# Queensland Recreational Boating Facilities Demand Forecasting Study 2017

## Ipswich City Council Assessment

GHD

ECONOMIC ASSOCIATES

December 2017

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# Table of contents



# Appendices

# Definitions

‘all-tide’ means that a vessel can be realistically launched into or retrieved from the waterway at the site for 100% of the tidal range

‘ARI’ means average recurrence interval, and refers to the average or expected time period between two occurrences of weather exceeding a certain magnitude

‘capacity’ means the ability to handle throughput for boat ramps, or the ability to handle multiple vessels at pontoons and floating walkways

‘CHMP’ means Cultural Heritage Management Plan

‘CPM Reg’ means the *Coastal Protection and Management Regulation 2003*

‘CTU’ means ‘car-trailer unit’, and applies to parking bays suitable for use by a tow vehicle with attached boat trailer

‘DEE’ means the Department of the Environment and Energy (Commonwealth)

‘DEHP’ means the Department of Environment and Heritage Protection

‘demand’ means the current or projected requirement at a given year to service the needs of the recreational boating community – assuming full effectiveness of existing facilities and based on current numbers of registered recreational boats only. Excludes non-registered vessels such as canoes, kayaks, sail-boards, row boats, powered vessels not requiring registration, etc.

‘effective capacity’ for a boat ramp means the number of lanes for boat ramps after adjusting for usage constraints such as the lack of adequate parking or tidal accessibility, or improvements to efficiency such as floating walkways or pontoons, see section 4.1.1 for additional detail

‘EPBC Act’ means the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth)

‘FHA’ means Fish Habitat Area

‘GBR’ means Great Barrier Reef

‘IDAS’ means Integrated Development Assessment System

‘landings’ means jetty and pontoon structures that facilitate direct berthing of non-trailable vessels (keel boats and >8.0m powerboats), transient vessels and/or tenders from larger vessels (where effective anchoring or mooring is available nearby)

‘land-side’ refers to infrastructure constructed above high water mark

‘LGA’ means local government area

‘MCU’ means a material change of use under the planning scheme

‘MIIP’ means the TMR works program known as the Marine Infrastructure Investment Program, with the government’s Marine Infrastructure Fund forming its capital component

‘MNES’ means matter of national environmental significance under the EPBC Act

‘NC Act’ means the *Nature Conservation Act 1992*

‘near all-tide’ means that a vessel can be realistically launched into or retrieved from the waterway at the site for at least 80% of the tidal range

‘NNTT” means National Native Title Tribunal

‘P Act’ means the *Planning Act 2016*

‘P Reg’ means the *Planning Regulation 2017*

‘part-tide’ means that a vessel can be realistically launched into or retrieved from the waterway at the site for at least 50% of the tidal range

‘registration activation rate’ means the percentage of registered vessels liable to be in use on any given good weather weekend day

‘shd’ means schedule

‘shortfall’ means the outstanding number of boat ramp lanes or landings as appropriate (assuming announced TMR projects/upgrades at December 2016 have been built) required to satisfy demand at a particular year, after adjustment for actual number and effective capacity considerations. A negative number for shortfall in a table signifies an oversupply

‘SPL’ means strategic port land

‘Study’ means this document including appendices and the state-wide summary

‘TMR’ means the Department of Transport and Main Roads

‘water-side’ refers to infrastructure constructed below high water mark

‘WHA’ means World Heritage Area

# means ‘number’ when used in tables

# Executive summary

This study sets out the current and future demand for publicly accessible recreational boating facilities within the Ipswich City Council area over the next 20 years. The assessment considers facilities for vessels, such as boat ramps and floating walkways. It is intended to be used to inform funding priorities from 2018-19 onwards. Due to the inland nature of the LGA, landings for deep-draught vessels have not been considered.

### *Key issues for Ipswich City Council*

The primary issue raised by stakeholders around access to recreational boating facilities in the Ipswich City Council area centred on safe launching and retrieval, and car-trailer unit parking capacity.

### *Demand assessment*

The demand assessment is based on boat registrations from within the local government area (LGA) of Ipswich and surrounding LGAs. The demand assessment is analysed against existing capacity to produce an outstanding shortfall projection. Key aspects influencing demand considered in the assessment include:

- The population of Ipswich City Council is projected to increase from 200,123 persons in 2016 to 494,461 persons in 2036, or by 4.6% per annum. This is in marked contrast to the Queensland average of 1.6% (Appendix C) over the next five years.
- Boat registrations are highest for boats up to 4.5 metres in length.
- Trailable vessel registrations within the Ipswich LGA will mostly be used outside the LGA, with significant export in usage from the LGA to Gold Coast City Council, Brisbane City Council and Redland City Council areas.
- Non-trailable vessels are all expected to be used outside the Ipswich LGA in Gold Coast, Brisbane or Redland LGAs.
- The registration activation rate from residents of the LGA is anticipated to be low (8%) as a result of the designation of the Ipswich LGA as a metropolitan location.

### *Boat ramps*

At present there are five boat ramp facilities in the LGA, containing five boat ramp lanes, however the lack of parking for car-trailer units (CTU) and limited tidal access means that the effective capacity of these ramps is 2.3 lanes.

The projected boat ramp lane shortfall for Ipswich is shown in Table 1.

Table 1 – Projected boat ramp lane shortfall, Ipswich City Council

| Evaluation category* | Existing effective capacity* | 2016 | | 2021 | | 2026 | | 2036 | |
|---|---|---|---|---|---|---|---|---|---|
| | | Demand | Shortfall | Demand | Shortfall | Demand | Shortfall | Demand | Shortfall |
| **Total** | 2.3 | 3 | 0.7 | 4 | 1.7 | 5 | 2.7 | 8 | 5.7 |

**Refer section 4.1.2 and* Table 4 *for detailed evaluation categories*

**See Appendix B and* Table 4 *for capacity assessment*

### *Recommended priorities*

Refer to Table 2 for the Ipswich City Council area recommended priorities.

Recommended priorities to increase capacity and meet demand have been defined over the following time scales:

Priority 1 (P1) These sites are needed to meet existing demand.

Priority 2 (P2) Assuming that the priority 1 sites are implemented, these sites are expected to be needed to meet additional demand over the five years ending 2021.

Priority 3 (P3) Assuming that the priority 1 and 2 sites are implemented, these sites are expected to be needed to meet additional demand over the subsequent five years, that is 2021 to 2026.

Priority 4 (P4) These sites are those that will meet future demand, but are not expected to be required before 2026 in demand terms but may be brought forward for construction for other reasons.

Table 2 – Recommended priorities to increase capacity, Ipswich City Council area

| Priority | Sites |
|---|---|
| Priority 1 (as soon as possible) | Noel Kelly Drive, Goodna – reclaim land to allow reorientation of the ramp, expand the ramp to 2-lanes with a floating walkway, and expand parking area to achieve maximum practicable number of CTU spaces (approximately 25 CTU spaces). |
| Priority 2 (over the next five years) | Cribb Park – increase ramp to 2-lanes and expand parking to achieve approximately 45 CTU spaces. |
| Priority 3 (over the next five to ten years) | New facility at Joseph Brady Park, Barellan Point – 1-lane ramp with all-weather surface parking area for 10 CTUs. |
| Priority 4 (other) | New facility at Bremer Parade, Basin Pocket, 3-lane ramp with 45 CTU spaces. |
| | New facility at North Station Road, North Booval – 1-lane ramp with 15 CTU spaces. |

# 1. Introduction

## 1.1 Background

GHD was commissioned by the Department of Transport and Main Roads (TMR) to establish the current and future demand for recreational boating facilities throughout Queensland. This resulting study is the *Recreational Boating Facilities Demand Forecasting Study 2017* (Study) and supersedes the 2011 study of similar name. The study replaces the *Recreational Boating Facilities Demand Forecasting Study 2016* by incorporating the results of the 2016 census.

The Study will be used to inform planning for the development of existing and new recreational boating facilities by a variety of agencies, including TMR, the Gold Coast Waterways Authority, local government, and port and water authorities. The Study is one tool in a broader assessment process to select and prioritise sites for development. Specifically, the Study is not binding in any way on the agencies it is designed to assist. The Study establishes demand and makes informed suggestions as to how the established demand might be addressed. The 2011 study, at December 2016, has had 66% of its recommendations adopted to a greater or lesser extent. A similar recommendation take-up rate may be expected from this Study.

This local government area (LGA) report is one of a series of reports for the Study comprising LGA and state-wide components. The state-wide report details the Study background and provides an overview of demand for recreational boating facilities over the next 20 years throughout the state. The state-wide report complements individual reports for each LGA. Each LGA report identifies existing capacity, current and future demand, and potential opportunities for boating infrastructure – with appropriate adjustment for interaction with adjacent LGAs.

## 1.2 Context

This report has been prepared with a focus on in-water recreational facilities and infrastructure comprising boat ramps, floating walkways and landings within each LGA, which are publicly accessible by registered vessels. As car parking can significantly constrain the efficient use of a facility, it has been considered in the assessment. However, facilities used more than 50% of the time for commercial or public passenger transport (e.g. ferry terminals), private facilities (such as yacht clubs and marinas), and general recreational facilities such as canoe ramps and fishing platforms are not included in this study.

The types of infrastructure considered in the assessment of capacity are:

- boat ramps used for the launching and retrieval of vessels
- supporting infrastructure for the boat ramp:
  - queuing facilities (floating walkways, pontoons, queuing beaches)
  - parking for car-trailer units (CTUs)
- short-term landings accessible by deep-draught or non-trailable vessels on the outer face, or their tenders (for longer term tying up) on the inner/landward face or ends (in coastal or near coastal areas only).

There may be instances where a public pontoon serves multiple purposes – as a short-term landing, as a tender tying up facility, and as a queuing facility for a boat ramp.

# 2. Local government area overview

The key characteristics and influences on recreational boating within the Ipswich City Council area are that:

- The area is dominated by the key industries of manufacturing and agriculture, and is highly urbanised where associated with the greater Brisbane area.
- The population of Ipswich City Council is projected to increase from 200,123 persons in 2016 to 494,461 persons in 2036, or by 4.6% per annum. This is in marked contrast to the Queensland average of 1.6% (Appendix C) over the next five years, and the area is expected to experience one of the highest growth rates in the state over this time.
- The Ipswich LGA borders Brisbane LGA, with the Warrego and Cunningham Highways passing through as the major traffic route from inland LGAs (including Lockyer Valley and Toowoomba) to Brisbane.
- The area is part of the densely populated south-east Queensland region, and is considered to be a metropolitan LGA under the remoteness measures used by the Australian Bureau of Statistics.

# 3. Existing facilities

## 3.1 Overview of existing facilities

Within the Ipswich City Council area, existing recreational boating facilities are owned and managed by several organisations, shown in Table 3.

Table 3 – Recreational boating facilities within Ipswich City Council area

| Infrastructure owner | Boat ramps | | Landings | |
|---|---|---|---|---|
| | Facilities | Lanes | Pontoons | Jetties |
| TMR | 1 | 1 | 0 | 0 |
| Ipswich City Council | 4 | 4 | 2 | 0 |
| **Total** | **5** | **5** | **2** | **0** |

A map indicating the location of existing facilities is included as Appendix A.

Appendix B contains a summary capacity assessment of these existing facilities.

The facilities are located at:

- Noel Kelly Drive, Goodna
- Park Road, Barellan Point
- Cribb Park, North Ipswich
- Colleges Crossing, Karana Downs
- Shapcott Park, Coalfalls

Existing ramp facilities:

- service the main population centre of Ipswich
- service suburbs adjoining the Brisbane and Bremer Rivers
- provide estuarine access.

There are no deep-draught vessel landings within the LGA due to its non-coastal location, however there are several pontoons that act as fishing platforms, and landings for smaller vessels.

## 3.2 Key issues and hotspots

The primary issue raised by stakeholders around access to recreational boating facilities in the Ipswich City Council area centred on safety. Due to previous flooding events, upper reaches of both the Bremer and Brisbane Rivers can accumulate debris that can make sections of the rivers challenging to navigate due to submerged objects. Access to downstream portions of the two rivers is preferred in order to minimise interaction with submerged objects.

# 4. Capacity assessment

## 4.1 Boat ramp capacity

The function of a boat ramp is to provide access for launching and retrieval of trailable vessels into a waterway. Alternative launching facilities such as boat stackers are outside scope for this Study.

### 4.1.1 Boat ramp capacity evaluation

For the purposes of this Study, boat ramp capacity is measured as “effective” boat ramp lanes. An effective boat ramp is quantitatively characterised as being:

- capable of accommodating 40 launch / retrievals per lane per day (in accordance with Australian Standard AS 3962[1] and Economic Associates (2011)[2])
- supported by landside infrastructure such as queuing and manoeuvring areas
- supported by an appropriate number of CTU parking spaces.

The number of launch / retrievals per lane per day has been selected based on the relevant Australian Standard and Economic Associates (2011)[2]. This latter report summarised research undertaken by SKM (1988)[3] and Rose et. al (2009)[4], and stated that a rate of 30 boats per lane per day is considered to provide unhampered overall amenity, whereas a rate of 50 boats per lane per day represents congested operations; thus a midpoint of 40 launches / retrieves per day was selected to represent a balanced scenario.

TMR (2016)[5] provides guidance on its standard/reference number of CTU spaces to match boat ramp lanes:

- 90 CTUs for four-lane ramps
- 70 CTUs for three-lane ramps
- 45 CTUs for two-lane ramps
- 15 CTUs for one-lane ramps with sealed road access

[1] AS 3962-2001 Guidelines for the design of marinas
[2] Economic Associates (2011) Recreational Boating Facilities Demand Forecasting Study: Demand Analysis
[3] SKM (1988) Public Boat Ramps Central Queensland Strategic Plan, Volume One, demand forecasting – Noosa to Yeppoon
[4] Rose, T., Powell R., & Yu J. (2009) Identification of the Present and Future Recreational Boating Infrastructure in Redland City – A 10 year Infrastructure Plan, Griffith University
[5] TMR (2016) Marine Facilities and Infrastructure Plan

- 10 CTUs for one-lane ramps with all-weather, unsealed road access.

The above figures indicate an average relationship of 22.5 CTU spaces per “effective” lane. The TMR reference standards differ from the number of CTU spaces recommended for public boat launching ramps by AS 3962. That standard requires between 20 and 60 CTU spaces per ramp lane, depending on whether the ramp is in an urban or rural area, whether it has a queuing structure, and whether it has separate rigging and de-rigging areas. For local reasons, TMR may vary from these reference figures in particular cases.

The actual capacity, or “effectiveness” of a boat ramp is unique for each ramp, and is affected by:

- a reduction in the amount of time a ramp is available for use due to tidal variability, the seaward extent of ramp infrastructure, and navigable depths – at each ramp being measured as the % availability of the tidal range that a vessel can be realistically launched or retrieved – with ramps classified as all-tide (100%), near all-tide (>80%), and part-tide (50%) for access – and the reduction in availability occurring either:
  - at the ramp itself, and/or
  - in access channels connecting the ramp to the sea/open water (such as at a river mouth or other channel depth constraint)
- the exposure of the ramp to regular, and sometimes major, wave action – these facilities tending to be beach ramps that are generally only suitable for short excursions in small boats in good weather and with suitable tides – accordingly these ramps are considered to be available only 50% of the time
- factors impacting efficient vessel launching and retrieval cycles, which include:
  - provision of queuing facilities such as pontoons, floating walkways or beaches – with such queuing facilities increasing the capacity of a boat ramp by providing a place for a vessel to be secured during vehicle parking or retrieval without blocking a ramp lane, leading to greater throughput
  - constrained or difficult manoeuvring of vehicles and trailers onto the ramp
  - long distances between the boat ramp and CTU parking spaces
- the physical extent of infrastructure provided, such as:
  - the width and number of ramp lanes
  - the number of CTU parking spaces within the facility
  - provision for overflow parking during busy periods.

To calculate effective lanes at a boat ramp, the following adjustments have been applied to water-side infrastructure:

- all-tide – no change (that is, multiplication factor of 1.0)
- near all-tide – available 80% of the time (that is, multiplication factor of 0.8)
- part-tide – available 50% of the time (that is, multiplication factor of 0.5)
- beach ramp – available 50% of the time (that is, multiplication factor of 0.5)
- access to a queuing facility in the form of a floating walkway – increase efficiency by 50% (that is, multiplication factor of 1.5)
- access to a queuing facility such as a gangway-access pontoon – increase efficiency by 20% (that is, multiplication factor of 1.2).

Access to a beach, while convenient, is not suitable for all vessel sizes or preferred by some vessel owners, and therefore has not been considered to improve the capacity of a boat ramp.

As an example, the water-side effective lanes for a near all-tide, two-lane boat ramp with a floating walkway will be calculated as:

| | | | | | | |
|---|---|---|---|---|---|---|
| 2 | x | 0.8 | x | 1.5 | = | 2.4 |
| lanes | | tidal availability | | queuing structure | | effective lanes |

To calculate the land-side constraint on effective lanes, the following CTU groupings have been applied:

- 1 to 9 CTU – 0.5 effective lanes
- 10 to 20 CTU – 1 effective lane
- 21 to 29 CTU – 1.5 effective lanes
- 30 to 39 CTU – 1.8 effective lanes
- 40 to 54 CTU – 2 effective lanes
- 55 to 64 CTU – 2.5 effective lanes
- 65 to 75 CTU – 3 effective lanes
- 76 to 83 CTU – 3.5 effective lanes
- 84 to 97 CTU – 4 effective lanes
- 98 to 105 CTU – 4.5 effective lanes
- 106 to 117 CTU – 5 effective lanes
- 118 to 127 CTU – 5.5 effective lanes
- 128 to 140 CTU – 6 effective lanes
- 141 to 149 CTU – 6.5 effective lanes
- 150 to 157 CTU – 7 effective lanes.

Unmarked or unformed parking areas are denoted accordingly. The number of CTU parking bays may also be the limiting factor on effective capacity, owing to the number of bays provided being less than the TMR reference standard.

The calculation is illustrated further in Appendix B, which details the actual and effective lanes for each facility.

The effective capacity of a facility is therefore limited by the constraining or “bottlenecking” element, and to realise full capacity a facility must balance the land-side and water-side capacities. The capacity assessment in Appendix B also identifies the limiting capacity constraint for each facility.

### 4.1.2 Boat ramp classification

As previously discussed, each boat ramp is subject to a unique set of constraints and opportunities, particularly in relation to tidal accessibility. To understand how well existing boat ramp facilities meet current demand, consideration has also been given to the recreational destination(s) accessed by each facility. Where available, this has been informed by local knowledge on actual usage.

Regardless of the tidal range available at the ramp itself, boat ramps typically seek to cater to one or more of the following destinations:

- access to the sea for fishing, diving, islands, jet skiing, and general recreation

- access to creeks and estuaries for fishing, crabbing, skiing and general recreation
- access to fresh water for fishing, skiing, jet skiing, and general recreation.

However, there are some practical limitations on the usage of a ramp for these purposes. These include:

- vessel size, as:
  - Small vessels are unsuitable for use in open and exposed waters under most conditions, although they may be taken into nearshore waters in calm conditions or for short journeys. These vessels are most suited to use in protected waterways such as creeks and estuaries.
  - Large vessels suited to offshore use may be physically constrained in very narrow or shallow waterways, such as the upstream reaches of creeks or estuaries.
- travel time to destination, as:
  - Although navigable access from a boat ramp to open water may be possible, it may not be practical due to the distance travelled by water and/or any speed restrictions that may be in place for the waterway. Most people will seek to launch at the facility that takes the least time to reach their destination. This is particularly the case for offshore destinations where larger volumes of fuel must be paid for and carried to allow for the journey.

Discussions with local government stakeholders throughout the state indicated that vessels longer than 4.5m were generally used to access offshore areas, with smaller vessels tending to be used for creek and estuary access. There will be circumstances where smaller vessels will be used to travel offshore and larger vessels will stay in protected waters.

At facilities where open-water access becomes difficult, the Study assumes that the facility will be more frequently used for accessing local creeks, estuaries, and freshwater areas. Facilities have therefore been classified into one of the following categories to reflect the primary level of accessibility between the ramp and open water:

- open-water access – all-tide access
- depth-limited – access to open-water possible but navigation limited at certain stages of the tide by water depth, for example, crossing a tidal bar, or sand shoals in an estuary
- distance-limited – access to open-water possible but limited by longer travel times between the ramp and open-water, for example due to long distances, or speed restrictions in the waterway – with, in some instances, depth also being a limitation but distance being considered as the main constraint
- infrastructure-limited – access limited by configuration or size or nature of the infrastructure, for example, a low bridge preventing navigation
- beach ramps
- no open-water access – access to open-water is not possible or practical, for example, a facility in a dam, or on the upstream side of a weir, barrage, or waterfall.

### 4.1.3 Existing capacity

The existing boat ramp facilities have been assessed individually to quantify their “effective” lane capacity. This assessment is presented in Appendix B and summarised in Table 4.

TMR's Marine Infrastructure Investment Program (MIIP) – at December 2016 – sets out the infrastructure planned and funded for implementation until the end of the 2017-18 financial year, and includes the government's Marine Infrastructure Fund capital projects. No specific projects have been scheduled for implementation in the Ipswich City Council area under the MIIP that seek to increase the existing capacity of marine infrastructure as at December 2016.

Table 4 – Summary of existing/planned boat ramp effective capacity by access type, Ipswich City Council

| Facility accessibility and tidal availability at the ramp | # of facilities | # facilities limited by | | Actual # of lanes | Effective lanes |
|---|---|---|---|---|---|
| | | Water-side infrastructure | Land-side infrastructure | | |
| **Open-water access** | | | | | |
| All-tide | 0 | 0 | 0 | 0 | 0 |
| Near all-tide | 0 | 0 | 0 | 0 | 0 |
| Part-tide | 0 | 0 | 0 | 0 | 0 |
| **Subtotal** | **0** | **0** | **0** | **0** | **0** |
| **Depth-limited open-water access** | | | | | |
| All-tide | 0 | 0 | 0 | 0 | 0 |
| Near all-tide | 0 | 0 | 0 | 0 | 0 |
| Part-tide | 0 | 0 | 0 | 0 | 0 |
| **Subtotal** | **0** | **0** | **0** | **0** | **0** |
| **Distance-limited open-water access** | | | | | |
| All-tide | 0 | 0 | 0 | 0 | 0 |
| Near all-tide | 3 | 1 | 2 | 3 | 1.8 |
| Part-tide | 2 | 1 | 1 | 2 | 0.5 |
| **Subtotal** | **5** | **2** | **3** | **5** | **2.3** |
| **Infrastructure-limited open-water access** | **0** | **0** | **0** | **0** | **0** |
| **Beach ramps** | **0** | **0** | **0** | **0** | **0** |
| **No open-water access** | **0** | **0** | **0** | **0** | **0** |
| **Total** | **5** | **2** | **3** | **5** | **2.3** |

Key observations drawn from this analysis include:

- All facilities are distance-limited, open-water access facilities.
- All facilities have ramp availability affected by tides.
- There are 5 actual lanes, but only 2.3 effective lanes at present, reflecting limitations imposed by tidal restrictions and the lack of adequate parking.

While the existing facilities provide access to tidal reaches of the Brisbane and Bremer Rivers, open-water access is all distance-limited, as it is over 35 nautical miles from the Ipswich boundary to the open-water of Moreton Bay via the Brisbane River.

# 5. Demand assessment

The assessment of demand for recreational boating has been evaluated in terms of facilities for launching and retrieval of vessels (that is, boat ramps), and landings for short-term stays (generally less than a couple of hours). The demand for:

- boat ramps is driven by trailable vessels that can access the ramp
- landing facilities is focussed on providing a network of short term landings that service key land-side destinations (such as shops) of relevance or attraction to the boating community, with a particular focus on larger (non-trailable) vessels. In this context, landing demand has not been considered further for this LGA.

## 5.1 Boat ramp demand

The demand for boat ramps has been quantitatively evaluated using vessel registrations as the key indicator. The vessel registrations have been converted to an effective lane demand based on a typical boat ramp lane being able to accommodate 40 launch/retrieval manoeuvres per day.

The following section details the assessment of vessel registrations taking into consideration where vessels are likely to be used relative to where they are registered, and the demographics of the local area.

### 5.1.1 Registration distribution

People using the boat ramp facilities at a particular location are attracted to that facility by several factors, including:

- proximity to home
- road access (quality and distance)
- proximity to vessel destination (reef, open water, islands, creeks, estuary, fishing grounds, skiing areas, and so on)
- quality of the experience and ease of use (launching/retrieval, parking, security, complementary facilities, and so on).

This means that at many locations and at various times, ramp users will travel out of the LGA in which their vessel is registered to use boat ramp facilities in a different LGA. In some locations, demand is driven by ramp users from outside of the LGA, particularly if the ramp is in reasonable proximity to desirable boating destinations such as fishing grounds or popular islands.

Additional detail on the determination of the registration distribution is provided in Appendix C. Note that vessel registrations are less in inland LGAs compared to adjacent coastal LGAs.

A summary of the relative geographic contribution of demand to boat ramp facilities located in the Ipswich City Council area is shown in Table 5 below for 2016 registration data.

### 5.1.2 Registration activation

TMR's approach to the provision of infrastructure for recreational boating is to aim to satisfy average demand rather than peak demand (TMR, 2016)[6].

TMR recognises three levels of demand:

- off-peak demand – to be met in almost all circumstances
- average demand – taken to be demand for a facility on weekends (and for certain regional locations other busy periods)
- peak demand – being demand for a facility at peak holiday periods and for special events such as major fishing competitions.

[6] TMR (2016) Marine Facilities and Infrastructure Plan

The qualifier on certain regions and circumstances for average demand recognises that in some areas high numbers of shift workers tend to distribute the demand more evenly across each week.

Provision is not made by TMR for peak boating periods such as Christmas, Easter, school holidays, and long weekends. For facilities provided by them, councils and port/water authority managers may choose to cater for higher than average demand.

Research referenced in the previous demand assessment study (GHD, 2011)[7] indicated that average to high demand was represented by 8% to 14% of registered vessels seeking to use a boat ramp on a typical weekend. This percentage has been termed as "registration activation" for the purposes of this Study.

To better represent the demand within each local government area, refinement of the registration activation percentage considered the following factors as influencing boating popularity over other recreational opportunities:

- incidence of blue collar employment (based on Census data)
- average age of residents (based on Census data)
- remoteness classification by local government area
- whether the LGA is coastal.

Detail on the process for local refinement of registration activation is provided in Appendix C. The adopted parameters for this assessment are summarised in Table 5.

Key observations relevant to the registration activation include:

- A high incidence of blue collar workers compared to the state average outside the Ipswich LGA.
- The status of Ipswich LGA as a metropolitan location, with ready access to a wide range of other recreational activities.

### Table 5 – Contribution to demand for boat ramp facilities, Ipswich City Council

| Contributing LGA | % of contributing LGA using Ipswich facilities* | # of registered vessels from contributing LGA using Ipswich facilities | % registration activation | Contribution comment |
|---|---|---|---|---|
| Ipswich | 26% | 1,603 | 8% | Resident population Metropolitan, blue collar, non-coastal |

**See Economic Associates Appendix C for percentage estimates*

Key observations regarding boat ramp demand relevant to the contributions from the various sources include:

- A low (26%) percentage of Ipswich residents are considered to use facilities within the LGA. The remaining 74% are considered to use facilities in Brisbane, Redland or Gold Coast LGAs.

[7] GHD (2011) Recreational Boating Facilities Demand Forecasting Study. Report prepared for TMR, September.

- Boat ramp facilities that are close to the boundaries of Ipswich LGA with Brisbane City Council generally only service demand from the resident population, therefore sharing of demand between Ipswich and Brisbane LGAs is expected to be relatively small.

#### 5.1.3 Boat ramp lane demand

Applying the registration distribution and activation factors to vessel registration data results in an effective quantitative demand for boat ramp lanes within the catchment. This is summarised in Table 6. Assumptions used in the projections for future growth in demand are provided in Appendix C (Economic Associates report).

Table 6 – Boat ramp lane demand projections, Ipswich City Council

| Evaluation category | Boat ramp lanes | | | | |
|---|---|---|---|---|---|
| | 2016 | 2021 | 2026 | 2031 | 2036 |
| All vessels, all facilities | 3 | 4 | 5 | 7 | 8 |

Key observations relevant to the catchment demand include:

- All demand on facilities originates from Ipswich City Council residents.
- Growth is forecast to be consistent over the next 20 years.

# 6. Development needs and opportunities

The need for additional recreational boating infrastructure within the Ipswich City Council area has been identified by comparing the existing capacity within the area with the expected demand.

## 6.1 Evaluation of needs

#### 6.1.1 Development priorities

The priorities for development are linked to need and funding cycles, as follows:

Priority 1 (P1) These sites are needed to meet existing demand.

Priority 2 (P2) Assuming that the priority 1 sites are implemented, these sites are expected to be needed to meet additional demand over the five years ending 2021.

Priority 3 (P3) Assuming that the priority 1 and 2 sites are implemented, these sites are expected to be needed to meet additional demand over the subsequent five years, that is 2021 to 2026.

Priority 4 (P4) These sites are those that will meet future demand, but are not expected to be required before 2026 in demand terms but may be brought forward for construction for other reasons.

#### 6.1.2 Quantification of shortfall – boat ramp lanes

The overall demand for boat ramp lanes compared to the effective capacity provided by existing facilities is summarised in Table 7.

Table 7 – Projected boat ramp lane shortfall, Ipswich City Council

| Evaluation category | Existing effective capacity | 2016 | | 2021 | | 2026 | | 2036 | |
|---|---|---|---|---|---|---|---|---|---|
| | | Demand | Shortfall | Demand | Shortfall | Demand | Shortfall | Demand | Shortfall |
| All vessels, all facilities | 2.3 | 3 | 0.7 | 4 | 1.7 | 5 | 2.7 | 8 | 5.7 |

## 6.2 Identified stakeholder opportunities

Table 8 summarises the key facilities and sites identified by stakeholders during consultation activities as requiring consideration.

Table 8 – Stakeholder identified opportunities to increase capacity, Ipswich City Council

| Facility | Stakeholder comments | Study comments |
|---|---|---|
| Noel Kelly Drive, Goodna | Estuarine access.<br>Popular facility.<br>Most downstream facility.<br>Reconfiguration of facility desirable.<br>Floating walkway desirable. | Reclamation of land to allow for the reorientation of the ramp, addition of a floating walkway, and maximum practicable number of CTU spaces is recommended (approx. 25). |
| Cribb Park, North Ipswich | Estuarine access.<br>Well-used facility.<br>Popular recreation area.<br>Expansion of facility is desirable.<br>Replacement pontoon would be supported by the community. | Expansion of ramp to 2-lanes, 45 CTU spaces, and a feasibility study for a pontoon or floating walkway is recommended. |
| Park Road, Barellan Point | Estuarine access.<br>Adjacent park area.<br>Parking is limited. | Landside area is constrained by geography with limited options for parking expansion.<br>Increases in water-side capacity require commensurate land-side expansion to increase the facility capacity.<br>Upgrade to facility not currently recommended. |

# 7. Development priorities

## 7.1 Methodology for selecting priorities

### 7.1.1 Boat ramp facilities

The selection of recommended works and their priority level has been considered. The first level of consideration for increasing boat ramp capacity is founded on two main criteria:

- type of access required – open-water or non-open-water

- preference for expansion of existing facilities if suitably located.

Expansion of existing facilities is preferred over the establishment of new facilities in locations where travel times for most users to the existing facilities are not onerous, as road infrastructure for access is already in place and the foreshore is currently allocated to the purpose.

TMR's Marine Facilities and Infrastructure Plan (2016)[8] also guides the prioritisation of boating facilities. This plan states that:

> *"The department favours proposals for boat launching and landing facilities that give access to the open sea at all tides.*
>
> *Priority will be given to the provision of sheltered all-tide or near all-tide launching facilities giving access to the open sea on an all-tide or near all-tide basis.*
>
> *Part-tide facilities (for launching or access) may be provided where there is demand, and dredged access is not feasible. For instance, beach access or open beach ramps may be provided where there is sufficient demand and no suitable nearby sheltered waterway." (Section 3.1.1 – Coastal locations – guideline).*
>
> *"Access channels are not normally provided to open beach boat ramps. Beach access and open beach boat ramps are regarded as part-tide facilities." (Section 6.8 – Dredging of access channels to beach ramps – guideline).*

The process used within each LGA identified opportunities to meet the need for ramp lanes for each type of access (open-water/non-open-water) at each of the priority time steps (2016, 2021, 2026 and 2036), is set out in the flowchart in Figure 1. Once the forecast shortfall for ramp lanes for a priority level has been met, further consideration of facilities falls to the next priority level until all forecast shortfall is met.

## 7.2 Recommended priorities

The results in Table 9 show the recommended priorities for the Ipswich City Council for the coming years.

### Table 9 – Recommended priorities to increase capacity, Ipswich City Council area

| Priority | Sites |
|---|---|
| Priority 1 (as soon as possible) | Noel Kelly Drive, Goodna – reclaim land to allow reorientation of the ramp, expand the ramp to 2-lanes with a floating walkway, and expand parking area to achieve maximum practicable number of CTU spaces (approximately 25 CTU spaces). |
| Priority 2 (over the next five years) | Cribb Park – increase ramp to 2-lanes and expand parking to achieve approximately 45 CTU spaces. |
| Priority 3 (over the next five to ten years) | New facility at Joseph Brady Park, Barellan Point – 1-lane ramp with all-weather surface parking area for 10 CTUs. |
| Priority 4 (other) | New facility at Bremer Parade, Basin Pocket, 3-lane ramp with 45 CTU spaces. |
| | New facility at North Station Road, North Booval – 1-lane ramp with 15 CTU spaces. |

[8] TMR (2016) Marine Facilities and Infrastructure Plan

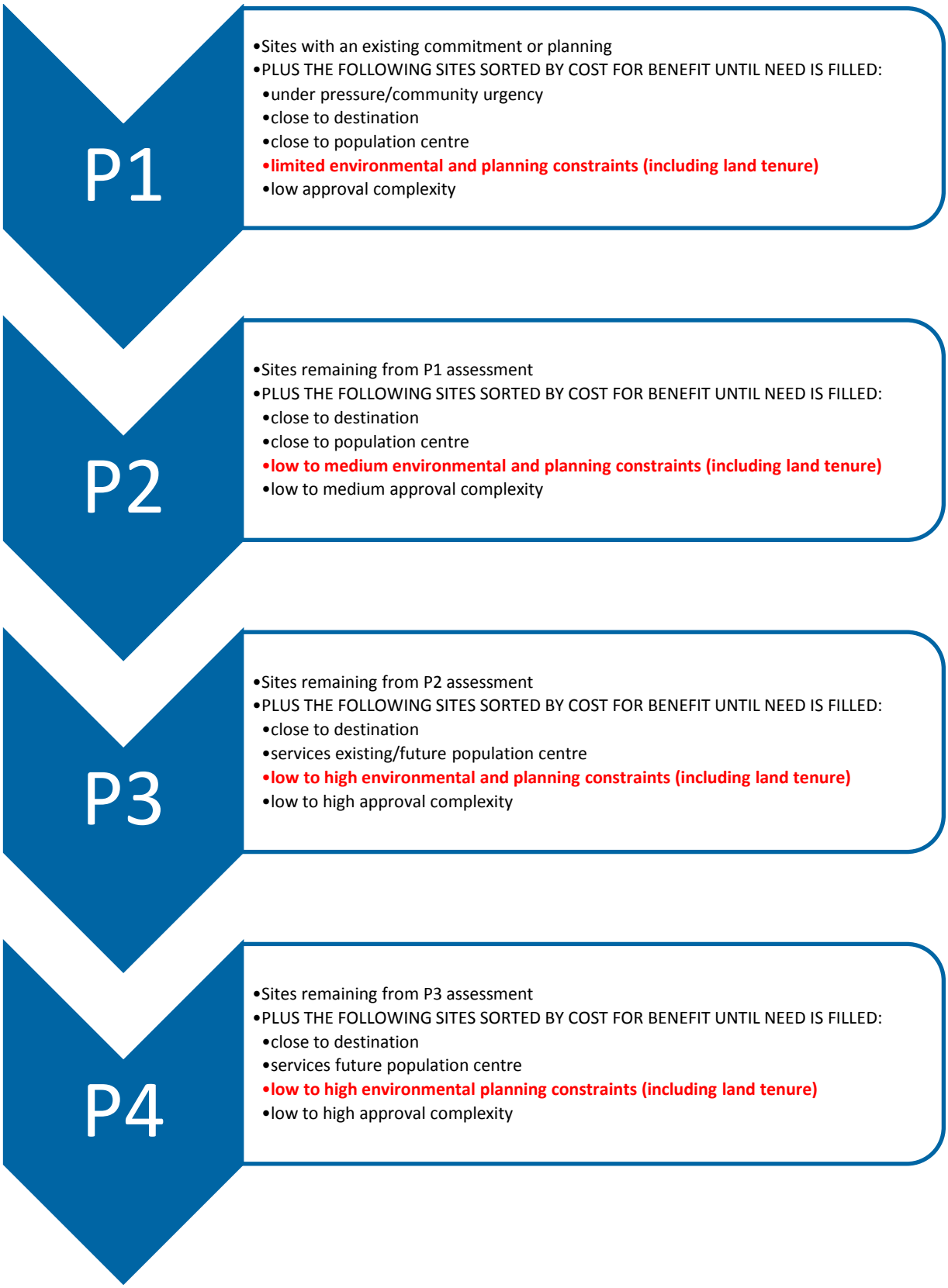



Figure 1 – Priority selection methodology

## 7.3 Capacity evaluation incorporating development priorities

The effective lane capacity has been reassessed to incorporate the delivery of the recommended development priorities as shown in Table 10, and described in detail in the following sections. The increase in effective lanes gained by each recommendation is shown in the relevant table for that recommendation.

### Table 10 – Effective lane and landing capacity after delivery of recommended priorities, Ipswich City Council

| Evaluation category | Existing effective capacity* | 2016 | | 2021 | | 2026 | | 2036 | |
|---|---|---|---|---|---|---|---|---|---|
| | | Demand | Post-delivery effective capacity * | Demand | Post-delivery effective capacity | Demand | Post-delivery effective capacity | Demand | Post-delivery effective capacity |
| All vessels, all facilities | 2 | 3 | 3 | 4 | 4 | 5 | 5 | 8 | 8 |

**Effective capacities are reported to the nearest 0.5 of a lane*

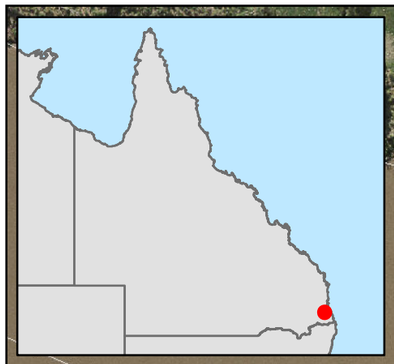
**Example of post-delivery effective capacity calculation, 2016: Existing effective capacity (2.3) + Goodna upgrade (0.7) = 3*

## 7.4 Priority 1 sites

### Table 11 – Priority 1 – Noel Kelly Drive, Goodna

| Site name | Noel Kelly Drive, Goodna |
|---|---|
| Existing formal facility? | Yes |
| Location | Noel Kelly Drive, Goodna (Richardson Park) |
| Current tidal status | Near all-tide, distance-limited open-water access |
| Site characteristics | The Goodna facility is located on the southern bank of the Brisbane River in Richardson Park, which lies on Noel Kelly Drive in Goodna. The facility is approximately 24.8km (13.4 nautical miles) downstream from the Ipswich central business district (CBD).<br>The facility, which consists of a 1-lane ramp with unformed parking, is located on a steep incline. Due to the slope of the ramp and surrounding land, reversing manoeuvres can be difficult. The ramp can also become heavily silted, making launching and retrieval difficult at lower tides. The Brisbane River is prone to flooding.<br>The facility provides predominantly estuarine access, as the mouth of the Brisbane River is over 60km downstream. |
| Proposed works | Reclamation and reorientation of the ramp to accommodate a flatter ramp slope and support installation of a floating walkway, formalisation of the maximum practicable number of CTU spaces (approximately 25 CTU spaces). |
| Increase in effective lanes provided by works | 0.7 effective lanes |
| Rationale | The Goodna facility is Ipswich City Council's most downstream facility. It provides access into the Brisbane River and services Goodna and the surrounding suburbs.<br>Currently, the ramp can be difficult to use due to the steep slope. Reclamation and reorientation of the ramp will improve the efficient and safe use of the facility as the reversing manoeuvre will be less challenging. Reorienting the facility would also decrease potential flood debris impacts on any floating infrastructure, increasing the feasibility of floating walkway installation. |
| Environmental and planning constraints | Indigenous Land Use Agreement (ILUA) Jagera, Yuggera and Ugarapul People and Ipswich City Council, NNTT QI2007/037. TMR to undertake negotiations with registered traditional owners of the land to prepare and execute a CHMP for the works.<br>Operational Works for tidal works or works within a coastal management district is triggered under P Act for the works in the tidal area. Works are considered accepted development under the P Reg Shd 7 Part 3, Item 10 (b) for tidal works that is undertaken by TMR. Accepted development works are to comply with the requirements for the work prescribed under the Coastal Act, Section 167(5)(b).<br>Marine plants may be present within the site as the waterway is tidal. Removal of marine plants will require an Operational Works permit for the removal, destruction or damage of marine plants under P Act (Shd 10 Part 17 Item 28 of P Reg). May be accepted development if works can comply with the requirements under Shd 7 Item 8 of the P Reg.<br>Environmental Relevant Activity 16 extracting and screening activities for dredging more than 1000 tonnes of material in a year may be triggered depending on works (P Reg Shd 10, Part 5, Div 2, Item 1). |

| Site name | Noel Kelly Drive, Goodna | |
|---|---|---|
| | The waterway is classified by DAF as a major impact (purple) waterway and may therefore trigger Operational Works for Waterway Barrier Works under P Act for the ramp and floating walkway.<br>Flora trigger high risk area. Disturbed area not considered to be 'in the wild'. No flora survey required.<br>The works are defined as local utility under the Ipswich City Plan. A Minor Utility is exempt from assessment against the planning Scheme if in the recreation zone and less than 1500m$^2$.<br>The operational works are exempt from assessment against the local planning scheme as the works would be undertaken by or on behalf of a public sector entity (TMR) (Shd 6 Part 3, Section 8 of P Reg).<br>Opposite State Heritage place - Wolston Park Hospital Complex.<br>Reserve tenure. | |
| Consultation feedback | It should be noted that there were landslips near this site following the January 2011 flood, both upstream along the river and in the same location where the development of the additional car parking is proposed. As such, the proposed parking location may need to reconsidered.<br>While this site would be the most heavily used in Ipswich, the amount of parking appears to be excessive. | |
| Indicative cost (excl. GST) (to ±50%) | Water-based infrastructure | $1,200,000 |
| | Land-based infrastructure | $740,000 |





NOEL KELLY DRIVE

BRISBANE TERRACE

LOWER WILLIAM STREET

Paper Size A3

0 5 10 20 30 40 50

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

LEGEND

- Populated Places
- State controlled road
- Cadastre
- Carpark
- Floating Walkway
- Boat Ramp

Department of Transport and Main Roads
Queensland Recreational Boating Demand Study

| | |
|---|---|
| Job Number | 41-30098 |
| Revision | A |
| Date | 15 Dec 2016 |

# Boating facility
# Noel Kelly Drive, Goodna

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Data source: GHD: Layout/2016; DNRM: Roads/2015, Populated Places, Local Government Area/2016, Cadastre/2016, Cadastre/2016, Cadastre/2016; TMR: Facilities/2016, Imagery (2013-2016). Created by: AJ/MS

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## 7.5 Priority 2 sites

### Table 12 – Priority 2 – Cribb Park, North Ipswich

| Site name | Cribb Park, North Ipswich |
|---|---|
| Existing formal facility? | Yes |
| Location | Cribb Park, Fitzgibbon Street, North Ipswich |
| Current tidal status | Near all-tide, distance-limited open-water access |
| Site characteristics | The Cribb Park facility is situated on the western bank of the Bremer River, approximately 2km (1.1 nautical miles) downstream of Ipswich CBD. The site is at the corner of Fitzgibbon and Norma Brown Streets in North Ipswich.<br>The boating infrastructure is adjacent to park areas, which include sports grounds, walking tracks and a dog park.<br>The existing facility consists of a 1-lane ramp with 8 CTU spaces. Two pontoons have previously been located at the site, however were lost in the 2011 and 2013 floods.<br>Due to its position near Ipswich CBD the park is popular, though there can be conflicts between users due to the variety of activities offered and the limited parking area. |
| Proposed works | Relocate the dog park to the northern end of the park, expand the parking area to 45 CTU spaces and increase the ramp to 2-lanes.<br>It is also recommended that a feasibility study be conducted for the installation of a new pontoon or floating walkway. |
| Increase in effective lanes provided by works | 1.5 effective lanes |
| Rationale | As the facility is approximately 2km (1.1 nautical miles) downstream of Ipswich CBD, Cribb Park is a very popular destination. Currently, the available parking allowance of 8 CTU spaces greatly limits the efficient use of the facility. Increasing the parking will allow more efficient use of the existing water-side infrastructure and support ramp expansion.<br>There is sufficient area to the north available for relocation of the dog park, with the adjacent Bank Street available for associated car parking.<br>The facility services Ipswich and the surrounding suburbs to the west, as the site is the most upstream facility on the Bremer River. |
| Environmental and planning constraints | ILUA Jagera, Yuggera and Ugarapul People and Ipswich City Council, NNTT QI2007/037. TMR to undertake negotiations with registered traditional owners of the land to prepare and execute a CHMP for the works.<br>Operational Works for tidal works or works within a coastal management district is triggered under P Act for the works in the tidal area. Works are considered accepted development under the P Reg Shd 7 Part 3, Item 10 (b) for tidal works that is undertaken by TMR. Accepted development works are to comply with the requirements for the work prescribed under the Coastal Act, Section 167(5)(b).<br>Marine plants may be present within the site as the waterway is tidal. Removal of marine plants will require an Operational Works permit for the removal, destruction or damage of marine plants under P Act (Shd 10 Part 17 Item 28 of P Reg). May be accepted development if works can comply with the requirements under Shd 7 Item 8 of the P Reg.<br>Environmental Relevant Activity 16 extracting and screening activities for dredging more than 1000 tonnes of material in a |

| Site name | Cribb Park, North Ipswich | |
|---|---|---|
| | year may be triggered depending on works (P Reg Shd 10, Part 5, Div 2, Item 1).<br>Flora trigger high risk area. Disturbed area not considered to be 'in the wild'. No flora survey required.<br>The works are defined as local utility under the Ipswich City Plan. A Minor Utility is exempt from assessment against the planning Scheme if in the recreation zone and less than 1500m$^2$.<br>The operational works are exempt from assessment against the local planning scheme as the works would be undertaken by or on behalf of a public sector entity (TMR) (Shd 6 Part 3, Section 8 of P Reg).<br>Reserve tenure. | |
| Consultation feedback | Ipswich City Council is not supportive of relocation of the dog park to make way for parking for 45 CTUs. The amount of parking appears to be excessive.<br>Expansion of the ramp and a feasibility study to determine the viability of floating infrastructure such as a pontoon is supported. | |
| Indicative cost (excl. GST)<br>(to ±50%)<br>(excludes feasibility study) | Water-based infrastructure | $550,000 |
| | Land-based infrastructure | $1,060,000 |




Paper Size A3

0 5 10 20 30 40 50

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

LEGEND

- Populated Places
- State controlled road
- Carpark
- Boat Ramp
- Cadastre

Department of Transport and Main Roads
Queensland Recreational Boating Demand Study

| | |
|---|---|
| Job Number | 41-30098 |
| Revision | B |
| Date | 15 Dec 2016 |

# Boating facility
# Cribb Park, North Ipswich

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Data source: GHD: Layout/2016; DNRM: Roads/2015, Populated Places, Local Government Area/2016, Cadastre/2016; GHD: Layout/2016; TMR: Facilities/2016, Imagery (2013-2016). Created by: AJ/MS/JCM

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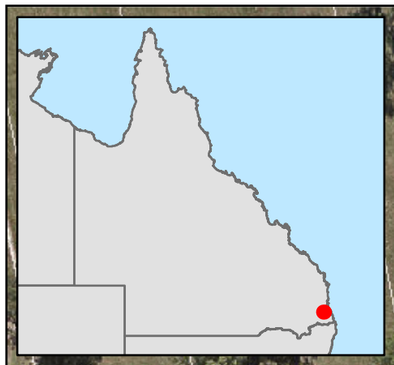
## 7.6 Priority 3 sites

### Table 13 – Priority 3 – Joseph Brady Park, Barellan Point

| Site name | Joseph Brady Park, Barellan Point |
|---|---|
| Existing formal facility? | No |
| Location | Joseph Brady Park, the corner of Riverside Avenue and Islandview Street, Barellan Point |
| Current tidal status | Near all-tide, distance-limited open-water access |
| Site characteristics | The site is located on the south-west corner of Joseph Brady Park in Barellan Point. The Park is located on the northern bank of the Bremer River where it joins the Brisbane River.<br>The site lies approximately 46km (25 nautical miles) upstream of the Brisbane CBD, therefore the site would provide predominately estuarine access to both rivers.<br>The existing site includes a children's playground, barbeque facilities and amenities, with open grassed areas to the north of the playground. The park is currently the location of a ramp facility that is used as a canoe/kayak ramp and has no dedicated parking. |
| Proposed works | Construct a 1-lane ramp with an all-weather surface parking area for 10 CTU spaces |
| Increase in effective lanes provided by works | 0.8 effective lanes |
| Rationale | The site is located at the confluence of the Brisbane and Bremer Rivers, providing estuarine access into both waterways.<br>There is adequate land-side area to create the required parking while still retaining the majority of the parkland for other recreational activities.<br>Situating the ramp in the south west corner of the park may also assist in reducing the impact of future flood events on the facility infrastructure.<br>The site provides an alternative to other facilities that have limited capacity due to low availability of CTU parking. |
| Environmental and planning constraints | ILUA Jagera, Yuggera and Ugarapul People and Ipswich City Council, NNTT QI2007/037. TMR to undertake negotiations with registered traditional owners of the land to prepare and execute a CHMP for the works.<br>Flora trigger high risk area. Disturbed environment – not considered to be 'in the wild'. A flora survey is not required prior to construction.<br>Operational Works for tidal works or works within a coastal management district is triggered under P Act for the works in the tidal area. Works are considered accepted development under the P Reg Shd 7 Part 3, Item 10 (b) for tidal works that is undertaken by TMR. Accepted development works are to comply with the requirements for the work prescribed under the Coastal Act, Section 167(5)(b).<br>Marine plants may be present within the site as the waterway is tidal. Removal of marine plants will require an Operational Works permit for the removal, destruction or damage of marine plants under P Act (Shd 10 Part 17 Item 28 of P Reg). May be accepted development if works can comply with the requirements under Shd 7 Item 8 of the P Reg.<br>Environmental Relevant Activity 16 extracting and screening activities for dredging more than 1000 tonnes of material in a year may be triggered depending on works (P Reg Shd 10, Part 5, Div 2, Item 1). |

| Site name | Joseph Brady Park, Barellan Point | |
|---|---|---|
| | The works are defined as local utility under the Ipswich City Plan. A Minor Utility is exempt from assessment against the planning Scheme if in the recreation zone and less than 1500m$^2$.<br>The operational works are exempt from assessment against the local planning scheme as the works would be undertaken by or on behalf of a public sector entity (TMR) (Shd 6 Part 3, Section 8 of P Reg).<br>Reserve tenure. | |
| Consultation feedback | Ipswich City Council is unlikely to support the recommendation, as there may not be demand for another facility with several existing facilities within reasonable proximity.<br>There is concern that the river bank in this location is quite steep and may not support a ramp facility without significant earthworks.<br>There is also concern that a facility in this location may interfere with an Identified Heritage Place (Stone Wall), as identified within the Planning Scheme.<br>Upgrade of the existing ramp (approximately 100m north of the proposed site on the Brisbane River park frontage) to better provide for non-powered vessels would likely be a better outcome than providing an entirely new facility. | |
| Indicative cost (excl. GST) (to ±50%) | Water-based infrastructure | $170,000 |
| | Land-based infrastructure | $360,000 |





Paper Size A3

0 5 10 20 30 40 50

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

LEGEND

- Populated Places
- State controlled road
- Cadastre
- Carpark
- Boat Ramp

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| | |
|---|---|
| Job Number | 41-30098 |
| Revision | A |
| Date | 15 Dec 2016 |

# Boating facility
# Joseph Brady Park, Barellan Point

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Data source: GHD: Layout/2016; DNRM: Roads/2015, Populated Places, Local Government Area/2016, Cadastre/2016; GHD: Layout/2016; TMR: Facilities/2016, Imagery (2013-2016); Created by: AJ/MS/JCM

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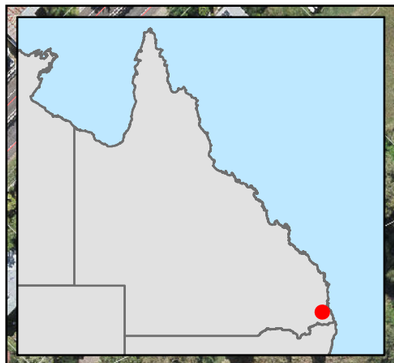
## 7.7 Priority 4 sites

### Table 14 – Priority 4 – Bremer Parade, Basin Pocket

| Site name | Bremer Parade, Basin Pocket |
|---|---|
| Existing formal facility? | No |
| Location | At the eastern end of Bremer Parade, Basin Pocket |
| Current tidal status | Near all-tide, distance-limited open-water access |
| Proposed works | Construct a 3-lane boat ramp with 45 CTU spaces |
| Increase in effective lanes provided by works | 2 effective lanes |
| Rationale | The site is located on freehold land that is believed to be in public ownership adjacent to a reserve, with sufficient area for a new boat launch and retrieval facility. The site is also located on the opposite bank to the popular Cribb Park facility approximately 1.1km (0.6 nautical miles) downstream, offering an alternative and potentially reducing the demand at the Cribb Park facility. |





MOORES POCKET ROAD
BREMER PARADE
BOWERS STREET
COAL STREET
BLACKALL STREET
MCLEOD STREET

Paper Size A3

0 5 10 20 30 40 50

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

LEGEND

- Populated Places
- State controlled road
- Cadastre

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| | |
|---|---|
| Job Number | 41-30098 |
| Revision | A |
| Date | 16 Dec 2016 |

# Boating facility
# Bremer Parade, Basin Pocket

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Data source: GHD: Layout/2016; DNRM: Roads/2015, Populated Places, Local Government Area/2016, Cadastre/2016; TMR: Facilities/2016, Imagery (2013-2016). Created by: AJ/MS

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### Table 15 – Priority 4 – North Station Road, North Booval

| Site name | North Station Road, North Booval |
|---|---|
| Existing formal facility? | No |
| Location | North Station Road, approximately 50m south of Beth Street, Booval |
| Current tidal status | Near all-tide, distance-limited open-water access |
| Proposed works | Construct a 1-lane ramp with an all-weather surface parking area for 10 CTU spaces |
| Increase in effective lanes provided by works | 0.8 effective lanes |
| Rationale | The site, located on road reserve on the eastern bank of the Bremer River, offers an additional alternative to the popular Cribb Park facility whilst also servicing the Booval area. |




Paper Size A3

0 5 10 20 30 40 50

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

LEGEND

- Populated Places
- State controlled road
- Cadastre

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| | |
|---|---|
| Job Number | 41-30098 |
| Revision | A |
| Date | 16 Dec 2016 |

# Boating facility
# North Station Road, North Booval

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Data source: GHD: Layout/2016; DNRM: Roads/2015, Populated Places, Local Government Area/2016, Cadastre/2016; TMR: Facilities/2016, Imagery (2013-2016). Created by: AJ/MS

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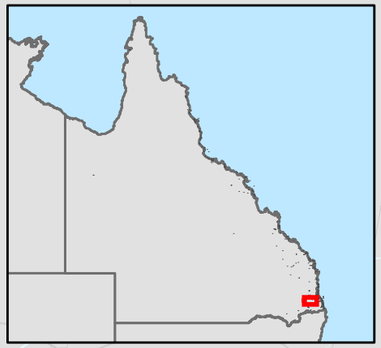
# Appendices

# Appendix A – Locality plan, existing facilities



FERNVALE
LOWOOD
KARANA DOWNS
KARALEE
THE JUNCTION
MARBURG
FOREST HILL
WALLOON
LAIDLEY
ROSEWOOD
HARRISVILLE

Paper Size A3

0 4 8

Kilometres

Horizontal Datum: GDA 1994
Grid: GCS GDA 1994

N

LEGEND

Boating Facilty
State controlled road
Local Government Area
Water



Department of Transport and Main Roads
Queensland Recreational Boating Demand Study

Job Number 41-30098
Revision C
Date 20 Dec 2016

Ipswich City Council

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Data source: DNRM: Cadastre/2016, Populated Places, Local Government Area/2016; TMR: Facilities/2016, GA Mainland, Islands/2007. DTMR: State Controlled Road/2015. Created By: IH

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# Appendix B – Capacity assessment, existing facilities

| Facility ID | Facility name | Tidal access (at ramp) | # Existing lanes | Queuing facility | Effective lanes after tidal access adjustment | # CTU | Effective lanes after adjustment for tidal access, queuing facility and # CTUs | | Constraint | Comment |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Waterside | CTU | | |
| | **Distance-limited, open-water access** | | | | | | | | | |
| IP11 | Noel Kelly Drive, Goodna | Near all-tide | 1 | No | 0.8 | Unformed | 0.8 | Unformed | Waterside | |
| MT31 | Park Road, Barellan Point | Near all-tide | 1 | No | 0.8 | 6 | 0.8 | 0.5 | CTU | |
| IP20 | Cribb Park, North Ipswich | Near all-tide | 1 | No | 0.8 | 10 | 0.8 | 0.5 | CTU | |
| MT11 | Devin Drive, Colleges Crossing, Karana Downs | Part-tide | 1 | No | 0.5 | Unmarked | 0.5 | Unmarked | Waterside | |
| ADD6 | Shapcott Park | Part-tide | 1 | No | 0.5 | Nil | 0.5 | 0 | CTU | |
| | ***TOTAL*** | | ***5*** | | ***3.4*** | | ***3.4*** | ***1**** | | |
| | | | ***Total effective capacity*** | | | | ***2.3**** | | | |

**CTU calculation does not include unformed or unmarked parking spaces.*

**The effective capacity of each facility is shaded.*

# Appendix C – Demand assessment (Economic Associates)

# Recreational Boating Facilities Demand Forecasting Study - 2016 Census Update

## Final Report

December 2017

ECONOMIC ASSOCIATES

# Recreational Boating Facilities Demand Forecasting Study - 2016 Census Update

## Final Report

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December 2017

16042



ECONOMIC ASSOCIATES

# TABLE OF CONTENTS

## LIST OF TABLES

# 1 INTRODUCTION

## 1.1 Purpose of study

Economic Associates (as a sub consultant to GHD Pty Ltd) were engaged by the Department of Transport and Main Roads (TMR) to undertake an assessment of the demand for recreational boating facilities at the local government area (LGA) level. Demand projections have been prepared at five year intervals to 2036 (that is, 2016, 2021, 2026, 2031 and 2036) and take into account current and future demand for recreational boat ramps and landings.

This study represents an update to the *Recreational Boating Facilities Demand Forecasting Study 2016*, taking into account 2016 Census data.

## 1.2 Report structure

The report has been structured as follows:

- Section 1: Introduction: Provides an outline of the purpose of the study and report structure
- Section 2: Projected size of recreational boating fleet: Provides an overview of the assumptions utilised in preparing estimates of the projected recreational boating fleet by LGA
- Section 3: Infrastructure demand assessment: Provides an overview of the assumptions utilised in preparing estimates of the demand for new or upgraded boat ramps and landings by LGA
- Section 4: References: Provides a summary of the references utilised in preparing this report.

## 1.3 Disclaimer

This report is based on the most up to date readily available information. Sources are documented in the report. Economic Associates has applied due professional care and diligence in accordance with generally accepted standards of professional practice in undertaking analysis and interpretation of source information. Economic Associates is not liable for damages arising from any errors or omissions arising from use of these information sources.

As this report involves future projections which can be affected by a number of unforeseen circumstances, it represent our best possible estimates and no warranty is given that these particular projections will eventuate.

# 2 PROJECTED SIZE OF RECREATIONAL BOATING FLEET

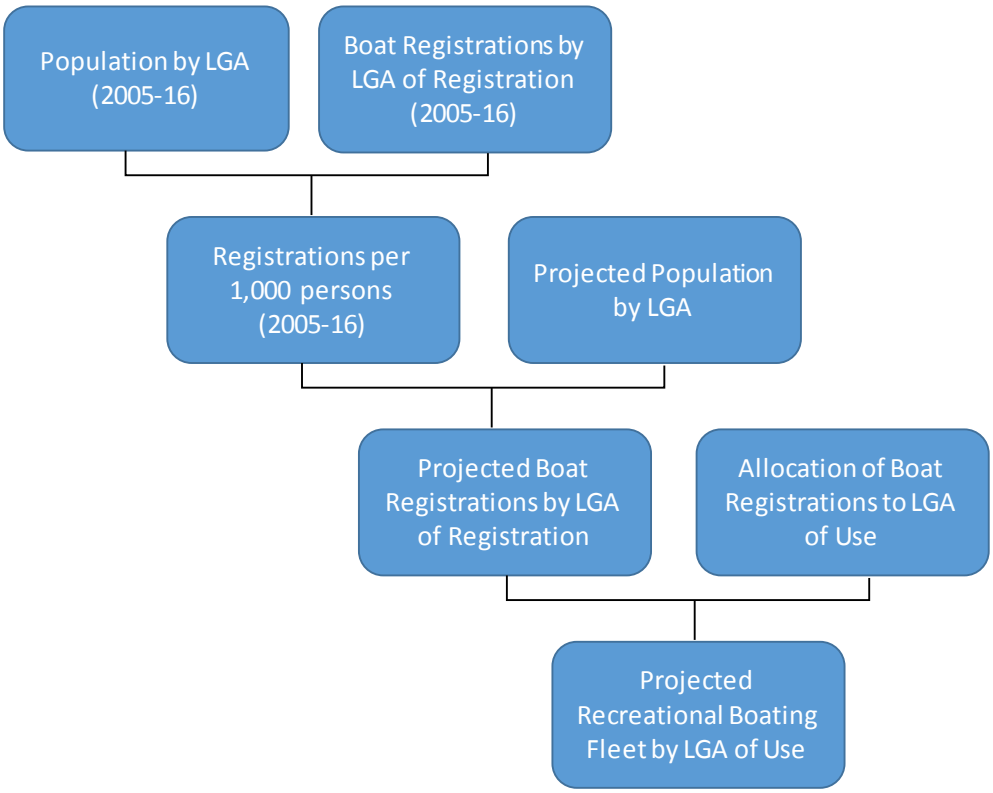
This section of the report provides a summary of the projected size of the recreational boating fleet by LGA, including a detailed explanation relating to the assumptions made in preparing the projections.

## 2.1 Methodology

In estimating the projected size of the recreational boating fleet, the assessment has made a number of assumptions relating to the current and projected size of the trailable and non-trailable fleet and the relationship between LGA of registration and LGA of waterway/facility use.

Figure 2.1 below outlines the methodology utilised in preparing the projected size of the recreational boating fleet by LGA of use.

**Figure 2.1: Methodology utilised in projecting recreational boating fleet by LGA of use**



## 2.2 Assumptions

### 2.2.1 Current size of recreational boating fleet

TMR provided data relating to historical boat registrations for the 2005 to 2016 period for the following categories:

- sail boats
- boats without sails, including:
  - motor boats without sails
  - speed boats
  - jet skis (or personal watercraft).

The data was provided by LGA of registration. This data was used to generate historical estimates of the size of the trailable and non-trailable boat fleet for each LGA, including the following sub-categories:

- trailable fleet, which comprises the following sub-categories:
  - boats up to 4.5 metres in length (including jet skis)
  - boats 4.5 – 8 metres in length
- non-trailable fleet (vessels most likely to be berthed at marinas or private moorings).

The trailable boat fleet has been estimated for two sub-classes to identify vessels that tend to be used inshore (vessels up to 4.5 metres in length) versus vessels which have the ability to travel offshore (vessels 4.5 – 8 metres in length). The 4.5 metre cut-off length was identified through consultation with LGA and port/water storage officers undertaken by GHD as part of this study, and confirmed by TMR officers as being reasonable and accepted for intended uses of the study.

Table 2.1 below summarises our assumptions in relation to the split of trailable boats and non-trailable boats based on the data provided by TMR. This assessment assumes that all boats greater than eight metres in length are non-trailable and that all jet skis are within the trailable boat fleet.

The incidence of trailable and non-trailable boats eight metres or less in length is consistent with the assumptions made in the *Recreational Boating Facilities Demand Forecasting Study 2011*.

**Table 2.1: Estimated proportion of trailable and non-trailable boats, 2005-2016**

| Length | Trailable | | Non-trailable | |
|---|---|---|---|---|
| | sail boats | Boats without sail | Sail boats | Boats without sail |
| <3 metres | 100.0% | 100.0% | 0.0% | 0.0% |
| 3-5 metres | 90.0% | 100.0% | 10.0% | 0.0% |
| 5-8 metres | 50.0% | 85.0% | 50.0% | 15.0% |
| 8-10 metres | 0.0% | 0.0% | 100.0% | 100.0% |
| 10-12 metres | 0.0% | 0.0% | 100.0% | 100.0% |
| 12-15 metres | 0.0% | 0.0% | 100.0% | 100.0% |
| 15-25 metres | 0.0% | 0.0% | 100.0% | 100.0% |
| >25 metres | 0.0% | 0.0% | 100.0% | 100.0% |

Source: Economic Associates estimates

In 2016, there were 996 vessel registrations that were not assigned to an LGA in Queensland[1], comprising 983 interstate registrations, five overseas registrations and eight unknown registrations. For this assessment, the following assumptions have been made for the allocation of these registrations to the trailable and non-trailable boat fleets:

- *Interstate registrations:* Interstate registrations have been allocated in the manner outlined in Table 2.1 above, as it is considered likely that the majority of interstate registrations of a trailable length are within northern NSW.
- *Overseas and unknown registrations:* The assessment has assumed that all overseas and unknown registrations are of a non-trailable nature.

Based on the assumptions presented in Table 2.1 above and the allocation of interstate, overseas and unknown registrations, the estimated size of the recreational boating fleet in Queensland was 279,586 vessels in 2016, comprising:

- 184,835 trailable boats up to 4.5 metres in length (including jet skis)
- 73,462 trailable boats 4.5 – 8 metres in length
- 21,289 non-trailable boats.

Not surprisingly, the size of the recreational boating fleet was highest in a number of South-east Queensland councils, Mackay Regional Council, Townsville City Council, and Cairns Regional Council.

Table 2.2 below presents the estimated size of the recreational boating fleet in Queensland and each of the component LGAs in 2016.

**Table 2.2: Estimated size of recreational boating fleet by LGA, Queensland, 2016**

| LGA of registration | Trailable | | Non-trailable | Total |
|---|---|---|---|---|
| | Up to 4.5m | 4.5-8m | | |
| Aurukun (S) | 9 | 9 | 0 | 18 |
| Balonne (S) | 229 | 93 | 14 | 336 |
| Banana (S) | 928 | 371 | 54 | 1,353 |
| Barcaldine (R) | 120 | 46 | 6 | 172 |
| Barcoo (S) | 22 | 7 | 2 | 31 |
| Blackall-Tambo (R) | 73 | 24 | 3 | 100 |
| Boulia (S) | 11 | 2 | 0 | 13 |
| Brisbane (C) | 18,600 | 7,539 | 3,009 | 29,148 |
| Bulloo (S) | 10 | 2 | 0 | 12 |
| Bundaberg (R) | 7,483 | 1,711 | 418 | 9,612 |
| Burdekin (S) | 2,560 | 887 | 123 | 3,570 |
| Burke (S) | 34 | 14 | 2 | 50 |
| Cairns (R) | 6,650 | 3,584 | 996 | 11,229 |
| Carpentaria (S) | 148 | 79 | 14 | 241 |
| Cassowary Coast (R) | 2,718 | 1,576 | 298 | 4,592 |
| Central Highlands (R) | 1,507 | 720 | 120 | 2,347 |
| Charters Towers (R) | 524 | 170 | 23 | 717 |
| Cherbourg (S) | 0 | 1 | 0 | 1 |
| Cloncurry (S) | 125 | 55 | 6 | 186 |
| Cook (S) | 304 | 177 | 67 | 548 |
| Croydon (S) | 11 | 4 | 0 | 15 |
| Diamantina (S) | 6 | 0 | 1 | 7 |

[1] The 996 vessel registrations not registered in an LGA in Queensland accounted for less than 0.4% of the total recreational fleet in 2016.

| LGA of registration | Trailable | | Non-trailable | Total |
|---|---|---|---|---|
| | Up to 4.5m | 4.5-8m | | |
| Doomadgee (S) | 2 | 2 | 0 | 4 |
| Douglas (S) | 908 | 664 | 175 | 1,747 |
| Etheridge (S) | 38 | 12 | 1 | 51 |
| Flinders (S) | 83 | 30 | 7 | 120 |
| Fraser Coast (R) | 7,252 | 2,902 | 821 | 10,975 |
| Gladstone (R) | 5,148 | 2,435 | 538 | 8,121 |
| Gold Coast (C) | 24,407 | 8,121 | 3,739 | 36,266 |
| Goondiwindi (R) | 659 | 202 | 25 | 886 |
| Gympie (R) | 2,656 | 937 | 235 | 3,828 |
| Hinchinbrook (S) | 1,428 | 635 | 118 | 2,180 |
| Hope Vale (S) | 17 | 14 | 4 | 35 |
| Ipswich (C) | 4,537 | 1,630 | 282 | 6,449 |
| Isaac (R) | 1,381 | 611 | 111 | 2,103 |
| Kowanyama (S) | 8 | 1 | 0 | 9 |
| Livingstone (S) | 2,821 | 1,507 | 504 | 4,831 |
| Lockhart River (S) | 7 | 5 | 4 | 16 |
| Lockyer Valley (R) | 1,285 | 461 | 78 | 1,824 |
| Logan (C) | 8,691 | 3,593 | 789 | 13,074 |
| Longreach (R) | 191 | 59 | 7 | 257 |
| Mackay (R) | 9,909 | 3,515 | 814 | 14,238 |
| McKinlay (S) | 48 | 21 | 4 | 73 |
| Mapoon (S) | 8 | 5 | 0 | 13 |
| Maranoa (R) | 544 | 180 | 22 | 746 |
| Mareeba (S) | 838 | 353 | 79 | 1,270 |
| Moreton Bay (R) | 16,249 | 5,992 | 1,637 | 23,878 |
| Mornington (S) | 16 | 13 | 2 | 31 |
| Mount Isa (C) | 700 | 402 | 43 | 1,145 |
| Murweh (S) | 137 | 46 | 6 | 189 |
| Napranum (S) | 7 | 4 | 0 | 11 |
| Noosa (S) | 2,564 | 1,175 | 290 | 4,029 |
| North Burnett (R) | 633 | 182 | 26 | 841 |
| Northern Peninsula Area (R) | 25 | 46 | 9 | 80 |
| Palm Island (S) | 43 | 37 | 6 | 86 |
| Paroo (S) | 40 | 12 | 2 | 54 |
| Pormpuraaw (S) | 3 | 1 | 0 | 4 |
| Quilpie (S) | 32 | 8 | 1 | 41 |
| Redland (C) | 7,692 | 3,897 | 1,473 | 13,061 |
| Richmond (S) | 45 | 20 | 2 | 66 |
| Rockhampton (R) | 3,777 | 1,405 | 292 | 5,473 |
| Scenic Rim (R) | 1,300 | 490 | 122 | 1,912 |
| Somerset (R) | 1,037 | 356 | 68 | 1,461 |
| South Burnett (R) | 1,447 | 450 | 66 | 1,963 |
| Southern Downs (R) | 1,119 | 314 | 42 | 1,475 |
| Sunshine Coast (R) | 12,641 | 4,148 | 1,225 | 18,013 |
| Tablelands (R) | 1,695 | 704 | 150 | 2,548 |
| Toowoomba (R) | 4,522 | 1,593 | 250 | 6,365 |
| Torres (S) | 107 | 172 | 32 | 311 |
| Torres Strait Island (R) | 6 | 9 | 2 | 17 |
| Townsville (C) | 8,289 | 3,998 | 916 | 13,203 |
| Weipa (T) | 230 | 237 | 37 | 504 |
| Western Downs (R) | 1,525 | 643 | 86 | 2,254 |
| Whitsunday (R) | 3,387 | 1,904 | 750 | 6,041 |
| Winton (S) | 32 | 11 | 2 | 45 |
| Woorabinda (S) | 3 | 0 | 0 | 3 |
| Wujal Wujal (S) | 4 | 4 | 0 | 8 |
| Yarrabah (S) | 36 | 25 | 3 | 64 |
| Interstate | 560 | 201 | 223 | 983 |
| Overseas | 0 | 0 | 5 | 5 |
| Unknown | 0 | 0 | 8 | 8 |
| **Total** | **184,835** | **73,462** | **21,289** | **279,586** |

Note: All registrations with an overseas or unknown address were classified as non-trailable as they were likely to be stored in marinas or dry storage facilities. Source: Economic Associates estimates based on data provided by TMR.

### 2.2.2 Historical incidence of boat ownership

To determine the projected number of boat registrations in each LGA, the boat registration data, in conjunction with historical population data, has been analysed to calculate the historical incidence of boat ownership (that is, the number of boat registrations per 1,000 persons). The historical incidence of boat ownership was calculated for the trailable and non-trailable fleets, as defined in Section 2.1.1 above.

In the 2005 to 2016 period, the average incidence of boat ownership was as follows:

- trailable boats up to 4.5 metres in length (including jet skis): 0.00 – 140.93 boats/1,000 persons
- trailable boats 4.5 – 8 metres in length: 0.26 – 81.45 boats/1,000 persons
- non-trailable boats: 0.00 – 22.39 boats/1,000 persons.

The historical incidence of boat ownership is highest in coastal communities such as Hinchinbrook Shire, Burdekin Shire, Cook Shire, Douglas Shire, Cassowary Coast, Livingstone Shire, Town of Weipa, and Whitsunday. Of these coastal communities, only Cook Shire recorded a decline in the incidence of boat ownership between 2005 and 2016.

Table 2.3 below summarises the average historical incidence of boat ownership by vessel class in the 2005 to 2016 period, by LGA.

**Table 2.3: Historical incidence of boat ownership (registrations / 1,000 persons) by LGA, 2005-2016**

| LGA of registration | Trailable | | Non-trailable | Change in incidence of boat ownership, 2005-2016 | | |
|---|---|---|---|---|---|---|
| | Up to 4.5m | 4.5-8m | | Trailable up to 4.5m | Trailable 4.5-8m | Non-trailable |
| Aurukun (S) | 10.04 | 4.02 | 0.38 | Decrease | Decrease | Decrease |
| Balonne (S) | 40.95 | 17.04 | 2.49 | Increase | Increase | Increase |
| Banana (S) | 57.80 | 21.42 | 3.19 | Increase | Increase | Increase |
| Barcaldine (R) | 35.58 | 11.60 | 1.44 | Increase | Increase | Increase |
| Barcoo (S) | 51.88 | 10.19 | 0.79 | Increase | Increase | Increase |
| Blackall-Tambo (R) | 33.64 | 10.24 | 1.24 | Increase | Increase | Increase |
| Boulia (S) | 24.48 | 7.22 | 1.21 | Increase | Decrease | Decrease |
| Brisbane (C) | 15.62 | 6.91 | 2.83 | Decrease | Decrease | Decrease |
| Bulloo (S) | 28.32 | 5.12 | 0.81 | Increase | Increase | Increase |
| Bundaberg (R) | 74.12 | 16.67 | 4.32 | Increase | Increase | Increase |
| Burdekin (S) | 140.93 | 42.78 | 5.86 | Increase | Increase | Increase |
| Burke (S) | 57.71 | 19.99 | 3.16 | Increase | Increase | Increase |
| Cairns (R) | 39.61 | 20.12 | 5.61 | Increase | Increase | Increase |
| Carpentaria (S) | 78.97 | 36.00 | 5.52 | Decrease | Decrease | Increase |
| Cassowary Coast (R) | 89.70 | 47.12 | 9.85 | Increase | Increase | Increase |
| Central Highlands (R) | 49.70 | 23.49 | 3.81 | Increase | Increase | Increase |
| Charters Towers (R) | 40.01 | 11.72 | 1.44 | Increase | Increase | Increase |
| Cherbourg (S) | 0.00 | 0.26 | 0.00 | Decrease | Increase | Decrease |
| Cloncurry (S) | 34.44 | 13.93 | 1.73 | Increase | Increase | Increase |
| Cook (S) | 95.67 | 50.50 | 17.49 | Decrease | Decrease | Decrease |
| Croydon (S) | 52.07 | 18.63 | 1.98 | Increase | Increase | Increase |
| Diamantina (S) | 4.63 | 3.52 | 3.97 | Increase | Decrease | Increase |
| Doomadgee (S) | 0.89 | 0.48 | 0.09 | Increase | Increase | Increase |
| Douglas (S) | 73.99 | 42.56 | 13.53 | Increase | Increase | Increase |
| Etheridge (S) | 37.89 | 10.53 | 1.15 | Increase | Increase | Increase |
| Flinders (S) | 46.87 | 13.61 | 2.29 | Increase | Increase | Increase |

| LGA of registration | Trailable | | Non-trailable | Change in incidence of boat ownership, 2005-2016 | | |
|---|---|---|---|---|---|---|
| Fraser Coast (R) | 66.53 | 26.79 | 7.61 | Increase | Increase | Increase |
| Gladstone (R) | 79.06 | 35.29 | 8.60 | Increase | Increase | Increase |
| Gold Coast (C) | 37.91 | 15.37 | 6.89 | Increase | Decrease | Increase |
| Goondiwindi (R) | 56.75 | 16.61 | 1.96 | Increase | Increase | Increase |
| Gympie (R) | 53.76 | 19.88 | 5.72 | Increase | Decrease | Decrease |
| Hinchinbrook (S) | 127.50 | 47.34 | 8.75 | Increase | Increase | Increase |
| Hope Vale (S) | 9.23 | 12.70 | 2.24 | Increase | Increase | Increase |
| Ipswich (C) | 22.38 | 8.70 | 1.50 | Increase | Decrease | Decrease |
| Isaac (R) | 66.00 | 27.22 | 4.91 | Decrease | Increase | Increase |
| Kowanyama (S) | 12.03 | 1.04 | 0.19 | Increase | Increase | Increase |
| Livingstone (S) | 76.25 | 35.82 | 11.49 | Increase | Increase | Increase |
| Lockhart River (S) | 13.47 | 9.89 | 3.44 | Increase | Increase | Increase |
| Lockyer Valley (R) | 28.06 | 10.09 | 1.64 | Increase | Increase | Increase |
| Logan (C) | 24.97 | 11.89 | 3.11 | Increase | Increase | Decrease |
| Longreach (R) | 44.70 | 11.47 | 1.31 | Increase | Increase | Increase |
| Mackay (R) | 80.15 | 26.34 | 7.12 | Increase | Increase | Increase |
| McKinlay (S) | 44.64 | 21.46 | 2.75 | Increase | Increase | Increase |
| Mapoon (S) | 11.81 | 20.58 | 2.47 | Increase | Increase | Increase |
| Maranoa (R) | 33.16 | 10.21 | 1.05 | Increase | Increase | Increase |
| Mareeba (S) | 41.49 | 15.42 | 3.37 | Decrease | Increase | Increase |
| Moreton Bay (R) | 35.99 | 14.15 | 3.83 | Increase | Increase | Increase |
| Mornington (S) | 13.72 | 8.46 | 0.69 | Increase | Increase | Increase |
| Mount Isa (C) | 34.93 | 16.02 | 1.80 | Increase | Increase | Increase |
| Murweh (S) | 24.34 | 7.78 | 0.96 | Increase | Increase | Increase |
| Napranum (S) | 2.55 | 1.05 | 0.10 | Increase | Increase | Increase |
| Noosa (S) | 49.02 | 20.44 | 5.63 | Increase | Increase | Decrease |
| North Burnett (R) | 56.88 | 14.71 | 2.21 | Increase | Increase | Increase |
| Northern Peninsula Area (R) | 13.50 | 16.20 | 2.89 | Increase | Increase | Increase |
| Palm Island (S) | 16.22 | 10.97 | 1.26 | Increase | Increase | Increase |
| Paroo (S) | 18.54 | 4.45 | 0.68 | Increase | Increase | Increase |
| Pormpuraaw (S) | 8.67 | 1.63 | 0.46 | Increase | Increase | Decrease |
| Quilpie (S) | 31.95 | 4.81 | 1.14 | Increase | Increase | Increase |
| Redland (C) | 45.06 | 25.97 | 9.87 | Increase | Increase | Increase |
| Richmond (S) | 54.01 | 21.46 | 1.50 | Increase | Increase | Increase |
| Rockhampton (R) | 38.81 | 15.38 | 3.87 | Increase | Increase | Increase |
| Scenic Rim (R) | 29.04 | 11.75 | 3.48 | Increase | Decrease | Decrease |
| Somerset (R) | 36.11 | 11.96 | 2.16 | Increase | Increase | Increase |
| South Burnett (R) | 37.61 | 12.34 | 1.85 | Increase | Increase | Increase |
| Southern Downs (R) | 26.78 | 7.78 | 1.01 | Increase | Increase | Increase |
| Sunshine Coast (R) | 39.41 | 14.10 | 4.13 | Increase | Increase | Increase |
| Tablelands (R) | 59.99 | 22.48 | 4.76 | Increase | Increase | Increase |
| Toowoomba (R) | 24.81 | 8.34 | 1.32 | Increase | Increase | Increase |
| Torres (S) | 36.94 | 52.51 | 8.75 | Decrease | Decrease | Decrease |
| Torres Strait Island (R) | 1.24 | 2.16 | 0.38 | Increase | Increase | Increase |
| Townsville (C) | 45.60 | 19.29 | 4.71 | Decrease | Increase | Increase |
| Weipa (T) | 94.96 | 81.45 | 13.46 | Increase | Increase | Increase |
| Western Downs (R) | 39.52 | 16.37 | 2.15 | Increase | Increase | Increase |
| Whitsunday (R) | 95.32 | 47.25 | 22.39 | Increase | Increase | Increase |
| Winton (S) | 26.57 | 7.06 | 1.06 | Increase | Increase | Increase |
| Woorabinda (S) | 17.89 | 4.02 | 0.24 | Increase | Decrease | Decrease |
| Wujal Wujal (S) | 18.41 | 8.76 | 1.27 | Increase | Increase | Increase |
| Yarrabah (S) | 14.68 | 5.85 | 0.80 | Increase | Increase | Increase |

Note: Decrease – a decline in the incidence of boat ownership per 1,000 persons between 2005 and 2016, Increase – an increase in the incidence of boat ownership per 1,000 persons between 2005 and 2016.
Source: Economic Associates estimates based on data provided by TMR

### 2.2.3 Projected population by LGA

To project boat registrations by LGA, this analysis assumes that the incidence of new boat registrations post 2016 is consistent with the 2005-2016 average (as outlined in Table 2.3 above).

The assessment has relied on the latest projections prepared by the Queensland Government Statistician's office (Queensland Government 2015, Population Projections by LGA, medium series), rebased to take into consideration the 2016 population estimates published by the Australian Bureau of Statistics (released subsequent to the 2016 Census of Population and Housing).

Table 2.4 below outlines the projected population of each LGA in Queensland.

**Table 2.4: Projected population by LGA, medium series, 2016-2036**

| | 2016 | 2021 | 2026 | 2031 | 2036 |
|---|---|---|---|---|---|
| Aurukun (S) | 1,323 | 1,348 | 1,429 | 1,508 | 1,583 |
| Balonne (S) | 4,480 | 4,424 | 4,391 | 4,370 | 4,360 |
| Banana (S) | 14,607 | 14,871 | 15,147 | 15,394 | 15,610 |
| Barcaldine (R) | 2,909 | 2,917 | 2,930 | 2,944 | 2,961 |
| Barcoo (S) | 272 | 260 | 250 | 241 | 233 |
| Blackall-Tambo (R) | 1,924 | 1,936 | 1,957 | 1,978 | 2,004 |
| Boulia (S) | 437 | 431 | 426 | 419 | 413 |
| Brisbane (C) | 1,184,215 | 1,253,917 | 1,313,403 | 1,382,062 | 1,442,700 |
| Bulloo (S) | 360 | 346 | 332 | 319 | 306 |
| Bundaberg (R) | 94,453 | 99,443 | 105,027 | 110,562 | 116,082 |
| Burdekin (S) | 17,313 | 17,584 | 17,932 | 18,237 | 18,482 |
| Burke (S) | 342 | 366 | 390 | 414 | 436 |
| Cairns (R) | 162,451 | 176,549 | 192,763 | 209,532 | 226,125 |
| Carpentaria (S) | 2,051 | 2,066 | 2,088 | 2,112 | 2,136 |
| Cassowary Coast (R) | 29,396 | 29,217 | 29,215 | 29,362 | 29,623 |
| Central Highlands (R) | 28,783 | 30,502 | 32,128 | 33,686 | 35,239 |
| Charters Towers (R) | 12,074 | 12,228 | 12,368 | 12,536 | 12,697 |
| Cherbourg (S) | 1,296 | 1,327 | 1,370 | 1,423 | 1,475 |
| Cloncurry (S) | 3,114 | 3,129 | 3,164 | 3,212 | 3,250 |
| Cook (S) | 4,424 | 4,460 | 4,489 | 4,500 | 4,501 |
| Croydon (S) | 300 | 303 | 311 | 318 | 324 |
| Diamantina (S) | 297 | 290 | 283 | 276 | 270 |
| Doomadgee (S) | 1,474 | 1,554 | 1,639 | 1,724 | 1,811 |
| Douglas (S) | 11,997 | 12,618 | 13,350 | 14,121 | 14,903 |
| Etheridge (S) | 819 | 801 | 797 | 793 | 789 |
| Flinders (S) | 1,569 | 1,523 | 1,482 | 1,443 | 1,409 |
| Fraser Coast (R) | 102,953 | 109,451 | 117,758 | 126,200 | 133,958 |
| Gladstone (R) | 63,288 | 71,179 | 79,595 | 88,257 | 96,407 |
| Gold Coast (C) | 576,918 | 637,516 | 716,113 | 800,916 | 888,608 |
| Goondiwindi (R) | 10,837 | 10,911 | 11,014 | 11,125 | 11,241 |
| Gympie (R) | 50,292 | 52,742 | 55,650 | 58,570 | 61,556 |
| Hinchinbrook (S) | 10,990 | 10,588 | 10,172 | 9,728 | 9,274 |
| Hope Vale (S) | 967 | 1,042 | 1,118 | 1,191 | 1,263 |
| Ipswich (C) | 200,123 | 239,761 | 312,287 | 397,611 | 494,461 |
| Isaac (R) | 21,563 | 22,822 | 24,381 | 26,033 | 27,637 |
| Kowanyama (S) | 984 | 1,016 | 1,049 | 1,082 | 1,115 |
| Livingstone (S) | 37,055 | 40,446 | 44,904 | 49,930 | 55,691 |
| Lockhart River (S) | 747 | 833 | 926 | 1,021 | 1,115 |
| Lockyer Valley (R) | 39,486 | 43,477 | 47,824 | 52,301 | 56,757 |
| Logan (C) | 313,785 | 343,395 | 386,764 | 432,492 | 493,469 |
| Longreach (R) | 3,727 | 3,622 | 3,530 | 3,441 | 3,360 |
| Mackay (R) | 117,703 | 126,031 | 136,237 | 147,596 | 159,564 |
| McKinlay (S) | 810 | 830 | 849 | 865 | 879 |

| | 2016 | 2021 | 2026 | 2031 | 2036 |
|---|---|---|---|---|---|
| Mapoon (S) | 322 | 333 | 345 | 357 | 369 |
| Maranoa (R) | 12,928 | 13,611 | 14,438 | 15,292 | 16,147 |
| Mareeba (S) | 22,157 | 22,293 | 22,459 | 22,581 | 22,684 |
| Moreton Bay (R) | 438,313 | 484,280 | 536,815 | 584,862 | 627,462 |
| Mornington (S) | 1,196 | 1,277 | 1,358 | 1,435 | 1,511 |
| Mount Isa (C) | 19,332 | 20,060 | 20,821 | 21,553 | 22,266 |
| Murweh (S) | 4,391 | 4,306 | 4,235 | 4,167 | 4,109 |
| Napranum (S) | 1,001 | 1,025 | 1,049 | 1,068 | 1,086 |
| Noosa (S) | 54,033 | 55,976 | 58,591 | 60,599 | 62,406 |
| North Burnett (R) | 10,623 | 10,454 | 10,367 | 10,273 | 10,169 |
| Northern Peninsula Area (R) | 2,952 | 3,153 | 3,352 | 3,537 | 3,707 |
| Palm Island (S) | 2,602 | 2,724 | 2,854 | 2,981 | 3,105 |
| Paroo (S) | 1,686 | 1,605 | 1,534 | 1,468 | 1,408 |
| Pormpuraaw (S) | 785 | 828 | 874 | 919 | 964 |
| Quilpie (S) | 833 | 798 | 766 | 735 | 706 |
| Redland (C) | 151,987 | 162,352 | 173,030 | 180,987 | 185,065 |
| Richmond (S) | 800 | 761 | 730 | 703 | 680 |
| Rockhampton (R) | 81,589 | 85,694 | 90,105 | 94,555 | 99,104 |
| Scenic Rim (R) | 40,975 | 45,769 | 51,157 | 57,608 | 63,336 |
| Somerset (R) | 25,173 | 27,640 | 30,367 | 33,183 | 35,991 |
| South Burnett (R) | 32,747 | 34,237 | 36,000 | 37,783 | 39,542 |
| Southern Downs (R) | 35,622 | 36,827 | 38,046 | 39,262 | 40,452 |
| Sunshine Coast (R) | 303,389 | 338,162 | 379,049 | 423,122 | 467,945 |
| Tablelands (R) | 25,312 | 26,192 | 27,315 | 28,489 | 29,659 |
| Toowoomba (R) | 164,595 | 173,366 | 183,672 | 194,109 | 204,314 |
| Torres (S) | 3,789 | 3,900 | 4,028 | 4,161 | 4,301 |
| Torres Strait Island (R) | 4,785 | 4,836 | 4,898 | 4,958 | 5,022 |
| Townsville (C) | 192,058 | 211,600 | 233,015 | 255,311 | 278,025 |
| Weipa (T) | 4,024 | 4,373 | 4,646 | 5,008 | 5,347 |
| Western Downs (R) | 34,197 | 35,682 | 37,248 | 38,794 | 40,283 |
| Whitsunday (R) | 34,626 | 37,290 | 40,187 | 42,964 | 45,873 |
| Winton (S) | 1,156 | 1,118 | 1,085 | 1,055 | 1,028 |
| Woorabinda (S) | 992 | 1,014 | 1,045 | 1,077 | 1,114 |
| Wujal Wujal (S) | 296 | 303 | 310 | 316 | 321 |
| Yarrabah (S) | 2,703 | 2,835 | 3,006 | 3,184 | 3,363 |
| **Total** | **4,848,877** | **5,246,746** | **5,728,030** | **6,240,301** | **6,764,941** |

Source: Queensland Treasury (2016), ABS (2017b)

## 2.3 Projected size of recreational boating fleet

### 2.3.1 Projected size of fleet by LGA of registration

Based on the assumptions outlined above, the projected size of the recreational boating fleet registered in Queensland is projected to increase from 279,586 boats in 2016 to 381,988 boats in 2036, with the composition in 2036 anticipated to be as follows:

- 251,600 trailable boats up to 4.5 metres in length
- 100,795 trailable boats 4.5 – 8 metres in length
- 29,594 non-trailable boats.

Growth in the number of registrations is anticipated to be highest in a number of South-east Queensland councils, Cairns Regional Council, Townsville City Council and Mackay Regional Council.

Table 2.5 below summarises the projected size of the recreational boating fleet in Queensland by LGA of registration, between 2016 and 2036.

## Table 2.5: Projected size of recreational boating fleet by LGA of registration, 2016-2036

| | Trailable Fleet up to 4.5 metres | | | | | Trailable Fleet 4.5 - 8 metres | | | | | Non-Trailable Fleet | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2016 | 2021 | 2026 | 2031 | 2036 | 2016 | 2021 | 2026 | 2031 | 2036 | 2016 | 2021 | 2026 | 2031 | 2036 |
| Aurukun (S) | 9 | 9 | 10 | 11 | 12 | 9 | 9 | 9 | 9 | 10 | 0 | 0 | 0 | 1 | 1 |
| Balonne (S) | 229 | 227 | 225 | 225 | 224 | 93 | 92 | 92 | 91 | 91 | 14 | 14 | 14 | 14 | 14 |
| Banana (S) | 928 | 943 | 959 | 973 | 986 | 371 | 377 | 382 | 388 | 392 | 54 | 55 | 56 | 57 | 57 |
| Barcaldine (R) | 120 | 120 | 121 | 121 | 122 | 46 | 46 | 46 | 46 | 47 | 6 | 6 | 6 | 6 | 6 |
| Barcoo (S) | 22 | 21 | 21 | 20 | 20 | 7 | 7 | 7 | 7 | 7 | 2 | 2 | 2 | 2 | 2 |
| Blackall-Tambo (R) | 73 | 73 | 74 | 75 | 76 | 24 | 24 | 24 | 25 | 25 | 3 | 3 | 3 | 3 | 3 |
| Boulia (S) | 11 | 11 | 11 | 11 | 10 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 |
| Brisbane (C) | 18,600 | 19,688 | 20,615 | 21,686 | 22,630 | 7,539 | 8,022 | 8,436 | 8,914 | 9,337 | 3,009 | 3,207 | 3,377 | 3,573 | 3,746 |
| Bulloo (S) | 10 | 10 | 9 | 9 | 8 | 2 | 2 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Bundaberg (R) | 7,483 | 7,853 | 8,267 | 8,677 | 9,086 | 1,711 | 1,794 | 1,887 | 1,980 | 2,072 | 418 | 440 | 464 | 488 | 511 |
| Burdekin (S) | 2,560 | 2,598 | 2,647 | 2,690 | 2,724 | 887 | 899 | 914 | 927 | 937 | 123 | 125 | 127 | 128 | 130 |
| Burke (S) | 34 | 35 | 37 | 38 | 39 | 14 | 14 | 15 | 15 | 16 | 2 | 2 | 3 | 3 | 3 |
| Cairns (R) | 6,650 | 7,208 | 7,850 | 8,514 | 9,172 | 3,584 | 3,867 | 4,194 | 4,531 | 4,865 | 996 | 1,075 | 1,166 | 1,260 | 1,353 |
| Carpentaria (S) | 148 | 149 | 151 | 153 | 155 | 79 | 80 | 81 | 81 | 82 | 14 | 14 | 14 | 14 | 14 |
| Cassowary Coast (R) | 2,718 | 2,702 | 2,702 | 2,715 | 2,739 | 1,576 | 1,567 | 1,567 | 1,574 | 1,586 | 298 | 296 | 296 | 298 | 300 |
| Central Highlands (R) | 1,507 | 1,592 | 1,673 | 1,751 | 1,828 | 720 | 761 | 799 | 836 | 872 | 120 | 126 | 132 | 138 | 144 |
| Charters Towers (R) | 524 | 530 | 536 | 542 | 549 | 170 | 172 | 174 | 176 | 177 | 23 | 23 | 23 | 24 | 24 |
| Cherbourg (S) | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Cloncurry (S) | 125 | 126 | 127 | 128 | 130 | 55 | 55 | 56 | 56 | 57 | 6 | 6 | 6 | 6 | 6 |
| Cook (S) | 304 | 307 | 310 | 311 | 311 | 177 | 179 | 180 | 181 | 181 | 67 | 68 | 68 | 69 | 69 |
| Croydon (S) | 11 | 11 | 12 | 12 | 12 | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 |
| Diamantina (S) | 6 | 6 | 6 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| Doomadgee (S) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 |
| Douglas (S) | 908 | 954 | 1,008 | 1,065 | 1,123 | 664 | 691 | 722 | 755 | 788 | 175 | 183 | 193 | 204 | 214 |
| Etheridge (S) | 38 | 37 | 37 | 37 | 37 | 12 | 11 | 11 | 11 | 11 | 1 | 1 | 1 | 1 | 1 |
| Flinders (S) | 83 | 81 | 79 | 77 | 75 | 30 | 30 | 29 | 28 | 28 | 7 | 7 | 7 | 7 | 6 |
| Fraser Coast (R) | 7,252 | 7,685 | 8,237 | 8,799 | 9,315 | 2,902 | 3,076 | 3,299 | 3,525 | 3,733 | 821 | 870 | 933 | 997 | 1,056 |
| Gladstone (R) | 5,148 | 5,772 | 6,437 | 7,122 | 7,766 | 2,435 | 2,713 | 3,010 | 3,316 | 3,604 | 538 | 606 | 679 | 753 | 823 |
| Gold Coast (C) | 24,407 | 26,704 | 29,684 | 32,899 | 36,224 | 8,121 | 9,052 | 10,260 | 11,564 | 12,911 | 3,739 | 4,156 | 4,698 | 5,282 | 5,887 |
| Goondiwindi (R) | 659 | 663 | 669 | 675 | 682 | 202 | 203 | 204 | 206 | 208 | 25 | 26 | 26 | 26 | 26 |
| Gympie (R) | 2,656 | 2,787 | 2,944 | 3,101 | 3,261 | 937 | 986 | 1,044 | 1,102 | 1,161 | 235 | 249 | 266 | 282 | 299 |
| Hinchinbrook (S) | 1,428 | 1,376 | 1,323 | 1,267 | 1,209 | 635 | 616 | 596 | 575 | 553 | 118 | 114 | 111 | 107 | 103 |
| Hope Vale (S) | 17 | 18 | 18 | 19 | 20 | 14 | 15 | 16 | 17 | 18 | 4 | 4 | 4 | 4 | 4 |
| Ipswich (C) | 4,537 | 5,423 | 7,046 | 8,955 | 11,122 | 1,630 | 1,975 | 2,606 | 3,349 | 4,192 | 282 | 342 | 450 | 578 | 723 |
| Isaac (R) | 1,381 | 1,464 | 1,567 | 1,676 | 1,782 | 611 | 646 | 688 | 733 | 777 | 111 | 117 | 124 | 132 | 140 |
| Kowanyama (S) | 8 | 8 | 9 | 9 | 10 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Livingstone (S) | 2,821 | 3,079 | 3,419 | 3,803 | 4,242 | 1,507 | 1,628 | 1,788 | 1,968 | 2,174 | 504 | 543 | 594 | 652 | 718 |
| Lockhart River (S) | 7 | 8 | 9 | 11 | 12 | 5 | 6 | 7 | 8 | 9 | 4 | 4 | 4 | 5 | 5 |
| Lockyer Valley (R) | 1,285 | 1,397 | 1,519 | 1,644 | 1,770 | 461 | 501 | 545 | 590 | 635 | 78 | 85 | 92 | 99 | 106 |
| Logan (C) | 8,691 | 9,431 | 10,514 | 11,655 | 13,178 | 3,593 | 3,945 | 4,461 | 5,005 | 5,730 | 789 | 881 | 1,016 | 1,158 | 1,347 |
| Longreach (R) | 191 | 186 | 182 | 178 | 175 | 59 | 58 | 57 | 56 | 55 | 7 | 6 | 6 | 6 | 6 |
| Mackay (R) | 9,909 | 10,577 | 11,395 | 12,305 | 13,265 | 3,515 | 3,734 | 4,003 | 4,302 | 4,617 | 814 | 873 | 946 | 1,027 | 1,112 |
| McKinlay (S) | 48 | 49 | 50 | 50 | 51 | 21 | 21 | 22 | 22 | 22 | 4 | 4 | 4 | 4 | 4 |
| Mapoon (S) | 8 | 8 | 8 | 8 | 9 | 5 | 5 | 5 | 5 | 6 | 0 | 0 | 1 | 1 | 1 |
| Maranoa (R) | 544 | 567 | 594 | 622 | 651 | 180 | 187 | 196 | 204 | 213 | 22 | 23 | 23 | 24 | 25 |
| Mareeba (S) | 838 | 844 | 851 | 856 | 860 | 353 | 355 | 358 | 360 | 361 | 79 | 79 | 80 | 80 | 80 |

| | Trailable Fleet up to 4.5 metres | | | | | Trailable Fleet 4.5 - 8 metres | | | | | Non-Trailable Fleet | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2016** | **2021** | **2026** | **2031** | **2036** | **2016** | **2021** | **2026** | **2031** | **2036** | **2016** | **2021** | **2026** | **2031** | **2036** |
| Moreton Bay (R) | 16,249 | 17,903 | 19,793 | 21,523 | 23,056 | 5,992 | 6,642 | 7,386 | 8,065 | 8,668 | 1,637 | 1,813 | 2,014 | 2,198 | 2,361 |
| Mornington (S) | 16 | 17 | 18 | 19 | 20 | 13 | 13 | 14 | 15 | 15 | 2 | 2 | 2 | 2 | 2 |
| Mount Isa (C) | 700 | 725 | 752 | 778 | 802 | 402 | 413 | 425 | 437 | 449 | 43 | 45 | 46 | 47 | 49 |
| Murweh (S) | 137 | 135 | 133 | 131 | 130 | 46 | 46 | 45 | 45 | 44 | 6 | 6 | 6 | 5 | 5 |
| Napranum (S) | 7 | 7 | 7 | 7 | 7 | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 |
| Noosa (S) | 2,564 | 2,659 | 2,787 | 2,886 | 2,974 | 1,175 | 1,214 | 1,268 | 1,309 | 1,346 | 290 | 301 | 316 | 327 | 338 |
| North Burnett (R) | 633 | 623 | 618 | 613 | 607 | 182 | 180 | 178 | 177 | 175 | 26 | 26 | 25 | 25 | 25 |
| Northern Peninsula Area (R) | 25 | 28 | 30 | 33 | 35 | 46 | 49 | 52 | 55 | 58 | 9 | 10 | 10 | 11 | 11 |
| Palm Island (S) | 43 | 45 | 47 | 49 | 51 | 37 | 38 | 40 | 41 | 42 | 6 | 6 | 6 | 7 | 7 |
| Paroo (S) | 40 | 38 | 37 | 36 | 35 | 12 | 11 | 11 | 11 | 10 | 2 | 2 | 2 | 2 | 2 |
| Pormpuraaw (S) | 3 | 3 | 4 | 4 | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Quilpie (S) | 32 | 31 | 30 | 29 | 28 | 8 | 8 | 8 | 8 | 7 | 1 | 1 | 1 | 1 | 1 |
| Redland (C) | 7,692 | 8,159 | 8,640 | 8,998 | 9,182 | 3,897 | 4,166 | 4,444 | 4,650 | 4,756 | 1,473 | 1,575 | 1,680 | 1,759 | 1,799 |
| Richmond (S) | 45 | 43 | 41 | 40 | 39 | 20 | 19 | 18 | 17 | 17 | 2 | 1 | 1 | 1 | 1 |
| Rockhampton (R) | 3,777 | 3,936 | 4,107 | 4,280 | 4,456 | 1,405 | 1,468 | 1,536 | 1,604 | 1,674 | 292 | 307 | 325 | 342 | 359 |
| Scenic Rim (R) | 1,300 | 1,439 | 1,596 | 1,783 | 1,949 | 490 | 547 | 610 | 686 | 753 | 122 | 139 | 157 | 180 | 200 |
| Somerset (R) | 1,037 | 1,126 | 1,224 | 1,326 | 1,428 | 356 | 386 | 419 | 452 | 486 | 68 | 73 | 79 | 85 | 91 |
| South Burnett (R) | 1,447 | 1,503 | 1,569 | 1,636 | 1,702 | 450 | 469 | 490 | 512 | 534 | 66 | 69 | 72 | 75 | 78 |
| Southern Downs (R) | 1,119 | 1,151 | 1,184 | 1,216 | 1,248 | 314 | 323 | 333 | 342 | 351 | 42 | 44 | 45 | 46 | 47 |
| Sunshine Coast (R) | 12,641 | 14,011 | 15,623 | 17,360 | 19,126 | 4,148 | 4,638 | 5,214 | 5,836 | 6,468 | 1,225 | 1,368 | 1,537 | 1,720 | 1,905 |
| Tablelands (R) | 1,695 | 1,748 | 1,815 | 1,885 | 1,956 | 704 | 723 | 749 | 775 | 801 | 150 | 154 | 159 | 165 | 170 |
| Toowoomba (R) | 4,522 | 4,739 | 4,995 | 5,254 | 5,507 | 1,593 | 1,666 | 1,752 | 1,839 | 1,924 | 250 | 262 | 276 | 289 | 303 |
| Torres (S) | 107 | 111 | 116 | 121 | 126 | 172 | 177 | 184 | 191 | 198 | 32 | 33 | 34 | 36 | 37 |
| Torres Strait Island (R) | 6 | 6 | 6 | 6 | 6 | 9 | 9 | 9 | 10 | 10 | 2 | 2 | 2 | 2 | 2 |
| Townsville (C) | 8,289 | 9,180 | 10,156 | 11,173 | 12,209 | 3,998 | 4,375 | 4,788 | 5,218 | 5,656 | 916 | 1,008 | 1,109 | 1,214 | 1,321 |
| Weipa (T) | 230 | 263 | 289 | 323 | 356 | 237 | 265 | 287 | 317 | 344 | 37 | 42 | 46 | 50 | 55 |
| Western Downs (R) | 1,525 | 1,584 | 1,646 | 1,707 | 1,766 | 643 | 667 | 693 | 718 | 743 | 86 | 89 | 92 | 96 | 99 |
| Whitsunday (R) | 3,387 | 3,641 | 3,917 | 4,182 | 4,459 | 1,904 | 2,030 | 2,167 | 2,298 | 2,436 | 750 | 809 | 874 | 936 | 1,002 |
| Winton (S) | 32 | 31 | 30 | 29 | 29 | 11 | 11 | 11 | 10 | 10 | 2 | 2 | 2 | 2 | 2 |
| Woorabinda (S) | 3 | 3 | 4 | 5 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wujal Wujal (S) | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 |
| Yarrabah (S) | 36 | 38 | 40 | 43 | 46 | 25 | 26 | 27 | 28 | 29 | 3 | 3 | 3 | 3 | 4 |
| Interstate | 560 | 563 | 566 | 570 | 573 | 201 | 202 | 203 | 205 | 206 | 223 | 224 | 226 | 228 | 229 |
| Overseas | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 5 | 5 |
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 | 8 | 8 | 8 |
| **Total** | **184,835** | **198,834** | **215,790** | **233,554** | **251,600** | **73,462** | **79,223** | **86,171** | **93,430** | **100,795** | **21,289** | **23,068** | **25,180** | **27,382** | **29,594** |

Source: Economic Associates estimate, derived from Table 2.3 and Table 2.4

### 2.3.2 Allocation of recreational boating fleet to LGA of use

The projected recreational boating fleet estimates presented in Table 2.4 above outline the projected number of boat registrations in each LGA in Queensland, that is, the number of boat registrations by place of residence. However, boat owners may utilise their boat in multiple LGAs, including LGAs other than their place of residence.

In allocating boat registrations to LGA of use, the assessment undertook a review of the distribution of boating infrastructure throughout Queensland and was informed by consultation with LGA and port/water storage officers undertaken by GHD as part of this project.

Two matrices were compiled which outline the distribution of boat registrations to the relevant LGA/s of use, one for trailable boat registrations and the other for non-trailable boat registrations. These two matrices are presented in Appendix A.

In the case of trailable boat registrations, allocations were made only to those LGAs with identified public boating infrastructure. Based on information provided by GHD, the following LGAs in Table 2.6 did not appear to have any public boating infrastructure, and hence were not allocated any boat registrations for use in that LGA.

**Table 2.6: LGAs with no boating infrastructure for trailable vessels**

| | |
|---|---|
| Barcoo (S) | Flinders (S) |
| Blackall-Tambo (R) | Longreach (R) |
| Boulia (S) | Mareeba (S) |
| Bulloo (S) | Paroo (S) |
| Cherbourg (S) | Quilpie (S) |
| Cloncurry (S) | Richmond (S) |
| Croydon (S) | Winton (S) |
| Etheridge (S) | Woorabinda (S) |
| | |

Non-trailable boats, on the other hand, were assumed to be used only in the coastal LGAs listed in Table 2.7 below.

**Table 2.7: Coastal LGAs capturing non-trailable boat registrations**

| | | |
|---|---|---|
| Brisbane (C) | Gold Coast (C) | |
| Bundaberg (R) | Gympie (R) | Northern Peninsula Area (R) |
| Burdekin (S) | Hinchinbrook (S) | Palm Island (S) |
| Burke (S) | Hope Vale (S) | Redland (C) |
| Cairns (R) | Isaac (R) | Rockhampton (R) |
| Carpentaria (S) | Livingstone (S) | Sunshine Coast (R) |
| Cassowary Coast (R) | Lockhart River (S) | Torres (S) |
| Cook (S) | Mackay (R) | Torres Strait Island (R) |
| Douglas (S) | Moreton Bay (R) | Townsville (C) |
| Fraser Coast (R) | Mornington (S) | Whitsunday (R) |
| Gladstone (R) | Noosa (S) | Yarrabah (S) |

### 2.3.3 Projected size of fleet by LGA of use

Based on 2016 data, the size of the recreational boating fleet in Queensland is projected to increase from 272,472 boats in 2016 to 371,328 boats in 2036. The size of the recreational boating fleet in Queensland is approximately 3% lower than total boats registered in Queensland

as a result of vessel registration leakage, predominantly from the Gold Coast to northern New South Wales.

A number of LGAs are anticipated to record significant registration inflows, including:

- Redland City Council (net inflow of 8,740 vessels in 2016, increasing to 14,247 vessels in 2036)
- Gold Coast City Council (net inflow of 4,594 vessels in 2016, increasing to 7,844 vessels in 2036)
- Somerset Regional Council (net inflow of 3,075 vessels in 2016, increasing to 3,697 vessels in 2036)
- Sunshine Coast Regional Council (net inflow of 1,966 vessels in 2016, increasing to 2,314 vessels in 2036)
- Hinchinbrook Shire Council (net inflow of 1,894 vessels in 2016, increasing to 2,858 vessels in 2036)
- Scenic Rim Regional Council (net inflow of 1,559 vessels in 2016, increasing to 1,608 vessels in 2036)
- Cassowary Coast Regional Council (net inflow of 1,131 vessels in 2016, increasing to 1,350 vessels in 2036).

Table 2.8 below summarises the projected size of the recreational boating fleet by LGA of use, between 2016 and 2036.

## Table 2.8: Projected Size of Recreational Boating Fleet by LGA of Use, 2016-2036

| | Trailable fleet up to 4.5 metres | | | | | Trailable fleet 4.5 - 8 metres | | | | | Non-trailable fleet | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2016 | 2021 | 2026 | 2031 | 2036 | 2016 | 2021 | 2026 | 2031 | 2036 | 2016 | 2021 | 2026 | 2031 | 2036 |
| Aurukun (S) | 9 | 9 | 10 | 11 | 12 | 9 | 9 | 9 | 9 | 10 | 0 | 0 | 0 | 1 | 1 |
| Balonne (S) | 46 | 45 | 45 | 45 | 45 | 19 | 18 | 18 | 18 | 18 | 0 | 0 | 0 | 0 | 0 |
| Banana (S) | 450 | 460 | 471 | 481 | 491 | 184 | 189 | 193 | 197 | 201 | 0 | 0 | 0 | 0 | 0 |
| Barcaldine (R) | 281 | 275 | 269 | 264 | 260 | 91 | 90 | 88 | 87 | 86 | 0 | 0 | 0 | 0 | 0 |
| Barcoo (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Blackall-Tambo (R) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Boulia (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Brisbane (C) | 15,698 | 16,831 | 18,050 | 19,401 | 20,712 | 6,292 | 6,779 | 7,298 | 7,871 | 8,426 | 2,761 | 2,959 | 3,156 | 3,374 | 3,578 |
| Bulloo (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bundaberg (R) | 7,454 | 7,837 | 8,267 | 8,695 | 9,118 | 1,810 | 1,906 | 2,013 | 2,119 | 2,224 | 456 | 480 | 508 | 535 | 562 |
| Burdekin (S) | 2,853 | 2,937 | 3,035 | 3,130 | 3,219 | 1,060 | 1,091 | 1,128 | 1,164 | 1,199 | 184 | 191 | 199 | 208 | 216 |
| Burke (S) | 34 | 35 | 37 | 38 | 39 | 14 | 14 | 15 | 15 | 16 | 2 | 2 | 3 | 3 | 3 |
| Cairns (R) | 7,171 | 7,713 | 8,339 | 8,986 | 9,627 | 3,785 | 4,058 | 4,373 | 4,700 | 5,023 | 1,058 | 1,134 | 1,223 | 1,314 | 1,405 |
| Carpentaria (S) | 469 | 478 | 489 | 501 | 512 | 248 | 252 | 257 | 262 | 267 | 65 | 66 | 68 | 69 | 70 |
| Cassowary Coast (R) | 3,447 | 3,460 | 3,496 | 3,546 | 3,605 | 1,878 | 1,883 | 1,899 | 1,922 | 1,950 | 398 | 401 | 406 | 413 | 421 |
| Central Highlands (R) | 927 | 973 | 1,018 | 1,060 | 1,103 | 431 | 453 | 474 | 494 | 513 | 0 | 0 | 0 | 0 | 0 |
| Charters Towers (R) | 347 | 347 | 348 | 349 | 350 | 118 | 118 | 118 | 118 | 118 | 0 | 0 | 0 | 0 | 0 |
| Cherbourg (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cloncurry (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cook (S) | 509 | 514 | 519 | 521 | 523 | 264 | 267 | 269 | 270 | 271 | 11 | 11 | 11 | 11 | 11 |
| Croydon (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diamantina (S) | 6 | 6 | 6 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Doomadgee (S) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 |
| Douglas (S) | 1,388 | 1,450 | 1,523 | 1,599 | 1,675 | 873 | 907 | 947 | 989 | 1,031 | 338 | 354 | 370 | 388 | 406 |
| Etheridge (S) | 0 | 0 | 0 | 0 | 0 | 12 | 11 | 11 | 11 | 11 | 0 | 0 | 0 | 0 | 0 |
| Flinders (S) | 0 | 0 | 0 | 0 | 0 | 30 | 30 | 29 | 28 | 28 | 0 | 0 | 0 | 0 | 0 |
| Fraser Coast (R) | 7,467 | 7,902 | 8,454 | 9,015 | 9,533 | 2,912 | 3,083 | 3,302 | 3,524 | 3,729 | 847 | 897 | 961 | 1,025 | 1,084 |
| Gladstone (R) | 5,514 | 6,108 | 6,743 | 7,396 | 8,011 | 2,499 | 2,760 | 3,039 | 3,326 | 3,597 | 558 | 622 | 690 | 760 | 826 |
| Gold Coast (C) | 26,541 | 29,038 | 32,440 | 36,153 | 40,195 | 9,501 | 10,545 | 11,964 | 13,509 | 15,198 | 4,818 | 5,322 | 5,985 | 6,705 | 7,473 |
| Goondiwindi (R) | 690 | 693 | 698 | 704 | 710 | 219 | 220 | 222 | 223 | 225 | 0 | 0 | 0 | 0 | 0 |
| Gympie (R) | 2,916 | 3,083 | 3,284 | 3,489 | 3,694 | 1,041 | 1,103 | 1,178 | 1,254 | 1,330 | 297 | 316 | 339 | 362 | 386 |
| Hinchinbrook (S) | 2,609 | 2,702 | 2,806 | 2,914 | 3,023 | 1,205 | 1,246 | 1,292 | 1,340 | 1,389 | 260 | 271 | 284 | 297 | 310 |
| Hope Vale (S) | 17 | 18 | 18 | 19 | 20 | 14 | 15 | 16 | 17 | 18 | 4 | 4 | 4 | 4 | 4 |
| Ipswich (C) | 1,179 | 1,410 | 1,832 | 2,328 | 2,892 | 424 | 514 | 678 | 871 | 1,090 | 0 | 0 | 0 | 0 | 0 |
| Isaac (R) | 1,715 | 1,822 | 1,953 | 2,093 | 2,232 | 730 | 772 | 824 | 879 | 934 | 153 | 162 | 173 | 185 | 197 |
| Kowanyama (S) | 8 | 8 | 9 | 9 | 10 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Livingstone (S) | 3,230 | 3,492 | 3,822 | 4,188 | 4,602 | 1,639 | 1,760 | 1,914 | 2,085 | 2,277 | 539 | 578 | 627 | 682 | 743 |
| Lockhart River (S) | 7 | 8 | 9 | 11 | 12 | 5 | 6 | 7 | 8 | 9 | 4 | 4 | 4 | 5 | 5 |
| Lockyer Valley (R) | 450 | 489 | 532 | 576 | 619 | 161 | 175 | 191 | 207 | 222 | 0 | 0 | 0 | 0 | 0 |
| Logan (C) | 2,173 | 2,358 | 2,628 | 2,914 | 3,295 | 898 | 986 | 1,115 | 1,251 | 1,432 | 0 | 0 | 0 | 0 | 0 |
| Longreach (R) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mackay (R) | 9,185 | 9,803 | 10,558 | 11,396 | 12,279 | 3,299 | 3,505 | 3,756 | 4,034 | 4,327 | 787 | 843 | 913 | 989 | 1,069 |
| McKinlay (S) | 48 | 49 | 50 | 50 | 51 | 21 | 21 | 22 | 22 | 22 | 0 | 0 | 0 | 0 | 0 |

| | Trailable fleet up to 4.5 metres | | | | | Trailable fleet 4.5 - 8 metres | | | | | Non-trailable fleet | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2016** | **2021** | **2026** | **2031** | **2036** | **2016** | **2021** | **2026** | **2031** | **2036** | **2016** | **2021** | **2026** | **2031** | **2036** |
| Mapoon (S) | 8 | 8 | 8 | 8 | 9 | 5 | 5 | 5 | 5 | 6 | 0 | 0 | 1 | 1 | 1 |
| Maranoa (R) | 326 | 340 | 356 | 373 | 390 | 108 | 112 | 117 | 123 | 128 | 0 | 0 | 0 | 0 | 0 |
| Mareeba (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Moreton Bay (R) | 15,743 | 17,253 | 18,933 | 20,506 | 21,904 | 5,804 | 6,395 | 7,053 | 7,669 | 8,216 | 1,649 | 1,814 | 1,997 | 2,169 | 2,322 |
| Mornington (S) | 16 | 17 | 18 | 19 | 20 | 13 | 13 | 14 | 15 | 15 | 2 | 2 | 2 | 2 | 2 |
| Mount Isa (C) | 526 | 544 | 562 | 581 | 598 | 294 | 302 | 311 | 319 | 327 | 0 | 0 | 0 | 0 | 0 |
| Murweh (S) | 263 | 258 | 254 | 250 | 247 | 82 | 81 | 80 | 79 | 78 | 0 | 0 | 0 | 0 | 0 |
| Napranum (S) | 7 | 7 | 7 | 7 | 7 | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 |
| Noosa (S) | 2,923 | 3,071 | 3,259 | 3,426 | 3,586 | 1,251 | 1,309 | 1,382 | 1,447 | 1,509 | 339 | 356 | 378 | 397 | 416 |
| North Burnett (R) | 534 | 527 | 523 | 519 | 514 | 156 | 154 | 153 | 152 | 151 | 11 | 11 | 11 | 11 | 11 |
| Northern Peninsula Area (R) | 25 | 28 | 30 | 33 | 35 | 46 | 49 | 52 | 55 | 58 | 9 | 10 | 10 | 11 | 11 |
| Palm Island (S) | 43 | 45 | 47 | 49 | 51 | 37 | 38 | 40 | 41 | 42 | 6 | 6 | 6 | 7 | 7 |
| Paroo (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pormpuraaw (S) | 3 | 3 | 4 | 4 | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Quilpie (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Redland (C) | 13,870 | 14,948 | 16,310 | 17,667 | 18,993 | 6,030 | 6,549 | 7,187 | 7,805 | 8,389 | 1,901 | 2,062 | 2,256 | 2,437 | 2,602 |
| Richmond (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rockhampton (R) | 4,228 | 4,439 | 4,674 | 4,917 | 5,169 | 1,669 | 1,757 | 1,855 | 1,957 | 2,063 | 418 | 442 | 469 | 496 | 525 |
| Scenic Rim (R) | 2,570 | 2,736 | 2,924 | 3,134 | 3,328 | 901 | 962 | 1,032 | 1,110 | 1,183 | 0 | 0 | 0 | 0 | 0 |
| Somerset (R) | 3,327 | 3,529 | 3,747 | 3,972 | 4,191 | 1,209 | 1,280 | 1,356 | 1,435 | 1,511 | 0 | 0 | 0 | 0 | 0 |
| South Burnett (R) | 1,302 | 1,353 | 1,412 | 1,473 | 1,532 | 406 | 423 | 442 | 462 | 482 | 0 | 0 | 0 | 0 | 0 |
| Southern Downs (R) | 1,319 | 1,373 | 1,433 | 1,494 | 1,554 | 556 | 577 | 601 | 625 | 648 | 0 | 0 | 0 | 0 | 0 |
| Sunshine Coast (R) | 13,897 | 15,342 | 17,026 | 18,808 | 20,593 | 4,685 | 5,209 | 5,820 | 6,465 | 7,110 | 1,397 | 1,551 | 1,730 | 1,920 | 2,110 |
| Tablelands (R) | 678 | 699 | 726 | 754 | 782 | 281 | 289 | 299 | 310 | 321 | 0 | 0 | 0 | 0 | 0 |
| Toowoomba (R) | 904 | 948 | 999 | 1,051 | 1,101 | 319 | 333 | 350 | 368 | 385 | 0 | 0 | 0 | 0 | 0 |
| Torres (S) | 107 | 111 | 116 | 121 | 126 | 172 | 177 | 184 | 191 | 198 | 32 | 33 | 34 | 36 | 37 |
| Torres Strait Island (R) | 6 | 6 | 6 | 6 | 6 | 9 | 9 | 9 | 10 | 10 | 2 | 2 | 2 | 2 | 2 |
| Townsville (C) | 7,073 | 7,785 | 8,566 | 9,379 | 10,207 | 3,359 | 3,660 | 3,990 | 4,333 | 4,683 | 779 | 853 | 933 | 1,017 | 1,103 |
| Weipa (T) | 230 | 263 | 289 | 323 | 356 | 237 | 265 | 287 | 317 | 344 | 0 | 0 | 0 | 0 | 0 |
| Western Downs (R) | 1,095 | 1,132 | 1,173 | 1,215 | 1,255 | 440 | 455 | 471 | 486 | 502 | 0 | 0 | 0 | 0 | 0 |
| Whitsunday (R) | 3,900 | 4,180 | 4,490 | 4,795 | 5,115 | 2,039 | 2,170 | 2,315 | 2,457 | 2,605 | 754 | 814 | 879 | 942 | 1,008 |
| Winton (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Woorabinda (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wujal Wujal (S) | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 |
| Yarrabah (S) | 36 | 38 | 40 | 43 | 46 | 25 | 26 | 27 | 28 | 29 | 3 | 3 | 3 | 3 | 4 |
| **Total** | **179,803** | **193,341** | **209,700** | **226,820** | **244,200** | **71,825** | **77,399** | **84,104** | **91,102** | **98,196** | **20,844** | **22,580** | **24,638** | **26,781** | **28,932** |

Source: Economic Associates estimates, derived from Table 2.5, Table A.1 and Table A.2

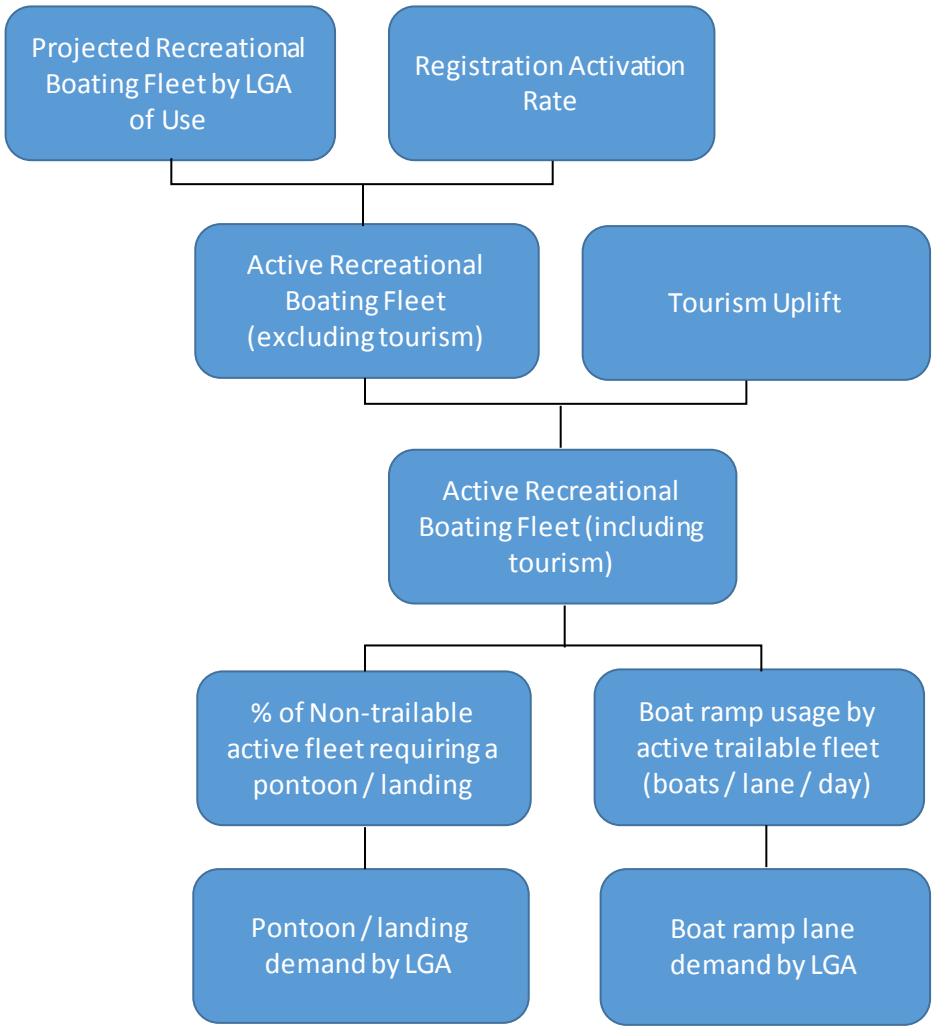
# 3 INFRASTRUCTURE DEMAND ASSESSMENT

This section converts recreational boating fleet projections into infrastructure demand projections for boat ramp lanes and landings (i.e. publically accessible deep-draught vessel pontoons) at the LGA level.

In determining infrastructure demand, the assessment estimates the likely number of boats being utilised on a day of average demand. This estimate is described as the active fleet. From here, assumptions are made relating to the relationship between trailable boats and boat ramp lane demand, and the relationship between non-trailable boats and likely landings demand.

Figure 3.1 below outlines the methodology utilised to calculate boat ramp lane and landings demand.

**Figure 3.1: Methodology to calculate boat ramp lane and landings demand at the LGA level**



## 3.1 Size of active fleet assumptions

### 3.1.1 Registration activation rate

TMR recognises three levels of demand for marine facilities, namely:

- off-peak demand – typical weekday usage
- average demand – taken to be demand for a facility on weekends (and, for certain regional locations, other busy periods)
- peak demand – demand for a facility at peak holiday periods or for special events.

The *Recreational Boating Facilities Demand Forecasting Study 2011* identified the proportion of the recreational boating fleet likely to use boating facilities for each level of demand (referred to herein as the registration activation rate):

- off-peak demand: 8%
- average demand: 14%
- peak demand: 20%.

TMR policy on catering for marine facility demand is as follows:

> *TMR expects off-peak demand at a given facility to be met in almost all circumstances. Its program of works is aimed at satisfying average demand.*
>
> *TMR does not cater for peak demand. This is because funds (provided largely by collection of recreational boat registration fees) are stretched meeting demand for basic marine infrastructure such as dredging, landings, breakwaters and boat ramps around the state, and local managing authorities cannot allocate sufficient resources (land and funds) for peak demand days. Scarce foreshore land is in intense demand for other purposes, as is funding.*

An initial assessment of demand identified that applying the average demand activation rate state-wide substantially overestimated the current and projected demand for facilities in some LGAs, based on complaints and observed levels of congestion at various facilities in those LGAs.

Therefore, unlike the *Recreational Boating Facilities Demand Forecasting Study 2011*, this study has considered differing registration activation rates by LGA.

This approach has been taken to recognise that the level of boat usage is likely to differ by LGA, depending on a range of factors, including access to recreational boating facilities, the range of recreational activities other than boating available to the community, the recreational time available to boat users (for example, retirees are likely to have more available time to undertake boating activities than persons employed on a fulltime basis), and nature of employment (for example, persons who finish work in the early afternoon are likely to have more available time to undertake boating activities than persons who finish work in the evening).

The consultation with LGA and port/water storage managers undertaken by GHD as part of this study indicated that recreational boaters typically use their boat to go fishing. A literature review was undertaken to identify the socio-economic and demographic characteristics of persons who participated in recreational fishing.

Ormsby, Jayne (2004) undertook a survey to identify the social, motivational and experiential aspects of recreational fishing by anglers from Queensland. The survey identified that just under

a quarter of respondents were classified as tradespersons and related workers, significantly higher than any other occupational class.

The Australian Bureau of Statistics (ABS) (2010) considers the participation rate of Australians in a number of sports, including fishing. This research identified that the participation rate for fishing was highest for the 55-64 year age cohort, followed by the 45-54 year age cohort. Interestingly, this result directly contradicts the findings of Department of Agriculture and Fisheries (2014), which identifies recreational fishing participation rates as being highest for the 5-14 year age cohort, and lowest for the 60+ year age cohort.

Participation rates in both studies represent the proportion of persons that participate in fishing in a given year, but do not provide insight as to the frequency of participation in that year. This means that while a certain age cohort may have a high participation rate, these persons may only go fishing once a year, while other age cohorts might have lower participation rates but higher frequency of participation. The literature review did not identify any information in relation to the frequency of participation in fishing or recreational boating by age cohort.

Our assessment has assumed that a higher average age is likely to correspond with a higher frequency of recreational boat usage, due to the greater availability of time for recreational pursuits, such as fishing and boating.

Within each LGA, the following factors were considered in refining the appropriate registration activation rate.

- incidence of blue collar employment (based on 2016 Census)
- average age of residents (based on 2016 Census)
- remoteness classification by local government area (Accessibility/Remoteness Index of Australia (ARIA+))
- whether the LGA was coastal.

ARIA+ is an index of remoteness derived from measures of road distances between populated localities to each of five categories of service centre, namely:

- distance between populated locality and population centre of 250,000+ persons
- distance between populated locality and population centre of 48,000-249,999 persons
- distance between populated locality and population centre of 18,000-47,999 persons
- distance between populated locality and population centre of 5,000-17,999 persons
- distance between populated locality and population centre of 1,000-4,999 persons.

The five distance measurements, one to each level of service centre, is recorded for each populated locality and standardised to a ratio. The ratio is calculated by dividing the measured distance for a given locality by the Australian average (mean) for that category. After applying a threshold of three to each of the ratios, all ratios are summed to produce the ARIA+ score for each populated locality across Australia. An interpolation procedure is then used to derive the index values for larger geographic areas such as LGAs.

ARIA+ is the endorsed measure of remoteness utilised by the ABS.

The fit between the ARIA+ remoteness classifications and our classification is summarised in Table 3.1 below.

**Table 3.1: Fit between ARIA+ remoteness classification and EA classification**

| ARIA+ remoteness classification | EA classification |
|---|---|
| Highly accessible / accessible | Metropolitan |
| Moderately accessible | Regional centre |
| Remote | Remote |
| Very remote | Very Remote |

To determine the appropriate registration activation rate, the following steps were taken:

- All LGAs with an ARIA+ classification of highly accessible or accessible (we have called metropolitan) were assigned a registration activation rate of 8%.
- All LGAs with an ARIA+ classification of moderately accessible (we have called regional centre) were assigned a registration activation rate as follows:
  - If the LGA has a higher incidence of blue collar workers and a higher average age than Queensland – registration activation rate is 12%.
  - For all other LGAs – registration activation rate is 10%.
- All LGAs with an ARIA+ classification of remote were assigned a registration activation rate as follows:
  - If the LGA has a higher incidence of blue collar workers and a higher average age than Queensland – registration activation rate is 14%.
  - All other LGAs – registration activation rate is 12%.
- All LGAs with an ARIA+ classification of very remote were assigned a registration activation rate of 14%.

After completing this first assessment, the registration activation rates were then adjusted to reflect whether the LGA was coastal or not. If the LGA was coastal, the registration activation rate remained unchanged. However, if the LGA was non-coastal, the registration activation rate was adjusted downwards by 2% (for example, if the registration activation rate was 12% and the LGA was non-coastal, the adjusted activation rate was 10%). This adjustment was made to reflect the extra travel distance required to access recreational boating facilities relative to persons who resided in coastal LGAs. It is considered that the further a person has to travel to access recreational boating facilities, the less often these facilities will typically be utilised. If the registration activation rate was already 8%, the rate remained unchanged.

A further reduction in activation was applied to a number of coastal LGAs in South-east Queensland with a broad offering of recreational activities, including boating, where it was determined that the appropriate registration activation rate was in the order of 6%-7%.

Based on the above criteria, Table 3.2 below summarises the activation rates applied to each LGA in Queensland.

**Table 3.2: Assumed activation rate by LGA, Queensland**

| | % Blue collar workers | Average age | Remoteness | Coastal? | Activation rate |
|---|---|---|---|---|---|
| Aurukun (S) | 33.6% | 29.2 | Very Remote | y | 14% |
| Balonne (S) | 35.1% | 38.9 | Remote | n | 12% |
| Banana (S) | 45.5% | 37.5 | Remote | n | 10% |
| Barcaldine (R) | 35.1% | 39.6 | Very Remote | n | 12% |
| Barcoo (S) | 50.0% | 41.4 | Very Remote | n | 12% |
| Blackall-Tambo (R) | 34.7% | 42.9 | Very Remote | n | 12% |
| Boulia (S) | 54.1% | 34.1 | Very Remote | n | 12% |
| Brisbane City | 22.0% | 36.8 | Metropolitan | y | 6% |
| Bulloo (S) | 42.5% | 33.8 | Very Remote | n | 12% |
| Bundaberg (R) | 37.7% | 42.9 | Regional Centre | y | 12% |
| Burdekin (S) | 42.9% | 42.5 | Regional Centre | y | 12% |
| Burke (S) | 38.8% | 39.3 | Very Remote | y | 14% |
| Cairns (R) | 30.5% | 37.3 | Regional Centre | y | 10% |
| Carpentaria (S) | 41.2% | 37.1 | Very Remote | y | 14% |
| Cassowary Coast (R) | 44.1% | 41.7 | Remote | y | 14% |
| Central Highlands (R) | 47.9% | 33.4 | Remote | n | 10% |
| Charters Towers (R) | 40.3% | 39.3 | Remote | n | 12% |
| Cherbourg (S) | 30.0% | 25.2 | Very Remote | n | 12% |
| Cloncurry (S) | 48.8% | 35.6 | Very Remote | n | 12% |
| Cook (S) | 38.3% | 39.1 | Remote | y | 14% |
| Croydon (S) | 40.7% | 35.6 | Very Remote | n | 12% |
| Diamantina (S) | 45.3% | 32.9 | Very Remote | n | 12% |
| Doomadgee (S) | 27.2% | 23.7 | Very Remote | y | 14% |
| Douglas (S) | 35.7% | 41.4 | Regional Centre | y | 12% |
| Etheridge (S) | 43.0% | 39.5 | Very Remote | n | 12% |
| Flinders (S) | 37.2% | 40.5 | Very Remote | n | 12% |
| Fraser Coast (R) | 34.4% | 44.7 | Regional Centre | y | 12% |
| Gladstone (R) | 46.8% | 35.6 | Regional Centre | y | 10% |
| Gold Coast (C) | 29.8% | 39.1 | Metropolitan | y | 6% |
| Goondiwindi (R) | 37.8% | 39.2 | Regional Centre | n | 10% |
| Gympie (R) | 40.1% | 42.9 | Metropolitan | y | 8% |
| Hinchinbrook (S) | 40.9% | 46.1 | Remote | y | 14% |
| Hope Vale (S) | 42.2% | 28.3 | Very Remote | y | 14% |
| Ipswich (C) | 37.7% | 34.2 | Metropolitan | n | 8% |
| Isaac (R) | 55.6% | 32.0 | Remote | y | 12% |
| Kowanyama (S) | 34.8% | 29.8 | Very Remote | y | 14% |
| Livingstone (S) | 38.2% | 40.6 | Very Remote | y | 14% |
| Lockhart River (S) | 35.3% | 25.6 | Very Remote | y | 14% |
| Lockyer Valley (R) | 43.4% | 38.7 | Metropolitan | n | 8% |
| Logan (C) | 40.3% | 35.4 | Metropolitan | n | 8% |
| Longreach (R) | 32.0% | 39.6 | Very Remote | n | 12% |
| Mackay (R) | 43.4% | 37.5 | Regional Centre | y | 10% |
| McKinlay (S) | 40.2% | 36.6 | Very Remote | n | 12% |
| Mapoon (S) | 26.8% | 32.6 | Very Remote | y | 14% |
| Maranoa (R) | 35.4% | 37.4 | Remote | n | 10% |
| Mareeba (S) | 36.6% | 41.4 | Remote | n | 12% |
| Moreton Bay (R) | 33.4% | 38.0 | Metropolitan | y | 7% |
| Mornington (S) | 30.8% | 29.1 | Very Remote | y | 14% |
| Mount Isa (C) | 47.2% | 32.4 | Very Remote | n | 12% |
| Murweh (S) | 37.6% | 38.8 | Very Remote | n | 12% |
| Napranum (S) | 52.3% | 28.7 | Very Remote | y | 14% |
| Noosa (S) | 30.8% | 44.9 | Metropolitan | y | 8% |
| North Burnett (R) | 40.3% | 43.7 | Regional Centre | n | 10% |
| Northern Peninsula Area (R) | 32.3% | 26.0 | Very Remote | y | 14% |
| Palm Island (S) | 28.0% | 27.4 | Very Remote | y | 14% |
| Paroo (S) | 28.0% | 41.2 | Very Remote | n | 12% |
| Pormpuraaw (S) | 33.3% | 30.5 | Very Remote | y | 14% |
| Quilpie (S) | 40.0% | 37.9 | Very Remote | n | 12% |
| Redland (C) | 32.0% | 40.3 | Metropolitan | y | 6% |
| Richmond (S) | 39.6% | 34.9 | Very Remote | n | 12% |
| Rockhampton (R) | 38.1% | 37.5 | Regional Centre | y | 10% |

| | % Blue collar workers | Average age | Remoteness | Coastal? | Activation rate |
|---|---|---|---|---|---|
| Scenic Rim (R) | 37.9% | 41.8 | Metropolitan | n | 8% |
| Somerset (R) | 43.1% | 40.4 | Metropolitan | n | 8% |
| South Burnett (R) | 39.2% | 42.5 | Regional Centre | n | 10% |
| Southern Downs (R) | 39.5% | 42.6 | Regional Centre | n | 10% |
| Sunshine Coast (R) | 31.6% | 41.6 | Metropolitan | y | 6% |
| Tablelands (R) | 35.0% | 43.6 | Remote | n | 12% |
| Toowoomba (R) | 34.1% | 39.1 | Metropolitan | n | 8% |
| Torres (S) | 26.6% | 30.6 | Very Remote | y | 14% |
| Torres Strait Island (R) | 30.3% | 27.7 | Very Remote | y | 14% |
| Townsville (C) | 32.2% | 36.0 | Regional Centre | y | 10% |
| Weipa (T) | 56.5% | 30.4 | Very Remote | y | 14% |
| Western Downs (R) | 39.8% | 37.8 | Regional Centre | n | 8% |
| Whitsunday (R) | 43.7% | 38.8 | Remote | y | 14% |
| Winton (S) | 36.2% | 44.2 | Very Remote | n | 12% |
| Woorabinda (S) | 30.4% | 25.3 | Very Remote | n | 12% |
| Wujal Wujal (S) | 25.0% | 32.7 | Remote | y | 12% |
| Yarrabah (S) | 26.6% | 26.8 | Regional Centre | y | 10% |
| Queensland | 31.8% | 38.2 | | | |

Note: Highlighted cells have a higher incidence of blue collar workers / higher average age than Queensland

### 3.1.2 Tourism Adjustment

The following LGAs were considered to record a significant uplift in boating infrastructure demand as a result of tourism activity:

- first tier LGAs:
  - Douglas Shire
  - Cairns Regional Council
  - Whitsunday Regional Council
- second tier LGAs:
  - Townsville City Council
  - Fraser Coast Council
  - Mackay Regional Council
  - Livingstone Shire Council.

The assumed uplift in boat lane demand was assumed to be as follows:

- first tier LGAs: 20% uplift in boat ramp lane and pontoon/landing demand
- second tier LGAs: 10% uplift in boat ramp lane and pontoon/landing demand.

Consultation also identified that the northern coastal LGAs of Burke, Cook and Carpentaria Shire record significant increases in demand for boating infrastructure during winter, with significant inflows of grey nomads. However, it was also identified that boating infrastructure within these LGAs was more than sufficient to accommodate these inflows.

## 3.2 Projected size of active fleet

Based on the above assumptions, the projected size of the active fleet in Queensland on a day of average demand is projected to increase from 24,298 vessels in 2016 to 32,524 vessels in 2036.

The size of the active fleet on a day of average demand is anticipated to be largest in the following LGAs, reflecting the large population residing in the South-east Queensland area:

- Gold Coast City Council (2,442 vessels in 2016, increasing to 3,764 vessels in 2036)
- Moreton Bay Regional Council (1,628 vessels in 2016, increasing to 2,268 vessels in 2036)
- Brisbane City Council (1,480 vessels in 2016, increasing to 1,969 vessels in 2036)
- Redland City Council (1,314 vessels in 2016, increasing to 1,803 vessels in 2036)
- Sunshine Coast Regional Council (1,195 vessels in 2016, increasing to 1,783 vessels in 2036).

Table 3.3 below summarises the size of the active fleet on a day of average demand between 2016 and 2036.

**Table 3.3: Projected size of active fleet on a day of average demand, 2016-2036**

| | Trailable Fleet up to 4.5 metres | | | | | Trailable Fleet 4.5 - 8 metres | | | | | Non-Trailable Fleet | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2016 | 2021 | 2026 | 2031 | 2036 | 2016 | 2021 | 2026 | 2031 | 2036 | 2016 | 2021 | 2026 | 2031 | 2036 |
| Aurukun (S) | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Balonne (S) | 5 | 5 | 5 | 5 | 5 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 |
| Banana (S) | 45 | 46 | 47 | 48 | 49 | 18 | 19 | 19 | 20 | 20 | 0 | 0 | 0 | 0 | 0 |
| Barcaldine (R) | 34 | 33 | 32 | 32 | 31 | 11 | 11 | 11 | 10 | 10 | 0 | 0 | 0 | 0 | 0 |
| Barcoo (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Blackall-Tambo (R) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Boulia (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Brisbane (C) | 942 | 1,010 | 1,083 | 1,164 | 1,243 | 378 | 407 | 438 | 472 | 506 | 160 | 180 | 180 | 200 | 220 |
| Bulloo (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bundaberg (R) | 894 | 940 | 992 | 1,043 | 1,094 | 217 | 229 | 242 | 254 | 267 | 60 | 60 | 60 | 60 | 60 |
| Burdekin (S) | 342 | 352 | 364 | 376 | 386 | 127 | 131 | 135 | 140 | 144 | 20 | 20 | 20 | 20 | 20 |
| Burke (S) | 5 | 5 | 5 | 5 | 6 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 |
| Cairns (R) | 860 | 925 | 1,001 | 1,079 | 1,156 | 454 | 487 | 524 | 564 | 602 | 120 | 140 | 140 | 160 | 160 |
| Carpentaria (S) | 66 | 67 | 69 | 70 | 72 | 35 | 35 | 36 | 37 | 37 | 0 | 0 | 0 | 0 | 0 |
| Cassowary Coast (R) | 483 | 484 | 489 | 496 | 505 | 263 | 264 | 266 | 269 | 273 | 60 | 60 | 60 | 60 | 60 |
| Central Highlands (R) | 93 | 97 | 102 | 106 | 110 | 43 | 45 | 47 | 49 | 51 | 0 | 0 | 0 | 0 | 0 |
| Charters Towers (R) | 42 | 42 | 42 | 42 | 42 | 14 | 14 | 14 | 14 | 14 | 0 | 0 | 0 | 0 | 0 |
| Cherbourg (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cloncurry (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cook (S) | 71 | 72 | 73 | 73 | 73 | 37 | 37 | 38 | 38 | 38 | 0 | 0 | 0 | 0 | 0 |
| Croydon (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diamantina (S) | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Doomadgee (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Douglas (S) | 200 | 209 | 220 | 230 | 241 | 126 | 131 | 137 | 143 | 149 | 40 | 40 | 40 | 40 | 40 |
| Etheridge (S) | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Flinders (S) | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 0 |
| Fraser Coast (R) | 986 | 1,043 | 1,115 | 1,190 | 1,258 | 384 | 407 | 436 | 465 | 493 | 120 | 120 | 140 | 140 | 160 |
| Gladstone (R) | 551 | 611 | 674 | 740 | 801 | 250 | 276 | 304 | 333 | 360 | 60 | 60 | 60 | 80 | 80 |
| Gold Coast (C) | 1,592 | 1,742 | 1,946 | 2,169 | 2,412 | 570 | 633 | 718 | 811 | 912 | 280 | 320 | 360 | 400 | 440 |
| Goondiwindi (R) | 69 | 69 | 70 | 70 | 71 | 22 | 22 | 22 | 22 | 23 | 0 | 0 | 0 | 0 | 0 |
| Gympie (R) | 233 | 247 | 263 | 279 | 296 | 83 | 88 | 94 | 100 | 106 | 20 | 20 | 20 | 20 | 40 |
| Hinchinbrook (S) | 365 | 378 | 393 | 408 | 423 | 169 | 174 | 181 | 188 | 194 | 40 | 40 | 40 | 40 | 40 |
| Hope Vale (S) | 2 | 2 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 3 | 0 | 0 | 0 | 0 | 0 |
| Ipswich (C) | 94 | 113 | 147 | 186 | 231 | 34 | 41 | 54 | 70 | 87 | 0 | 0 | 0 | 0 | 0 |
| Isaac (R) | 206 | 219 | 234 | 251 | 268 | 88 | 93 | 99 | 105 | 112 | 20 | 20 | 20 | 20 | 20 |
| Kowanyama (S) | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Livingstone (S) | 497 | 538 | 589 | 645 | 708 | 252 | 271 | 295 | 321 | 351 | 80 | 80 | 80 | 120 | 120 |
| Lockhart River (S) | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Lockyer Valley (R) | 36 | 39 | 43 | 46 | 50 | 13 | 14 | 15 | 17 | 18 | 0 | 0 | 0 | 0 | 0 |
| Logan (C) | 174 | 189 | 210 | 233 | 264 | 72 | 79 | 89 | 100 | 115 | 0 | 0 | 0 | 0 | 0 |
| Longreach (R) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mackay (R) | 1,010 | 1,078 | 1,162 | 1,254 | 1,351 | 363 | 385 | 414 | 443 | 476 | 80 | 80 | 120 | 120 | 120 |
| McKinlay (S) | 6 | 6 | 6 | 6 | 6 | 2 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 0 |
| Mapoon (S) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |

| | Trailable Fleet up to 4.5 metres | | | | | Trailable Fleet 4.5 - 8 metres | | | | | Non-Trailable Fleet | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2016** | **2021** | **2026** | **2031** | **2036** | **2016** | **2021** | **2026** | **2031** | **2036** | **2016** | **2021** | **2026** | **2031** | **2036** |
| Maranoa (R) | 33 | 34 | 36 | 37 | 39 | 11 | 11 | 12 | 12 | 13 | 0 | 0 | 0 | 0 | 0 |
| Mareeba (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Moreton Bay (R) | 1,102 | 1,208 | 1,325 | 1,435 | 1,533 | 406 | 448 | 494 | 537 | 575 | 120 | 120 | 140 | 160 | 160 |
| Mornington (S) | 2 | 2 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 |
| Mount Isa (C) | 63 | 65 | 67 | 70 | 72 | 35 | 36 | 37 | 38 | 39 | 0 | 0 | 0 | 0 | 0 |
| Murweh (S) | 32 | 31 | 30 | 30 | 30 | 10 | 10 | 10 | 10 | 9 | 0 | 0 | 0 | 0 | 0 |
| Napranum (S) | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Noosa (S) | 234 | 246 | 261 | 274 | 287 | 100 | 105 | 111 | 116 | 121 | 20 | 20 | 40 | 40 | 40 |
| North Burnett (R) | 53 | 53 | 52 | 52 | 51 | 16 | 15 | 15 | 15 | 15 | 0 | 0 | 0 | 0 | 0 |
| Northern Peninsula Area (R) | 4 | 4 | 4 | 5 | 5 | 6 | 7 | 7 | 8 | 8 | 0 | 0 | 0 | 0 | 0 |
| Palm Island (S) | 6 | 6 | 7 | 7 | 7 | 5 | 5 | 6 | 6 | 6 | 0 | 0 | 0 | 0 | 0 |
| Paroo (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pormpuraaw (S) | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Quilpie (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Redland (C) | 832 | 897 | 979 | 1,060 | 1,140 | 362 | 393 | 431 | 468 | 503 | 120 | 120 | 140 | 140 | 160 |
| Richmond (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rockhampton (R) | 423 | 444 | 467 | 492 | 517 | 167 | 176 | 186 | 196 | 206 | 40 | 40 | 40 | 40 | 60 |
| Scenic Rim (R) | 206 | 219 | 234 | 251 | 266 | 72 | 77 | 83 | 89 | 95 | 0 | 0 | 0 | 0 | 0 |
| Somerset (R) | 266 | 282 | 300 | 318 | 335 | 97 | 102 | 108 | 115 | 121 | 0 | 0 | 0 | 0 | 0 |
| South Burnett (R) | 130 | 135 | 141 | 147 | 153 | 41 | 42 | 44 | 46 | 48 | 0 | 0 | 0 | 0 | 0 |
| Southern Downs (R) | 132 | 137 | 143 | 149 | 155 | 56 | 58 | 60 | 62 | 65 | 0 | 0 | 0 | 0 | 0 |
| Sunshine Coast (R) | 834 | 921 | 1,022 | 1,129 | 1,236 | 281 | 313 | 349 | 388 | 427 | 80 | 100 | 100 | 120 | 120 |
| Tablelands (R) | 81 | 84 | 87 | 90 | 94 | 34 | 35 | 36 | 37 | 38 | 0 | 0 | 0 | 0 | 0 |
| Toowoomba (R) | 72 | 76 | 80 | 84 | 88 | 25 | 27 | 28 | 29 | 31 | 0 | 0 | 0 | 0 | 0 |
| Torres (S) | 15 | 16 | 16 | 17 | 18 | 24 | 25 | 26 | 27 | 28 | 0 | 0 | 0 | 0 | 0 |
| Torres Strait Island (R) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Townsville (C) | 778 | 856 | 943 | 1,032 | 1,123 | 370 | 403 | 439 | 476 | 515 | 80 | 80 | 120 | 120 | 140 |
| Weipa (T) | 32 | 37 | 40 | 45 | 50 | 33 | 37 | 40 | 44 | 48 | 0 | 0 | 0 | 0 | 0 |
| Western Downs (R) | 88 | 91 | 94 | 97 | 100 | 35 | 36 | 38 | 39 | 40 | 0 | 0 | 0 | 0 | 0 |
| Whitsunday (R) | 655 | 702 | 755 | 805 | 859 | 342 | 365 | 389 | 413 | 438 | 120 | 140 | 140 | 160 | 160 |
| Winton (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Woorabinda (S) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wujal Wujal (S) | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Yarrabah (S) | 4 | 4 | 4 | 4 | 5 | 2 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **15,987** | **17,118** | **18,476** | **19,892** | **21,333** | **6,571** | **7,042** | **7,599** | **8,180** | **8,771** | **1,740** | **1,860** | **2,060** | **2,260** | **2,420** |

Source: Economic Associates estimates

## 3.3 Relationship between active fleet and boating infrastructure demand

### 3.3.1 Conversion of active trailable fleet to boat ramp lane demand

Converting active trailable fleet estimates into boat ramp lane demand has been undertaken based on throughput rates of ramps. In SKM (1988) and Rose et. al. (2009), a rate of 30 boats per lane per day is considered to provide unhampered overall amenity, whereas a rate of 50 boats per lane per day represents congested operations.

It has been assumed that the midpoint (40) between unhampered overall amenity (30 boats per lane per day) and congested operations (50 boats per lane per day) would represent the ideal scenario, as it balances the needs and wants of trailable boat owners against the costs incurred by local governments, port authorities, water storage managers, state governments and the private sector in providing boat ramps.

This assumption is consistent with the assumption made in the *Recreational Boating Facilities Demand Forecasting Study 2011*.

### 3.3.2 Relationship between active non-trailable fleet and pontoon/landing demand

The literature review did not uncover any literature relating to public pontoon/landing demand.

Public pontoon/landing demand is driven by the size of the non-trailable fleet. The assessment has assumed that on a given day, an estimated 5% of the active non-trailable fleet is anticipated to demand a public pontoon/landing.

## 3.4 Projected boat ramp lane demand

Total boat ramp lane demand in Queensland is projected to increase from 563 lanes in 2016 to 757 lanes in 2036 (refer to Table 3.4 below). The LGAs anticipated to record the highest demand for boat ramps are:

- Gold Coast City Council (54 boat ramp lanes in 2016, 83 boat ramp lanes in 2036)
- Moreton Bay Regional Council (38 boat ramp lanes in 2016, 52 boat ramp lanes in 2036)
- Brisbane City Council (33 boat ramp lanes in 2016, 44 boat ramp lanes in 2036)
- Redland City Council (30 boat ramp lanes in 2016, 42 boat ramp lanes in 2036)
- Mackay Regional Council (34 boat ramp lanes in 2016, 46 boat ramp lanes in 2036)
- Fraser Coast Regional Council (34 boat ramp lanes in 2016, 44 boat ramp lanes in 2036)
- Cairns Regional Council (33 boat ramp lanes in 2016, 45 boat ramp lanes in 2036)
- Townsville City Council (29 boat ramp lanes in 2016, 42 boat ramp lanes in 2036)
- Sunshine Coast Regional Council (28 boat ramp lanes in 2016, 42 boat ramp lanes in 2036)
- Bundaberg Regional Council (27 boat ramp lanes in 2016, 34 boat ramp lanes in 2036).

Table 3.4 below identifies that some LGAs have demand for less than one boat ramp lane. These LGAs currently have either little or no public boating infrastructure but recorded vessel registrations.

**Table 3.4: Projected boat ramp lane demand by LGA, 2016-2036**

| | Trailable Fleet up to 4.5 metres | | | | | Trailable Fleet 4.5 - 8 metres | | | | | Total | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2016 | 2021 | 2026 | 2031 | 2036 | 2016 | 2021 | 2026 | 2031 | 2036 | 2016 | 2021 | 2026 | 2031 | 2036 |
| Aurukun (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Balonne (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Banana (S) | 1 | 1 | 1 | 1 | 1 | <1 | <1 | <1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |
| Barcaldine (R) | 1 | 1 | 1 | 1 | 1 | <1 | <1 | <1 | <1 | <1 | 1 | 1 | 1 | 1 | 1 |
| Barcoo (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Blackall-Tambo (R) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Boulia (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Brisbane (C) | 24 | 25 | 27 | 29 | 31 | 9 | 10 | 11 | 12 | 13 | 33 | 35 | 38 | 41 | 44 |
| Bulloo (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Bundaberg (R) | 22 | 24 | 25 | 26 | 27 | 5 | 6 | 6 | 6 | 7 | 27 | 30 | 31 | 32 | 34 |
| Burdekin (S) | 9 | 9 | 9 | 9 | 10 | 3 | 3 | 3 | 4 | 4 | 12 | 12 | 12 | 13 | 14 |
| Burke (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Cairns (R) | 22 | 23 | 25 | 26 | 29 | 11 | 12 | 13 | 14 | 16 | 33 | 35 | 38 | 40 | 45 |
| Carpentaria (S) | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 3 |
| Cassowary Coast (R) | 12 | 12 | 12 | 12 | 13 | 7 | 7 | 7 | 7 | 7 | 19 | 19 | 19 | 19 | 20 |
| Central Highlands (R) | 2 | 2 | 3 | 3 | 3 | 1 | 1 | 1 | 1 | 1 | 3 | 3 | 4 | 4 | 4 |
| Charters Towers (R) | 1 | 1 | 1 | 1 | 1 | <1 | <1 | <1 | <1 | <1 | 1 | 1 | 1 | 1 | 1 |
| Cherbourg (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Cloncurry (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Cook (S) | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 3 |
| Croydon (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Diamantina (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Doomadgee (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Douglas (S) | 5 | 5 | 6 | 6 | 6 | 4 | 4 | 4 | 4 | 4 | 9 | 9 | 10 | 10 | 10 |
| Etheridge (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Flinders (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Fraser Coast (R) | 24 | 26 | 28 | 30 | 32 | 10 | 10 | 11 | 12 | 12 | 34 | 36 | 39 | 42 | 44 |
| Gladstone (R) | 14 | 15 | 17 | 19 | 20 | 6 | 7 | 8 | 8 | 9 | 20 | 22 | 25 | 27 | 29 |
| Gold Coast (C) | 40 | 44 | 49 | 54 | 60 | 14 | 16 | 18 | 20 | 23 | 54 | 60 | 67 | 74 | 83 |
| Goondiwindi (R) | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 3 |
| Gympie (R) | 6 | 6 | 7 | 7 | 7 | 2 | 2 | 2 | 3 | 3 | 8 | 8 | 9 | 10 | 10 |
| Hinchinbrook (S) | 9 | 9 | 10 | 10 | 11 | 4 | 4 | 5 | 5 | 5 | 13 | 13 | 15 | 15 | 16 |
| Hope Vale (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Ipswich (C) | 2 | 3 | 4 | 5 | 6 | 1 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 7 | 8 |
| Isaac (R) | 5 | 5 | 6 | 6 | 7 | 2 | 2 | 2 | 3 | 3 | 7 | 7 | 8 | 9 | 10 |
| Kowanyama (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Livingstone (S) | 12 | 13 | 14 | 17 | 18 | 7 | 7 | 8 | 8 | 9 | 19 | 20 | 22 | 25 | 27 |
| Lockhart River (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Lockyer Valley (R) | 1 | 1 | 1 | 1 | 1 | <1 | <1 | <1 | <1 | <1 | 1 | 1 | 1 | 1 | 1 |
| Logan (C) | 4 | 5 | 5 | 6 | 7 | 2 | 2 | 2 | 3 | 3 | 6 | 7 | 7 | 9 | 10 |
| Longreach (R) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Mackay (R) | 25 | 28 | 29 | 32 | 34 | 9 | 10 | 10 | 11 | 12 | 34 | 38 | 39 | 43 | 46 |
| McKinlay (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |

| | Trailable Fleet up to 4.5 metres | | | | | Trailable Fleet 4.5 - 8 metres | | | | | Total | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2016** | **2021** | **2026** | **2031** | **2036** | **2016** | **2021** | **2026** | **2031** | **2036** | **2016** | **2021** | **2026** | **2031** | **2036** |
| Mapoon (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Maranoa (R) | 1 | 1 | 1 | 1 | 1 | <1 | <1 | <1 | <1 | <1 | 1 | 1 | 1 | 1 | 1 |
| Mareeba (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Moreton Bay (R) | 28 | 30 | 33 | 36 | 38 | 10 | 11 | 12 | 13 | 14 | 38 | 41 | 45 | 49 | 52 |
| Mornington (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Mount Isa (C) | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 3 |
| Murweh (S) | 1 | 1 | 1 | 1 | 1 | <1 | <1 | <1 | <1 | <1 | 1 | 1 | 1 | 1 | 1 |
| Napranum (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Noosa (S) | 6 | 6 | 7 | 7 | 7 | 3 | 3 | 3 | 3 | 3 | 9 | 9 | 10 | 10 | 10 |
| North Burnett (R) | 1 | 1 | 1 | 1 | 1 | <1 | <1 | <1 | <1 | <1 | 1 | 1 | 1 | 1 | 1 |
| Northern Peninsula Area (R) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Palm Island (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Paroo (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Pormpuraaw (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Quilpie (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Redland (C) | 21 | 22 | 24 | 27 | 29 | 9 | 10 | 11 | 12 | 13 | 30 | 32 | 35 | 39 | 42 |
| Richmond (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Rockhampton (R) | 11 | 11 | 12 | 12 | 13 | 4 | 4 | 5 | 5 | 5 | 15 | 15 | 17 | 17 | 18 |
| Scenic Rim (R) | 5 | 5 | 6 | 6 | 7 | 2 | 2 | 2 | 2 | 2 | 7 | 7 | 8 | 8 | 9 |
| Somerset (R) | 7 | 7 | 8 | 8 | 8 | 2 | 3 | 3 | 3 | 3 | 9 | 10 | 11 | 11 | 11 |
| South Burnett (R) | 3 | 3 | 4 | 4 | 4 | 1 | 1 | 1 | 1 | 1 | 4 | 4 | 5 | 5 | 5 |
| Southern Downs (R) | 3 | 3 | 4 | 4 | 4 | 1 | 1 | 2 | 2 | 2 | 4 | 4 | 6 | 6 | 6 |
| Sunshine Coast (R) | 21 | 23 | 26 | 28 | 31 | 7 | 8 | 9 | 10 | 11 | 28 | 31 | 35 | 38 | 42 |
| Tablelands (R) | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 3 |
| Toowoomba (R) | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 3 |
| Torres (S) | <1 | <1 | <1 | <1 | <1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Torres Strait Island (R) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Townsville (C) | 20 | 21 | 23 | 25 | 29 | 9 | 10 | 11 | 12 | 13 | 29 | 31 | 34 | 37 | 42 |
| Weipa (T) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 |
| Western Downs (R) | 2 | 2 | 2 | 2 | 3 | 1 | 1 | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 4 |
| Whitsunday (R) | 17 | 18 | 19 | 20 | 22 | 8 | 10 | 10 | 11 | 11 | 25 | 28 | 29 | 31 | 33 |
| Winton (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Woorabinda (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Wujal Wujal (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Yarrabah (S) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| **Total** | **401** | **425** | **464** | **496** | **536** | **162** | **176** | **190** | **207** | **221** | **563** | **601** | **654** | **703** | **757** |

Note: Economic Associates estimates, derived from Table 3.3

## 3.5 Projected pontoon/landing demand

In Queensland, total pontoon/landing demand is projected to increase from 87 pontoons/landings in 2016 to 121 pontoons/landings in 2036.

The LGAs anticipated to have the most significant demand for pontoons/landings are Gold Coast City, Brisbane City, Redland City, Sunshine Coast Regional Council, Cairns Regional Council, Fraser Coast Regional Council and Whitsunday Regional Council.

Table 3.5 below summarises the projected pontoon/landing demand by LGA between 2016 and 2036.

**Table 3.5: Projected pontoon / landing demand by LGA, 2016-2036**

| | 2016 | 2021 | 2026 | 2031 | 2036 |
|---|---|---|---|---|---|
| Aurukun (S) | 0 | 0 | 0 | 0 | 0 |
| Balonne (S) | 0 | 0 | 0 | 0 | 0 |
| Banana (S) | 0 | 0 | 0 | 0 | 0 |
| Barcaldine (R) | 0 | 0 | 0 | 0 | 0 |
| Barcoo (S) | 0 | 0 | 0 | 0 | 0 |
| Blackall-Tambo (R) | 0 | 0 | 0 | 0 | 0 |
| Boulia (S) | 0 | 0 | 0 | 0 | 0 |
| Brisbane (C) | 8 | 9 | 9 | 10 | 11 |
| Bulloo (S) | 0 | 0 | 0 | 0 | 0 |
| Bundaberg (R) | 3 | 3 | 3 | 3 | 3 |
| Burdekin (S) | 1 | 1 | 1 | 1 | 1 |
| Burke (S) | <1 | <1 | <1 | <1 | <1 |
| Cairns (R) | 6 | 7 | 7 | 8 | 8 |
| Carpentaria (S) | <1 | <1 | <1 | <1 | <1 |
| Cassowary Coast (R) | 3 | 3 | 3 | 3 | 3 |
| Central Highlands (R) | 0 | 0 | 0 | 0 | 0 |
| Charters Towers (R) | 0 | 0 | 0 | 0 | 0 |
| Cherbourg (S) | 0 | 0 | 0 | 0 | 0 |
| Cloncurry (S) | 0 | 0 | 0 | 0 | 0 |
| Cook (S) | <1 | <1 | <1 | <1 | <1 |
| Croydon (S) | 0 | 0 | 0 | 0 | 0 |
| Diamantina (S) | 0 | 0 | 0 | 0 | 0 |
| Doomadgee (S) | 0 | 0 | 0 | 0 | 0 |
| Douglas (S) | 2 | 2 | 2 | 2 | 2 |
| Etheridge (S) | 0 | 0 | 0 | 0 | 0 |
| Flinders (S) | 0 | 0 | 0 | 0 | 0 |
| Fraser Coast (R) | 6 | 6 | 7 | 7 | 8 |
| Gladstone (R) | 3 | 3 | 3 | 4 | 4 |
| Gold Coast (C) | 14 | 16 | 18 | 20 | 22 |
| Goondiwindi (R) | 0 | 0 | 0 | 0 | 0 |
| Gympie (R) | 1 | 1 | 1 | 1 | 2 |
| Hinchinbrook (S) | 2 | 2 | 2 | 2 | 2 |
| Hope Vale (S) | <1 | <1 | <1 | <1 | <1 |
| Ipswich (C) | <1 | <1 | <1 | <1 | <1 |
| Isaac (R) | 1 | 1 | 1 | 1 | 1 |
| Kowanyama (S) | 0 | 0 | 0 | 0 | 0 |
| Livingstone (S) | 4 | 4 | 4 | 6 | 6 |
| Lockhart River (S) | <1 | <1 | <1 | <1 | <1 |
| Lockyer Valley (R) | 0 | 0 | 0 | 0 | 0 |
| Logan (C) | <1 | <1 | <1 | <1 | <1 |
| Longreach (R) | 0 | 0 | 0 | 0 | 0 |
| Mackay (R) | 4 | 4 | 6 | 6 | 6 |
| McKinlay (S) | 0 | 0 | 0 | 0 | 0 |
| Mapoon (S) | 0 | 0 | 0 | 0 | 0 |

| | 2016 | 2021 | 2026 | 2031 | 2036 |
|---|---|---|---|---|---|
| Maranoa (R) | 0 | 0 | 0 | 0 | 0 |
| Mareeba (S) | 0 | 0 | 0 | 0 | 0 |
| Moreton Bay (R) | 6 | 6 | 7 | 8 | 8 |
| Mornington (S) | <1 | <1 | <1 | <1 | <1 |
| Mount Isa (C) | 0 | 0 | 0 | 0 | 0 |
| Murweh (S) | 0 | 0 | 0 | 0 | 0 |
| Napranum (S) | 0 | 0 | 0 | 0 | 0 |
| Noosa (S) | 1 | 1 | 2 | 2 | 2 |
| North Burnett (R) | 0 | 0 | 0 | 0 | 0 |
| Northern Peninsula Area (R) | <1 | <1 | <1 | <1 | <1 |
| Palm Island (S) | <1 | <1 | <1 | <1 | <1 |
| Paroo (S) | 0 | 0 | 0 | 0 | 0 |
| Pormpuraaw (S) | 0 | 0 | 0 | 0 | 0 |
| Quilpie (S) | 0 | 0 | 0 | 0 | 0 |
| Redland (C) | 6 | 6 | 7 | 7 | 8 |
| Richmond (S) | 0 | 0 | 0 | 0 | 0 |
| Rockhampton (R) | 2 | 2 | 2 | 2 | 3 |
| Scenic Rim (R) | 0 | 0 | 0 | 0 | 0 |
| Somerset (R) | 0 | 0 | 0 | 0 | 0 |
| South Burnett (R) | 0 | 0 | 0 | 0 | 0 |
| Southern Downs (R) | 0 | 0 | 0 | 0 | 0 |
| Sunshine Coast (R) | 4 | 5 | 5 | 6 | 6 |
| Tablelands (R) | 0 | 0 | 0 | 0 | 0 |
| Toowoomba (R) | 0 | 0 | 0 | 0 | 0 |
| Torres (S) | <1 | <1 | <1 | <1 | <1 |
| Torres Strait Island (R) | <1 | <1 | <1 | <1 | <1 |
| Townsville (C) | 4 | 4 | 6 | 6 | 7 |
| Weipa (T) | <1 | <1 | <1 | <1 | <1 |
| Western Downs (R) | 0 | 0 | 0 | 0 | 0 |
| Whitsunday (R) | 6 | 7 | 7 | 8 | 8 |
| Winton (S) | 0 | 0 | 0 | 0 | 0 |
| Woorabinda (S) | 0 | 0 | 0 | 0 | 0 |
| Wujal Wujal (S) | 0 | 0 | 0 | 0 | 0 |
| Yarrabah (S) | <1 | <1 | <1 | <1 | <1 |
| **Total** | **87** | **93** | **103** | **113** | **121** |

Source: Economic Associates estimates, derived from Table 3.3

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# APPENDIX A

# DISTRIBUTION OF BOAT REGISTRATIONS TO LGAS OF USE

## Table A.1: Distribution of boat registrations to LGAs of use, trailable boat registrations

| | LGA Registration Address | | |

## Table A.2: Distribution of boat registrations to LGAs of use, non-trailable boat registrations

| | LGA Registration Address | | |

GHD

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GPO Box 668 Brisbane QLD 4001
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