Transport and Main Roads - TransLink Division

Dakabin Station Analysis Report

REP01

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1 Executive Summary

Dakabin Station has been identified as a station for consideration and further investigation as part of a network-wide rail station prioritisation study. As a result, work has been undertaken to identify issues that may be addressed to achieve an optimal infrastructure solution for the Dakabin Station precinct. These issues are summarised in the following sections, with recommended next steps outlined to determine an approach for moving forward with agreed outcomes for the station.

It should be noted that this investigation was undertaken prior to the opening of the Redcliffe Peninsula Line.

The overarching issues identified at the existing Dakabin Station are summarised below:

- Lack of available car parking spaces at the existing station's park 'n' ride facility, particularly at times of peak commuter demand;
- Impact of overflow commuter car parking on local nearby streets;
- Congestion on nearby roads due to on street parking which may impact future bus service reliability;
- Lack of bus services providing direct access to the rail station from surrounding suburbs;
- Inadequate accessibility to the station and immediate precinct including lack of adequate safe pedestrian and cycle infrastructure along direct routes to the station from the surrounding catchment; and
- Lack of viable public transport connection from North Lakes.

Notwithstanding the above, analysis of available data and planning documents highlights the following findings:

- Based on current patronage, Dakabin is ranked 59 of 148 stations in South East Queensland (SEQ).
- Current parking demand is over capacity with an average of 339 vehicles parking within the station precinct (October 2015). Current provisions can only currently accommodate 176 vehicles (including 168 car parks and eight motorcycle spaces).
- Following the opening of the Redcliffe Peninsula Line, there is potential for a number of commuters to redistribute to this new corridor. This could result in spare capacity at Dakabin.
- There is currently a limited walk up catchment due to low-medium density development surrounding the station precinct, however it is noted that the existing location is in close proximity to Dakabin State High School.
- Access for all transport modes within the station precinct could be improved to enhance wider accessibility, and better cater for people with disabilities, the elderly and families with prams.
- There is limited active transport infrastructure within the local road network.

Taking into consideration these issues, the report presents preliminary options that could be considered for the station precinct. These include but are not limited to:

- Possible upgrades to the existing station to address accessibility and other infrastructure limitations;
- Additional parking, subject to changes in travel behaviours of Moreton Bay Region residents, as a result of the opening of the new Redcliffe Peninsula Line;
- Upgrades to both kiss 'n' ride and bus feeder infrastructure in order to enhance connectivity to, and uplift patronage at, the station;
- Improve pedestrian footpaths and cycle paths connecting the station with developing communities; and/or
- Review the optimal location of the station, along the existing rail corridor.

These options are preliminary only, and in order to ensure that the optimal solution for the Dakabin Station precinct is identified, further work is required. These further investigations will ensure that any preferred solution addresses demand, community need and land use proposals in the area. Consequently, the following next steps are recommended to assist with progressing any future decisions regarding upgrades at Dakabin Station:

- Explore options in conjunction with Moreton Bay Regional Council (MBRC) in respect to the following:
    - Potential masterplan of the new station precinct area taking into consideration surrounding and adjacent land on the rail corridor;
    - Alignment with MBRC's planning scheme for the area and transit oriented communities / Next Generation neighbourhood plan;
    - The optimal location of the station on the rail corridor with the intention of initiating economic development (Transit Oriented Development / Communities);
    - Potential opportunities in respect to any Transit Orientated Developments at the site; and
    - Requirements to meet *Disability Discrimination Act* 1992 (DDA) compliance, wider station accessibility and linkages to other land uses (e.g. schools, parks, etc.).
- Ensure that any changes to baseline patronage and travel behaviours are reflected in the recommendations above. These changes may be as a result of:
    - The introduction of the January 2017 fare package including both fare pricing and zoning; and
    - Impacts from the opening of the Redcliffe Peninsula Line in October 2016.

2 Introduction

2.1 Dakabin Station Analysis Report

This Dakabin Station Analysis Report provides a summary of the current and future issues identified as part of developing the Rail Network Prioritisation Framework "toolkit", where the framework has enabled the identification of a priority list of stations requiring coordinated investment decisions between key stakeholders. Dakabin Railway Station has been identified as a priority station with specific issues requiring review and assessment.

This Dakabin Analysis Report summarises key issues relating to patronage, network operations, modal choice access for the immediate station area, and future transit related projects identified in response to the project outcomes. The report identifies potential next steps for ongoing assessment in response to operational and infrastructure changes in TransLink's integrated passenger transport network in SEQ.

No options analysis is included in this document. It is envisioned options analysis will be undertaken as part of subsequent, more detailed, planning to address identified opportunities and issues. It is anticipated that the options analysis will be coordinated by TMR with various key stakeholders including Queensland Rail and Moreton Bay Regional Council (MBRC), and take into consideration local area planning.

2.2 Station location and site context

Dakabin Railway Station is located on the North Coast railway line between Petrie and Narangba rail stations. Access to Dakabin station is via Narangba Road to the west, and Thompson Road to the east. It currently serves the suburbs of Dakabin and Kurwongbah to the west in Moreton Bay Region, as well as suburbs located beyond its immediate catchment such as North Lakes.

It should be noted that although Dakabin Station traditionally serves other suburbs beyond the immediate catchment, such as Kallangur and Murrumba Downs, it is expected that travel patterns will change now that the Redcliffe Peninsula Line is open.

The station is bounded by Pine Rivers Golf Course and Bob Brock Park to the west and south, Dakabin State High School to the east (1.5 km) and open space to the north. Further east and south, the existing land use is of low to medium density residential. North Pine Christian College is located to the north of the station (1.5 km northeast).

Figure 1 illustrates the location of Dakabin Station and the wider transport network as well as the aforementioned land uses/places of interest.

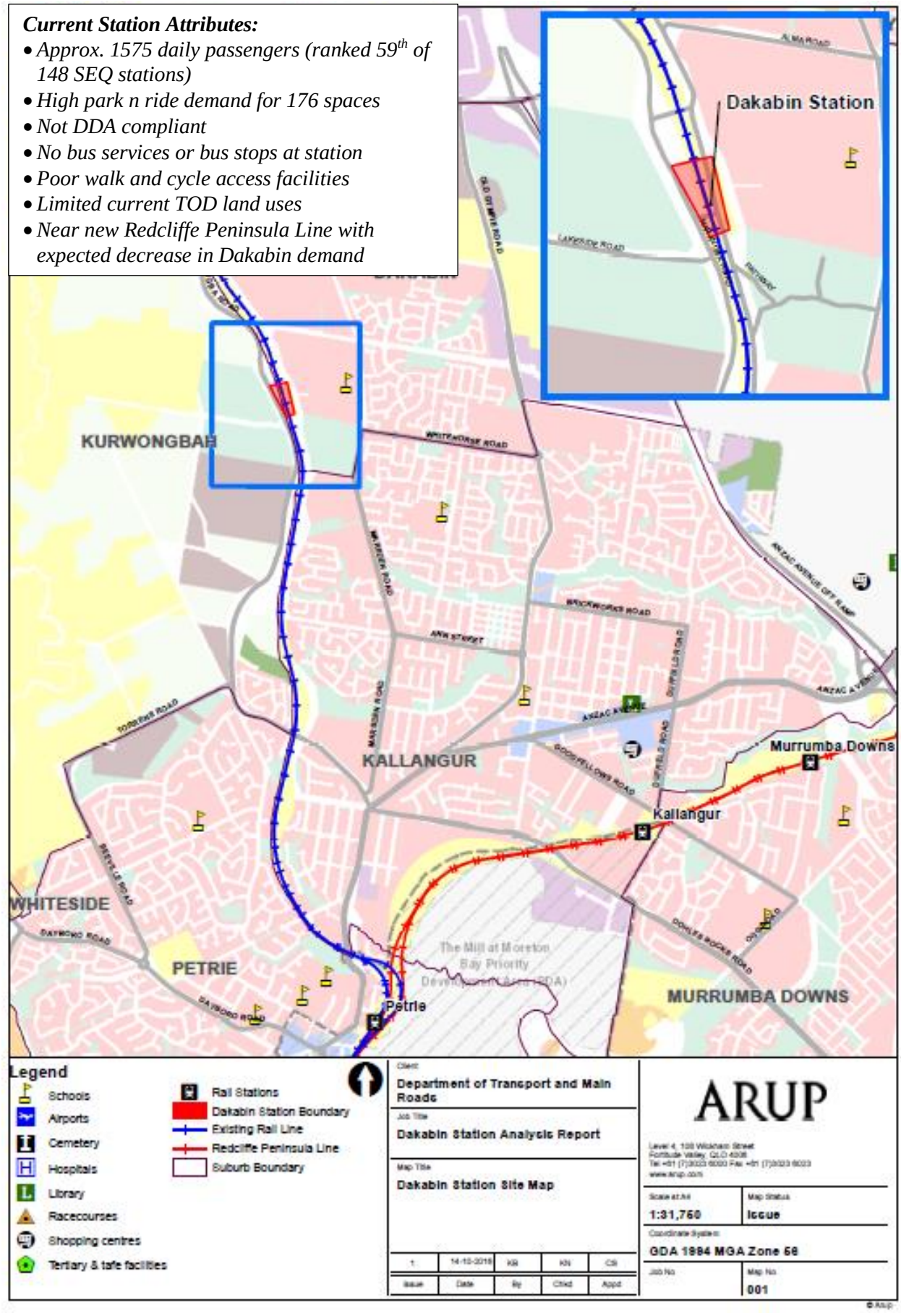


Figure 1 Dakabin Station Context Map

2.3 Community interest

The Dakabin Station Action Group, which represents the local community particularly with respect to accessibility and safety of Dakabin Station, has raised a number of concerns regarding the current level of infrastructure.

This group is a key stakeholder with an interest in resolving station infrastructure and car parking issues.

3 Planning context

The following section provides a summary of the local and state planning context in relation to the Dakabin Railway Station. This is primarily with reference to:

- MBRC's Planning Scheme (2016);
- Population and employment within the immediate catchment;
- The new Redcliffe Peninsula line; and
- Government owned land.

Appendix B provides additional planning context with respect to relevant local and state planning policies.

3.1 MBRC Planning Scheme

MBRC's planning scheme provides direction for development in the Moreton Bay region for the next 20 years. The planning scheme commenced in February 2016 and highlights the challenges and issues affecting the region including the following which is of relevance to this study:

- Continued rapid population growth as well as aging population;
- Developable and remaining greenfield land is distant from major centres of employment and services;
- Increasing infrastructure costs, and infrastructure networks/facilities which are stretched to capacity; and
- Job creation is not meeting population growth, creating long daily commuter trips out of the region on congested transport systems for more than 75,000 residents of the region.[1]

As such MBRC's vision for the region includes:

> *"4. a good public transport system which enables residents to leave their cars at home – thus reducing congestion on the roads, an excellent road and rail network resulting in easy flowing traffic at all times and reorienting the public transport system to service our centres;"*

In response to the vision, a strategic outcome under the theme of 'Settlement pattern and urban form' seeks to achieve transit oriented communities in close proximity to existing and proposed public transport stops/stations, such that this increases use and viability of public transport, as well as active, transport through providing more walkable neighbourhoods (See Appendix A).

Under the theme of 'Integrated Transport' MBRC's Strategic Framework further highlights the need for the region to become less car dependent and as such requires better access and use of public transport. MBRC's Strategic Framework also outlines specific integrated transport outcomes for the North Lakes – Redcliffe-Moreton Bay Rail corridor planning area, and major transport projects and corridors including:

- The Redcliffe Peninsula Line from Petrie to Kippa-Ring
- Kerr Road connection between North Lakes and Dakabin Station

[1] Moreton Bay Regional Council Planning Scheme – Part 3 Strategic Framework , section 3.1.2

- The relocation of Dakabin Station (which is noted as not planned / funded by State Government) in order to provide better integration of land use and transport to service Dakabin, Kallangur and North Lakes localities.

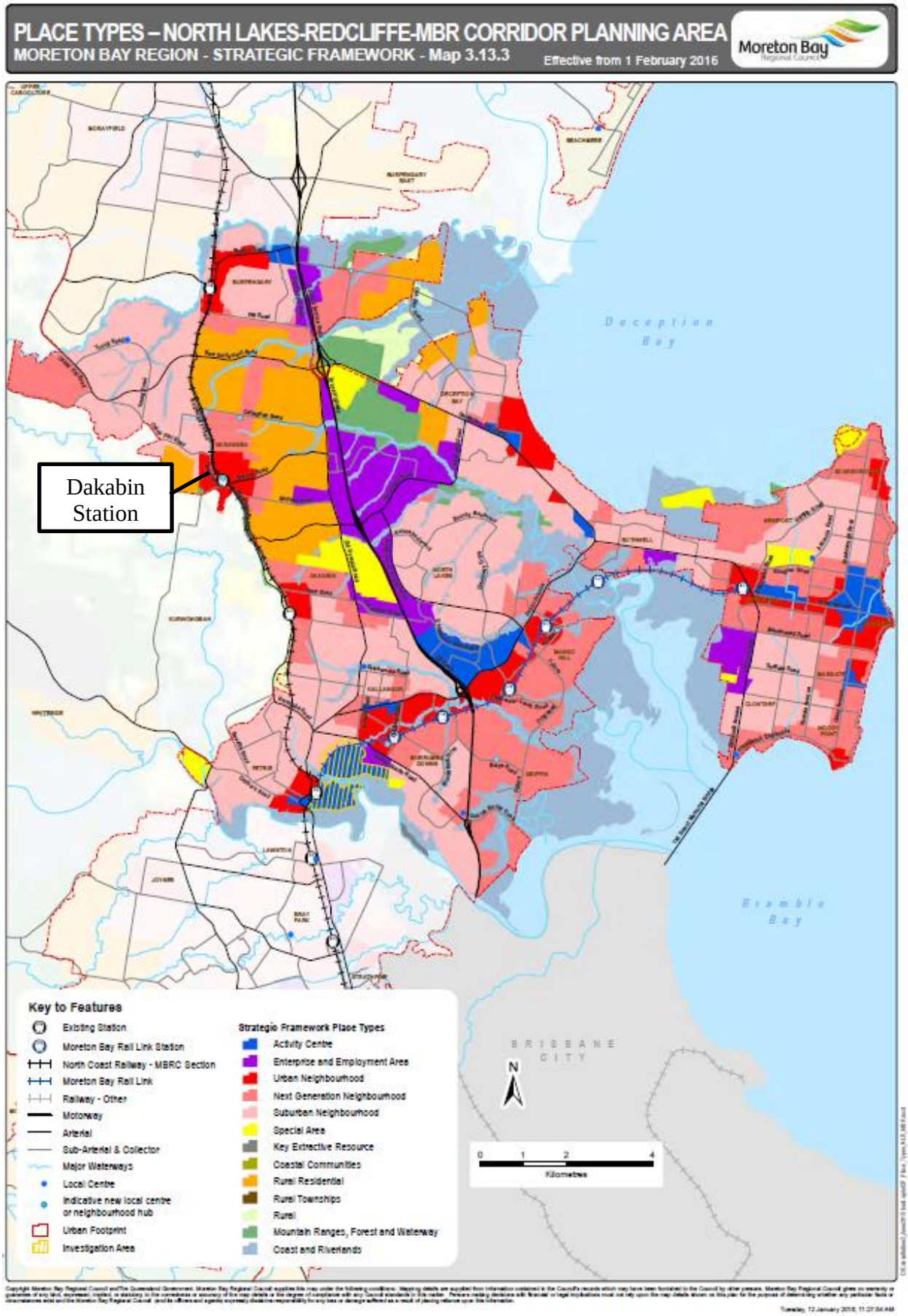


Figure 2 North Lakes-Redcliffe – MBR Corridor Planning area (Source: MBRC Strategic Framework Map 3.13.3 2016)

This planning area denotes enterprise and employment areas at Dakabin, and an integrated transport network supportive of active transport, public transport and movement of goods and people within, into, out of and through the planning area. Figure 2 (Map 3.13.3 from the MBRC Planning Framework) illustrates 'next generation neighbourhoods' in the vicinity of Dakabin Station.

3.1.1 Dakabin Local Area Plan

The now superseded *PineRiversPlan* incorporated a Local Area Plan for Dakabin, to address the future requirements of the community. This plan which was adopted in 2006, identified the need to consider a possible relocation of Dakabin Railway Station to the northern side of the proposed new Alma Road and Narangba Road connection (which consists of extending Alma Road over the railway line to Narangba Road). Such transport related projects have been covered in MBRC's new planning scheme.

The MBRC planning scheme aims to achieve a Transit Orientated Community by aligning the railway station, bus interchange, local activity centre and cycle and pedestrian networks. The planning scheme proposes to relocate the station approximately 600m north as depicted in Figure 3.

It is noted that the relocation of the station would impact the students of Dakabin State High School as they will have to walk a further 1.05 km along a road to reach the station.

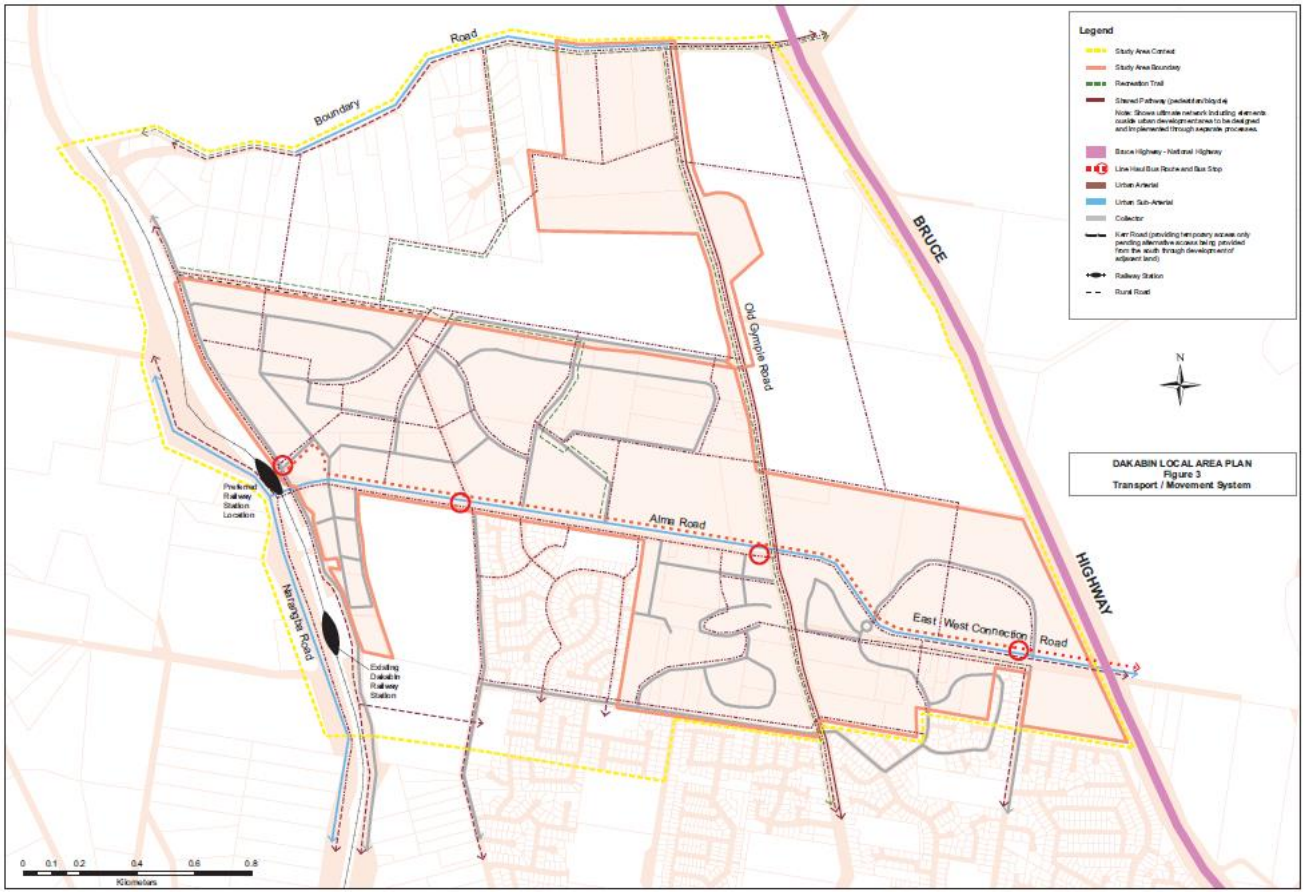


Figure 3 MBRC proposed new Dakabin Station Location (Source: Dakabin Local Area Plan Figure 3 Transport/Movement System *PineRiversPlan* 2006)

3.2 Population and employment

Based on the 2011 census data, the population and employment within an acceptable walking distance of the station (800m catchment) is summarised in Table 1 below, together with 2031 forecasts. The 2031 forecasts were obtained from TMR's SEQ Modal Access framework.

Table 1 Population and employment forecast within Dakabin Station Catchment (800m)

	Population	Employment
2011	27	35
2031 [forecast]	130	69

Source: ABS 2011 Data and TMR SEQ Modal Access framework

The figures in Table 1 reflect the station's location and the limited residential development within its catchment. It is anticipated that the only employment opportunities within the catchment are associated with the adjacent school and golf course.

Current planning suggest that there is limited growth (both population and employment) proposed around the station beyond 2011. The Dakabin Station is located away from existing and future residential catchments and is located on the western edge of developable land. The position of Dakabin High School and Bob Brock Park further separates the station from its residential catchment.

3.3 Redcliffe Peninsula Line

The Redcliffe Peninsula Line (formally Moreton Bay Rail Link) is a new passenger rail line between Petrie and Kippa-Ring, including six new rail stations located at Kallangur, Murrumba Downs, Mango Hill, Kinsellas Road, Rothwell and Kippa-Ring. The need for the new infrastructure was identified in response to:

- The projected growth in the region;
- The requirement to provide an incentive for mode change – noting that the vast majority of the region's population (83 per cent) use a private vehicle to travel to work; and
- The need to free up capacity on the current road network.

It is expected that the Redcliffe Peninsula Line will:

- Provide a more reliable, economical, and faster alternative to driving to Brisbane's Central Business District (CBD) during peak periods;
- Help reduce congestion on the road network, including the Bruce Highway, and free up capacity for journeys that can't be made using public transport;
- Provide sustainable and active transport options that reduce carbon emissions—every full train on the new line will take about 600 cars off the road;
- Provide better access to major employment centres both within and outside the Moreton Bay region;
- Help attract investment to the area and create business opportunities; and
- Act as a catalyst for growth along the alignment, with stations becoming hubs of new development in the region.

Operations commenced on Tuesday 4 October 2016. Services operate with trains every 6 to 12 minutes in peak times, and provide a consistent 55 minute journey between Kippa-Ring and

Brisbane Central rail stations. The operation of the new rail line service, is supported by a new, improved feeder bus network that includes:

- 17 bus routes servicing six new train stations;
- Closer and easier connections to train services for residents who currently use Dakabin or Petrie stations;
- Expanded public transport coverage to service new and growing residential areas in the Moreton Bay Region, including Kallangur, Dakabin and Mango Hill.[2]

Table 2 Redcliffe Peninsula Line – Station Precinct Overview

Station	Active Transport provision	Bus Feeder Services and infrastructure for interchange (e.g. KnR/ Taxi)	Park 'n' ride provision
Kippa-Ring Station Precinct	Shared path alongside new rail line Bicycle end of trip facilities	✓	400 spaces
Rothwell Station Precinct		✓	600 spaces
Mango Hill East Precinct		✓	350 spaces
Mango Hill Precinct		✓	200 spaces
Murrumba Downs Precinct		✓	1000 spaces, provided on both sides of the access road
Kallangur Precinct		✓	300 spaces
Petrie Precinct		✓	100 spaces Note: PnR spaces provided on the eastern side, replaced those lost as a result the construction of the new line and station.

Source: Department of Transport and Main Roads

3.4 Government owned land

The extent of government and other agency land around the Dakabin Station is shown in Figure 4. This is of relevance for future prospective redevelopment which may include progressing more intensive transit oriented development in the area, and long-term future transport infrastructure improvements if desired (e.g. bus, rail, etc.).

[2] Source TransLink Division https://translink.com.au/about-translink/projects-and-initiatives/moreton-bay-rail-link

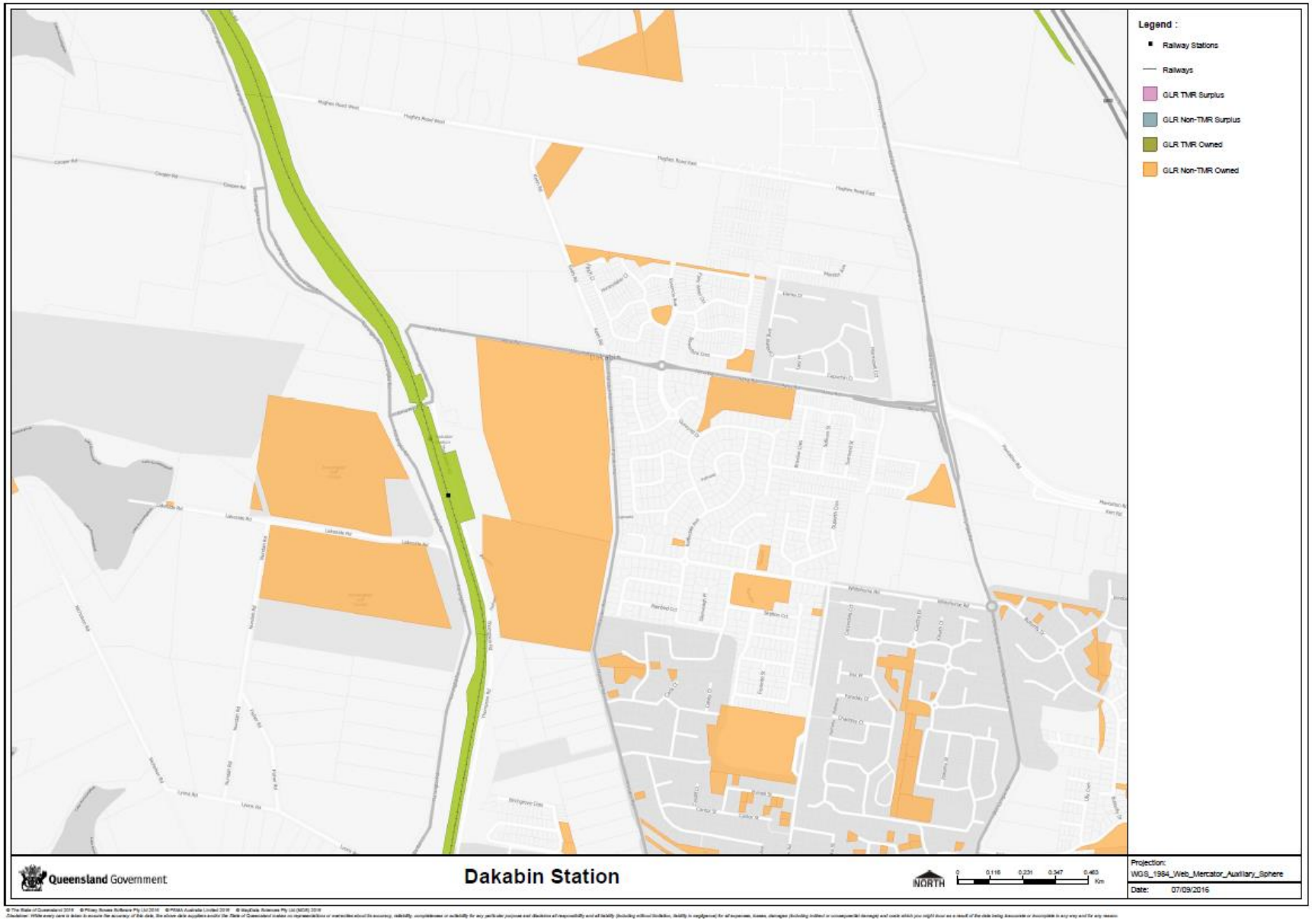


Figure 4 Government owned land in the vicinity of Dakabin Station Source: TMR Government Land Register, 2016

4 Existing situation

4.1 Station function

In accordance with Queensland Rail's station classification, Dakabin Station is classified as a commuter station. Commuter stations typically cater for peak customer movements from local suburban nodes into the CBD and may include smaller scale interchange between public transport modes. Standard fixtures and fittings are to be applied with a level of finish to cater for demand. Commuter stations are characterised by the following:

- Medium patronage (500 to 2000 passengers per day);
- Weekday staff presence (typically one or two shifts per day);
- Some operational and commercial importance;
- Moderate requirements for customer and staff facilities;
- Standard level of maintenance.

While Dakabin Station does not necessarily meet or fulfil all of the above characteristics, it generally fulfils its main function of catering for commuter trips, as supported by existing patronage data (including 1575 daily passengers in 2016).

4.2 Existing station infrastructure

Dakabin Station provides facilities consisting of:

- Station platforms linked by a pedestrian bridge with stairs;
- A park 'n ride consisting of 176 parking bays including eight motorbike spaces (see Section 4.4);
- Five kiss and ride bays;
- 26 bicycle lockers; and
- A cycle stand located off Thompson Road, accommodating up to six bicycles.

The station is currently not easily accessible for people with disabilities, the elderly or families with prams. Those with disabilities and parents with prams have to make an approximate 700m journey, on the edge of the road, to access the next platform. There are also no disabled park 'n' ride parking spaces at the station.

It is also noted that there is no interchange facility to connect commuters to other modes of public transport, such as bus services (see Section 4.5.2).

4.3 Mode share

Based on a Public Transport Origin Destination Survey undertaken by TMR in 2010 for all stations across SEQ, the mode of access for commuters accessing Dakabin Station is summarised below.

Table 3: Dakabin Station Access Mode Split

Access Mode	Split (%)
Walk	34

Cycle	4
Feeder Bus	0
Kiss and Ride	27
Taxi	0
Park and Ride	36
Rail	0
Ferry	0

Source: Public Transport Origin Destination Survey, TMR (2010)

Access by private vehicle (i.e. Park and Ride and Kiss and Ride) accounts for the highest mode share with around 63% arriving by car and the balance using active transport. With reference to Appendix B2, TransLink's Public Transport Infrastructure Manual (PTIM) (2015) notes park 'n' ride as the least desirable mode for accessing TransLink's public transport network.

It is noted that the walk mode share appears high particularly given the limited residential development within the station catchment (800m). It appears that the high walk proportion relates mainly to trips to and from Dakabin State High School (see Appendix B1 for go card users types for Dakabin Station).

4.4 Park 'n' ride

As aforementioned, the Dakabin Station park 'n' ride facility currently has a total of 176 bays available for commuters accessing the station (see Section 4.2).

A park 'n' ride utilisation survey was undertaken at Dakabin Station as part of a wider SEQ Park 'n' Ride Utilisation Survey which captured the supply of formal park 'n' ride sites in SEQ and the utilisation of commuter parking at and around these facilities. This survey, undertaken in October 2015, revealed that there was an over utilisation of parking at Dakabin by 163 spaces with a total of 339 commuter vehicles parked both within the formalised park 'n' ride facility and in the surrounding streets (e.g. Thompson Road).

The park 'n' ride usage at Dakabin Station from surrounding suburbs is summarised in Table 4 and illustrated in Figure 5.

Table 4 Park 'n' ride usage at Dakabin Station from surrounding suburbs

Suburb	Surveyed vehicles in 2015
Kallangur	79
Murrumba Downs	5
Mango Hill	24
North Lakes	122
Deception Bay	15
Rothwell	3
Kippa-Ring	1

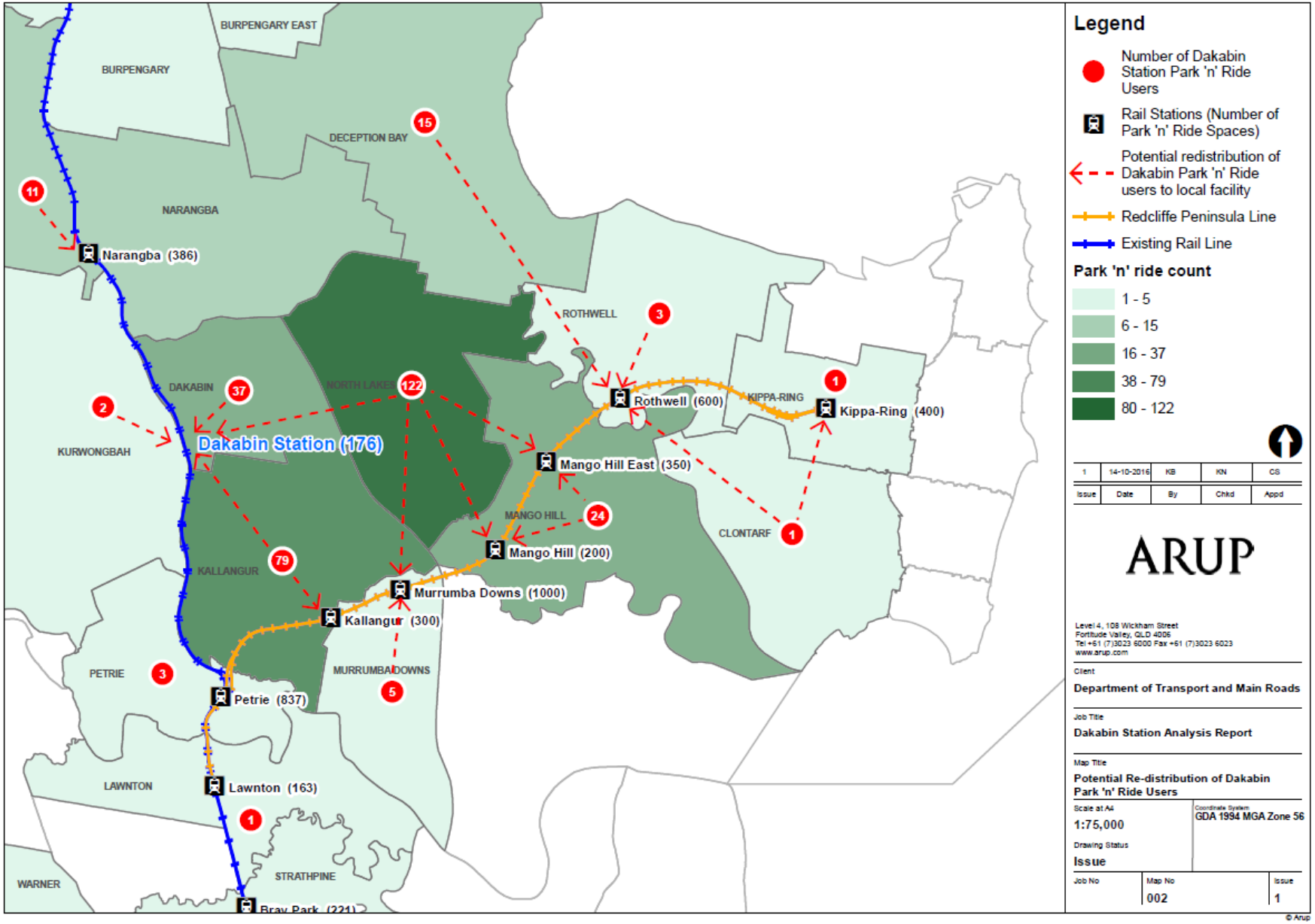


Figure 5 Origin suburbs for Dakabin Station Park ‘n’ Ride

Following the opening of the Redcliffe Peninsula Line, there is potential for a number of commuters to redistribute to this new corridor. This could result in spare capacity at Dakabin.

4.5 Public transport network and operations

The following section outlines the existing situation with respect to public transport operations and services in the vicinity of Dakabin Station.

4.5.1 Rail

The average number of customer boarding and alightings at Dakabin Station based on 2016 *go* card data (provided by TransLink) is summarised below. By comparison, stations located to the north and south of Dakabin Station at Narangba and Petrie have daily boardings and alightings of 2,039 and 4,567 respectively. In terms of patronage, Dakabin is a smaller station compared to its neighbouring stations.

Table 5 Rail passenger movements at Dakabin Station

Patronage description	2016 go card data
Average daily boarding	815
Average daily boarding and alighting	1575
Weekday morning peak (7 – 8 am) boarding and alighting	378
Weekday evening peak (4 – 5 pm) boarding and alighting	249
Patronage ranking against other 155 SEQ rail stations	59th amongst 148 stations

Source: TransLink *go* card data, 2016

Dakabin Station is serviced by "all stops" city network services from Caboolture to Central with many services continuing to Springfield Central, Ipswich and Rosewood. The station is also served by selected peak hour Sunshine Coast Line services from Nambour to Roma Street. Regular rail services run through Dakabin Station, connecting the surrounding suburbs to the urban rail network.

Services on average offer a 30 minute frequency on weekdays, with higher peak period frequencies for inbound morning services, and outbound evening services. These higher frequencies range from 30 minutes to 6 minutes and support the station's commuter function.

4.5.2 Bus

There are currently no TransLink public bus services that directly service Dakabin Station. Urban bus routes that service Dakabin's southern fringe and Kallangur via Marsden Road, Whitehorse Road and Kerr Road West include routes 683, 685, and 634. The nearest bus stops are situated on Marsden Road and Whitehouse Road to the east of the station (see Appendix B2 for further detail).

4.6 Active Transport

There is currently poor walking and cycling infrastructure in the immediate vicinity of Dakabin Station. Walking and/or cycling facilities along Thompson Road and Alma Road, to the station, are considered substandard due to the lack of shoulder provided, which is further restricted due to commuters using this space, surrounding the station, as an extension of the existing park 'n' ride (see Section 4.4 of this report).

In 2010 the mode share survey indicated that 34 per cent of commuters accessed Dakabin Station by foot, and 4 per cent by bicycle. The former appears quite high considering the lack of adequate pedestrian infrastructure, and the fact that residential development is located mostly outside of the typical 800 metre catchment of the station. However, ticketing data suggests that a significant portion of the 34 per cent of commuters that travelled by foot, are most likely travelling to and from Dakabin State high School given the high number of children and concession tickets. This supports the assumptions made in section 4.3.

It is assumed that the remaining portion of commuters accessing the station by foot choose to walk as a result of a lack of bus feeder services to the station, or due to difficulty in accessing a park ‘n’ ride space.

5 Future considerations

5.1 Network and Services Changes

5.1.1 Fare Zone Changes

From January 2017, SEQ's public transport fare zones will be reduced from 23 to eight zones. All stations between Petrie and Caboolture stations as well as those stations on the Redcliffe Peninsula Line will be changed to Zone 3.

Currently Dakabin is seen as having a fare advantage as it is currently located in zone 6 which places it in a cheaper zone compared to stations further to the north. Current behaviour may change once the new fare zone is introduced thus reducing demand for the station.

The fare zone changes are summarised in the below table.

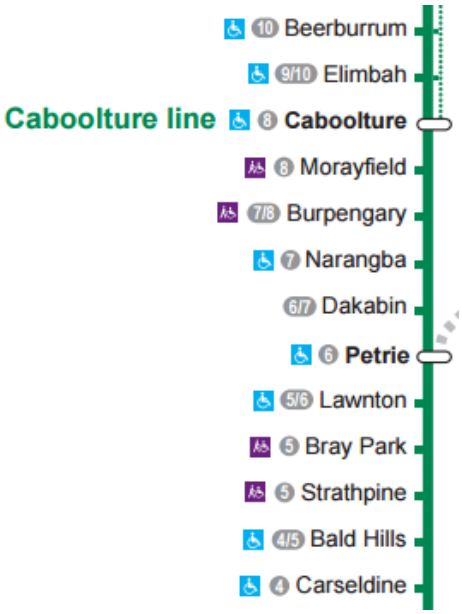


Figure 6 Existing Fare Zones - Caboolture Line

Table 6 TransLink fare zone changes

Zone	Current Price	New Zone	New Price	Saving	% Saving
1	$3.35	1	$3.20	$0.15	4.48%
2	$3.93	1	$3.20	$0.73	18.58%
3	$4.66	2	$3.90	$0.76	16.31%
4	$5.24	2	$3.90	$1.34	25.57%
5	$5.96	2	$3.90	$2.06	34.56%
6	$6.69	3	$5.96	$0.73	10.91%
7	$7.27	3	$5.96	$1.31	18.02%
8	$7.85	3	$5.96	$1.89	24.08%
9	$8.43	4	$7.85	$0.58	6.88%

Source: TransLink 2016

Passengers commuting from Dakabin to Brisbane City will have a saving of around 11 per cent with the new fare changes. The fare changes could also entice commuters to bypass Dakabin and use Petrie Station in order to achieve a further fare saving of around 35 per cent.

5.1.2 Redcliffe Peninsula Line

Redcliffe Peninsula Line commenced operations on Tuesday 4 October 2016. With the introduction of the new rail line there is expected to be changes to patronage for stations on the Sunshine Coast Line as a result of greater commuter choices for residents in the north east. It is anticipated that there is a greater likelihood of commuters within the north east suburbs choosing to park at the Redcliffe Peninsula Line stations. Over 2,800 new parking spaces at park 'n' ride facilities will be provided across the six new stations and these are located within easier access compared to current Sunshine Coast Line stations, including Dakabin.

With the opening of the Redcliffe Peninsula Line, it is also expected that the function of Dakabin Station may change. The Redcliffe Peninsula Line will enhance community access to public transport at Kallangur, Murrumba Downs and Mango Hill for passengers who currently choose to access Dakabin, as highlighted in the recent park 'n' ride utilisation survey discussed in Section 4.4.

If there is a shift from these suburbs to the new stations on the Redcliffe Peninsula Line, this will likely result in a positive impact on the current over utilisation of available park 'n' ride spaces at Dakabin Station.

Forecast patronage provided by TransLink is outlined below, and shows some moderate growth in forecast daily boardings at Dakabin Station.

Table 7 Average daily boardings forecast for Dakabin Station post opening of Redcliffe Peninsula Line

Before MBRL	**2016 *go* card survey**	**815**
After MBLR (Forecast)	2021 MBRL + RSP High Scenario	994
	2021 MBRL + RSP Low Scenario	1002
	2021 MBRL Timetable	1002
	2036 MBRL + RSP High Scenario	1389
	2036 MBRL + RSP Low Scenario	1402
	2036 MBRL Timetable	1402

5.2 Infrastructure planning

There are currently no specific programmed upgrades or studies identified in state planning and investment programs for Dakabin Station.

6 Summary findings

The following sections summarise key findings relating to existing issues, potential upgrades and recommended next steps for Dakabin Station.

6.1 Recent identified issues

The following overarching issues were identified at Dakabin Station:

- Lack of available car parking spaces at the existing station's park 'n' ride facility, particularly at times of peak commuter demand;
- Impact of overflow commuter car parking on local nearby streets;
- Congestion on nearby roads due to on street parking which may impact future bus service reliability;
- Lack of bus services providing direct access to the rail station from surrounding suburbs;
- Inadequate accessibility to the station and immediate precinct including lack of adequate safe pedestrian and cycle infrastructure along direct routes to the station from the surrounding catchment; and
- Lack of viable public transport connection from North Lakes.

6.2 Planning and analysis—identified issues

Analysis of available data, planning documents and issues recently raised by the community for Dakabin Station highlights the following issues:

Impact of the Redcliffe Peninsula Line—Dakabin Station serves the suburbs of Dakabin and Kurwongbah. Up until the opening of the Redcliffe Peninsula Line in October 2016, it also served suburbs located beyond its immediate catchment such as North Lakes, Kallangur and Murrumba Downs due to limited alternate public transport options.

With the opening of the new Redcliffe Peninsula Line it is anticipated that some passengers who previously travelled to Dakabin Station from these suburbs will instead utilise one of the six stations on the new rail line which are in closer proximity and offer more than 2,800 park 'n' ride parking spaces along with additional rail and bus services.

Based on this, it is expected that travel patterns will change and the current park 'n' ride demand at Dakabin Station will decline. It is therefore recommended that TMR assess the impact of likely changes in passenger use of Dakabin station following the introduction of the Redcliffe Peninsula Line services.

Private vehicle access and park 'n' ride—A 2010 survey showed that park 'n' ride and kiss 'n' ride represent the highest combined mode of access to Dakabin Station, accounting for 63 per cent of passengers.

There are currently 176 car parks in the park 'n' ride area, including eight motorcycle bays. Subsequent park 'n' ride surveys show a continued growth in demand for park 'n' ride at the station with many commuters coming from well beyond the station catchment.

A survey undertaken at Dakabin station in October 2015 shows that there were 339 cars parked in the area. Given that this number is in excess of the existing park 'n' ride capacity,

there are likely to be subsequent impacts to the local road network performance as a result of the available road shoulder along these routes being used for additional parking.

Following the opening of the Redcliffe Peninsula Line, there is potential for a number of commuters to redistribute to this new corridor. This could result in spare capacity at Dakabin.

- **Station location**—Dakabin Station is currently located away from the existing and future residential catchment. It is located on the western edge of MBRC's local planning scheme proposed "next generation neighbourhoods" (walkable communities which have been flagged as growth areas in MBRC's strategic planning framework). The current MBRC planning scheme aims to achieve a Transit Orientated Community by aligning the railway station, bus interchange, local activity centre and cycle and pedestrian networks. The planning scheme proposes to relocate the station approximately 600m north.

  Relocation of the station will impact the students of Dakabin State High School as while the current location provides immediate access for students, they will have to walk a further 1.05km along a road to reach the station. With a golf course, park and high school adjacent to the station, land use within an 800m catchment, in its current form, offers limited opportunity for transit oriented development.

- **Station access for all and existing infrastructure**—Dakabin Station is identified as a commuter station which aligns with its current patronage level.

  Despite a recent upgrade in the park 'n' ride facility at the station, the opportunity remains to further upgrade infrastructure at the station to enhance accessibility.

  Currently, access between platforms is only possible via stairs accessing the pedestrian bridge over the rail line. Access for all modes within the station precinct could be improved to enhance pedestrian flow and to better cater for people with disabilities, the elderly or families with prams.

- **Walk and cycle area access—**Current walk and cycle infrastructure in the vicinity of the station is suboptimal, with no dedicated paths to provide safe access from the surrounding neighbourhoods. Despite this, the mode share from 2010 surveys illustrates a high number of passengers accessing the station by foot (34 per cent). This may be representative of the lack of other alternatives such as bus feeder services, or an inability to access/utilise available existing park 'n' ride / kiss 'n' ride facilities resulting in passengers parking some distance from the station and walking to the station. Furthermore, this proportion is also indicative of the high number of high school students using this mode due to their immediate access to the station.

- **Public transport connections**—There are currently no feeder buses directly servicing the station and there is no bus infrastructure (stops, interchange, etc.) provided at the station. The ability to provide for bus infrastructure at the station is constrained by the available road shoulder and carriageway width to provide compliant bus stop infrastructure. The assessment of changes to current services or the provision of additional services would need to be undertaken in the context of changes to patronage following opening of the Redcliffe Peninsula Line.

- **Fare zone changes**—From January 2017, SEQ's public transport fare zones will be reduced from 23 to eight zones. All stations between Petrie and Caboolture stations, including Dakabin and those stations on the Redcliffe Peninsula Line, will be changed to Zone 3. The new fare zone will decrease fares from Dakabin by about 10 per cent. However Petrie station, one station to the south, will receive a 35 per cent fare reduction.

It is expected that travel patterns will change in response to fare reductions and the opening of the new Redcliffe Peninsula Line. Subsequently, it is recommended that consideration for Dakabin Station investment be subject to these potential changes in travel behaviour.

- **Update to mode share survey**—The most recent mode share survey is from 2010, and considering the network changes discussed above, an updated survey may be warranted, particularly considering the 34 per cent reported walk/cycle mode share which seems high compared to the low density land uses within the 800m walk-up catchment.

6.3 Potential Dakabin Station upgrades

Potential Dakabin Station upgrades identified to address existing issues include the following (as either individual treatments or as a package of combine treatments):

- Expanding the existing park 'n' ride facility beyond its current supply to meet desired level of demand / mode split at the station. It is recommended a review of park 'n' ride demand at the station is conducted after the introduction of the new Redcliffe Peninsula Line and associated changes in area wide travel patterns.
- Provide improved and direct bus network connections and associated infrastructure to the station to facilitate bus-rail/rail-bus transfers.
- Upgrade the station to address accessibility issues so that the station complies with the requirements of the DDA, and addresses wider accessibility issues and infrastructure limitations.
- Upgrade walk and cycle infrastructure immediately surrounding the station to improve interchange with existing facilities, as well as to support continued walk and cycle mode share. The provision of dedicated paths / facilities would improve safety and whole of journey outcomes for the community, particularly those who may not have other alternatives for travel.
- Review the optimal location of the station along the existing rail corridor and explore with MBRC the opportunities for transit oriented development / communities (including use of government owned land) to both improve the station's catchment and to improve accessibility to the station.

Potential Dakabin Station upgrades are outlined in Table 8 below.

Table 8: Potential Station Upgrades

Potential Upgrade	Potential scope
Railway Station (current location)	Station upgrades including possible accessibility upgrade and other infrastructure upgrades.
Additional Parking	TMR has identified Dakabin as a possible park 'n' ride station due to the limited local catchment.
Feeder bus connections / infrastructure	Future bus feeder connections connecting communities within the catchment and at North Lakes. Currently limited by low patronage figures and a road network that is not conducive to bus movements.

Potential Upgrade	Potential scope
Walk/cycle connections	Improvements to pedestrian footpaths and cycle paths connecting the station with developing communities.
Road network upgrade	Improvements to road network including shoulder upgrades to facilitate safe bus movements.
Review station location	Explore the optimal location of the station along the corridor.

6.4 Next Steps

The above station upgrades options are preliminary only, and in order to ensure that the optimal solution for the Dakabin Station precinct is identified, further work is required. These further investigations will ensure that any preferred solution addresses demand, community need and the land use proposals in the area. Consequently, the following next steps are recommended to assist with progressing any future decisions regarding upgrades at Dakabin Station:

- Explore options in conjunction with MBRC in respect to the following:
    - Potential masterplan of the new station precinct area taking into consideration surrounding and adjacent land on the rail corridor;
    - Alignment with MBRC's planning scheme for the area and transit oriented communities / Next Generation neighbourhood plan;
    - The optimal location of the station on the rail corridor with the intention of initiating economic development (Transit Oriented Development / Communities);
    - The potential opportunities in respect to any Transit Orientated Developments at the site; and
    - Requirements to meet *Disability Discrimination Act 1992* (DDA) compliance, wider station accessibility and linkages to other land uses (e.g. schools, parks, etc.).
- Undertake a critical review of the changes to baseline patronage at Dakabin Station and travel behaviours as a result of the opening of the Redcliffe Peninsula Line (October 2016) and Fairer Fares (January 2017). More specifically further analysis should consider:
    - Change in demand from suburbs bordering the Redcliffe Peninsula Line utilising park 'n' ride spaces at Dakabin and where these commuters have redistributed to. This will require an updated Park 'n' Ride Survey to be undertaken preferably February / March 2017 allowing sufficient time for travel patterns to stabilise post opening of the new line, and at the time of maximum passenger activities (typically March).
    - Undertake an updated mode share study for Dakabin Station, and specifically identify changes not only in park 'n' ride usage, but also walk access to the station (confirming the catchment / demand for this mode).
    - Post opening of the Redcliffe Peninsula Line, and the resultant mode shift and access choice to Dakabin Station assess further opportunities for introducing bus feeder connections and bus infrastructure at the station.
    - Assess any likely changes in travel patterns, particularly commuters utilising Dakabin Station as a result of the fare zone changes. This will assist in determining if there has

been any reduction or increase as a result of customers choosing to take advantage of fare savings.

Appendix A

Planning Context

A1 Local government policy

A1.1 MBRC Planning Scheme

The vision for the Region is expressed through a series of twelve themes in the Strategy Framework of which includes Integrated Transport.

Under the theme Settlement Pattern and Urban Form Council outlines its strategic outcome with respect to Transit oriented communities (see Appendix Figure 1)

3.6.4 Strategic Outcome - Transit oriented communities

New development that is in close proximity to existing and proposed public transport stops and stations contributes to the use and viability of public transport, the use of active transport and the development of walkable neighbourhoods by providing well designed and appropriate higher density and mixed use development.

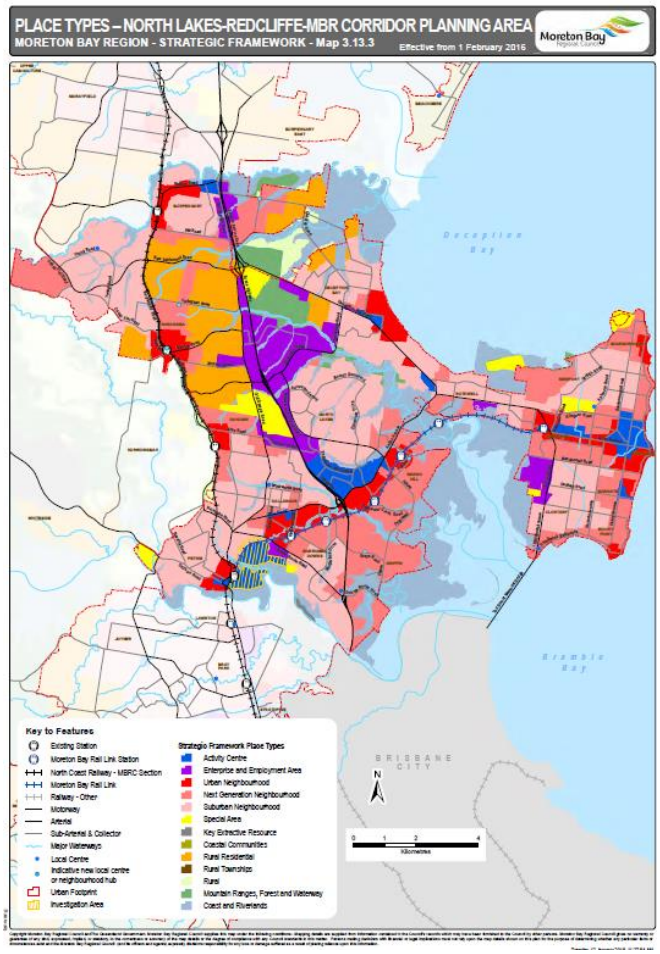
1. Encourage higher density and intensity of mixed use development of sites within 800 metres of existing or planned railway stations(3.16) and undertake land use and transport planning concurrently and sequence development with timely infrastructure provision;
2. Plan new public transport routes, facilities and high-frequency services to ensure safe and convenient passenger accessibility and support the interrelationship between land use and transport;
3. Connect active transport routes to improve accessibility and encourage active transport use by a broader range of people;
4. Apply transit oriented development principles and practices to the planning and development of transit nodes,(3.17) having regard for local circumstances and character;
5. Manage car parking provision in higher order centres and high-capacity transport nodes to support walking, cycling and public transport accessibility; and
6. Ensure all new development within walking distance of a transit node or activity centre maximises pedestrian amenity, connectivity and safety.

Appendix Figure 1: MBRC Planning Scheme – seeking to achieve transit oriented communities (Source: MBRC Planning Scheme, 2016 – Theme Settlement Pattern and Urban Form)

Under the theme of Integrated Transport, the Strategic Framework highlights the need for the region to become less car dependent and as such requiring better access and use of public transport. The strategic outcomes under this theme include:

- Integrated transport and land-use planning
- Accessibility
- Investment and efficiency
- Safety and quality
- Integrated freight transport

Of particular note, with respect to 'Integrated transport planning and land-use planning', Council seeks to reduce the need to make trips by any motorised form and to reduce the length of motorised trips – hence they are in support of developing transit oriented communities at locations with high frequency public transport services, and access to good quality and safe cycling and walking routes.[3]



North Lakes-Redcliffe – MBR Corridor Planning area
Source: MBRC Strategic Framework Map 3.13.3, 2016

The North Lakes – Redcliffe – Moreton Bay Rail Corridor planning area notes the next generation neighbourhood place type in the vicinity of Dakabin, in the immediate vicinity of the railway station (see Map 3.13.3), is to be developed such that it supports the provision of a viable local centre – which will generally be located to support active transport. Dakabin is also noted as a key Enterprise and employment area, which will contribute to 77,000 jobs at 2031.

Specific integrated transport outcomes note major new transport projects including:

- The Redcliffe Peninsula Line from Petrie to Kippa-Ring;
- Kerr Road connection between North Lakes and Dakabin Station; and
- The relocation of Dakabin Station (which is noted as not planned / funded by State Government) in order to provide better integration of land use and transport to service Dakabin, Kallangur and North Lakes.

A1.2 MBRC Public Transport Strategy Strategic Vision 2012-2031

This strategy provides Council's vision for the Region's public transport network and seeks to complement State Government investment in public transport such that it benefits the local community. The Strategy as at November 2015, acknowledges areas where Council may have a

[3] Moreton Bay Regional Council Planning Scheme - Part 3 Strategic Framework, Section 3.10

positive influence on the State government's interests and actions with respect to public transport, including:

- Promotion;
- Land use planning and advocacy;
- Allocation of space and prioritisation of public transport;
- Infrastructure;
- Service delivery.

Issues facing the region's public transport network have noted that the existing public transport network has not met community needs for local trips nor supported local employment opportunities. As such it has historically focussed on serving commuter trips to and from Brisbane. With Council's Strategic Framework intent on achieving greater self-containment, this would require greater focus on addressing community user needs. As such, opportunities to meet user needs when planning for public transport have highlighted[4]:

- Improving travel choices across the transport network
    - Including providing accessible stops and stations in optimal locations to conveniently serve catchments;
    - Reliable and frequent rail services with the provision for functional and attractive interchange with other modes.
- Designing an efficient, affordable and convenient transport system
    - Council's pedestrian and cycle network is designed to feed people to convenient stops and stations;
    - Feeder buses ensure that new and existing rail networks and line haul bus services are adequately served from their wider catchments.
- Promoting public transport as a more attractive travel choice
    - Improve services and infrastructure to better meet the community's expectation.

A1.3 MBRC Active Transport Strategy 2012-2031

Council's Active Transport Strategy 2012 – 2031 is one of a number of transport strategies that seek to help deliver an integrated transport system for the region which provides residents and visitors with choice and access options. The active transport strategy includes key active transport actions under three themes – *Active Communities, Connecting across the region, and Building an active transport culture*.

Short term goals (0-5 years) for example flag the need to incorporate active transport provisions with other committed works. Long term goals (10-20 years) note partnering with State government and private developers. Both of these goals are consistent with the outcomes of this study with respect to coordinating investment at passenger transport stations between government agencies.

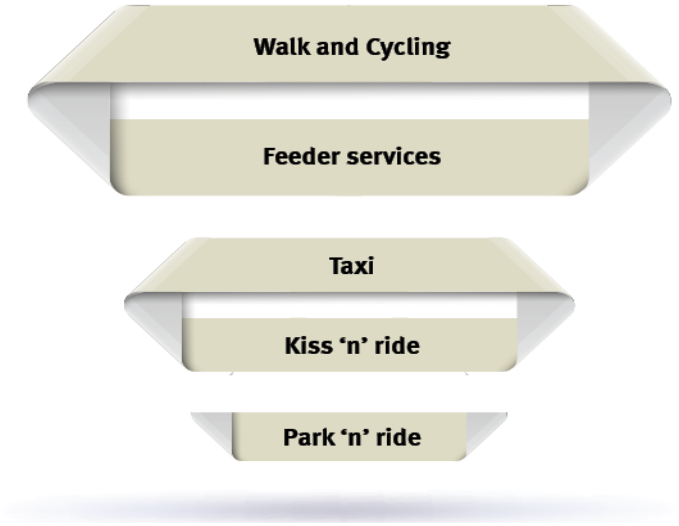
[4] MBRC Public Transport Strategy 2012-2031 – Strategic Vision

A2 State planning policy

A2.1 Public Transport Infrastructure Manual (PTIM)

TransLink's Public Transport Infrastructure Manual (PTIM, 2015) outlines the division's access hierarchy for how access modes should be prioritised when planning or designing services or infrastructure.

This illustrates from both an environmental and network operation point of view that walk and cycle access to a station are the provided modes. These active modes are followed by bus feeder, and kiss 'n' ride. Park 'n' ride is noted as the least desirable mode for accessing TransLink's network.

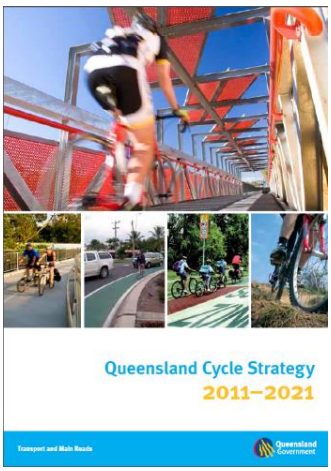


Appendix Figure 2 TransLink Access Hierarchy (Source: PTIM, 2015 – Figure 3.1, Section 3.1.2)

A2.2 TMR Queensland Cycle Strategy

The Queensland Cycle Strategy 2011-2021 5 outlines the state government's vision for "more cycling more often" on safe, direct and connected routes. It identifies four priority areas of actions to achieve this vision, including:

- Building safe, direct and connected cycle networks
- Growing a cycling culture
- Creating cycle-friendly communities
- Developing a cycling economy.



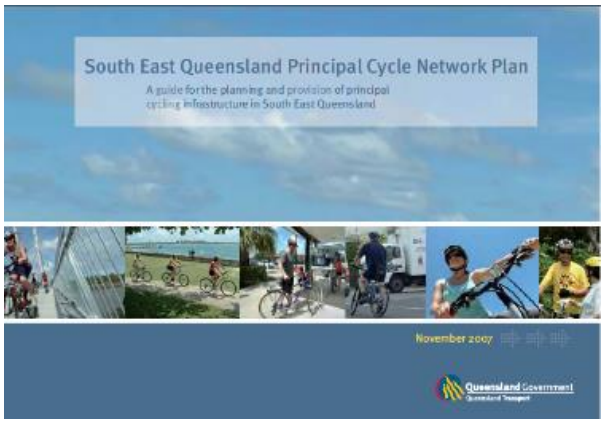
The current QCS provides guidance for the design and delivery of Moreton Bay Regional Council's active transport network. It identifies the barriers for people that cycle, particularly safety, lack of facilities, distances to travel being too far, and comfort. Indicates the state signature projects to address the priority areas, and where these will be developed in partnership with local government (e.g. Complete 5, Educated Ways and Connect To, Bicycle education programs).

[5] Queensland Government Department of Transport and Main Roads (2011)

This strategy is currently being reviewed by the State Government. Input to this strategy from key stakeholders has identified a desire for it to consider for example a broader emphasis on encouraging a state-wide cycling economy (e.g. health, tourism), as well as encouraging broader coordination between all government agencies with the planning and design of cycle facilities and supporting infrastructure.

A2.3 SEQ Principal Cycle Network Plan

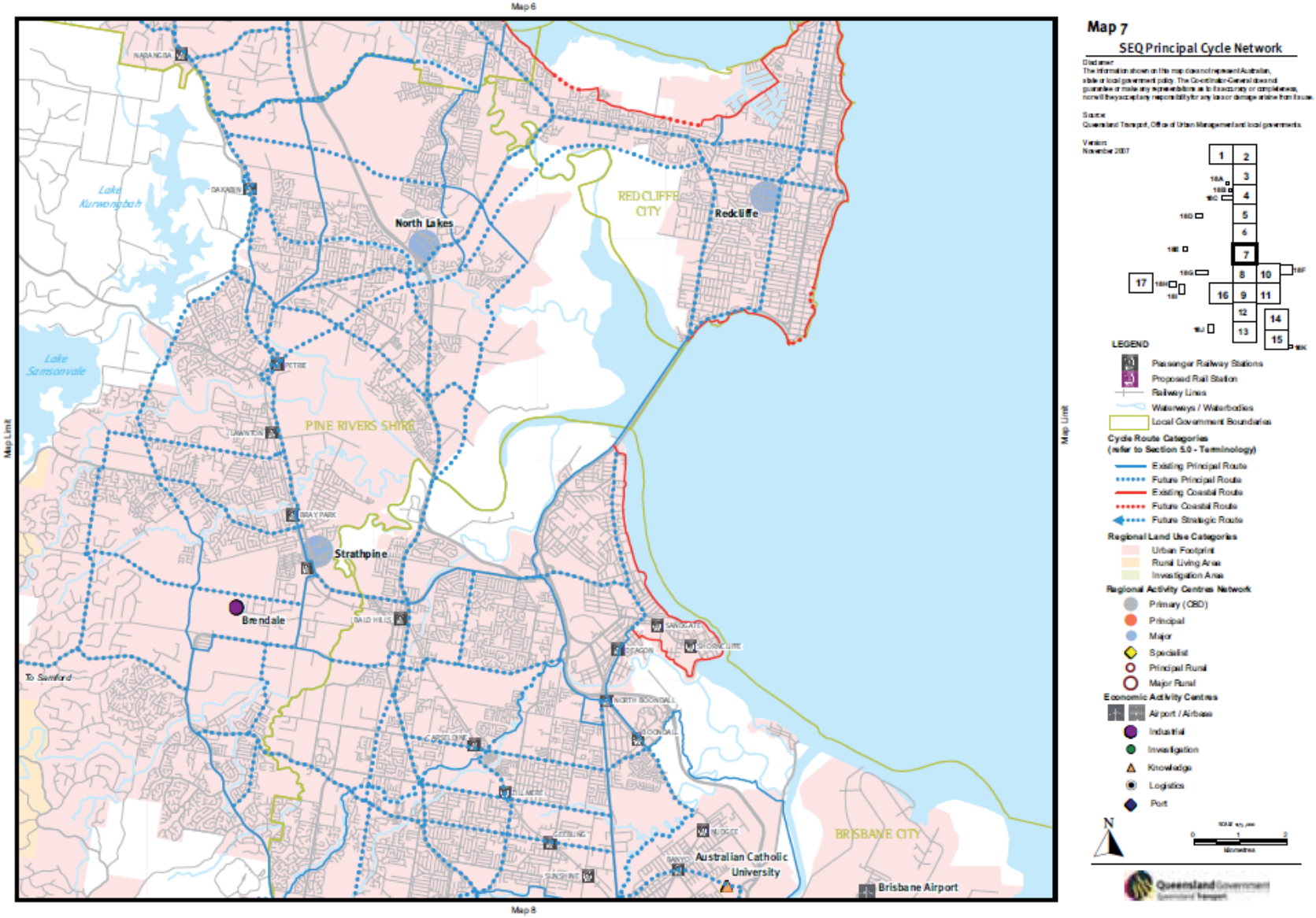
The South East Queensland Principal Cycle Network Plan [6] (SEQ PCNP) which has currently been under review by the State, identifies the demand for, location and function of important cycle routes and missing links to inform planning, design and construction of cycle infrastructure. The SEQ PCNP sees priority given to:



- Providing links which connect centres and key attractors (i.e. via protected cycle tracks/ veloways); Completing the active transport network within 5km of key centres to deliver a connected network to an immediate catchment;
- Ensuring safe and connected routes are provided to schools, universities and TAFEs, focusing on a 3km catchment around schools; and
- Putting active transport links in place to key public transport stations and stops.

Of relevance to the Dakabin Station are identified principal cycle routes providing key links with centres located at North Lakes, Kallangur and Petrie (see Figure below). It is acknowledged that principal routes in the vicinity of the station noted as future on Map 7 have been completed as either an entire link or a significant portion (for example the route along Plantation Road).

[6] Queensland Government Department of Transport and Main Roads (2007)



Appendix Figure 3 SEQ Principal Cycle Network (2007) –Map 7 illustrating future principal routes near Dakabin

Appendix B

Public Transport facilities and operations

B1 Rail

B1.1 Existing Situation

Rail station

Queensland Rail's Station Access Guide 2015, documents Dakabin Station as having stairs to the entry, or one of the platforms and does not provide independent or assisted access opportunities for customers.

Rail services and frequencies

Served by Caboolture line services, and peak hour Sunshine Coast line services, in zone 6/7.

On weekdays, both inbound and outbound services arrive at a frequency of 30 minutes.

The first inbound service arrives at 04:21 AM and the last service at 11:51 PM. The first outbound service arrives at 5:10 AM and the last service at 12:10 AM. Services are extended to run later on Fridays.

During the peak hours there are higher service frequencies.

Higher frequencies for inbound services start at 07:08 AM and end at 08:21 AM. For outbound services, the peak period is from 4:34 PM and ends at 7:10 PM. Train service frequencies for these periods range from 30 minutes to 6 minutes. The higher frequency of services during the peak hours supports the stations commuter function.

Rail patronage at Dakabin Station

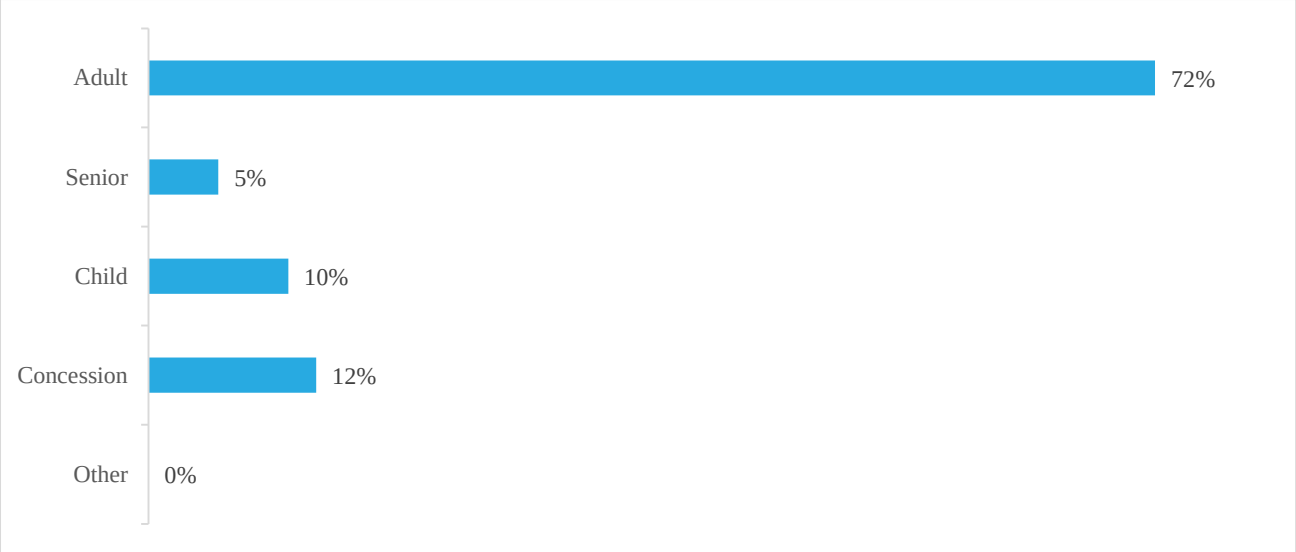
Rail passenger movements at Dakabin Station

Patronage description	2016 go card data
Average daily boardings	815
Average daily boarding and alighting	1575
Weekday morning peak (7 – 8 am) boarding and alighting	378
Weekday evening peak (4 – 5 pm) boarding and alighting	249

Source: TransLink go card data, 2016

The current passenger profile illustrates:

- 72 per cent adult passengers;
- 22 per cent child/concession passengers, likely due to its location near to the local state high school; and
- 5 per cent senior passengers.



Appendix Figure 4 Dakabin Station 2016 passenger profile (Source: TransLink go card 2016 data)

B1.2 Future situation

- Dakabin Station has been identified as medium importance for improving bus – rail interchange opportunities in the overall TransLink Network.
- Park ‘n’ ride demand expected to be offset by the opening of the Redcliffe Peninsula Line.
- Change in service timetable in support of the introduction of the Redcliffe Peninsula Line.

B2 Bus

B2.1 Existing Situation

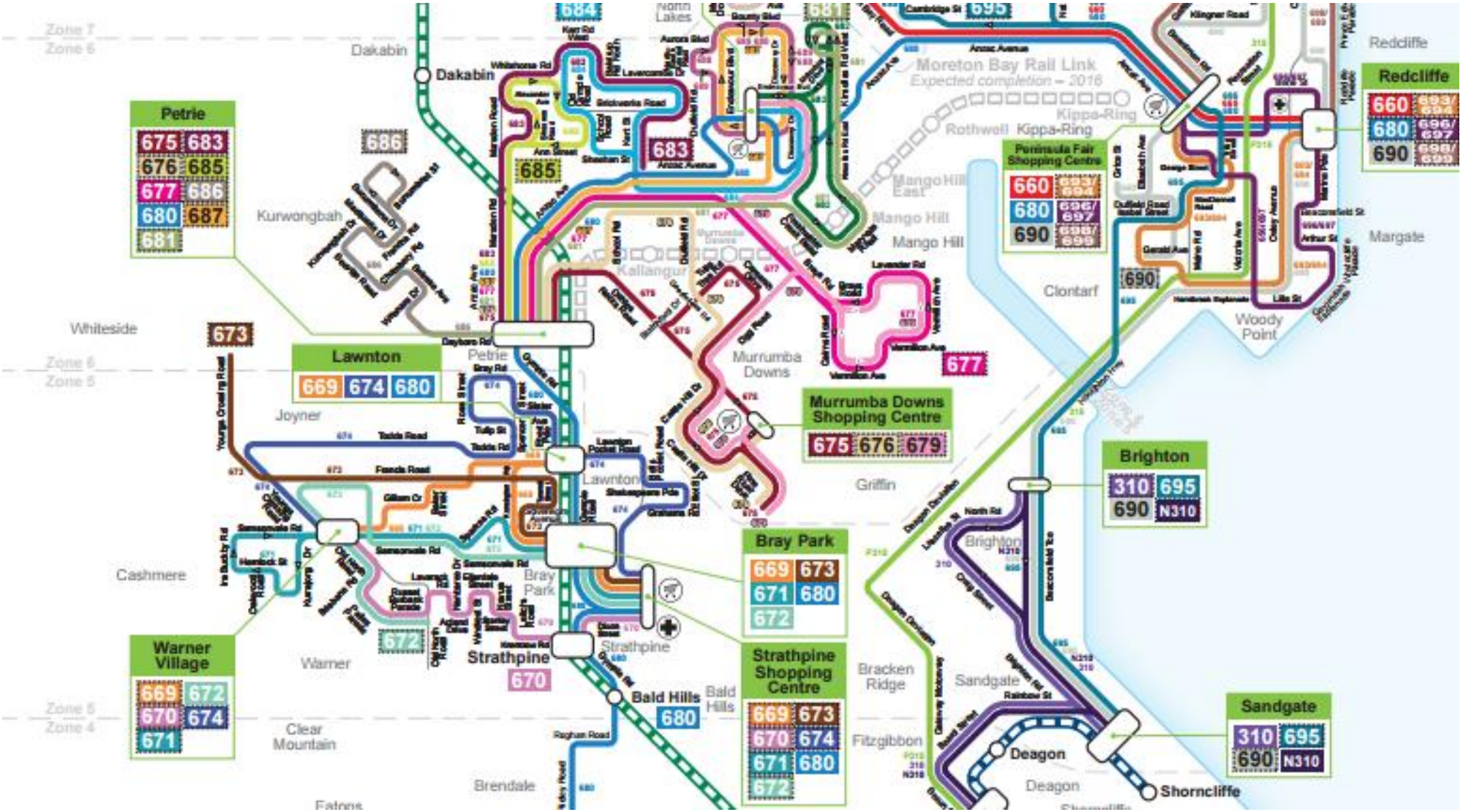
Bus infrastructure, services and frequencies

Existing bus stops and routes in the suburb of Dakabin are illustrated in the table below and Appendix Figure 5 following.

Existing bus stops	Infrastructure	Route	Service
Marsden Road Hastus ID 317652 – Outbound stop  Hastus ID 319169 – Inbound stop 	Minimum boarding point with bus stop flag. No waiting area or shelter. Footpath on both sides of Marsden Road. Pedestrian refuge located north of bus stop pair.	683 – Kallangur – Petrie Station 685 – Petrie Station – Kallangur (loop)	Inbound and outbound peak service, on weekdays only Frequency of 30 to 50 minutes Loop service on weekdays at 30 minute frequency during peak hour, and hourly in of peak. Hourly service on a Saturday.
Whitehorse Road Hastus ID 317642 – Outbound stop  Hastus ID 319349 – Inbound stop 	Minimum boarding point with bus stop flag. No waiting area or shelter. Footpath on both sides of Whitehorse Road		

Source: TransLink Bus Stop Portal www.transeducom.com

The approximate walking distance from Dakabin Station to the Marsden Road bus stops is between 850 and 900 metres, via Bob Brock Park, south of the two oval sports fields. This is greater than a typical walkable catchment of 800m or a 10 minute walk. The bus stops on Whitehorse Road are approximately 1 kilometre from the station.



Appendix Figure 5 Current TransLink Bus Network Moreton Bay Northern Region (Effective 20 January 2014) (Source: www.translink.com.au)

Route 684 operates as a loop between North Lakes and Kallangur, providing a peak hour 30minute frequency service weekdays, and an hourly off-peak service weekdays and on Saturdays.

There are two inbound school buses that service Dakabin Station in the morning, namely:

- 7028 – Petrie Primary, Pine Rivers High School
- 7065 – Petrie on Pine Est, Petrie State, Pine Rivers High School

B2.2 Future situation

There are local bus network changes that have been made to provide an integrated network for Moreton Bay region and access to the six new train stations along the Redcliffe Peninsula Line (refer to Section 3.3).

For the routes in the vicinity of Dakabin Station, the network changes are noted below.

Route 685 North Lakes to Kallangur West	Route 683 Dakabin to Kallangur east
• Route will connect with trains at the new Kallangur station • Route alignment will use the new Plantation Road overpass (improving service reliability) • Will no longer service Anzac Avenue • Increased operating hours • Increased frequency during peak hours	• Will connect with trains at the new Kallangur station • Will service western Kallangur and Dakabin
• Weekdays: Every 45 minutes peak, every 60 minutes off-peak, 5.46am – 7.58pm • Saturday: Every 60 minutes, 8.04am – 6pm	• Weekdays: Every 45 minutes peak, every 60 minutes off-peak, 5.45am – 7.36pm • Saturday: Every 60 minutes, 7.16am – 4.46pm
• No longer will service bus stops located nearest to Dakabin Station on Marsden Road and Whitehorse Road.	• No longer provides access to Petrie Station • Improved service from current situation, with buses providing off-peak operations • Provides improved access along Marsden Road to Alma Road to the north – potential for improved service to future residential catchment.