Warners Bay Foreshore

DRAFT MASTER PLAN REPORT

NOVEMBER 2010

WARNERS BAY

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Figure 1: Contextual aerial view of the site
FORWARD

Lake Macquarie City Council has engaged Jackson Teece together with RPS and Mansfield Brodbeck to prepare a Plan of Management and an associated Master Plan for land situated at Warners Bay generally known as Warners Bay Foreshore. The document aims to assist Council and the community with directions to sustainably manage the Foreshore over the next 20 years. The Master Plan has been based upon the recommendations and strategies contained within the Plan of Management.
PURPOSE OF THIS REPORT

The purpose of this report is to present a Master Plan Concept for the Foreshore Area with consideration to adjoining land areas including Warners Bay Shopping Precinct.

This report will present a preferred management concept for the Foreshore, in light of the governing legislation and policy, current user requirements and the aspirations of the community as well as the Foreshore landowners - the NSW Government. Recommendations will be made for the revision of these controls in order to allow the development of the preferred concept.

AIM

- Provide an Urban Green Space and focus for the Town Centre of Warners Bay that is well integrated with the centre and associated facilities.
- Allow for recreational and cultural activities that facilitate community health and social cohesion.
- Provide facilities that are accessible for people of all abilities and backgrounds.
- Ensure that development of the foreshore is in the public interest.
- Enhance the attraction of Warners Bay as a desirable place to live, work and play.
- Contribute positively to the experience of visitors to the city.
- Encourage better dispersion of use along the foreshore by determining and managing the carrying capacity of the reserve.
- Recognise environmental constraints and opportunities.
- Minimise maintenance requirements.
- Protect heritage if present.
- Provide a safe recreational environment.
- Respond appropriately to the site context.
- Provide for existing and future utility and infrastructure.

STRUCTURE OF THIS REPORT

This report is set out into three parts:

- The first part describes the existing context for the study with regards to the draft Plan of Management and the current governing legislation. Issues and opportunities for development will also be identified.
- The second part establishes the overall objectives for the development of the site, followed by a series of management options. A preferred option will be recommended, with further detail of the preferred option explained through key design principles.
- The final part will test the preferred option against the current draft Plan of Management. Detail of possible landscape treatments and material selections will be offered.
INTRODUCTION

Warners Bay Foreshore is located within the Lake Macquarie City Council LGA, approximately 150km north of Sydney, 50km north of Gosford and 20km south of Newcastle. It lies east of the Sydney to Newcastle freeway and Northern Railway line, with the nearest station being Teralba. The foreshore reserve is bound by The Esplanade along the east with the length of the area of consideration being terminated west of Fairfax Road and south creek.

The Warners Bay Foreshore Draft Plan of Management has been developed by RPS on behalf of Lake Macquarie City Council. The urban design, landscape and Master Plan team’s (including RPS, Jackson Teece and Mansfield Brodbeck) involvement since the inception of the project has ensured that issues have been integrated into the planning for the project from the outset.

The proposed Master Plan has been designed to accommodate a diverse range of potential uses. The plan provides for regional level community facilities (amphitheatre for concerts, area for regional market stalls), district level kiosk and amenities facilities together with local level community facilities such as barbeques, shelters, walking paths, benches, exercise facilities and children’s play areas. A portion of the design detail provided within the Master Plan focuses on the area directly adjacent to the Foreshore Reserve connected to Warners Bay Town Centre Plaza.

The Esplanade divides the Foreshore reserve from the Town Centre located on the eastern side. Residential and environmental estuary areas are located at the extremities of the Foreshore reserve.

The Town Centre core is well located adjacent to the foreshore and is focused between King Street and Lake Street, which forms the core retail area for the town centre. King Street, Lake Street and a number of arcades provide a good east west connection between Hillsborough, Macquarie Road and Bayview Street and the Foreshore Reserve. The Esplanade features many cafes restaurants food outlets and professional services. The Master Plan investigates opportunities to improve connectivity and integration of these businesses and the lake.

The provision of access to public transport, good parking opportunities scattered throughout centre, retail and commercial facilities, adjoining open space and community facilities, Warner Park and the Performing Arts Centre encourage an active public domain in the area along the Esplanade.

Residential areas to the south and north along the eastern side of the Esplanade. Residential area to the south link into the Town Centre Core along the Esplanade and King Street, whilst the residential areas to the north are separated from the Town Centre due to the location of open space and adjacent to the Foreshore land parcel being Feighan Park and community facilities and to a lesser extent Warner Park and the Warners Bay Performing Art Centre.

The lack of a significant public transport network along the Esplanade within the northern residential area means that residents from the area will be more likely to rely on car travel to and from the Foreshore Reserve.

The Master Plan proposes improved links between the Foreshore reserve and the Town Centre Core to promote connectivity and activity in the central zone of the reserve.
Warners Bay Foreshore will provide a point of difference to other lake foreshore areas.

Planning consideration extends beyond the site boundary.

Figure 2: Warners Bay - Areas of Consideration.
According to the Area Plan, Warners Bay has been identified as requiring specific development solutions to its existing and desired future character. The Area Plan notes that whilst The Esplanade provides safe pedestrian access to the shops inadequate cross streets perpendicular to The Esplanade and adjacent parallel streets such as John and Charles Streets, inhibits opportunities for access to the lake from these areas directly behind The Esplanade.

The desired future character under the Area Plan indicates the Foreshore Park between the Lake and the Town Centre provides assets that can be enhanced to allow Warners Bay to develop into a vibrant and memorable place.

This can be achieved via the following:
- Enhanced pedestrian path and gathering places
- Connecting active frontages of the commercial centre to the reserve

Table A1.1 refers to the Intent for the Urban Context for the future development of Warners Bay Town Centre to achieve improved connecting paths and gathering places, in particular

Development that strengthens existing paths by maintaining and/or creating safe and accessible crossings across King Street at the large roundabout and The Esplanade at the large roundabout.

Map 3 – Nodes and Gathering Places provides a 5 minute walking diagram indicating future desired pedestrian paths. These include crossings at the intersection of Howard Street and The Esplanade, adjacent to King Street and The Esplanade and Lake Street and The Esplanade.
SPEERS POINT AND TORONTO ‘REGATTA WALK’
FORESHORE MASTER PLAN

Figure 4: Speers Point Master Plan
The key areas of consideration of Toronto ‘Regatta Walk’ Foreshore Master plan are:

- Formalisation of existing Baths including upgrading of existing Jetty surrounding the baths
- Creation of stepped hardwood decks and main boardwalk to foreshore edge
- Provision of new Kiosk/ Store and Amenities Shower Block to central area
- Extension of existing Landscaping and Trees
- New district scale child play area at the Southern end
- A foreshore cycleway
- Provision for potential redevelopment of the existing Toronto Amateur sailing club into a new multifunction building that caters for both the sailing club and other community user groups
THE SITE & CONTEXT ANALYSIS

Location
Warners Bay Foreshore is located within the Lake Macquarie City Council LGA, approximately 150km north of Sydney, 50km north of Gosford and 20km south of Newcastle. It lies east of the Sydney to Newcastle freeway and Northern Railway line, with the nearest station being Teralba. The foreshore reserve is bound by The Esplanade along the east with the length of the area of consideration being terminated west of Fairfax Road and south creek. The Great North Walk linking Lane Cove in Sydney to Newcastle passes through the foreshore park.

The foreshore area lies at the north/eastern end of Lake Macquarie. It lies on low ground between Munibung Hill and Bayview Hill. Warners Bay is an example of a Town Centre in Lake Macquarie whose main street directly addresses Lake Macquarie.

Residential Areas
Surrounding the town centre are several clusters of low-density housing. The housing facing the foreshore is currently of a small scale with exception of housing developments between King Street and Howard Street south of the Town Centre.

Warner Park (John St oval), a predominantly open space area is adjacent to the Foreshore Reserve to the east between the northern residential area and the Town Centre.

The key features of the park include:

- Six separate formal parking areas
- A continuous pedestrian/ cycle footpath extending the length of the Foreshore
- An existing amenities block directly adjacent to the Town Centre
- Two BBQ and Shelter Facilities
- A small exemplar wetland with interpretive signage
- Open fields for small recreational activities
- Performance space and low mounding batters provide informal ampitheatre style spaces around the bandstand
- Scattered trees and grass provide shading
- Playground and adjoining performing arts centre

Refer to Figure 3.
Figure 6: Existing Key Locations
Figure 7: Main Street and Gateway Definition

- Potential area to investigate - Northern gateway articulation
- Key activity area adjacent to existing retail hub appropriate for a concentration of activities in this area
- Peripheral areas support dispersed activities with greater spatial requirements
- Potential area to investigate southern gateway articulation
Topography and Views

The topography of the Foreshore Reserve is relatively flat. The majority of the land was formed in the late 1970’s when Council undertook dredging of the inshore areas of Warners Bay deposition of dredging material, dumping of fill material and the formation of sandy beaches. The areas surrounding the foreshore reserve offer an undulating topography with the hillside of Eleebana to the south east and Speers Point ridgeline, Munibung Hill Reserve to the north east.

Adjacent to the intersection of King Street and the Esplanade, a segment of land at gradients of 1 in 5, offers an opportunity for formal entertainment facilities.

Vegetation

Much of the foreshore reserve is sparsely vegetated.

Established introduced vegetation is clustered around the central area directly adjacent to Warners Bay Town Centre. This includes a row of Hill’s Figs and Canary Island Date Palms.

Sea Grass

Sea grass forms the predominate habitat structure along the lakebed for Warners Bay, these extend approximately 150m from the shoreline.
Existing landscape character

The landscape character of Warners Bay foreshore is a mixture of both natural foreshore parkland and a more urbanised park environment. The landform is generally flat, with the most topographic change in the central section where the land rises towards The Esplanande. Lake Macquarie is an overwhelming presence from all parts of the foreshore and dominates the relatively undeveloped lakeside character enveloping its shoreline. Vistas to the lake are particularly important from the streets that run perpendicular to it, with these lake views critical to the sense of place established by the extensive water body of Lake Macquarie as viewers move about the local region.

The central area of the Warners Bay foreshore, adjacent to the existing shopping centre, exhibits the most urban landscape character type along the foreshore. It is here that the foreshore edge is more formalised and greater expanses of hard pavement occur. Planting is also more formal, with several large Fig trees lining The Esplanade near the central pedestrian crossing and a number of groups of Canary Island Date Palms. These trees combine to provide a tree-lined entrance to Warners Bay commercial centre that is important to its identity and appeal. The central area also represents the most intensively used part of the foreshore, with elements such as a bandstand, ageing amenities building and jetty present.

To the south and north of this central area the landscape is more park-like, particularly the southern zone. This southern zone is the longest and most expansive section, with large areas comprised of open grass with limited groups of native trees such as Casuarinas. Meandering through this open area is a shared concrete pathway that generally traces the foreshore edge, although in some locations it passes closer to The Esplanade and intersects with the intermittent parking areas. This southern zone is used for launching kayaks etc, in particular from the carpark areas. Immediately to the south is South Creek which is heavily lined with Casuarinas and exhibits an even more natural character. Overall, the dominant character of the southern area is of a climatically and visually exposed site that could benefit from additional greening to improve its current rather average scenic quality, overall the Southern Zone is underutilised with potential to spread the usage more evenly.

The section to the north also has a more natural character than the central area, yet it is more urbanised than the longer southern section. It is a smaller and narrower section of park that has two car parks and a denser tree cover. Tree species are mostly native and planted as single specimens in grass, rather than the more natural copses in the southern zone.

The attractiveness of this part of the foreshore to recreational users means that on certain days this northern section has a more maritime feel.

It is also more intensively used by recreational cyclists and pedestrians due to the strong pathway link to Speers Point regional park located just around the headland to the north. The headland protects the link to Speers Point from the roadway, potential to better utilise this connection could provide a pleasant and interesting walk/cycleway.
Street network access and circulation

The Esplanade extends the length of the Warners Bay Foreshore. The Esplanade is intersected by Warners Bay Road, James Street, Howard Street and King Street south of Warners Bay Town Centre and Lake Street, Seaman Avenue and Fairfax Road to the north of the Town Centre. The Esplanade is one of the major arterial roads in Lake Macquarie and is controlled by the RTA.

The main pedestrian cycleway connects people from south of Bunyah Park where The Esplanade turns into Macquarie Drive at the southern extremity of the Foreshore Reserve and continues past Fairfax Road to the north around to Speers Point.

Warner Park (John St Oval), the Performing Art Centre and Children’s Activity Park to the east of the Foreshore Reserve are all poorly connected to the Foreshore but the playground is well utilised.

Crown land along South Creek (except one property which reads more like public land than other) provides an opportunity to link to Richard Allen Park.

Figure 9: Pedestrian Access
Public Transport Access

Public Transport services to and from Warners Bay Foreshore Reserve is limited. Three regular bus services (312, 314 & 363) run past the southern portion of The Esplanade up to Lake Street arriving at the Warners Bay bus terminus located adjacent to Warners Bay Plaza in John Street. Service 312 connects to Charlestown via Hillsborough. Service 314 connects to Charlestown via Mount Hutton, Tingira Heights, Windale, Gateshead and Charlestown East. Service 363 connects from Belmont to Newcastle via Warners Bay.

As indicated earlier in this report, the lack of a significant public transport network along The Esplanade within the northern residential area means that residents from the area will be more likely to rely on car travel to and from the Foreshore Reserve.

Introduction of Bus Shelters including new and improved shelters to increase level of use along the Esplanade should be considered.
Landuses & Leasehold Strategy

Through a series of public consultation, Lake Macquarie City Council has provided a strategy that was adopted by Council on 9 September 2002 to allow licensing of low key, low impact recreation based commercial activities on Warners Bay Foreshore Reserve.

These include the following activities:

- Events that are either community or commercial based of one or two day’s duration.
- Festivals of between two days and two weeks duration.
- Operation of commercially based activity that can take place every day of the year.
- Watercraft including non motorised equipment used as part of an aquatic based operation.

An extract of the Licensing Strategy Master Plan prepared by Lake Macquarie City Council, (Figure 11) indicates location of current leaseholds for the Foreshore Reserve.

Food Vendors

The Strategy indicates mobile food vendors and static/ canteen type units are to operate only during Events and Festivals. For the purposes of this Master Plan report it is considered that temporary type Market Stalls are to be associated in this category.

Watercraft Operations

Operating licenses are located within an area located near to Fairfax Road and an area located adjacent to the Howard Street carpark.

The Master Plan proposes that the Operating license be located at Fairfax Road only with improved facilities to cater for the licensee and community based recreational craft users as central area is viewed to have broader recreational use as an entertainment and market based facility.

Pushbike/ Rollerblade Operations

Hire of Pushbikes, Rollerblades and Pedal buggies is located adjacent to North Creek and adjacent to Howard Street carpark.

Amusement and Carnival Equipment

Amusement and Carnival Equipment must form part of a Festival or Event where placement on the Foreshore Reserve is essential. Currently, equipment is regularly placed near to the Howard Street carpark, the loading facility is indicated on the Proposed Master Plan.

Performance Rotunda

The Rotunda is managed by the Warners Bay Chamber of Commerce, informally known as the Bandstand, it was built by the community in memory of the Chapman family in 1998. It is often used to host bands on Friday nights from November to March.

Swimming Only Area

Through the adoption of the Licensing Strategy, Council resolved to delete a ‘swimming only’ area formerly extending from the existing amenities building adjacent to the Warners Bay Town Centre to the Howard Street carpark.

The Master Plan proposes a location for a combined amenities and kiosk facility in the central area to form a new relationship to the Town Centre.

A Strategic Planning Study into functional analysis and user groups, level of use and benefits of uses should be undertaken by Council to ascertain the range of facilities on the foreshore reserve.
Figure 11: Warners Bay Foreshore, Lake Macquarie - Licensed Areas of Management Strategy
Amenity of foreshore park
- The park has relatively few trees, which in places means it appears rather bare and exposed. In summer there is little opportunity for shade.

Existing amenities building
- The amenity buildings are unattractive, in poor condition and are in a visually conspicuous location next to the pedestrian crossing to the shopping area.
- Construct a new amenity building that is of high architectural quality and is in a less prominent location. Consider opportunities for interaction with other facilities including a kiosk or other consumer operations.

Bandstand
- The existing bandstand appears to be possibly too small to hold the types of performances held at different times. It is also located in a narrow, busy part of the park and may be better located elsewhere.
- Investigate re-location remaining within close proximity to shops or re-design options to provide an architectural statement.

Raised garden beds
- There are a number of raised garden beds installed as a temporary solution to drainage issues by the park’s maintenance staff near the central zone that are showing signs of damage. The existing arrangement will hamper design options unless they can be removed.
- Investigate design options.

Adequacy of furniture
- Some parts of the park do not have adequate facilities such as seating, bubblers, bike racks and picnic shelters.

Overall recreational park facilities
- Overall recreational park facilities are fairly limited
- Investigate opportunities as part of consultation process.

Existing park furniture and signage
- Park furniture and signage is of poor quality and inconsistent type and materials along the foreshore.
- Opportunity for furniture and signage to form part of an urban design identity.
Figure 13: Network of Diverse Activity Spaces

- Playing fields
- Bbq
- Performing arts centre
- Childrens park
- Public entertainment events
- Sail/paddle craft hire
- Shopping + dining + business
- Power watercraft
- Bbq
- Activity + play areas
Informal parking along John Street - opportunity to provide a direct link to foreshore to better utilise parking at sporting grounds

Existing carparks
Parking at performing arts centre is well utilised
Informal parking area - currently well utilised
Primary parking zone - mix of carpark & on-street parking

Existing carpark

Pockets of parking allows distributed access along site

On road, parallel parking available and utilised

Parking outside study zone relevant for access to southern section of foreshore

Bunya Park

Figure 14: Vehicular Access
Figure 15: Circulation & Links

Pathway Location & Safety
- The main foreshore pedestrian/cyclist pathway is unsafe at some locations where it crosses over existing car parks and the access driveways to car parks.
- Relocate pathways to a safer location.

Pedestrian and Children Safety
- Existing pathways cause pedestrian and traffic conflict.
- Inadequate pathway and crossing lighting is provided for night time usage.
- Remove roundabouts and replace with signals.
- Provide Zebra Crossings at all of the intersections.
- Provide good footpath on both sides of road.

Usage of and Access to Waterfront
- Enhance usage of waterfront for residents & visitors.
- Provide facilities and settings for a variety of events.
- Provide and integrate areas for different users.
- Integrate parking, BBQs, picnic shelters, open grass areas, a pier, formal promenade, shady areas, boat hire and launching, swimming.
- Improve access options to waterfront

Potential Pedestrian Links Along North and South Creeks
- Potential for pedestrian links to be developed along North and South Creek. Council to indentify relevant destinations, land ownership and space for pathway

Linkage to Adjacent Sporting Fields
- Existing sporting fields, playground and
- Performing Arts Centre on the opposite side of the Esplanade are poorly linked to foreshore park.
- The existing roundabout at the intersection of Lake Street is not conducive to use by pedestrians (including those wishing to access the shopping centre).
- Investigate options to improve safety linkage

Linkage to Shopping Centre
- There is a fairly poor pedestrian connection to the shopping centre. The existing roundabouts at each end do not allow for pedestrians to safely cross. The central signalised pedestrian crossing is likely to be inadequate during major event times.

Pathway Design
- The existing pathway is too narrow, with 3.5m the general standard for a combined pedestrian/cyclist pathway.
- Widen pathway or provide separate pathways for different users.

Pathway Amenity
- There are long lengths of pathway with little visual interest, particularly at the Eleebana end.
- Increase tree planting and investigate needs for facilities and focal points

Bridge Over North Creek
- Currently conflict exists between cyclists and pedestrians due to narrow width of bridge
- Provide new bridge or widen existing to cater for both user groups

The Esplanade Road Underpass.
ENVIRONMENT

Stormwater
Constraints to Stormwater treatment - most shoreline fill and probably a large percentage of vitreous slag (from previous onsite investigations) need machinery access to build and space. Treatments to upper catchment are currently a priority for funding.

Groins (or remnants of) are present along the southern zone

Wrack Removal
- Machinery access for wrack removal works.

Pebble Beach
- A pebble beach has been established along parts of the foreshore edge to reduce erosion. This treatment has proved successful. However, the pebble surface reduces the opportunity to access the water as it is uneven.
- Opportunities to improve access to the water's edge at some key locations should be investigated

Grassed Areas
- The majority of the grassed areas are in poor condition.

Existing South Creek Wetland Area
- Area in general is sound, yet some elements (such as extent of fencing and concrete aprons) are unattractive and could be improved

Wrack Removal
- Machinery access for wrack removal works.

Existing Vegetation
- Pines Figs and Palms all have a strong historic association with the foreshore edges of Lake Macquarie
- Tree cover is relatively low. The health of some trees is also of concern, particularly the large figs adjacent the existing pedestrian crossing near the shopping centre - further investigation into the lifespan of the trees and consideration into their removal and replacement needs to occur.

Existing Timber Foreshore Platform Edge
- Existing platform is in poor condition. The structure appears well-used and its recreation role is appropriate.
- Opportunity to improve this edge

Relationship to Surrounding Areas
- Poor relationship to the existing shopping area, largely due to limited pedestrian crossing opportunities and physical and visual division created by roadway.
- Options to improve pedestrian environment and attractiveness of The Esplanade should be explored.

Biodiversity Corridors
- Are identified along the North and South Creeks, maintaining an overlapping canopy and sufficient understorey and habitat is relevant for these.

Water Quality
Warners Bay catchment is a very urbanised catchment with poor water quality. Provision needs to be made for the 'end of pipe' treatment in the foreshore zone, as well as treatment within the upper catchment. 'End of pipe treatments might include;

- Sandfilters - (probably most relevant for carparks)
- Mini Wetlands - (probably most relevant in the northern zone between Fairfax Road and North Creek)
- Removing concrete dish drains and naturalising with shallow riffel ponds
- Underground Inline Treatments - (underground pit)
Wrack Removal Program
In 2004 Lake Macquarie City Council commissioned Bio-Analysis/Sainty & Associates to prepare a strategy for seagrass wrack management. This provides some useful background regarding the role of seagrass (aquatic and on the shoreline) the factors that can affect its health and the role of salt marsh.

Council has a permit to remove seagrass from locations around the foreshore above High Water Mark (HWM) using a 2.4m wide scoop. Where wrack washes up naturally it tends to de-water and decompose naturally without major loss of public amenity, however in osme high profile locations where large quantities of wrack wash up it may need to be mechanically removed. Wrack also commonly accumulates below HWM where it tends to decompose anaerobically, this is exacerbated by vertical sea wall and wave refraction. LMCC have a permit to remove wrack below the HWM in certain locations around the lake.

The presence of wrack is also affected by prevailing winds and the intensity of weather conditions, wrack can break off in storms.

All these issues are relevant to the issue of wrack around Warners Bay Foreshore.

Warners Bay has larger areas of healthy seagrass all around the Bay, permits are in place to remove wrack above and below the HWM. Large quantities collect above and below the HWM near South Creek when W/ NW winds prevail in winter and around ‘Stinky Corner’ when S winds prevail in summer.

Currently collection is undertaken 4 times per annum and is proposed to be slashed to twice per annum due to funding constraints. The Bio-Analysis/Sainty report recommends collection be undertaken 3 times a year.

Seagrass Background
Information provided by the office of the Lake Macquarie and Catchment Coordinator through annual seagrass monitoring of a zone 200m from the shoreline:

- The more common but still valuable Zostera capricomi is present throughout the monitoring zone
- The more rare and endangered and less resilient Posidonia aiptralis was not detected in monitoring, it is very unlikely to occur in northern areas of the lake, as it is confined to areas of clearer water eg Belmont Bay
- In the inshore zone (approximately 20m from the shoreline) growth is classified as abundant with patches of growth up to 10m diameter
- In the zone between approximately 20-60m from the shore, growth is classified as abundant with even distribution
- As the growth in Warners Bay is so dense and the level of usage along Warners Bay Foreshore is so high, the high quantities of seagrass wrack have to be mechanically removed on a regular basis (bimonthly) and varies seasonally to respond to changing cycles of seagrass. The beach allows seagrass to wash up, planting traps it, require access for mechanical removal
- Existing seawall causes large quantities of wrack to build up offshore and compost under water which deoxygenates the water reducing organism

Seagrass wrack can promote saltmarsh growth and saltmarsh can aid in the breakdown of wrack. Council currently uses a backhoe in combination with a single axle ‘8 yarder’ to remove wrack at Warners Bay Foreshore. The council is considering upgrading to a ‘12 yarder’, any design proposals will need to allow for a beached edge and access for wrack removal.
VIEWS

Figure 17: View Corridors

Zone 1 - Northern
Views towards Eleebana & Belmont
Views towards Coal Point on Western Side of Lake Macquarie

Zone 2 - Central
Views towards Manalong Point & Teralba

Zone 3 - Southern
Views towards Speers Point & Marmong Point
Removal of inappropriate planting to open up view corridors
perhaps with focal points on the foreshore eg public art
OPPORTUNITIES & CONSTRAINTS

Significant Opportunities

Improvements to the Foreshore to provide a distinct identity and ‘sense of place’ whilst providing better connectivity and relationship to greater Lake Macquarie area.

Improved linkages to surrounding and adjoining parklands such as Feighan Park and Warner Park (John St Oval) which are the subject of a separate Master Plan proposal. Opportunities to link along the creeklines to Richard Allen Park and Feighan Park and reserves and community facilities in Lakelands.

Incorporation of good lighting and amenity to reflect the principles of Crime Prevention through Environmental Design (CPTED), and to facilitate safe and legitimate use of the park at night.

Installation of key landmark feature particularly to Zone 2 adjacent to the Town Centre.

Incorporation of design features that provide a cohesive approach across the foreshore reserve whilst providing identification of the three key themed zones.

Preservation of significant tree standings to ensure maintenance of character of Foreshore Reserve.
OPPORTUNITIES

Access
Provision of additional and improved car parking

Views
Landscape treatments to enhance views of approach by road, in particular, Warners Bay Road, King Street, Lake Street and Fairfax Road and arcades in the town centre

The Existing Road Pattern
Improvement of connectivity across The Esplanade from Warners Bay Town Centre at the intersection of King Street and Lake Street

The Environment
Naturalised stormwater treatments have amenity benefits that could enhance more open and boring sections of the foreshore.

Improve stormwater quality can promote seagrass growth by reducing turbidity etc, overall the health of the lake would benefit

Landscape
Embankments below King Street present an ampitheatre opportunity that is close to the town centre

Removal of the existing fig opposite the shopping centre would simplify the path connections at the traffic lights, however the figs provide an intimate calming function along this section of The Esplanade subsequently this should be recognised into the proposal

Coral trees are exotics with weed potential and are also prone to limb dropping. Replace with alternative species better suited to the function.

Canary Island Date Palms are a formal tree and could be used to further reinforce the more ‘urban’ style of Zone 2.

Economic
Provision for commercial opportunities in the foreshore zone that will compliment the existing businesses in the town centre

Enhance links and better integrate the town centre with the foreshore to recognise its function as an urban open space for the town centre

Allow for events that will promote economic activity in the town centre ensuring adequate space and appropriate facilities are in place to cater for larger events

Ensuring that new commercial enterprises on public land compliments rather than competes with existing commerce in the centre
CONRAINTS

Social and Recreational
Carrying capacity of the narrow foreshore strip

A significant number of Foreshore uses with different values and requirements occupy a relatively small stretch of land

Limiting the impact of large events on the Foreshore Reserve such as damage to grassed areas, garbage collection and inadequate location of amenities.

No existing commercial enterprises on site such as a kiosk or café

Limited passive surveillance to Foreshore Areas

Lack of adequate lighting to walkways and gathering areas along Foreshore Reserve restricts safe night use

Concentrated access point at the traffic lights restricts pedestrian movements

Access and Circulation
Disabled access will require consideration in areas where the gradient is greater than 1:14 eg. In areas of the central zone

Interface between car park entries and pedestrian/cycleway currently confusing where vehicles have right of way

Need to ensure cycleway compliant with Austroads Standards and user conflicts are minimised

Inadequate infrastructure for loading and unloading vehicles utilising bandstand and events area directly adjacent to Town Centre

Lack of a significant public transport system which generates an emphasis on vehicle use to access the Foreshore Reserve is an issue for the carrying capacity of the design

Environmental
Lack of established tree stands in certain zones of Foreshore Reserve exacerbate wind and glare

South west treatments

Landscape
Ongoing maintenance of seagrass beds and foreshore edge treatment. Seagrass beds must be protected from degradation through mechanical damage, increased turbidity and light penetration reduced by greater than 46%

The Lake bed is shallow for 150m limiting opportunities for a jetty that will handle large boats with deep drafts
OVERALL PRINCIPLES

The objectives of the Master Plan are the following:

• To provide for the holistic planning of Warners Bay Foreshore

• To provide strategies for existing and proposed recreational opportunities within the Foreshore Reserve

• To propose recommendations from the Plan of Management that can be implemented

• To improve connections between Warners Bay Town Centre with the Foreshore Reserve

• To ensure that the physical and economic linkages between the Foreshore and Town Centre are developed and maintained

• To create opportunities for a variety of facilities including the development of the Foreshore Reserve for leases and licenses

• To create a distinct character for the three identified zones that create a sense of place whilst still recognising the foreshore as a part of the greater Lake Macquarie region.

• To provide for the provision of a friendly, inviting and safe recreation area for the Lake Macquarie Community

• To respond to the natural and localised topographical features of the site, such as the natural amphitheatre below King Street,

• To ensure any buildings on the site are integrated and respond to the natural characteristics of the foreshore as well as respecting the existing commercial and business activities of the Warners Bay Town Centre

• Concentrate activity zones and gathering spaces within easy walking distance of the Town Centre and existing carparking facilities.

• Maximise retention of existing tree stands along the Foreshore Reserve to establish and emphasise an ‘upfront’ character to make the overall landscaping treatment to the Reserve more attractive.

• Provide clearly defined pedestrian and cycle routes that meander through the existing landscape and links gathering places along the Foreshore Reserve. Allow for activity spaces to avoid the foreshore being simply a thoroughfare for the pathway.

• Where possible, lake foreshore treatments need to improve lake health by dissipating offshore wave refraction and strength and allowing seagrass to wash up and be trapped on shore.

• Strengthen vegetation corridors at North and South Creek outlets and consider stormwater quality requirements

• Design public open space to maximise accessibility

• Swimming opportunities must consider public safety (eg water quality and presence of hazards), environmental issues and access practicalities (eg depth of water and foreshore treatment). Design must be robust to withstand anti-social behaviour and a coastal environment whilst accommodating for high levels of use and low maintenance

• Maintain view corridors where residential development is located opposite the foreshore.

• Maintain and maximise passive surveillance to the Foreshore areas
THE MASTER PLAN / PROPOSALS

The preferred option, developed in consultation with Council staff and the urban design, landscape and Master Plan team (including RPSHSO, Jackson Teece and Mansfield Brodbeck), is based upon an integration of elements highlighted during key stakeholder consultation, community workshops and on-site consultation and additional input from specialist advisors.

The central design framework for the proposed Foreshore Master Plan is the introduction of a series of three zones whilst still maintaining a cohesive environment for Foreshore users. The three zones have been defined by the natural boundaries of

- **Zone 1 : Northern** - Stinky corner to North Creek
- **Zone 2 : Central** - North Creek to the micro wetlands feature
- **Zone 3 : Southern** - Micro wetlands to South Creek

The key features of the zoned themes are detailed in the following pages.
Proposed general character
The master plan proposes to improve the existing character of Warners Bay Foreshore

The master plan provides significant opportunities to improve connectivity to the existing retail commercial centre of Warners Bay and surrounding communities. Provision of signage that is consistent with theme of the Foreshore and Speers Point Park and is visually unobtrusive

The master plan provides the following general features: Provision of street furniture that is consistent along the whole Foreshore to create a common theme and sense of place, with consideration to linking theme with Speers Point Park

The Cycleway that passes through the Foreshore Reserve is viewed as being part of a greater long term objective to make a continuous foreshore cycleway all the way around Lake Macquarie, it also forms part of the Great North Walk. These connections can be promoted through on ground signage, websites and promotional material at the tourist office etc.

Widening and upgrading of shared pedestrian/cycleway to cater for increased use of pathway by pedestrians

Demolish and relocate the existing amenities block for a kiosk/ store type operation with amenities toilet block similar to the type within the Toronto ‘Regatta Walk’ Foreshore

Provision of a new amphitheatre and stage for functions

Improve lighting to meet Australian Standards and use contemporary energy efficient light fittings that are consistent with the Town Centre and avoid light pollution across the lake
Proposed landscape character

The future landscape character proposed by the masterplan is one which reinforces and improves upon the existing character of Warners Bay foreshore.

The masterplan highlights the natural landscape present in the northern and southern sections and develops the central area as a more active, urbanised zone that will compliment the existing commercial centre. Tree selection for key signature tree species has concentrated on drawing upon the existing trees within the foreshore of Warners Bay and other lakeside areas in the vicinity (refer Appendix A).

- Trees such as Casuarinas, Melaleucas (Paperbarks) and Eucalypts are proposed in the northern and southern sections (zones 1 and 3) to reinforce the existing native tree species character.
- Reinforce existing Casuarina copses in the southern zone to ensure personal safety and key viewpoints to the lake are maintained.
- Increase tree planting along The Esplanade edge, particularly in the most southern part, as this area is currently very bare and exposed.
- Replace Figs and Coral Trees lining The Esplanade with Hills Figs (Ficus x hillii) these are relatively fast growing and will create a strong tree-lined avenue across from the commercial centre (refer Photograph 1).
- Additional street trees planted on the opposite side of The Esplanade to further improve the attractiveness of the centre.
- At each end of this park-side of the shopping area, retain the existing Canary Island Date Palms (Phoenix canariensis) and build upon there formal character to highlight each end of the centre.
- It is also proposed to retain the existing immature Norfolk Island Pines (Araucaria heterophylla) along this central foreshore edge.
ZONE CHARACTERS

ZONE 1 Foreshore - Stinky Corner to North Creek

The northern most corner of the site is viewed as an opportunity to mark the entry to the Foreshore Reserve. Commission an entrance sculpture to create an immediately recognisable feature which could include interactive components and an area for temporary artworks which lead from the northern portion of the reserve along the pedestrian/ cycleway to speers point around to Lake Macquarie Regional Gallery at Booragul. Desirable outcomes of public art include:

- Interactive play value or environmentally responsive components
- Visable from roadway/ across lake in some locations
- Strong relationships to pathway in terms of scale/ interaction
- Relevant to the Warners Bay setting and local community
- Encourage movement between artworks
- Improve amenity of pathway, encouraging use

Key Components of this Zone include:

Provision of two new exercise stations to promote different types of health oriented activities by foreshore users

Stormwater Management Basins utilising the micro wetland as an exemplar for all stormwater outflows into Lake Macquarie along the Foreshore Reserve. Allow for construction of stormwater quality improvement devices (SQIDS)

Kayak & small boats launching area & boat paddlecraft hire to be relocated from Zone 3 and 2 including leasehold licensing operations normally allocated at the Howard Street Carpark

Landscaping or public art area with play value & a ball kicking area located adjacent to picnic and BBQ stations and shelters and between the two formal carparking areas to provide diverse activities for family groups - fencing will be required to maintain safety next to roadway

Commuter riding and shared path to provide alternative routes to main pedestrian walkway located closer to foreshore edge

New pedestrian only bridge over North Creek to resolve interface between pedestrians and cyclists at existing North Creek bridge or widening of existing bridge - opportunity to improve bridge as a design feature.
Figure 19: Zone 1 - Northern - Issues diagram
ZONE 2 Foreshore - north creek to micro wetland

It is proposed to reinforce the urban character of Zone 2 through the use of more formal planting, structured hardscaping and facilities to allow for more intensive event use, strengthening links to the town centre and providing visual and activity focal nodes.

Bench seating area at head of North Creek for viewing

Picnic areas located between North Creek and Lake Street for informal gathering

Pedestrian crossings at Lake Street and King Street to promote connectivity between commercial centre and foreshore reserve.

Existing pedestrian crossing at midpoint of Central Zone to be reinforced

Jetty to be extended to 60m length with a shade structure/ sculpture located at the termination point of the jetty to provide a focal point to the Central Zone - preliminary investigation of seagrass constraints should allow this option to be feasible but further investigation will be required to determine design of decking

Interactive water feature and childrens play area with hard paved surfaces surrounding for diversified activity

Formalised promenade to foreshore edge with bench seating to provide additional facilities for visitors and during events

Widening of footpaths and boulevarde of trees along The Esplanade integrated with angle parking to the commercial centre side and parallel loading and parking to foreshore side of The Esplanade

Terraces and walkways for informal market stalls and seating areas for foreshore users

Amenities block with kiosk/cafe and toilet facilities including the demolition of the existing amenities block to be located adjacent to King Street

Informal seating and amphitheatre adjacent to former Howard Street Carpark. Removal of Howard Street Carpark. Provision of new Events Storage and loading zone access. Item is supported by the Warners Bay Chamber of Commerce to provide a destination for performing arts as the current bandstand is too small
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SECTION A

Existing trees along the Esplanade retained where healthy and appropriate. New trees should be established in bare areas, especially in zone 3.
ZONE 3 Foreshore - micro wetland to south creek

The southernmost corner of the site is viewed as an opportunity to mark the entry to the Foreshore Reserve from South Creek and Bunyah Park. This is defined by a potential entrance sculpture creating an immediately recognisable feature which will correspond with the entrance sculpture at Zone 1. The Zone will feature a better structured open play field, a contemplative area and childrens play area.

Former Howard Street Carpark reloated to Zone 3 near South Creek

Childrens Bicycle path adjacent to Picnic and BBQ Shelter Area and existing formal carparking area

Alternative location of Boat and Paddlecraft Hire located adjacent to carparking area

Contemplative area with screen planting and benches

Two stormwater basins utilising existing micro wetlands as exemplar

Two exercise stations similar to station located in Zone 1 Boulevard of Trees along eastern edge of park adjacent to The Esplanade

Landscape feature at termination of Warners Bay Road to allow view corridor from Road

Open field ball kicking area adjacent to childrens play area and Picnic and BBQ Shelter cluster

Amenities block with toilets adjacent to relocated formal carpark

Interactive feature sculpture to provide destination/ arrival point adjacent to South Creek Tunnel
Figure 20: Zone 3 - South - Issues Diagram
Vegetation management

Values of vegetation

It is important to maintain existing trees along the foreshore, establish new trees in appropriate areas and provide replacement trees.

Trees provide many tangible benefits, that include:

- Regulating the micro-climate - reducing temperatures through shade, acting as windbreaks and reducing hard surfaces.
- Reducing water run-off - by intercepting rainfall, increasing infiltration into the immediate soil, absorbing water through the roots, slowing the rate of run-off.
- Improving air quality – by removing pollutants from the air.
- Carbon storage – by removing carbon dioxide from the air.
- Property values – properties surrounded by substantial landscaping have been shown to increase in value and their attractiveness to consumers.
- Traffic control by street trees – by acting as a visual cue that slows drivers, making the road visually appear narrower and a more urbanised, lower-speed environment encouraging walking and cycling.

Existing Vegetation

The majority of the foreshore consists of imported fill, and hence there appears to be no remnant vegetation present. Tree species that could be expected to occur naturally at similar locations around the lake include Corymbia maculata, Eucalyptus punctata, Eucalyptus gummifera, Eucalyptus paniculata and Eucalyptus piperita. On poorly drained sites species such as Melaleuca spp, Eucalyptus robusta and Casuarina glauca would be found.
Protection of existing vegetation

The protection of the existing flora along the foreshore is critical to maintaining the predominantly natural foreshore character that exists to the south and north of the main shopping area of Warners Bay. The existing more urbanised character adjacent to the shopping area can be further enforced and aesthetically enhanced by managing existing trees in this central zone and planning for new plantings. A mixture of native and exotic trees is appropriate in this central zone.

Additional large scale native trees should be introduced into the foreshore parkland landscape, where possible, to increase canopy cover that provides amenity, habitat and aesthetic improvement.

All existing native, street and other trees within the Warners Bay foreshore are subject to various controls and cannot be removed without the applicable consent.
Proposed tree species
Tree species have been selected to:

- Physically reflect the characters of zones.
- Reinforce the existing character of three different zones identified in the master plan.
- Reinforce the natural landscape character and provide benefits to native fauna (through the inclusion of a proportion of locally-native tree species).
- Grow in the site conditions, due to their proven hardiness and ability to adapt to the existing foreshore conditions.

Any trees selected should be consistent with relevant LMCC guidelines such as the current Lake Macquarie City Council Landscape Design Guidelines – which lists suitable specific vegetation types for certain areas/situations.

Existing dominant trees along this part of the foreshore include Casuarinas, Melaleucas (Paperbarks) and Eucalypts. There are well established copses of Casuarina in the southern zone. It is proposed that the majority of planting in Zones 1 and 3 use these signature trees to reinforce the existing character.
Currently there are a number of large Figs and Coral Trees lining The Esplanade across from the shopping area (Zone 2). The appearance of the Figs suggest that these trees are under stress and likely to be in decline. It is recommended that an aborist report be undertaken to assess their condition, including whether their health can be improved, potential safety issues and the likely useful life span of each tree. The existing Coral Trees should be phased out over time as these trees are now generally considered an unsuitable species in public reserves due to their habit of dropping branches and identification as a weed in some areas.

These trees are recommended to be replaced by Hills Figs (Ficus hillii) which are a relatively fast growing native tree that will create a strong tree-lined avenue across from the commercial centre. They have a similar form to those trees that they will replace. At each end of the shopping area, on the park-side, it is proposed to retain the existing Canary Island Date Palms (Phoenix canariensis) and build upon their formal ornamental character to highlight each end of the centre. If necessary some of these palms could be re-located to more appropriate locations as this species responds well to such re-location.

<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
<th>Approx. Height x Spread</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Araucaria Heterophylla</td>
<td>Norfolk Island Pine</td>
<td>20m x 6m</td>
<td>historic plantings along many parts of Lake Macquarie Shore</td>
</tr>
<tr>
<td>1. Casuarina Glauca</td>
<td>Swamp Oak</td>
<td>12m x 4m</td>
<td>native to local area</td>
</tr>
<tr>
<td>3. Cupaniopsis Anacardiodes</td>
<td>Tuckeroo</td>
<td>6m x 4m</td>
<td>native to coastal areas. Medium sized tree.</td>
</tr>
<tr>
<td>1. Eucalyptus species</td>
<td>Eucalypts</td>
<td>varied</td>
<td>native tree reflecting traditional Australian landscape character</td>
</tr>
<tr>
<td>2. Ficus hillii</td>
<td>Hill’s Fig</td>
<td>20m x 8m</td>
<td>Historic plantings along many parts of Lake Macquarie shore. Strong avenue tree.</td>
</tr>
<tr>
<td>6. Plumeria rubra</td>
<td>Frangipani</td>
<td>4m x 3m</td>
<td>Common small tree around Lake Macquarie urban areas. Has attractive flowers and brings a human-like scale</td>
</tr>
<tr>
<td>1. Melalueca species (quinquinervia and stypheloides)</td>
<td>Paperbarks</td>
<td>Varied - up to 25m height</td>
<td>Large tree native to local area. Existing trees along foreshore.</td>
</tr>
<tr>
<td>5. Phoenix canariensis</td>
<td>Canary Island Date Palm</td>
<td>15m x 4m</td>
<td></td>
</tr>
</tbody>
</table>
Figure 21: Signature Tree Plan

Warners Bay
**Landscape treatments**

Natural foreshore edge treatment
Lake Macquarie City Council Foreshore Stabilisation and Rehabilitation Guidelines – Revision 01 (LMCC, 2005a) are the appropriate guideline to use when developing detailed design for foreshore treatments. These guidelines also list suitable plant species.

The majority of the existing shore edge is proposed to be retained as a natural-type edge, with the only different treatment within the central zone (zone 2). It is understood that LMCC’s preferred treatment for the natural edge component is that referred to as a ‘pebble edge’.

**Riparian zones**

Lake Macquarie City Council has a guideline called Creekbank Stabilisation & Rehabilitation Guidelines (LMCC, 2005b) which provides guidance on suitable treatments for riparian zones and should be referred to for detailed design of these areas.

The Warners Bay catchment covers the suburbs of Warners Bay, Lakelands, Tingira Heights, Eleebana and some of Mount Hutton. There are a number of active Landcare groups in the Warners Bay area that have a key objective of creating wildlife corridor links from the upper catchment to the foreshore, primarily along riparian corridors (Landcare Resource Office, undated).

There are numerous drainage lines/stormwater channels crossing over the Warners Bay foreshore parkland, including the recently established mini-wetland area at the mouth of Warners Creek, south of the central zone.

Stormwater management of the run-off through the use of swales, depressions, contour banks, rock channels, pebble paths, sedges, reed beds and other suitable measures without compromising the principal function of providing public open space is required.
These riparian zones also provide an opportunity to increase vegetation corridors and provide enhanced habitat for local fauna that connect with adjacent natural areas.

Plant species installed within these areas should be selected for their potential to provide further habitat and connect to vegetation areas outside of the foreshore, the connection of canopies is important for the interactions of corridors.

Urban foreshore edge
The area of foreshore edge located directly adjacent to Warners Bay Town Centre between King Street and Lake Street is proposed to have an elevated timber walkway with a natural ‘pebble edge’ to the underside of the walkway. Recycled hardwoods are preferred timbers for construction of the deck. The deck will be required to be offshore with access provided to remove wrack as it accumulates.
Lighting
Generally, public open space should not be lit at night, as lighting of some public domain spaces may attract anti-social activities to the area. However, some locations such as the central zone and main pathways will require lighting where there will be legitimate night activity and passive surveillance is possible and approved by the community safety committee.

Upgrade existing lighting through Zone 2 between The Micro Wetlands and North Creek to comply with AS 1158 and to reflect current selection for furniture suites.

Bicycle facilities
Areas of high use along the shared pathways should be provided with bike racks, particularly near children’s playgrounds, picnic and rest areas and the central zone. It is also recommended that water bubblers be installed in these areas.

Bicycle facilities are to be designed and constructed in accordance with the Austroads 14 Bicycle Standards.

Pedestrian and Cycleway Network
An integrated pedestrian and cycleway network has been planned along the foreshore that is generally comprised of a shared recreational pathway and a commuter pathway. The delineation of these users means that there will be less conflict and a greater separation of these different activities. It also allows for the recreational users to be removed from existing conflicts at car park entry and exit points.

Typical attributes of a well-designed pathways system include:
- the pathway is clearly visible from nearby houses, parks and streets (passive surveillance)
- it is well-designed (appropriate width and materials) and well-maintained
Park furniture
Park furniture is to be selected from one suite and must demonstrate robust, low maintenance design and incorporate anti-skateboard features in units such as park seats, or where location placement may expose the unit to a higher anti-social risk of damage.

The use of furniture installed elsewhere by LMCC may be appropriate, to build upon an established suite for the local government area. It may be possible to modify such styles to include a motif or other aspect of the design that will evoke a particular Warners Bay image. Inspiration for final design should consider the maritime and foreshore character of Warners Bay.

Recent furniture proposed for Speers Point Park, currently the subject of an extensive re-development plan, should also be considered.

Pavement
Pavement is to be selected from a reliable and established supplier with proven capability of designing and supplying robust and appropriate paving materials for urban spaces.

Future product availability for replacement of failed or damaged areas is to be considered prior to final selection.

The use of exposed aggregate concrete pathway is recommended for the shared recreational pathway as such a material is easy to re-instate in a consistent way, is relatively low cost and low-slip. The commuter shared pathway would be best constructed from either bitumen or concrete to reduce maintenance and allow for easy patching as required.
Picnic areas
New planned picnic areas should include some sheltered and non-sheltered tables, BBQs and shade tree planting. These areas have been designed to be close to car parking areas and other facilities such as children’s play areas.

Car Parks
The recreational shared pathway has been re-located away from the entries and exits from car parks so as to improve safety for these users. However, a new commuter shared pathway will cross-over some of these car park entry and exit points. Devices such as raised crossings should be installed at these locations to better delineate between the pedestrian/cyclist users and vehicular users. Vehicular users will be slowed by such devices which will improve safety. A change in paving treatment is also recommended to increase the legibility of these crossings. Final design should be in consultation with a traffic engineer.

Tree planting is proposed in all existing car parks to improve amenity and aesthetics of these facilities.
Children’s play facilities
A number of children’s play facilities are proposed, such as playground areas and a children’s bike path. These facilities have been designed to be located close to other complimentary activity centres such as picnic areas. The central zone includes a water play/sculpture feature. This feature is planned to become a signature focal point that draws visitors to Warners Bay and is an identifiable feature of it. There are no similar features in the surrounding area of Lake Macquarie and Newcastle. Where such facilities exist they can become popular drawcards to tourists and local residents.
Pedestrian and Cycleway Network
An integrated pedestrian and cycleway network has been planned along the foreshore that is generally comprised of a shared recreational pathway and a commuter pathway. The delineation of these users means that there will be less conflict and a greater separation of these different activities. It also allows for the recreational users to be removed from existing conflicts at car park entry and exit points.

Typical attributes of a well-designed pathways system include:

- the pathway is clearly visible from nearby houses, parks and streets (passive surveillance)
- it is well-designed (appropriate width and materials) and well-maintained
- there is good night-time lighting
- there are facilities to improve the user’s comfort (such as seats, bubblers and bus shelters) and regular tree planting for attractiveness and shade

the pathway system is legible to its users with paths and destinations clearly marked at suitable intervals and main junctions, and landmarks increasing the ability for pathway users to find their way through a neighbourhood there are convenient connections that allow users to choose alternative routes the majority of pathways are designed for non-discriminatory access

- there are safe access points across busy streets (either by signalised crossings or non-signalised marked pedestrian crossings, with roundabouts not suitable where other treatments are not included to greatly slow or stop traffic).

The conceptual design of the pathway system presented in the masterplan has been based on these principles, as should the detailed design phase.

Generally, paths within and to the development must provide non-discriminatory access. Path design must comply with the Building Code of Australia and AS 1428 Parts 1, 2, 3 and 4 – Design for Access and Mobility.
Landscape Management and Maintenance

Existing maintenance issues
Existing maintenance issues include:
• a lack of water taps
• reliance on hoses rather than an integrated irrigation system
• a high number of trees planted as singular specimens in grass (leading to high maintenance requirement and heighten potential for line trimmer damage)
• poor pavement condition in some areas
• compacted and poor soils leading to low quality grassed areas
• poor drainage and waterlogging after rain in some areas
• damaged planter beds
• rubbish removal sometimes not frequent enough or appropriately managed (particularly for major weekend-end events
• poor growth of some trees, largely due to single specimens being planted in grassed areas
• some larger trees in poor health and possibly representing a safety hazard in some instances.
Where possible these issues have been addressed in the masterplan. Other more detailed design issues need to be considered at the detailed design phase. Some key aspects relating to management and maintenance are discussed below.

General plant management

All public open space should be designed to minimise landscape maintenance. Design measures to achieve that, include:
All landscape planting will be installed in fully prepared mulched planting beds edged with a treated pine timber edge board.

Trees planted within defined mulched beds are not subject to maintenance damage by whipper-snipper and are therefore provided with a higher chance of successful establishment.

Trees planted within these beds in groves where appropriate in open space with reliance on individual tree planting in grass excluded from the design process over the majority of the parkland. Maintenance requirements are also reduced as hand-held line trimmers are not required during mowing periods.

Control of grass incursion into the mulched bed may be undertaken with a herbicide applied bi-annually.
The majority of plant species should be selected to reduce reliance on watering once plants are established. Adequate water taps should be placed so as to allow for watering of landscape areas during plant establishment periods or extended drought times.

An integrated irrigation system should be included in the central zone (zone 2) in association with new design works.
Grassed areas

Grass forms a major part of the landscape domain and its impact on the landscape is often underestimated. Grass is a relatively high maintenance plant within the landscape as it requires regular mowing and maintenance control, more so than established shrubs or trees. Careful selection of grass species and placement within the landscape will reduce overall maintenance costs for LMCC.

Most of the site is covered by Cynodon dactylon (Common Couch) or Pennisetum clandestinum (Kikuyu Grass). Any ongoing use of Kikuyu within the foreshore parkland is unacceptable due to closeness to bushland and wetland areas where Kikuyu, once established, can become a rampant grass species capable of choking native grass species present in the vegetation community. Kikuyu, when encountered in the landscape as re-design of areas of the park proceeds, should be eradicated with herbicides and replaced with Couch or native grasses endemic to the site. Common Couch is permissible as a species for road reserves and other public open space. Other suitable exotic grasses include many specialised types of Stenotaphrum secundatum (Buffalo Grass) and cultivated native grass species.

The use of native grasses should be encouraged as their hardiness and low growth profile mean they can remain unmown in selected areas, reducing costs of maintenance significantly. The appropriateness of native grass species should be specifically explored and trialled in some of the more open areas in Zone 3. Photograph 2 illustrates a successful native grass edge in King Edward Park, Newcastle.

For riparian zones, it is preferable that only grass species suitable for the zones should be installed as both Couch and Kikuyu have a tendency to dominate other grass species when moisture is available. Suitable plant species are listed in Lake Macquarie City Council Foreshore Stabilisation & Rehabilitation Guidelines – Revision 01 (LMCC, 2005).
Weed management
Generally, weeds are to be cleared from all areas within the site prior to the installation of new landscape and disposed of off-site. Where appropriate, weed clearing may be undertaken using chemical means, however, where there is a risk to existing native site vegetation or vegetation adjacent to the site, weed removal must be undertaken using non-destructive manual means either by hand or suitable and appropriate mechanical means. Species nominated for inclusion in future plans must be relevant to the context of the site and not be listed on any Noxious Weeds list relevant to LMCC. nor be considered to have potential to become a noxious weed should it enter the foreshore zone.

Soil management
The site’s soils are largely the result of extensive filling that occurred around the lake edge to create the majority of the foreshore parkland in the vicinity of Warners Bay.

The existing soils appear fairly poor in terms of horticultural performance and would benefit from the addition of soil improvers and de-compaction prior to planting, and in some of the existing grassed areas.

Trees
The following guidelines should apply to tree selection and placement:

All trees are to be sourced from accredited Natspec suppliers accompanied by written Certification that the trees are true to type and grown to Natspec standards. Trees must be planted in accordance within an approved root control device or structural soil vault where trees are designed within paving to avoid pavement damage. Examples of best practice tree installation in parkland and pavement areas, as well as poor examples, are provided in adjacent table.