



**Central Coast Recreational Use Study
Stage 2: The Tuggerah Lakes**



8. Study Recommendations

The recommendations in this Section are based on the Literature Review findings in Section 3, the mapping data presented in Section 7, observations made during the field trip and discussions with officers from the Central Coast Council. These recommendations and their relationship to relevant planning policy are summarised in Section 9.

8.1. Increasing and enhancing recreational opportunities

8.1.1. Shared use paths

As noted in Section 3, the existing multi-purpose "shared" paths are very popular and well used for walking, cycling and running. More specifically:

- Over 50% of respondents to the Community survey for the Tuggerah Lakes restoration study said they used the multi-purpose paths for walking and cycling;
- The most common comments in the survey were towards extending the existing shared path network or building new ones in areas that are lacking;
- The Our Coast, Our Waterways community survey found that over 90% of residents participated in cycling, walking or running at least once a year, which was the most popular activity;
- The literature review of beach users found that the three most reported uses of the beach are for walking, swimming and sitting/relaxing. Cycling and running were likely to be under reported and have a participation rate about the same as swimming;
- Whilst the open coast areas have extensive stretches of beach that can facilitate walking and running, this is not the case for the lakes: shared paths are thus needed to provide opportunities for these activities. As well, formal sealed paths are essential for cycling;
- An important aim in providing outdoor recreation should be to enhance the users' experiences, as a positive experience will encourage people to continue that activity. Recreating in the foreshore provides the users with a much more aesthetic and enjoyable experience than recreating in an urban context.

There are many references to the importance of recreation and the need to provide adequate infrastructure in Council's key strategic and policy documents, but the emphasis is in providing that infrastructure for commuting and linking key locations. Whilst Council's Community Strategic Plan 2018-2028 has the following objective under the Liveable theme – "K2 Design and deliver pathways, walking trails and other

pedestrian movement infrastructure to maximise access, inclusion and mobility to meet the needs of all community members" – the priority community need is commuting. As noted above, Council's bike plan focuses on cycling as a mode of transport. Whilst it notes the demand from the community for more recreational focused cycling infrastructure, it states:

"Whilst there was considerable community feedback requesting completion of a number of missing links in the lake routes, Council's priorities should be communicated to the community so there is better understanding on what Council is trying to achieve in terms of prioritising utility and commuting trips over solely recreational trips." (p82)

As noted above, this is unfortunate and undervalues the benefits of outdoor recreation and the popularity of cycling for recreation and exercise. As well, whilst there is clear community support for a greater focus on recreational cycling, the provision of cycling paths as shared paths will provide more opportunities for the walking, running and better access to the lakes.

Whilst the social and environmental benefits of providing cycling infrastructure for commuting are acknowledged, Council should reconsider whether it has the correct balance with respect to providing shared path infrastructure, and whether providing infrastructure for recreational purposes, especially around the lakes (as well as the open coast) should be given a higher priority.

Further, providing shared path infrastructure around the lakes will also assist in dealing with the issues of providing a clear demarcation between private land and the foreshore reserve, allowing for better management of informal use and the damage caused. This would, in turn provide opportunities to increase the environmental value of the foreshore.

There are some locations where extending the multi-use path network may not be appropriate but that walking tracks should be provided instead, especially where there is good quality native vegetation and the terrain is very steep.

Recommendations

1. Council should reconsider whether it has the correct balance with respect to providing shared paths infrastructure and whether providing infrastructure for recreational purposes, especially around the lakes (as

well as the open coast) should be given a higher priority.

2. Council should develop a 5-10 year plan to extend the existing shared paths network and walking paths within the foreshore reserve of all the lakes and subject to specific recommendations below;
3. As Council rolls out the extension of the shared and walking paths network, it should also address the problems of private intrusion and use of public foreshore, remove informal uses and look for opportunities to rehabilitate areas within the foreshore with native species so as to increase the environmental value of the foreshore.
4. The following are specific recommendations:
 - a. Lake Macquarie
 - i. Gwandalan: there are sections of the foreshore that are flat and with an open understory and these would be suitable for a shared path, whereas areas such as around Diamond Drill Point are more suitable to have the existing walking track upgraded in parts for easier walking;
 - ii. Summerland Point: the northern section has no opportunity for paths as there is no foreshore reserve. The remaining area to the west of Maddison Reserve is suitable for a shared path, but the existing walking track could be upgraded and extended in the short term;
 - iii. Chain Valley Bay: the foreshore reserve of the three coastal suburbs of Chain Valley are suitable for shared paths, however are relatively short. Linking the three suburbs with a continuous path has merit. The link between the northern suburbs and the middle suburb is a well vegetated area so this path is probably best to be a low-key walking track. From this middle suburb to the western suburb, a shared path is likely to be the best option, using the existing crossing of Karignan Creek and looking at environmentally sensitive options to link the path from the bridge to foreshore reserve at the end of Lloyd Ave and extending it along the foreshore reserve;
 - iv. Kingfisher Shores: the foreshore reserve here is suitable for shared paths, however would be relatively short;

b. Lake Munmorah

- i. Other than a small section in the north east corner, all of the urban areas of Munmorah Lake have a foreshore reserve with the capability to support a path;
- ii. The northern urban area has an existing shared path for about half of the foreshore, starting at the western end and finishing at Tom Burke Reserve. The area directly to the east is suitable for a path, however there are sections that are well vegetated and the terrain is sloped, so a walking path might be more suitable in these sections;
- iii. The south west urban area has a foreshore reserve suitable for continuous shared path;
- iv. The south east urban area also has a foreshore reserve suitable for continuous shared path, with an opportunity to extend this across the existing foot bridge to Dunkey Island, and to construct a new foot bridge to the foreshore at the end of Edward Street: thus making a continuous path across the two urban areas.

c. Budgewoi Lake

- i. All of the northern shore has a foreshore reserve, whereas the remaining urban areas in the southern half have extensive areas where there is no foreshore reserve, limiting opportunities here for paths.
- ii. The entire northern shore has shared path that extends partly up Wallarah Creek to Pacific Highway. This path provides all the benefits referred to earlier in this report and Council should be commended.
- iii. Providing paths in the southern section of the lake is more problematic, given the number of areas where there is no foreshore reserve, although a shared path has been provided in a section along the south east. By extending the path up Peel Street, Council appears to be looking at safe options to extend this path around the area with no foreshore reserve using the very busy Main Road. This strategy might be more applicable for the western section (i.e. construct a shared path in the foreshore reserve and use the distributor roads around the areas with no foreshore reserve) as the distributor roads are much less busy than Main Road.

- iv. An alternative for the two longer sections of foreshore reserve is to build on the natural values by increasing their biodiversity values, install walking tracks and create a more substantial node that focuses on passive recreation and biodiversity education.

d. Tuggerah Lake

- i. Most of the residential areas around Tuggerah Lake have a foreshore reserve, the exceptions being in the north, especially to the east of Wallarah Point/Main Road Bridge. This makes most of Tuggerah's lake foreshore suitable for shared paths.
- ii. There is an existing shared path starting at the end of Prawn Beach Lane in the north and ending at March Street, where works are in progress to extend the path further south. The area north of Prawn Beach Lane does not have a continuous foreshore reserve and some of the terrain is steep with cliffs and well vegetated. The area either side of Craigie Park is better suited to building on the natural values by increasing their

biodiversity values, install walking tracks and create a more substantial node at Craigie Park that focuses on passive recreation and biodiversity education.

- iii. The lakeside urban areas either side of the outlet of Ourimbah Creek have foreshore reserves that are suitable for shared paths. These reserves have significant conservation value with extensive areas of salt marsh and shallow water. As well, either side of the very eastern end of Ourimbah Creek is a conservation area. Consequently, these foreshores are best suited for walking tracks rather than shared paths. There is an opportunity to link a path in the northern side to the Tuggerah State Conservation Area. Education signs could also be installed.
- iv. A shared path commences near Chittaway Bay Lions Park, crossing over Tumby Umbi Creek and ending at The Entrance. This path provides all the benefits referred to earlier in this report and Council should be commended.

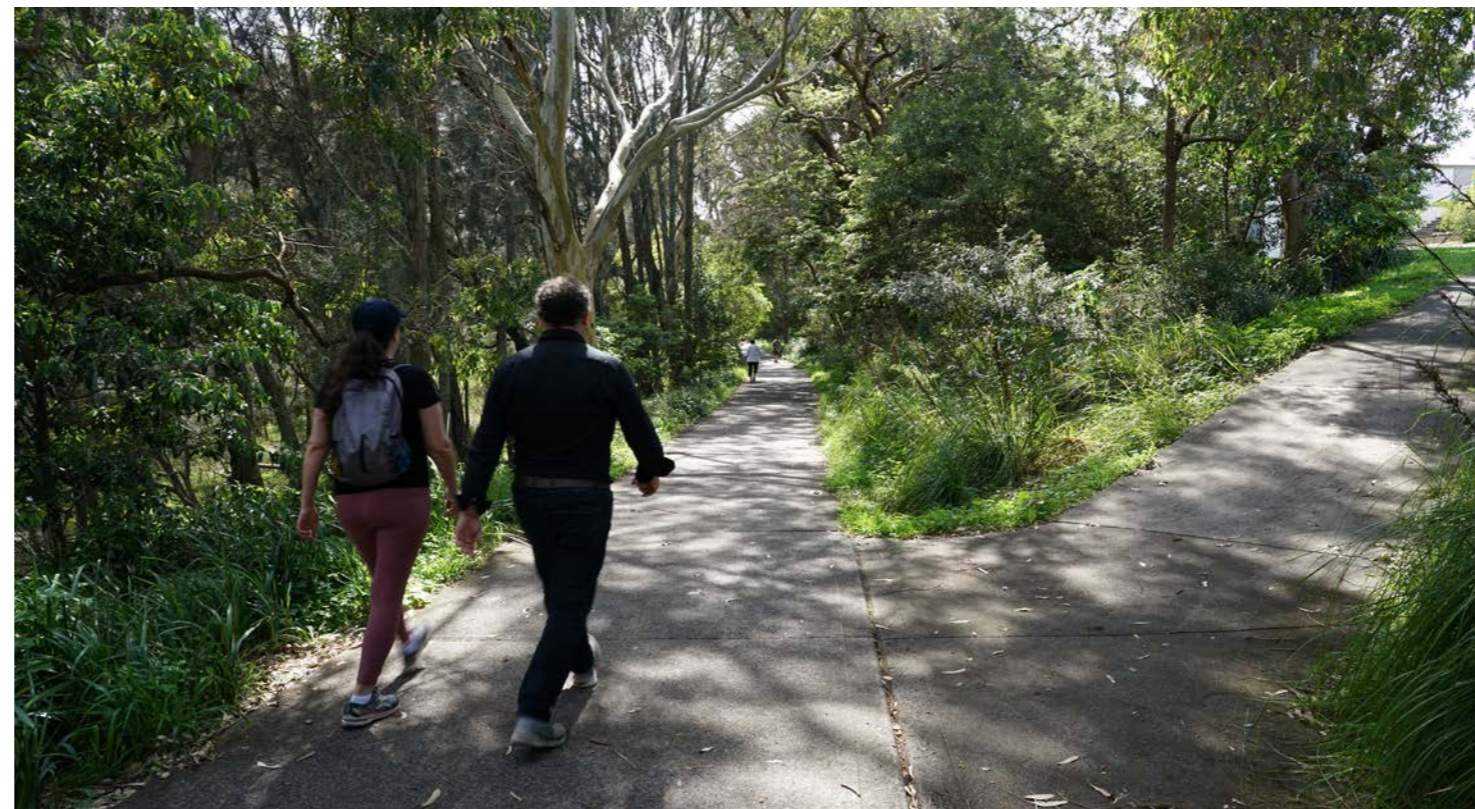


Figure 132: Walkers enjoying a shared path along a highly vegetated foreshore area.

8.1.2. Access

The existing status of access.

The need for better access to the lakes – i.e. more and better quality access points – was raised by nearly 75% of Tuggerah Lakes respondents and 86% of Lake Macquarie respondents to Council's Our Coast, Our Waterways community survey. The survey also found that 85% of users do not have direct access to the waterway/beach and providing good access is important for those many residents who do not have direct access to the lakes.

During the field trip it was noted that public access points to the lakes varied with respect to ease of access and the facilities provided – see Figures 133 to 137.

In most areas, these local access points are well spaced, providing good access to the beach for local residents. However, the lack of basic infrastructure in most cases limits the users' experience of the visit. There is value in creating a few well-placed local access nodes with some basic infrastructure. Such upgraded local access points would not only enhance users' experiences, but can act as small community hubs where socializing is facilitated.

In our Stage 1 Open Coast and Coastal Lagoons report, we made recommendations on where these upgraded local access points should be. We also recommended what the basic infrastructure at these upgraded local access points should be. These were:

- Bins;
- Shower and drinking water;
- Information signage (referring to dogs, patrolled beaches, hazard info, local information);
- Look out and/or seating;
- Some shading; and
- A small grassed area.

Additional infrastructure could be a playground and a toilet/shower block in some circumstances.

On the following pages is a discussion of the distribution of the existing nodes for each lake and river/creek.



Figure 133: An example of a public access point with good facilities and that functions as a small node (Osbourne Park, Budgewoi Lake).



Figure 134: An example of a public access point with good access to the lake but with no facilities (Leonard Avenue, Budgewoi Lake).



Figure 135: An example of a public access point with no facilities, good access and shared with drainage infrastructure (Diamond Head Drive, Budgewoi Lake).



Figure 136: An example of a public access point with no facilities and more difficult access to the lake (Goobarabah Point, Budgewoi Lake).

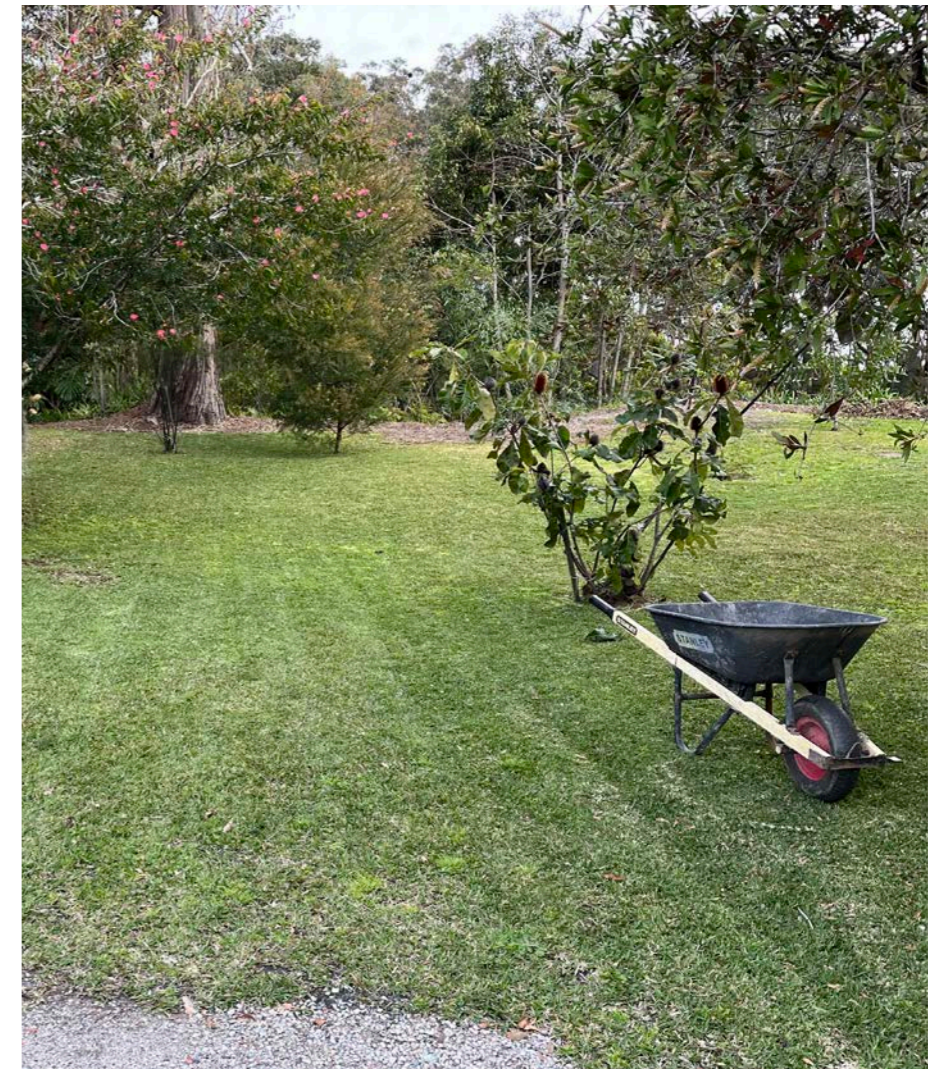


Figure 137: An example of a public access point with no facilities and very difficult access to the waterway (Panonia Road, Wyong River).

Lake Macquarie

Figure 140 shows the distribution of the existing nodes for the suburbs around Lake Macquarie. As can be seen, the western side of Mannering Park, south of Vales Point (Figure 139) along Wyee Bay, has no nodes. Aside from this, most residential areas are well provided with at least one minor node, with Gwandalan and Summerland Point (Figure 138) provided with larger moderate nodes. That said, these nodes are not always evenly distributed, with gaps along Frying Pan Point and Diamond Drill Point.



Figure 138: Summerland Point Reserve.



Figure 139: Vales Point.

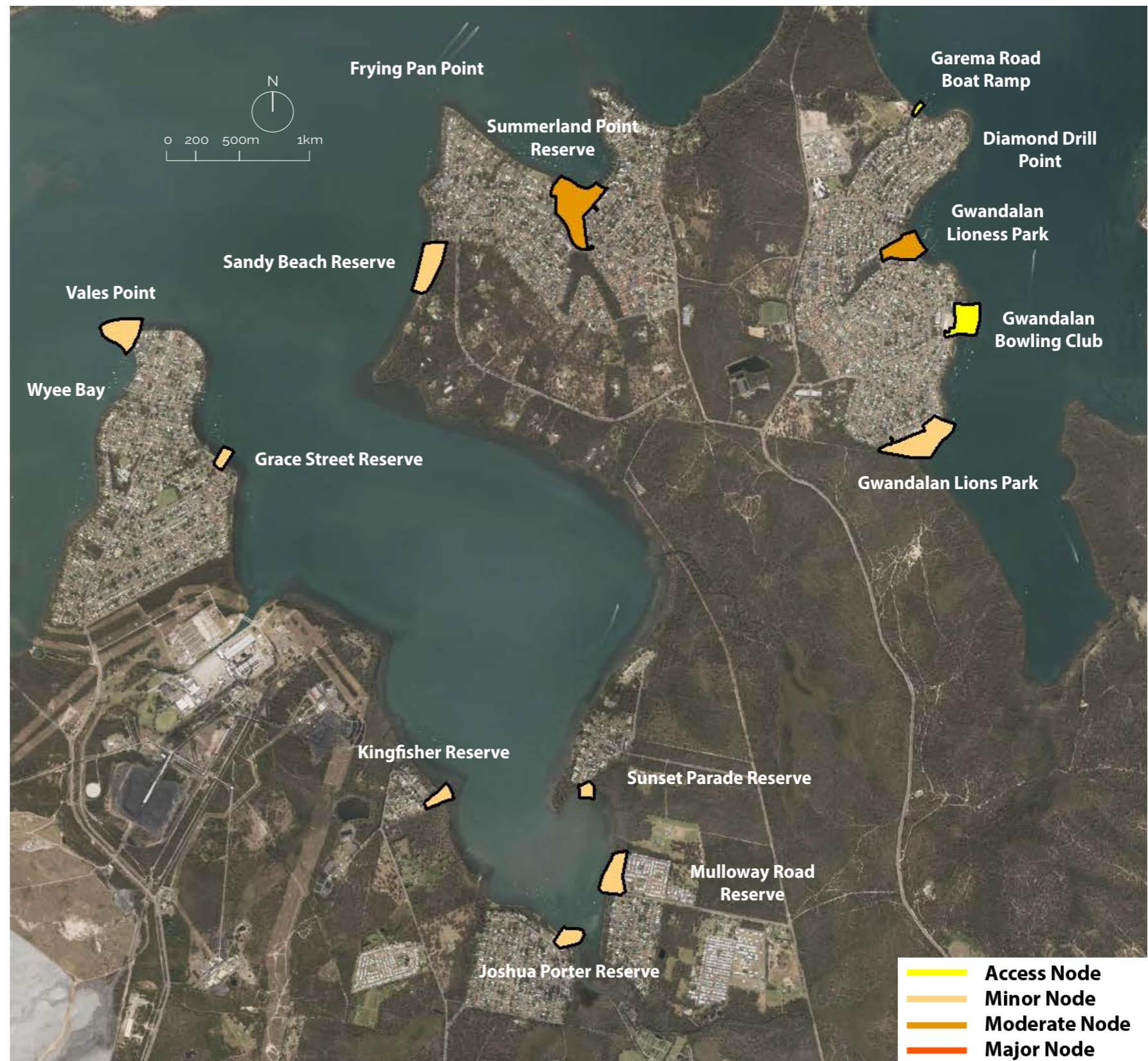


Figure 140: The distribution of the existing nodes for the suburbs around Lake Macquarie

Lake Munmorah

Figure 143 shows the distribution of the existing nodes for the suburbs around Lake Munmorah. As can be seen, the south western side of Lake Munmorah along Halekulani has only one node (Ashley Chapman Reserve, Figure 141) for the nearly 2km of foreshore. This is in contrast to the northern shore, which has four recreational nodes in close proximity. The section of the foreshore south east of Tom Burke Reserve (Figure 142) has no nodes for the around 2km up to Elizabeth Bay Park, and is also not provided with a shared path.



Figure 141: The open space at Ashley Chapman Reserve.



Figure 142: Tom Burke Reserve.



Figure 143: The distribution of the existing nodes for the suburbs around Lake Munmorah.

Budgewoi Lake

Figure 146 shows the distribution of the existing nodes for the suburbs around Budgewoi Lake. As can be seen, the only developed recreational node along the nearly 4.5km of the western side of Budgewoi Lake is in the very south at Wallarah Point (Figure 144): each of the other four potential nodes lack formal recreational infrastructure. The southern 2km stretch east of Main Road Bridge has no nodes (aside from street access to Cross Street Jetty) west of Osbourne Park (Figure 145), and there are two gaps between nodes of around 1.7km on the north foreshore.



Figure 144: Wallarah Point Peace Park.



Figure 145: The playground at Osbourne Park.



Figure 146: The distribution of the existing nodes for the suburbs around Budgewoi Lake.

Wallarah Creek

Figure 149 shows the distribution of the existing nodes for the suburbs along Wallarah Creek. As can be seen, there is a relatively even distribution of nodes, with playgrounds found at both Bamayi and Birdwood Drive Reserve, with an undeveloped access point McKellar Boulevade. Beach access nodes lie either side of Pacific Highway, although lack formal recreational infrastructure outside of the boat ramp at Brudenell Avenue.



Figure 147: Bamayi Reserve.



Figure 148: Birdwood Drive Reserve.

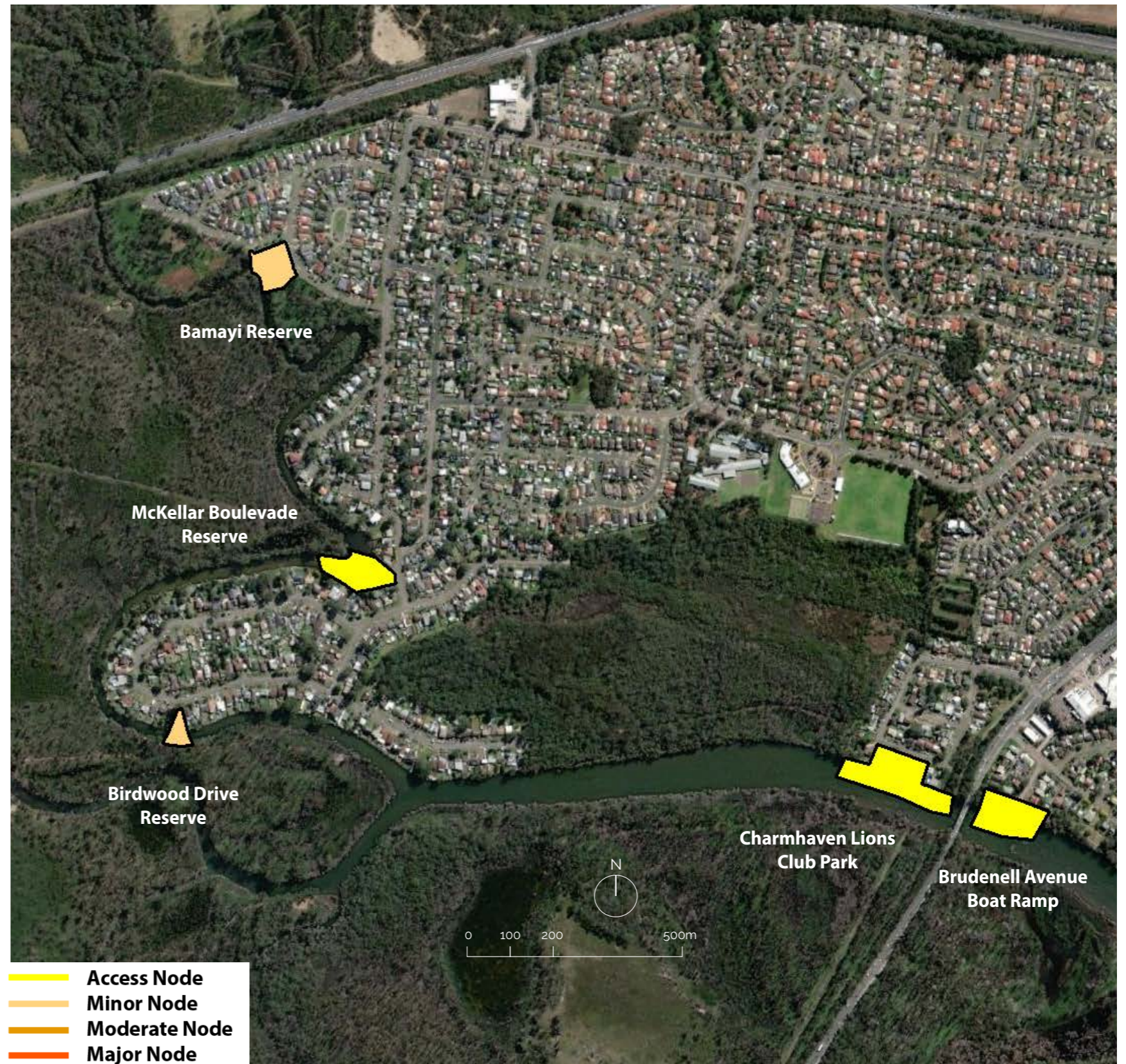


Figure 149: The distribution of the existing nodes for the suburbs around Wallarah Creek and Spring Creek.

Tuggerah Lake

Figures 152 and 153 show the distribution of the existing nodes for the suburbs around Tuggerah Lake. As can be seen, the entire length of the nearly 8km of the north western section of the lake has only 4 minor nodes. Across the bridge, the 3km section of the north eastern part of the lake has no nodes until Canton Beach (Figure 150). The five nodes on the south western foreshore at over 1km apart, and there is a gap of around 1.7km between Picnic Point (Figure 151) and Long Jetty on the south eastern side of the lake south of The Entrance.



Figure 150: Canton Beach Reserve.



Figure 151: Picnic Point Reserve.



Figure 152: The distribution of the existing nodes for the suburbs around the northern part Tuggerah Lake.



Figure 153: The distribution of the existing nodes for the suburbs around the southern part Tuggerah Lake.

Wyong River

Figure 156 shows the distribution of the existing nodes for the suburbs along Wyong River. As can be seen, there are only two minor nodes, which are either side of Pacific Highway bridge in the west (Figure 155). An undeveloped reserve providing foreshore access is found at Riverview Drive, while there are additional access nodes at the two boat ramps either side of Tacoma foreshore (Figure 154).



Figure 154: South Tacoma Boat Ramp.

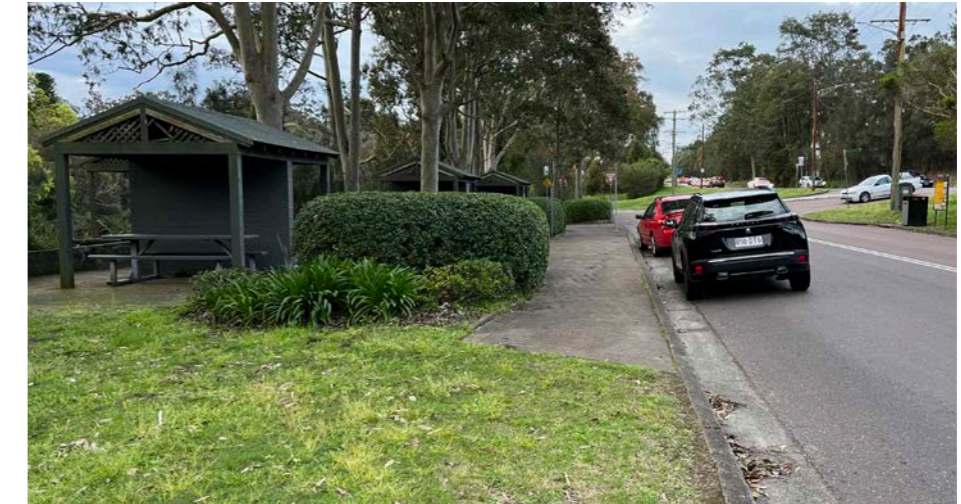


Figure 155: Centennial Park.



Figure 156: The distribution of the existing nodes for the suburbs around Wyong River.

Ourimbah Creek

Figure 159 shows the distribution of the existing nodes for the suburbs along Ourimbah Creek. As can be seen, there is just a single node along the creek at Sunshine Reserve (Figure 157 and 158).



Figure 157: Facilities at Sunshine Reserve.



Figure 158: Looking east over Sunshine Reserve.



Figure 159: The distribution of the existing nodes for the suburbs along Ourimbah Creek.

8.1.3. Recommended upgraded access points

As noted above, 85% of users of the beach and lakes do not have direct access to foreshores and whilst the distribution of access points is generally good, the distribution of nodes (i.e. access points with facilities) is unevenly spread in some key locations. To better encourage quality use of the foreshore and the greater use of the foreshores by locals, the distribution of access points with facilities should be spaced so as to encourage walking access. Good walking access will also reduce the need for carparking.

The key question here is: what is the ideal distance between access points with facilities that encourages walking access, but are not so close that the use of the facilities is not optimised?

There is considerable research into how far people walk to public transport facilities. Research on the distance people walk to metro stations in China noted that the proportion of people who walked to a station was 72% for under 300 metres, but fell to 37% for those who would of walk more than 375m (He, Zhang et al. 2018). Kim (2015) found that residents in the San Francisco Bay area walk an average of 548m and up to 1,100m to access railway stations. A study of walking distance of commuters to public transport stops in Norwegian cities found that walking trip were 328–520m on average to bus stops and 528–688m to railway stations. A study of walking access to public transport stops carried out a literature review of the studies that examined the maximum walking distance for residents to local destinations, including schools and transit stops (Sypion-Dutkowska 2019). It noted that 400m was typically quoted as the maximum distance people would walk. The 400m walkability figure has been embedded in neighbourhood planning documents in Australia. The Western Australian Planning Commission has a policy document on neighbourhood design, and recommends that public open space should be no more than 300m from any residence and retail areas no more than 800m (Western Australian Planning Commission 2015).

The NSW Government Accessible Office Design Guide (Funkton 2021) recommends that walkability to public transport stops and food retail should be more than 400m. Both the NSW and Victorian Governments have endorsed the notion of a 20-minute city, which encourages walkable catchments of up to 800m in radius (a 20-minute return walk)

that enable people to meet most of their daily needs locally, for example shopping and visiting parks.

Based on the above guidance, the ideal walkable catchment should be between 400-800m – i.e. the optimal spacing of nodes should have catchments of between 400-800m with minimal overlaps. This would also be consistent with Central Coast Council's own Playspace Strategy which recommends that residents should be within 400-800m of a local playspace (Central Coast Council 2020, 4) Figures 161 and 162 show the 400m catchment around nodes that would be 1km and 500m apart for the western part of Tuggerah Lake.

Clearly, the 500m distance between nodes and upgraded access points gives a more optimal outcome for providing walking access for residents if the 400m catchment is adopted, and it recommended that the distance between nodes and upgraded access points be between 500m and 800m, with an upper limit of no more than 1km. The Figures on the following pages show recommended upgraded existing nodes and new upgraded access points. The 500-800m guideline was applied where possible, but some areas were constrained due to long stretches of foreshore without a reserve – i.e. private residences back directly onto the lakes' edges. In each map, the green 'pins' are existing nodes, the yellow pins are recommended upgraded access points and the orange pins are existing nodes that should be upgrades. Purple pins are possible enhanced access points where it is unclear if there is public access or part of private property. Figure numbers are also provided where the location corresponds to images in the section that follows.

Recommendations

5. Council should increase the number of upgraded access points around the lakes and the three water courses covered in this study.
6. It is recommended that an ideal walkable catchment for these access points should be between 400-800m which also means that the optimal spacing of nodes should be 500m but no more than 800m.
7. The recommended upgraded access points in this report are a useful starting point for Council's consideration.

8. New infrastructure:

- i. The recommended facilities at these points should be bins, shower where swimming facilities are provided, drinking water, information signage, look out and/or seating, some shading including for seating, and a small grassed area. Additional infrastructure in some circumstances could be a playground and a toilet/shower block.
- ii. The flood hazard in the low-lying areas in the foreshore will likely increase in future as sea levels rise and storm intensity and frequency changes with climate change. As well, wetland vegetation will likely migrate inland. Consequently, the design and placement of any new assets or infrastructure need take this into account including the findings of Council's Wetland Refugia Study.



Figure 160: An example of a typical Local Connector access point from the street.



Figure 161: Show the 400m catchment around nodes that are 1km apart for the western part of Budgewoi Lake.



Figure 162: How the 400m catchment around nodes that are 500m apart for the western part of Budgewoi Lake.

Lake Macquarie Upgrades

Figure 165 shows the distribution of existing nodes, access points and recommended upgrades for the suburbs around Lake Macquarie. Two access points along the west of Mannering Park and the north of Summerland Park are identified for upgrade, while the Diamond Drill Point access could also be expanded. Kingfisher Reserve, Sunset Parade Reserve and Gwanadalan Bowling Club are all existing small nodes with potential for additional recreational infrastructure.



Figure 163: Frying Pan Point.

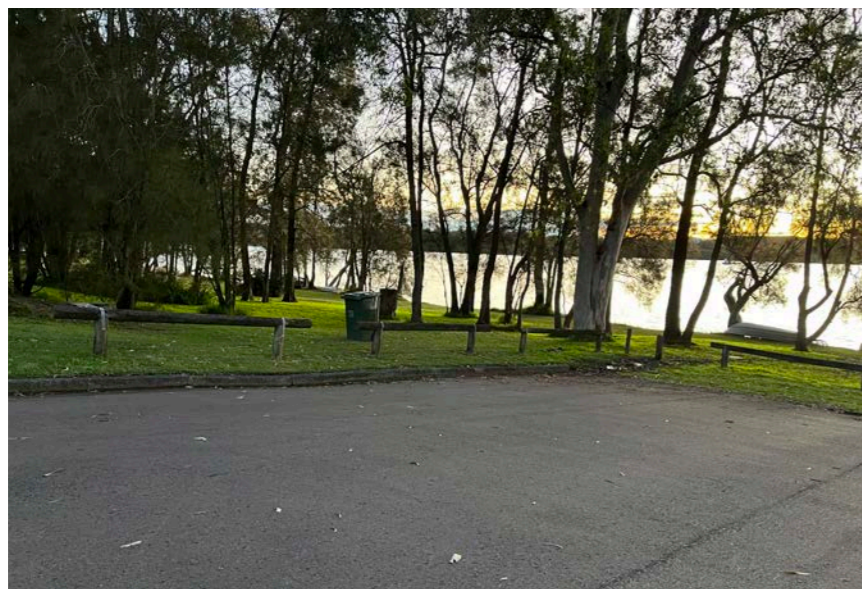


Figure 164: Halcyon Street Carpark.



Figure 165: The distribution of nodes, access points and upgrades for the suburbs around Lake Macquarie.

Lake Munmorah Upgrades

Figure 168 shows the distribution of existing nodes, access points and recommended upgrades for the suburbs around Lake Munmorah. Kamilaroo Avenue Reserve is the only node along the west of Lake Munmorah suburb with scope for upgrade, while an upgrade of Elizabeth Bay Park and a formal access point in the vicinity of Andrew Street would better serve residents in the east. A potential upgrade of MacKenzie Reserve, along with expansion of access points along Halekulani, are identified for the south.



Figure 166: Andrew Street access point.



Figure 167: Lukela Avenue access point.



Figure 168: The distribution of nodes, access points and upgrades for the suburbs around Lake Munmorah.

Budgewoi Lake Upgrades

Figure 171 shows the distribution of existing nodes, access points and recommended upgrades for the suburbs around Budgewoi Lake. When considering these upgrades, it is suggested that the western bank of Gorokan, Lake Haven and Charmhaven be given priority.



Figure 16g: Woodland Parkway Reserve.



Figure 170: John Peter Howard Reserve.



Figure 171: The distribution of nodes, access points and upgrades for the suburbs around Budgewoi Lake.

Wallarah Creek Upgrades

Figure 174 shows the distribution of existing nodes, access points and recommended upgrades for the suburbs along Wallarah Creek. Despite its small size, Birdwood Drive Reserve has potential for greater recreational infrastructure alongside the playground, as do both access nodes either side of Pacific Highway.



Figure 172: Brudenell Avenue Boat Ramp.



Figure 173: Birdwood Drive Reserve.



Figure 174: The distribution of nodes, access points and upgrades for the suburbs around Wallarah Creek and Spring Creek.

Tuggerah Lake Upgrades

Figures 177 and 178 show the distribution of existing nodes, access points and recommended upgrades for the suburbs around Tuggerah Lake. Wyongah Boat Ramp and Main Road Reserve are the nodes most in need of upgrade along the north of the lake, as well as enhanced upgrade points particularly along Rocky Point, Tuggerawong and Canton Beach. The south of the lake is generally well provided with nodes, with focus to be given on upgrading access points.



Figure 175: Stone Street access point.



Figure 176: Ferndale Street access point.



Figure 177: The distribution of nodes, access points and upgrades for the suburbs around the northern part Tuggerah Lake.

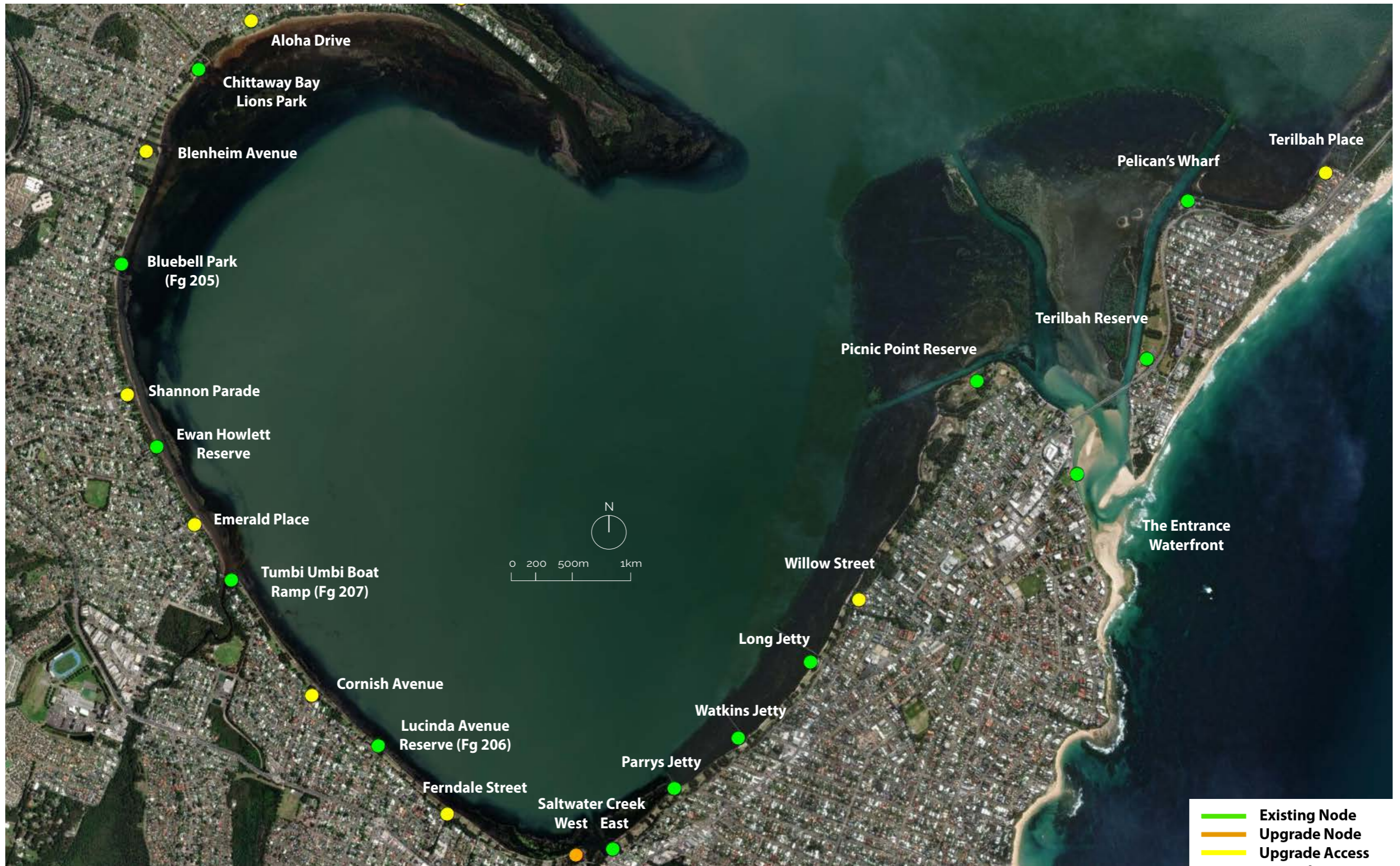


Figure 178: The distribution of nodes, access points and upgrades for the suburbs around the southern part Tuggerah Lake.

Wyong River Upgrades

Figure 181 shows the distribution of existing nodes, access points and recommended upgrades for the suburbs along Wyong River. Greater recreational facilities could be provided at the two Tacoma Boat Ramp nodes. Two access points east of Lions Park could be expanded, while a node could be developed around the fishing platform along River Road.



Figure 179: The fishing platform along River Road.

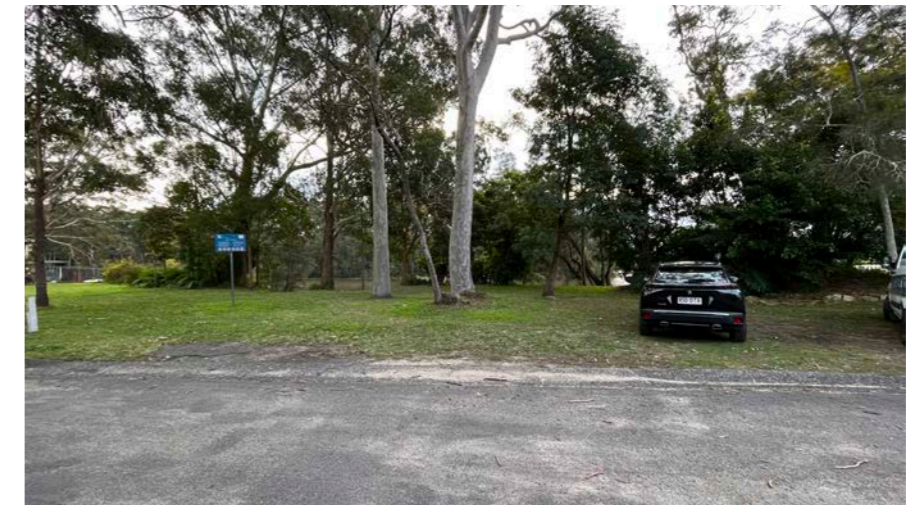


Figure 180: Foreshore access but no infrastructure at Riverview Drive Reserve.



Figure 181: The distribution of nodes, access points and upgrades for the suburbs along Wyong River.

Ourimbah Creek Upgrades

Figure 184 shows the distribution of existing nodes, access points and recommended upgrades for the suburbs along Ourimbah Creek. Little could be added to the existing Sunshine Reserve node, however various informal access points either side of the creek could be expanded.



Figure 182: Burragah Road access point.



Figure 183: Hanalei Avenue access point.

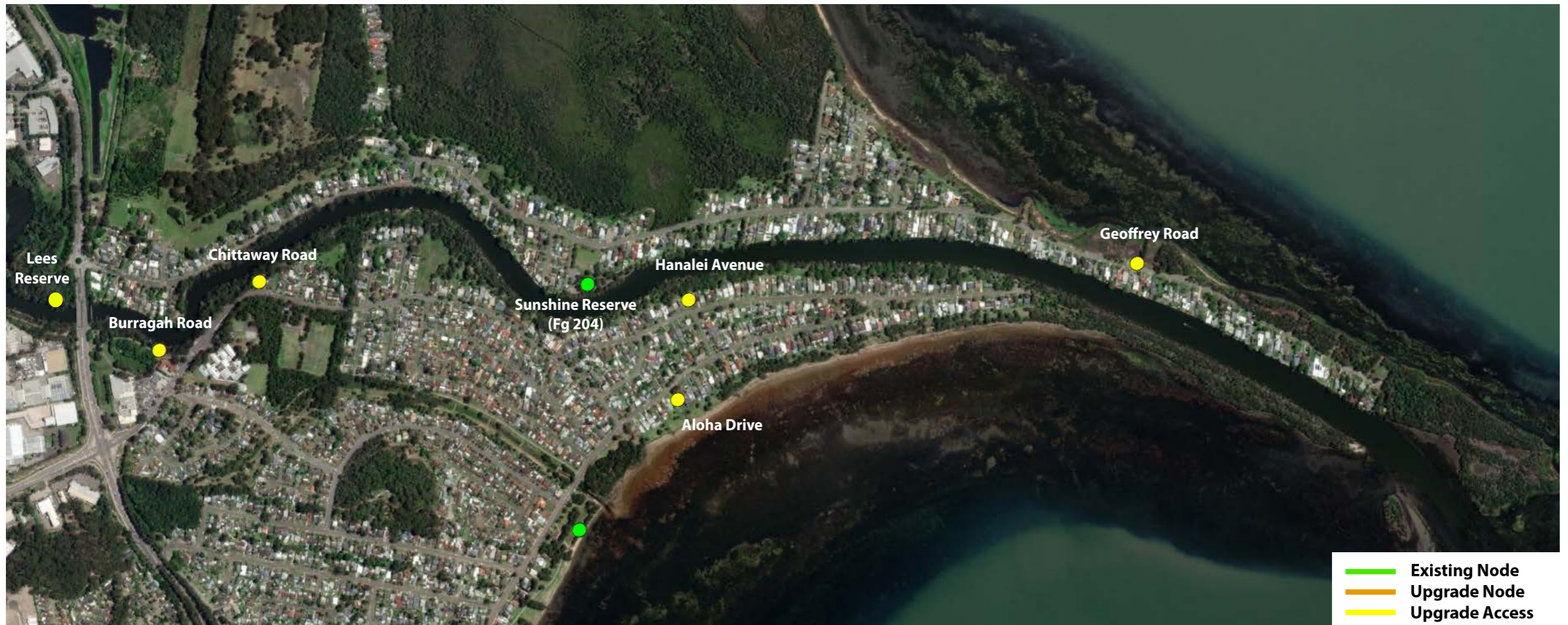


Figure 184: The distribution of nodes, access points and upgrades for the suburbs around Wyong River.

Upgrading existing nodes

9. The quality of infrastructure at some of the access points we have classified as nodes should be improved and upgraded as noted in the relevant Figures.

Many of these are also included in the recommendations in the previous section, with the corresponding Figure numbers provided in each map. The Figure captions list the existing infrastructure and any specific recommendations for improvement.



Figure 185: Budgewoi Lake, Chelmsford Road Reserve node has a large grassed area, a couple of open picnic tables and a rough car parking area.



Figure 186: Budgewoi Lake, Brandon Close Reserve has a parking area, a bin and a single open picnic table.



Figure 187: Budgewoi Lake, Budgewoi Point Boat Ramp has a small boat launching ramp, jetty and bins.



Figure 188: Budgewoi Lake, Bark Park has informal parking, bin, grassed area and open picnic table.



Figure 189: Budgewoi Lake end of Coraldeen Ave is an undeveloped node that has no facilities other than a rough grassed area.



Figure 190: Budgewoi Lake, end of Goobarabah Ave is a drainage reserve with no facilities other than rough grassed area.



Figure 191: Budgewoi Lake, end of Inderan Ave is a drainage reserve with no facilities other than rough grassed area.



Figure 192: Budgewoi Lake, end of Wirriga Avenue is an undeveloped node with a single bench and a nice grassed area.



Figure 193: Budgewoi Lake, end of Una Ave is an undeveloped node with no facilities other than a grassed area.



Figure 194: Budgewoi Lake, Mutumba Road Reserve node: facilities there are good but jetty in need of repair.



Figure 195: Budgewoi Lake, The Corso Reserve: rough carpark, bin, grassed area and one old picnic table. Gate for vehicle access was close – unclear as to why.



Figure 196: Budgewoi Lake, Peel Street carpark on the West of Osbourne Park node: unshaded picnic tables.



Figure 197: Lake Macquarie, Sunset Parade Reserve: Informal and street parking, grassed area, playground, 2 seats, a track through to water's edge and seat there.

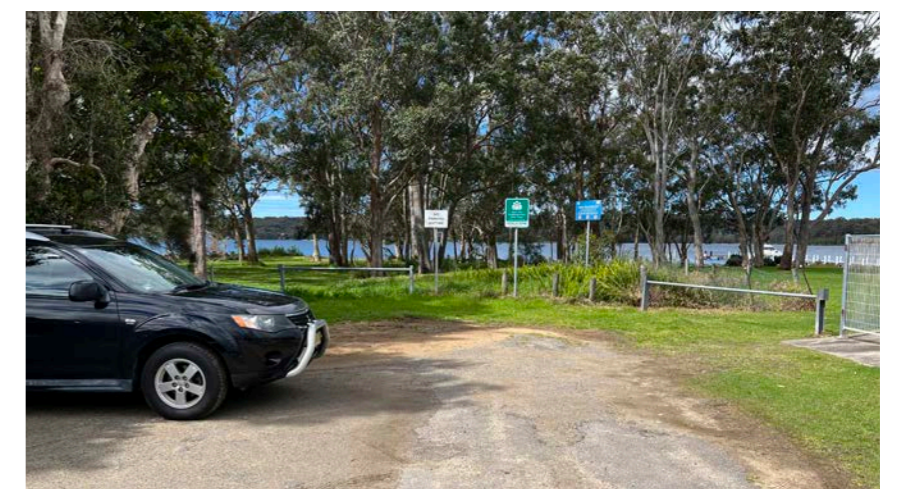


Figure 198: Lake Macquarie, Gwandalan Bowling Club node. Up to 10 informal parking, grassed area and 2 seats. Links to bowling club foreshore.



Figure 199: Lake Munmorah, undeveloped node at end of Natuna Ave. Ad hoc parking and grassed area (also seat facing inland!).



Figure 200: Lake Munmorah, micro node at end of Queens Street: street parking only, bins, grassed area and 2 seats.



Figure 201: Lake Munmorah, Kamilaroo Avenue Reserve: 8 parking bays, bins, rough grassed area, 2 open picnic tables partly shaded.



Figure 202: Lake Munmorah, Alister Avenue Reserve: 6 informal parking bays, bin, 3 open picnic table partly shaded, seat, bike rack, grassed area.



Figure 203: Lake Munmorah, Tom Burke Reserve: good facilities but boat launching ramp difficult to access.



Figure 204: Ourimbah Creek, Sunshine Reserve: good facilities but no disabled toilet or parking.



Figure 205: Tuggerah Lake, Bluebell Park: two jetties, 12 informal parking bays and rough grassed area.



Figure 206: Tuggerah Lake, corner Ferndale Street and Lucinda Avenue: street parking, bin and seat.



Figure 207: Tuggerah Lake, Tumbi Umbi Boat Ramp: up to 10 informal parking, picnic table, boat launching ramp, jetty and bin.



Figure 208: Tuggerah Lake, end of Jensen Road: 3 parking bays and bins.

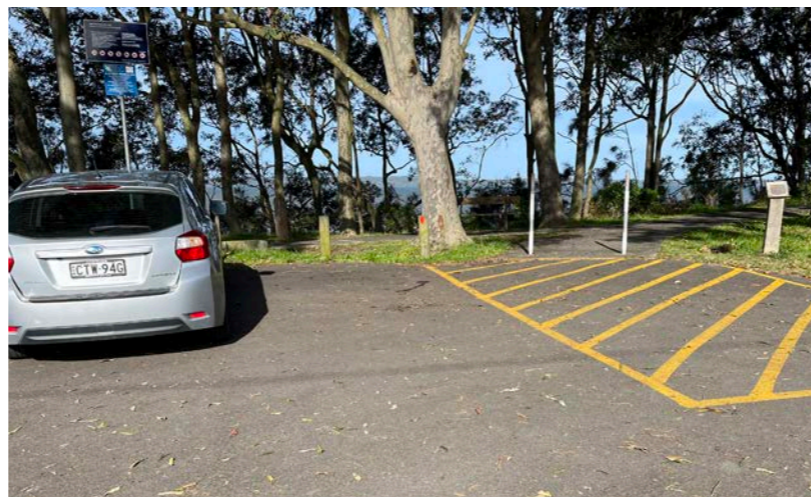


Figure 209: Tuggerah Lake, end of Saturday Street: 3 informal parking bays, bin and old seat.



Figure 210: Tuggerah Lake, end of Thursday Street: street parking only, grassed area, seat bike rack, bins.



Figure 211: Tuggerah Lake, Main Road Bridge Reserve: degraded area, 4 carparking bays, bins, damaged jetty and damaged path under bridge.



Figure 212: Wallarah Creek, Brudenell Avenue Boat Ramp: rough informal parking, small boat launching ramp and jetty.



Figure 213: Wyong River, end of Panonia Road: no facilities, grassed area managed by neighbour.



Figure 214: Wyong River, River Road Reserve: informal parking, bins, small fishing jetty.



Figure 215: Wyong River, Riverview Drive Reserve: 3 informal parking bays and grassed area. Only public foreshore access in the broader area.



Figure 216: Wyong River, South Tacoma Boat Ramp: grassed area, boat launching ramp and jetty, street parking and 2 bays for dropping off boats.

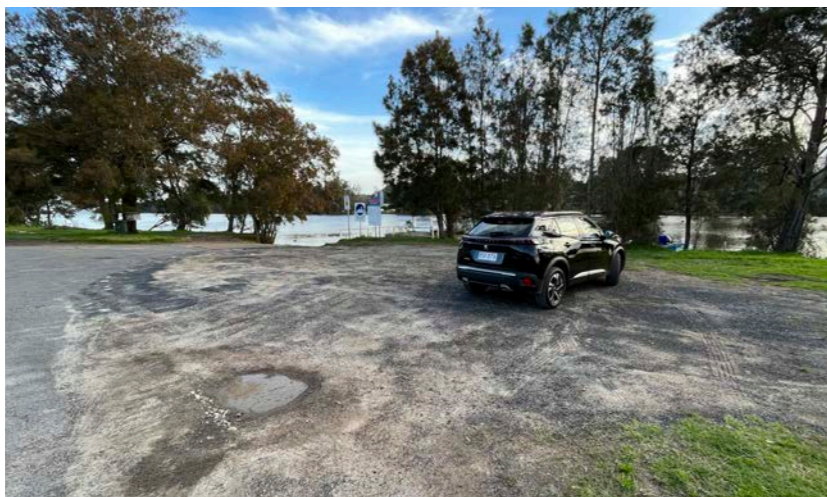


Figure 217: Wyong River, Tacoma Boat Ramp: rough car park with up to 6 bays, bin, boat launching ramp, jetty, grassed area with 3 open picnic tables.

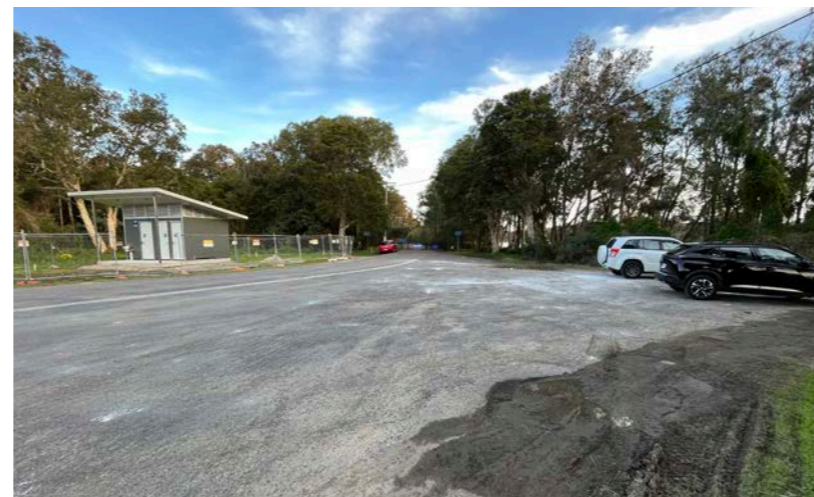


Figure 218: Wyong River, Wolseley Avenue end of Don Small Oval node: informal and rough parking, new toilets and drinking water.

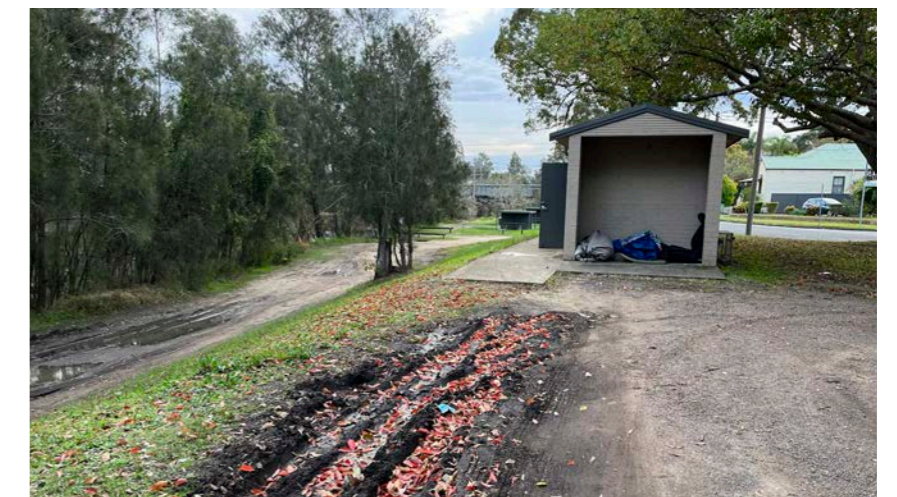


Figure 219: Wyong River, Wyong Lions Park: toilet, rough carpark shared with bowling club, bins, 2 old picnic tables under pergolas, small boat launching ramp.

8.1.4. Disabled access

As noted in our Open Coast and Coastal Lagoons Stage 1 report, all of the surf lifesaving clubs along the Central Coast had facilities that allowed physically disabled people to access facilities. Despite having disabled parking and toilets, only a few were observed to have facilities to enable access to the beach, including beach wheel chairs and beach mats.

There are several beaches within the lakes where swimming facilities are provided, and the physical nature of the waterway makes swimming practical: notably Gwandalan Lioness Park, Sandy Beach and Vales Point at Lake Macquarie; Tom Burke Reserve at Lake Munmorah; and Canton Beach at Tuggerah Lake. None of these beaches have a facility like a surf lifesaving club that could house and administer disabled access to the beach and water.

8.2. Demarcation between private land and the foreshore reserve

There are many examples of private residents, whose properties back onto the foreshore reserve, having placed private facilities and infrastructure within the foreshore for their own private use. Some examples are shown in Figures 220 to 231.

It was noticed that this was also a problem in the open coast and lagoons, with the Stage 1 advising that providing a hard edge would help reduce this problem. Requiring fencing at the property boundary is a useful measure and makes it very clear where the boundary is between private and public use is. This appears to be less of a problem around the lakes compared to the open coast, but there are examples – two properties in the section of Budgewoi Lake do not have fences, for example.

Having a shared path through the reserve has the added advantage of bringing the public into the foreshore, which reduces the sense of private ownership and should reduce the private use of the foreshore. As well, the public will act as monitors of inappropriate private use of the foreshore.

These measures, including having a road as a hard edge, will not completely stop private intrusions into the reserve as the Figures following illustrate, but will significantly reduce the problem.

It is recognised that taking any action to better manage the foreshore through the removal of private infrastructure will meet with resistance by some land owners. Therefore, the process of implementation will need to be managed carefully including an education program on the broader public benefits of these measures.

Recommendations

10. An audit should be carried out of the foreshore reserve where houses directly abut the foreshore reserve to identify cases of significant intrusion into the reserve.
11. To ensure an ongoing and clear demarcation between private property and the public foreshore a property boundary fencing policy should be introduced and implemented.
12. Council should work with residents to identify a more suitable location for this infrastructure.
13. The removal of these private facilities and infrastructure should also be integrated into the extension of the multi-use paths and walking tracks recommended above.



Figure 220: Lake Macquarie, Teragalin Drive, Chain Valley Bay – showing a range of privately installed facilities, including a hammock.



Figure 221: Lake Macquarie, Gamban Road, Gwandalan – showing dinghies being stored in the foreshore and a pile of mulch/wood chips that have been dumped.



Figure 222: Lake Macquarie, Kingfishers Shores – showing private picnic table and chairs at the water's edge.



Figure 223: Lake Munmorah, Terence Ave to Anita Ave and Kamilaroo Ave – private garden part of which is likely in the foreshore reserve.



Figure 224: Tuggerah Lake, Aloha and Lakedge Ave – showing a washing line in the reserve.



Figure 225: Budgewoi Lake, informal reserve – showing rubbish that has been dumped there.



Figure 226: Lake Macquarie, Summerland Point – one of the many examples of dinghies being stored in the foreshore reserve.



Figure 227: Lake Munmorah, Sunrise Ave and Natuna Ave – showing a private driveway ending at the water's edge.



Figure 228: Tuggerah Lake, Aloha to Lakedge Ave – showing off-road vehicle tracks.



Figure 229: Budgewoi Lake – possibly a fence through the foreshore reserve suggesting the foreshore is not public.



Figure 230: Drone image of the shared path along Green Point, Budgewoi Lake, with clear delineation between private property and the foreshore reserve.



Figure 231: Wyong River, South Tacoma Road – showing a range of private infrastructure and facilities within the foreshore.

8.3. Biodiversity gain

As noted in Section 3.1.1, Council has a biodiversity strategy (Central Coast Council 2020) that gives special attention to its coastal reserves and their important role in conserving and enhancing biodiversity.

The desired outcome of the strategy is to:

"protect and enhance the landscape and biodiversity values of the Central Coast, which includes maintaining functional connections between areas of habitat, maintaining core habitat as well as restoring marginal habitat, preserving threatened and iconic species and ecological communities, preserving significant Aboriginal cultural places, and protecting the scenic amenity of the region." (p25)

As noted in the preceding discussion, there are areas of the foreshore that have high environmental value, and this has been taken into account in making recommendations about provision of paths. Council has been completing a number of foreshore rehabilitation and restoration projects as part of the grant funded program "The Tuggerah Lakes Estuary and Catchment Ecological Health Project" which aim to increase the extent of salt marshes in lakes system, and this is an important conservation initiative. As sea levels rise because of climate change, it is likely that the saltmarsh communities will migrate inland which needs to be taken into account when considering the placement of hard infrastructure such as shared pathways. Works would need to take into consideration the recommendations from the Wetland Refugia Study that is currently in progress by Council.

There are also other opportunities to increase the environmental value, notably more plantings in areas of the foreshore in areas with little if any native vegetation. Figures 232 and 233 show two foreshore area with contrasting cover of native vegetation. Other ways that environmental value could be enhanced along the foreshore could include creating more natural infrastructure such as saltmarsh swales and constructed wetlands, that provide both habitat values and water quality and management improvements.

There is no doubt that tree planting in areas like Figure 232 will be contentious, and land owners will claim that their views will be impacted, which in turn will impact on perceived property values. A 'softly softly' approach will be needed.

Recommendations

14. An audit should be carried out of the foreshore reserve to identify areas where additional plantings of native vegetation could be carried out.
15. Affected residents should be surveyed to identify those who would be willing to have additional plantings in front of their property and work with these residents on species and site selection.
16. Council should investigate program options that would increase community awareness of the value of native vegetation, especially for lake side residents, including education programs and biodiversity and carbon credit schemes where discounts on Council services or incentives are offered in exchange for those credits.

There are specific reserves and foreshore areas that could be managed to increase their biodiversity value as well as providing passive recreation opportunities and promoting community involvement in bushland management. The following are suitable locations, but is not a comprehensive list.

Recommendations

17. The following reserves are suitable for enhanced management that focuses on environmental values, which would include working with the local community to develop a suitable management plan, upgrading passive recreational facilities and conservation and interpretive material:
 - a. Budgewoi Lake Ocowolrolong Point – end of Tingira Street;
 - b. Budgewoi Lake, The Corso Reserve at the northern end of The Corso;
 - c. Budgewoi Lake, Chelmsford Road Reserve – opportunity to work with students at Gorokan High school;
 - d. Tuggerah Lake - Craigie Park; and
 - e. Lake Munmorah – Reserve at the end of Andrew Street.



Figure 232: Section of Budgewoi Lake, Green Point.



Figure 233: Tuggerah Lake, Aloha to Lakedge Avenue.

9. Discussion, summary of recommendations and overall conclusion

It's important to view the recommendations in this report within Council's broader strategic and policy context. These recommendations were arrived at taking into account Council's broader strategic and policy context, observations made as part of the field trips and our own expertise in the fields of coastal planning and management, open space planning and recreational planning. The Table below summarises this and draws for the discussion in Section 3.



Table 3. Summary of Report Recommendations

Report recommendations	Relationship to Council's strategic and policy context	Comment
<p>1. Council should reconsider whether it has the correct balance with respect to providing shared path infrastructure, and whether providing infrastructure for recreational purposes, especially around the lakes (as well as the open coast) should be given a higher priority.</p>	<p>Community Strategic Plan K1, K2 and L1 and indicators Access to transport, walking & cycling, and Participation in sport, recreation and community life.</p> <p>Bike plan priority 5.</p> <p>Disability Inclusion Access Plan – Focus area 2.</p> <p>Community Strategic Plan indicators for Access to transport, walking and cycling - walking and cycling, and Participation in sport, recreation and community life.</p> <p>NSW State Government's Central Coast Regional Plan, Goal 3 Action 18.5 Implement strategies to invest in open space, sporting and recreational infrastructure.</p> <p>The Tuggerah Lakes Estuary Management Plan has a Socio-economic Action Plan and a key action there is 'Provide better facilities in foreshore recreation areas'.</p> <p>The specific recommendations below that refer to providing walking paths rather than multi-use responds to protecting environmental sensitive areas and at the same time providing appropriate access. This is consistent with Council's Community Strategic Plan focus area F1, and one of the six primary objectives of the Tuggerah Lakes Estuary Management Plan - Ensure that human activities can take place while protecting cultural heritage and enhancing soil, water and ecosystem health. A well, one of the 9 broad objectives for the Tuggerah Lakes Estuary Coastal Management Program Scoping Study was "Support community connection with and use of the estuary, in an ecologically sustainable and culturally sensitive manner".</p>	<p>Provision of more dual use and walking paths in the foreshore reserves would likely encourage more people to walk, cycle and run, and provide more opportunities for physically disabled people.</p> <p>It is noted that providing dual use path for recreational cycling is not the main priority of the bike plan, the objectives of the bike plan should be revised to give equal priority to cycling as a recreational pursuit.</p> <p>Tuggerah Lakes foreshore restoration works – community survey: the main land based activities that were engaged in were cycling and walking, and the most reported comment was a desire to either extend the existing multi purpose path or construct a new one where one is absent.</p> <p>"Our Coast, Our Waterways" community survey: recreational opportunities and access to waterways was the top response to what residents valued most about the waterways, and walking cycling and running was the most popular group of activities.</p>
<p>2. Council should develop a 5-10 year plan to extend the existing shared paths network and walking paths within the foreshore reserve of all the lakes and subject to sepecific recommendations below;</p>	<p>As above.</p>	<p>As above.</p>
<p>3. As Council rolls out the extension of the shared and walking paths network, it should also address the problems of private intrusion and use of public foreshore, remove informal uses and look for opportunities to rehabilitate areas within the foreshore with native species so as to increase the environmental value of the foreshore.</p>	<p>As above.</p> <p>This would also address Community strategic plan Green focus area objective F1 and F3, and Council's biodiversity strategy goal 1.2.2 - Prepare a policy for natural area encroachment management, and resource and implement a program to identify and manage threats to natural areas from encroachment.</p>	<p>As above.</p>

Report recommendations	Relationship to Council's strategic and policy context	Comment
<p>4. As Council rolls out the extension of the shared and walking paths network, it should also address the problems of private intrusion and use of public foreshore, remove informal uses and look for opportunities to rehabilitate areas within the foreshore with native species so as to increase the environmental value of the foreshore.</p>	<p>As above.</p> <p>This would also address Community strategic plan Green focus area objective F1 and F3, and Council's biodiversity strategy goal 1.2.2 - Prepare a policy for natural area encroachment management, and resource and implement a program to identify and manage threats to natural areas from encroachment.</p>	<p>As above.</p>
<p>5. The following are specific recommendations:</p> <p>a. Lake Macquarie</p> <p>i. Gwandalan: there are section of the foreshore that are flat and with an open understory and these would be suitable for a shared path, whereas areas like around Diamond Drill Point are more suitable to have the existing walking track upgraded in parts for easier walking;</p> <p>ii. Summerland Point: the northern section has no opportunity for paths as there is no foreshore reserve. The remaining area to the west of Maddison Reserve is suitable for a shared path, however the existing walking track could be upgraded and extended in the short term;</p> <p>iii. Chain Valley Bay: the foreshore reserve of the three coastal suburbs of Chain Valley are suitable for shared paths, however are relatively short. Linking the three suburbs with a continuous path has merit. The link between the northern suburbs and the middle suburb is a well vegetated area so this path is probably best to be a low-key walking track. From this middle suburb to the western suburb, a shared path is likely to be the best option, using the existing crossing of Karignan Creek and looking at environmentally sensitive options to link the path from the bridge to foreshore reserve at the end of Lloyd Ave and extending it along the foreshore reserve;</p> <p>iv. Kingfisher Shores: the foreshore reserve here suitable for multi-use paths, however would be relatively short.</p>	<p>As above.</p>	<p>As above.</p>
<p>b. Munmorah Lake</p> <p>i. Other than a small section in the north east corner, all of the urban areas of Munmorah Lake have a foreshore reserve with the capability to support a path;</p> <p>ii. The northern urban area has an existing shared path for about half of the foreshore, starting at the western end and finishing at Tom Burke Reserve. The area directly to the east is suitable for a path, however there are sections that are well vegetated and the terrain is sloped, so a walking path might be more suitable in these sections;</p> <p>iii. The south west urban area has a foreshore reserve suitable for continuous shared path;</p> <p>iv. The south east urban area also has a foreshore reserve suitable for continuous shared path, with an opportunity to extend this across the existing foot bridge to Dunkey Island, and to construct a new foot bridge to the foreshore at the end of Edward Street: thus making a continuous path across the two urban areas.</p>	<p>As above.</p>	<p>As above.</p>

Report recommendations	Relationship to Council's strategic and policy context	Comment
<p>c. Budgewoi Lake</p> <p>i. All of the northern shore has a foreshore reserve, whereas the remaining urban areas in the southern half have extensive areas where there is no foreshore reserve, limiting opportunities here for paths;</p> <p>ii. The entire northern shore has shared path that extends partly up Wallarah Creek to Pacific Highway. This path provides all the benefits referred to earlier in this report and Council should be commended;</p> <p>iii. Providing paths in the southern section of the lake is more problematic, given the number of areas where there is no foreshore reserve, although a shared path has been provided in a section along the south east. By extending the path up Peel Street, Council appears to be looking at safe options to extend this path around the area with no foreshore reserve using the very busy Main Road. This strategy might be more applicable for the western section (i.e. construct a shared path in the foreshore reserve and use the distributor roads around the areas with no foreshore reserve) as the distributor roads are much less busy than Main Road;</p> <p>iv. An alternative for the two longer sections of foreshore reserve is to build on the natural values by increasing their biodiversity values, install walking tracks and create a more substantial node that focuses on passive recreation and biodiversity education.</p>	As above.	As above.
<p>d. Tuggerah Lake</p> <p>i. Most of the residential areas around Tuggerah Lake have a foreshore reserve, the exceptions being in the north, especially to the east of Wallarah Point/ Main Road Bridge. This makes most of Tuggerah's lake foreshore suitable for shared paths;</p> <p>ii. There is an existing shared path starting at the end of Prawn Beach Lane in the north and ending at March Street, where works are in progress to extend the path further south. The area north of Prawn Beach Lane does not have a continuous foreshore reserve and some of the terrain is steep with cliffs and well vegetated. The area either side of Craigie Park is better suited to building on the natural values by increasing their biodiversity values, install walking tracks and create a more substantial node at Craigie Park that focuses on passive recreation and biodiversity education;</p> <p>iii. The lakeside urban areas either side of the outlet of Ourimbah Creek have foreshore reserves that are suitable for shared paths. These reserves have significant conservation value with extensive areas of salt marsh and shallow water. As well, either side of the very eastern end of Ourimbah Creek is a conservation area. Consequently, these foreshores are best suited for walking tracks rather than shared paths. There is an opportunity to link a path in the northern side to the Tuggerah State Conservation Area. Education signs could also be installed;</p> <p>iv. A shared path commences near Chittaway Bay Lions Park, crossing over Tumbi Umbi Creek and ending at The Entrance. This path provides all the benefits referred to earlier in this report and Council should be commended.</p>	As above.	As above.

Report recommendations	Relationship to Council's strategic and policy context	Comment
5. Council should increase the number of upgraded access points around the lakes and the three water courses covered in this study.	<p>Council's Strategic plan under its Liveability Theme has the following related objectives: K2 Design and deliver pathways, walking trails and other pedestrian movement infrastructure to maximise access, inclusion and mobility to meet the needs of all community members. Also K3 - Provide signage, public facilities, amenities and playgrounds to encourage usage and enjoyment of public areas."</p> <p>The Tuggerah Lakes Estuary Management Plan has a Socio-economic Action Plan and a key action there is 'Provide better facilities in foreshore recreation areas', which is consistent with one of the seven attribute goals as part of the vision for the lakes - "Public facilities - Excellent recreational facilities at access points."</p>	Community survey Tuggerah Lakes restoration study - the second most important issue raised in the comments was most important issues was a request to increase access to the foreshore and lakes for residents who do not have direct access. The "Our Coast, Our Waterways" community survey found that 68% of respondents said they either strongly agree or somewhat agree that more should be done to enhance access to waterways.
6. It is recommended that an ideal walkable catchment for these access points should be between 400-800m which also means that the optimal spacing of nodes should be 500m but no more than 800m.	As above.	As above.
7. The recommended upgraded access points in this report are a useful starting point for Council's consideration.	As above.	As above.
<p>8. New infrastructure:</p> <p>i. The recommended facilities at these points should be bins, shower where swimming facilities are provided, drinking water, information signage, look out and/or seating, some shading including for seating, and a small grassed area. Additional infrastructure in some circumstances could be a playground and a toilet/ shower block.</p> <p>ii. The flood hazard in the low-lying areas in the foreshore will likely increase in future as sea levels rise and storm intensity and frequency changes with climate change. As well, wetland vegetation will likely migrate inland. Consequently, the design and placement of any new assets or infrastructure need take this into account including the findings of Council's Wetland Refugia Study."</p>	As above.	As above.
9. The quality of infrastructure at some of the access points we have classified as nodes should be improved and upgraded as noted in the relevant Figures.	As above.	As above.
10. An audit should be carried out of the foreshore reserve where houses directly abut the foreshore reserve to identify cases of significant intrusion into the reserve.	This would also address Community strategic plan Green focus area objective F1 and F3, and Council's biodiversity strategy goal 1.2.2 - Prepare a policy for natural area encroachment management, and resource and implement a program to identify and manage threats to natural areas from encroachment	
11. To ensure an ongoing and clear demarcation between private property and the public foreshore a property boundary fencing policy should be introduced and implemented.	This is consistent with a key specific action of Council's biodiversity strategy 1.2.1 is "fencing, gates and access control to prevent dumping, damaging activities and encroachment".	

Report recommendations	Relationship to Council's strategic and policy context	Comment
12. Council should work with residents to identify a more suitable location for this infrastructure.	As above.	As above.
13. The removal of these private facilities and infrastructure should also be integrated into the extension of the multi-use paths and walking tracks recommended above.	As above.	As above.
14. An audit should be carried out of the foreshore reserve to identify areas where additional plantings of native vegetation could be carried out.	<p>Consistent with the Council's biodiversity strategy desired outcome ... "protect and enhance the landscape and biodiversity values of the Central Coast, which includes maintaining functional connections between areas of habitat, maintaining core habitat as well as restoring marginal habitat, preserving threatened and iconic species and ecological communities, preserving significant Aboriginal cultural places, and protecting the scenic amenity of the region."</p> <p>Council's Community Strategic Plan theme "Green" has the following focus areas objective – F1 Protect our rich environmental heritage by conserving beaches, waterways, bushland, wildlife corridors and inland areas and the diversity of local native species.</p>	Analysis of the comments in the 1 Community survey Tuggerah Lakes restoration study indicated that support for restoration was about 7 times higher than opposition to it.
15. Affected residents should be surveyed to identify those who would be willing to have additional plantings in front of their property and work with these residents on species and site selection.	As above.	As above.
16. Council should investigate program options that would increase community awareness of the value of native vegetation, especially for lake side residents, including education programs and biodiversity and carbon credit schemes where discounts on Council services or incentives are offered in exchange for those credits.	Council's Community Strategic Plan theme "Green" has the following focus areas objective - E1 Educate the community on the value and importance of natural areas and biodiversity and encourage community involvement in caring for our natural environment.	
<p>17. The following reserves are suitable for enhanced management that focuses on environmental values, which would include working with the local community to develop a suitable management plan, upgrading passive recreational facilities and conservation and cultural interpretive material:</p> <ul style="list-style-type: none"> a. Budgewoi Lake Ocowolrolong Point – end of Tingira Street; b. Budgewoi Lake, The Corso Reserve at the northern end of The Corso; c. Budgewoi Lake, Chelmsford Road Reserve – opportunity to work with students at Gorokan High school; d. Tuggerah Lake - Craigie Park; e. Lake Munmorah – Reserve at the end of Andrew Street. 	As above.	

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Document Revisions

Revision	Date
Final draft for CCC	23/02/23

