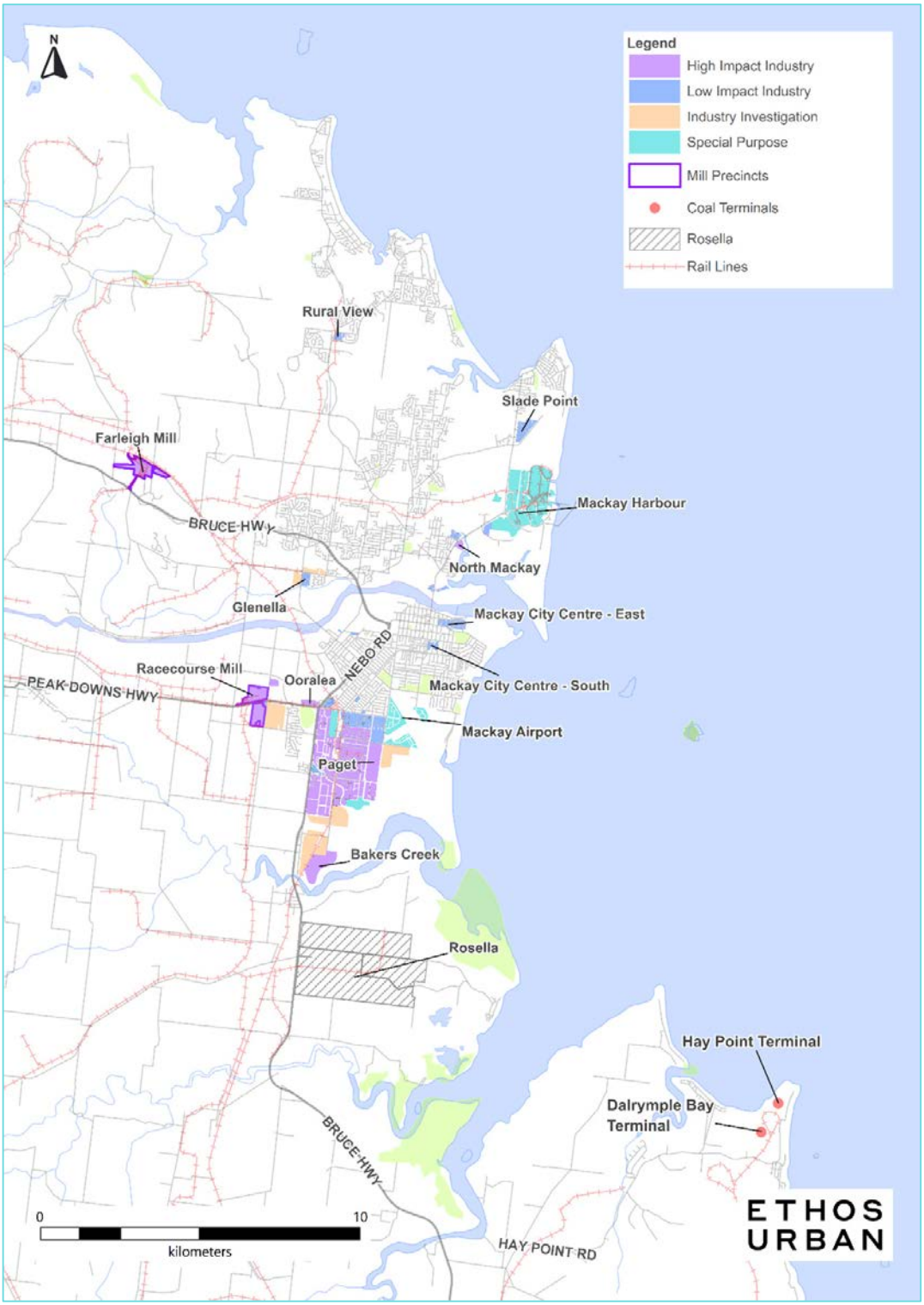
The extent of industrial land highlighted in Figure 1.2 does not show the 63ha industrial areas in Sarina (30km south of the city centre) or 31ha of industrial land Marian (25-30km west).

Section 3 of the report summarises the industrial zones while details of precincts, including their size, expansion capacity and the types of businesses occupying sites are presented in Appendix A.

The major north-south route through Mackay is the Bruce Highway, while road access to mines to the west and south-west of Mackay is mainly via by the Peak Downs Highway.

Both the bulk (sugar and grain) port north of the CBD and the two coal terminals south of the CBD are serviced by heavy rail.

Figure 1.2: Local Context



Source: Ethos Urban

1.3 International Trade Dependence

Key industries operating in Mackay have a high dependence on international markets. The value of the top 20 goods exported from Australia in calendar year 2019 to the top 10 destinations are shown in Table 1.2. Note that Table 1.2 excludes services exports (e.g. tertiary education).

Key points from the table include:

- Of the $362.5 billion in goods exported, iron ore contributed $96.2 billion or 27% of the total.
- Coal exports of $64.0 billion ranked 2nd contributing 18% of goods exported.
- Natural gas ranked 3rd, contributing 13% of good exported.
- The top 3 exports contributed 58% of goods exported.
- Beef exports ranked 5th, but only contributed 3% of value.
- The top 20 exports accounted for 83% of total exports.
- China was the #1 ranked destination, purchasing $148.5 billion worth of goods, or 41% of the total.
- Japan ranked 2nd, purchasing 16% of goods exported.
- China and Japan combined purchased 57% of Australian goods exports in 2019.
- The top 10 countries accounted for 88% of total goods exported.
- Japan bought more coal (by value) than China but combined, the two countries accounted for 48% of coal exports.
- India (16% of coal exports) and South Korea (11%) were also significant importers of Australian coal. Combined with China and Japan, the four countries bought ¾ of Australian coal exported.

Not shown in Table1.2 are exports of sugar, molasses and honey, which totalled $194 million and ranked 99 in the list of goods exported in 2019.

Coal exports, which significantly underpin manufacturing industry in Mackay, are an important export earner for Australia. However, coal's dependence on four key international markets is a future risk, which will be discussed in more detail in Section 2.

Table 1.2: Value of Goods Exported 2019, $A million

Rank	Export	China (1)	Japan (2)	Republic of Korea (3)	United Kingdom (4)	United States (5)	India (6)	Taiwan (7)	Singapore (8)	New Zealand (9)	Malaysia (10)	Top 10 Countries	All Other Countries	Total	Share
1	Iron ores & concentrates	79,098	7,150	6,029	17	11	37	1,893	271	0	305	94,810	1,363	96,173	**27%**
2	Coal	13,720	16,991	7,122	244	0	10,517	5,279	10	17	1,086	54,986	8,970	63,956	**18%**
3	Natural gas	0	0	0	0	0	0	0	0	0	0	0	48,654	48,654	**13%**
4	Gold	2,991	0	113	11,985	119	266	0	1,771	53	12	17,310	6,062	23,372	**6%**
5	Beef, f.c.f.	2,670	2,347	1,445	51	2,210	0	261	90	53	85	9,213	1,596	10,809	**3%**
6	Aluminium ores & conc (incl alumina)	1,540	16	19	0	9	0	0	0	317	0	1,901	7,929	9,830	**3%**
7	Crude petroleum	1,009	110	400	0	0	0	0	1,579	0	1,384	4,482	5,023	9,505	**3%**
8	Copper ores & concentrates	2,261	2,018	381	0	0	524	313	0	0	67	5,564	597	6,161	**2%**
9	Meat (excl beef), f.c.f.	1,303	432	310	68	1,121	0	96	166	24	197	3,717	1,803	5,521	**2%**
10	Confidential items of trade	20,549	21,392	4,972	100	511	1,109	2,843	4,483	108	2,396	58,463	-53,222	5,241	**1%**
11	Confidential mineral ores	0	0	0	0	0	0	0	0	0	0	0	4,632	4,632	**1%**
12	Aluminium	28	1,191	909	1	630	32	297	28	27	80	3,224	753	3,977	**1%**
13	Copper	1,379	3	116	1	18	0	444	24	21	1,201	3,207	731	3,938	**1%**
14	Other ores & concentrates	2,003	304	721	0	12	37	104	1	0	81	3,264	555	3,819	**1%**
15	Wheat	103	349	407	2	0	1	19	38	153	224	1,296	2,276	3,572	**1%**
16	Alcoholic beverages	1,239	56	31	376	448	7	25	177	171	71	2,601	834	3,435	**1%**
17	Pharm products (excl medicaments)	629	25	27	49	1,500	17	26	24	101	32	2,430	946	3,376	**1%**
18	Wool & other animal hair (incl tops)	2,433	17	83	13	7	178	19	0	1	13	2,765	421	3,186	**1%**
19	Medicaments (incl veterinary)	1,329	59	62	106	181	5	35	38	321	24	2,160	712	2,872	**1%**
20	Edible products & preparations, nes	1,613	78	68	7	72	1	59	31	248	43	2,220	624	2,844	**1%**
Top 20 Exports		**135,896**	**52,538**	**23,216**	**13,021**	**6,849**	**12,733**	**11,714**	**8,730**	**1,616**	**7,302**	**273,614**	**25,574**	**299,188**	**83%**
All Other Exports		**12,577**	**3,987**	**2,109**	**2,190**	**7,923**	**1,319**	**1,055**	**3,186**	**8,555**	**1,604**	**44,504**	**18,825**	**63,329**	**17%**
TOTAL Exports		**148,473**	**56,525**	**25,324**	**15,211**	**14,772**	**14,052**	**12,769**	**11,915**	**10,171**	**8,906**	**318,118**	**44,399**	**362,517**	**100%**
Share		**41%**	**16%**	**7%**	**4%**	**4%**	**4%**	**4%**	**3%**	**3%**	**2%**	**88%**	**12%**	**100%**	

Source: Depertment of Foreign Affairs and Trade; Ethos Urban

1.4 Population, Socioeconomic and Employment Trends

Local services, such as building supplies, automotive repairs and local distribution centres generate demand for low impact industrial land. In turn, local services are strongly correlated with the overall size of the population and growth.

1.4.1 Population

The rate of population growth in Mackay (+3.0%) exceeded growth in both Brisbane (+2.4%) and Regional QLD (+2.2%) over the five years to 2006, as illustrated in Table 1.3. Strong population growth in Mackay up to 2011 was linked to mining construction in the Bowen Basin during the same period.

The table presents actual Estimated Resident Population (ERP) up to 2019 and Queensland Treasury projections from 2021 to 2041. The Queensland Treasury projections, published in 2018, do not account for any population and economic disruptions resulting from the COVID-19 pandemic. Almost certainly, net overseas migration will be at historically low levels for the next few years at least, which strongly suggests the Queensland Treasury projections are unlikely to be realised.

Growth in Mackay remained strong in the five years to 2011 though at a lower rate (+2.3%) than in the previous decade. In the periods 2011-2016 and 2017-2019, growth has been far more subdued, in fact recording a slight decline in population in the latter period.

The Queensland Treasury projections predict a return to higher growth beyond 2021 in Mackay, averaging an increase of around 1,550 persons per year to 2041. On this basis, Mackay's population would reach 153,000 by 2041.

Table 1.3: Historical and Forecast Population, Mackay Region, 2001 to 2036

	2001	2006	2011	2016	2019	2021	2031	2041
Population ('000s)								
Mackay (R)	89	104	116	117	117	119	134	153
Greater Brisbane	*1,694*	*1,910*	*2,150*	*2,360*	*2,510*	*2,605*	*3,140*	*3,688*
Regional QLD	*1,880*	*2,100*	*2,330*	*2,480*	*2,580*	*2,654*	*3,065*	*3,473*
Annual Growth (no.)								
Mackay (R)		2,850	2,480	250	-150	1,150	1,640	1,880
Brisbane		*43,290*	*48,000*	*42,000*	*50,000*	*47,740*	*54,900*	*54,710*
Regional QLD		*44,000*	*46,000*	*30,000*	*33,330*	*36,900*	*41,890*	*40,350*
Annual Growth (%)								
Mackay (R)		3.0%	2.3%	0.2%	-0.1%	1.0%	1.3%	1.3%
Brisbane		*2.4%*	*2.4%*	*1.9%*	*2.1%*	*1.9%*	*1.8%*	*1.6%*
Regional QLD		*2.2%*	*2.1%*	*1.3%*	*1.3%*	*1.4%*	*1.4%*	*1.2%*

Source: Australian Bureau of Statistics, Regional Population Growth; Queensland Treasury, Population Projections; Ethos Urban

1.4.2 Sociodemographic Trends

Changes in the Mackay Region's demographics over the 10 years to 2016 also coincided with mining activity. Demographic changes are outlined in Table 1.4, and the following points summarise the key changes:

- Median annual household incomes grew strongly over the period 2006 to 2011 (+$9,970), in-line with the mining boom, but over the subsequent five years fell marginally to 2016 by -$220 as mining activity slowed down.
- Between 2011 and 2016 the median age of residents edged up to 37.5 years from 35.9 years.

- Diversity in the region increased with overseas born residents increasing as a proportion of all residents from 10.1% in 2006 to 12.8% in 2016.
- Household sizes decreased, declining from 2.67 in 2006 to 2.52 in 2016. Homeownership also declined, as rented dwellings as the proportion of all occupied private dwellings increased from 29.0% in 2006 to 32.5% in 2016.
- Mortgage repayments decreased over the five years to 2016, after increasing significantly between 2006 and 2011. Noticeably, rents did not increase nearly as much as mortgage costs, despite the increase in the proportion of dwellings being rented.
- The region experienced a strong increase in labour force participation of 69.4% in 2006 to 72.0% in 2011 before reverting 67.6% in 2016.
- Unemployment increased significantly from 3.5% in 2011 to 7.4% in 2016.

1.4.3 Employment

The 2016 Census reported a total of 45,700 people employed in the Mackay LGA. This number is based on place of employment (rather than place of residence) and was measured by headcount (rather than a full-time equivalents). In addition, the place of work enumeration method excluded both Mackay residents and fly-in-fly-out workers who were employed in mines in the Bowen Basin. Further, this total number of workers included 4,300 people working in categories recorded as ‘other services’, ‘inadequately described’ and ‘not stated’.

Excluding people working in the ‘other services’, ‘inadequately described’ and ‘not stated’ categories, Table 1.5 details employment by industry in Mackay in 2011 and 2016.

Overall, the region lost 730 jobs between 2011 and 2016, with the majority of losses in the manufacturing (-1,520 jobs), construction (-1,080 jobs) and professional, scientific and technical services (-470 jobs) sectors. These shifts largely reflect the slowdown in mining activity (in particular, mining construction) over the period.

Industries that saw positive growth over the period include health care and social assistance (+980 jobs), and education and training (+710 jobs) and mining (+700 jobs).

Table 1.4: Socio-demographic Profile, Mackay Region, 2006, 2011, 2016

Category	2006	2011	2016	2006 to 2011	2011 to 2016	2006 to 2016
Income						
Median individual income (annual)	$26,666	$36,640	$36,420	$9,974	-$220	$9,754
Variation from Greater Brisbane median	-1.1%	11.1%	-0.6%	12.2%	-11.7%	0.5%
Median household income (annual)	$58,823	$82,200	$75,950	$23,377	-$6,250	$17,127
Variation from Greater Brisbane median	1.5%	13.6%	-7.6%	12.0%	-21.2%	-9.2%
Age Structure						
Median Age (years)	35.9	35.9	37.5	0.0	1.6	1.6
Country of Birth						
Australia	89.9%	87.3%	87.2%	-2.5%	-0.1%	-2.7%
Other Major English-Speaking Countries	6.3%	7.5%	6.8%	1.2%	-0.7%	0.6%
Other Overseas Born	3.9%	5.2%	6.0%	1.3%	0.8%	2.1%
% speak English only at home	*97.0%*	*95.2%*	*94.0%*	*-1.8%*	*-1.1%*	*-3.0%*
Dwelling Structure (Occupied Private Dwellings)						
Separate house	84.2%	85.3%	85.5%	1.1%	0.2%	1.3%
Semi-detached, row or terrace house, townhouse etc.	4.2%	5.0%	8.5%	0.8%	3.5%	4.3%
Flat, unit or apartment	9.1%	7.7%	4.6%	-1.5%	-3.0%	-4.5%
Other dwelling	2.5%	2.0%	1.3%	-0.4%	-0.7%	-1.1%
Average household size	2.67	2.65	2.52	0.0	-0.1	-0.1
Tenure Type (Occupied Private Dwellings)						
Owned outright	33.8%	30.5%	28.8%	-3.3%	-1.7%	-5.0%
Owned with a mortgage	36.4%	38.3%	37.6%	1.9%	-0.7%	1.2%
Rented	29.0%	30.2%	32.5%	1.2%	2.3%	3.5%
Other tenure type	0.8%	1.0%	1.1%	0.2%	0.1%	0.3%
Housing Costs						
Median monthly mortgage repayment	$1,322	$2,090	$1,700	$768	-$390	$378
Variation from Greater Brisbane median	-2.4%	7.2%	-10.1%	9.6%	-17.2%	-7.7%
Median weekly rents	$192	$320	$280	$128	-$40	$88
Variation from Greater Brisbane median	-13.7%	-3.0%	-24.3%	10.7%	-21.3%	-10.6%
Employment Status						
Unemployed/ looking for work	3.6%	3.6%	7.4%	0.0%	3.8%	3.8%
Labour force participation rate	69.4%	72.0%	67.6%	2.6%	-4.4%	-1.8%

Source: Australian Bureau of Statistics, Census of Population and Housing, 2016; Ethos Urban

Table 1.5: Employment by Industry, Mackay Region, 2011, 2016

Category	2011		2016		Change 2011-2016	
	No.	% Share	No.	% Share	No.	% Increase
Primary Sector						
Agriculture, Forestry & Fishing	1,560	3.7%	1,720	4.2%	160	10.3%
Mining	1,700	4.0%	2,400	5.8%	700	41.2%
Sub-Total	**3,260**	**7.7%**	**4,120**	**10.0%**	**860**	26.4%
Secondary Sector						
Construction	4,130	9.8%	3,050	7.4%	-1,080	-26.2%
Manufacturing	4,820	11.4%	3,300	8.0%	-1,520	-31.5%
Sub-Total	**8,950**	**21.3%**	**6,350**	**15.3%**	**-2,600**	-29.1%
Tertiary Sector						
Producer Services						
Electricity, Gas, Water & Waste Services	460	1.1%	480	1.2%	20	4.3%
Financial & Insurance Services	740	1.8%	710	1.7%	-30	-4.1%
Information Media & Telecommunications	330	0.8%	280	0.7%	-50	-15.2%
Rental, Hiring & Real Estate Services	980	2.3%	830	2.0%	-150	-15.3%
Transport, Postal & Warehousing	3,240	7.7%	3,070	7.4%	-170	-5.2%
Wholesale Trade	2,350	5.6%	1,920	4.6%	-430	-18.3%
Sub-Total	**8,100**	**19.2%**	**7,290**	**17.6%**	**-810**	-10.0%
Consumer Services						
Accommodation & Food Services	2,950	7.0%	3,170	7.7%	220	7.5%
Administrative & Support Services	1,070	2.5%	1,230	3.0%	160	15.0%
Arts & Recreation Services	270	0.6%	400	1.0%	130	48.1%
Education & Training	3,080	7.3%	3,790	9.2%	710	23.1%
Health Care & Social Assistance	4,590	10.9%	5,570	13.5%	980	21.4%
Professional, Scientific & Technical Services	2,510	6.0%	2,040	4.9%	-470	-18.7%
Public Administration & Safety	2,080	4.9%	2,260	5.5%	180	8.7%
Retail Trade	5,240	12.4%	5,150	12.4%	-90	-1.7%
Sub-Total	**21,790**	**51.8%**	**23,610**	**57.1%**	**1,820**	8.4%
Sub-Total Tertiary Sector	**29,890**	**71.0%**	**30,900**	**74.7%**	**1,010**	**3.4%**
Total	**42,100**	**100.0%**	**41,370**	**100.0%**	**-730**	**-1.7%**

Source: Australian Bureau of Statistics, Census of Population and Housing, 2011 and 2016; Ethos Urban

Note: Excludes 'other services', 'inadequately described' and 'not stated' responses.

1.5 Implications for Industrial Land

The analysis in this section has noted the importance of coal mining to Mackay's economy, not only in direct terms but as a driver of local manufacturing. Detailed analysis in subsequent sections will further explore the relationship between mining and industrial land demand. Coal is an export-oriented commodity, and the risks and opportunities associated with high dependence on international markets is also a factor to consider in preparing industrial land demand scenarios.

Historically, the sugar industry has been a mainstay of the local economy. However, in 2018-19, the combined output from mining and manufacturing in Mackay was 7.4-times larger than total output from agriculture. In addition, the proportion of zoned and developed industrial land currently occupied by mining and manufacturing businesses is approximately 50%, while the equivalent share for agriculture is less than 1%.

Finally, population growth largely fuels the demand for low impact industrial land. Importantly, the rapid historical population growth between 2001 and 2011 noted in this section coincided with significant new coal mine construction – again highlighting the importance of the mining industry as a key influence on demand for industrial land.

2 Market Analysis

The previous section identified the coal mining industry as a major influence on industrial land demand in Mackay. Prior to the mining construction boom in the Bowen Basin, which occurred after 2000, agriculture was an important influence on industrial land, but its importance has diminished in recent years.

This section further considers the domestic and international market trends relating to:

- Thermal coal,
- Coking coal,
- Mining Equipment, Technology and Services (METS) sector,
- Sugar, and
- Beef.

2.1 COVID-19 Impacts

As noted in the disclaimer to this report, the current COVID-19 pandemic will have far-reaching and long-lasting impacts on local, domestic, and international economies. The nature, extent and longevity of these impacts are largely unknown, and as different economies respond differently to the challenges faced.

The trends in markets observed in this section are necessarily based on historical data. How these trends develop into the future in the current environment is highly uncertain.

2.2 Coal Mining Investment, Production and Exports

2.2.1 World Coal Production

Two main types of coal are used in industry - thermal coal, primarily used for electricity generation and coking (metallurgical) coal used in steel production.

In 2018, world coal production totalled 7,683 million tonnes or 1.9% more than in 2017. Tables 2.1 and 2.2 show coal production for the seven largest producers and separates the types of coal produced using the international standard of kilo-tonnes of oil equivalent (ktoe). Ktoe is a unit of energy released by burning one thousand tonnes of crude oil.

From Table 2.1:

- China was the largest coal miner in 2018, producing 3,474 million tonnes, or 45% of the world total. The 2018 production level was 7.3% below peak production in 2013.
- India was the second largest producer, but output was almost 80% less than China's output in 2018.
- The United States ranked #3 in total production terms, but 2018 production levels were 36.4% below peak production in 2008.
- Australia ranked #4 in coal production terms but 86% below the production levels in China.

Table 2.1: World Coal Production 2017 and 2018 (million tonnes)

Country	Coal Production 2017	Coal Production 2018	Growth 2017 to18	2018 Share of Production	Variation from Peak Production
China	3,376	3,474	2.9%	45%	-7.3%
India	725	764	5.3%	10%	0.0%
United States	703	684	-2.7%	9%	-36.4%
Australia	499	502	0.5%	7%	-2.0%
Indonesia	469	474	1.2%	6%	-3.6%
Russia	388	412	6.1%	5%	0.0%
South Africa	256	257	0.2%	3%	-1.4%
Other	1,125	1,116	-0.8%	15%	-35.6%
World	**7,542**	**7,683**	**1.9%**	**100%**	**-4.1%**

Source: Enerdata Global Statistical Yearbook 2019: Ethos Urban

Two-thirds of coal produced (by energy content) was thermal coal, while 17% was coking coal, as shown in Table 2.2. However, Australia had the highest share of coking coal production. Almost half of Australia's coal production was coking coal, while Russia (26%) had the second highest share of coking coal relative to domestic coal output.

Nevertheless, China dominated coal production levels for both coking and thermal coal. China produced 50% of world coking coal and 58% of world thermal coal in 2018. Australia produced 20% of coking coal and 6% of thermal coal. China and Australia, combined, produced 70% of the world's coking coal, and 64% of the world's thermal coal.

The quality of Australian coal is a key factor in the international demand for both thermal and coking coal. Australian black coal, on average, has lower ash and moisture and a higher carbon content than coal from other countries. Accordingly, the energy produced from a tonne of Australian coal is higher than energy from coal produced by other countries, and emits less carbon dioxide and impurities, such as sulphur and metals. While coal remains a relatively cheap source of energy, Australian coal will continue to have a competitive advantage because of its higher quality.

As shown in the previous section, coal was the #2 ranked commodity exported from Australia in 2019, with iron ore ranked #1. Coal is predominantly mined in NSW and Queensland. In 2018-19, 43% of the 450 million tonnes of saleable black coal mined in Australia originated from NSW (the Sydney Basin extending from Newcastle to Wollongong), and 56% originated from Queensland (mainly the Bowen Basin). The Bowen Basin is Australia's largest coal deposit and produces the vast majority of exported coking coal.

Table 2.2: World Coal Production by Coal Type, 2018 (ktoe)

Country	Coking coal	Other bituminous coal	Other	Total
Production (ktoe)				
China	329,050	1,456,820		1,785,870
India	17,560	241,730	10,550	269,840
United States	44,950	161,070	167,160	373,180
Australia	129,340	138,300	25,470	293,110
Indonesia	2,900	66,950	192,860	262,710
Russia	58,660	123,650	40,010	222,320
South Africa	2,740	140,600	2,050	145,390
Other Countries	70,280	164,210	179,920	414,410
World	**655,480**	**2,493,330**	**618,020**	**3,766,830**
Share of country production				
China	18%	82%	0%	100%
India	7%	90%	4%	100%
United States	12%	43%	45%	100%
Australia	44%	47%	9%	100%
Indonesia	1%	25%	73%	100%
Russia	26%	56%	18%	100%
South Africa	2%	97%	1%	100%
Other Countries	17%	40%	43%	100%
World	**17%**	**66%**	**16%**	**100%**
Share of world production				
China	50%	58%	0%	47%
India	3%	10%	2%	7%
United States	7%	6%	27%	10%
Australia	20%	6%	4%	8%
Indonesia	0%	3%	31%	7%
Russia	9%	5%	6%	6%
South Africa	0%	6%	0%	4%
Other Countries	11%	7%	29%	11%
World	**100%**	**100%**	**100%**	**100%**

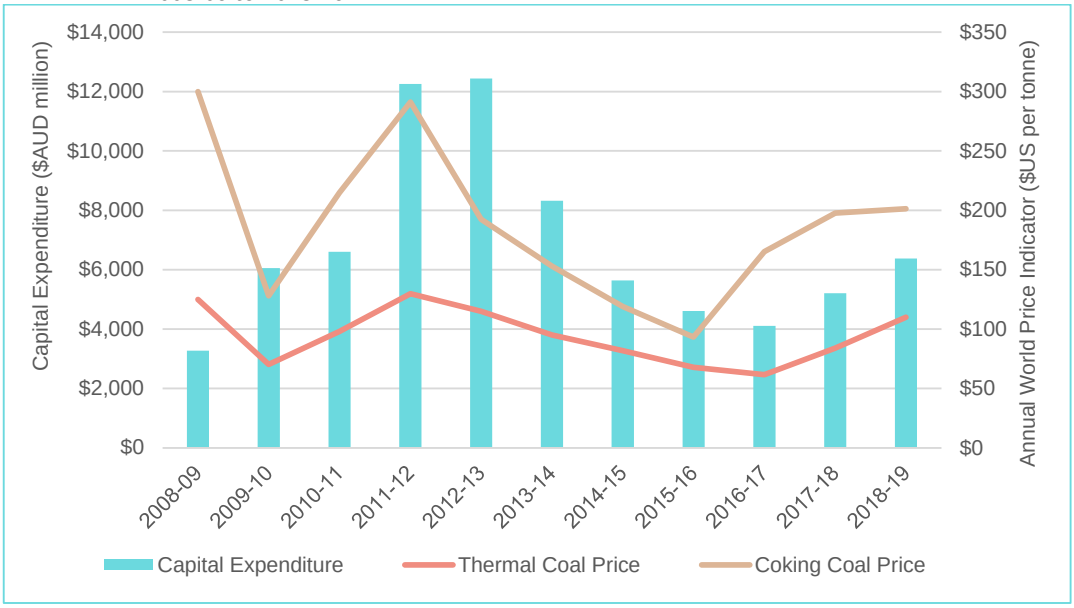
Source: Enerdata Global Statistical Yearbook 2019; Ethos Urban

2.2.2 Australian Investment in Coal Mining and World Coal Prices

Investment in coal mining in Australia, and the export of coal have been important to economic growth, particularly over the last decade. Drawing on information published by the Office of the Chief Economist, Department of Industry Innovation and Science, Figure 2.1 shows annual private investment in coal mining in the period 2008-09 to 2018-19 and the world contract price for thermal and coking coal over the same time scale.

Across the 11-year period, capital spending on coal mining averaged $6.8 billion per year, peaking at more than $12.3 billion in each of 2011-12 and 2012-13. The latest capital spending figures show that 2018-19 spending of $6.4 billion was 95% higher than the capital expenditure in 2008-09.

Figure 2.1: Capital Expenditure by Private Enterprises on Coal Mining, Australia, ($ million) World Indicator Contract Thermal and Coking Coal Prices ($US per tonne) 2008-09 to 2018-19



Source:; Ethos Urban

The chart also shows that capital spending broadly followed changes in coal price, particularly price changes for coking coal. Coking coal prices in 2008-09, at $US300 per tonne, preceded the investment boom in 2011-12 and 2012-13. In 2011-12 coking coal prices reached $US291 per tonne, coinciding with the peak investment period.

While data up to the end of 2018-19 showed that both thermal and coking coal prices were on the rise, the COVID-19 pandemic has had a significant negative impact on demand and prices. The Department of Industry Innovation and Science reported that thermal coal prices were resilient in early 2020 before falling sharply, and near-term demand is likely to remain weak.

Coking coal prices were on the rise in early 2020 before beginning a steep descent in April. A modest recovery is expected in 2021.

The historical relationship between coking and thermal coal prices is illustrated in Table 2.3. From the early-1990's to the early-2000's, the price of thermal coal was consistently around 70%-80% of the price of coking coal. However, from 2004-05, the price of coking coal surged from approximately $US50 per tonne to more than $US100 per tonne, peaking at $US300 per tonne in 2008-09. While the price of thermal coal, also increased, the ratio of thermal to coking coal price dropped to between 40% to 60% and has remained at that level.

Table 2.3: World Indicator Price, Thermal and Coking Coal, Selected Years 1990-91 to 2018-19 ($US per tonne)

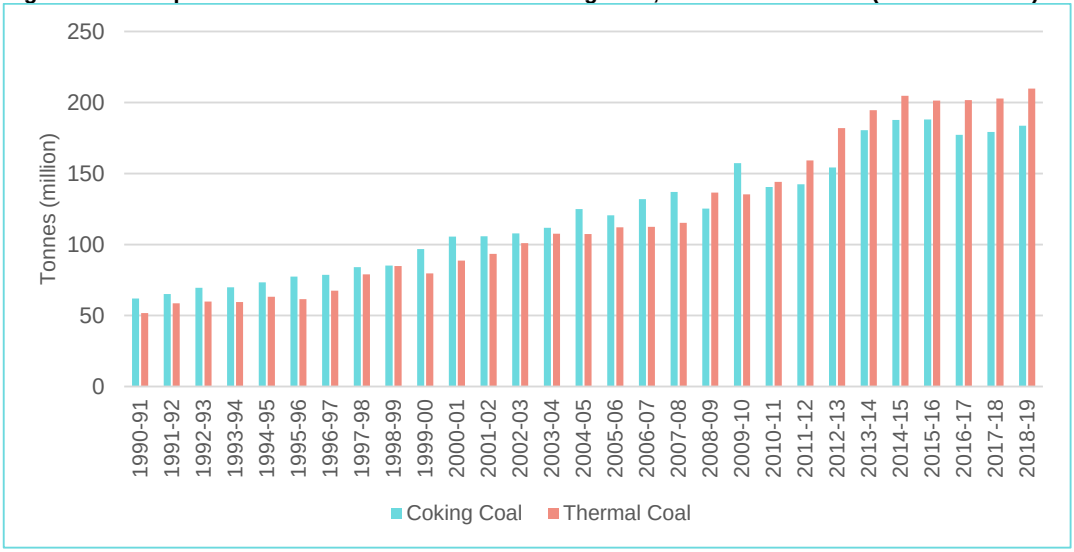
Coal Type	1990–91	1994–95	1999–00	2004–05	2009–10	2014–15	2018–19
Thermal	$41	$34	$30	$45	$70	$82	$110
Coking	$52	$45	$42	$57	$128	$119	$201
Ratio Thermal to Coking	**78%**	**76%**	**71%**	**79%**	**55%**	**69%**	**55%**

Source: Office of the Chief Economist, Department of Industry Innovation and Science; Ethos Urban

2.2.3 Exports

Volumes of thermal and coking coal exported have been less variable than price fluctuations, as shown in Figure 2.2 and Table 2.4.

Figure 2.2: Exports of Australian Thermal and Coking Coal, 1990-91 to 2018-19 (million tonnes)



Source: Office of the Chief Economist, Department of Industry Innovation and Science; Ethos Urban

Exports of both coking and thermal coal have steadily risen since 1990-91. In that year coal exports totalled 113.6 million tonnes, but after a significant lift in 2009-10, exports have since exceeded 300 million tonnes per year. Over the 29 years in the time series, a total of 7.0 billion tonnes has been exported, with thermal coal comprising 50% of the total.

Table 2.4: Australian Coal Exports by Type, Selected Years 1990-91 to 2018-19 (million tonnes)

Coal Type	1990-91	1994-95	1999-00	2004-05	2009-10	2014-15	2018-19	Total
Thermal	51.7	63.2	79.7	107.4	135.4	204.7	209.8	3,474.7
Coking	61.9	73.3	96.8	124.9	157.3	187.7	183.5	3,522.8
Total	113.6	136.6	176.5	232.3	292.6	392.3	393.3	6,997.5
% Thermal	**46%**	**46%**	**45%**	**46%**	**46%**	**52%**	**53%**	**50%**

Source: Office of the Chief Economist, Department of Industry Innovation and Science; Ethos Urban

However, the 50/50 mix of total Australian coal exports does not reflect the production from mining in the Bowen Basin or the export of coal from the Mackay terminals. Almost 80% of net output from Bowen Basin mines is coking coal, while more than 80% of coal exported through the Hay Point facilities is coking coal.

Accordingly, current Bowen Basin activities and downstream effects on Mackay industrial land are less dependent on global trends in thermal coal markets than trends in coking coal markets.

2.3 Thermal Coal Markets

2.3.1 World Electricity Generation

Thermal coal remains the major source of electricity generation, as illustrated in Table 2.5:

- World electricity production more than doubled from 11,900 Terawatt-hours (TWh) in 1990 to 25,721 TWh in 2017, at an average growth of 2.9% per year.
- Over the same period, electricity produced from coal grew by 3.0% per year, and contributed to 37%-40% of total production.
- Nuclear energy contributed a declining share of electricity produced, from 17% to 10%, and experienced modest growth of 1% per year.
- While oil as a source of electricity production has rapidly declined, by contrast, natural gas has rapidly become the second highest contributor to electricity production behind coal. In 2017, electricity generated by natural gas contributed 23% of world production.
- Power generated by hydro-electricity schemes grew by 2.4% per year and captured a 16% share of production.
- Finally, electricity produced from solar and wind sources almost trebled between 2010 and 2015 and continued its rapid growth in the following two years. In 2017, solar and wind sources contributed 6% of total world energy production.

Table 2.5: World Electricity Production by Source, 1990 to 2017 (TWh)

	Source							
Year	**Coal**	**Oil**	**Natural Gas**	**Nuclear**	**Hydro**	**Solar and Wind**	**Other**	**Total**
Electricity Production (TWh)								
1990	4,430	1,325	1,750	2,013	2,192	5	187	11,900
1995	4,992	1,236	2,020	2,332	2,546	9	194	13,330
2000	5,994	1,207	2,760	2,591	2,696	33	239	15,519
2005	7,322	1,135	3,704	2,768	3,020	108	321	18,378
2010	8,666	977	4,839	2,756	3,530	375	472	21,616
2015	9,553	976	5,576	2,570	3,990	1,098	637	24,401
2017	9,851	849	5,890	2,624	4,193	1,595	720	25,721
Share								
1990	37%	11%	15%	17%	18%	0%	2%	100%
1995	37%	9%	15%	17%	19%	0%	1%	100%
2000	39%	8%	18%	17%	17%	0%	2%	100%
2005	40%	6%	20%	15%	16%	1%	2%	100%
2010	40%	5%	22%	13%	16%	2%	2%	100%
2015	39%	4%	23%	11%	16%	5%	3%	100%
2017	38%	3%	23%	10%	16%	6%	3%	100%
Annual Growth 1990 to 2017	**3.0%**	**-1.6%**	**4.6%**	**1.0%**	**2.4%**	**24.2%**	**5.1%**	**2.9%**

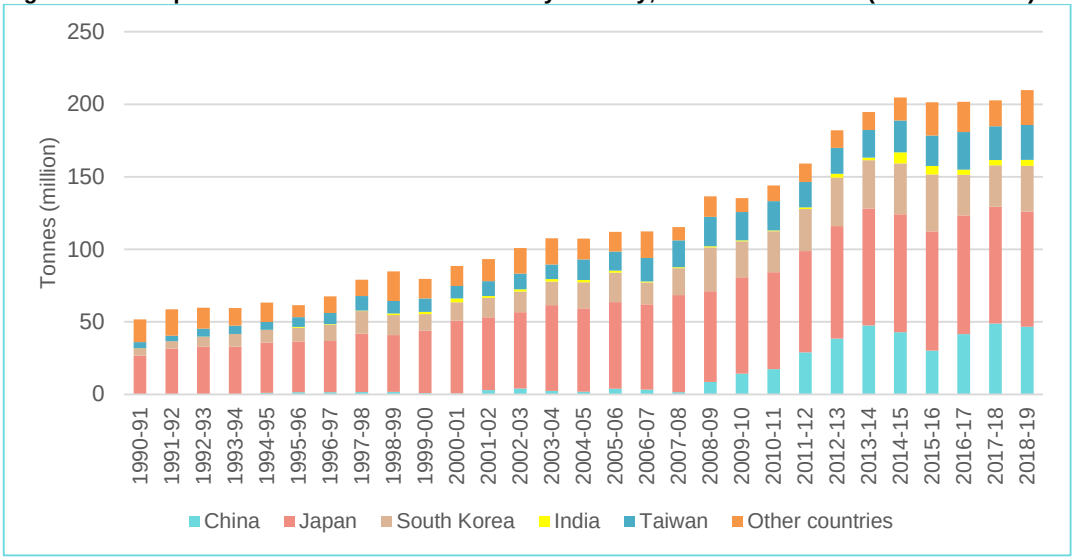
Source: IEA Electricity Information 2019; Ethos Urban

Despite the growth of coal generated electricity and coal maintaining its share of world electricity production, investment in coal fired power declined by nearly 3% in 2018 to its lowest level since 2004.

2.3.2 Australian Thermal Coal Exports

A more detailed breakdown of thermal coal exports is provided in Figure 2.3 and Table 2.6.

Figure 2.3: Exports of Australian Thermal Coal by Country, 1990-91 to 2018-19 (million tonnes)



Source: Office of the Chief Economist, Department of Industry Innovation and Science; Ethos Urban

Key points from Figure 2.3 and Table 2.6 include:

- Japan has consistently been the main buyer of Australian thermal coal, purchasing between 38% and 55% of exports. Over the 29-year period, Japan has imported 1.6 billion tonnes of Australian thermal coal.
- South Korea has also been a long-standing and consistent importer of Australian thermal coal, particularly since 2009-10. South Korea has bought 566 million tonnes (16%) of Australia's exports since 1990-91.
- China has only recently become a significant destination for Australian thermal coal. Prior to 2008-09 China imported less than 4 million tonnes per year. However, since 2009-10, Australian exports to China have averaged 35.7 million tonnes, peaking at 48.1 million tonnes in 2013-14. Over the last five years, China has purchased 21% of thermal coal exports.

Table 2.6: Australian Thermal Coal exports by Country, Selected Years 1990-91 to 2018-19 (million tonnes)

Country	1990-91	1994-95	1999-00	2004-05	2009-10	2014-15	2018-19	Total
Exports to (million tonnes)								
China	0.0	1.1	0.9	1.7	14.3	42.9	46.6	393.9
Japan	26.8	34.6	43.1	57.6	66.4	81.2	79.3	1,635.7
South Korea	5.0	8.8	11.4	18.0	24.8	35.1	31.6	565.5
India	0.0	0.0	1.5	1.5	0.6	7.7	4.2	48.3
Taiwan	4.1	5.4	9.3	14.3	19.6	21.8	24.0	399.2
Other countries	15.7	13.3	13.5	14.3	9.6	15.9	24.1	432.2
Total	**51.7**	**63.2**	**79.7**	**107.4**	**135.4**	**204.7**	**209.8**	**3,474.7**
Share								
China	0%	2%	1%	2%	11%	21%	22%	11%
Japan	52%	55%	54%	54%	49%	40%	38%	47%
South Korea	10%	14%	14%	17%	18%	17%	15%	16%
India	0%	0%	2%	1%	0%	4%	2%	1%
Taiwan	8%	9%	12%	13%	14%	11%	11%	11%
Other countries	30%	21%	17%	13%	7%	8%	11%	12%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: Office of the Chief Economist, Department of Industry Innovation and Science; Ethos Urban

2.3.3 Key Issues in Major Thermal Coal Markets

Australia

Australia has a significant reliance on coal as a source of electricity. This reliance includes the dependence on brown coal-fired power stations in the Latrobe Valley, the source of most of Victoria's electricity.

However, many of the coal-fired power stations are ageing and have a limited future lifespan. As these power stations become increasingly expensive to maintain, and as less polluting sources such as gas and renewables become cheaper, there is considerable pressure to reduce Australia's dependence on coal as a domestic source of electricity.

The recently released Commonwealth Government report on reducing emissions[1] presented analysis of 140 new and emerging technologies which could be employed in the future as Australia reduces its carbon footprint. While the report concludes that market forces will determine the most appropriate technology solutions to generate reliable and affordable electricity, current trends suggest that coal will becomes a less important source. Gas, wind/solar/batteries, hydrogen and pumped hydro sources are likely to replace coal as older coal-fired power stations are decommissioned.

[1] Technology Investment Roadmap: A framework to accelerate low emissions technologies – Department of Industry, Science, Energy and Resources, May 2020

Accordingly, it is probable that domestic demand for coal as a source of electricity will substantially decline over the next two decades.

Japan

The Fukushima Daiichi nuclear disaster of 2011 forced Japan to all but close its nuclear power program. To replace lost electricity production, Japan plans to build as many as 22 new coal-fired power stations at 17 different sites in the next five years. [2]

If these new coal-fired power plants go ahead, it is highly likely that Japan will continue to be a major export destination, given its long history of purchasing Australian thermal coal.

China

The development of China's economy is mapped out in a series of Five-Year-Plans (FYP). An objective within the 14th FYP, relating to the period 2021 to 2025 is to support green and clean production.[3]

However, China is still building coal-fired power stations, despite an apparent over-supply of electricity production capacity.[4] In addition to approximately 1,000 GW of existing coal generated electricity capacity, China is constructing a further 121 GW of coal-fired power.

A relaxation of central control over permits to build new power stations in 2014 allowed provincial governments to construct power plants. This policy change allowed a proliferation of plants to be built, resulting in many generating facilities operating at below capacity.

Whether new coal-fired power plants in China leads to consumption of more thermal coal is questionable. Further, given China's abundant domestic supply of thermal coal, and the possibility domestic coal sources may be given preference over imports, the implications for demand for Australian thermal coal is uncertain.

These observations also need to be taken in the context of the COVID-19 pandemic. Early expectations of a 6.8% contraction in Q1 2020 China GDP – the first decline in 40 years – await detailed government responses.

South Korea

Around 65% of South Korea's electricity is generated from coal and gas. Sixty coal-fired power stations generate 40% of electricity.[5]

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[2] Japan Races to Build New Coal-Burning Power Plants, Despite the Climate Risks; New York Times, 5 February 2020

[3] How the next five-year plan will change China: blueprint for nation's development explained; South China Morning Post

[4] China is Still Building an Insane Number of New Coal Plants: WIRED, 27 November 2019

[5] South Korea plans to shut down up to 15 coal-fired power plants this winter: Reuters, 28 November 2019

In November 2019, South Korea temporarily closed 15 coal-fired plants because of air pollution concerns. For the same reasons, the government announced it would permanently close 6 older coal-fired stations, a year earlier than planned.

These actions by the South Korean government signal a clear intention to move away from coal as source of electricity, favouring instead nuclear and gas sources.

India

Despite heavy air pollution in key Indian cities, the federal power ministry's chief engineer announced in July 2019 that coal-fired power generation capacity in the country is expected to increase by 22% over the following 3 years.[6]

The International Energy Agency expects India to become the second largest coal consumer behind China in the decade 2020- 2030.

While India has its own coal resources, earlier analysis showed that it imports a small volume of Australian coal. The Carmichael mine in the Galilee Basin is currently under construction and is backed by Indian interests. It is expected that most of the coal from the Carmichael mine will be exported to India.

2.3.4 Conclusions

From the perspective of Mackay's future demand for industrial land to support the thermal coal mining industry, we make the following observations based on the above analysis:

- The global movement to de-carbonise the electricity generating sector will place increasing pressure on coal as a future fuel source. If this trend were the only active factor, the demand for Australian thermal coal would decline.
- The movement to lower emission electricity generation is apparent in advanced economies, including Australia, where ageing coal-fired power stations are like to be replaced by less polluting electricity generating infrastructure using gas, wind, solar, hydrogen and hydro sources.
- An exception is Japan, where a phasing down of nuclear power following the Fukushima incident looks likely to lead to new coal-fired power plants being built. Given Australia has been a long-term supplier of thermal coal to Japan, strong exports to Japan look likely to continue.
- On the other hand, in developing economies, including China and India, appear to be increasing their dependence on coal as an electricity generating source by building new coal-fired power stations.
- In the case of China, an increased dependence on thermal coal may not lead to increased demand for Australian coal, as China has spare capacity in existing plant and also has abundant domestic coal reserves.

[6] India expects coal-fired power capacity to grow 22% in 3 years: Reuters, 31 July 2019

- In the case of India, new coal-fired power stations will probably, at least be partly fuelled by Australian coal, potentially exported from new mines in the Galilee Basin.

The impact on demand for new industrial land in Mackay will partially depend on whether the global demand for thermal coal is sufficient to support substantial expansion of coal mining activities in the Bowen and Galilee Basins. A high demand growth scenario, discussed in Section 6, will model this possibility.

2.4 Coking Coal Markets

2.4.1 Global Steel Production

At today's production levels, the global steel industry uses approximately 2 billion tonnes of iron ore, 1 billion tonnes of coking coal and 575 million tonnes of recycled steel to make 1.8 billion tonnes of crude steel.

Steel making is a very energy intensive process. Two main production methods are used, the blast furnace basic oxygen furnace method (BF-BOF) and the electric arc furnace (EAF) method.

In a primary phase using the BH-BOF method, iron ore is mixed with limestone and scrap steel, heated to 1700°C in a BF to produce iron (or hot metal). Iron is then converted to steel in a secondary phase in a BOF and is further processed into strips, sections or bars.

The EAF method uses electricity generated by various source to melt steel scrap and mix it with additives to a desired chemical composition before a similar secondary phase as used in the BF-BOF method.

Coking coal is a major component of the BF-BOF method of making steel. Raw coal is first 'coked' by heating it at high temperatures in the absence of oxygen. The resulting coke, almost pure carbon, is then used in open blast furnaces to reduce iron ore to molten iron.

Around 70% of world crude steel production uses the BF-BOF method. In Asia, the BF-BOF method accounts for 80% of output.

In 2019, 72% of global crude steel was produced in Asia, with China accounting for 53% of total production, as shown in Table 2.7.

Other key points from Table 2.7 include:

- The European Union produced 8.5% of steel in 2019, but 2019 production was 10.5% below peak production during the decade spanning 2009 to 2019. Germany was the largest EU producer, but only accounted for 2.1% of global output.
- Russia made 72 million tonnes of crude steel in 2019 and accounted for 3.9% of global output.
- USA made 4.7% of global crude steel in 2019, only slightly lower than the decade high production.
- As noted, China dominates crude steel manufacturing, accounting for 53.4% of global production.
- The next two largest Asian steel producers were India and Japan, accounting for 6.0% and 5.3% of global output, respectively.
- Australia was a minor crude steel producer, making only 5.5 million tonnes in 2019.

Table 2.7: World Crude Steel Production 2018 and 2019 (million tonnes)

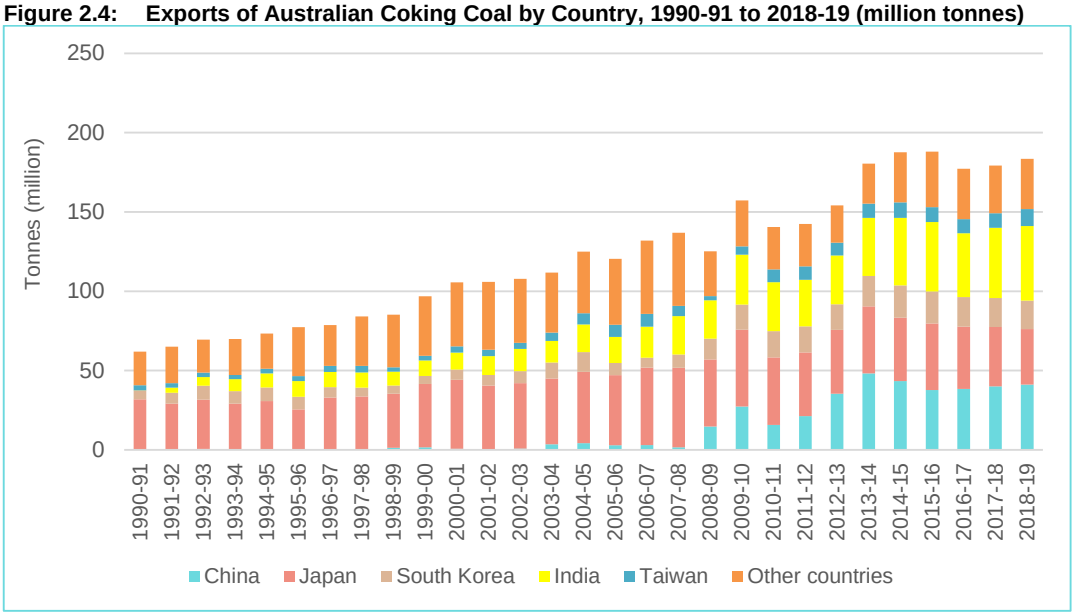
Region/Country	Steel Production 2018	Steel Production 2019	Growth 2018 to 19	2019 Share of World Production	Variation from Decade High Peak
Germany	42.4	39.7	-6.5%	2.1%	-10.4%
Italy	24.5	23.2	-5.5%	1.2%	-19.3%
Other	100.7	96.2	-4.4%	5.2%	-8.2%
European Union (28)	**167.7**	**159.1**	**-5.1%**	**8.5%**	**-10.5%**
Turkey	37.3	33.7	-9.6%	1.8%	-10.1%
Other	5.1	5.1	-0.4%	0.3%	-0.4%
Other Europe	**42.4**	**38.9**	**-8.5%**	**2.1%**	**-8.5%**
Russia	72.0	71.7	-0.4%	3.9%	-0.4%
Ukraine	21.1	20.8	-1.2%	1.1%	-41.0%
Other	7.8	8.0	3.0%	0.4%	-5.5%
C.I.S.	**100.9**	**100.6**	**-0.3%**	**5.4%**	**-10.7%**
United States	86.6	87.8	1.3%	4.7%	-1.1%
Mexico	20.2	18.5	-8.5%	1.0%	-8.5%
Other	14.1	13.5	-3.8%	0.7%	-8.7%
North America	**120.9**	**119.8**	**-0.9%**	**6.4%**	**-1.5%**
Brazil	35.4	32.2	-9.0%	1.7%	-9.0%
Other	9.5	8.9	-6.7%	0.5%	-31.3%
South America	**44.9**	**41.1**	**-8.5%**	**2.2%**	**-14.6%**
Africa	**17.4**	**16.4**	**-5.8%**	**0.9%**	**-5.8%**
Iran	24.5	25.6	4.4%	1.4%	0.0%
Other	13.5	13.5	0.2%	0.7%	-0.8%
Middle East	**38.0**	**39.1**	**2.9%**	**2.1%**	**0.0%**
China	928.3	993.4	7.0%	53.4%	0.0%
India	109.3	111.2	1.8%	6.0%	0.0%
Japan	104.3	99.3	-4.8%	5.3%	-10.3%
South Korea	72.5	71.4	-1.5%	3.8%	-1.5%
Taiwan, China	23.2	22.0	-5.5%	1.2%	-5.5%
Other	40.4	43.2	6.9%	2.3%	0.0%
Asia	**1,278.0**	**1,340.5**	**4.9%**	**72.0%**	**0.0%**
Australia	5.7	5.5	-3.4%	0.3%	-24.7%
New Zealand	0.7	0.7	2.3%	0.0%	-26.9%
Oceania	**6.3**	**6.2**	**-2.9%**	**0.3%**	**-24.4%**
World	**1,816.6**	**1,861.7**	**2.5%**	**100.0%**	**0.0%**

Source: Worldsteel Association; Ethos Urban

2.4.2 Australian Coking Coal Exports

Coking coal exports from Australia are detailed in Figure 2.4 and Table 2.8.

Figure 2.4: Exports of Australian Coking Coal by Country, 1990-91 to 2018-19 (million tonnes)



Source: Office of the Chief Economist, Department of Industry Innovation and Science; Ethos Urban

The patterns of Australian coking coal exports are similar to the patterns of thermal coal exports:

- Japan has been a strong and consistent importer of Australian coking coal, purchasing almost 1/3 of exports since 1990-91. However, in both volume and share terms, Japan's importance to Australian exports of coking coal has declined. Nevertheless, in 2018-19, Japan ranked as the #3 destination for Australian coking coal.
- Both China and India have overtaken Japan in recent years as importers of Australian coking coal. In 2018-19, both China and India purchased 50% more Australian coking coal than in 2009-10 and annual volumes imported are consistently more than 40 million tonnes.
- These trends reflect the rise of China as the major steel producer. China's 2019 crude steel production of 993 million tonnes (53% of global output) exceeded the output of all other countries. Both Japan and India only produced about 10% of China's output.

Table 2.8: Australian Coking Coal exports by Country, Selected Years 1990-91 to 2018-19 (million tonnes)

Country	1990-91	1994-95	1999-00	2004-05	2009-10	2014-15	2018-19	Total
Exports to (million tonnes)								
China	0.3	0.3	1.5	4.2	27.3	43.4	41.1	385.5
Japan	31.4	30.4	40.0	45.0	48.5	39.8	35.1	1,119.9
South Korea	5.7	8.6	5.1	12.5	15.9	20.5	17.9	326.3
India	0.0	8.9	9.7	17.4	31.4	42.6	47.0	602.0
Taiwan	3.2	3.0	2.9	7.1	5.4	9.8	10.7	167.1
Other countries	21.1	22.2	37.5	38.8	28.9	31.6	31.7	922.0
Total	**61.9**	**73.3**	**96.8**	**124.9**	**157.3**	**187.7**	**183.5**	**3,522.8**
Share								
China	1%	0%	2%	3%	17%	23%	22%	11%
Japan	51%	42%	41%	36%	31%	21%	19%	32%
South Korea	9%	12%	5%	10%	10%	11%	10%	9%
India	0%	12%	10%	14%	20%	23%	26%	17%
Taiwan	5%	4%	3%	6%	3%	5%	6%	5%
Other countries	34%	30%	39%	31%	18%	17%	17%	26%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: Office of the Chief Economist, Department of Industry Innovation and Science

2.4.3 Key Issues in Major Coking Coal Markets

China

China's demand for steel, and in turn its demand for Australian coking coal, is dependent on domestic and international markets, as well as local coal mining issues. Domestically, industrialisation, and urbanisation-driven infrastructure spending and housing construction, have been key demand drivers for steel. The medium-term outlook for domestic steel demand in China will depend largely on government infrastructure investments post COVID-19, yet to be fully determined.

The combination of recent business-as-usual steel production in China and lower international demand as world economies have slowed, has resulted in inventories reaching an all-time high[7]. Total steel stocks of 55 million tonnes at the end of March 2020, were 160% higher than stock levels at the end of December 2019. These factors suggest that Chinese steel production will not experience significant growth in the near-term.

In addition, global trends to EAF steel production methods are likely to be replicated in China as older BF-BOF mills are mothballed. This trend may see reduced demand for Australian coking coal from China in the longer term.

On the other hand, the quality of Australian coking coal and difficulties with extracting coking coal from marginally accessible deposits in China should provide continued support for exports to China.

[7] Blog: Economic impact of COVID-19 outbreak in China, worldsteel association, 28 April 2020

Japan

As noted, Japan has declined in importance as a steel producing country. With a 6.3% fall in Q4 2019 GDP, a slowing in construction demand after completion of Olympic infrastructure, and lower demand from Japanese car makers, the short-term outlook for Japanese steel producers is subdued[8].

Nevertheless, in 2019, Japan was the world's third largest steel producer, and 70% of Japanese crude steel was made using the BF-BOF method. Around 45% of 2019 coking coal imports to Japan were from Australia, while approximately 23% were from North America.

Japan is likely to continue to be significant importer of Australian coking coal in the medium term, However, in line with global trends, a move to EAF technology in Japan may lead to lower demand for Australian coking coal in the next decade.

India

By the end of 2019, India was expected to become the second-highest consumer of steel[9]. The construction sector, driven by government policies towards, and investment in, infrastructure and affordable housing are expected to be key drivers of steel industry growth. In addition, the "Make in India" initiatives are expected to support design and manufacturing.

In 2018, the BF-BOF method (the key driver of demand for coking coal) was used in only 45% of crude steel made in India, the lowest proportion in Asia. While growth in the Indian steel industry is realistically expected, there are calls within India to reduce its dependence on Australian coking coal imports[10]. Russian coking coal has been suggested as viable alternative, given price, availability and connectivity with import facilities.

2.4.4 Conclusions

From the perspective of Mackay's future demand for industrial land to support the coking coal mining industry, we make the following observations:

- Steel making, the major use for coking coal is a highly energy intensive process. As is the case in electricity generation, there are global movement to de-carbonise the steel industry. However, 70% of world steel production in 2018 utilised the BF-BOF method to produce crude steel – this method relies on coking coal. The transition to the alternative EAF method is likely to be gradual as older mills are decommissioned.
- China dominates steel production and is Australia's 2nd largest export destination for coking coal. Analysts believe China has reached peak steel, so future growth in demand from China for Australian coking coal may be subdued.

[8] Japan's slowing economy worries steelmaker amid COVID-19 impact; S&P Global Platts, 21 February 2020

[9] Outlook of the Indian Steel Industry, JSW Steel

[10] RPT-India steel minister expects to increase coking coal imports from Russia; Reuters 26 November 2019

- Similarly, Japan's steel industry is not expected to experience growth in the near-term. Demand for Australian coking coal imported by Japan may also be subdued.

- India's steel industry is expected to grow as the country modernises, which should increase demand for Australian coking coal. However, India has the lowest dependence on the BF-BOF method to produce crude steel and appears to be in the early stages of seeking alternatives to Australian coking coal imports. Given these influences are in opposite directions, the impacts on the Australian market are highly uncertain, particularly in current economic circumstances.

Demand for new industrial land in Mackay, driven by international coking coal markets, remains unclear. The three demand growth scenarios, discussed in Section 6, will consider how trends in international coking coal markets may impact Mackay.

2.5 METS Sector

The Mining Equipment, Technology and Services (METS) sector contributes significantly to Australian and regional economies. The METS sector services all extractive industries including mining of iron ore, coal, copper, gold and bauxite. METS industries include some or all of:

- Mining support services,

- Chemical manufacturing,

- Telecommunication services,

- Computer systems design,

- Equipment manufacturing, and

- Transportation services.

According to Deloitte Access Economics[11], in 2015-16:

- The direct contribution of the mining and the METS sector to the Australian economy was $133.2 billion (value added), supporting 484,110 FTE jobs directly.

- In addition, the indirect contribution to the economy, which depends on inputs from other industries, totalled $103.6 billion, and supported 655,700 jobs.

- Total economic contribution in 2015-16 was $236.6 billion, or approximately 15% of the Australian economy.

The METS sector is concentrated in the Pilbara region in WA, the Hunter region in NSW and the Bowen-Surat region of Queensland.

[11] Mining and METS: engines of economic growth and prosperity: Deloitte Access Economics, 2017

Queensland's METS sector comprises more than 800 companies and generates $7 billion in revenue to the state[12]. The Queensland METS sector naturally clusters around SEQ, Darling Downs, North West and Mackay-Whitsunday.

The Mackay-Whitsunday cluster is predominantly located in the Paget industrial estate. The Mackay METS cluster, a service hub for Bowen Basin mines, is highly regarded domestically and internationally as a leader in coal mining innovation and efficiency. With capabilities including project management, manufacturing, heavy engineering and design, energy solutions, transport, maintenance and contract labour supply, the Mackay hub experienced rapid growth during the mining construction boom in the Bowen Basin, and is well placed to meet future demand from the local mining sector. The METS sector has been the key driver of high impact industrial land take-up over the last two decades.

Some companies located in Paget solely focus on customers in the Bowen and Galilee Basins. Others have a more export-oriented approach and have successfully marketed products and services to coal mining industries in other countries. To support further innovation and expansion, the Queensland Government, Mackay Regional Council and the Resources Industry Network opened a $7 million Resources Centre of Excellence in 2020 in the Paget estate. The Centre will feature a simulated underground coal mine for training and research, including emergency response, and will provide training and education, biomedical research, product innovation and demonstration and help to create the jobs and skills of the future.[13]

Future demand for industrial land in Mackay from the METS sector will depend on a number of factors:

- Continued production from Bowen Basin mines, which in turn, will be influence by international demand for coal (particularly coking coal).
- New mine construction and expansion of existing mines to meet demand for coal.
- A trend away from dependence on overseas suppliers of components to the local manufacturing industry as the reliability of international supply chains are increasingly disrupted by geo-political tensions. This factor, to an unknown extent, may encourage more onshore manufacturing of mining equipment, subject to competitive cost considerations.
- International demand for METS products and services.

We expect the METS sector will be the key future driver of demand for industrial land in Mackay, as discussed in Section 6.

[12] Queensland Mining Equipment, Technology and Services 10 Year Roadmap, July 2017: Department of State Development, Manufacturing, Infrastructure and Planning

[13] http://statements.qld.gov.au/Statement/2020/6/11/mackay-on-the-mets-map-with-resources-centre-of-excellence

2.6 Sugar Industry

Approximately 95% of Australia's sugar cane plantings are in Queensland and more than 80% of all sugar produced in Australia is exported as bulk raw sugar[14].

Sugar is an important industry in central Queensland, and as noted previously, the Port of Mackay is one of the largest bulk sugar export terminals in the world. However, as also noted, sugar products were ranked 99 of 260 commodities exported from Australia by value in 2019. Sugar contributed to less than 0.1% of exports in that year.

Australian was the world's 10th largest sugar producer in 2019-20[15]. At a global level, approximately 166.2 million tonnes were produced in 2019-20, down from 175.1 million tonnes in 2014-15. Brazil, the largest producer had output of 29.9 million tonnes in 2019-20. India produced 28.9 million tonnes while the EU produced 17.3 million tonnes from beet. Australia's production was 4.4 million tonnes or 2.7% of global production.

Sugar prices are currently under pressure because of declining demand from food industries, particularly in view of government lockdown in response to COVID-19[16]. In addition, production increases in Brazil, India and Thailand are expected in 2020-21 as growing conditions return to normal after poor seasons. ABARES forecasts the world indicator price for sugar will fall to US 11 cents per pound in Q4 2019-20, and further decline in 2020-21.

The Wilmar BioEthanol distillery in Sarina produces about 60 million litres of bioethanol a year from molasses - a by-product of the raw sugar manufacturing process[17]. Most recently, production of industrial grade ethanol has doubled due to demand for hand sanitisers, hygiene and cleaning products by frontline health services.

In the longer term, demand for ethanol as a fuel additive (to petrol or diesel) is likely to remain subdued while oil prices are at historic lows. In addition, Australian produced ethanol is not exported, since most countries have adequate domestic supplies derived from various biomass feedstocks such as sugar, corn, woodchips or crop residues.

In short, Australian sugar is a mature industry, and in the face of slowing global demand and the increased production capabilities of other countries, it is not expected that the Australian industry will experience sustained growth.

Accordingly, future demand for additional industrial land in Mackay from the sugar industry is likely to be low.

[14] Department of Agriculture, Water and the Environment website

[15] https://www.statista.com/statistics/495973/sugar-production-worldwide/

[16] ABARES Agricultural Commodities vol. 10 no. 2, June quarter 2020

[17] https://www.northqueenslandregister.com.au/story/6734658/ethanol-production-doubles-to-help-covid-19-fight/

2.7 Beef Markets

Australia contributes around 4% of global beef production, but accounts for 16% of world trade[18]. The three largest beef producers in 2019 were USA (20% of world production), Brazil (15%) and the European Union (13%). Beef was Australia's 5th largest export by value in 2019 (excluding services), comprising 2.8% of exports.

The beef industry is disparate and fragmented. Around 45% of Australia's 25 million cattle were in Queensland in 2019[19]. However, overall stock levels and the geographic distribution of herds varies from year-to-year depending on weather conditions, particularly drought.

The Fitzroy Basin, centred on Rockhampton, had the highest number of cattle in 2019 (3.1 million head; 12% of total numbers), while North Queensland Dry Tropics was the third largest cattle growing area (1.3 million head; 5%). For the purposes of estimating cattle herds, the Mackay region is located in the Reef Catchments area, and had 127,000 head in 2019, or 0.5% of Australia's total herd.

While beef herds are relatively small in the immediate Mackay catchment, a meat processing plant in Bakers Creek sources livestock from Central Highlands and Coalfields through to the Atherton Tablelands. The plant specialises in pasture and grain fed cattle processing which is then sent to various countries such as Japan, Europe Union, Asia, Middle East, China and the Americas.

Unless there are active plans to extends the processing capacity of the existing processing facility, it is unlikely that the beef industry will generate significant future demand for industrial land in Mackay.

2.8 New and Emerging Industries

Mackay has several key strengths, which would be attractive to businesses or industries seeking to establish in the region, including:

- Existing heavy engineering and manufacturing skill base (METS sector).
- Existing sugar and biofuel industry.
- Port and airport facilities and good road and rail links.
- Strong educational and research capacity through two major university campuses and two major hospitals.

Accordingly, over the next 20 years, it is likely that new industries will establish a base in Mackay. Potential new businesses that may require industrial land could include warehousing, transport and logistics facilities (e.g. supermarket distribution centre); defence associated manufacturing or

[18] Global Snapshot Beef: Meat and Livestock Australia, January 2020

[19] Cattle numbers – at June 2019; Natural Resources Management Region, Meat and Livestock Australia Market Information.

maintenance facilities; and aquaculture processing. An allowance for future demand for industrial land generated by new industries is included in Section 6

3 Summary of Industrial Precinct Profiles

This section summarises the current and potential future supply of industrial land in Mackay. Further details about land currently zoned industrial are contained in **Appendix A**, while **Appendix B** has more information about designated Industry Investigation Areas and other areas that have been suggested as future industrial sites.

Estimates of future industrial land supply have been derived by adopting a conservative assumption about the vacancy status of parcels covered by existing Development Approvals (DA's). Even though parcels covered by a DA are technically vacant, for the purposes of this study these parcels are deemed to be already developed and are excluded for the purposes of calculating future land supply.

In addition, a brief summary of industry investigation zones and land outside the jurisdiction of MRC is provided and the section concludes with an overview of industry profiles of currently occupied industrial land.

3.1 Methodology and Key Assumptions

The MRC GIS databases already held records for each industrial land parcel. Information about each parcel included address, size and zoning status.

Using the existing MRC GIS databases as a starting point, a detailed survey was undertaken of all industrial zoned land in the council area in March and April 2020. The survey identified the development status, type of industry activity (ANZSIC classification), gross floor area of any buildings and development approvals on industrial zoned land under the Mackay Region Planning Scheme (2017).

Industry Investigation Areas were also inspected to primarily establish whether development of any kind had occurred, which would reduce the future capacity of such areas to accommodate industrial uses. For completion, records for the 705ha proposed Rosella Estate, currently zoned Rural, were added to the database. Rosella has been identified as a potential long-term precinct should demand warrant the formal incorporation of the land into the planning scheme as an industrial area.

Finally, areas outside the jurisdiction of the Mackay Region Planning Scheme, including strategic port land within the Port of Mackay (818ha), Port of Hay Point (approximately 2,930ha) and Mackay Airport (273ha) precincts were not considered to be part of future industrial zoned land supply.

The strategic port land areas are subject to their own land use plans that govern future development. While these land use plans allow for industrial uses, the primary purpose of land in the port precincts is to service port-related activities. Industries without some synergy with port-related activities are unlikely to be permitted to locate in the precinct.

Currently, 175ha of the 818ha of strategic port land in the Mackay Harbour (Special Purpose Zone) is being used for predominantly industrial activity, including a quarry.

Definitions and key assumptions underpinning statistics generated from the updated database are as follows:

- **Zoned Areas** is the area of land according to industrial zonings categories in the Planning Scheme.
- **Developed Land** is land already occupied and deemed to be unavailable for future industrial uses, as follows:
    - **Developed Industrial**

    a Land occupied by sugar mills.

b Land occupied by an industrial use aligned with the zoning of the area. This category includes vacant sheds.

c Land occupied by industrial outdoor storage or hardstands.

d Land reserved for the expansion of the MRC Paget Depot

- **Developed Non-Industrial**

a Land occupied by a residential, commercial or community use, notwithstanding any potential to repurpose these uses to industrial.

- **Future Land Supply** is defined as land available for future industrial uses, as follows:
  - **Gross Vacant Land** is the difference between Zoned Areas and Total Developed Land.
  - **Allowance for Servicing Infrastructure** is land set aside for roads, stormwater and sewage works and other servicing infrastructure.
  - **Vacant Land with DA's** is land with existing Developments Approvals, which includes DA's for sheds and outdoor storage.
  - **Net Vacant Land** (NVL) is Gross Vacant Land less both the Allowance for Servicing Infrastructure and Vacant Land with DA's.

Excluding any land parcel with an existing development approval from Net Vacant Land (future supply) represents a **conservative** approach to determining future supply. It fundamentally assumes that land with existing DA's will be developed in line with the DA. In practice, DA's can be revised or lapse, which would likely result in more vacant land being available for future industrial use than the conservative approach indicates.

3.1.1 Net Vacant Land versus Market Availability

The definition of Net Vacant Land (NVL) in this report is solely intended to measure the volume of industrial land that is vacant and would likely be developed to meet future demand. Demand, as discussed in Section 4, is defined as take-up of industrial land - evidenced by construction of industrial premises or use of land for industrial storage purposes.

Accordingly, NVL is not a measure of market availability, that is, land available for sale or lease at a particular time. Market availability will depend on whether owners choose to list properties for sale or lease, which in turn, will depend on any number of factors such as price trends, future development plans, or owner investment strategies.

3.2 Overall Industrial Land Supply

Based on the survey and the updated database, Table 3.1 summarises industrial land supply by zone across the council area, quantifies developed land and estimates future land supply using the conservative approach described above.

A total of 1,168.9ha of zoned industrial land includes industry investigation areas (294.7ha). In addition, the 705ha proposed Rosella Estate, which is currently zoned Rural, has been identified as a potential long-term industrial area should demand warrant its formal incorporation into the planning scheme as an industrial area.

Developed land totals 720.1ha (or 61.6% of 1,168.9ha) of industrial zoned land as follows:

- Land occupied by sugar mills (198.5ha).
- Land occupied by High Impact or Low Impact industry aligned use (466.5ha). This total includes: 34.4ha for industrial outdoor storage or hardstand; land reserved for the expansion of the Mackay Regional Council Paget Depot (16.4ha); and land occupied by vacant sheds (7.4ha).
- Land already developed within Industry Investigation Zones (29.0ha).
- Land occupied by a residential, commercial or community use, notwithstanding any potential to be repurposed as an industrial use (26.1ha).

Gross Vacant Land (Total Zoned Area minus Total Developed Land) is 448.9ha, excluding Rosella.

After excluding the Allowance for Servicing Infrastructure (73.7ha) and adopting the conservative assumption by also excluding Vacant Land with DA's (26.8ha), Net Vacant Land totals 348.2ha.

Net Vacant Land comprises 348.2ha as follows:

- 96.9ha zoned High Impact Industry.
- 45.4ha zoned Low Impact Industry.
- 206.0ha within Industry Investigation Areas.

A further 500.0ha is estimated to potentially be available for future industrial use in Rosella from the total area of 705ha.

Table 3.1: Industrial Land Supply Summary, Mackay Regional Council, March 2020

		Developed			Future Land Supply			
Zone	**Zoned Area**	**Industrial***	**Non-Industrial**	**Total**	**Gross Vacant Land**	**Allowance for Roads and Stormwater**	**Vacant with Development Approval****	**Net Vacant Land**
Mackay Regional Planning Scheme								
High Impact Industry (Mill precincts)	198.5 ha	198.5 ha	-	198.5 ha	-	-	-	-
High Impact Industry	488.5 ha	351.9 ha	10.8 ha	362.7 ha	125.8 ha	6.4 ha	22.5 ha	96.9 ha
Low Impact Industry	187.3 ha	114.6 ha	14.6 ha	129.2 ha	58.1 ha	8.3 ha	4.3 ha	45.4 ha
Industry Investigation	294.7 ha	29.0 ha	0.7 ha	29.7 ha	264.9 ha	59.0 ha	-	206.0 ha
Total	**1,168.9 ha**	**694.0 ha**	**26.1 ha**	**720.1 ha**	**448.8 ha**	**73.7 ha**	**26.8 ha**	**348.2 ha**
Rural Zone: Investigation Precinct (Rosella)	705.0 ha	-	-	-	705.0ha	205.0 ha	-	500.0 ha

Note: *Includes developed land with unoccupied sheds (7.4ha)
**Development Approval for sheds and outdoor storage.
All land in Port of Mackay and Mackay Airport is zoned Special Purpose.
Special Purpose zoned land in Mackay Regional Planning Scheme is excluded.

Source: Mackay Regional Council, Ethos Urban

3.2.1 Vacant Sheds

Sheds already built but currently vacant are counted as 'Developed' in this analysis. These vacant sheds occupy 7.4ha and have a Gross Floor Area (GFA) of almost 36,000m^2, as shown in Table 3.2.

Table 3.2: Vacant Industrial Sheds, Mackay Council Area, March 2020

	Spare Capacity - Vacant Sheds		
Zone	**Number of Lots**	**Land Area**	**GFA**
Mackay Regional Planning Scheme			
High Impact Industry	20	4.0 ha	18,722 m²
Low Impact Industry	41	3.4 ha	17,199 m²
Total	**61**	**7.4 ha**	**35,921 m²**

Note: Special Purpose zoned land in Mackay Regional Planning Scheme is excluded.

Source: Mackay Regional Council, Ethos Urban

The 61 vacant sheds are mostly in Low Impact Industry zones, although the vacant GFA is split evenly between High Impact and Low Impact zones.

While vacant sheds are removed from future land supply in this analysis, they may influence the future take-up of Net Vacant Land. Businesses seeking premises may first consider locating in existing vacant buildings before committing to constructing new facilities on vacant land. These decisions will depend on whether vacant sheds meet specific location and technical requirements and financial considerations.

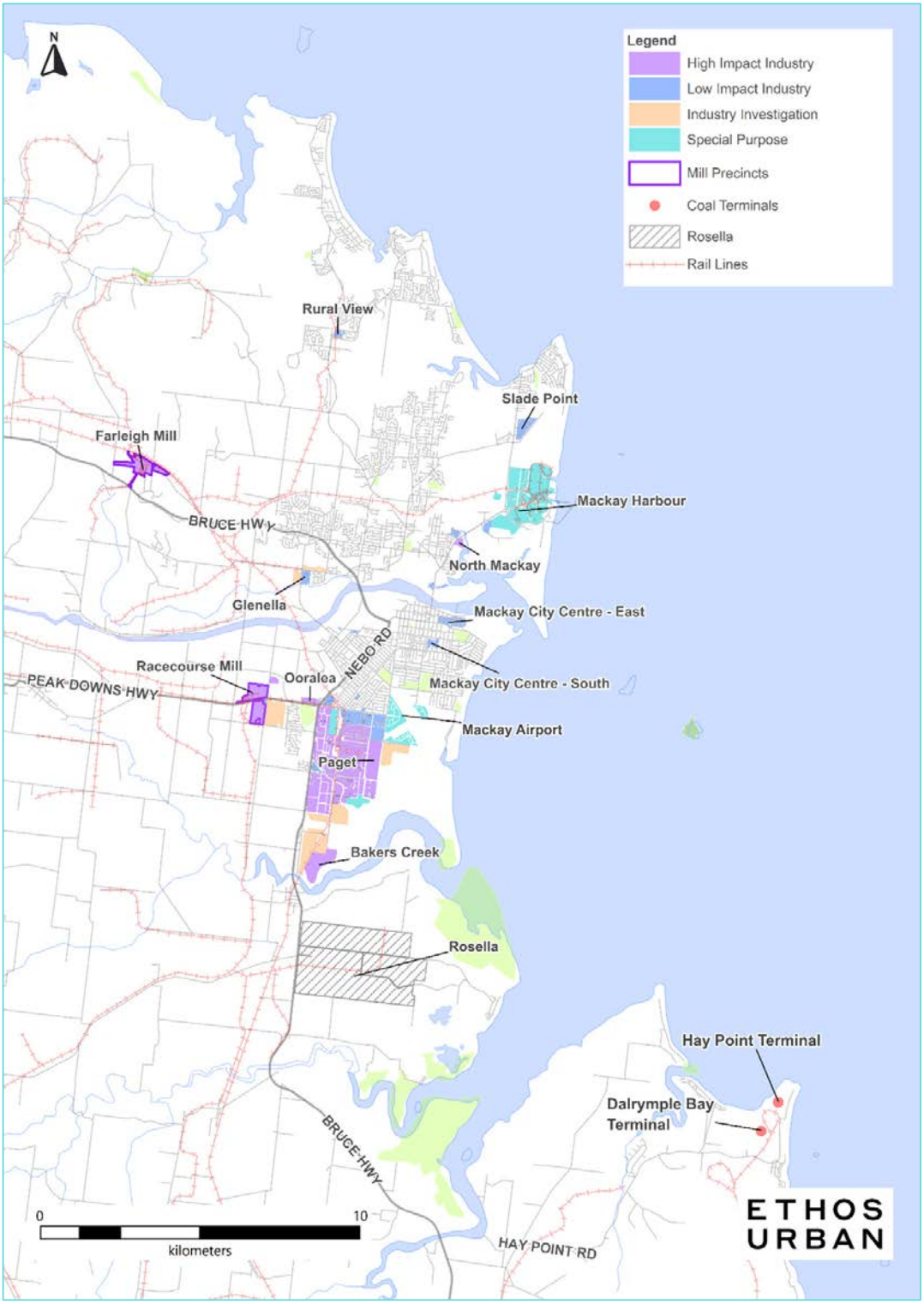
With regard to vacant sheds in this analysis, we have adopted a further conservative assumption that future demand for industrial land will necessitate take-up of Net Vacant Land. In practice, some of this future demand will be absorbed by vacant sheds.

3.3 Supply by Precinct

Figures 3.1 and 3.2 illustrate where each industrial precinct is located, including industry investigation areas and areas outside the jurisdiction of Council. As has been discussed, high impact industrial zones are clustered in the Paget estate, south of Mackay CBD.

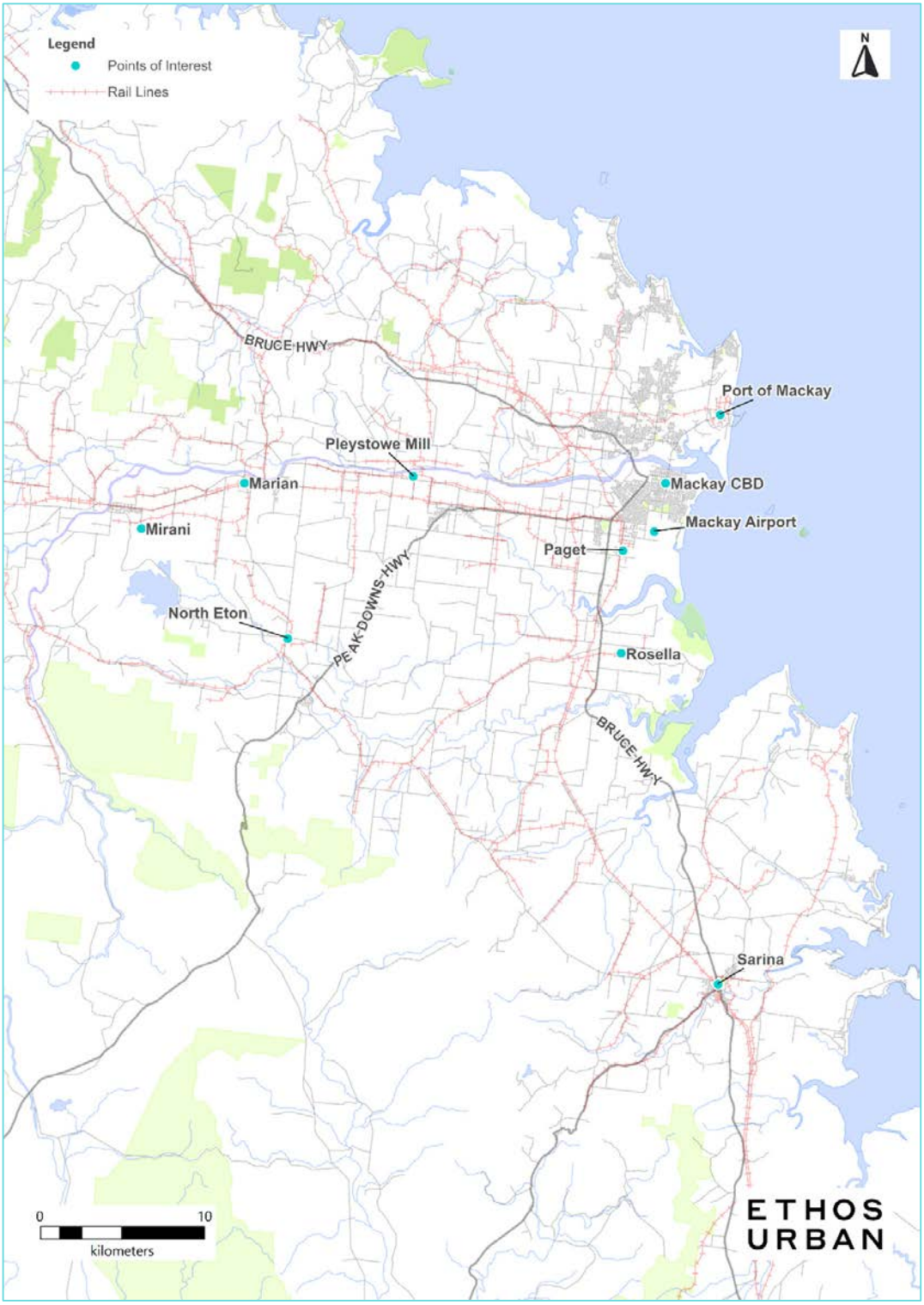
A summary of zoned, developed and net vacant land, by precinct, is shown in Table 3.3.

Figure 3.1: Mackay Industrial Precincts, March 2020



Source: Mackay Regional Council, Ethos Urban

Figure 3.2: Mackay Industrial Precincts, March 2020 (Extended View)



Source: Mackay Regional Council, Ethos Urban

Table 3.3: Industrial Land Supply by Precinct, Mackay Regional Council, March 2020

Zone	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land**	NVL Proportion of Zoned Area
Total MRP Scheme	**1,168.9 ha**	**720.1 ha**	**448.8 ha**	**348.2 ha**	**29.8%**
Total Mill Precincts	**198.5 ha**	**198.5 ha**	**-**	**-**	**-**
Farleigh Mill	46.3 ha	46.3 ha	-	-	-
Marian Mill	48.2 ha	48.2 ha	-	-	-
Pleystowe Mill	25.5 ha	25.5 ha	-	-	-
Racecourse Mill	57.2 ha	57.2 ha	-	-	-
Sarina Mill	21.3 ha	21.3 ha	-	-	-
Total Zoned Land (high and low impact, excludes Mill Precincts)	**675.8 ha**	**491.9 ha**	**183.9 ha**	**142.3 ha**	**21.1%**
Bakers Creek	53.2 ha	53.2 ha	-	-	-
Cremorne	4.8 ha	4.8 ha	-	-	-
Glenella	9.2 ha	9.1 ha	0.1 ha	0.1 ha	0.9%
Mackay City Centre - East	16.3 ha	16.2 ha	0.1 ha	0.1 ha	0.8%
Mackay City Centre - South	6.4 ha	4.4 ha	2.0 ha	1.6 ha	24.6%
Mackay Harbour	8.6 ha	6.3 ha	2.3 ha	-	-
Mirani	14.8 ha	-	14.8 ha	8.9 ha	60.3%
North Eton	9.7 ha	-	9.7 ha	7.7 ha	79.0%
North Mackay	11.1 ha	11.1 ha	-	-	-
Ooralea	8.0 ha	6.7 ha	1.3 ha	1.0 ha	12.7%
Paget	483.6 ha	332.9 ha	150.7 ha	121.4 ha	25.1%
Racecourse	6.9 ha	6.9 ha	-	-	-
Rural View	5.9 ha	3.9 ha	2.1 ha	0.6 ha	10.5%
Sarina - Brewers Road	0.7 ha	0.7 ha	-	-	-
Sarina - Range Road	0.3 ha	0.3 ha	-	-	-
Sarina - Sarina Beach Road	2.9 ha	2.9 ha	-	-	-
Slade Point	21.4 ha	20.5 ha	0.9 ha	0.9 ha	4.0%
South Mackay - Archibald Street	0.9 ha	0.9 ha	-	-	-
South Mackay - Paradise Road	1.8 ha	1.8 ha	-	-	-
West Mackay - Cemetery Road	2.4 ha	2.4 ha	-	-	-
West Mackay - Nebo Road	6.8 ha	6.8 ha	-	-	-
Total Industrial Investigation Areas	**294.7 ha**	**29.7 ha**	**264.9 ha**	**206.0 ha**	**69.9%**
Cowleys Road Investigation Precinct	46.2 ha	0.5 ha	45.7 ha	30.2 ha	65.4%
Paget South Precinct	103.7 ha	27.0 ha	76.7 ha	66.9 ha	64.5%
Glenella Investigation Precinct	19.3 ha	-	19.3 ha	13.8 ha	71.8%
Boundary Road East Investigation Precinct	35.0 ha	2.3 ha	32.7 ha	26.2 ha	74.8%
Marian Investigation Precinct	31.4 ha	-	31.4 ha	23.2 ha	74.0%
Sarina Investigation Precinct	59.1 ha	-	59.1 ha	45.6 ha	77.2%
Rural Investigation (Rosella)	**705.0 ha**	**-**	**705.0 ha**	**500.0 ha**	**70.9%**

Note: *Includes developed land with unoccupied sheds

**Excludes development approval for sheds and outdoor storage

Source: Mackay Regional Council, Ethos Urban

Key points from Table 3.3 include:

- Across the Planning Scheme (excluding Rosella), the proportion of Zoned Land classified as Net Vacant Land is 29.8%. However, areas already zoned high impact or low impact industry have a vacancy rate of 16.3%, while Industry Investigation Areas are 69.9% vacant.
- Of the 142.3ha of NVL in industrial zoned precincts (excluding investigation precincts), 121.4ha (or 85.3%) is in Paget. Paget is 25.1% vacant.
- The vacant land in Paget is a mix of high impact (95.9ha) and low impact (25.5ha).
- Elsewhere, Mirani (8.9ha) and North Eton (7.7ha) are the only other two areas with more than 2ha of NVL. However, both of these precincts, zoned low impact industry, are more than 25km from Mackay urban area. Being more distant means that Mirani and North Eton have limited opportunities to take advantage of the resident workforce, road and port infrastructure and mutual benefits from clustered industrial activity.
- Accordingly, development of industrial land in Mirani and North Eton would need to be driven by local demand, an unlikely immediate prospect.

Key points about Industry Investigation Areas and Rosella include:

- **Boundary Road East** (26.2ha net vacant) is located directly east of Paget and its northern boundary abuts Mackay Regional Airport. With potential to accommodate high impact and low impact industry, Boundary Rd East would be a natural extension of Paget, and be consistent with the high level of METS industry clustering in the precinct.

  Boundary Road East will require some significant investment in trunk infrastructure (roads, water, sewerage, etc.), which could be done in conjunction with works to service development at Mackay airport.
- Similarly, Paget South (also known as Bakers Creek) (66.9ha net vacant) would be a logical extension to the industrial holdings in Paget. Paget South comprises three high impact quadrants and one low impact quadrant. Development (3h) has already occurred in the south-western quadrant of Paget South (adjacent to the Bakers Creek township).
- The 46.2ha **Cowleys Road** precinct (also known as Ooralea) is located on Peak Downs Highway, approximately 3.5km due west of Mackay Airport. While the Cowleys Road precinct is close to the Racecourse sugar mill (on high impact industrial land), existing properties on the eastern and southern boundaries of the precinct preclude new high impact industrial activity on the site. The eastern boundary is housing, while the Mackay campus of Central Queensland University is directly to the south.

  Accordingly, the Cowleys Road precinct would be suitable for future low impact industry uses or a business park.
- The **Glenella** precinct (13.8ha net vacant), located on Heaths Road and Glenella Road, is approximately 4.3km north-west of Mackay CBD. Divided into southern and northern sectors, the precinct may accommodate low impact industry uses in the future.
- The 31.4ha **Marian** Industry Investigation precinct is 25km west of Mackay CBD. Prior to the 2008 amalgamation of the Shire of Mirani, Shire of Sarina and City of Mackay into the Mackay Regional Council, the precinct was zoned industrial under the Mirani Shire planning scheme. This industrial zoning, through the precinct's association with the Marian sugar mill, was carried over into the Mackay Regional Planning scheme as Industry Investigation land.

  Without substantial demand for industrial land from the sugar industry or other agricultural sources, it is unlikely that the Marian precinct will be required in the next 20 years.

- The 59.1ha **Sarina** Industry Investigation precinct is located on the corner of Sarina Homebush Road and the Bruce Highway in the Sarina township. This precinct is approximately 30km south of Mackay CBD and has the potential to accommodate high impact and low impact industries.

  The town of Sarina has a sugar mill and an ethanol plant. However, unless additional demand for industrial land from the sugar industry industries eventuates (e.g. expansion beyond the Patch Street industrial area) or new industrial uses such as transport logistics on the Bruce Highway, the Industry Investigation precinct may not be required in the medium term.

- Finally, the 705ha **Rosella** site, as noted earlier, is zoned Rural, but is earmarked for future industrial use. Located 10km south of the Mackay CBD and 3km south of Bakers Creek, Rosella has the potential to cater for large high impact industrial sites.

  The Mackay Region Planning Scheme 2017 identifies part of the Rosella area as the Rosella investigation area (Investigation area 3). The planning scheme envisages urban expansion into the existing rural area, specifically for industrial development in the area bounded by Fenners Road, Bruce Highway, Homes Road and an eastern boundary that respects environmental considerations such as acid sulphate soil and coastal hazards. The planning scheme states that the expansion into this area is not considered within the life of this scheme i.e. 2037. However, the findings of this study will potentially influence the timing of rezoning of Rosella.

  Economic Development Queensland (EDQ) has purchased a 211ha portion of Rosella. EDQ, which has interests in land of strategic or regional significance and would make the land available for industry after Paget, Boundary Road East and Paget South were at capacity.

3.3.1 Land Outside MRC jurisdiction

Land outside the jurisdiction of the MRC planning scheme, which could accommodate industrial uses, include land with Mackay Regional Airport and Mackay Port.

Mackay Regional Airport recently called for Stage 1 Expressions of Interest (EOI) from interested parties to establish businesses in the Milton precinct on the western boundary of the airport. Land parcels from 1,000m^2 to 50,000m^2 were potentially available for lease.

Under the Mackay Airport Land Use Plan, permitted uses include low impact industry, but are not restricted to industrial uses. Discussions with Airport management suggests that most interest was from companies wishing to establish a transport/logistics facility to take advantage of strategic air freight opportunities.

However, the EOI process is yet to be finalised and subsequent stages will determine the type, timing and scale of businesses to be developed at Mackay Airport.

The **Port of Mackay** handles sugar and sugar related exports, as well as facilitating imports of heavy machinery and bulk fuel to service the mining industry. Sugar Terminals Limited is one of the largest bulk sugar terminals in Queensland.

Around 20 business operate from port land, including engineering services, building supplies, asset maintenance and ship repairs. Vacant land within the port area could be used for high or low impact industry.

The Port of Mackay Land Use Plan strongly prefers businesses that have synergies with port-related activities. Industries without synergies to port-related activities are unlikely to be permitted to locate in the port precinct.

3.3.2 Additional Areas

MRC received submissions from landowners to consider particular parcels for future industrial uses during the drafting of the Mackay Regional Planning Scheme.

This study has found that demand for additional industrial areas over and above areas already identified will not be required for industrial purposes over the next 20 years.

The submissions, along with reasons for the unsuitability of identifying such land as industrial in the next 20 years are summarised in **Appendix B**.

3.4 Land Use Summary by Industry

As noted, the detailed survey of industrial land collected information about uses on developed sites. Uses were coded to the 3-digit level of the Australian New Zealand Standard Industry Classification (ANZSIC). Whether businesses mainly served the mining industry was also noted.

A summary of land areas and Gross Floor Areas (GFA) at ANZSIC 1-digit level is presented in Table 3.4, while Table 3.5 shows uses in high impact and low impact zones.

Note: ANZSIC descriptions apply to 'Developed Industrial' land and exclude 'Developed Non-Industrial' land.

Table 3.4: Developed Industrial Land by Land Use, Mackay Regional Council, March 2020

Land Use	Developed Industrial			
	Land Area		GFA	
	(ha)	(%)	(m²)	(%)
ANZSIC Industry Division				
Manufacturing	389.2	56.1%	582,708	49.3%
Transport, Postal and Warehousing	68.4	9.9%	95,744	8.1%
Other Services	51.9	7.5%	138,223	11.7%
Wholesale Trade	41.1	5.9%	98,029	8.3%
Construction	29.2	4.2%	61,259	5.2%
Retail Trade	24.9	3.6%	71,033	6.0%
Rental, Hiring and Real Estate Services	24.9	3.6%	31,846	2.7%
Public Administration and Safety	16.9	2.4%	11	0.0%
Electricity, Gas, Water and Waste Services	11.8	1.7%	9,028	0.8%
Accommodation and Food Services	5.5	0.8%	1,302	0.1%
Professional, Scientific and Technical Services	4.8	0.7%	24,750	2.1%
Mining	2.6	0.4%	10,198	0.9%
Education and Training	2.5	0.4%	6,865	0.6%
Administrative and Support Services	2.4	0.3%	7,944	0.7%
Agriculture, Forestry and Fishing	2.2	0.3%	6,307	0.5%
Arts and Recreation Services	0.3	0.0%	888	0.1%
Financial and Insurance Services	0.0	0.0%	234	0.0%
Sub-total	**678.5**	**97.8%**	**1,146,369**	**97.0%**
Other Land Uses				
Road Access	6.8	1.0%	-	-
Stormwater Drain	1.6	0.2%	-	-
Vacant	7.1	1.0%	35,461	3.0%
Sub-total	**15.5**	**2.2%**	**35,461**	**3.0%**
Total	**694.0**	**100.0%**	**1,181,830**	**100.0%**

Note: Vacant refers to legal hardstand/outdoor storage and vacant sheds.

Source: Mackay Regional Council, Ethos Urban

Table 3.4 shows that:

- Of the 694.0ha of developed industrial land under the MRC planning scheme, businesses classified as Manufacturing were the largest category by far, occupying 56.1% (389.2ha) of land. Manufacturing also contributed the largest share of GFA at 49.3%.
- The next largest industry category was Transport, Postal and Warehousing, occupying 9.9% (68.4ha) of land and 8.1% of GFA.
- The Mining category, occupying only 2.6ha, comprised businesses that are directly involved in mining exploration and site management fell in the ANZSIC group “Other Mining Support Services”.

However, aggregating the areas occupied by all business noted as directly servicing mining showed that 208.6ha (30.1%) of developed land and 39.6% of GFA was directly connected to the industry. These businesses are more broadly regarded as being in the METS sector and included, for example, firms classified as: Manufacturing; Transport, Postal and Warehousing; Construction; Rental, Hiring and Real Estate Services; and Wholesale Trade.

The dominance of Manufacturing was even stronger when developed zoned land was divided into high impact and low impact categories, as shown in Table 3.5.

Note: Table 3.5 excludes developed land zoned ‘Special Purpose’.

Developed land zoned high impact totalled 550.4ha, of which 359.7ha (65.4%) was classified as Manufacturing. A further 52.2ha (9.5%) of high impact industrial land was classed as being occupied by Transport, Postal and Warehousing companies.

Applying the ‘mining’ filter to high impact industrial land showed 170.3ha (30.9%) was related to mining, a similar share to the case when high impact and low impact zones combined.

Table 3.5: Developed Industrial Land by Land Use and Zone, Mackay Regional Council, March 2020

Land Use	Developed Industrial				
	High Impact		Low Impact		Total
	(ha)	(%)	(ha)	(%)	(ha)
ANZSIC Industry Division					
Manufacturing	359.7 ha	65.4%	29.5 ha	25.8%	389.2 ha
Transport, Postal and Warehousing	52.2 ha	9.5%	11.1 ha	9.7%	63.3 ha
Other Services	28.5 ha	5.2%	23.4 ha	20.4%	51.9 ha
Wholesale Trade	32.7 ha	5.9%	8.4 ha	7.3%	41.1 ha
Retail Trade	12.8 ha	2.3%	12.2 ha	10.6%	24.9 ha
Construction	10.6 ha	1.9%	6.6 ha	5.8%	17.2 ha
Public Administration and Safety	16.4 ha	3.0%	0.5 ha	0.4%	16.9 ha
Rental, Hiring and Real Estate Services	7.8 ha	1.4%	5.1 ha	4.4%	12.8 ha
Electricity, Gas, Water and Waste Services	11.7 ha	2.1%	0.1 ha	0.1%	11.8 ha
Accommodation and Food Services	0.4 ha	0.1%	5.1 ha	4.4%	5.5 ha
Professional, Scientific and Technical Services	3.1 ha	0.6%	1.7 ha	1.5%	4.8 ha
Mining	2.3 ha	0.4%	0.3 ha	0.3%	2.6 ha
Education and Training	1.7 ha	0.3%	0.8 ha	0.7%	2.5 ha
Administrative and Support Services	1.8 ha	0.3%	0.6 ha	0.5%	2.4 ha
Agriculture, Forestry and Fishing	2.0 ha	0.4%	0.2 ha	0.1%	2.2 ha
Arts and Recreation Services	0.0 ha	0.0%	0.3 ha	0.2%	0.3 ha
Sub-total	**543.7 ha**	**98.8%**	**105.8 ha**	**92.4%**	**649.5 ha**
Other Land Uses					
Road Access	1.5 ha	0.3%	5.3 ha	4.7%	6.8 ha
Stormwater Drain	1.6 ha	0.3%	-	-	1.6 ha
Vacant	3.7 ha	0.7%	3.4 ha	3.0%	7.1 ha
Sub-total	**6.7 ha**	**1.2%**	**8.7 ha**	**7.6%**	**15.5 ha**
Total	**550.4 ha**	**100.0%**	**114.6 ha**	**100.0%**	**665.0 ha**

Note: Vacant refers to legal hardstand/outdoor storage and vacant sheds.
Figures have been rounded.

Source: Mackay Regional Council, Ethos Urban

4 Industrial Land Take-up Patterns

The consumption of industrial land in Mackay can be measured in a number of ways. Land sales are a common method of estimating take-up. However, there can be a significant lag between when a parcel of land is sold and when it is ultimately used for an industrial purpose. Accordingly, land sales do not, in our view, represent a robust method for analysing the historical consumption of industrial land.

This section assesses the patterns of industrial land take-up in Mackay using aerial imagery of the Paget estate over a 20-year period and includes a discussion of the factors triggering demand for land in Paget.

Take-up of land in other industrial zoned areas is also considered.

4.1 Methodology and Key Assumptions

Aerial images of the Paget estate were either provided by MRC or sourced from Near Map, a commercial supplier of satellite imagery. The period covered by the images spanned 2000 to 2020, however, no suitable images were available for every year. Images were dated at around June.

The aerial images were superimposed, one image at a time, on the corresponding GIS layer. The GIS layer identified individual land parcels and based on visual evidence of construction or completed buildings, the GIS database was updated to note whether each parcel was vacant or occupied at the date of the image.

After cycling through all the images and recording vacant land parcels, the GIS database held a time series of vacant land in Paget. From this database it was then possible to generate reports showing annual land take-up patterns.

Importantly, using this method, take-up of industrial land is defined as follows:

"Take-up of an industrial land parcel is considered to occur at the date of first visual evidence of significant construction of buildings or outdoor storage facilities on the site, and where visual evidence in subsequent years confirms construction was completed."

The timing of take-up using this definition falls between when land was initially sold and when construction of sheds or other facilities was completed.

More detailed assumptions informed the analysis:

- In the years when images were unavailable, annual take-up rates were calculated as the average across the years where images were available. For example, without an aerial photo from 2005:

  Take-up in 2005 = (Cumulative take-up to 2006 *minus* Cumulative take-up to 2004)/2

- Lots identified as legal hardstand/outdoor storage were considered occupied from the first instance they were observed being used.
- Lots used as outdoor storage without permit were considered vacant.
- MRC Service Depot expansion area was excluded from the analysis (essentially considered occupied from the beginning of the period).
- Lots with dwellings were considered occupied.
- Lots consisting of agricultural land were considered vacant.

- For larger lots, where only a portion of the land was occupied the whole lot was considered occupied.

4.2 Take-up Patterns in Paget Estate

Aerial images of the Paget Estate in in June 2003 and March 2020 are shown in Figure 4.1. In 2006, MRC doubled the size of industrial zoned land in Paget to more almost 500ha in response to demand generated by mining construction in the Bowen Basin.

The figure and data from the GIS database demonstrate the extent of take-up over the 2003-2020 period. Take-up totalled approximately 209ha, and comprised:

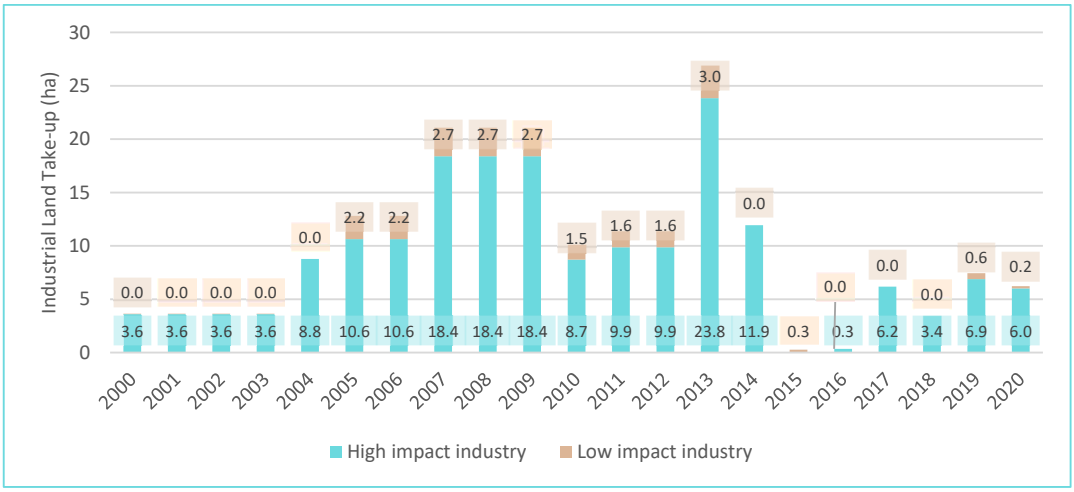
- 172ha of high impact industrial land.
- 21ha of low impact industrial land.
- 17ha of land zoned ‘special purpose’ accommodating the MRC depot and a waste transfer station.

Figure 4.1: Vacant Industrial Zoned Lots, Paget Precinct, 2003 and 2020

Source: Mackay Regional Council, NearMap, Ethos Urban

The estimated annual take-up of industrial land in Paget over 2000-2020 is shown in Figure 4.2 and Table 4.1.

Figure 4.2: Historical Industrial Land Take-up, Paget Precinct, 2000 to 2020



Note: Figures refer to June of each year; 2020 (as at March)

Source: Mackay Regional Council, Ethos Urban

Table 4.1 Average Annual take of High and Low Impact Industrial Zoned Land, 2000-2020

	Average Annual Take-up (ha)	
Period	**High Impact**	**Low Impact**
2000 - 2004 (5 years)	4.6	0.0
2005 – 2009 (5 years)	15.3	2.5
2010 – 2014 (5 years)	12.8	1.5
2015 – 2020 (6 years)	3.9	0.2
2000 – 2020 (21 years)	**8.9**	**1.0**

Source: Mackay Regional Council, Ethos Urban

Both the Figure and Table show modest take-up of high impact industrial land in Paget between 2000 and 2004 (4.6ha per year) before a substantial and sustained increase between 2005 and 2014 (14.1ha per year). Since that time, take-up declined significantly, although over the last 4 years (2017-2020) annual take-up has averaged 5.6ha.

Low impact industrial land take-up in Paget averaged 1.0ha per year over the whole period, peaking at 3.0ha in 2013.

4.3 Bowen Basin Coal Mining Activity

The demand for high impact industrial land in Paget was closely linked to mining activity in the Bowen Basin.

A time series of annual production from Queensland coal mines, covering the period (year ending June) 2001 to 2019, was sourced from the Department of Natural Resources, Mines and Energy. From this data and the location of individual mines, a 'Mackay Services Region' was defined, taking in 47 mines in the Bowen Basin. The data enabled the pattern of new mines openings in this service region to be established – the basis of the 'mining boom'.

In the period 2002 to 2017 a total of 16 new mines in the Mackay Services Region were opened, as shown in Figure 4.3. The chart also shows the gross annual production of these new mines in their first two years of operation.

Figure 4.3: New Mines by Construction Year in Mackay Services Region, 2002 to 2017

Note: Year ending June.

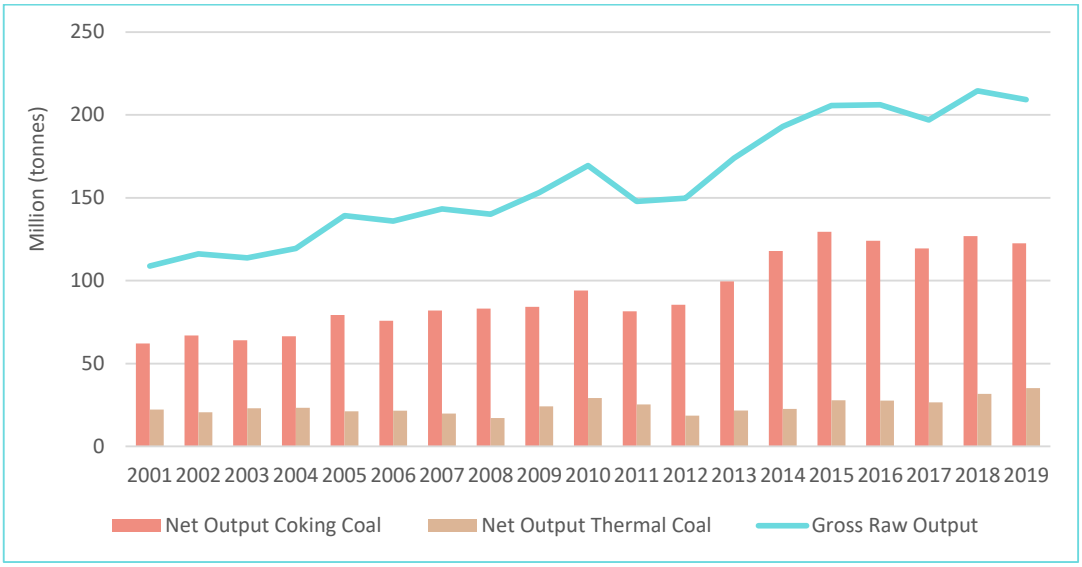
Source: Department of Natural Resources and Mines, Queensland Production by Individual Mines; Ethos Urban

In 2006 alone, eight new mines in the Mackay Service Region were opened, and these mines produced 16.3 million tonnes of gross raw output in their first two years of production. Across the 19-year period 2001 to 2019, gross raw coal production totalled 3.0 billion tonnes, of which 34% was derived from new mines opened during that period.

Gross raw production of all mines in the Mackay Services Region, and net production of coking and thermal coal over the 19 years from 2001 to 2019, is shown in Figure 4.4:

- Gross raw production grew steadily over the period. Production levels in 2019 of 209.3 million tonnes were almost double production levels in 2001.
- Coking coal production doubled over the period from 62.1 million tonnes in 2001 to 122.6 million tonnes in 2019.
- Over the same period, thermal coal production grew by 60%.
- As a result of these growth patterns, the coking coal share of net production grew from 74% in 2001 to 78% in 2019. In 2014, coking coal reached 84% of total net production before declining slightly in subsequent years.
- Over the 19 years, coking coal comprised 79% of net production.

Figure 4.4: Total Production of Mines Mackay Services Region, 2001 to 2019



Note: Year ending June.

Source: Department of Natural Resources and Mines, Queensland Production by Individual Mines; Ethos Urban

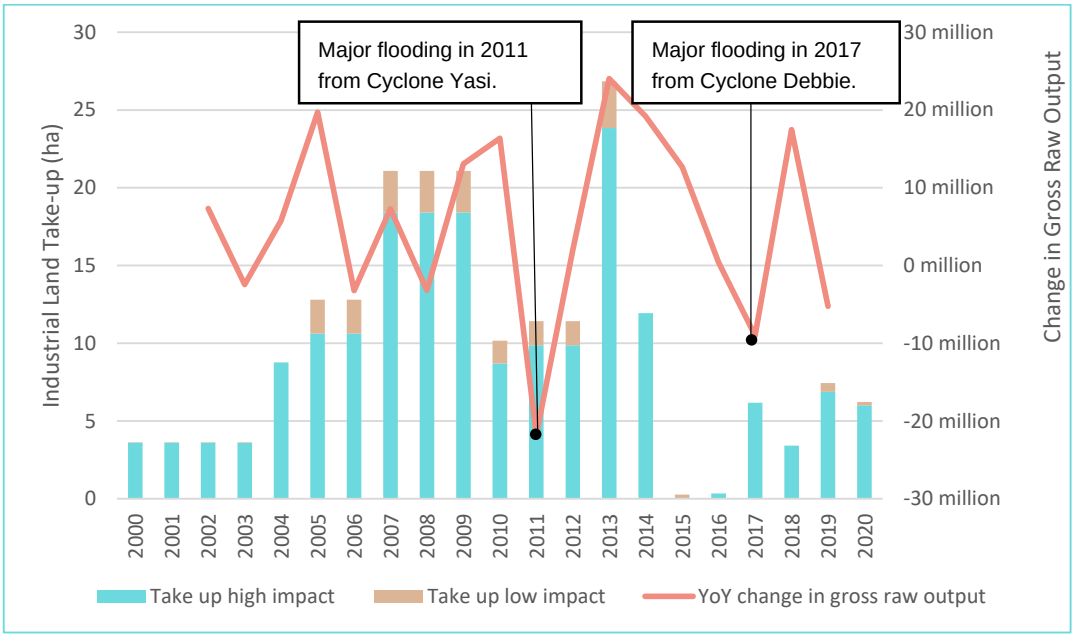
Despite significant growth in gross raw production, the sector did experience some substantial year-on-year declines:

- In 2011, nearly all the mines in the basin were affected by record flooding resulting from Cyclone Yasi. Many mines were forced to declare force majeure, meaning they could not meet contractual obligations.
- Production in 2011 dropped by 13% (-22 million tonnes) compared with the previous year.
- More flooding also occurred in 2016-2017 from cyclone Debbie.
- As noted in Section 2, coking coal prices fell to around $US100 per tonne in 2017 from a high of $US300 per tonne in 2012.
- Production in 2017 dropped by 4% (-9 million tonnes) compared with the previous year.

The combination of new mine construction and year-on-year changes in production clearly influenced the take-up of high impact industrial land in Paget Estate. These patterns are shown in Figure 4.5.

The take-up of industrial land generally followed the pattern of changes in gross production, which in turn, was related to mining construction. The 2013 spike in take-up at the backend of the mining construction boom was driven by an increase in mining maintenance activity, non-industrial developments, large outdoor storage, and a large lot, half of which was developed.

Figure 4.5: Annual Take-up of Industrial Land, Paget, YoY Change in Gross Raw Production from Bowen Basin Mines in Mackay Service Region, 2000 – 2020



Note: Figures refer to June of each year

Source: Mackay Regional Council, Department of Natural Resources and Mines, Queensland Production by Individual Mines; Ethos Urban

4.4 Paget Trunk Infrastructure

Although the Paget industrial precinct was established in the 1970's, the mining resources boom from 2002 to 2014 was the most significant driver of rapid expansion of industrial uses. In 2006, the Mackay City Council increased the zoned industrial area in Paget from approximately 179 ha to 484 ha. This rezoning necessitated planning and construction of trunk infrastructure to support expansion and development of the Paget industrial precinct.

For purposes of this report, indicative trunk infrastructure costs were calculated to inform development of any future similar sized industrial estate. The Paget industrial precinct covers 652ha and contains 484ha of zoned industrial land.

Figures 4.6 and 4.7 show the constructed major roads, open stormwater drains, trunk water and sewer mains within the Paget industrial precinct. The maps include the developed industrial footprint in 2003 and 2020, to illustrate how the trunk infrastructure supported expansion of the Paget industrial estate.

The indicative cost of the trunk infrastructure illustrated in Figures 4.6 and 4.7 is shown in Table 4.2.

Table 4.2 Indicative Trunk Infrastructure Cost of Paget Industrial Estate

Trunk Infrastructure	Indicative Cost
Water mains	**$17.0m**
Sewer	
Gravity mains	$5.4m
Rising mains	$16.7m
Pump stations	$4.0m
Total Sewer	**$26.1m**
Stormwater drains and culverts	**$57.4m**
Completed roads	**$58.8m**
Total Completed Infrastructure	**$159.3m**
Proposed Roads	**$122.2m**
Total Constructed and Proposed	**$281.5m**

Source: Mackay Regional Council

The indicative cost estimates in Table 4.2 were calculated as follows:

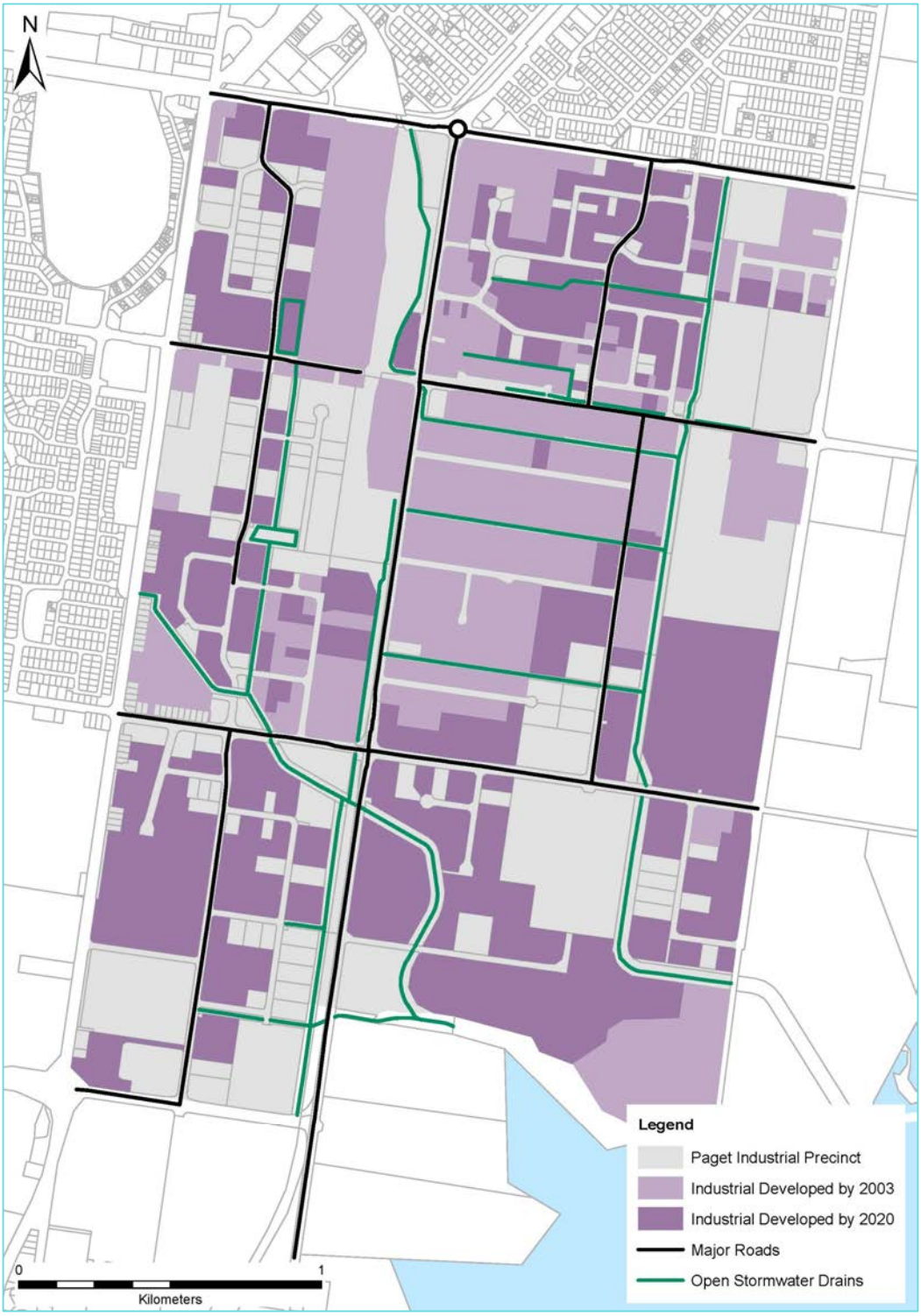
- A 'per unit costs for construction' was applied to water, sewer and stormwater infrastructure.
- Water and Sewer cost estimates include a contingency of 40%, over and above the per unit cost. This contingency was based on experience of actual council construction costs being higher than the per unit cost rate.
- Stormwater calculations applied a cost of $88,077 per hectare of total land, adjusted for inflation, according the Stormwater Trunk Infrastructure Contributions Policy.
- Actual expenditure for road infrastructure were based on works completed by Mackay Regional Council mostly from 2008 onwards. Any donated assets are not included, as these assets were delivered through development conditions and mostly related to internal road network as opposed to the major trunk road network.
- Road infrastructure upgrades relating to the bridge crossing of the North Queensland Railway line were excluded, as such costs are unique to Paget and would not be applicable to a new greenfield industrial estate.

Importantly, the majority of trunk infrastructure expenditure relates to road and stormwater infrastructure.

The indicative cost of $159.3 million for constructed trunk infrastructure is viewed as a conservative or minimum cost estimate. It excludes internal roads and reticulation infrastructure that also supported the expansion of Paget, which were delivered through a significant number of individual development conditions and agreements.

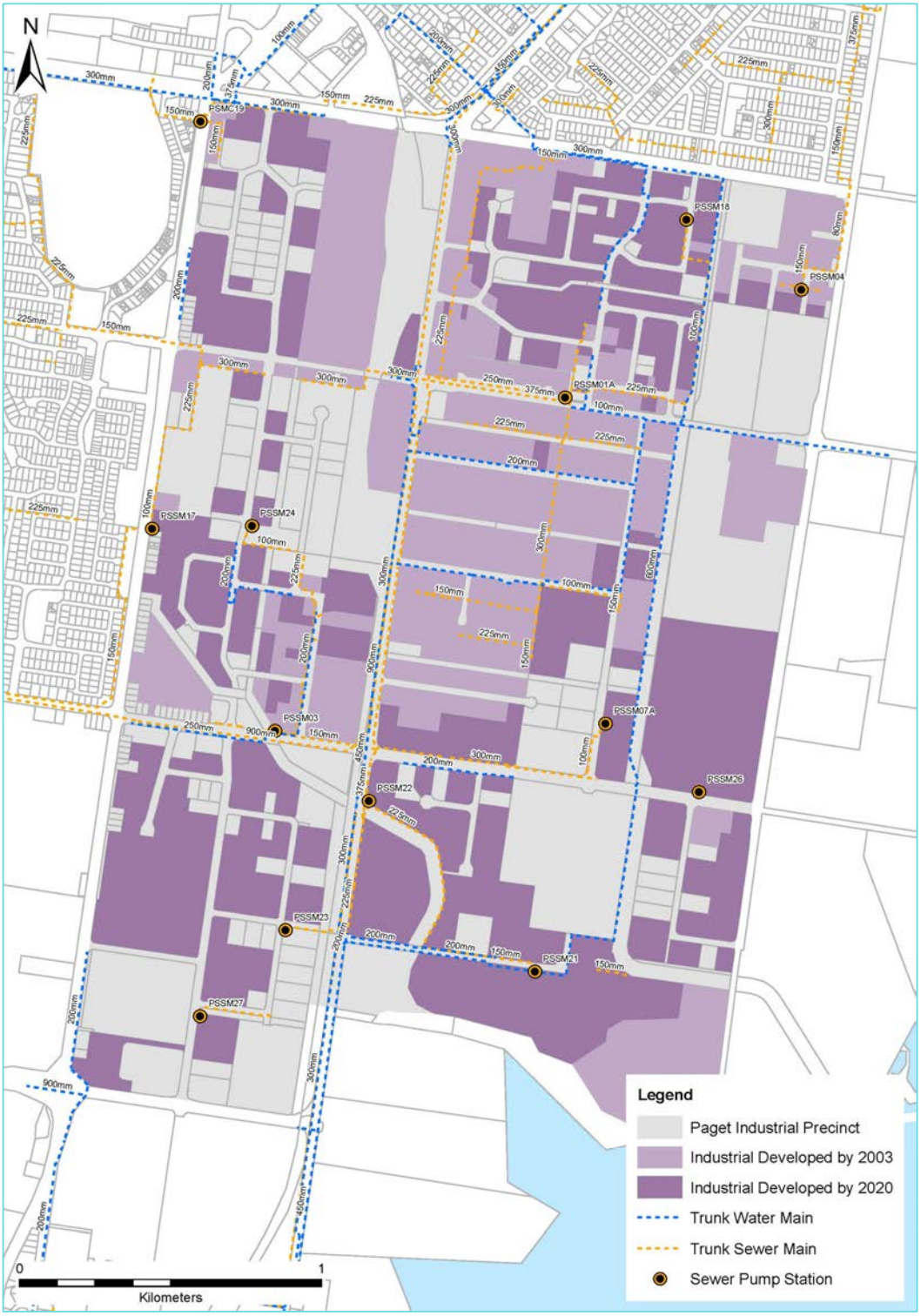
The additional cost for proposed unconstructed roads ($122m) also excludes measures to upgrade the bridge over the North Queensland rail line specific to the Paget location. However, these proposed costs suggest that the $159.3 million spent on constructed infrastructure can be increased to reflect a more realistic estimate of at least $200m for trunk infrastructure cost to support development of the Paget industrial precinct.

Figure 4.6: Major Roads and Open Stormwater Drains - Paget Industrial Precinct



Source: Mackay Regional Council

Figure 4.7: Trunk Water Mains, Sewer Mains and Sewer Pump Stations- Paget Industrial Precinct



Source: Mackay Regional Council

4.5 Industrial Land Outside Paget

Virtually all of the take-up of industrial land in Mackay since 2000 occurred in the Paget Estate. Minor development in other areas in the period included:

- **Sarina:** Increase in intensity of existing sites as well as expansion of storage site and a mining bus service depot.
- **Slade Point:** Expansion of five new sites, including manufacturing and new self-storage facility.

There has been virtually no take-up of high impact industrial land in mill precincts since 2000.

4.6 Summary

- The take-up of industrial land in Paget since 2000 was clearly linked to mining construction activity in the Bowen Basin, particularly in the period 2005-2009 (15.3ha per year).
- As production levels increased in 2010-2014, demand for high impact land in Paget was also strong (12.8ha per year), spiking in take-up of 23.8ha in 2013. This peak was largely driven by development of a significant outdoor storage space.
- However, since 2014, take-up of industrial land in Paget has been subdued, averaging 3.9ha per year in the 6-year period 2015-2020. In the latest 4-year period, take-up has averaged 5.6ha per annum.
- The annual take-up rates in the last 6 years are 75% below peak take-up during the mining construction boom (2005-2009).
- The costs of major roads, and water and sewer trunk infrastructure completed to date at Paget totalled almost $160 million. An additional $122 million is projected to be required for future major roads.
- The trunk infrastructure costs exclude internal roads and other infrastructure funded by development contributions. Electricity and telecommunications costs are also excluded.

Future take-up of high impact industrial land will continue to be heavily influenced by activity in the mining sector. Future demand driven by the sector, along with potential demand from other industries, is discussed further in Section 6.

5 Stakeholder Consultations

Interviews were conducted with organisations and individuals that had direct interests in industrial land issues in the Mackay region, or who had particular knowledge about factors influencing such issues. The purpose of these stakeholder consultations was to gather an on-the-ground perspective. Information gleaned from discussions with stakeholders informed demand scenarios and likely supply responses.

5.1 Stakeholders Consulted

The following stakeholders were interviewed via phone or video link:

- Various MRC strategic planning and engineering staff.
- Resource Industry Network.
- Regional Development Australia (MIW Region).
- North Queensland Bulk Ports.
- North Queensland Airports.
- Urban Development Institute of Australia – Mackay Branch.
- GW3 Greater Whitsunday Alliance.
- Department of State Development, Tourism and Innovation
    - METS Team
    - Economic Development Queensland
    - Biofutures Queensland
- Trade Investment Queensland
- METS Ignited
- Haynes Group Mechanical
- Vayeron
- Explore Properties
- Raine & Horne Mackay

5.2 Main Issues Raised

The main issues raised during stakeholder interviews are summarised below.

5.2.1 Mining and METS Sector

- The convergence of events that led to the coal mine construction boom in the Bowen Basin in the early 2000's was unique and is unlikely to be repeated in the next 20 years.
- Mining activities in the Bowen Basin and the METS sector were the key drivers of demand for high impact industrial land, particularly in Paget. Mining and METS will continue to be the most significant influence into the future.

- The Mackay METS sector is highly regarded in terms of innovation and efficiency but has generally focussed on 'point-solutions'. The next phase of innovation may come from integrated 'end-to-end' solutions, particularly in the areas of robotics and automation. This phase will require greater levels of knowledge sharing and cooperation than has historically been the case.
- Exporting of METS sector capabilities and diversifying the high-level skill base into other (mining or non-mining) areas is needed as it is unlikely that coal mining will support sustainable long-term growth.
- A trend to onshoring manufacturing capabilities in the METS sector may lead to some demand for industrial land in Mackay.

5.2.2 Sugar and Other Agriculture and Biofuels

- The sugar industry in the Mackay region is mature and has likely peaked. Little if any growth, and demand for additional industrial land for 'core-sugar' activities (such as production of raw sugar), is expected.
- Some ancillary industries utilising sugar production biproducts (e.g. molasses, bagasse) into other products (e.g. fertilizer, fuel for power stations, biofuels) may generate some growth and demand for industrial land. However, because of the efficiency gains through co-locating these plants with feedstock, they would likely be established on existing sugar mill sites.
- Ethanol as an additive to motor vehicle, shipping or aviation fuel is likely to have limited long-term application. While ethanol has other applications, it is not seen as a growth industry.
- Aquaculture has potential to be a growth industry.

5.2.3 Other Industries or Businesses

- Some potential may exist for a Mackay to become an air-freight food export hub providing that produce exported is of high-enough value to offset freight costs.
- Mackay could be a logistics/distribution centre for major retailer establishing on the central and north Queensland coast (e.g. Aldi).
- Potential for defence industry capabilities was mentioned, given the engineering base in Paget.

5.2.4 Port and Airport Land

- Around 90% of the Port of Mackay's imports/exports is bulk fuel, sugar and grain. Current capacity is sufficient to be able to handle higher throughput of these three commodities if demand increased.
- General industry tenants are able to lease sites on Port of Mackay land, and provide an ancillary income stream.
- There is land available in the Port of Mackay precinct that could be developed and leased for general industrial purposes. However, there is a strong preference for any new industrial tenants to have some relationship with port activities e.g. importers or exporters.
- The Port of Mackay is not actively seeking to expand the base of current industrial tenants.
- Mackay Regional Airport recently sought Expressions of Interest (EOI) from prospective tenants interested in establishing facilities in the Milton Precinct located on airport land. Stage 1 EOI responses are currently being evaluated.

- Milton Precinct, within Mackay Airport, has the capacity to accommodate general business, entertainment and retail tenants, as well as industrial tenants. If industrial tenants were to locate on airport land, they would most likely be warehousing/distribution/logistics companies having some synergy with airport operations.

5.2.5 Industrial Land Supply Issues

- Current demand for both high impact and low impact industrial land is relatively low. Prices for serviced land is in the vicinity of $120-$150 per m^2 in Paget, down from peak levels of around $250 per m^2.
- Demand exists for sheds on high impact industrial land, however, matching built sheds with tenant requirements can be challenging. For example, overall shed and land size, roof heights, crane capacity and re-usability of internal fittings are common issues that make existing sheds unsuitable for new tenants.
- Companies wishing to build new sheds face a lag of up to 18 months between land purchase and occupation of new facilities.
- Construction and approval costs in Mackay are considered to be high.
- There is a difference between a land parcel being ‘vacant’ and being ‘available’. Vacant land may not be available as owners may not put land on-the-market for a variety of reasons, including their own expansion plans.
- Demand for large, high impact industrial sites may be difficult to be met by current supply.
- There is a need for Council to be well ahead of demand for new industrial land so as to provide necessary trunk infrastructure, including securing funding sources for infrastructure.
- To an extent, Mackay competes with other regional cites (e.g. Rockhampton and Townsville) that generally have lower industrial land costs.
- Economic Development Queensland (EDQ) have a brief to become involved in developing industrial land of regional significance, such as to accommodate a new and important industry.
- However, EDQ generally needs to be satisfied that demand for a specific requirement that cannot be otherwise met by existing zoned industrial or investigation land.

6 Industrial Land Demand Scenarios

Previous analysis has established:

- The current size, composition, and vacancy rate of industrial land in Mackay.
- Historical take-up trends, in particular for Paget.
- Key demand drivers for industrial land in Mackay:
    - Coal mining activity in the Bowen Basin and the METS sector, mainly generating demand for high impact industrial land.
    - Population growth, generating demand for low impact industrial land accommodating businesses such as building supplies and auto repair shops.
    - The agricultural sector, principally sugar as well as spin-off industries from agriculture such as bio-fuel production.

This Section discusses future demand drivers for low and high impact industrial land including an allowance for demand from new industries.

Three future demand scenarios for industrial land are considered:

1 **Steady State Demand** broadly predicated on current levels of mining production; current levels of agricultural output; relatively low population growth; and minimal demand from new industries.

2 **Increased Demand** broadly predicated on a significant expansion of coal mining in the Bowen and Galilee Basins; increased demand for local agricultural products; high population growth; and the introduction of new industries requiring industrial land to the Mackay economy.

3 **Decreased Demand** broadly predicated on a winding back of coal production; decreased demand for local agricultural products; low population growth; and no new industries being established in the local economy.

For each scenario, a projected pattern of industrial land requirements is formulated.

These growth scenarios have been constructed to ‘stress-test’ the adequacy of supply of industrial land in Mackay. We have deliberately made no definitive judgements about whether any of the three demand scenarios will occur, particularly in view of the COVID-19 pandemic. The economic and geo-political fallout from COVID-19 is largely unknown at this juncture, including the likely speed of recovery in markets relevant to industrial land in Mackay.

In addition, even before the onset of the COVID-19 pandemic, considerable uncertainty shrouded the future of the coal mining industry as the world sought to address the challenge of climate change. On the one hand, the prospects for continued use of coking coal in steel production seem to be well established in the absence of scalable alternatives. However, the prospects for the future of thermal coal in energy production seem less certain as alternative renewable energy sources continue to mature.

6.1 Low Impact Industrial Land – Future Demand Scenarios

Population growth is a key driver of demand of low impact industrial land in Mackay. For example, as the population increases, business servicing local residential and commercial construction become more active, and in turn, generate demand for low impact industrial land.

6.1.1 Baseline Population

The historic patterns of population growth in Mackay are shown in Table 6.1. The table also shows official Queensland Treasury population projections, published in 2018.

Table 6.1: Mackay population growth patterns
Actual 2001-2016; Projected 2021-2041

	2001	2006	2011	2016	2021	2026	2031	2036	2041	Growth 2021-41
Population ('000s)	89.3	103.6	116.0	117.2	119.1	125.9	134.1	143.1	152.5	**33.5**
Annual Growth (no.)		2,850	2,480	250	370	1,380	1,640	1,800	1,880	
Annual Growth (%)		3.0%	2.3%	0.2%	0.3%	1.1%	1.3%	1.3%	1.3%	

Source: Australian Bureau of Statistics, Regional Population Growth; Queensland Treasury, Population Projections (adjusted for ERP); Ethos Urban

It is clear that Mackay's rapid population growth experienced between 2001 and 2011 coincided with the mining construction boom. It is equally clear that more modest population growth resumed after the mining construction boom ended.

Queensland Treasury 2018 projections expected growth of 370 people per year would occur between 2016 and 2021. However, the latest ABS ERP figures suggest the projected 2021 population level of 119,100 will not be achieved. Further, the Treasury projections from 2026 onwards also seem to overly optimistic, unless these numbers are predicted on another intense period of mining construction.

For these reasons, an alternative set of population scenarios, linked to possible levels of future coal mining activity, are considered below.

6.1.2 Steady State, High and Low Growth Population Scenarios

To test the adequacy of supply of low impact industrial land in Mackay, three population growth scenarios have been constructed, and are shown in Table 6.2

Table 6.2: Mackay population growth projections 2016-2041
Steady state, High growth and Low growth scenarios

Scenario	2016	2021	2026	2031	2036	2041	Growth 2021- 41
Population ('000s)							
Steady state scenario	117.2	118.2	120.7	124.5	129.5	134.5	**16.3**
High growth scenario	117.2	118.2	124.2	133.0	141.7	150.5	**32.3**
Low growth scenario	117.2	118.2	119.2	120.2	121.2	122.2	**4.0**
Annual Growth (no.)							
Steady state scenario		200	500	750	1,000	1,000	
High growth scenario		200	1,200	1,750	1,750	1,750	
Low growth scenario		200	200	200	200	200	
Annual Growth (%)							
Steady state scenario		0.2%	0.4%	0.6%	0.8%	0.8%	
High growth scenario		0.2%	1.0%	1.4%	1.3%	1.2%	
Low growth scenario		0.2%	0.2%	0.2%	0.2%	0.2%	

Source: Ethos Urban

Under the steady state population scenario, broadly corresponding with the equivalent scenario for coal mining, Mackay's population would grow by 16,300 thousand people between 2021 and 2041 to

reach 134,500. This pattern represents growth of between 200 and 1,000 per year but would not be driven by new mine construction.

Under a high growth population scenario, underpinned by significantly increased mining activity, Mackay's population would reach 150,500, broadly consistent with Queensland Treasury projections.

Under a low growth population scenario, whereby there would be a reduction in mining output, population growth in Mackay would be very subdued, averaging 200 persons per year. By 2041, the council area would reach a population of 122,200.

6.2 Projected Consumption of Low Impact Industrial Land

The current provision of developed low impact industrial land is approximately 1.10ha per 1,000 residents. In conjunction with estimates of future population levels, this provision is used as the basis for assessing future demand as follows:

Steady State Demand

- Population increases from 118,000 to 134,500 by 2041 (825 per year)
- Allow for take-up of **1.0ha per year** of low impact land (20.0ha over the period)

High Growth Demand

- Population increases from 118,000 to 150,500 by 2041 (1,625 per year)
- Allow for take-up of **2.0ha per year** of low impact land (40.0ha over the period)

Low Growth Demand

- Population increases from 118,000 to 122,500 by 2041 (225 per year)
- Allow for take-up of **0.5ha per year** of low impact land (10.0ha over the period)

6.3 High Impact Industrial Land – Future Demand Drivers

Demand for high impact industrial land is more complex than demand for low impact land. For the purposes of quantifying future demand, five drivers for high impact land have been identified:

- Ongoing servicing of existing coal mines in the Bowen Basin.
- New mines in the Bowens and Galilee Basins and/or expansion of existing mines.
- Transfer of METS manufacturing capabilities from offshore to local production to enhance supply chain integrity.
- Sugar industry and other agricultural activities.
- New industries.

6.4 Coal Production Scenarios

As has been established, coal mining in the Bowen Basin has been a significant driver of the uptake of, principally, high impact industrial land in Mackay. The rapid take-up of sites in the Paget estate by firms in the METS sector was strongly linked to investment in new thermal and coking coal mines.

6.4.1 Baseline

A baseline adopted for future coal mining scenarios is the production over the last five years from Bowen Basin mines identified as being in the Mackay Services Region.

Gross raw coal output has averaged 207 million tonnes in the period 2014-15 to 2018-19, as shown in Table 6.3. Net saleable product after processing averaged 154 million tonnes, or ¾ of gross output. Around 81% of net output was coking coal.

Table 6.3: Coal production from mines in Mackay Services Region, 2014-15 to 2018-19 (million tonnes) Baseline

Output	2014-15	2015-16	2016-17	2017-18	2018-19	5-Year Average	Share
Gross Raw							
Total	206	206	197	215	209	**207**	
Net							
Coking Coal	129	124	120	127	123	**125**	**81%**
Thermal Coal	28	28	27	32	35	**30**	**19%**
Total	**157**	**152**	**146**	**159**	**158**	**154**	**100%**

Source: Department of Natural Resources and Mines, Queensland Production by Individual Mines; Ethos Urban

6.4.2 Steady State Demand Scenario

A steady state demand scenario essentially assumes that the baseline production levels will experience a very modest growth over the next 20 years. Coal will continue to be mined from the Bowen Basin, but the Galilee Basin will remain largely undeveloped.

Existing mines may be expanded, and a small number of new mines may be developed in the Bowen Basin as existing mines reach their end of productive life.

Growth in production relative to the baseline in 5-year blocks is shown in Table 6.4. The assumptions underlying a steady state production would result in:

- Over the 20-year period, a total of
  - 4.2 billion tonnes of gross raw output
  - 3.1 billion tonnes of net output, of which 81% would be coking coal.

Table 6.4: Future coal production from mines in Mackay Services Region, 2020 to 2040 (million tonnes) Steady State Demand Scenario

Output	Annual Production						
	Baseline	2020 - 24	2025 - 29	2030 - 34	2035 - 40	2020 – 40 Total	2020 – 40 Share
Gross Raw							
Total	207	208	208	208	208	**4,156**	
Net							
Coking Coal	125	126	126	126	126	**2,515**	**81%**
Thermal Coal	30	30	30	30	30	**602**	**19%**
Total	**154**	**156**	**156**	**156**	**156**	**3,117**	**100%**

Source: Ethos Urban

6.4.3 Increased Demand Scenario

A high demand scenario for coal could potentially involve:

- Increases in coal exports for both coking and thermal coal, principally to China, India and Japan.
- Opening up the Galilee basin, and intense development of new mines, beginning with the with the Carmichael mine project. Carmichael would have the potential to produce 60 million tonnes of thermal coal per year at peak capacity.
- Construction of a new rail line from the Galilee Basin to an export facility at Abbot Point, approximately 25 km north of Bowen and 215 km north of Mackay, currently underway.
- A proportion of Galilee Basin coal exported through Hay Point.

While Mackay would be well placed to be the major METS centre serving construction and production of new Galilee Basin mines, it is possible that alternative centres could perhaps be established in or around Bowen. For the purposes of this study, we assume that 75% of demand for METS services will be satisfied by high impact industry operating from Mackay.

The potential levels of production under this increased demand scenario are summarised in Table 6.5:

- Annual gross raw production would grow from 214 million tonnes per year in the period 2020 to 2024 to 321 million tonnes per year in the period 2035 to 2040.
- Over the 20-year period, a total of 5.43 billion tonnes gross raw output would be mined, representing 1.3 billion tonnes (+31%) more than in the steady state scenario.
- The rate of production growth for coking is assumed to be higher than for thermal coal, resulting in the coking coal share of net output increasing to 83%.

Table 6.5: Future coal production from mines in Mackay Services Region, 2020 to 2040 (million tonnes)
Increased Demand Scenario

Output	Annual Production						
	Baseline	2020 - 24	2025 - 29	2030 - 34	2035 - 40	2020 – 40 Total	2020 – 40 Share
Gross Raw							
Total	207	**214**	**251**	**299**	**321**	**5,428**	
Net							
Coking Coal	125	131	156	187	199	**3,362**	**83%**
Thermal Coal	30	30	33	37	42	**709**	**17%**
Total	**154**	**161**	**188**	**224**	**241**	**4,071**	**100%**

Source: Ethos Urban

6.4.4 Decreased Demand Scenario

In a decreased demand scenario, the production of both coking and thermal coal would decline, although thermal coal demand would be relatively substantially weaker. This scenario would likely result in the closure of facilities as thermal coal mines became increasingly less feasible.

The potential levels of production under the decreased demand scenario are summarised in Table 6.6.

Table 6.6: Future coal production from mines in Mackay Services Region, 2020 to 2040 (million tonnes)
Decreased Demand Scenario

Output	Annual Production						
	Baseline	2020 - 24	2025 - 29	2030 - 34	2035 - 40	2020 – 40 Total	2020 – 40 Share
Gross Raw							
Total	207	193	186	178	170	**3,631**	
Net							
Coking Coal	125	118	118	118	118	**2,366**	**87%**
Thermal Coal	30	27	21	15	9	**357**	**13%**
Total	**154**	**145**	**139**	**133**	**127**	**2,723**	**100%**

Source: Ethos Urban

Under the decreased demand scenario:

- Annual gross raw production would decline from 193 million tonnes per year in the period 2020 to 2024 to 170 million tonnes per year in the period 2035 to 2040.
- Over the 20-year period, a total of 3.63 billion tonnes gross raw output would be mined, representing 0.5 billion tonnes (-13%) less than in the steady state scenario.
- Coking coal production would stabilise at 188 million tonnes per year over the 20-year period, representing a 6% decline relative to the steady state demand scenario.
- By contrast, thermal coal production would substantially decline from 27 million tonnes per year in 2020-2024 to 9 million tonnes per year in 2035 to 2040. This pattern would represent a 40% decline in output relative to the steady state demand scenario.

6.5 Projected Requirements for High Impact Industrial Land

Based on the coal production scenarios described above, as well as associated demand from the METS sector, from agriculture, and from new industries, projected take-up responses have formulated. These projected rates take-up of high impact industrial land under the demand scenarios are summarised in Tables 6.7, 6.8 and 6.9.

6.5.1 Steady State Demand

A steady state demand scenario for high impact land would potentially require current take-up levels of around 4ha per year, consistent with take-up in Paget over the last 6 years (Table 6.7). In addition, an allowance for an extra 4ha every 5 years would cover demand generated by mine expansion.

Table 6.7: High Impact Industrial Land Demand – 2021 to 2040 – Steady State Scenario

Demand Driver	Demand Level	Take-up Response
Coal production	Current production levels	Steady at around 4ha p.a.
New Mines	Replacement of mines necessary to maintain production levels	Periodic spikes - additional 4ha every 5 years
METS export	Onshoring of some manufacturing capacity	Additional 1ha pa up to 2028
Sugar/Other Agriculture	Current production levels	No additional take-up
New Industries	**Low** demand from new industries	Allow 1ha p.a.

Source: Ethos Urban

To cover demand generated by onshoring of manufacturing by the METS sector, 1ha per year up to 2028 is allowed for. No demand for new high impact industrial land agriculture is projected, while new industries could require 1ha per year.

6.5.2 *High Growth Demand*

Under a high growth demand scenario, increased requirements for high impact industrial land from all demand sources is projected, as shown in Table 6.8.

Table 6.8: High Impact Industrial Land Demand – 2021 to 2040 – High Growth Scenario

Demand Driver	Demand Level	Take-up Response
Coal production	Ramps up by 30% over the next 20 years	Allow 5ha p.a.
New Mines	Multiple new mines in Bowen and Galilee Basin	Periodic spikes - additional 8ha every 5 years
METS export	Significant onshoring of manufacturing capacity	Additional 2ha p.a. up to 2028
Sugar/Other Agriculture	Increase in production	Allow 0.5ha p.a.
New Industries	**Increased** demand from new industries	Allow 1.5ha p.a.

Source: Ethos Urban

6.5.3 Low Growth Demand

Finally, under a low growth demand scenario, requirements for high impact industrial land is projected to slow as coal production declines. (Table 6.9)

Table 6.9: High Impact Industrial Land Demand – 2021 to 2040 – Low Growth Scenario

Demand Driver	Demand Level	Take-up Response
Coal production	Declines by 12% over 20 years	2ha p.a., declining to 1.5ha and 1.0ha p.a. after 2030
New Mines	Minimal new mine construction	Periodic spikes additional 1ha every 5 years
METS export	No demand from METS onshoring manufacturing capacity	No additional take-up
Sugar/Other Agriculture	No demand from agriculture	No additional take-up
New Industries	Minimal demand from new industries	Allow 0.5ha p.a.

Source: Ethos Urban

6.5.4 Summary of Projected Requirements of High Impact Land

The annual requirements for high impact land under each of these scenarios is shown in Table 6.10:

- Steady State high impact land take-up would total 140ha over the 20 years, peaking at 10ha per year, and averaging 7ha per year over the period.
- High Growth high impact land take-up would total 220ha over the 20 years, peaking at 17ha per year, and averaging 11ha per year over the period.
- Low Growth high impact land take-up would total 50ha over the 20 years, peaking at 3.5ha per year, and averaging 2.5ha per year over the period.

Table 6: Projected Take-up of High Impact Industrial Land by Demand Scenario – 2021 to 2040

High Impact Land Take-up (ha)																		
	Steady State						High Growth						Low Growth					
Year	Coal Prod-uction	New Mines	METS Export Onshoring	Sugar/ Other Agri.	New Indus-try.	Total	Coal Prod-uction	New Mines	METS Export Onshoring	Sugar/ Other Agri.	New Indus-try.	Total	Coal Prod-uction	New Mines	METS Export Onshoring	Sugar/ Other Agri.	New Indus-try.	Total
2021	4.0	-	1.0	-	1.0	**6.0**	5.0	-	2.0	0.5	1.5	**9.0**	2.0	-	-	-	0.5	**2.5**
2022	4.0	-	1.0	-	1.0	**6.0**	5.0	-	2.0	0.5	1.5	**9.0**	2.0	-	-	-	0.5	**2.5**
2023	4.0	-	1.0	-	1.0	**6.0**	5.0	-	2.0	0.5	1.5	**9.0**	2.0	-	-	-	0.5	**2.5**
2024	4.0	4.0	1.0	-	1.0	**10.0**	5.0	8.0	2.0	0.5	1.5	**17.0**	2.0	1.0	-	-	0.5	**3.5**
2025	4.0	4.0	1.0	-	1.0	**10.0**	5.0	8.0	2.0	0.5	1.5	**17.0**	2.0	1.0	-	-	0.5	**3.5**
2026	4.0	-	1.0	-	1.0	**6.0**	5.0	-	2.0	0.5	1.5	**9.0**	2.0	-	-	-	0.5	**2.5**
2027	4.0	-	1.0	-	1.0	**6.0**	5.0	-	2.0	0.5	1.5	**9.0**	2.0	-	-	-	0.5	**2.5**
2028	4.0	-	1.0	-	1.0	**6.0**	5.0	-	2.0	0.5	1.5	**9.0**	2.0	-	-	-	0.5	**2.5**
2029	4.0	4.0	-	-	1.0	**9.0**	5.0	8.0	-	0.5	1.5	**15.0**	2.0	1.0	-	-	0.5	**3.5**
2030	4.0	4.0	-	-	1.0	**9.0**	5.0	8.0	-	0.5	1.5	**15.0**	2.0	1.0	-	-	0.5	**3.5**
2031	4.0	-	-	-	1.0	**5.0**	5.0	-	-	0.5	1.5	**7.0**	1.5	-	-	-	0.5	**2.0**
2032	4.0	-	-	-	1.0	**5.0**	5.0	-	-	0.5	1.5	**7.0**	1.5	-	-	-	0.5	**2.0**
2033	4.0	-	-	-	1.0	**5.0**	5.0	-	-	0.5	1.5	**7.0**	1.5	-	-	-	0.5	**2.0**
2034	4.0	4.0	-	-	1.0	**9.0**	5.0	8.0	-	0.5	1.5	**15.0**	1.5	1.0	-	-	0.5	**3.0**
2035	4.0	4.0	-	-	1.0	**9.0**	5.0	8.0	-	0.5	1.5	**15.0**	1.0	1.0	-	-	0.5	**2.5**
2036	4.0	-	-	-	1.0	**5.0**	5.0	-	-	0.5	1.5	**7.0**	1.0	-	-	-	0.5	**1.5**
2037	4.0	-	-	-	1.0	**5.0**	5.0	-	-	0.5	1.5	**7.0**	1.0	-	-	-	0.5	**1.5**
2038	4.0	-	-	-	1.0	**5.0**	5.0	-	-	0.5	1.5	**7.0**	1.0	-	-	-	0.5	**1.5**
2039	4.0	4.0	-	-	1.0	**9.0**	5.0	8.0	-	0.5	1.5	**15.0**	1.0	1.0	-	-	0.5	**2.5**
2040	4.0	4.0	-	-	1.0	**9.0**	5.0	8.0	-	0.5	1.5	**15.0**	1.0	1.0	-	-	0.5	**2.5**
Total	**80.0**	**32.0**	**8.0**	**-**	**20.0**	**140.0**	**100.0**	**64.0**	**16.0**	**10.0**	**30.0**	**220.0**	**32.0**	**8.0**	**-**	**-**	**10.0**	**50.0**
Avg.	**4.0**	**1.6**	**0.4**	**-**	**1.0**	**7.0**	**5.0**	**3.2**	**0.8**	**0.5**	**1.5**	**11.0**	**1.6**	**0.4**	**-**	**-**	**0.5**	**2.5**

Source: Ethos Urban

7 Adequacy of Industrial Land Supply

This Section:

- Reviews the previously assessed volume of high impact and low impact Net Vacant Land (NVL) in key industrial estates, Industry Investigation Areas and Rosella.
- Describes the modelling approach to project industrial land take-up.
- Compares the expected demand under the three scenarios against NVL, and projects take-up of land by precinct to 2040.
- Provides preliminary conclusions about the adequacy of industrial land supply in Mackay over the next 20 years.

7.1 Net Vacant Land at June 2020

As discussed in Section 3 a detailed survey of industrial land in Mackay was conducted in March/April 2020. GIS databases were updated to include details about the development status, type of industry activity (ANZSIC coded), gross floor area of any buildings and development approvals on industrial zoned land under the Mackay Region Planning Scheme (2017).

To estimate Net Vacant Land (NVL), any parcel with an existing Development Approval (DA) was removed from future supply, as were vacant industrial sheds. Further, allowances for trunk infrastructure (primarily roads) in undeveloped industry investigation areas were excluded from NVL.

These conservative assumptions yielded NVL totalling 542.8ha of high impact and 305.5ha of low impact industrial land, as shown in Table 7.1.

Most high impact NVL in areas already zoned industrial was in Paget (95.9ha), while investigation areas adjoining Paget, (Paget South or Bakers Creek and Boundary Road East) could also accommodate future high impact industry.

For the time being, it is assumed that the Rosella estate, currently zoned rural, will have capacity for approximately 350ha of high impact land and 150ha of low impact land. However, given the preliminary stages of Rosella's planning, and the substantial investment that will be required to service the precinct, the ultimate configuration is unknown.

Sarina could also potentially accommodate future high impact industry. Given Sarina's location 30km south of Mackay CBD, other areas closer to Paget will be better suited to service demand from the METS sector.

The estimates of NVL in Table 7.1 exclude industrial developments that may occur on land outside the MRC planning jurisdiction, specifically: land within Mackay Airport boundaries; and land within North Queensland Bulk Ports boundaries at Mackay Port.

Table 7.1: Net Vacant Land by Precinct, 2020

Areas	Net Vacant Land (ha)		
	High Impact	Low impact	Total
Industrial Zoned Areas			
Paget	95.9	25.5	**121.4**
Ooralea - McLennan Street	1.0	-	**1.0**
Mirani	-	16.6	**16.6**
Mackay City Centre - East	-	1.7	**1.7**
Slade Point	-	0.9	**0.9**
Rural View	-	0.6	**0.6**
Glenella South	-	0.1	**0.1**
Total Zoned Areas	**96.9**	**45.4**	**142.3**
Investigation Precincts			
Cowleys Road Investigation Precinct	-	30.2	**30.2**
Paget South Investigation Precinct - South West	-	31.5	**31.5**
Paget South Investigation Precinct - North West	16.8	-	**16.8**
Paget South Investigation Precinct - North East	5.0	-	**5.0**
Paget South Investigation Precinct - South East	13.5	-	**13.5**
Glenella Investigation Precinct	0.0	13.8	**13.8**
Boundary Road East Investigation Precinct	26.2	-	**26.2**
Marian Investigation Precinct	5.4	17.9	**23.3**
Sarina Investigation Precinct	29.0	16.6	**45.7**
Rosella	350.0	150.0	**500.0**
Total Investigation Precincts + Rosella	**445.9**	**260.1**	**706.1**
Total	**542.8**	**305.5**	**848.3**

Source: Mackay Regional Council, Ethos Urban

7.2 Low Impact Industrial Land – Take-up Patterns 2021 to 2040

As noted in Table 7.1, low impact NVL in Paget totals 25.5ha.

Under the **Low Growth** and **Steady State** demand scenarios (0.5ha and 1.0ha per year take-up, respectively), NVL in Paget would be sufficient to satisfy this demand without needing to consume low impact land in other precincts.

Under the **High Growth** demand scenario (2.0ha per year take-up), the supply of low impact land in Paget would be exhausted by 2032. A further 16.0ha would be needed by 2040.

Low impact industrial land can be dispersed throughout the council area to meet localised demand. Depending on the localised demand characteristics, MRC could pursue several courses of action if the high demand scenario were to eventuate:

- Seek to first fill all existing zoned sites (e.g. Mackay City Centre).
- However, even though 16.6ha of low impact zoned NVL exists in Mirani, some 30km west of Mackay, this land would not be suitable to service population growth in the Mackay city.
- Convert one industry investigation area into zoned industrial sites through planning scheme amendment and invest in required infrastructure to service the precincts.

- Candidates for new low impact zones include: South West Sector of Paget South (Bakers Creek); Cowley Road (Ooralea); or Glenella.
- Both the Paget South and Cowleys Road precincts would be large enough to accommodate low impact land demand up until 2040.
- However, Glenella, on its own would not be sufficiently large to satisfy demand to 2040.

Under the high growth scenario, whereby supply in Paget is exhausted by 2032, planning for the next low impact area would need to commence by approximately 2025.

Low impact industry zones in Marian and Sarina should only be considered if localised demand warrants infrastructure investment.

7.3 High Impact Industrial Land Take-up Patterns - Modelling Approach

The demand and take-up of high impact industrial land, as noted in Section 6, is projected to be far higher than for low impact land and will be driven by a number of factors, mainly related to mining in the Bowen and Galilee Basins. In addition, unlike low impact industries, high impact industries tend to cluster so as to take advantage of economies of scale, more efficient use of specialised trunk infrastructure (particularly roads capable of handling heavy transport) and opportunities for collaboration and knowledge sharing.

Accordingly, because of this clustering factor, we have modelled a sequential pattern of high impact industrial land take-up – that is, one precinct would be filled before substantial development occurred in the next precinct.

This sequential approach assumes that:

- Paget will be developed and filled first (NVL 95.9ha).
- The next precinct to be developed will be the Boundary Road East investigation area (26.2ha), immediately to the east of Paget.
- The next precincts to be taken up will be sectors in the Paget South investigation area: in order, the North West quadrant (16.8ha) first then the South East quadrant (13.5ha).
- The smaller North East quadrant in Paget South (5.0ha) would possibly be held back for infrastructure reasons, and impact of crossing the North Queensland rail line.
- If required, Rosella (350ha) would commence after Paget South was approaching capacity.

7.3.1 Limitations of Modelling Approach

All models, which are essentially simplified representations of highly complex real-world interactions, have practical limitations. In this instance, there are several factors that would disrupt an orderly sequential take-up of industrial land:

- There may be spare capacity embedded in developed land parcels, which could be utilised to absorb increasing demand without requiring new land to be developed. For example, a manufacturing business could increase production capacity by adding to a current line within the footprint of their existing shed.
- The definition of NVL excludes vacant sheds and parcels with a current Development Application. It is feasible that these sheds and land parcels could absorb some proportion of increasing demand before new land is required.

- Sites with particular characteristics (e.g. large sites) may not exist, especially as precincts approach capacity. For example, if Paget was, say 95% occupied, there may not be any undeveloped areas in Paget that could accommodate a business requiring a 3ha site.
- Older developed sites could be repurposed or redeveloped, which would reduce the requirement for new industrial land
- Finally, and importantly, owners of vacant sites may choose to withhold land parcels from the market for a variety of reasons. This factor would potentially reduce the volume of available developable land at a particular time.

These factors have the potential to impact the timing of the release of new industrial land - some factors would bring forward the release of new land (e.g. lack of large sites) while others would delay release of new land (e.g. spare capacity, redevelopment potential).

Accordingly, the results of the sequential modelling approach should be regarded as indicative.

7.4 High Impact Industrial Land Take-up Patterns 2021 to 2040 – Steady State Scenario

In Section 6, annual requirements for high impact industrial land under the Steady State Scenario were projected to range between 5-10ha per year, and total 140ha over 20 years at an average of 7.0ha per year

Applying the sequential take-up approach to demand under the steady state scenario would result in Paget being exhausted by 2033, as shown in Table 7.2

Table 7.2: High Impact Industrial Land Take-up Patterns – 2021 to 2040 – Steady State Scenario

Year	Take from	NVL at Start	Take-up This Year	NVL at End	Enough for next Year?
2021	Paget	95.9	6.0	89.9	Yes
2022	Paget	89.9	6.0	83.9	Yes
2023	Paget	83.9	6.0	77.9	Yes
2024	Paget	77.9	10.0	67.9	Yes
2025	Paget	67.9	10.0	57.9	Yes
2026	Paget	57.9	6.0	51.9	Yes
2027	Paget	51.9	6.0	45.9	Yes
2028	Paget	45.9	6.0	39.9	Yes
2029	Paget	39.9	9.0	30.9	Yes
2030	Paget	30.9	9.0	21.9	Yes
2031	Paget	21.9	5.0	16.9	Yes
2032	Paget	16.9	5.0	11.9	Yes
2033	Paget	11.9	5.0	6.9	No
2034	Boundary Road East Investigation Precinct	19.3	9.0	10.3	Yes
2035	Boundary Road East Investigation Precinct	10.3	9.0	1.3	No
2036	Paget South Investigation Precinct - North West	15.5	5.0	10.5	Yes
2037	Paget South Investigation Precinct - North West	10.5	5.0	5.5	Yes
2038	Paget South Investigation Precinct - North West	5.5	5.0	0.5	No
2039	Paget South Investigation Precinct - South East	12.9	9.0	3.9	No
2040	Rosella	346.1	9.0	337.1	Yes

Source: Ethos Urban

Boundary Road East would have sufficient land for the next two years, after which Paget South would need to be brought onstream. Land in Rosella would be needed by 2040.

If this scenario were to eventuate, zoning and infrastructure preparations for Boundary Road East and Paget South would need to commence by approximately 2027. Forward preparations for Rosella would need to commence in the early 2030's.

7.5 High Impact Industrial Land Take-up Patterns 2021 to 2040 – High Growth Scenario

Under the High Growth scenario, (220ha over 20 years at 11.0ha per year on average) Paget would be exhausted by 2028, as demonstrated in Table 7.3.

If this scenario occurred, rezoning and infrastructure preparation for Boundary Road East and Paget South would need to commence in the early-2020's, while planning for Rosella would need to take place in the mid-2020's.

At the end of 2040, Rosella would still potentially have capacity for a further 260ha of high impact industrial land. The amount of high impact land available in Rosella would depend on the ultimate configuration of the precinct, which is uncertain at this time.

At a take-up rate of 11ha per year, Rosella would have supply of high impact land for more than 20 years.

Table 7.3: High Impact Industrial Land Take-up Patterns – 2021 to 2040 – High Growth Scenario

Year	Take from	NVL at Start	Take-up This Year	NVL at End	Enough for next Year?
2021	Paget	95.9	9.0	86.9	Yes
2022	Paget	86.9	9.0	77.9	Yes
2023	Paget	77.9	9.0	68.9	Yes
2024	Paget	68.9	17.0	51.9	Yes
2025	Paget	51.9	17.0	34.9	Yes
2026	Paget	34.9	9.0	25.9	Yes
2027	Paget	25.9	9.0	16.9	Yes
2028	Paget	16.9	9.0	7.9	No
2029	Boundary Road East Investigation Precinct	18.3	15.0	3.3	No
2030	Paget South Investigation Precinct - North West	13.5	15.0	-1.5	No
2031	Paget South Investigation Precinct - South East	14.9	7.0	7.9	Yes
2032	Paget South Investigation Precinct - South East	7.9	7.0	0.9	No
2033	Rosella	349.1	7.0	342.1	Yes
2034	Rosella	342.1	15.0	327.1	Yes
2035	Rosella	327.1	15.0	312.1	Yes
2036	Rosella	312.1	7.0	305.1	Yes
2037	Rosella	305.1	7.0	298.1	Yes
2038	Rosella	298.1	7.0	291.1	Yes
2039	Rosella	291.1	15.0	276.1	Yes
2040	Rosella	276.1	15.0	261.1	Yes

Source: Ethos Urban

7.6 High Impact Industrial Land Take-up Patterns 2021 to 2040 – Low Growth Scenario

Finally, under the Low Growth scenario, (50ha over 20 years @ 2.5ha per year on average) Paget would be sufficient to meet demand and would still have 45.9ha NVL in 2040. (Table 7.4).

Table 7.4: High Impact Industrial Land Take-up Patterns – 2021 to 2040 – Low Growth Scenario

Year	Take from	NVL at Start	Take-up This Year	NVL at End	Enough for next Year?
2021	Paget	95.9	2.5	93.4	Yes
2022	Paget	93.4	2.5	90.9	Yes
2023	Paget	90.9	2.5	88.4	Yes
2024	Paget	88.4	3.5	84.9	Yes
2025	Paget	84.9	3.5	81.4	Yes
2026	Paget	81.4	2.5	78.9	Yes
2027	Paget	78.9	2.5	76.4	Yes
2028	Paget	76.4	2.5	73.9	Yes
2029	Paget	73.9	3.5	70.4	Yes
2030	Paget	70.4	3.5	66.9	Yes
2031	Paget	66.9	2.0	64.9	Yes
2032	Paget	64.9	2.0	62.9	Yes
2033	Paget	62.9	2.0	60.9	Yes
2034	Paget	60.9	3.0	57.9	Yes
2035	Paget	57.9	2.5	55.4	Yes
2036	Paget	55.4	1.5	53.9	Yes
2037	Paget	53.9	1.5	52.4	Yes
2038	Paget	52.4	1.5	50.9	Yes
2039	Paget	50.9	2.5	48.4	Yes
2040	Paget	48.4	2.5	45.9	Yes

Source: Ethos Urban

7.7 Concluding Remarks

The three projections of industrial land demand and supply responses have been deliberately constructed to stress test the adequacy of preparations for future industrial developments in Mackay over the next 20 years. Given the lengthy time horizon, economic uncertainties deriving from the COVID-19 pandemic and global trends to a reduced dependence on coal, it is difficult to predict what will actually happen.

Nevertheless, in conclusion we would remark:

- The high growth scenario is predicated on another mining boom similar to what occurred in the Bowen Basin in the decade from 2003. The probability of those boom conditions being repeated in the next two decades, in our opinion, is relatively low.
- Equally, the low growth scenario is likely to be unduly pessimistic in the longer term. While a period of low growth over the next few years is a realistic prospect, it is unrealistic to expect that low growth (contraction) would persist for 20 years.
- The steady state scenario (or similar) is considered to represent the more likely outcome based on a medium-term market outlook but will be subject to economic fluctuations and cycles over the next two decades.

8 Recommendations

This Section recommends focussed and actionable steps for Mackay Regional Council to adopt in planning for future industrial land needs, based on the key conclusions in this report.

8.1 MRC Timing Decisions

The availability of new industrial land in the Mackay region will be an essential element of future economic growth. The timing of when new industrial land needs to become available to developers and businesses is a complex and challenging decision facing Mackay Regional Council:

- If new land becomes available **too far in arrears of demand**, a likely consequence is a spike in land prices, deterring businesses from expanding or locating in Mackay.
- On the other hand, if new industrial land becomes available **too far in advance of demand**, serviced industrial land would remain vacant for an unacceptably long time period. This situation would represent an overcommitment of scarce capital funding to trunk infrastructure that could otherwise have been directed to alternative (higher benefit) uses.

On balance, we believe that the ideal situation is for the overall supply of industrial land to be ahead of demand, but not so far ahead that large portions of serviced industrial land remain idle.

However, this balance is difficult to achieve in practice for two main reasons:

- The take-up of industrial land (demand) varies considerably from year to year, as evidenced by observed historical patterns, particularly in Paget. Predicting future patterns of industrial land take-up, especially in the midst of current COVID-19 uncertainties, is a particularly challenging task.
- The minimum time between land being formally zoned as industrial and becoming available to the market is **at least 5-7 years**. This lead time is needed to provide trunk infrastructure, which involves securing funding, updating engineering and environmental site investigations, co-ordinating with other government agencies (e.g. Department of Transport and Main Roads) then the design and construct phases.

Therefore, to avoid overcommitment of capital resources to underutilised infrastructure, while simultaneously ensuring sufficient industrial land supply, MRC needs to be able to anticipate take-up of industrial land at least 5-7 years in advance.

This demanding task, in our view, will require ongoing monitoring and analysis of key issues, as described below.

8.2 Ongoing Monitoring of Key Demand Drivers

As has been clearly demonstrated, the industrial land market in Mackay is closely linked to the city's role as the major service centre supporting mining in the Bowen Basin. Both the high and low impact industrial land markets are linked to mining.

Since all of the coal produced from the Bowen Basin is exported, the industrial land market in Mackay is heavily exposed to movements in international coal markets, particularly trends in coking coal demand.

In view of this international trade exposure, a key initiative MRC needs to consider is to closely monitor trends in international coal markets, and formally report key findings to Council.

While demand drivers such as sugar and other agriculture are less influential factors in industrial land demand, these sectors also need to be monitored, but less intensely.

Population growth and housing demand will need to be monitored to inform decisions about the timing and location of new low impact industrial estates.

8.3 Ongoing Monitoring of Local Supply

Part of this consultancy was to assemble a comprehensive database of all industrial land parcels in the Council area. This database now contains up-to-date information about which sites are developed or vacant, and the types of industry occupying different precincts. Information generated from this database was invaluable in understanding the state of the local industrial market.

However, without being regularly refreshed, the integrity and usefulness of this database will quickly diminish.

Therefore, we strongly suggest the database be updated annually.

In addition, monitoring of real estate listings, price trends and stock movement would add to the understanding of local industrial land issues.

8.4 Recommendation: Prepare Annual Review of Industrial Land Demand and Supply

The two intelligence gathering initiatives suggested – a top-down understanding of demand factors, particularly trends in international markets, and a comprehensive bottom-up understanding of local supply issues – would greatly enhance MRC's capability to plan the release of new industrial land supply.

As was shown in Sections 6 and 7, there is a wide range of possible future demand scenarios, which would lead to significantly different supply responses. In 'normal' circumstances, demand for industrial land fluctuates widely. Current economic uncertainties amplify the likelihood of abnormal trends.

Accordingly, in view of these uncertainties **we recommend**:

MRC prepare an annual review of industrial land demand and supply in the Mackay region, which would cover, at minimum:

- *On the demand side:*
    - *Trends and outlook for international demand for coal, sugar and other relevant commodities.*
    - *Production of Bowen and Galilee Basin mines and coal exported through Port of Hay Point.*
    - *Committed and planned investments in Bowen and Galilee Basin mines.*
    - *Trends in the METS sector, such as onshoring manufacturing capabilities.*
    - *Population growth patterns.*
- *On the supply side:*
    - *Take-up of high impact and low impact industrial land in the previous 12 months, sourced from an updated census of land supply.*
    - *Trends in land sales, prices and leasing in existing industrial precincts.*

The purpose of this annual review would be to report on latest industrial land market intelligence, and to indicate which, if any, of the steady state, high growth or low growth demand scenarios were likely to occur, and to initiate appropriate supply responses.

To prepare this annual review, we suggest the following:

- MRC could internally undertake the annual review without engaging external consultants. Much of the information needed is publicly available or maintained by Council.
- However, Council could consider periodic independent (external) reviews as required.
- Subscribe to regular government and private sector reports and bulletins covering international coal coking and thermal coal markets. These publications will need to analyse the outlook for Australian coal exports to key countries including China, India, Japan, South Korea, as well as identify broader industry trends.
- Monitor the output of Bowen and Galilee Basin mines and the mix of coal exports through Hay Point.
- Continue regular communication channels with local industry groups, such as Resource Industry Network, Regional Development Australia and Trade Investment Queensland to verify and add to intelligence gleaned from published reports.
- Establish communication channels with selected Bowen and Galilee Basin mine operators.
- Review demand from non-mining sources including agriculture and potential new industries.
- Commit resources to updating the database of industrial land precincts annually.
- Monitor real estate listings, price trends and stock movements to understand local market conditions.
- Establish communication channels with industry professionals to verify and add to intelligence gleaned from internal analysis as required.

8.5 Recommendation: Adopt Sequential Approach to Release of High Impact Industrial Land

Non-sugar businesses requiring high impact industrial land have clustered in Paget and are able to take advantage of heavy transport networks, natural industry synergies and knowledge sharing. This clustering should, in our view, be encouraged by the pattern of release of new high impact industrial land as required.

Accordingly, and notwithstanding any timing issues, **we recommend:**

As Paget approaches capacity, the sequence of new high impact industrial land releases should be:

- *Boundary Road East Investigation Area*
- *Paget South Investigation Area – North West Precinct*
- *Paget South Investigation Area – North East Precinct*
- *Rosella.*

As noted in Section 7, the earliest Paget would be exhausted is by 2028 under the high growth demand scenario, although this scenario looks unlikely to eventuate given current market conditions. Under the steady state scenario, Paget would be exhausted by 2033.

In view of the up to 7-year lead time to ensure appropriate planning, assess proposed developments, complete operational works and establish serviced lots, Council needs to consider timely planning to release industrial land.

Under the high growth scenario, the planning for the Boundary Road East area for high impact industry would need to start around 2022. The planning for the Paget South precincts would be required by 2023.

Under the steady state scenario, the planning for the Boundary Road East area for high impact industry would need to start around 2027. The planning for the Paget South precincts would be required by 2028.

Appendix A – Detailed Precinct Profiles

This Appendix profiles industrial precincts in Mackay in greater detail than in Section 3. Industrial precincts have been grouped geographically as per Table A.1.

A.1 Precinct Groupings

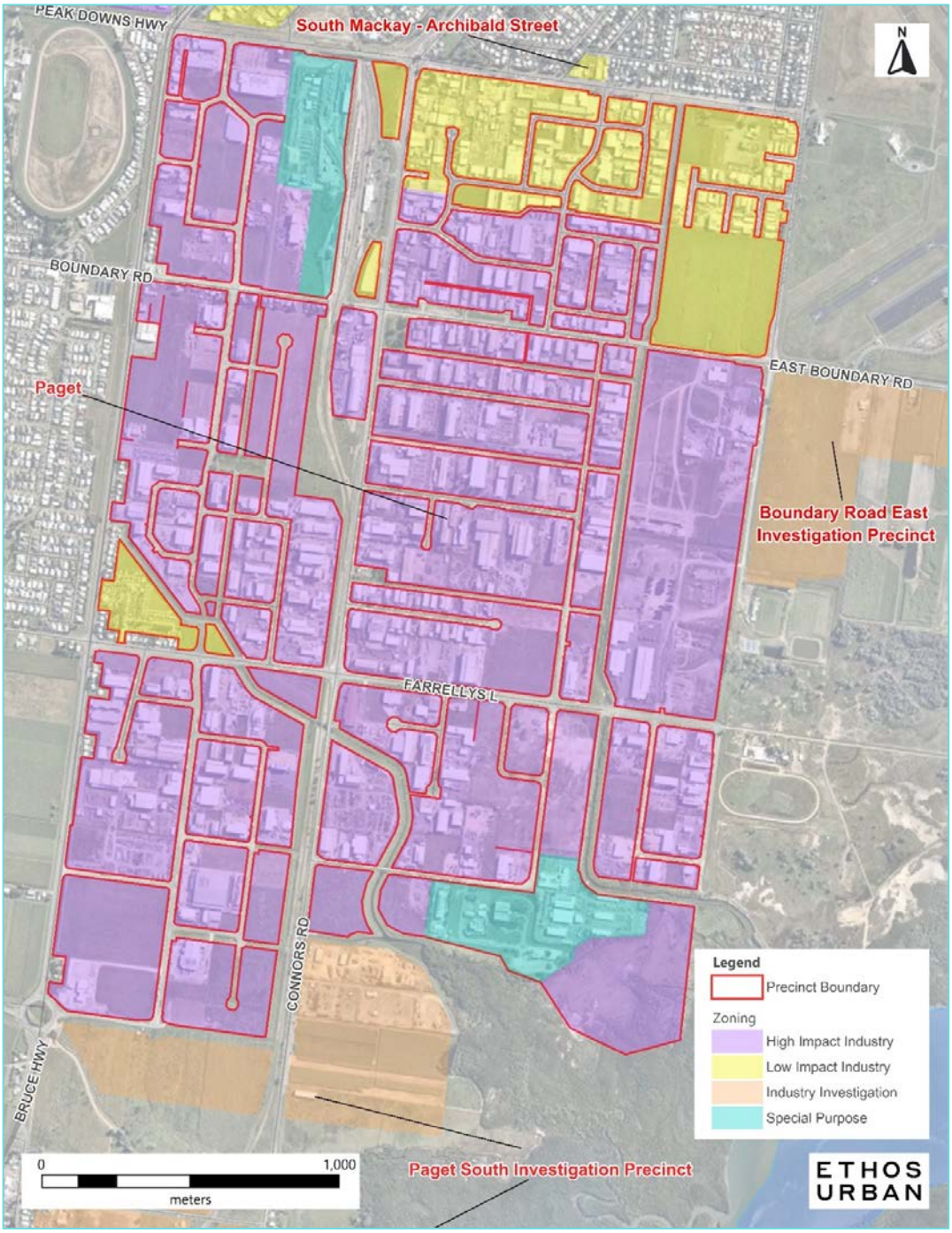
Table A.1: Mackay Industrial Precincts and Groups

Group	Precinct Name
Bakers Creek	Bakers Creek
	Paget South Precinct
Boundary Road East	Boundary Road East Investigation Precinct
Glenella	Glenella Investigation Precinct
	Glenella
Mackay Airport	Airport - Casey Avenue
	Airport - Milton Street
	Airport - Terminal
Mackay City Centre	Mackay City Centre - East
	Mackay City Centre - South
Mackay Harbour	Mackay Harbour
	Port of Mackay
Marian	Marian Investigation Precinct
	Marian Mill
	Pleystowe Mill
	Mirani
	North Eton
North Mackay - Cremorne	Cremorne
	North Mackay
Farleigh Mill	Farleigh Mill
Paget	Paget
Rosella	Rosella
Rural View	Rural View
Sarina	Sarina Mill
	Sarina Investigation Precinct
	Sarina - Brewers Road
	Sarina - Range Road
	Sarina - Sarina Beach Road
Slade Point	Slade Point
Racecourse	Racecourse Mill
	Cowleys Road Investigation Precinct
	Ooralea
	Racecourse
West and South Mackay	South Mackay - Archibald Street
	South Mackay - Paradise Road
	West Mackay - Cemetery Road
	West Mackay - Nebo Road

Source: Ethos Urban

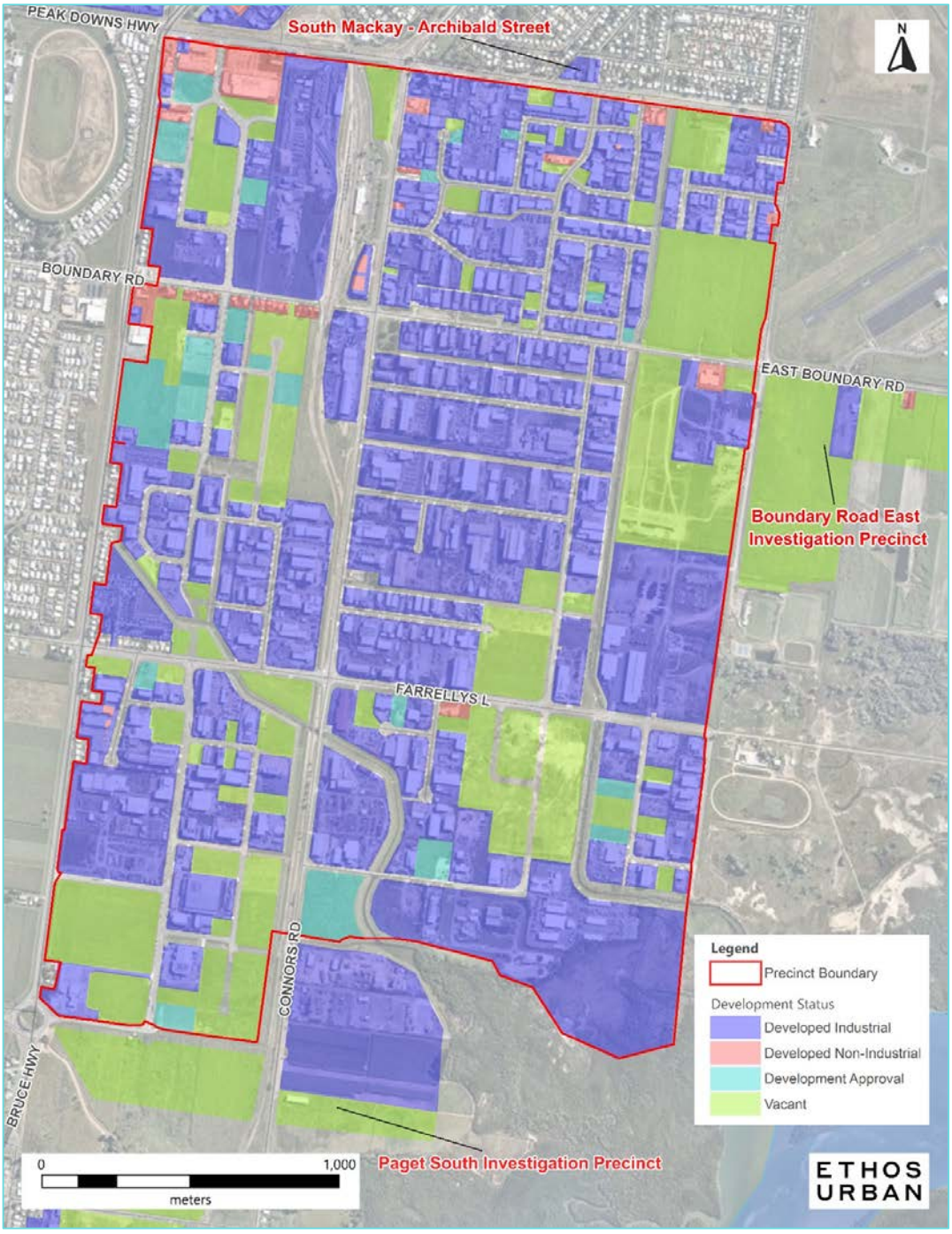
A.1.1 Paget

Figure A.1: Paget Industrial Precincts and Zoning, March 2020.



Source: Mackay Regional Council, Ethos Urban

Figure A.2: Paget Industrial Precincts and Development Status, March 2020.



Source: Mackay Regional Council, Ethos Urban

Table A.2: Industrial Land Supply, Paget, March 2020

Zone	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land**	Proportion of Zoned Area
High Impact Industry	415.2 ha	290.7 ha	124.5 ha	95.9 ha	23.1%
Low Impact Industry	68.4 ha	42.2 ha	26.1 ha	25.5 ha	37.3%
Industry Investigation	-	-	-	-	-
Total	**483.6 ha**	**332.9 ha**	**150.7 ha**	**121.4 ha**	**25.1%**

Note: *Includes developed land with unoccupied sheds
**Excludes development approval for sheds and outdoor storage

Source: Mackay Regional Council, Ethos Urban

Table A.3: Developed Industrial Land by Land Use, Paget, March 2020

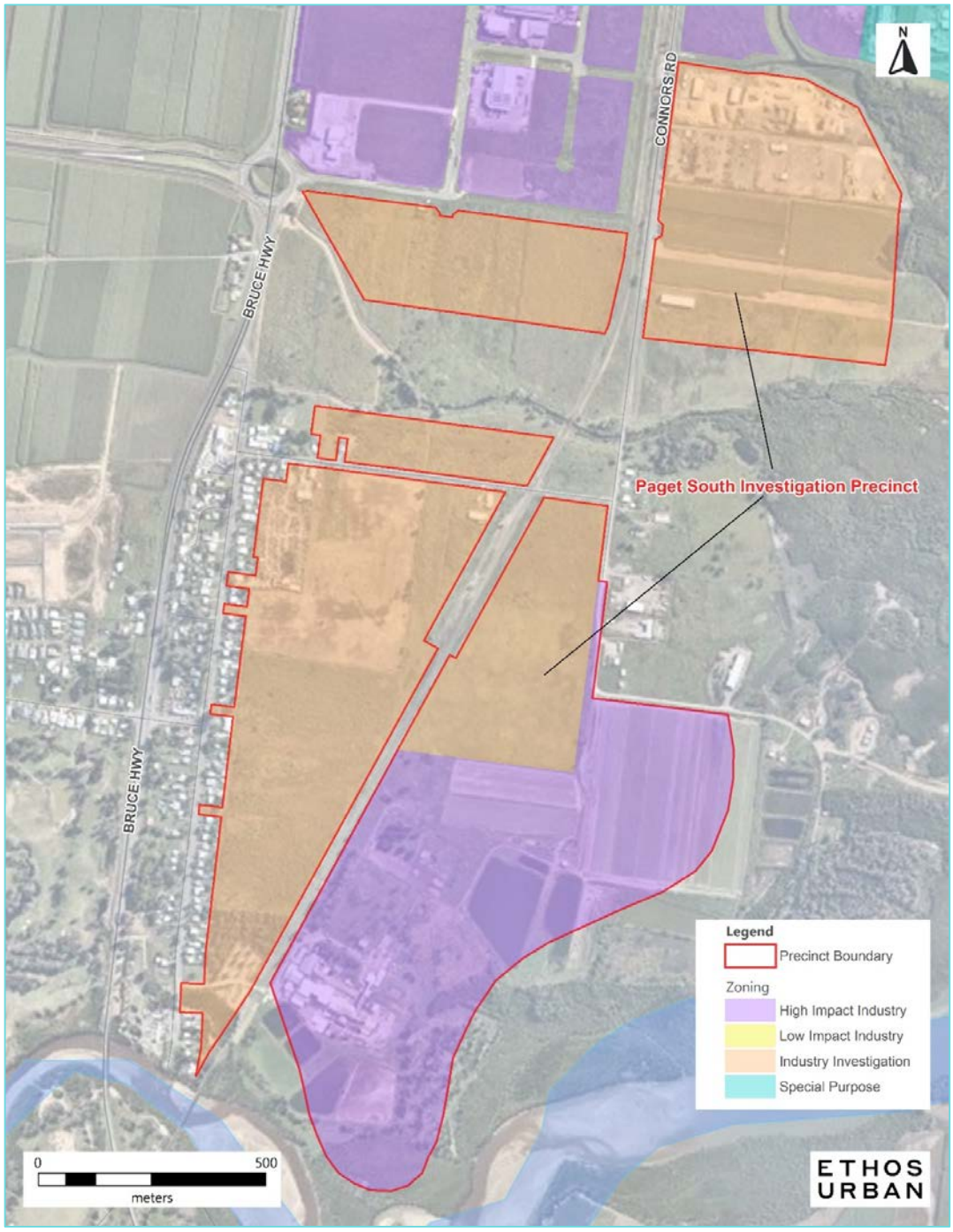
Land Use	Developed Industrial				
	High Impact		Low Impact		Total
	(ha)	(%)	(ha)	(%)	(ha)
ANZSIC Industry Division					
Manufacturing	98.1 ha	35.0%	11.5 ha	28.6%	109.6 ha
Transport, Postal and Warehousing	50.7 ha	18.1%	4.1 ha	10.1%	54.7 ha
Wholesale Trade	32.4 ha	11.6%	3.0 ha	7.5%	35.4 ha
Other Services	28.3 ha	10.1%	4.2 ha	10.5%	32.5 ha
Public Administration and Safety	16.4 ha	5.8%	-	-	16.4 ha
Retail Trade	12.7 ha	4.5%	3.6 ha	8.9%	16.3 ha
Construction	10.5 ha	3.8%	1.7 ha	4.3%	12.3 ha
Rental, Hiring and Real Estate Services	7.8 ha	2.8%	1.3 ha	3.2%	9.1 ha
Electricity, Gas, Water and Waste Services	8.0 ha	2.9%	-	-	8.0 ha
Accommodation and Food Services	0.4 ha	0.1%	5.1 ha	12.7%	5.5 ha
Professional, Scientific and Technical Services	3.1 ha	1.1%	0.9 ha	2.1%	3.9 ha
Mining	2.3 ha	0.8%	0.3 ha	0.6%	2.5 ha
Education and Training	1.7 ha	0.6%	0.5 ha	1.2%	2.2 ha
Administrative and Support Services	1.3 ha	0.4%	0.1 ha	0.2%	1.3 ha
Agriculture, Forestry and Fishing	0.4 ha	0.1%	0.2 ha	0.4%	0.5 ha
Arts and Recreation Services	-	-	-	-	-
Financial and Insurance Services	-	-	-	-	-
Health Care and Social Assistance	-	-	-	-	-
Information Media and Telecommunications	-	-	-	-	-
Sub-total	**273.9 ha**	**97.6%**	**36.3 ha**	**90.4%**	**310.2 ha**
Other Land Uses					
Road Access	1.5 ha	0.5%	3.0 ha	7.5%	4.5 ha
Stormwater Drain	1.6 ha	0.6%	-	-	1.6 ha
Vacant	3.6 ha	1.3%	0.8 ha	2.1%	4.4 ha
Sub-total	**6.7 ha**	**2.4%**	**3.8 ha**	**9.6%**	**10.5 ha**
Total	**280.6 ha**	**100.0%**	**40.1 ha**	**100.0%**	**320.7 ha**

Note: Vacant land refers to legal hardstand/outdoor storage and vacant sheds.

Source: Mackay Regional Council, Ethos Urban

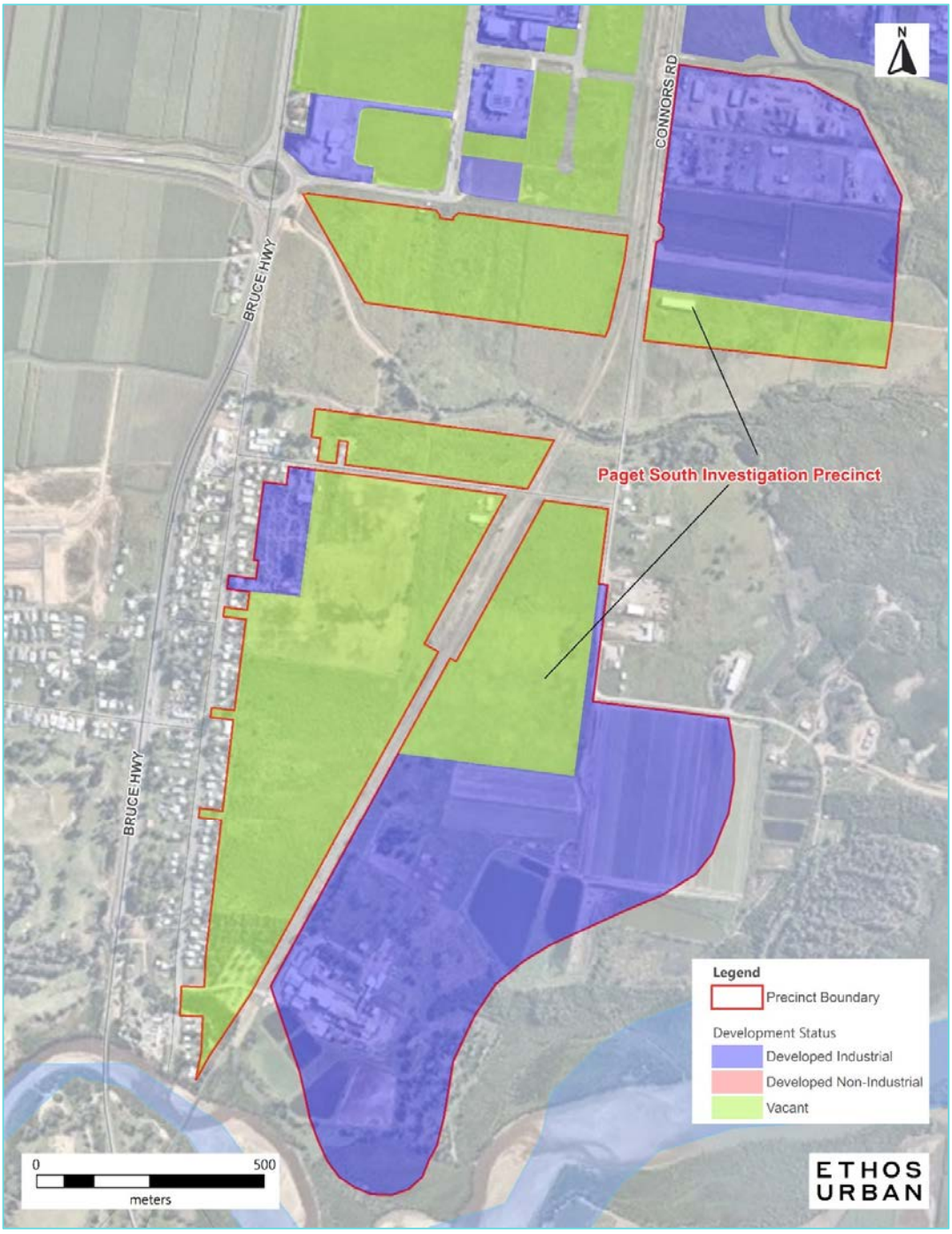
A.1.2 Bakers Creek (Paget South)

Figure A.3: Bakers Creek Industrial Precincts and Zoning, March 2020.



Source: Mackay Regional Council, Ethos Urban

Figure A.4: Bakers Creek Industrial Precincts and Development Status, March 2020.



Source: Mackay Regional Council, Ethos Urban

Table A.4: Industrial Land Supply, Bakers Creek, March 2020

Zone	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land**	Proportion of Zoned Area
High Impact Industry	53.2 ha	53.2 ha	-	-	-
Low Impact Industry	-	-	-	-	-
Industry Investigation	103.7 ha	27.0 ha	76.7 ha	66.9 ha	64.5%
Total	**156.9 ha**	**80.2 ha**	**76.7 ha**	**66.9 ha**	**42.6%**

Note: *Includes developed land with unoccupied sheds

**Excludes development approval for sheds and outdoor storage

Source: Mackay Regional Council, Ethos Urban

Table A.5: Industrial Land Supply by Precinct, Bakers Creek, March 2020

Precinct	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land **	Proportion of Zoned Area
Bakers Creek	53.2 ha	53.2 ha	-	-	-
Paget South Precinct	103.7 ha	27.0 ha	76.7 ha	66.9 ha	64.5%
Total	**156.9 ha**	**80.2 ha**	**76.7 ha**	**66.9 ha**	**42.6%**

Note: *Includes developed land with unoccupied sheds

**Excludes development approval for sheds and outdoor storage

Source: Mackay Regional Council, Ethos Urban

Table A.6: Developed Industrial Land by Land Use, Bakers Creek, March 2020

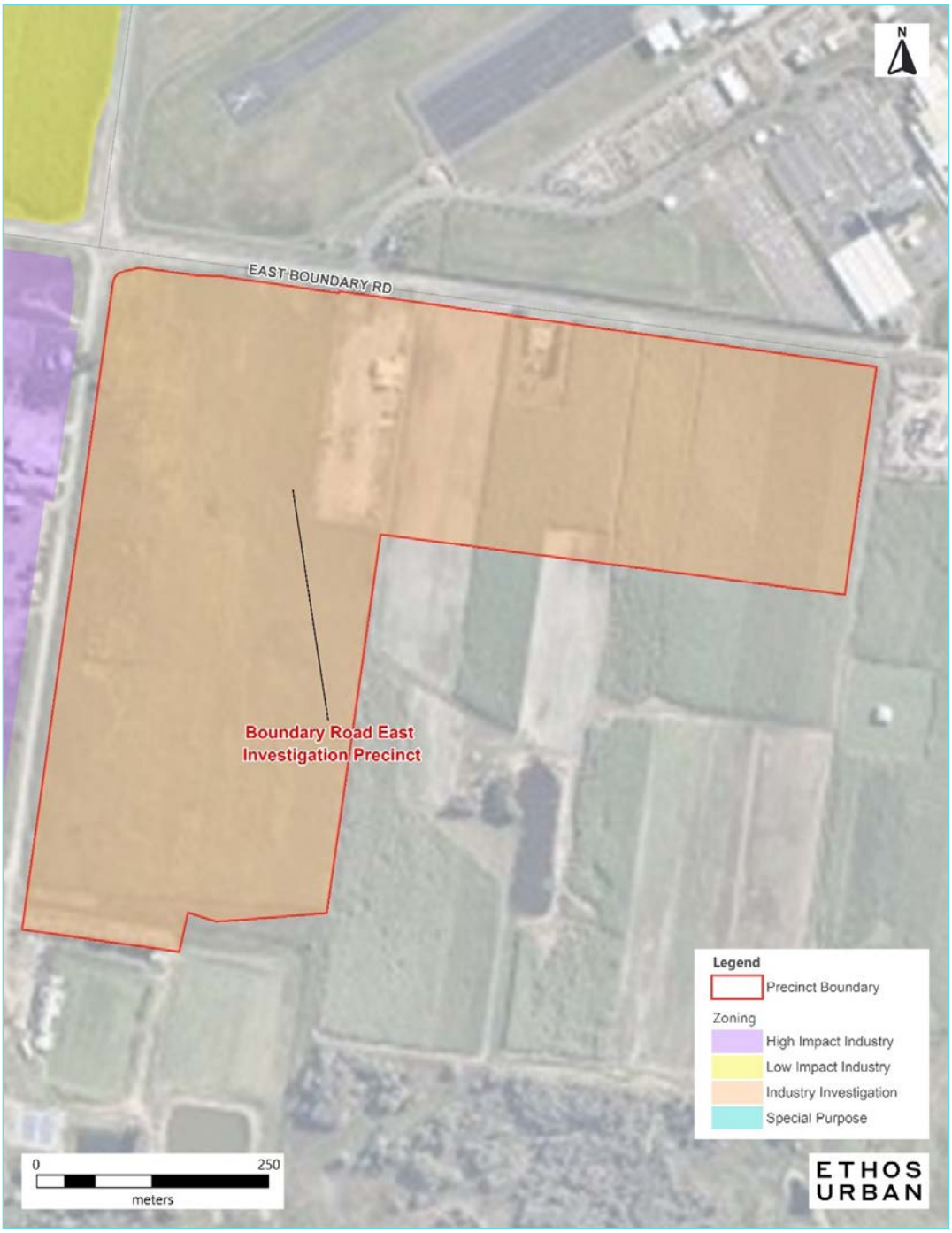
Land Use	Developed Industrial				
	High Impact		Low Impact		Total
	(ha)	(%)	(ha)	(%)	(ha)
ANZSIC Industry Division					
Manufacturing	53.2 ha	100.0%	-	-	53.2 ha
Transport, Postal and Warehousing	-	-	-	-	-
Other Services	-	-	-	-	-
Wholesale Trade	-	-	-	-	-
Retail Trade	-	-	-	-	-
Construction	-	-	-	-	-
Public Administration and Safety	-	-	-	-	-
Rental, Hiring and Real Estate Services	-	-	-	-	-
Electricity, Gas, Water and Waste Services	-	-	-	-	-
Accommodation and Food Services	-	-	-	-	-
Professional, Scientific and Technical Services	-	-	-	-	-
Mining	-	-	-	-	-
Education and Training	-	-	-	-	-
Administrative and Support Services	-	-	-	-	-
Agriculture, Forestry and Fishing	-	-	-	-	-
Arts and Recreation Services	-	-	-	-	-
Financial and Insurance Services	-	-	-	-	-
Health Care and Social Assistance	-	-	-	-	-
Information Media and Telecommunications	-	-	-	-	-
Sub-total	**53.2 ha**	**100.0%**	**-**	**-**	**53.2 ha**
Other Land Uses					
Road Access	-	-	-	-	-
Stormwater Drain	-	-	-	-	-
Vacant	-	-	-	-	-
Sub-total	-	-	-	-	-
Total	**53.2 ha**	**100.0%**	**-**	**-**	**53.2 ha**

Note: Vacant land refers to legal hardstand/outdoor storage and vacant sheds.

Source: Mackay Regional Council, Ethos Urban

A.1.3 Boundary Road East

Figure A.5: Boundary Road East Industrial Precincts and Zoning, March 2020.



Source: Mackay Regional Council, Ethos Urban

Figure A.6: Boundary Road East Industrial Precincts and Development Status, March 2020.

Source: Mackay Regional Council, Ethos Urban

Table A.7: Industrial Land Supply, Boundary Road East, March 2020

Zone	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land**	Proportion of Zoned Area
High Impact Industry	-	-	-	-	-
Low Impact Industry	-	-	-	-	-
Industry Investigation	35.0 ha	2.3 ha	32.7 ha	30.7 ha	87.6%
Total	**35.0 ha**	**2.3 ha**	**32.7 ha**	**30.7 ha**	**87.6%**

Note: *Includes developed land with unoccupied sheds

**Excludes development approval for sheds and outdoor storage

Source: Mackay Regional Council, Ethos Urban

Table A.8: Developed Industrial Land by Land Use, Boundary Road East, March 2020

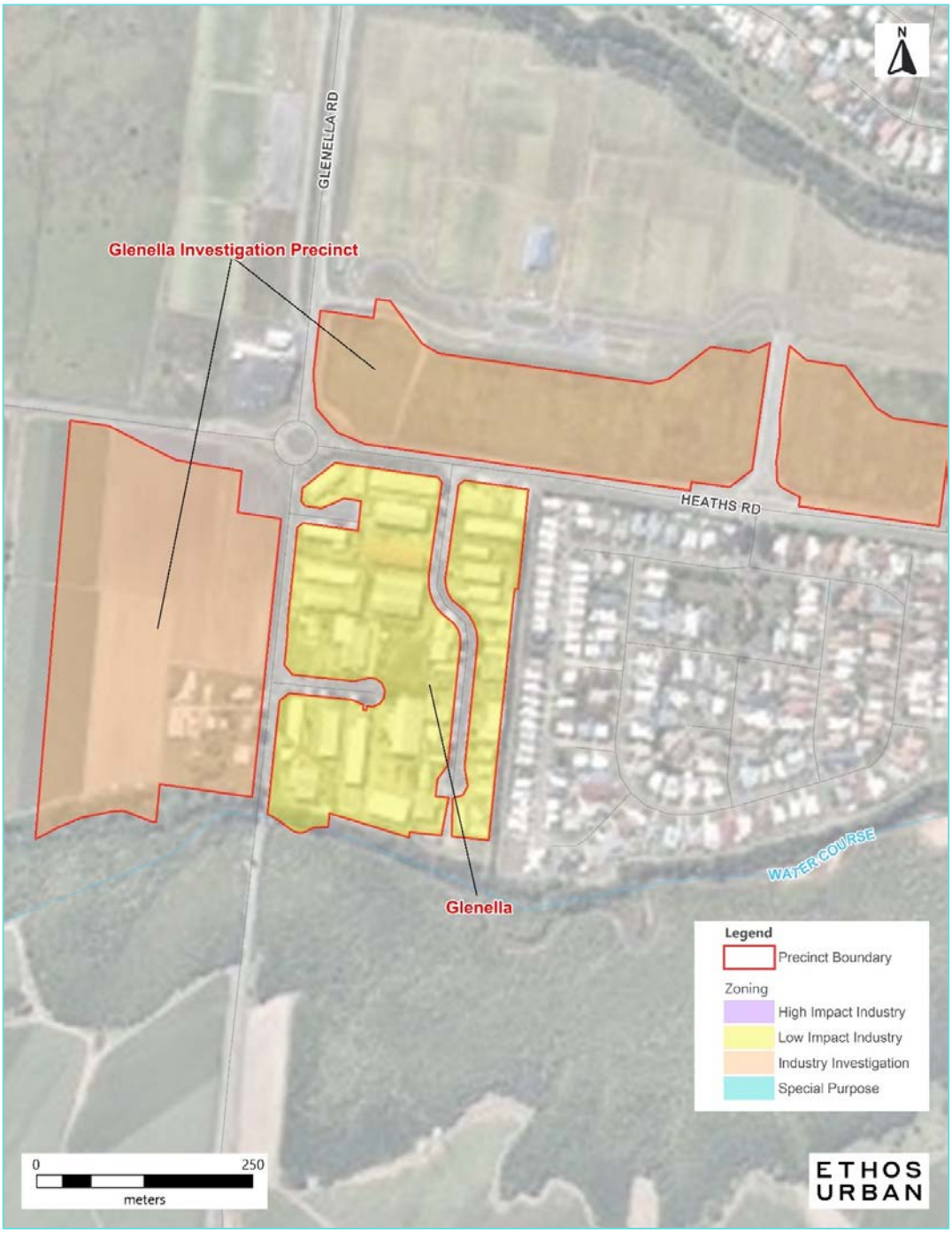
Land Use	Developed Industrial						
	High Impact		Low Impact		Investigation		Total
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)
ANZSIC Industry Division							
Transport, Postal and Warehousing	-	-	-	-	2.0 ha	100.0%	2.0 ha
Manufacturing	-	-	-	-	-	-	-
Other Services	-	-	-	-	-	-	-
Wholesale Trade	-	-	-	-	-	-	-
Retail Trade	-	-	-	-	-	-	-
Construction	-	-	-	-	-	-	-
Public Administration and Safety	-	-	-	-	-	-	-
Rental, Hiring and Real Estate Services	-	-	-	-	-	-	-
Electricity, Gas, Water and Waste Services	-	-	-	-	-	-	-
Accommodation and Food Services	-	-	-	-	-	-	-
Professional, Scientific and Technical Services	-	-	-	-	-	-	-
Mining	-	-	-	-	-	-	-
Education and Training	-	-	-	-	-	-	-
Administrative and Support Services	-	-	-	-	-	-	-
Agriculture, Forestry and Fishing	-	-	-	-	-	-	-
Arts and Recreation Services	-	-	-	-	-	-	-
Financial and Insurance Services	-	-	-	-	-	-	-
Health Care and Social Assistance	-	-	-	-	-	-	-
Information Media and Telecommunications	-	-	-	-			
Sub-total	-	-	-	-	**2.0 ha**	**100.0%**	**2.0 ha**
Other Land Uses	-	-	-	-	-	-	-
Road Access	-	-	-	-	-	-	-
Stormwater Drain	-	-	-	-	-	-	-
Vacant	-	-	-	-	-	-	-
Sub-total	-	-	-	-	-	-	-
Total	-	-	-	-	**2.0 ha**	**100.0%**	**2.0 ha**

Note: Vacant land refers to legal hardstand/outdoor storage and vacant sheds.

Source: Mackay Regional Council, Ethos Urban

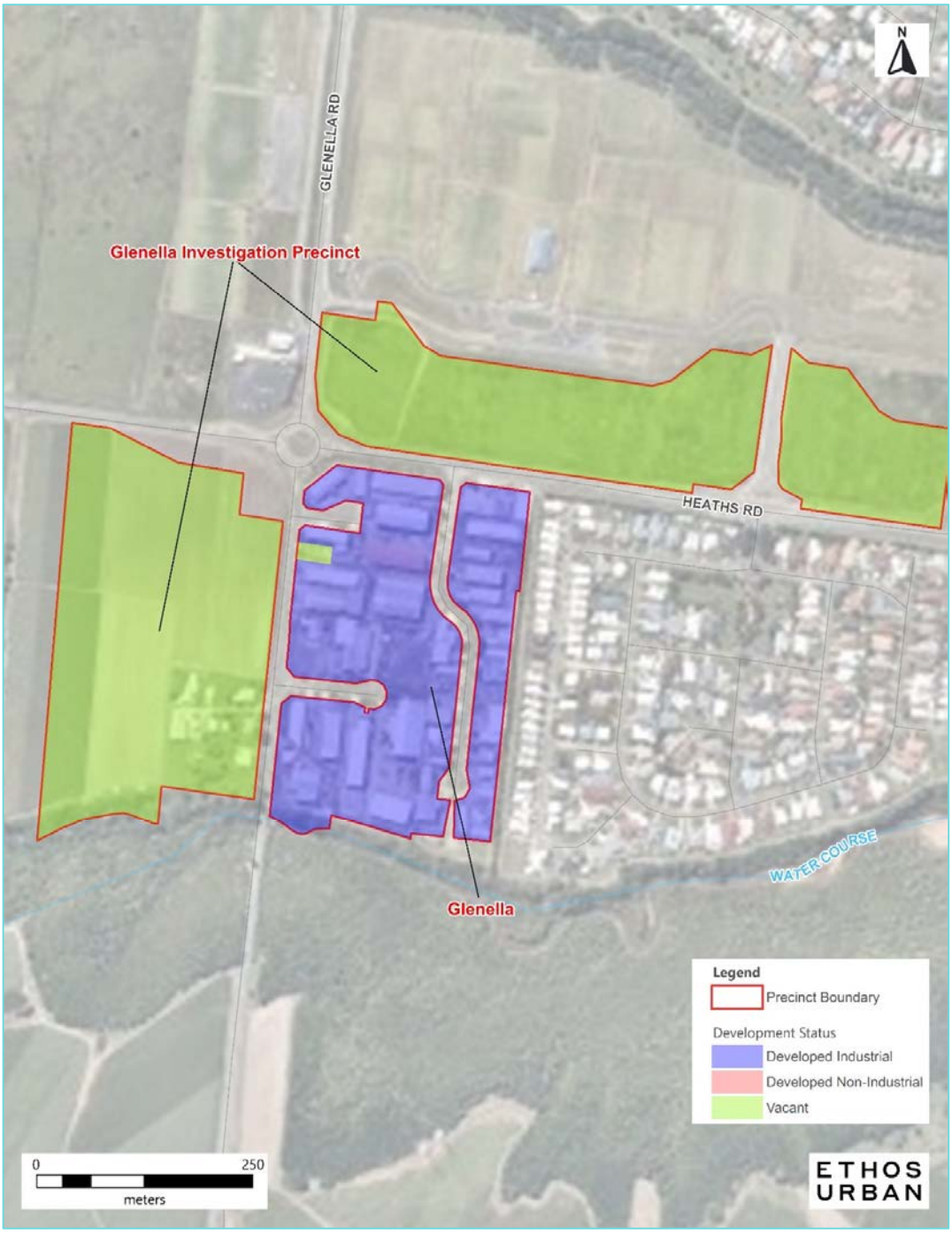
A.1.4 Glenella

Figure A.7: Glenella Industrial Precincts and Zoning, March 2020.



Source: Mackay Regional Council, Ethos Urban

Figure A.8: Glenella Industrial Precincts and Development Status, March 2020.



Source: Mackay Regional Council, Ethos Urban

Table A.9: Industrial Land Supply, Glenella, March 2020

Zone	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land**	Proportion of Zoned Area
High Impact Industry	-	-	-	-	-
Low Impact Industry	9.2 ha	9.1 ha	0.1 ha	0.1 ha	0.9%
Industry Investigation	19.3 ha	-	19.3 ha	16.9 ha	87.5%
Total	**28.4 ha**	**9.1 ha**	**19.3 ha**	**16.9 ha**	**59.5%**

Note: *Includes developed land with unoccupied sheds
**Excludes development approval for sheds and outdoor storage
Source: Mackay Regional Council, Ethos Urban

Table A.10: Industrial Land Supply by Precinct, Glenella, March 2020

Precinct	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land **	Proportion of Zoned Area
Glenella	9.2 ha	9.1 ha	0.1 ha	0.1 ha	0.9%
Glenella Investigation Precinct	19.3 ha	-	19.3 ha	16.9 ha	87.5%
Total	**28.4 ha**	**9.1 ha**	**19.3 ha**	**16.9 ha**	**59.5%**

Note: *Includes developed land with unoccupied sheds
**Excludes development approval for sheds and outdoor storage
Source: Mackay Regional Council, Ethos Urban

Table A.11: Developed Industrial Land by Land Use, Glenella, March 2020

Land Use	Developed Industrial				
	High Impact		Low Impact		Total
	(ha)	(%)	(ha)	(%)	(ha)
ANZSIC Industry Division					
Manufacturing	-	-	3.7 ha	40.8%	3.7 ha
Construction	-	-	1.5 ha	16.1%	1.5 ha
Retail Trade	-	-	1.0 ha	10.6%	1.0 ha
Other Services	-	-	0.8 ha	9.0%	0.8 ha
Professional, Scientific and Technical Services	-	-	0.7 ha	7.7%	0.7 ha
Transport, Postal and Warehousing	-	-	0.7 ha	7.2%	0.7 ha
Wholesale Trade	-	-	0.4 ha	4.1%	0.4 ha
Education and Training	-	-	0.1 ha	1.0%	0.1 ha
Public Administration and Safety	-	-	-	-	-
Rental, Hiring and Real Estate Services	-	-	-	-	-
Electricity, Gas, Water and Waste Services	-	-	-	-	-
Accommodation and Food Services	-	-	-	-	-
Mining	-	-	-	-	-
Administrative and Support Services	-	-	-	-	-
Agriculture, Forestry and Fishing	-	-	-	-	-
Arts and Recreation Services	-	-	-	-	-
Financial and Insurance Services	-	-	-	-	-
Health Care and Social Assistance	-	-	-	-	-
Information Media and Telecommunications	-	-	-	-	-
Sub-total	-	-	**8.8 ha**	**96.5%**	**8.8 ha**
Other Land Uses					
Road Access	-	-	-	-	-
Stormwater Drain	-	-	-	-	-
Vacant	-	-	0.3 ha	3.5%	0.3 ha
Sub-total	-	-	**0.3 ha**	**3.5%**	**0.3 ha**
Total	-	-	**9.1 ha**	**100.0%**	**9.1 ha**

Note: Vacant land refers to legal hardstand/outdoor storage and vacant sheds.

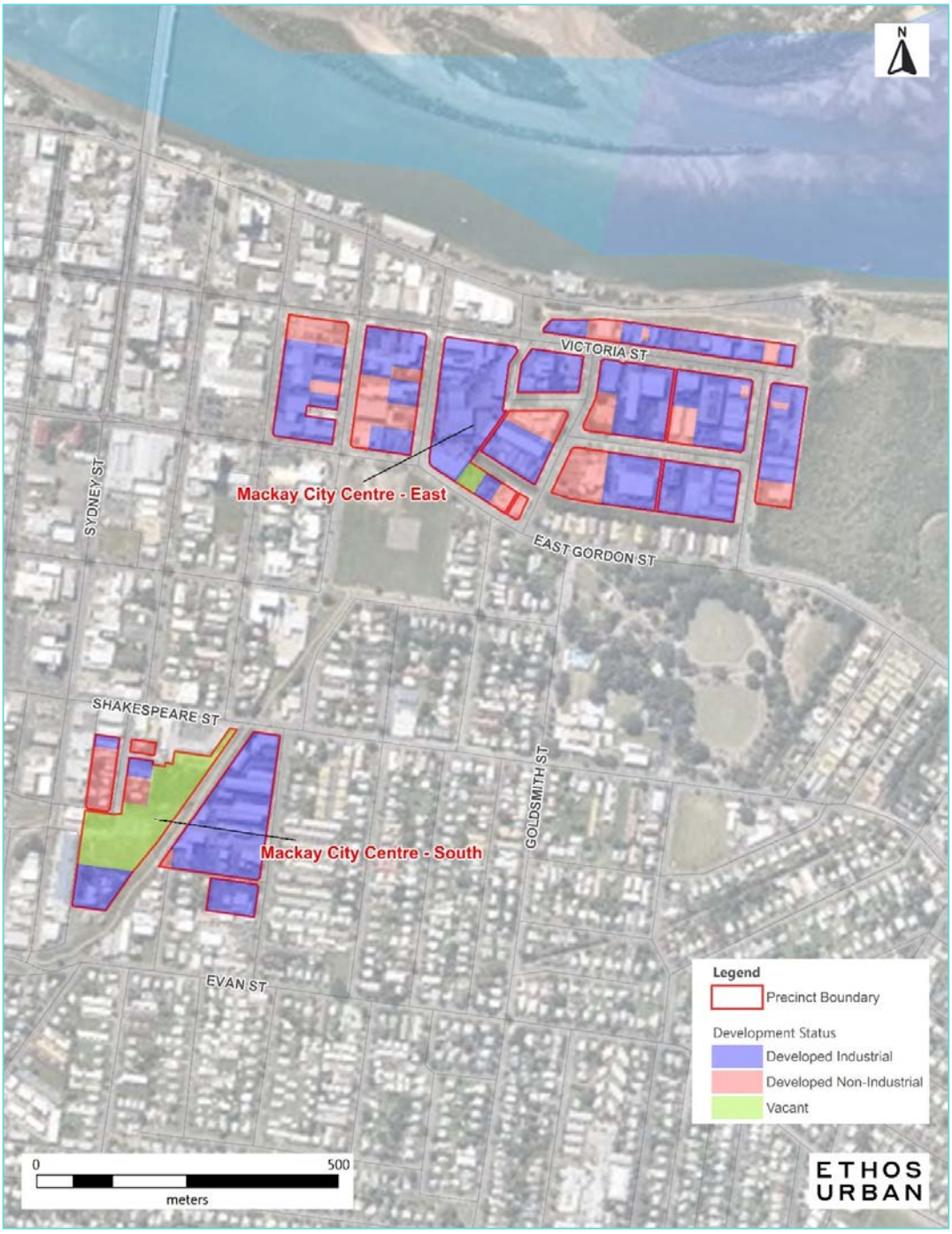
Source: Mackay Regional Council, Ethos Urban

A.1.5 Mackay City Centre

Figure A.9: Mackay City Centre Industrial Precincts and Zoning, March 2020.

Source: Mackay Regional Council, Ethos Urban

Figure A.10: Mackay City Centre Industrial Precincts and Development Status, March 2020.



Source: Mackay Regional Council, Ethos Urban

Table A.12: Industrial Land Supply, Mackay City Centre, March 2020

Zone	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land**	Proportion of Zoned Area
High Impact Industry	-	-	-	-	-
Low Impact Industry	22.7 ha	20.6 ha	2.1 ha	1.7 ha	7.5%
Industry Investigation	-	-	-	-	-
Total	**22.7 ha**	**20.6 ha**	**2.1 ha**	**1.7 ha**	**7.5%**

Note: *Includes developed land with unoccupied sheds
**Excludes development approval for sheds and outdoor storage
Source: Mackay Regional Council, Ethos Urban

Table A.13: Industrial Land Supply by Precinct, Mackay City Centre, March 2020

Precinct	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land **	Proportion of Zoned Area
Mackay City Centre - East	16.3 ha	16.2 ha	0.1 ha	0.1 ha	0.8%
Mackay City Centre - South	6.4 ha	4.4 ha	2.0 ha	1.6 ha	24.6%
Total	**22.7 ha**	**20.6 ha**	**2.1 ha**	**1.7 ha**	**7.5%**

Note: *Includes developed land with unoccupied sheds
**Excludes development approval for sheds and outdoor storage
Source: Mackay Regional Council, Ethos Urban

Table A.14: Developed Industrial Land by Land Use, Mackay City Centre, March 2020

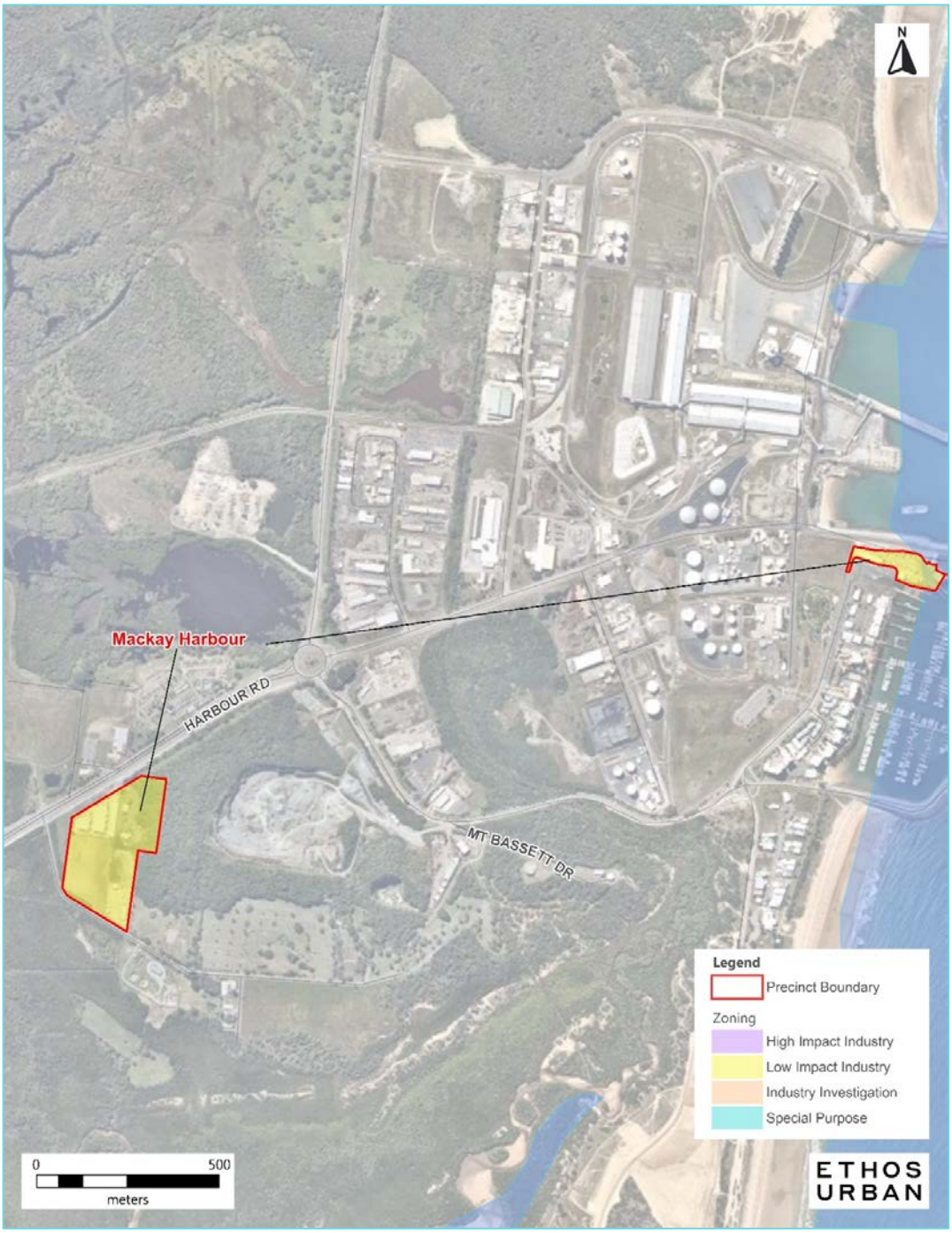
Land Use	Developed Industrial				
	High Impact		Low Impact		Total
	(ha)	(%)	(ha)	(%)	(ha)
ANZSIC Industry Division					
Other Services	-	-	5.8 ha	35.4%	5.8 ha
Manufacturing	-	-	3.1 ha	19.3%	3.1 ha
Retail Trade	-	-	2.7 ha	16.9%	2.7 ha
Construction	-	-	1.1 ha	6.8%	1.1 ha
Rental, Hiring and Real Estate Services	-	-	0.9 ha	5.3%	0.9 ha
Transport, Postal and Warehousing	-	-	0.6 ha	3.7%	0.6 ha
Wholesale Trade	-	-	0.5 ha	2.9%	0.5 ha
Arts and Recreation Services	-	-	0.3 ha	1.6%	0.3 ha
Education and Training	-	-	0.2 ha	1.2%	0.2 ha
Electricity, Gas, Water and Waste Services	-	-	0.1 ha	0.6%	0.1 ha
Professional, Scientific and Technical Services	-	-	-	-	-
Public Administration and Safety	-	-	-	-	-
Accommodation and Food Services	-	-	-	-	-
Mining	-	-	-	-	-
Administrative and Support Services	-	-	-	-	-
Agriculture, Forestry and Fishing	-	-	-	-	-
Financial and Insurance Services	-	-	-	-	-
Health Care and Social Assistance	-	-	-	-	-
Information Media and Telecommunications	-	-	-	-	-
Sub-total	-	-	**15.2 ha**	**93.6%**	**15.2 ha**
Other Land Uses					
Road Access	-	-	0.4 ha	2.4%	0.4 ha
Stormwater Drain	-	-	-	-	-
Vacant	-	-	0.7 ha	4.0%	0.7 ha
Sub-total	-	-	**1.0 ha**	**6.4%**	**1.0 ha**
Total	-	-	**16.3 ha**	**100.0%**	**16.3 ha**

Note: Vacant land refers to legal hardstand/outdoor storage and vacant sheds.

Source: Mackay Regional Council, Ethos Urban

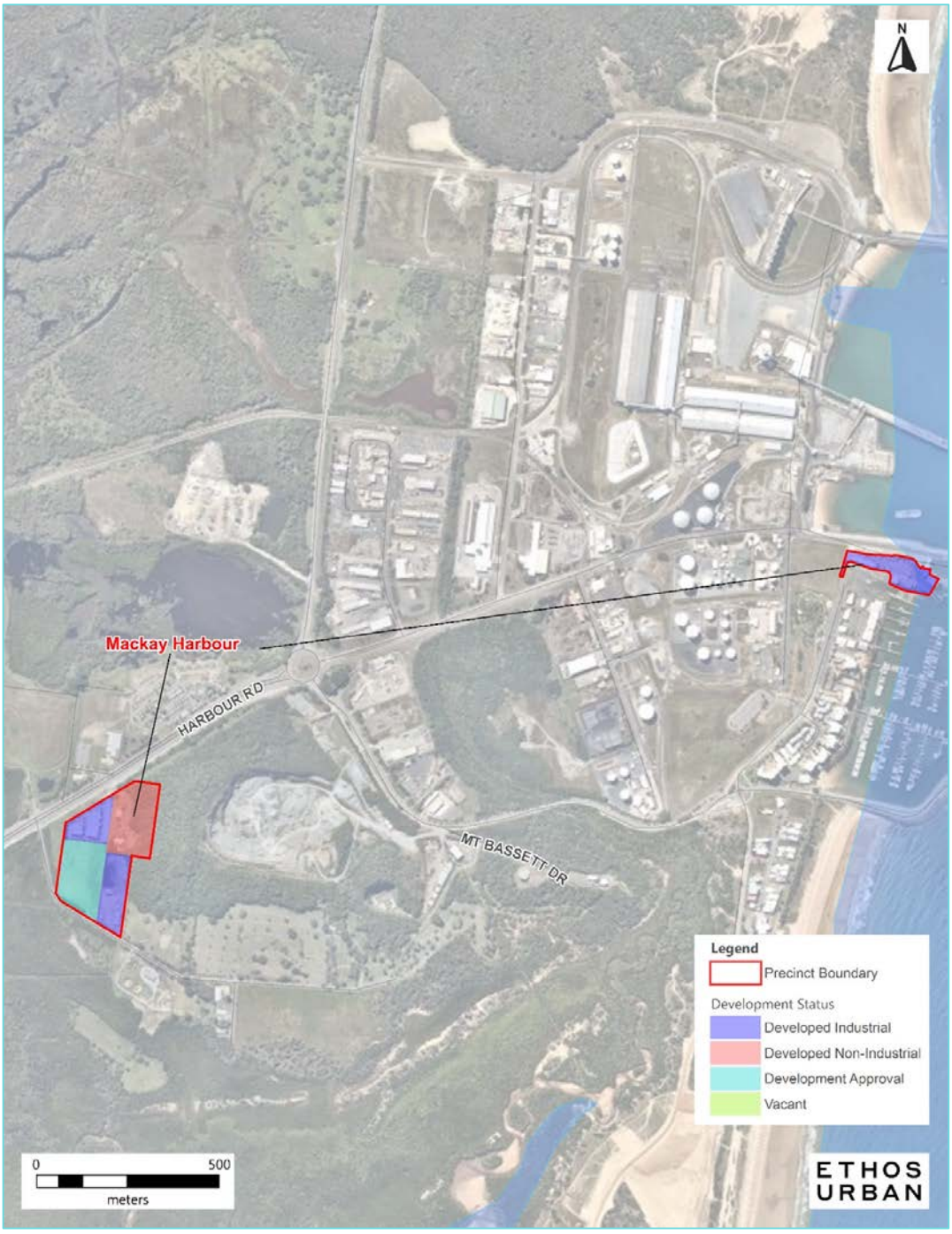
A.1.6 Mackay Harbour

Figure A.11: Mackay Harbour Industrial Precincts and Zoning, March 2020.



Source: Mackay Regional Council, Ethos Urban

Figure A.12: Mackay Harbour Industrial Precincts and Development Status, March 2020.



Source: Mackay Regional Council, Ethos Urban

Table A.15: Industrial Land Supply, Mackay Harbour, March 2020

Zone	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land**	Proportion of Zoned Area
High Impact Industry	-	-	-	-	-
Low Impact Industry	8.6 ha	6.3 ha	2.3 ha	-	-
Industry Investigation	-	-	-	-	-
Total	**8.6 ha**	**6.3 ha**	**2.3 ha**	**-**	**-**

Note: *Includes developed land with unoccupied sheds
**Excludes development approval for sheds and outdoor storage

Source: Mackay Regional Council, Ethos Urban

Table A.16: Developed Industrial Land by Land Use, Mackay Harbour, March 2020

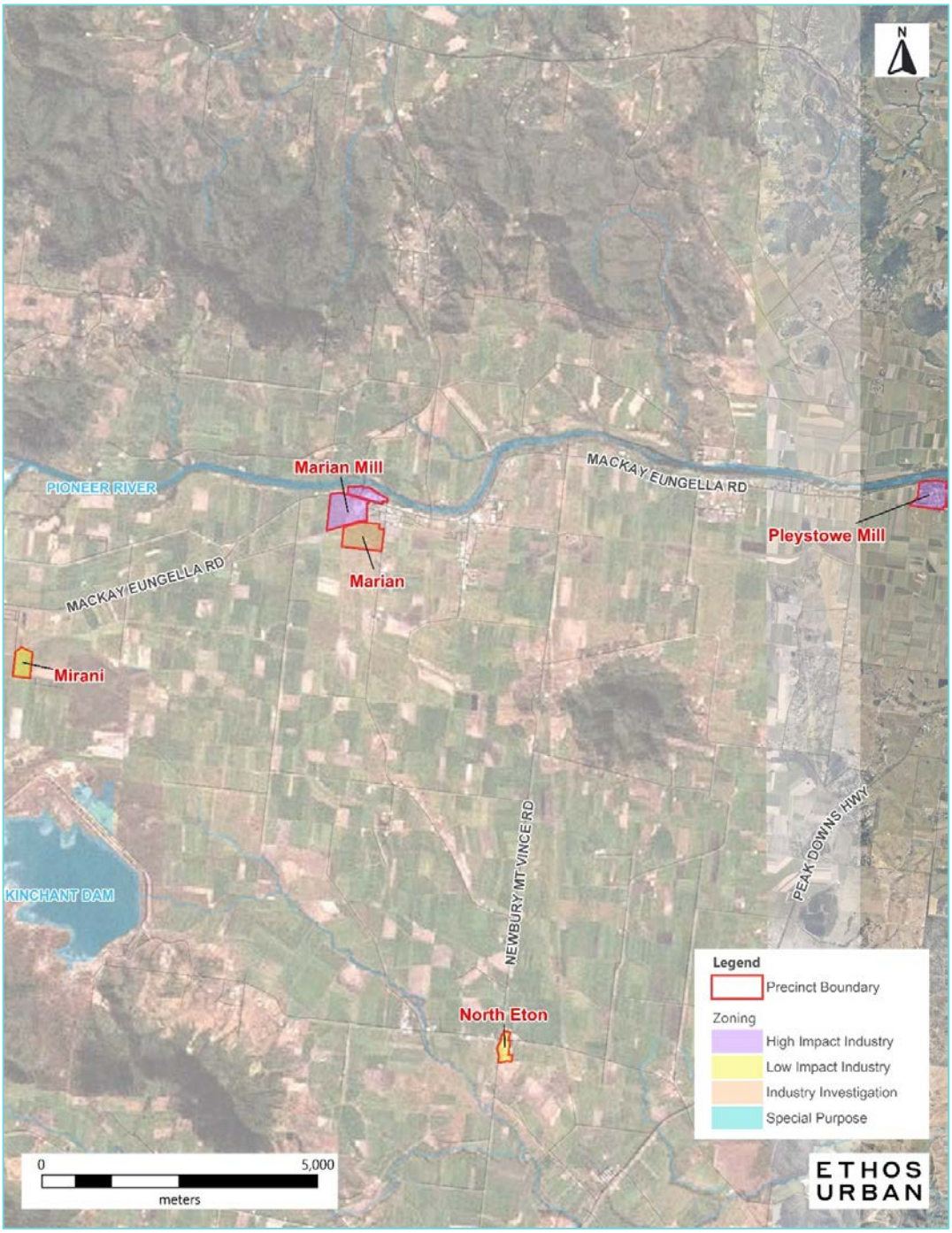
Land Use	Developed Industrial				
	High Impact		Low Impact		Total
	(ha)	(%)	(ha)	(%)	(ha)
ANZSIC Industry Division					
Other Services	-	-	2.9 ha	73.0%	2.9 ha
Construction	-	-	0.1 ha	2.2%	0.1 ha
Professional, Scientific and Technical Services	-	-	0.1 ha	2.1%	0.1 ha
Administrative and Support Services	-	-	0.0 ha	1.0%	0.0 ha
Rental, Hiring and Real Estate Services	-	-	0.0 ha	0.7%	0.0 ha
Retail Trade	-	-	0.0 ha	0.7%	0.0 ha
Education and Training	-	-	0.0 ha	0.4%	0.0 ha
Financial and Insurance Services	-	-	0.0 ha	0.4%	0.0 ha
Wholesale Trade	-	-	0.0 ha	0.3%	0.0 ha
Manufacturing	-	-	-	-	-
Transport, Postal and Warehousing	-	-	-	-	-
Arts and Recreation Services	-	-	-	-	-
Electricity, Gas, Water and Waste Services	-	-	-	-	-
Public Administration and Safety	-	-	-	-	-
Accommodation and Food Services	-	-	-	-	-
Mining	-	-	-	-	-
Agriculture, Forestry and Fishing	-	-	-	-	-
Health Care and Social Assistance	-	-	-	-	-
Information Media and Telecommunications	-	-	-	-	-
Sub-total	-	-	**3.2 ha**	**80.8%**	**3.2 ha**
Other Land Uses					
Road Access	-	-	0.6 ha	16.2%	0.6 ha
Stormwater Drain	-	-	-	-	-
Vacant	-	-	0.1 ha	3.0%	0.1 ha
Sub-total	-	-	**0.8 ha**	**19.2%**	**0.8 ha**
Total	-	-	**4.0 ha**	**100.0%**	**4.0 ha**

Note: Vacant land refers to legal hardstand/outdoor storage and vacant sheds.

Source: Mackay Regional Council, Ethos Urban

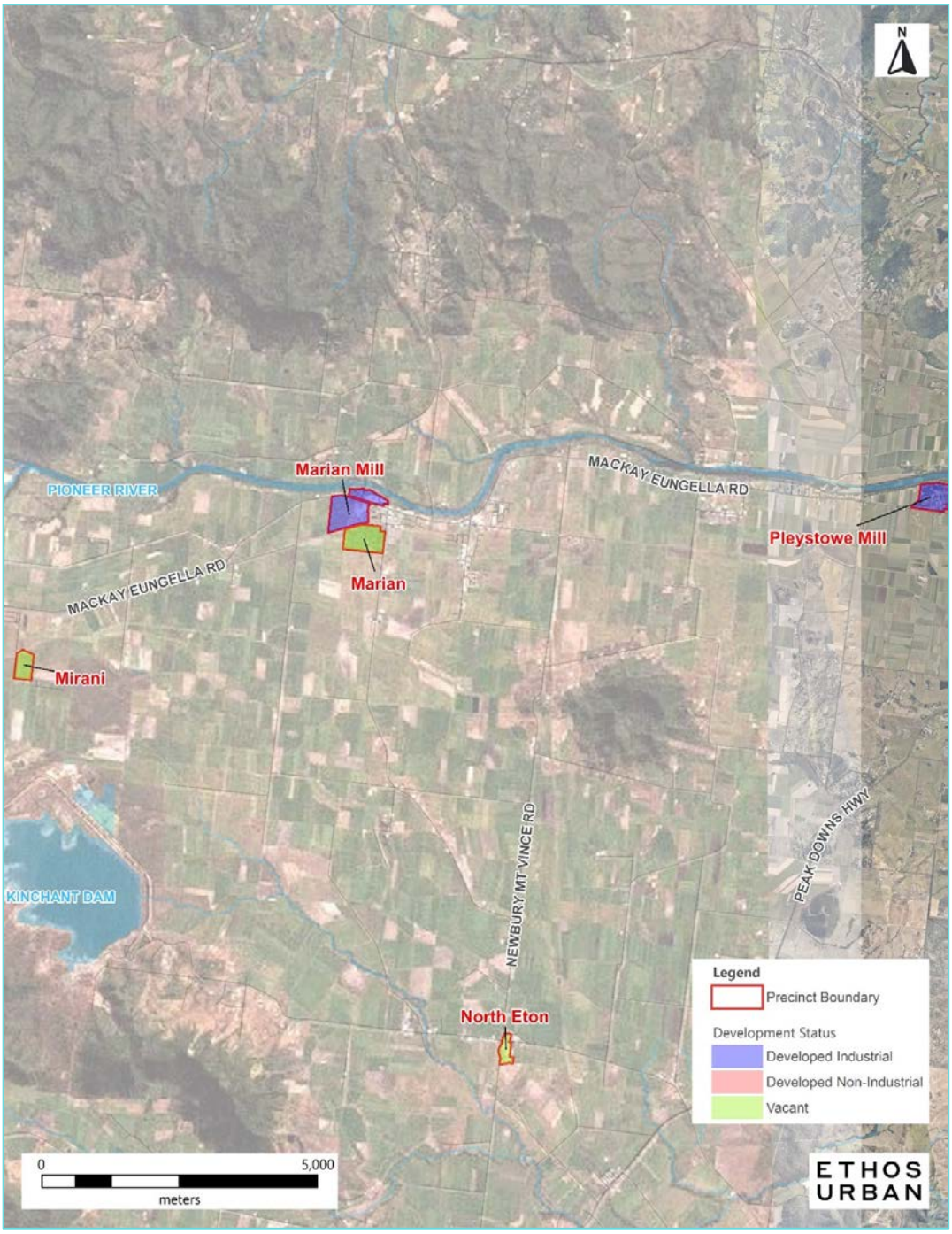
A.1.7 Marian

Figure A.13: Marian Industrial Precincts and Zoning, March 2020.



Source: Mackay Regional Council, Ethos Urban

Figure A.14: Marian Industrial Precincts and Development Status, March 2020.



Source: Mackay Regional Council, Ethos Urban

Table A.17: Industrial Land Supply, Marian, March 2020

Zone	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land**	Proportion of Zoned Area
High Impact Industry	73.6 ha	73.6 ha	-	-	-
Low Impact Industry	24.5 ha	-	24.5 ha	16.6 ha	67.7%
Industry Investigation	31.4 ha	-	31.4 ha	23.2 ha	74.0%
Total	**129.5 ha**	**73.6 ha**	**55.9 ha**	**39.8 ha**	**30.7%**

Note: *Includes developed land with unoccupied sheds
**Excludes development approval for sheds and outdoor storage

Source: Mackay Regional Council, Ethos Urban

Table A.18: Industrial Land Supply by Precinct, Marian, March 2020

Precinct	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land **	Proportion of Zoned Area
Mirani	14.8 ha	-	14.8 ha	8.9 ha	60.3%
North Eton	9.7 ha	-	9.7 ha	7.7 ha	79.0%
Pleystowe Mill	25.5 ha	25.5 ha	-	-	-
Marian Mill	48.2 ha	48.2 ha	-	-	-
Marian Investigation Precinct	31.4 ha	-	31.4 ha	23.2 ha	74.0%
Total	**129.5 ha**	**73.6 ha**	**55.9 ha**	**39.8 ha**	**30.7%**

Note: *Includes developed land with unoccupied sheds
**Excludes development approval for sheds and outdoor storage

Source: Mackay Regional Council, Ethos Urban

Table A.19: Developed Industrial Land by Land Use, Marian, March 2020

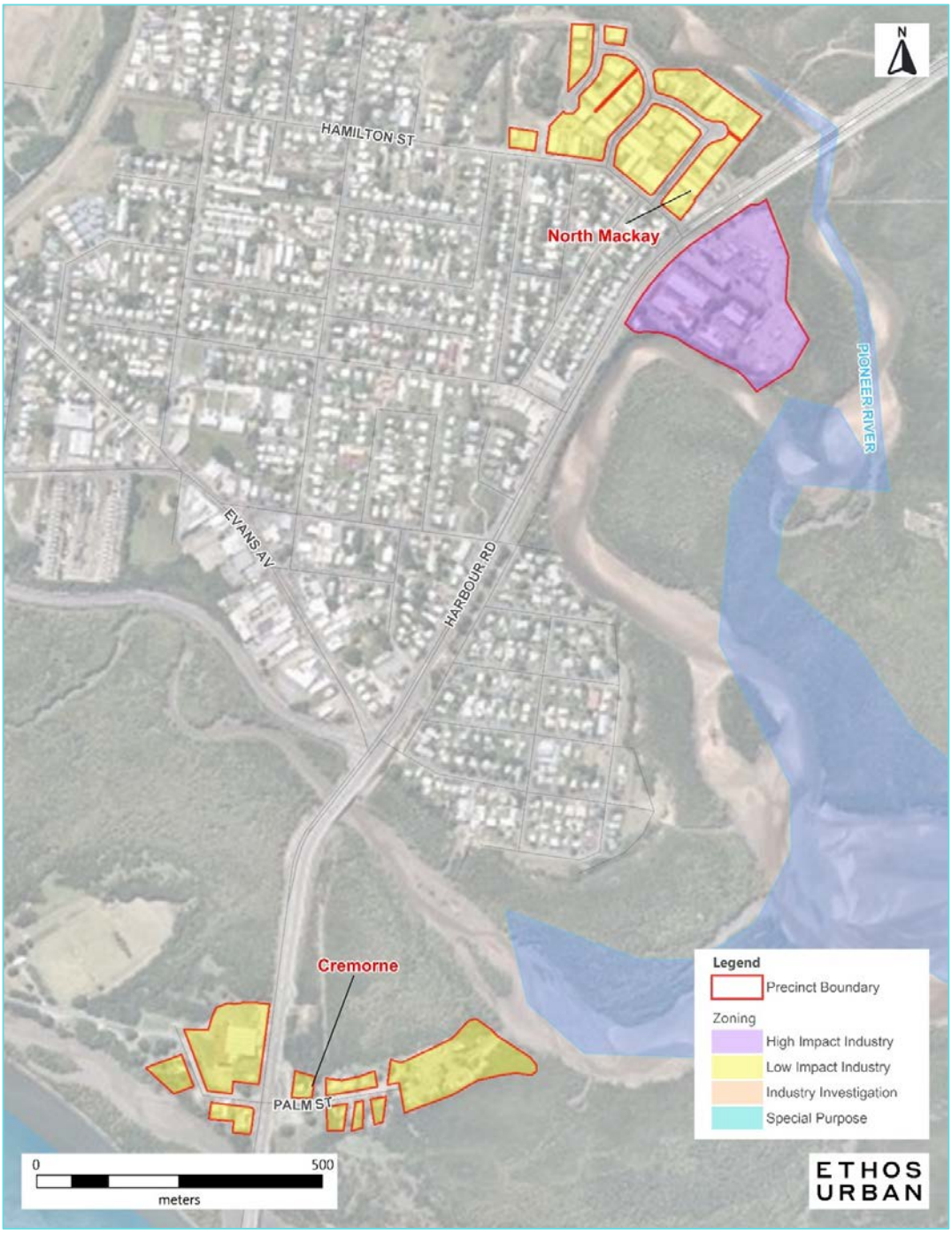
Land Use	Developed Industrial				
	High Impact		Low Impact		Total
	(ha)	(%)	(ha)	(%)	(ha)
ANZSIC Industry Division					
Manufacturing	70.0 ha	95.0%	-	-	70.0 ha
Electricity, Gas, Water and Waste Services	3.7 ha	5.0%	-	-	3.7 ha
Other Services	-	-	-	-	-
Construction	-	-	-	-	-
Professional, Scientific and Technical Services	-	-	-	-	-
Administrative and Support Services	-	-	-	-	-
Rental, Hiring and Real Estate Services	-	-	-	-	-
Retail Trade	-	-	-	-	-
Education and Training	-	-	-	-	-
Financial and Insurance Services	-	-	-	-	-
Wholesale Trade	-	-	-	-	-
Transport, Postal and Warehousing	-	-	-	-	-
Arts and Recreation Services	-	-	-	-	-
Public Administration and Safety	-	-	-	-	-
Accommodation and Food Services	-	-	-	-	-
Mining	-	-	-	-	-
Agriculture, Forestry and Fishing	-	-	-	-	-
Health Care and Social Assistance	-	-	-	-	-
Information Media and Telecommunications	-	-	-	-	-
Sub-total	**73.6 ha**	**100.0%**	-	-	**73.6 ha**
Other Land Uses					
Road Access	-	-	-	-	-
Stormwater Drain	-	-	-	-	-
Vacant	-	-	-	-	-
Sub-total	-	-	-	-	-
Total	**73.6 ha**	**100.0%**	-	-	**73.6 ha**

Note: Vacant land refers to legal hardstand/outdoor storage and vacant sheds.

Source: Mackay Regional Council, Ethos Urban

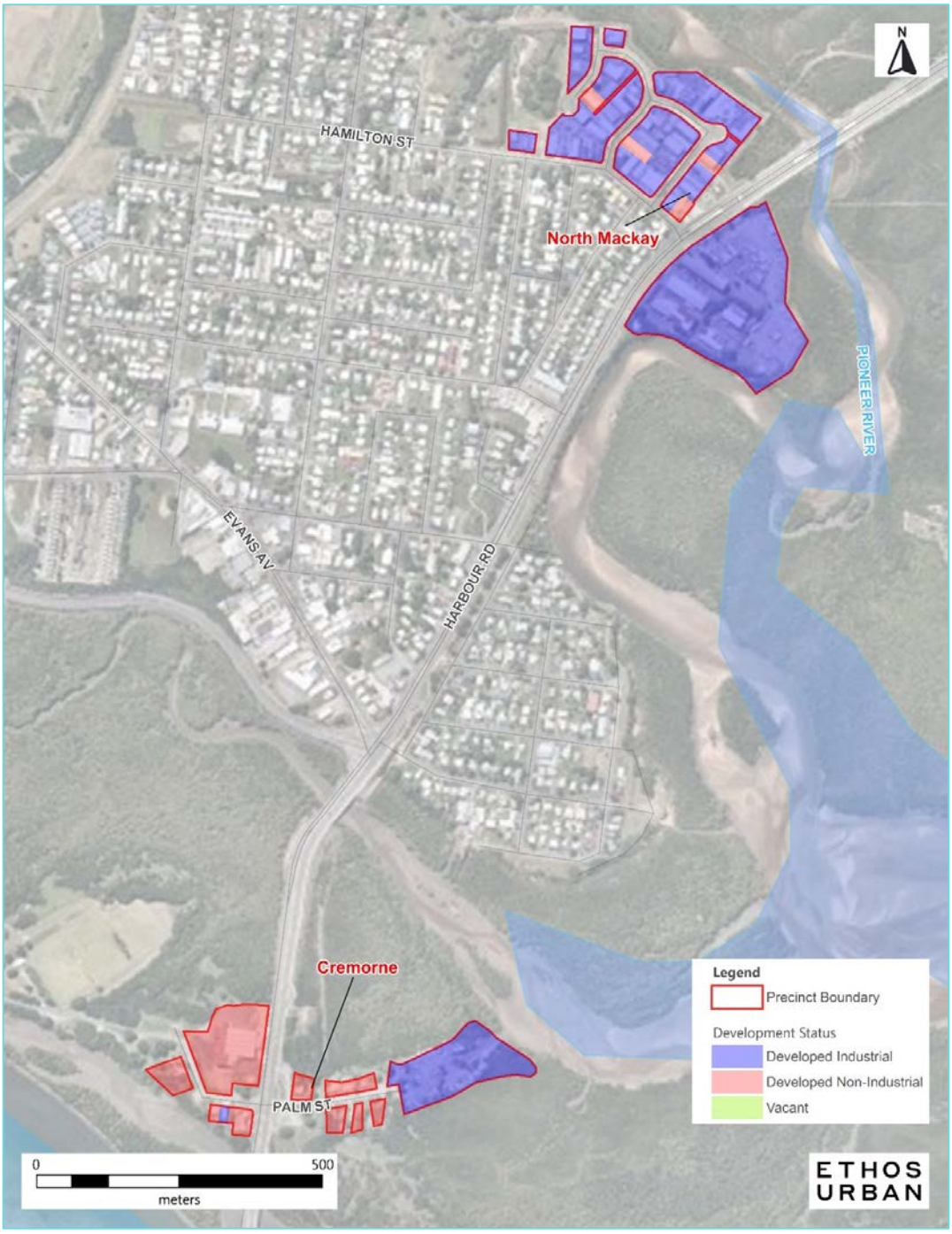
A.1.8 North Mackay - Cremorne

Figure A.15: North Mackay - Cremorne Industrial Precincts and Zoning, March 2020.



Source: Mackay Regional Council, Ethos Urban

Figure A.16: North Mackay - Cremorne Industrial Precincts and Development Status, March 2020.



Source: Mackay Regional Council, Ethos Urban

Table A.20: Industrial Land Supply, North Mackay - Cremorne, March 2020

Zone	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land**	Proportion of Zoned Area
High Impact Industry	5.7 ha	5.7 ha	-	-	-
Low Impact Industry	10.1 ha	10.1 ha	-	-	-
Industry Investigation	-	-	-	-	-
Total	**15.8 ha**	**15.8 ha**	**-**	**-**	**-**

Note: *Includes developed land with unoccupied sheds
**Excludes development approval for sheds and outdoor storage
Source: Mackay Regional Council, Ethos Urban

Table A.21: Industrial Land Supply by Precinct, North Mackay - Cremorne, March 2020

Precinct	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land **	Proportion of Zoned Area
Cremorne	4.8 ha	4.8 ha	-	-	-
North Mackay	11.1 ha	11.1 ha	-	-	-
Total	**15.8 ha**	**15.8 ha**	**-**	**-**	**-**

Note: *Includes developed land with unoccupied sheds
**Excludes development approval for sheds and outdoor storage
Source: Mackay Regional Council, Ethos Urban

Table A.22: Developed Industrial Land by Land Use, North Mackay - Cremorne, March 2020

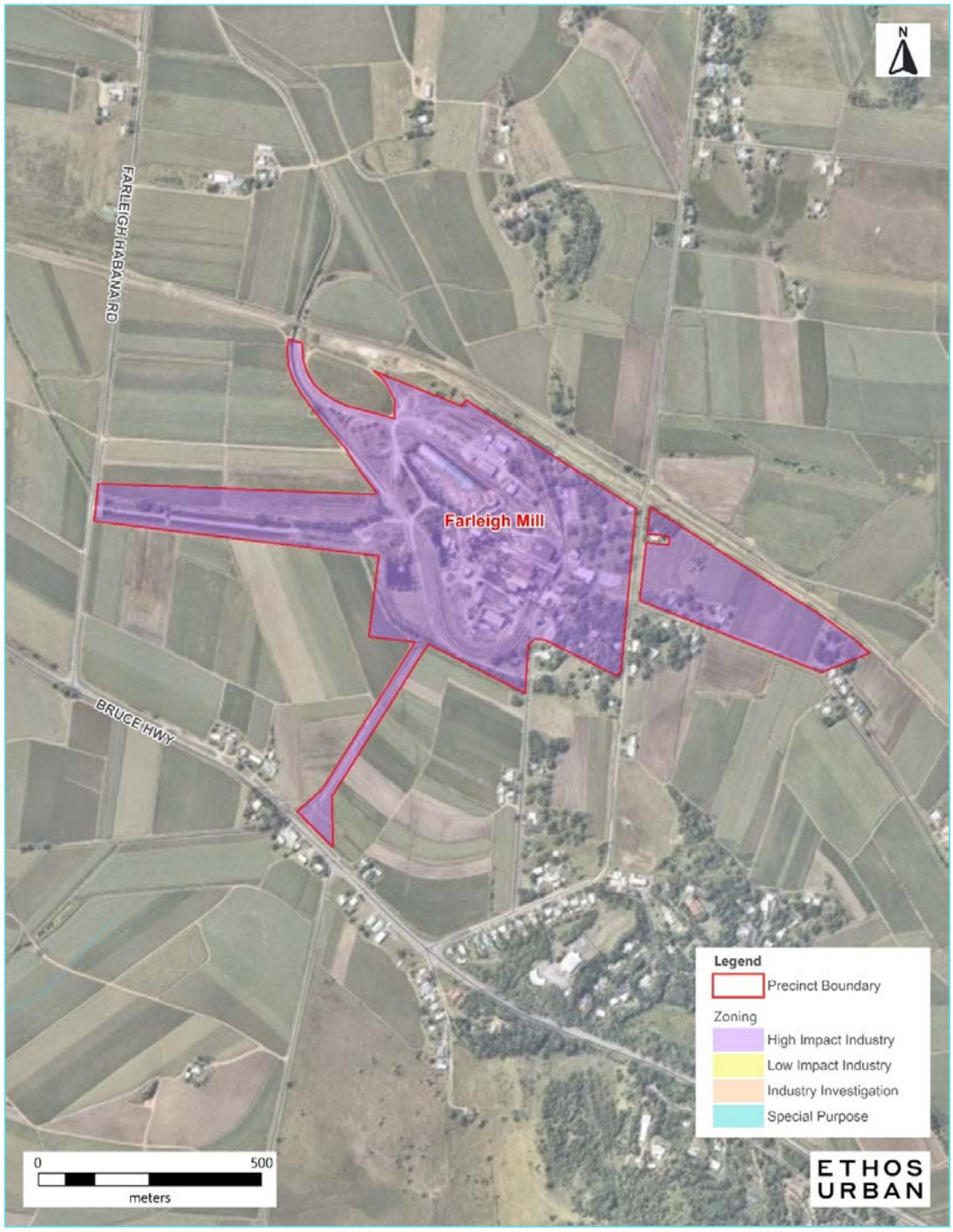
Land Use	Developed Industrial				
	High Impact		Low Impact		Total
	(ha)	(%)	(ha)	(%)	(ha)
ANZSIC Industry Division					
Manufacturing	5.7 ha	100.0%	1.6 ha	23.6%	7.4 ha
Other Services	-	-	3.2 ha	46.4%	3.2 ha
Construction	-	-	1.2 ha	17.8%	1.2 ha
Transport, Postal and Warehousing	-	-	0.5 ha	7.0%	0.5 ha
Rental, Hiring and Real Estate Services	-	-	0.3 ha	4.2%	0.3 ha
Retail Trade	-	-	0.0 ha	0.7%	0.0 ha
Electricity, Gas, Water and Waste Services	-	-	-	-	-
Professional, Scientific and Technical Services	-	-	-	-	-
Administrative and Support Services	-	-	-	-	-
Education and Training	-	-	-	-	-
Financial and Insurance Services	-	-	-	-	-
Wholesale Trade	-	-	-	-	-
Arts and Recreation Services	-	-	-	-	-
Public Administration and Safety	-	-	-	-	-
Accommodation and Food Services	-	-	-	-	-
Mining	-	-	-	-	-
Agriculture, Forestry and Fishing	-	-	-	-	-
Health Care and Social Assistance	-	-	-	-	-
Information Media and Telecommunications	-	-	-	-	-
Sub-total	**5.7 ha**	**100.0%**	**6.9 ha**	**99.6%**	**12.6 ha**
Other Land Uses					
Road Access	-	-	0.0 ha	0.4%	0.0 ha
Stormwater Drain	-	-	-	-	-
Vacant	-	-	-	-	-
Sub-total	-	-	**0.0 ha**	**0.4%**	**0.0 ha**
Total	**5.7 ha**	**100.0%**	**6.9 ha**	**100.0%**	**12.7 ha**

Note: Vacant land refers to legal hardstand/outdoor storage and vacant sheds.

Source: Mackay Regional Council, Ethos Urban

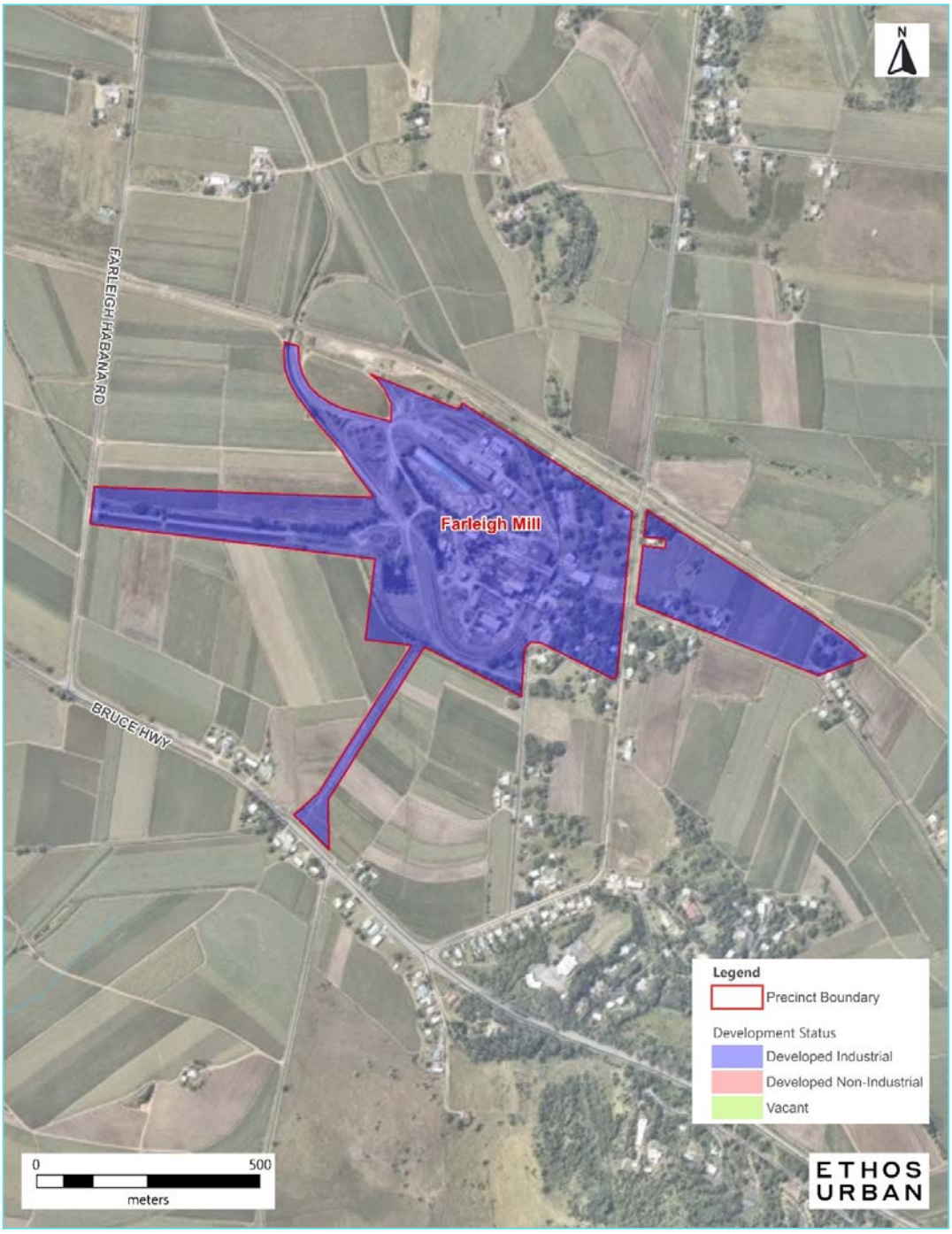
A.1.9 Farleigh Mill

Figure A.17: Farleigh Mill Industrial Precincts and Zoning, March 2020.



Source: Mackay Regional Council, Ethos Urban

Figure A.18: Farleigh Mill Industrial Precincts and Development Status, March 2020.



Source: Mackay Regional Council, Ethos Urban

Table A.23: Industrial Land Supply, Farleigh Mill, March 2020

Zone	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land**	Proportion of Zoned Area
High Impact Industry	46.3 ha	46.3 ha	-	-	-
Low Impact Industry	-	-	-	-	-
Industry Investigation	-	-	-	-	-
Total	**46.3 ha**	**46.3 ha**	**-**	**-**	**-**

Note: *Includes developed land with unoccupied sheds
**Excludes development approval for sheds and outdoor storage

Source: Mackay Regional Council, Ethos Urban

Table A.24: Developed Industrial Land by Land Use, Farleigh Mill, March 2020

Land Use	Developed Industrial				
	High Impact		Low Impact		Total
	(ha)	(%)	(ha)	(%)	(ha)
ANZSIC Industry Division					
Manufacturing	46.3 ha	100.0%	-	-	46.3 ha
Other Services	-	-	-	-	-
Construction	-	-	-	-	-
Transport, Postal and Warehousing	-	-	-	-	-
Rental, Hiring and Real Estate Services	-	-	-	-	-
Retail Trade	-	-	-	-	-
Electricity, Gas, Water and Waste Services	-	-	-	-	-
Professional, Scientific and Technical Services	-	-	-	-	-
Administrative and Support Services	-	-	-	-	-
Education and Training	-	-	-	-	-
Financial and Insurance Services	-	-	-	-	-
Wholesale Trade	-	-	-	-	-
Arts and Recreation Services	-	-	-	-	-
Public Administration and Safety	-	-	-	-	-
Accommodation and Food Services	-	-	-	-	-
Mining	-	-	-	-	-
Agriculture, Forestry and Fishing	-	-	-	-	-
Health Care and Social Assistance	-	-	-	-	-
Information Media and Telecommunications	-	-	-	-	-
Sub-total	**46.3 ha**	**100.0%**	-	-	**46.3 ha**
Other Land Uses					
Road Access	-	-	-	-	-
Stormwater Drain	-	-	-	-	-
Vacant	-	-	-	-	-
Sub-total	-	-	-	-	-
Total	**46.3 ha**	**100.0%**	-	-	**46.3 ha**

Note: Vacant land refers to legal hardstand/outdoor storage and vacant sheds.

Source: Mackay Regional Council, Ethos Urban

A.1.10 Rural View

Figure A.19: Rural View Industrial Precincts and Zoning, March 2020.

Source: Mackay Regional Council, Ethos Urban

Figure A.20: Rural View Industrial Precincts and Development Status, March 2020.

Source: Mackay Regional Council, Ethos Urban

Table A.25: Industrial Land Supply, Rural View, March 2020

Zone	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land**	Proportion of Zoned Area
High Impact Industry	-	-	-	-	-
Low Impact Industry	5.9 ha	3.9 ha	2.1 ha	0.6 ha	10.5%
Industry Investigation	-	-	-	-	-
Total	**5.9 ha**	**3.9 ha**	**2.1 ha**	**0.6 ha**	**10.5%**

Note: *Includes developed land with unoccupied sheds
**Excludes development approval for sheds and outdoor storage

Source: Mackay Regional Council, Ethos Urban

Table A.26: Developed Industrial Land by Land Use, Rural View, March 2020

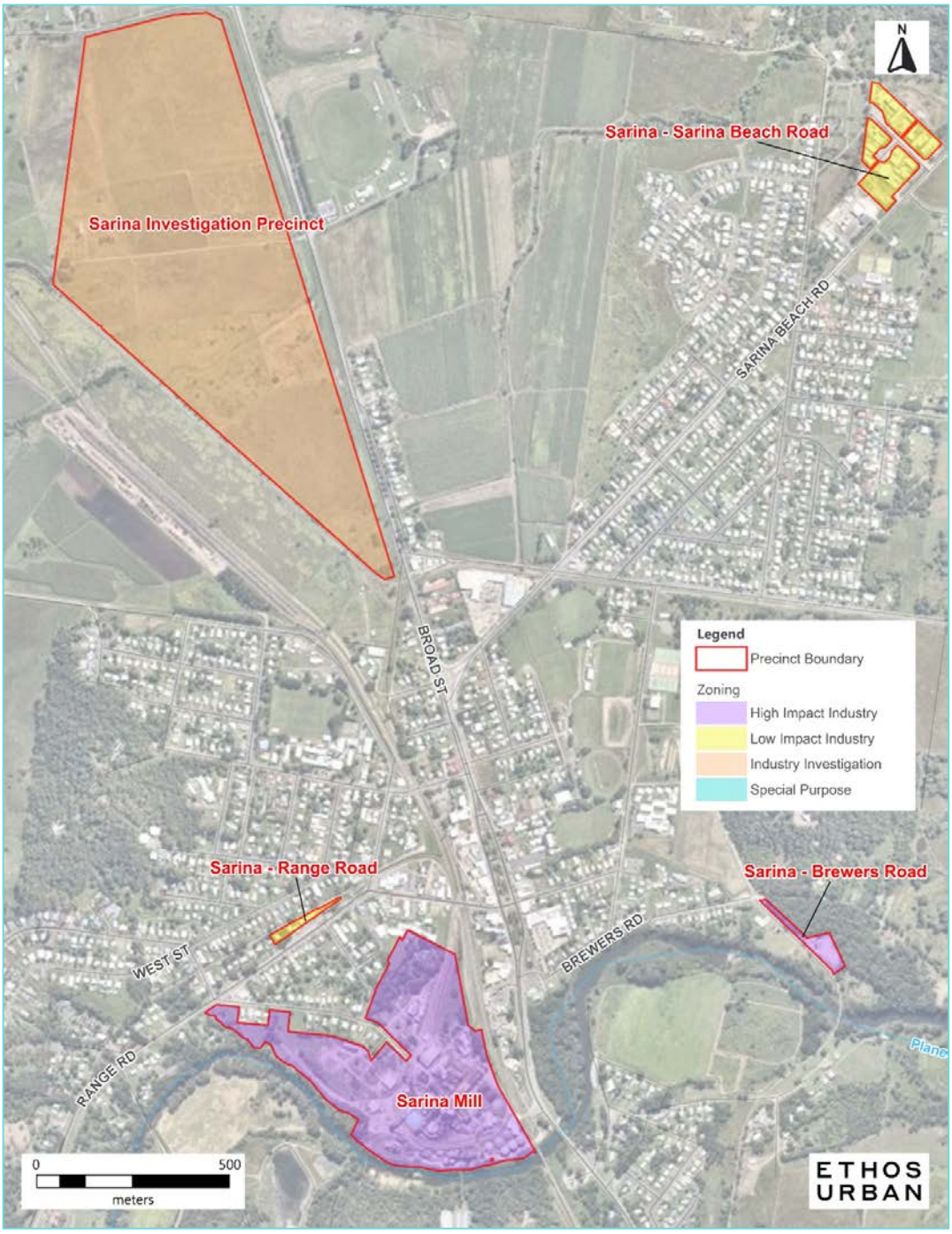
Land Use	Developed Industrial				
	High Impact		Low Impact		Total
	(ha)	(%)	(ha)	(%)	(ha)
ANZSIC Industry Division					
Retail Trade	-	-	2.3 ha	76.4%	2.3 ha
Other Services	-	-	0.3 ha	8.8%	0.3 ha
Professional, Scientific and Technical Services	-	-	0.0 ha	0.7%	0.0 ha
Electricity, Gas, Water and Waste Services	-	-	0.0 ha	0.6%	0.0 ha
Construction	-	-	0.0 ha	0.6%	0.0 ha
Manufacturing	-	-	-	-	-
Transport, Postal and Warehousing	-	-	-	-	-
Rental, Hiring and Real Estate Services	-	-	-	-	-
Administrative and Support Services	-	-	-	-	-
Education and Training	-	-	-	-	-
Financial and Insurance Services	-	-	-	-	-
Wholesale Trade	-	-	-	-	-
Arts and Recreation Services	-	-	-	-	-
Public Administration and Safety	-	-	-	-	-
Accommodation and Food Services	-	-	-	-	-
Mining	-	-	-	-	-
Agriculture, Forestry and Fishing	-	-	-	-	-
Health Care and Social Assistance	-	-	-	-	-
Information Media and Telecommunications	-	-	-	-	-
Sub-total	-	-	**2.6 ha**	**87.0%**	**2.6 ha**
Other Land Uses					
Road Access	-	-	0.3 ha	11.6%	0.3 ha
Stormwater Drain	-	-	-	-	-
Vacant	-	-	0.0 ha	1.3%	0.0 ha
Sub-total	-	-	**0.4 ha**	**13.0%**	**0.4 ha**
Total	-	-	**3.0 ha**	**100.0%**	**3.0 ha**

Note: Vacant land refers to legal hardstand/outdoor storage and vacant sheds.

Source: Mackay Regional Council, Ethos Urban

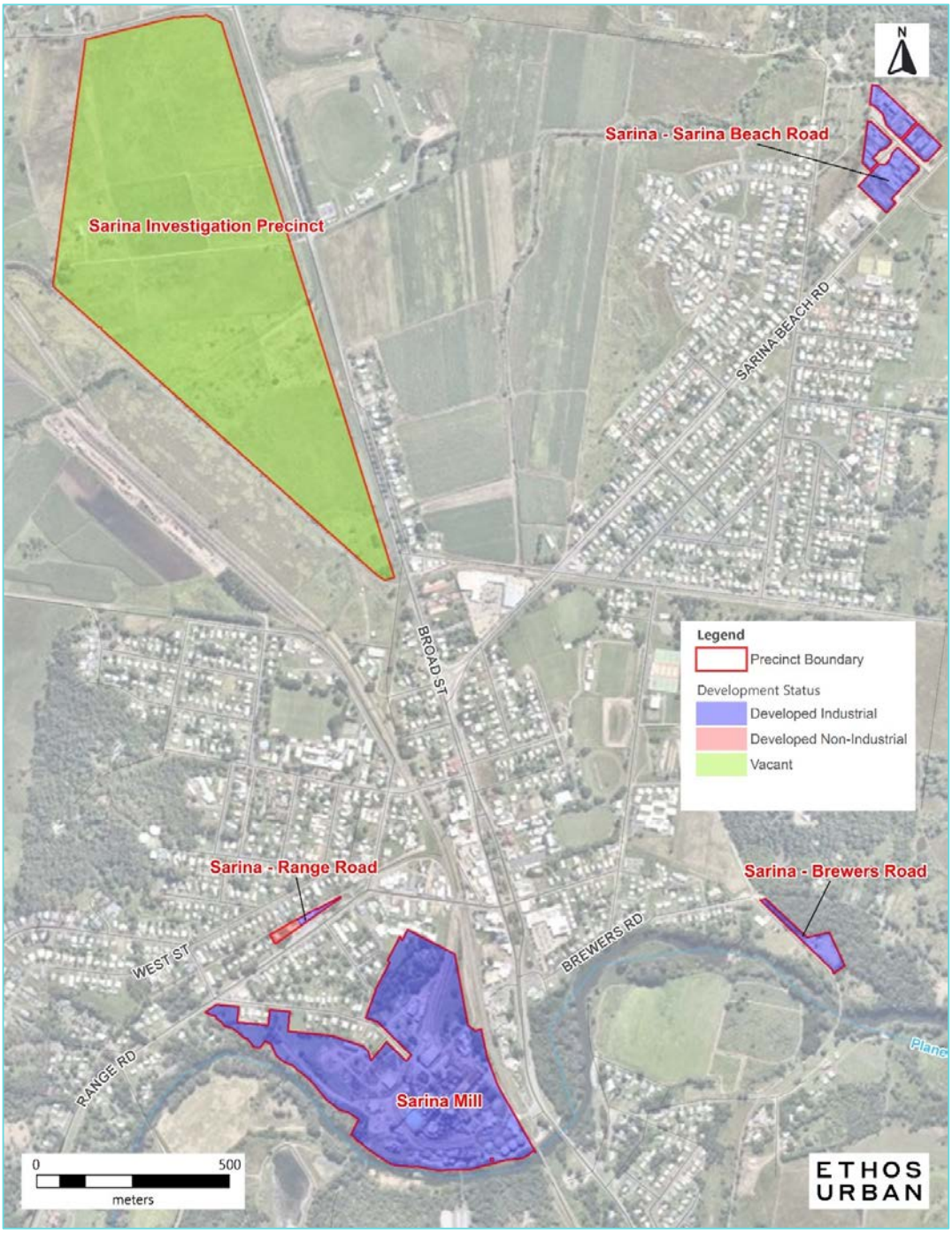
A.1.11 Sarina

Figure A.21: Sarina Industrial Precincts and Zoning, March 2020.



Source: Mackay Regional Council, Ethos Urban

Figure A.22: Sarina Industrial Precincts and Development Status, March 2020.



Source: Mackay Regional Council, Ethos Urban

Table A.27: Industrial Land Supply, Sarina, March 2020

Zone	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land**	Proportion of Zoned Area
High Impact Industry	22.0 ha	22.0 ha	-	-	-
Low Impact Industry	3.3 ha	3.3 ha	-	-	-
Industry Investigation	59.1 ha	-	59.1 ha	52.6 ha	88.9%
Total	**84.4 ha**	**25.3 ha**	**59.1 ha**	**52.6 ha**	**62.3%**

Note: *Includes developed land with unoccupied sheds
**Excludes development approval for sheds and outdoor storage

Source: Mackay Regional Council, Ethos Urban

Table A.28: Industrial Land Supply by Precinct, Sarina, March 2020

Precinct	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land **	Proportion of Zoned Area
Sarina - Brewers Road	0.7 ha	0.7 ha	-	-	-
Sarina - Range Road	0.3 ha	0.3 ha	-	-	-
Sarina - Sarina Beach Road	2.9 ha	2.9 ha	-	-	-
Sarina Investigation Precinct	59.1 ha	-	59.1 ha	52.6 ha	88.9%
Sarina Mill	21.3 ha	21.3 ha	-	-	-
Total	**84.4 ha**	**25.3 ha**	**59.1 ha**	**52.6 ha**	**62.3%**

Note: *Includes developed land with unoccupied sheds
**Excludes development approval for sheds and outdoor storage

Source: Mackay Regional Council, Ethos Urban

Table A.29: Developed Industrial Land by Land Use, Sarina, March 2020

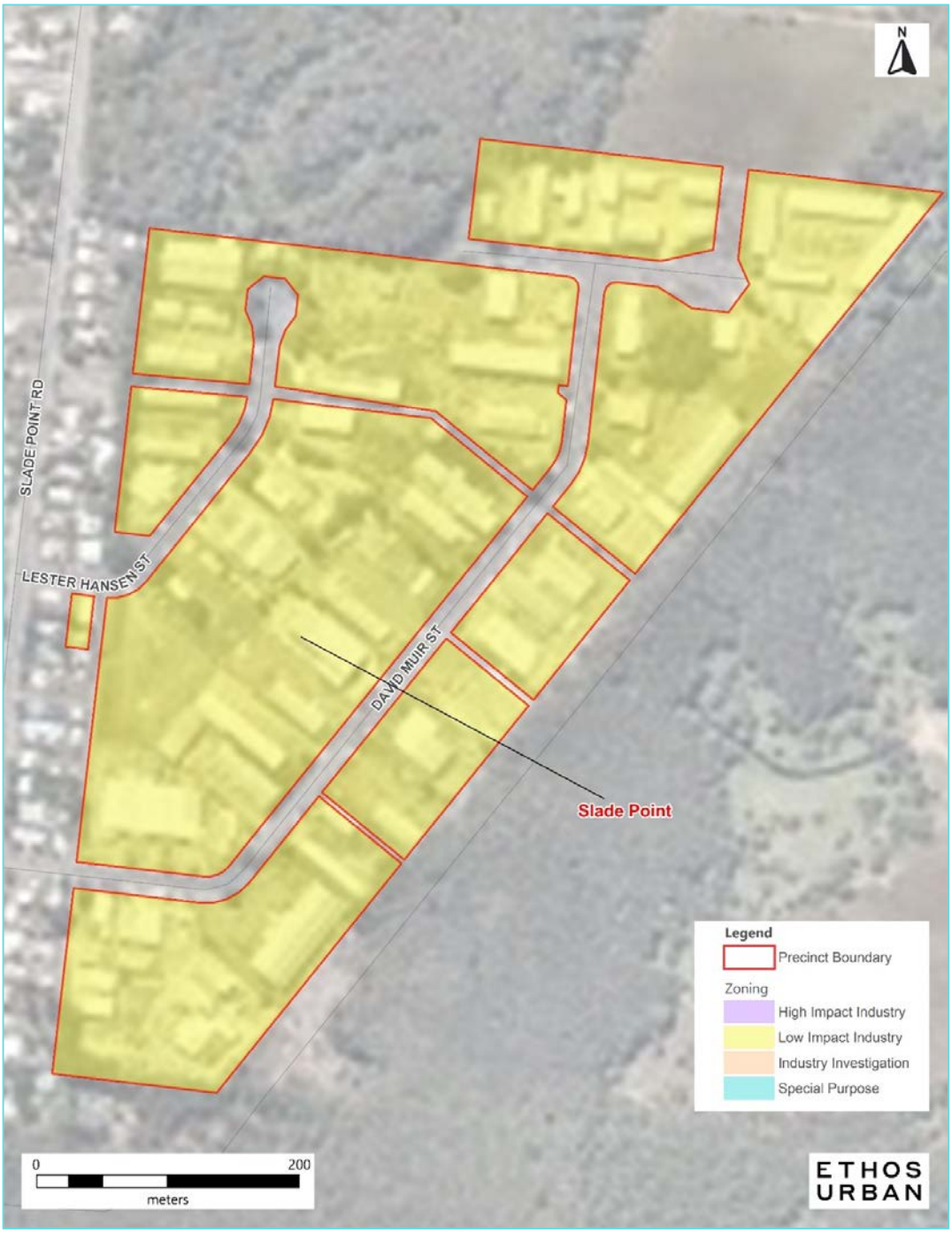
Land Use	Developed Industrial				
	High Impact		Low Impact		Total
	(ha)	(%)	(ha)	(%)	(ha)
ANZSIC Industry Division					
Manufacturing	22.0 ha	100.0%	0.4 ha	13.0%	22.4 ha
Other Services	-	-	0.9 ha	29.9%	0.9 ha
Transport, Postal and Warehousing	-	-	0.6 ha	18.5%	0.6 ha
Public Administration and Safety	-	-	0.5 ha	15.6%	0.5 ha
Rental, Hiring and Real Estate Services	-	-	0.3 ha	10.0%	0.3 ha
Wholesale Trade	-	-	0.2 ha	7.8%	0.2 ha
Retail Trade	-	-	-	-	-
Professional, Scientific and Technical Services	-	-	-	-	-
Electricity, Gas, Water and Waste Services	-	-	-	-	-
Construction	-	-	-	-	-
Administrative and Support Services	-	-	-	-	-
Education and Training	-	-	-	-	-
Financial and Insurance Services	-	-	-	-	-
Arts and Recreation Services	-	-	-	-	-
Accommodation and Food Services	-	-	-	-	-
Mining	-	-	-	-	-
Agriculture, Forestry and Fishing	-	-	-	-	-
Health Care and Social Assistance	-	-	-	-	-
Information Media and Telecommunications	-	-	-	-	-
Sub-total	**22.0 ha**	**100.0%**	**2.9 ha**	**94.8%**	**24.9 ha**
Other Land Uses					
Road Access	-	-	-	-	-
Stormwater Drain	-	-	-	-	-
Vacant	-	-	0.2 ha	5.2%	0.2 ha
Sub-total	-	-	**0.2 ha**	**5.2%**	**0.2 ha**
Total	**22.0 ha**	**100.0%**	**3.1 ha**	**100.0%**	**25.1 ha**

Note: Vacant land refers to legal hardstand/outdoor storage and vacant sheds.

Source: Mackay Regional Council, Ethos Urban

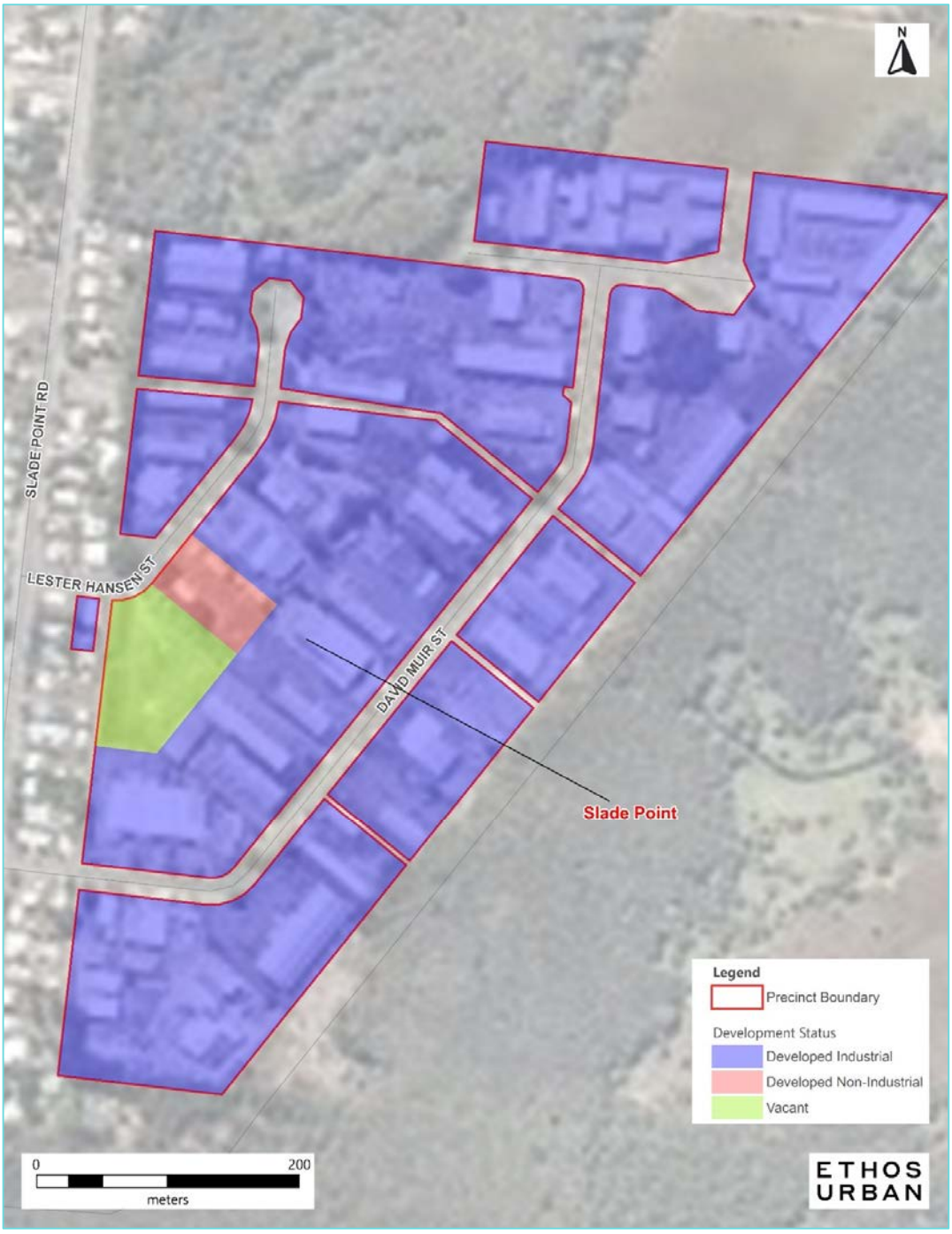
A.1.12 Slade Point

Figure A.23: Slade Point Industrial Precincts and Zoning, March 2020.



Source: Mackay Regional Council, Ethos Urban

Figure A.24: Slade Point Industrial Precincts and Development Status, March 2020.



Source: Mackay Regional Council, Ethos Urban

Table A.30: Industrial Land Supply, Slade Point, March 2020

Zone	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land**	Proportion of Zoned Area
High Impact Industry	-	-	-	-	-
Low Impact Industry	21.4 ha	20.5 ha	0.9 ha	0.9 ha	4.0%
Industry Investigation	-	-	-	-	-
Total	**21.4 ha**	**20.5 ha**	**0.9 ha**	**0.9 ha**	**4.0%**

Note: *Includes developed land with unoccupied sheds
**Excludes development approval for sheds and outdoor storage

Source: Mackay Regional Council, Ethos Urban

Table A.31: Developed Industrial Land by Land Use, Slade Point, March 2020

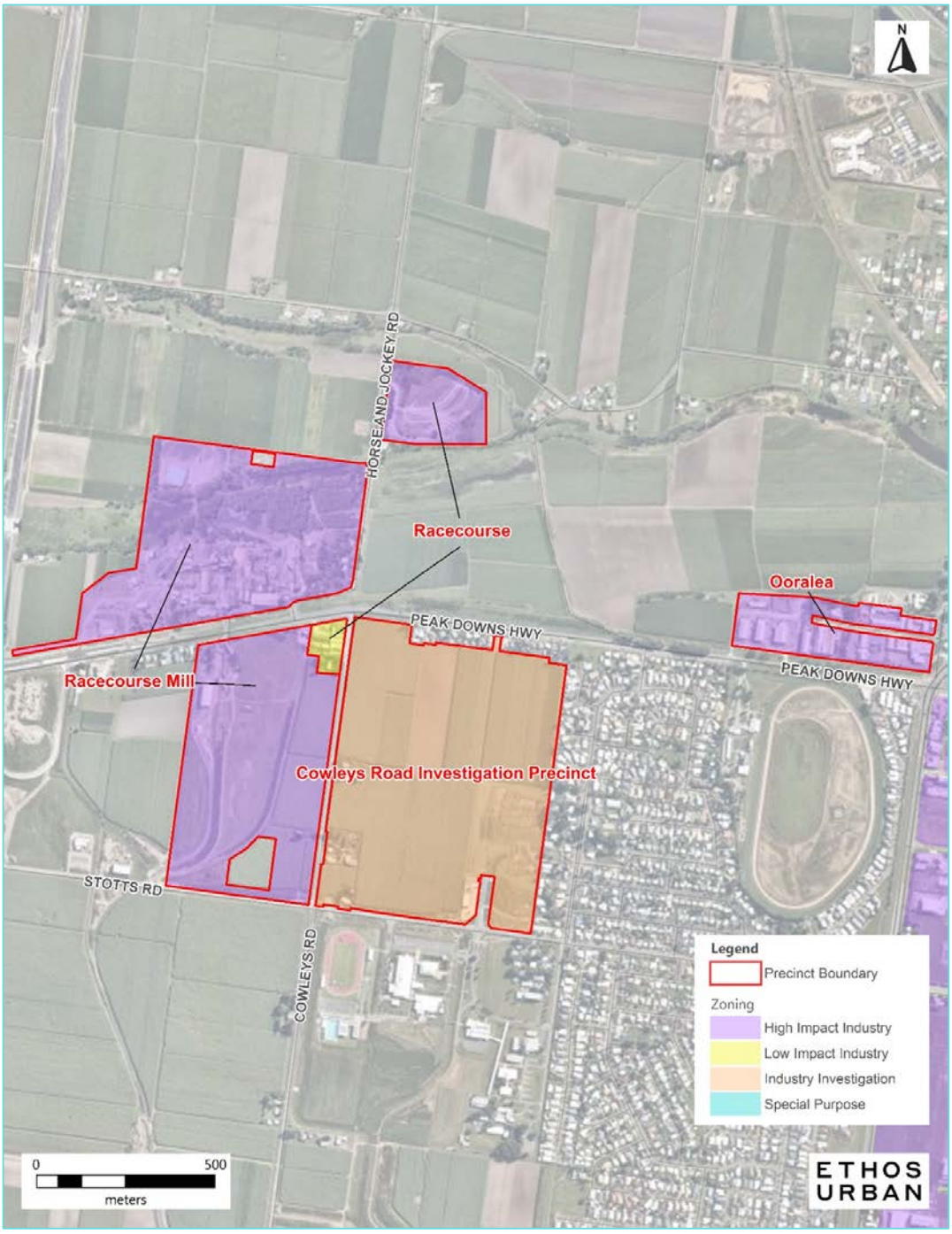
Land Use	Developed Industrial				
	High Impact		Low Impact		Total
	Area	Proportion	Area	Proportion	Total
ANZSIC Industry Division					
Manufacturing	-	-	8.2 ha	40.8%	8.2 ha
Other Services	-	-	3.2 ha	15.8%	3.2 ha
Transport, Postal and Warehousing	-	-	2.3 ha	11.4%	2.3 ha
Wholesale Trade	-	-	1.8 ha	9.1%	1.8 ha
Retail Trade	-	-	1.2 ha	6.1%	1.2 ha
Construction	-	-	0.7 ha	3.7%	0.7 ha
Administrative and Support Services	-	-	0.4 ha	2.2%	0.4 ha
Rental, Hiring and Real Estate Services	-	-	0.4 ha	2.0%	0.4 ha
Public Administration and Safety	-	-	-	-	-
Professional, Scientific and Technical Services	-	-	-	-	-
Electricity, Gas, Water and Waste Services	-	-	-	-	-
Education and Training	-	-	-	-	-
Financial and Insurance Services	-	-	-	-	-
Arts and Recreation Services	-	-	-	-	-
Accommodation and Food Services	-	-	-	-	-
Mining	-	-	-	-	-
Agriculture, Forestry and Fishing	-	-	-	-	-
Health Care and Social Assistance	-	-	-	-	-
Information Media and Telecommunications	-	-	-	-	-
Sub-total	-	-	**18.3 ha**	**91.1%**	**18.3 ha**
Other Land Uses					
Road Access	-	-	0.5 ha	2.5%	0.5 ha
Stormwater Drain	-	-	-	-	-
Vacant	-	-	1.3 ha	6.4%	1.3 ha
Sub-total	-	-	**1.8 ha**	**8.9%**	**1.8 ha**
Total	-	-	**20.1 ha**	**100.0%**	**20.1 ha**

Note: Vacant land refers to legal hardstand/outdoor storage and vacant sheds.

Source: Mackay Regional Council, Ethos Urban

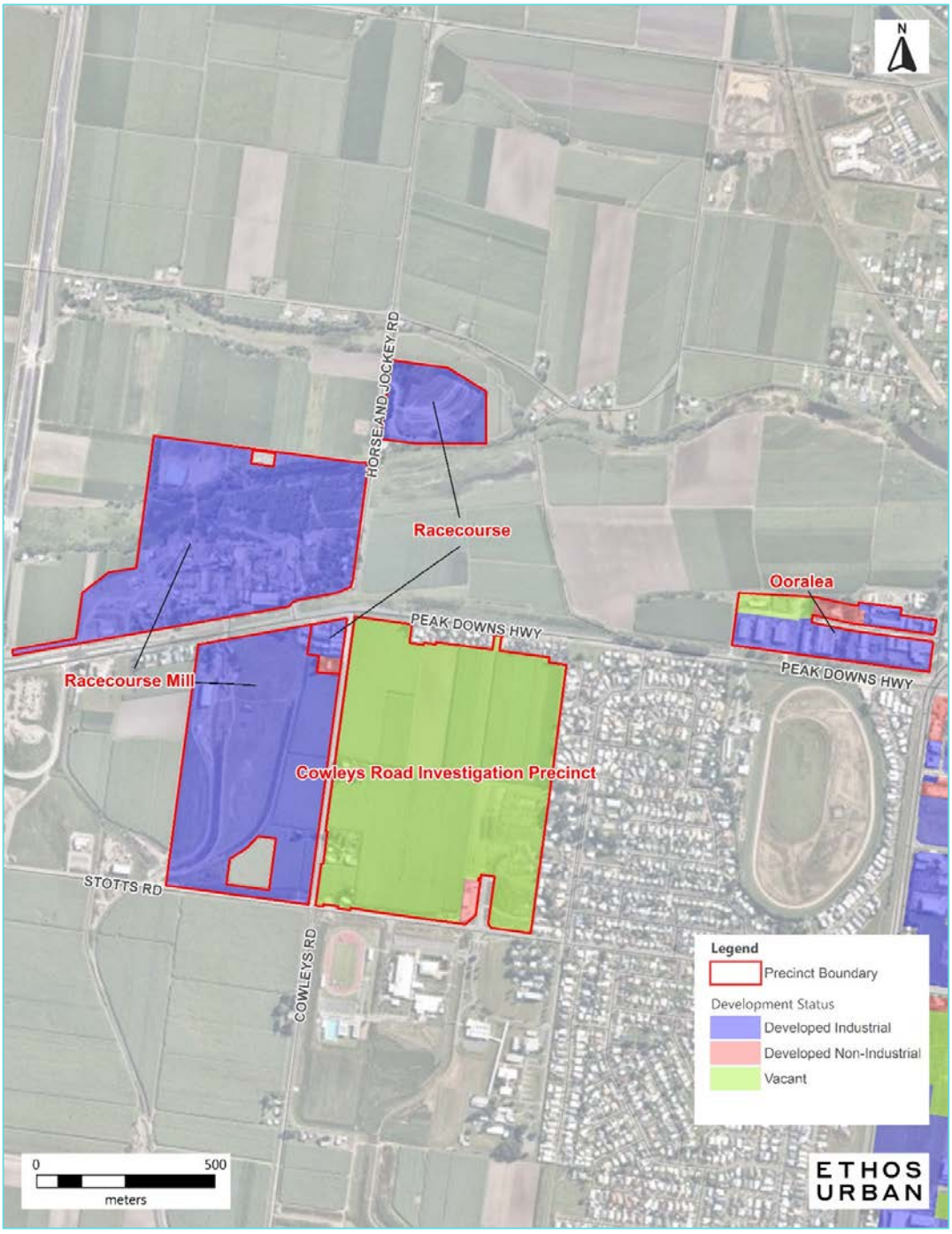
A.1.13 Racecourse

Figure A.25: Racecourse Industrial Precincts and Zoning, March 2020.



Source: Mackay Regional Council, Ethos Urban

Figure A.26: Racecourse Industrial Precincts and Development Status, March 2020.



Source: Mackay Regional Council, Ethos Urban

Table A.32: Industrial Land Supply, Racecourse, March 2020

Zone	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land**	Proportion of Zoned Area
High Impact Industry	70.9 ha	69.6 ha	1.3 ha	1.0 ha	1.4%
Low Impact Industry	1.2 ha	1.2 ha	-	-	-
Industry Investigation	46.2 ha	0.5 ha	45.7 ha	30.2 ha	65.4%
Total	**118.3 ha**	**71.3 ha**	**47.0 ha**	**31.2 ha**	**26.4%**

Note: *Includes developed land with unoccupied sheds
**Excludes development approval for sheds and outdoor storage

Source: Mackay Regional Council, Ethos Urban

Table A.33: Industrial Land Supply by Precinct, Racecourse, March 2020

Precinct	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land **	Proportion of Zoned Area
Ooralea	8.0 ha	6.7 ha	1.3 ha	1.0 ha	12.7%
Racecourse Mill	57.2 ha	57.2 ha	-	-	-
Cowleys Road Investigation Precinct	46.2 ha	0.5 ha	45.7 ha	30.2 ha	65.4%
Racecourse	6.9 ha	6.9 ha	-	-	-
Total	**118.3 ha**	**71.3 ha**	**47.0 ha**	**31.2 ha**	**26.4%**

Note: *Includes developed land with unoccupied sheds
**Excludes development approval for sheds and outdoor storage

Source: Mackay Regional Council, Ethos Urban

Table A.34: Developed Industrial Land by Land Use, Racecourse, March 2020

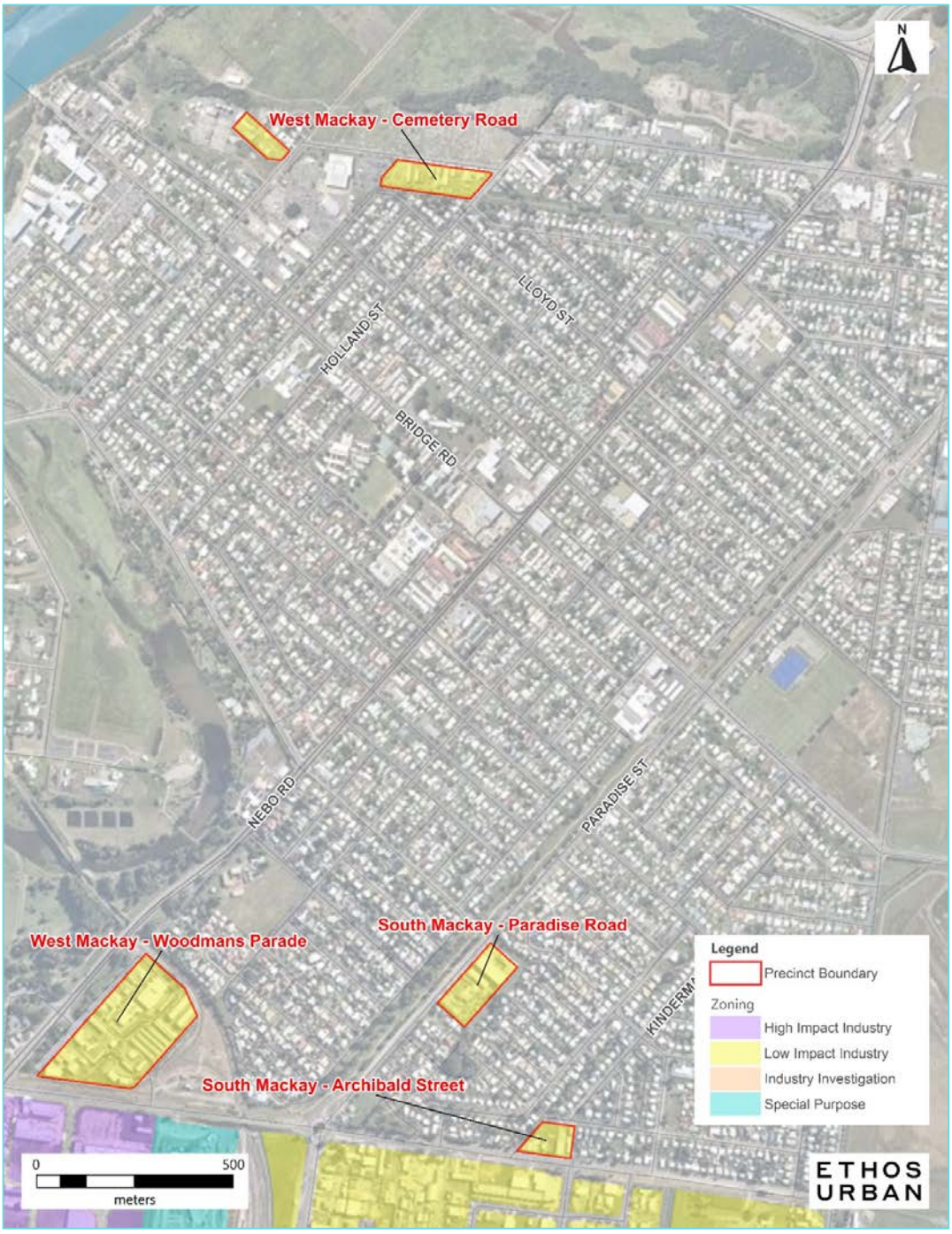
Land Use	Developed Industrial				
	High Impact		Low Impact		Total
	(ha)	(%)	(ha)	(%)	(ha)
ANZSIC Industry Division					
Manufacturing	64.4 ha	93.4%	0.6 ha	58.8%	64.9 ha
Agriculture, Forestry and Fishing	1.6 ha	2.4%	-	-	1.6 ha
Transport, Postal and Warehousing	1.6 ha	2.3%	-	-	1.6 ha
Administrative and Support Services	0.6 ha	0.8%	-	-	0.6 ha
Wholesale Trade	0.3 ha	0.4%	0.2 ha	22.3%	0.5 ha
Other Services	0.2 ha	0.4%	0.2 ha	18.9%	0.4 ha
Construction	0.1 ha	0.1%	-	-	0.1 ha
Retail Trade	0.1 ha	0.1%	-	-	0.1 ha
Rental, Hiring and Real Estate Services	-	-	-	-	-
Public Administration and Safety	-	-	-	-	-
Professional, Scientific and Technical Services	-	-	-	-	-
Electricity, Gas, Water and Waste Services	-	-	-	-	-
Education and Training	-	-	-	-	-
Financial and Insurance Services	-	-	-	-	-
Arts and Recreation Services	-	-	-	-	-
Accommodation and Food Services	-	-	-	-	-
Mining	-	-	-	-	-
Health Care and Social Assistance	-	-	-	-	-
Information Media and Telecommunications	-	-	-	-	-
Sub-total	**68.8 ha**	**99.9%**	**1.0 ha**	**100.0%**	**69.8 ha**
Other Land Uses					
Road Access	-	-	-	-	-
Stormwater Drain	-	-	-	-	-
Vacant	0.1 ha	0.1%	-	-	0.1 ha
Sub-total	**0.1 ha**	**0.1%**	-	-	**0.1 ha**
Total	**68.9 ha**	**100.0%**	**1.0 ha**	**100.0%**	**69.9 ha**

Note: Vacant land refers to legal hardstand/outdoor storage and vacant sheds.

Source: Mackay Regional Council, Ethos Urban

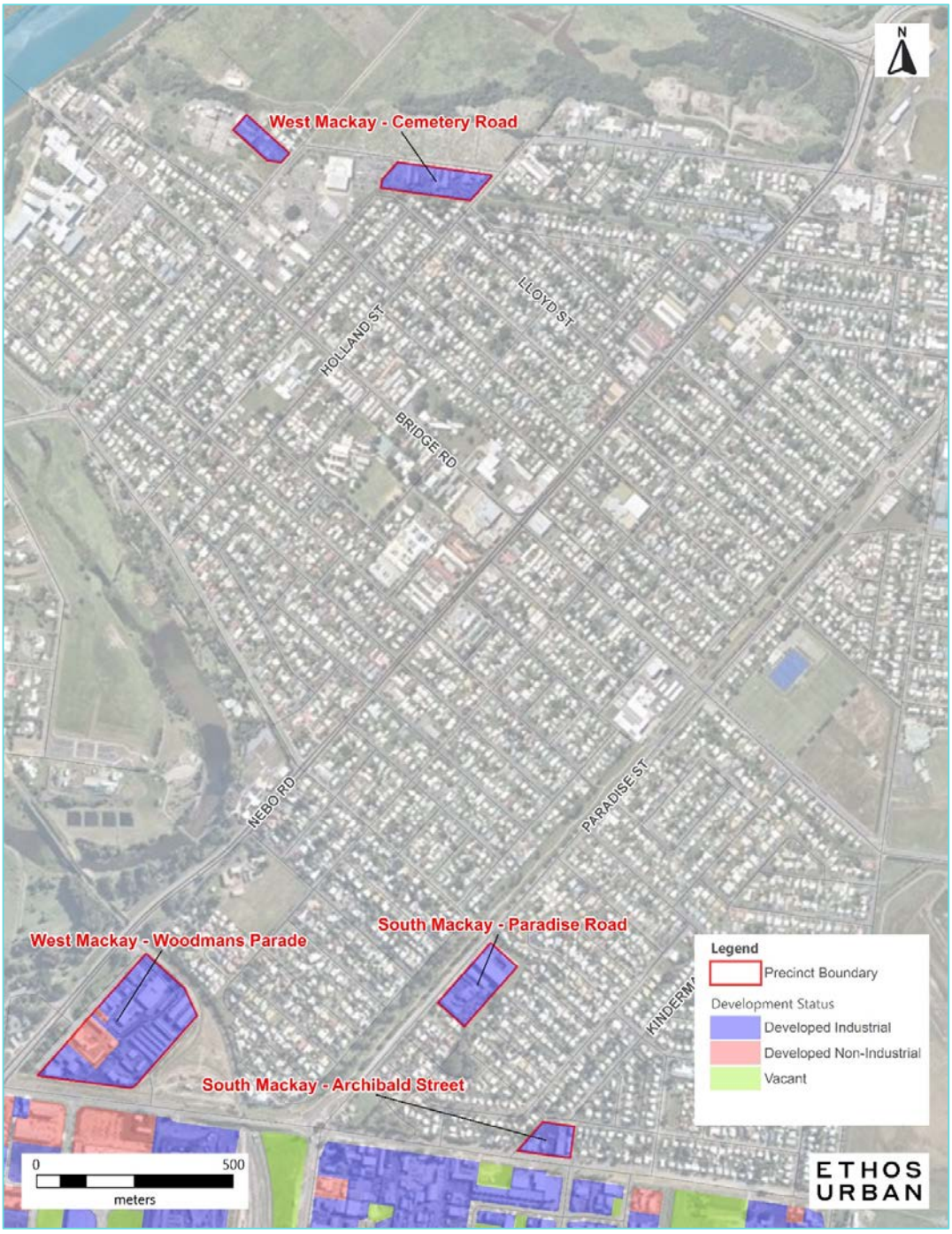
A.1.14 West and South Mackay

Figure A.27: West and South Mackay Industrial Precincts and Zoning, March 2020.



Source: Mackay Regional Council, Ethos Urban

Figure A.28: West and South Mackay Industrial Precincts and Development Status, March 2020.



Source: Mackay Regional Council, Ethos Urban

Table A.35: Industrial Land Supply, West and South Mackay, March 2020

Zone	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land**	Proportion of Zoned Area
High Impact Industry	-	-	-	-	-
Low Impact Industry	11.9 ha	11.9 ha	-	-	-
Industry Investigation	-	-	-	-	-
Total	**11.9 ha**	**11.9 ha**	**-**	**-**	**-**

Note: *Includes developed land with unoccupied sheds
**Excludes development approval for sheds and outdoor storage
Source: Mackay Regional Council, Ethos Urban

Table A.36: Industrial Land Supply by Precinct, West and South Mackay, March 2020

Precinct	Zoned Area	Developed*	Gross Vacant Land	Net Vacant Land **	Proportion of Zoned Area
South Mackay - Archibald Street	0.9 ha	0.9 ha	-	-	-
South Mackay - Paradise Road	1.8 ha	1.8 ha	-	-	-
West Mackay - Cemetery Road	2.4 ha	2.4 ha	-	-	-
West Mackay - Nebo Road	6.8 ha	6.8 ha	-	-	-
Total	**11.9 ha**	**11.9 ha**	**-**	**-**	**-**

Note: *Includes developed land with unoccupied sheds
**Excludes development approval for sheds and outdoor storage
Source: Mackay Regional Council, Ethos Urban

Table A.36: Developed Industrial Land by Land Use, West and South Mackay, March 2020

Land Use	Developed Industrial				
	High Impact		Low Impact		Total
	(ha)	(%)	(ha)	(%)	(ha)
ANZSIC Industry Division					
Transport, Postal and Warehousing	-	-	2.4 ha	22.2%	2.4 ha
Wholesale Trade	-	-	2.2 ha	20.5%	2.2 ha
Other Services	-	-	1.9 ha	17.8%	1.9 ha
Rental, Hiring and Real Estate Services	-	-	1.9 ha	17.2%	1.9 ha
Retail Trade	-	-	1.3 ha	11.6%	1.3 ha
Manufacturing	-	-	0.4 ha	3.4%	0.4 ha
Construction	-	-	0.3 ha	2.3%	0.3 ha
Mining	-	-	0.1 ha	0.7%	0.1 ha
Professional, Scientific and Technical Services	-	-	0.1 ha	0.7%	0.1 ha
Agriculture, Forestry and Fishing	-	-	-	-	-
Administrative and Support Services	-	-	-	-	-
Public Administration and Safety	-	-	-	-	-
Electricity, Gas, Water and Waste Services	-	-	-	-	-
Education and Training	-	-	-	-	-
Financial and Insurance Services	-	-	-	-	-
Arts and Recreation Services	-	-	-	-	-
Accommodation and Food Services	-	-	-	-	-
Health Care and Social Assistance	-	-	-	-	-
Information Media and Telecommunications	-	-	-	-	-
Sub-total	-	-	**10.6 ha**	**96.5%**	**10.6 ha**
Other Land Uses					
Road Access	-	-	0.4 ha	3.5%	0.4 ha
Stormwater Drain	-	-	-	-	-
Vacant	-	-	-	-	-
Sub-total	-	-	**0.4 ha**	**3.5%**	**0.4 ha**
Total	-	-	**11.0 ha**	**100.0%**	**11.0 ha**

Note: Vacant land refers to legal hardstand/outdoor storage and vacant sheds.

Source: Mackay Regional Council, Ethos Urban

Appendix B – Review of Key Sites Raised Through Public Submission

MRC received submissions from landholders seeking to reclassify particular parcels of land to a zone that would support industrial development.

This Appendix summarises these key sites and provides commentary regarding the appropriateness of the requested changes. The sites are considered as part of this study in order to identify land that could be zoned industry investigation, low impact industrial or high impact industrial if the existing supply of zoned land proved to be inadequate.

However, this study has found that, even under the high growth demand scenario, the existing stock of land zoned industrial, industry investigation and Rosella is adequate to meet requirements.

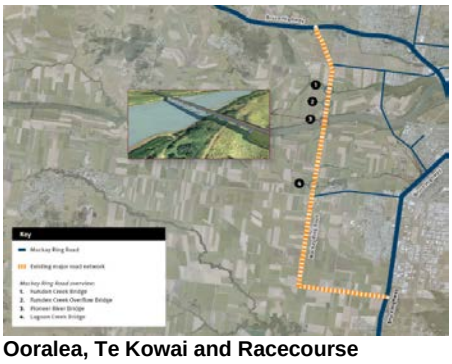
Accordingly, none of the sites discussed below are considered to warrant any reclassification to a zone that would support industrial development before 2040.

Table B.1: Land not required before 2040

Site	Commentary regarding appropriateness of change in zoning to support industrial development
 **Blacks Beach** Lot 944 on SP287942	**No change warranted.** Rationale for comment: - Would result in reverse amenity issues in relation to the existing low-density residential development to the south, east and north. - It is acknowledged that industrial zoned land, located nearby at Slade Point and Rural View is close to being fully occupied i.e. gross vacant land totalling 0.9ha and 2.1ha respectively. - Industrial development on this land would conflict with the anticipated type of land uses assumed by the surrounding residents to eventuate over time. - There is sufficient capacity of, and suitable level of access to, industrial zoned land at a local government level. The proposed expansion areas referenced in the body of the report cater for all anticipated growth scenarios of low and high impact industrial development up until 2040. Economic Development Queensland (EDQ), a part of the Queensland Government has purchased 211 hectares of land within Rosella for industrial development. This landholding, whilst not predicted to be needed prior to 2040 (under the Steady State scenario), would be the next logical extension of industrial zoned land due to its size, masterplanning opportunity, separation from sensitive uses and its logical extension of Paget and Bakers Creek.

Site	Commentary regarding appropriateness of change in zoning to support industrial development
 **Beaconsfield** Lots 1-2 on SP249146	**No change warranted.** Rationale for comment: - The subject site is constrained by flood and coastal hazard overlays. As noted in the 2016 submissions report, filling of the entire site to ensure appropriate resilience from these hazards would unlikely be supported by Council. - The subject site is located outside of the Priority Infrastructure Area, as a result does not form part of Council's Local Government Infrastructure Plan. Out-of-sequence development is not supported as it results in a piecemeal approach to infrastructure delivery and subsequent inefficiencies such as additional costs and ongoing expenses that are the responsibility of Council which could otherwise be avoided by promoting development within areas intended for further urban development. - There is sufficient capacity of, and suitable level of access to, industrial zoned land at a local government level. The proposed expansion areas referenced in the body of the report cater for all anticipated growth scenarios of low and high impact industrial development up until 2040. Economic Development Queensland (EDQ), a part of the Queensland Government has purchased 211 hectares of land within Rosella for industrial development. This landholding, whilst not predicted to be needed prior to 2040 (under the Steady State scenario), would be the next logical extension of industrial zoned land due to its size, master planning opportunity, separation from sensitive uses and its logical extension of Paget and Bakers Creek.

Site	Commentary regarding appropriateness of change in zoning to support industrial development
 **Glenella** Lot 4 on RP702672 Lots 1-2 on RP731455 Lot 6 on RP855619 Lot 2 on RP702669 Lots 1, 2 and 4 on RP702683	**No change warranted.** Rationale for comment: - The subject sites are constrained by flood and coastal hazard overlays. As noted in the 2016 submissions report, filling of the entire site to ensure appropriate resilience from these hazards would unlikely be supported by Council. - The subject sites are located outside of the Priority Infrastructure Area, as a result does not form part of Council's Local Government Infrastructure Plan. Out-of-sequence development is not supported as it results in a piecemeal approach to infrastructure delivery and subsequent inefficiencies such as additional costs and ongoing expenses that are the responsibility of Council which could otherwise be avoided by promoting development within areas intended for further urban development. - There is sufficient capacity of, and suitable level of access to, industrial zoned land at a local government level. The proposed expansion areas referenced in the body of the report cater for all anticipated growth scenarios of low and high impact industrial development up until 2040. Economic Development Queensland (EDQ), a part of the Queensland Government has purchased 211 hectares of land within Rosella for industrial development. This landholding, whilst not predicted to be needed prior to 2040 (under the Steady State scenario), would be the next logical extension of industrial zoned land due to its size, master planning opportunity, separation from sensitive uses and its logical extension of Paget and Bakers Creek.

Site	Commentary regarding appropriateness of change in zoning to support industrial development
Sites along Ring Road alignment (No valid property descriptions provided – see below Ring Road alignment based on Department of Transport and Main Roads mapping).  **Ooralea, Te Kowai and Racecourse**	**No change warranted.** Rationale for comment: - The Mackay Ring Road (currently unnamed) will reduce heavy vehicle traffic from travelling through Mackay's northern and southern residential suburbs. The role of the ring road is to accommodate regional trips as opposed to serving as an arterial road for general use for local trips. As a result, were the land adjacent to the corridor to be developed for industrial development it would compromise the efficiency of this road to perform its intended function. - Were the corridor to be developed with industrial development along its adjacent properties it would create an industrial border around the west of Mackay's urban area, restricting future expansion into his area for sensitive uses such as residential development. - The subject sites are located outside of the Priority Infrastructure Area, as a result does not form part of Council's Local Government Infrastructure Plan. Out-of-sequence development is not supported as it results in a piecemeal approach to infrastructure delivery and subsequent inefficiencies such as additional costs and ongoing expenses that are the responsibility of Council which could otherwise be avoided by promoting development within areas intended for further urban development. - There is sufficient capacity of, and suitable level of access to, industrial zoned land at a local government level. The proposed expansion areas referenced in the body of the report cater for all anticipated growth scenarios of low and high impact industrial development up until 2040. Economic Development Queensland (EDQ), a part of the Queensland Government has purchased 211 hectares of land within Rosella for industrial development. This landholding, whilst not predicted to be needed prior to 2040 (under the Steady State scenario), would be the next logical extension of industrial zoned land due to its size, master planning opportunity, separation from sensitive uses and its logical extension of Paget and Bakers Creek.

Site	Commentary regarding appropriateness of change in zoning to support industrial development
 **Racecourse** Lots 1-2 on SP199183 Lot 1 on RP709560 Lot 3 on SP183077 Lots 2-4 on RP707206 Lots 3-4 on SP312217 Lot 2 on RP723578 Lots 1-2 on SP312217 Lot 4 on RP704746 Lot 26 on SP293555 Lot 8 on RP724007 Lot 25 on SP293555 Lot 195 on SP29355	**No change warranted.** Rationale for comment: - The subject sites are south of the Racecourse Sugar Mill. The current policy position is that the land within the High impact industry zone, as part of the Sugar Mill Precinct, is used for industrial uses that support the Sugar Mill as well as a substation use. The transition of rural zoned land adjacent to this area for industrial development would be in conflict with this position. - The location of the sugar mill use is based on historic decision making, with surrounding uses establishing around the mill over a long period of time of a rural nature. The location of the mill and its underlying zoning are not sufficient grounds to expand the area further for industrial development. The Paget industrial estate and proposed expansion areas represent the logical areas for industrial uses to commence over the life of the planning scheme and beyond up until 2040. Refer to the report for discussion regarding the rationale for these areas to be used for expansion of industrial uses. - Access will be difficult to achieve due to the Mackay ring road i.e. the planned off-ramp which traverses the collection of sites. Whilst access may be achieved it would likely require solutions that would require master planning of all sites. - The subject sites are located outside of the Priority Infrastructure Area, as a result does not form part of Council's Local Government Infrastructure Plan. Out-of-sequence development is not supported as it results in a piecemeal approach to infrastructure delivery and subsequent inefficiencies such as additional costs and ongoing expenses that are the responsibility of Council which could otherwise be avoided by promoting development within areas intended for further urban development. - There is sufficient capacity of, and suitable level of access to, industrial zoned land at a local government level. The proposed expansion areas referenced in the body of the report cater for all anticipated growth scenarios of low and high impact industrial development up until 2040. Economic Development Queensland (EDQ), a part of the Queensland Government has purchased 211 hectares of land within Rosella for industrial development. This landholding, whilst not predicted to be needed prior to 2040 (under the Steady State scenario), would be the next logical extension of industrial zoned land due to its size, master planning opportunity, separation from sensitive uses and its logical extension of Paget and Bakers Creek.

Site	Commentary regarding appropriateness of change in zoning to support industrial development
 **Racecourse** Lot 214 on CI196	**No change warranted.** Rationale for comment: - Access will be difficult to achieve due to the Mackay ring road i.e. the relevant frontages are both used as queuing areas for traffic entering and exiting Te Kowai Foulden Road. - The subject sites are located outside of the Priority Infrastructure Area, as a result does not form part of Council's Local Government Infrastructure Plan. Out-of-sequence development is not supported as it results in a piecemeal approach to infrastructure delivery and subsequent inefficiencies such as additional costs and ongoing expenses that are the responsibility of Council which could otherwise be avoided by promoting development within areas intended for further urban development. - There is sufficient capacity of, and suitable level of access to, industrial zoned land at a local government level. The proposed expansion areas referenced in the body of the report cater for all anticipated growth scenarios of low and high impact industrial development up until 2040. Economic Development Queensland (EDQ), a part of the Queensland Government has purchased 211 hectares of land within Rosella for industrial development. This landholding, whilst not predicted to be needed prior to 2040 (under the Steady State scenario), would be the next logical extension of industrial zoned land due to its size, master planning opportunity, separation from sensitive uses and its logical extension of Paget and Bakers Creek.

Site	Commentary regarding appropriateness of change in zoning to support industrial development
 **Paget** Lot 1 on RP733682 Lot 3 on SP156139 Lot 5 on SP156139	**No change warranted.** Rationale for comment: - The subject sites are generally below 4m AHD and affected by coastal hazards and flooding. Based on advice from Mackay Regional Council, areas below this height, within this local area, are subject to flooding and coastal hazard. - The Boundary Road East Precinct,located to the west of the subject sites is better suited for accommodating industrial development due to the logical extension of infrastructure from the Paget industrial estate as well as these properties being generally above 5m AHD. - The subject site is located outside of the Priority Infrastructure Area, as a result does not form part of Council's Local Government Infrastructure Plan. Out-of-sequence development is not supported as it results in a piecemeal approach to infrastructure delivery and subsequent inefficiencies such as additional costs and ongoing expenses that are the responsibility of Council which could otherwise be avoided by promoting development within areas intended for further urban development. - There is sufficient capacity of, and suitable level of access to, industrial zoned land at a local government level. The proposed expansion areas referenced in the body of the report cater for all anticipated growth scenarios of low and high impact industrial development up until 2040. - Economic Development Queensland (EDQ), a part of the Queensland Government has purchased 211 hectares of land within Rosella for industrial development. This landholding, whilst not predicted to be needed prior to 2040 (under the Steady State scenario), would be the next logical extension of industrial zoned land due to its size, master planning opportunity, separation from sensitive uses and its logical extension of Paget and Bakers Creek.

Site	Commentary regarding appropriateness of change in zoning to support industrial development
 **Paget** Lot 11 on SP266407	**No change warranted.** Rationale for comment: - The subject site is generally below 4m AHD and affected by coastal hazards and flooding. Based on advice from Mackay Regional Council, areas below this height, within this local area, are subject to flooding and coastal hazard. - The Boundary Road East Precinct located to the north of the subject site is better suited for accommodating industrial development due to the logical extension of infrastructure from the Paget industrial estate as well as these properties being generally above 5m AHD. - The subject site is located outside of the Priority Infrastructure Area, as a result does not form part of Council's Local Government Infrastructure Plan. Out-of-sequence development is not supported as it results in a piecemeal approach to infrastructure delivery and subsequent inefficiencies such as additional costs and ongoing expenses that are the responsibility of Council which could otherwise be avoided by promoting development within areas intended for further urban development. - There is sufficient capacity of, and suitable level of access to, industrial zoned land at a local government level. The proposed expansion areas referenced in the body of the report cater for all anticipated growth scenarios of low and high impact industrial development up until 2040. - Economic Development Queensland (EDQ), a part of the Queensland Government has purchased 211 hectares of land within Rosella for industrial development. This landholding, whilst not predicted to be needed prior to 2040 (under the Steady State scenario), would be the next logical extension of industrial zoned land due to its size, master planning opportunity, separation from sensitive uses and its logical extension of Paget and Bakers Creek.

Site	Commentary regarding appropriateness of change in zoning to support industrial development
 **Rosella** Lot 841 on SP186663	**No change warranted.** Rationale for comment: - The subject site is located outside of the Priority Infrastructure Area, as a result does not form part of Council's Local Government Infrastructure Plan. Out-of-sequence development is not supported as it results in a piecemeal approach to infrastructure delivery and subsequent inefficiencies such as additional costs and ongoing expenses that are the responsibility of Council which could otherwise be avoided by promoting development within areas intended for further urban development. - There is sufficient capacity of, and suitable level of access to, industrial zoned land at a local government level. The proposed expansion areas referenced in the body of the report cater for all anticipated growth scenarios of low and high impact industrial development up until 2040. - Economic Development Queensland (EDQ), a part of the Queensland Government has purchased 211 hectares of land within Rosella for industrial development. This landholding, whilst not predicted to be needed prior to 2040 (under the Steady State scenario), would be the next logical extension of industrial zoned land due to its size, master planning opportunity, separation from sensitive uses and its logical extension of Paget and Bakers Creek.

Site	Commentary regarding appropriateness of change in zoning to support industrial development
 **Rosella** Lot 2 on RP735626	**No change warranted.** Rationale for comment: - The subject site is already located within the Rosella Investigation Area and could be will be developed as part of the suggested sequencing of industrial land supply. - However, it is outside of the Priority Infrastructure Area, as a result does not form part of Council's Local Government Infrastructure Plan. Out-of-sequence development is not supported as it results in a piecemeal approach to infrastructure delivery and subsequent inefficiencies such as additional costs and ongoing expenses that are the responsibility of Council which could otherwise be avoided by promoting development within areas intended for further urban development. - There is sufficient capacity of, and suitable level of access to, industrial zoned land at a local government level. The proposed expansion areas referenced in the body of the report cater for all anticipated growth scenarios of low and high impact industrial development up until 2040. Economic Development Queensland (EDQ), a part of the Queensland Government has purchased 211 hectares of land within Rosella for industrial development. This landholding, whilst not predicted to be needed prior to 2040 (under the Steady State scenario), would be the next logical extension of industrial zoned land due to its size, master planning opportunity, separation from sensitive uses and its logical extension of Paget and Bakers Creek.

Site	Commentary regarding appropriateness of change in zoning to support industrial development
Rosella Investigation Area (No property descriptions provided)	**No immediate change warranted, as Rosella is shown in planning scheme as Investigation Area, and would be appropriately sequenced for development to respond to industrial land supply as per growth scenario in the next 20 years.** **Continue to monitor industrial land supply to confirm the future need for the Rosella Investigation Area to accommodate industrial development.** Rationale for comment: - The subject site is located outside of the Priority Infrastructure Area, as a result does not form part of Council's Local Government Infrastructure Plan. Out-of-sequence development is not supported as it results in a piecemeal approach to infrastructure delivery and subsequent inefficiencies such as additional costs and ongoing expenses that are the responsibility of Council which could otherwise be avoided by promoting development within areas intended for further urban development. - The planning scheme states that the expansion into this area is not considered within the life of this scheme i.e. 2037. - The findings of this study reinforce this policy position. The Steady State scenario, documented below, does not Rosella to come online until 2040, whilst for the High Growth scenario it's 2033. Whilst within the High Growth scenario does require the Rosella area to come online within the life of the scheme there is no immediate need to amend the planning scheme to reflect this unless the demand assumed within this scenario is realised over the short to medium term. Further to this Economic Development Queensland (EDQ) has purchased a 211.0ha portion of Rosella. EDQ, which has interests in land of strategic or regional significance, would make the land available for industry after Paget, Boundary Road East and Paget South were at capacity if there was a need in the market.

Site	Commentary regarding appropriateness of change in zoning to support industrial development
 **Eton** Lot 28 on SP278048	**No change warranted in view of finding of sufficient industrial land supply. In addition, the site is distant from access to the resident workforce, road and port infrastructure, mutual benefits from clustered industrial activity and does not support efficient use of trunk infrastructure.** Rationale for comment: - Whilst the subject site has an active preliminary approval for the Eton Transit Centre, this does not create an opportunity for the site to become an investigation area for future industrial development. The preliminary approval was considered in the context of specific uses i.e. service station, transport terminal, heavy vehicle parking and catering shop. - The subject site is located outside of the Priority Infrastructure Area, as a result does not form part of Council's Local Government Infrastructure Plan. Out-of-sequence development is not supported as it results in a piecemeal approach to infrastructure delivery that results in inefficiencies such as additional costs and ongoing expenses that are the responsibility of Council which could otherwise be avoided by promoting development within areas intended for further urban development. - There is sufficient capacity of, and suitable level of access to, industrial zoned land at a local government level. The proposed expansion areas referenced in the body of the report cater for all anticipated growth scenarios of low and high impact industrial development up until 2040. Economic Development Queensland (EDQ), a part of the Queensland Government has purchased 211 hectares of land within Rosella for industrial development. This landholding, whilst not predicted to be needed prior to 2040 (under the Steady State scenario), would be the next logical extension of industrial zoned land due to its size, master planning opportunity, separation from sensitive uses and its logical extension of Paget and Bakers Creek.

Site	Commentary regarding appropriateness of change in zoning to support industrial development
 **Sarina** Lot 52 on SP208536	**No change warranted due to having sufficient industrial land.** Rationale for comment: - Creating industrial land would result in reverse amenity issues in relation to the existing low-density residential development to the north-west and south-east of this site. - Industrial development on this land would conflict with the anticipated type of land uses assumed by the surrounding residents that will eventuate. - There is sufficient capacity of, and suitable level of access to, industrial zoned land at a local government level. The proposed expansion areas referenced in the body of the report cater for all anticipated growth scenarios of low and high impact industrial development up until 2040. Economic Development Queensland (EDQ), a part of the Queensland Government has purchased 211 hectares of land within Rosella for industrial development. This landholding, whilst not predicted to be needed prior to 2040 (under the Steady State scenario), would be the next logical extension of industrial zoned land due to its size, master planning opportunity, separation from sensitive uses and its logical extension of Paget and Bakers Creek.
 **Eton** Lot 72 on CI2257 Lot 2 on RP722063 Lot 9 on RP816731 Lot 1 on RP703948	**This land has been zoned as Low impact industry as a result of the submission and would be developed as the need arises.** Rationale for comment: - The sites have historically been identified for industrial development – being the former Eton Mill site. - Whilst the location of the sites does not support the envisaged and logical settlement pattern for industrial development within the Mackay LGA, the Low impact zoning allows for compatible development with the surrounding residential and rural land uses. Development would depend on a specific local need for industrial use.