TUNKS PARK

PLAN OF MANAGEMENT

NORTH SYDNEY COUNCIL

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1.0 Introduction

1.1 What is the Plan of Management

Plans of Management are important documents providing clear guidelines for the effective short and long-term management of all land owned by Council or under Council's control.

A Plan of Management is a report outlining how Council proposes to manage community land for the benefit of the community. Plans of Management usually derive their management recommendations from the following criteria established by Council and stakeholders:

- Roles and values
- Desired outcomes (objectives)
- Issues (opportunities and constraints)
- Crown Lands & Local Government Act requirements

This document complies with the Crown Lands Act 1989 and the Local Government Act 1993 including the Amendment (Community Land Management) Regulation 1999. It provides detailed information specific to Tunks Park that supplements Councils generic Plans of Management (Sportsgrounds, Playgrounds, Foreshore Parks). The Tunks Park Plan of Management is consistent with the core objectives for Sportsgrounds, Playgrounds, Foreshore Parks and Bushland as outlined in the Generic Plans of Management.

Councils generic Plan of Management for Bushland 2014 remains the applicable management reference for areas categorised Natural Area Bushland in Tunks Park.

1.2 Land to which this Plan applies

The Plan of Management applies to all land under the care, control and management of North Sydney Council (including Crown Land and NSC owned land). The map below shows the land parcels to which this Plan of Management applies.

Figure 1.1 Land to which the Plan of Management applies

1.3 Objectives

The Tunks Park Plan of Management sets out to address the following project objectives:

- Meet all relevant legislative requirements, in particular the Crown Lands Act 1989, Local Government Act 1993 and Environmental Planning and Assessment Act 1979;
- Be consistent with North Sydney Council Community Strategic Plan 2013-2023 and other relevant strategies, plans and policies;
- Establish an appropriate and integrated framework to guide decision-making regarding the short and long term use and management of Tunks Park;
- Reflect the values and expectations of residents, workers and other stakeholders regarding the use, enjoyment, management and development of Tunks Park;
- Protect the environmental, social, recreational and heritage values and significance of Tunks Park; and
- Present a concept Masterplan that illustrates the proposed initiatives and actions required to implement improvements to Tunks Park as required.

1.4 Structure of the Plan of Management

The Tunks Park Plan of Management is divided into 6 parts.

Part 1 examines what a Plan of Management is, outlines the scope and purpose of the Plan, explains the linkage between this Plan of Management and Council's land management goals, and details the importance of community and stakeholder consultation in the planning process.

Part 2 indicates the location of Tunks Park, and provides a description and brief history of the open space.

Part 3 identifies and examines the major planning issues including the existing influences essential to an understanding of the overall directions of the Plan of Management. Current management policies and practices are also discussed and the management solutions and strategies proposed in response

Part 4 is the philosophical basis for the Plan of Management. It details the significance of Tunks Park and establishes the overall directions and objectives of management that guide policy development and formulation of the action plan.

Part 5 is the implementation and performance component of the Plan of Management. A matrix sets out the objectives, proposed actions and performance indicators for each issue, and each action is given a priority rating.

Part 6 provides a long term masterplan illustrating the key open space improvements recommended

Part 7 contains the appendices as well as other supporting material and background information which, though not essential to the basic understanding of the Plan, provide an important resource base for appreciating the value of Tunks Park

1.5 Purpose of the Plan of Management

Public open space is an important component of the urban environment, providing opportunities for recreation and leisure. The Tunks Park Plan of Management provides an overall framework for management of this significant park for at least the next 5 years.

The production of this Plan of Management is closely linked with Council's overall land management objectives, as set out in the North Sydney Council Delivery Program. The 4 year fixed term Delivery Program replaces the former 3 year Council Management Plan, and describes the actions required to achieve the objectives outlined in the 2020 Vision. North Sydney Council's 2020 Vision is our most important strategic document; it sets a strategic direction for where the North Sydney community wants to be in the year 2020.

The following information, relevant to Tunks Park, has been taken from the North Sydney Council Delivery Program. Council's goal with regard to public open space (encompassed in the Delivery Program under Direction 1 – 'Our Living Environment') is to:

1.4 'provide appropriate public open space, recreation facilities and services'.

The following objective is derived from this goal:

1.4.1 'To ensure existing parks and reserves meet the community's recreational needs'.

The following strategies will help achieve this objective:

1.4.1.2 'Provide a range of recreational facilities for people of all ages'.

1.4.1.3 'Secure additional grant funding for the upgrade of recreational facilities

1.4.1.4 ' Work with neighbouring councils and other land managers to accommodate regional demand for sporting facilities.'

1.4.1.5 'Improve equity of access to open space and recreation facilities'.

This Plan of Management examines the present-day condition and characteristics of Tunks Park. It identifies clear objectives and establishes directions for planning, resource management and maintenance. It clarifies and establishes management policy and direction, both to Council staff and the general public. The Plan of Management provides a basis for assigning priorities in works programming and budgeting.

This Plan of Management will be reviewed regularly to assess implementation. A major review after approximately 5 years will allow policy and planning issues to be revisited and updated.

Tunks Park is primarily zoned RE1-Public Recreation under North Sydney LEP 2013 with the fringing bushland areas zoned E2-Environmental Conservation.

THE CHALLENGE

Reclamation of the upper reaches of Long Bay was mooted in the late 1940's and the first works were jointly funded by parents of North Sydney Boys and Girls High Schools for the purposes of playing fields. Since this time Tunks Park has become a much loved foreshore open space which since its opening in 1956 has provided for a range of recreational and community uses and provides a public gateway to the Flat Rock Creek corridor and Long Bay waterway. In addition it adjoins important areas and corridors of bushland habitat, adding further to its value and significance

Councils challenge is that proportionally of its 150ha of open space, 17% is playing fields and this currently falls well short of meeting the demand for sports uses in the LGA. Conversely it can be noted that 83% of Councils open space resource is available as bushland, foreshore, and informal use parkland for the community. In 2018 Council's sporting field resources are finite and the lowest per capita of the northern Sydney regional organization of councils (NSROC). While it is working to identify strategic opportunities such as integration with infrastructure projects and collaboration with North Western Sydney Councils (through initiatives such as NSROC Sportsground Strategy Review 2017), it has a policy position to maximize the usability of its sports fields wherever possible. Council's Recreational Needs Study 2015 specifically recommended that lighting be implemented to Councils main playing field resources to extend the usable hours of the fields.

This Plan of Management was initially tasked to further investigate the feasibility and impact of lighting of one or more field areas at Tunks Park. However in response to local resident input Council resolved on 20th November 2018 to remove assessment of potential field lighting from the plan of management scope, and as such this plan of management and masterplan excludes any recommendations for field lighting.

As with many of Council's foreshore reserves that include sports fields (8 of Councils 13 sports fields are located in foreshore parks) peak sporting use of the park in winter months stretches the capacity of parking availability and the local road access system. In 2017 Council sought to reduce the winter Saturday morning peak traffic and parking loads with a reduction in mini fields being used and expanded scheduling of use across the day. The average winter usage of the fields in 2017 was the lowest of all of Councils playing fields, and significantly below the current Council maximum for it's fields of 32hrs.

This Plan of Management has identified a focus on promoting sustainable travel to the park which seeks to reduce peak traffic volumes and parking demand. This will involve a suite of ongoing initiatives many of which can be trialled and assessed for ongoing suitability and benefit. Fundamentally this will require participation and commitment by the sports associations which this plan reinforces.

At the same time the natural values and informal recreation opportunities that Tunks Park provides can be further enhanced through a variety of measures and fundamentally the natural and cultural heritage values of the park can be conserved and appreciated.

1.6 Planning & Policy Framework

This Plan of Management examines the broad range of issues associated with Tunks Park in a comprehensive and holistic manner. The Plan draws on information contained in other significant planning documents as well as in previous in-house studies, incorporating them into a useful document that functions as one of Council's management tools. The major relevant documents and studies include:

- Local Government Act 1993
- LG Amendment (Community Land Management) Act 1998
- Crown Lands Act 1989
- North Sydney Council Delivery Program
- Local Environmental Plan 2013, North Sydney Council
- North Sydney Recreation Needs Study 2015
- The Bushland PoM 2014
- Sportsgrounds PoM 2017
- Playgrounds PoM 2016
- Foreshore Parks & Reserves PoM 2017
- Bushland Rehabilitation Plans
- Open Space Provision Strategy – North Sydney Council, 2009

1.6.1 LOCAL GOVERNMENT ACT

Tunks Park is comprised of State owned Crown land under the care control and management of Council (the main sportsfield and foreshore area) and a series of smaller community lands and private landholdings zoned E2 Environmental Conservation. Council is required under the Local Government Act to have a plan of management in place that will guide its management of community lands. As Tunks Park comprises both community land and Crown Land this plan of management has to have regard for both policy frameworks.

The Local Government Act requires all community land to be covered by a Plan of Management which must identify:

- the category of land;
- objectives and outcomes for the land;
- the means by which Council proposes to achieve objectives and outcomes; and
- the way by which council proposes to assess its performance.

The nature and use of community land may not change without an adopted Plan of Management. A POM for community land must identify management categories for the open space. The Local Government Act sets out a framework for making decisions around categorization:

Local Government Regulation 2005 - Guidelines for categorisation
Provide criteria for deciding which categorisations are most applicable to a piece of community land.

Local Government Act Amendment 1993
Identifies core objectives for categories. objectives provide goals towards which management efforts are directed. A POM must identify how it is going to achieve these and any other objectives

1.6.2 CROWN LANDS ACT

Tunks Park is predominantly located on Crown land (refer Figure 1.2), and this Plan of Management takes into account the following principles of Crown Land management as set out in the Crown Lands Act 1989 (Section 11):

(a) that environmental protection principles be observed in relation to the management and administration of Crown land,

(b) that the natural resources of Crown land (including water, soil, flora, fauna and scenic quality) be conserved wherever possible,

(c) that public use and enjoyment of appropriate Crown land be encouraged

(d) that, where appropriate, multiple use of Crown land be encouraged,

(e) that, where appropriate, Crown land should be used and managed in such a way that both the land and its resources are sustained in perpetuity, and

(f) that Crown land be occupied, used, sold, leased, licensed or otherwise dealt with in the best interest of the State consistent with the above principles.

Uses and activities on land reserved for public purposes are broadly defined by the public purpose of the reservation, in conjunction with any conditions and provisions within the specific zoning in the relevant local Council's Local Environmental Plan. The land uses are then more specifically defined either by Plan of Management, leases and licences or a combination of both.

Figure 1.2 Land ownership

1.7 Community Land Categorisation and core objectives

As identified in 1.6.1 Tunks Park is comprised of State owned Crown land community land parcels owned by Council, and a number of privately owned parcels zoned E2 Environmental Conservation (refer to section 2.1 for further description). As Tunks Park comprises both community land and Crown Land this plan of management provides a categorisation of the whole site to provide a consistent basis for management across the site and to Councils other open spaces.

The Local Government Amendment (Community Land Management) 1998 provides the following guidelines for categorisation of lands under the nominated categories.

Category	Guidelines for Categorisation	Core Objectives for Community Land Categories
Natural Area (Applying in general top all natural area categorisations)	• The land (whether in an undisturbed state or not) possesses a significant geological feature, geomorphological feature, landform, representative system or other natural feature or attribute that would be sufficient to further categorise the land as bushland, wetland, escarpment, watercourse or foreshore.	• Conserve biodiversity and maintain ecosytem function in respect of the land; • Maintain the land in its natural state and settting; • Provide for community use of and access to the land in such a manner as will minimise and mitigate any disturbance caused by human intrusion; • Assist in and facilitate the implementation of any provisions restricting the use and management of the land that are setout in a recovery plan or threat abatement plan.
Natural Area (Bushland)	• The land contains native vegetation which is: a. the natural vegetation (or a remainder of it) of the land; or b. although not the natural vegetation of the land, is still representative structure of floristics of the natural vegetation in the locality • Such land includes: a. bushland that is mostly undisturbed with a good mix of tree ages, and natural regeneration, where the understorey is comprised of native grasses and herbs or native shrubs, and which contains a range of native habitats for native fauna (such as logs, shrubs, tree hollows and leaf litter); or b. moderately disturbed bushland with some regeneration of trees and shrubs, where there may be a regrowth area with trees of even ages, where native shrubs and grasses are present, where there is no natural regeneration of trees and shrubs, but where the land is still capable of being rehabilitated.	• Ensure the ongoing ecological viability of the land by protecting the ecological biodiversity and habitat, flora and fauna and other ecological values of the land; • Protect the aesthetic, heritage, recreational, educational and scientific values of the land; • Promote management in a manner that protects and enhances the values and quality of the land and facilitates public enjoyment of the land, and implement measures directed to minimising or mitigating any disturbance caused by human intrusion; • Restore degraded bushland; • Protect existing landforms such as natural drainage lines, watercourses and foreshores; • Retain bushland in parcels of a size and configuration that will enable the existing plant and animal communities to survive in the long term; • Protect bushland as a natural stabiliser of the soil surface.
Natural Area (Wetland)	• The land include marshes, mangroves, backwaters, billabongs, swamps, sedgelands, wet meadows or wet heathlands that form a waterbody that is unindated cyclically, intermittently or permanently with fresh, brackish or salt water, whether slow moving or stationary.	

Category	Guidelines for Categorisation	Core Objectives for Community Land Categories
Natural Area (Watercourse)	• The land includes: a. any stream of water, whether perennial or intermittent flowing in a natural channel, a natural channel that has been artificially improved, or in an artificial channel that has changed its course, and any other stream of water into or from which it flows; b. associated riparian land or vegetation, including land that is protected land for the purposes of the Rivers and Foreshores Improvement Act or the Native Vegetation Conservation Act.	• Manage watercourse so as to protect the biodiversity and ecological values of the instream environment particularly in relation to water quality and water flows; • Manage watercourses so as to protect the riparian environment, particularly in relation to riparian vegetation and habitats and bank stability; • Restore degraded watercourses; • Promote community education and community access to and use of the watercourse, without compromising the other core objectives of the category.
Natural Area (Foreshore)	• The land is situated on the water's edge and forms a transition zone between the aquatic and terrestrial environment.	• to maintain the foreshore as a transition area between the aquatic and the terrestrial environment, and to protect and enhance all functions associated with the foreshores role as a transition area • the facilitate the ecologically sustainable use of the foreshore and to mitigate impact on the foreshore by community use
Sportsground	• The land is used or proposed to be used primarily for active recreation involving organised sports or the playing of outdoor games.	• Encourage, promote and facilitate recreational pursuit in the community involving organised and informal sporting activities and games; • Ensure such activities are managed having regard to any adverse impact on nearby residences.
Park	• The land is used or proposed to be, improved by landscaping, gardens or the provision of non-sporting equipment and facilities, for use mainly for passive or active recreational, social, educational and cultural pursuits that do not unduly intrude on the peaceful enjoyment on the land by others	• Encourage, promote and facilitate recreational, cultural, social and educational pastimes and activities; • Provide for passive recreational activities and pastimes and for the casual playing of games; • Improve the land in such a way as to promote and facilitate its use to achieve the other core objectives for its management.

Three categories are recommended for the Tunks Park site. These reflect the categorisations that had previously been applied to the park through Council's Generic Plans of management for Sportsgrounds (2016), Foreshore Parks and Reserves (2017) and Bushland (2014). The applicable categorisations and the areas to which they apply are described following and on Figure 1.3 opposite:

CATEGORY	ZONE	OWNERSHIP
Natural Area Bushland	The vegetated slopes that flank the playing fields to the south and adjoin the Flat Rock Creek corridor; and the Flat Rock Creek riparian corridor	Community land and Private Lands
Sportsground	The reclaimed land zone between park and Flat Rock Creek corridor	Crown land
Park	The transition zone between bay waters, foreshore and area adjoining the open flat grassed areas.	Crown Land

Figure 1.3 Extent of categorisations applied by this plan of management

1.8 Leases licenses and other estates

The granting of a lease, licence or other estate formalises the use of community land by groups such as sporting clubs, commercial organisations or individuals who are providing facilities or services for public use. The term 'estate' is defined as an interest, charge, right, title, claim, demand, lien and encumbrance, whether by law or in equity. A lease, licence or other estate is required where exclusive control of all or part of an area by a party is proposed or desirable in the interests of management of an area. Activities under a lease, licence or other estate must be compatible with any zoning or reservation,

1.9 Community Consultation

A community consultation program was designed to help inform the development of the Masterplan and Plan of Management. This was undertaken by Straight Talk who adopted an inclusive approach to ensure all community and stakeholder voices and points of view were heard and understood including: residents, recreational park users (including dog walkers, boat ramp users), schools, Parent and Friends committees, sporting clubs, personal trainers, Bushcare groups, Precincts, community action groups and relevant government authorities.

The objectives of the engagement included gathering and understanding the values and expectations of local residents and the broader community. This specifically included distinguishing how people use and enjoy the park and their beliefs about how the park should be managed and developed into the future. Feedback from the consultation has assisted in creating a framework to underpin the Plan of Management with a view to incorporating all environmental, social, recreational and local priorities.

The highest level of participation in this phase of the consultation program came from local residents with more limited participation from other stakeholder groups. During the course of the plan Council resolved not to consider in this plan of management the previous Council proposals for potential sportsfield lighting at Tunks Park. It is recognised that as this proposal had been a major source of concern for local residents, the nature of community participation changed once this resolution was made to a broader range of issues and opportunities within the park.

The consultation program was split into four phases as follows:

1. Scoping phase -this sought to identify how the parks are used, what people value most about the parks, what the key issues are, and what improvements they would like to see in the future.
2. Potential Options - the information collected from the scoping phase led in the development of a draft set of guiding principles/values and potential options which were taken to the community and stakeholders for testing.
3. Testing Options - The feedback received from the potential options phase informed the development of a suite of draft concept designs. Community and stakeholder feedback was sought on these draft concept designs to inform the development of the Draft Masterplan/PoM document.
4. Public exhibition - this phase involved the statutory exhibition of the Draft Masterplan/PoM documents and invited written submissions.

A summary of the key findings from the scoping and options phases included:

- There was a high level of satisfaction with the park as it currently exists. The community appreciated the amount of open space which was used by a variety of people and accommodated for different uses like sport, dog walking, families and fishing.
- The natural environment was a key focus for future maintenance and development. Ensuring that the grass and native vegetation were maintained and cared for was frequently mentioned.
- Many community members contest the amount of parking space and noise allowance that is given to boat and trailer users. This is particularly an issue for residents who hear noise very early in the morning and for sports ground users who do not have access to valuable parking spots during peak times on the weekend.
- Many community members commented on the need for traffic and parking solutions to manage high volumes of traffic, narrow road access and limited parking spaces, all of which cause tension during peak times of access to and from the park.
- Residents living close to the park and direct neighbours frequently mentioned not wanting any high trees or visual barriers blocking views of the water.
- There is support for transport and access options which allow greater use of public transport, pedestrian and cycle use. Community members accept that there are a number of different ways to manage high volumes of traffic and park users.
- Foreshore options were generally seen as a positive move. However, there were concerns about safety relating to water quality – if children were allocated a play area near the water's edge and general safety to the public given the amount of oyster shells in the shallows. There were also concerns about whether realigning the carpark would position cars too close to the playing fields resulting in damage to cars from flying balls or whether this would decrease the amount of vegetation, which was not wanted.

A copy of the full consultation reports can be found in the Appendix.

Public Exhibition

Council reviewed the responses received to the Draft Plan of Management and identified where revisions were applicable to the Draft Plan in finalising the document for Council approval.

A large number of submissions were received by members of the boating community who use the Tunks Park boat ramp. Council has considered these perspectives which included:

- Importance of retaining the boat ramp as a 24 hour facility
- Retaining existing parking for boat trailers
- Retaining a dedicated wash down bay with water provisions
- Concern with potential introduction of fees for boat trailer parking

1.10 Making a submission

Submissions give stakeholders an opportunity to express their opinions, provide information and suggest alternatives to Council's proposed management strategies for Tunks Park in the coming years.

To ensure submissions are as effective as possible:

(1) List all points according to the section and page number in the Plan of Management.

(2) Briefly describe each subject or issue you wish to discuss.

(3) State which strategies you agree or disagree with, and give reasons.

(4) SSuggest alternatives to deal with any issue with which you disagree.

Written submissions should be sent to:

The General Manager
North Sydney Council
P O Box 12
NORTH SYDNEY NSW 2059
Attention: Ms Megan White
Landscape Planner
Fax No: 9936-8177
Email: council@northsydney.nsw.gov.au

Comments regarding this or any other adopted Plan of Management may be submitted at any time. Each Plan of Management is reviewed regularly, and at the time of the review new issues and actions can be incorporated and existing actions amended. All adopted Plans of Management are available on Council's website: www.northsydney.nsw.gov.au.

2.0 Site Description

2.1 Location and context

Tunks Park is one of the most significant open space areas fronting Middle Harbour. Characterised by expansive open lawns and playing fields bordered by large sweeps of natural bushland rich in biodiversity, Tunks Park is an attractive and popular foreshore area that is greatly valued by the North Sydney Community.

Located off Brothers Avenue in the Middle Harbour catchment suburb of Cammeray on the northern edge of the North Sydney Council area, Tunks Park is an integral part of an open space corridor that extends from the foreshore of Long Bay west under the Northbridge Suspension Bridge to Flat Rock Gully Reserve in the Willoughby Council area. It is a relatively large, linear reserve covering approximately 13 hectares of land.

Tunks Park is primarily zoned *RE1 Public Recreation* under North Sydney LEP 2013 with bushland areas on the southern edge zoned *E2 Environmental Conservation*. The residential areas of Cammeray, which adjoin the southern border of the Park's bushland contain predominantly single dwelling houses and some small residential flat buildings, which overlook the Park. On the slopes to the north, the Park is bordered by Willoughby Council area bushland and predominantly single dwelling houses beyond.

Tunks Park has a range of facilities for both active and passive recreation, and it serves both the local community and users from further afield. Facilities include playing fields, synthetic cricket wickets, amenities buildings, fitness equipment, playground and open lawn areas for more passive forms of recreation.

The Tunks Park foreshore provides for water-based recreation with a boat ramp and pontoon available as well providing opportunities for general recreation, relaxation and enjoyment, allowing people to view and enjoy the harbour environment.

Figure 2.1 District context map of Tunks Park

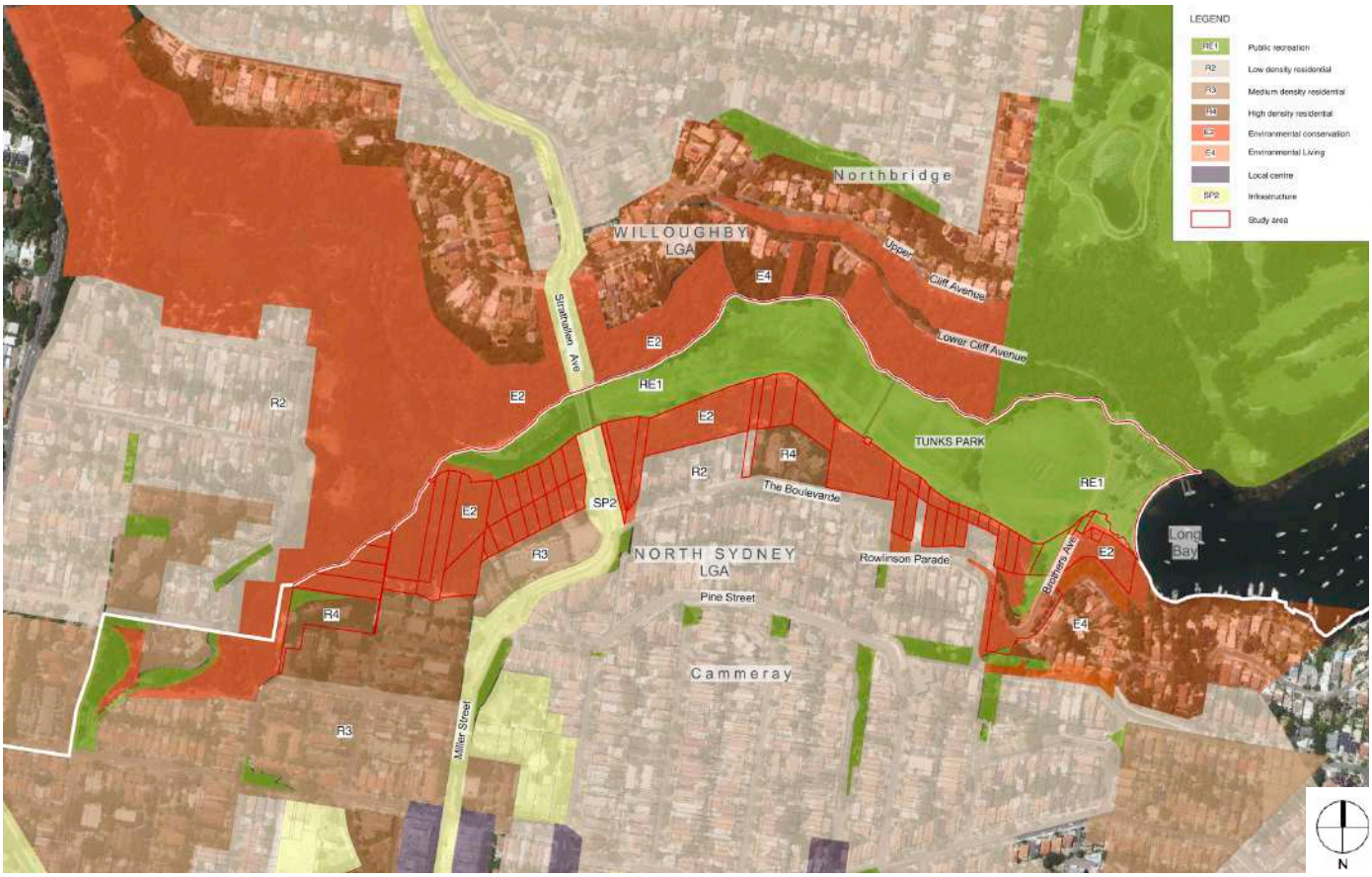


Figure 2.2 Land Zoning map (as per North Sydney LEP 2013)

Figure 2.3 Site description – Map of key park elements

STUDY AREA AT A GLANCE

The table following summarises existing features and management of the study area.

Item	Description
Site Name:	Tunks Park
Address:	Brothers Avenue, Cammeray
Ownership:	64 parcels including Crown Land, Council owned land, land owned by public authority and privately owned land
Community land categorisation	Sportsgrounds, Foreshore Parks & Reserves, Bushland, Playgrounds
Care, control, management:	North Sydney Council
Area:	Approximately 13.34 hectares (133,465.0 m2)
Zoning:	RE1 Public Recreation (North Sydney Local Environmental Plan 2013) E2 Environmental Conservation
Maintenance:	North Sydney Council Maintained park area • Mowing and edging • Turf/grass repairs • Turf Wicket preparation • Irrigation repairs • Tree planting and weeding of garden beds • Litter patrol/removal • Fence maintenance • Foreshore edge maintenance • Amenities building maintenance Bushland • Bush regeneration • Habitat augmentation • Bushfire mitigation / ecological burning • Community education and engagement • Protection of Aboriginal Heritage • Weed control • Remediation and rehabilitation works Creek Corridor • creek corridor maintenance including weir and fish by-pass channel • Gross pollutant control maintenance / clearing • Sediment control Drainage • Drainage corridor maintenance • Gross pollutant control maintenance / clearing • Sediment control
Existing Uses:	Passive recreation – walking, jogging, dog walking, picnicking, natural environment, relaxation, community bush regeneration activities Sports recreation – organised and informal sports Water recreation – access to water, boat & small craft ramp, fishing
Leases / licenses / bookings:	There are no leases or licenses operating at Tunks Park Bookings are managed by Council's Customer Service Team. Refer to section 2.8
Caveats / easements:	Ausgrid: underground power along north edge of park - Refer to Figure 2.7 Sydney Water Sewer: to Aqueduct structure - Refer to Figure 2.8 Stormwater / creek: underground pipes to south edge of park - Refer to Figure 2.9

2.2 History and Heritage

2.2.1 NATURAL HERITAGE

Prior to the reclamation of the upper reaches of Long Bay and creation of grassed sportsfields in the 1950's, Flat Rock Creek and extensive estuarine mudflats were set within a steep valley bushland setting.

The bushland in Tunks Park forms part of a larger corridor of contiguous bushland and wildlife corridor, linking Hallstrom Reserve and Munro Park in the Willoughby City Council area to Mortlock Reserve and the shores of Middle Harbour in the North Sydney Council area. The connectivity to the larger bushland corridors has been an important factor in the overall resilience of the Tunks Park Bushland.

Historic land uses have had varying degrees of impact throughout the bushland which is still evident and provides a focus for bush regeneration activities. The bushland areas provide important habitat for some rare plant and animal communities and form a valuable natural resource in a highly urbanised environment.

The Tunks Park remnant bushland is recognized as a 'biodiversity hotspot' (Smith & Smith 2008) and the most important bushland for small birds in North Sydney. Refer to Council's Tunks Park Bushland Rehabilitation Plan 2018 and Section 2.4.3 for further detail on vegetation.

2.2.2 INDIGENOUS CULTURAL HERITAGE

At the time of European settlement in 1788, the valley was occupied by the Cammeraygal people who drew spiritual and physical sustenance from the land and nearby waterways. *(Part C-Project Brief)*

Remnants of shell middens, rock art, caves and overhangs dating back 6,000 years are also known to exist in the Tunks Park area indicating that First Nations people frequented the area, using the creek as a source of fresh water. *(source: Part C-Project Brief and North Sydney website).* These sites are currently protected by the lack of general access into these areas. There may also be other unidentified sites present on the site.

Places, objects and features of significance to First Nations people are protected under the *NSW National Parks and Wildlife Act 1974*.

2.2.3 EUROPEAN CULTURAL HERITAGE

The natural creekline and estuarine mudflats survived up until the early 1900s. By the mid-1930s however, ground levelling works began as part of Depression-era job creation and tipping operations filled the upper estuary resulting in major environmental impacts, such as loss of flora and fauna, contamination of the creekline and stormwater runoff carrying pollutants to the catchment. Discussions over reclamation began in 1944, where it was decided by the Department of Lands that the low lying area could be be turned into sports fields. In 1948, North Sydney Boys High Parents and Citizens Association offered to contribute funds towards the creation 3 of public playing fields, for competitive sports, that might also be used by students from the school. The initial agreement between the school and Council was for afternoon use over 25 years.

By the early 1950s, pipes were laid to carry the water from the unaffected upper catchment creeklines, under the (then yet to be constructed) playing fields and directly into Long Bay. Silt from the Bay and the remaining mudflats were then used as packing to create the flat surface playing fields seen today. By 1955, construction of the sport fields was completed with additional plans for spectator seating and three dressing rooms, which were never completed. The sports grounds were named the Falcon Memorial Playing Fields Tunks Park, a reference to Falcon Street which runs alongside North Sydney Boys High. Tunks Park itself was named after William Tunks, the first Mayor of St Leonards from 1867-1883. *(Part C-Project Brief)*

Officially opened on 5 May 1956, Tunks Park is an example of foreshore reclamation for public recreation.

The Suspension Bridge (Northbridge) is a historically important local bridge. It extends from Miller Street linking Cammeray with Northbridge.. The bridge was reconstructed as a reinforced concrete arch with the sandstone towers retained as portals and reopened in 1939.

The Suspension Bridge is a picturesque landmark and a dramatic and spectacular structure. The concrete arch is of considerable technical interest and stylisation, with detailing to match the original towers a rare feature executed with skill and sensibility.

2.2.4 HERITAGE VALUE, SIGNIFICANCE AND CONSERVATION STATUS

Tunks Park and Flat Rock Gully have been declared Wildlife Protection Areas under the NSW *Companion Animals Act* 1998 by Willoughby and North Sydney Councils. This requires domestic pets to be controlled and prevents domestic pet access to bushland areas and the Flat Rock Creek corridor unless on a leash.

There is one known site of Aboriginal cultural heritage located within Tunks Park, which requires specialist management under the *NSW National Parks and Wildlife Act* 1974. Council has an Aboriginal Sites Plan of Management (limited access) which records known sites. Council consults with the Aboriginal Heritage Office on ongoing management of all Aboriginal sites.

Tunks Park contains two items of Local Heritage Significance under North Sydney LEP 2013 and Willoughby LEP 2012. These include the overhead sewerage Aqueduct and the century old suspension bridge.

The Northbridge Suspension Bridge (#I0018) and the Sewer Aqueduct (#I0025) are of historic, aesthetic and technical significance and are listed as heritage items of local significance under Schedule 5 of the North Sydney LEP 2013. Historically, they form key components and one of the few substantial visible parts of the Northern Suburbs Ocean Outfall Sewer (NSOOS). This project is a major Sydney engineering work of the early 20th century which serves a considerable extent of Sydney.

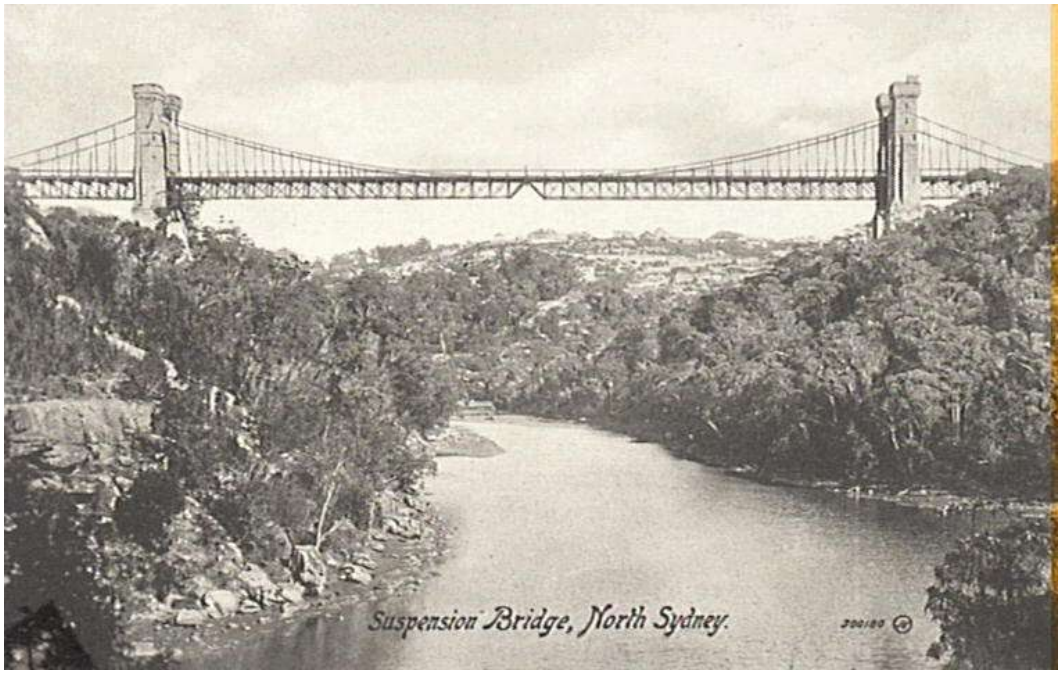
Other items of significance, although not listed as heritage items, are the reconstructed Falcon Gates next to the car park which should be conserved and protected for their contribution to park character and identity. *(Part C-Project Brief).* Both are listed as heritage items on S.170 State Agency heritage registers under the NSW Heritage Act 1977.

Figure 2.4 Tunks Park Timeline and park evolution

2.2.4 INTERPRETATION

Interpretation of Aboriginal and European cultural heritage along with natural systems and values is limited within Tunks Park. There is great potential to enhance the park experience by improving interpretation.

There are a number of self guided heritage recreational walking routes identified in both North Sydney Council and Willoughby Council maps which traverse through Tunks Park. However as above there is limited heritage interpretation provided on these and other routes that would enhance the enjoyment of these environments and aid in community education and awareness.



Historic Photo: 1905 copyright Stanton Library

Historic Photo: Construction of Arch bridge to replace suspension bridge 1938 copyright State Library of NSW

Historic Photo: 1940s Land reclamation copyright Stanton Library

Historic Photo: 1952 Land reclamation

2.3 Land Ownership and Management

LAND OWNERSHIP

Tunks Park comprises the following parcels of land (refer Figure 2.5 and Figure 2.6).

No.	Lot No./DP	Address	Property Description	Zoning	Owner
1	Lot 10, DP 748772	2 Vale St, Cammeray	Part Tunks Park	R4 - High Density Residential/ RE1 - Public Recreation	Private
2	Pt 8, DP 976960	Cambridge St, Cammeray	Tunks Park	E2 - Environmental Conservation	State Planning Authority NSW
3	Pt 9, DP 976960	West St, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
4	Pt 10, DP 976960	West St, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
5	Pt 11, DP 976960	West St, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
6	Lot 77, DP 923520	Abbott St, Cammeray	Tunks Park - Drainage Reserve	E2 - Environmental Conservation	North Sydney Council
7	Lot 15, DP 608340	Cambridge St, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
8	Lot 3, DP 531642	Cambridge St, Cammeray	Tunks Park	E2 - Environmental Conservation	State Planning Authority NSW
9	Lot 1, DP 537510	Cambridge St, Cammeray	Tunks Park	E2 - Environmental Conservation	State Planning Authority NSW
10	Lot 1, DP 970695	Cambridge St, Cammeray	Tunks Park	E2 - Environmental Conservation	Private
11	Lot 2, DP 612227	Cambridge St, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
12	Lot 5, DP 735191	Cambridge St, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
13	Lot 6, DP 735191	Miller St, Cammeray	Tunks Park	E2 - Environmental Conservation	Private
14	Lot 14, DP 847444	Miller St, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
15	Lot 12, DP 847444	Miller St, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
16	Lot 2, DP 829968	Miller St, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
17	Lot 10, DP 847444	Miller St, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
18	Lot 8, DP 847444	Miller St, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
19	Lot 6, DP 847444	Miller St, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
20	Lot 4, DP 847444	Miller St, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
21	Lot 2, DP 847444	Miller St, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
22	Lot 29, DP 852991	Miller St, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
23	Lot 28, DP 852991	Miller St, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
24	Lot 27, DP 852991	Miller St, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
25	Lot 26, DP 852991	Miller St, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
26	Lot 25, DP 852991	Miller St, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
27	Lot 24, DP 852991	Miller St, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
28	Lot 23, DP 847443	Miller St, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
29	Lot 37, DP 1045547	Miller St, Cammeray	Tunks Park	E2 - Environmental Conservation	Roads and Maritime Service
30	Lot 2, DP 1148089	Miller St, Cammeray	-	E2 - Environmental Conservation	Private
31	Lot 2, DP 951908	Miller St, Cammeray	Part Suspension Bridge Reserve/ Tunks Park	E2 - Environmental Conservation	North Sydney Council
32	Lot 16, DP 11908	Rowlison Pde, Cammeray	Part Suspension Bridge Reserve/ Tunks Park	E2 - Environmental Conservation	North Sydney Council
33	Lot 10, DP 24336	Rowlison Pde, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
34	Lot 5, DP 663588	20 The Boulevarde, Cammeray	Part Tunks Park	R2 -Low Density Residential/ E2 - Environmental Conservation	Private
35	Lot 102, DP 746913	Rowlison Pde, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
36	Lot 2, DP 787945	Rowlison Pde, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
37	Lot 2, DP 558150	Rowlison Pde, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
38	Lot 5, DP 1038592	Rowlison Pde, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
39	Lot 3, DP 1038592	Rowlison Pde, Cammeray	-	RE1 - Public Recreation	Sydney Water Corporation
40	Lot 4, DP 1038592	Rowlison Pde, Cammeray	-	RE1 - Public Recreation	Sydney Water Corporation
41	Lot B, DP 346230	Rowlison Pde, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
42	Lot 1, DP 1038592	Rowlison Pde, Cammeray	-	E2 - Environmental Conservation	Sydney Water Corporation
43	Lot 2, DP 1038592	Rowlison Pde, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
44	Lot D, DP 431013	Rowlison Pde, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
45	Lot E, DP 346831	Rowlison Pde, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
46	Lot F, DP 430876	Rowlison Pde, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
47	Lot 1, DP 431511	Rowlison Pde, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
48	Lot 2 DP 431511	Rowlison Pde, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
49	Lot 3, DP 431511	Rowlison Pde, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
50	Lot 11, DP 10001	Rowlison Pde, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
51	Lot 12, DP 10001	Rowlison Pde, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
52	Lot 13, DP 10001	Rowlison Pde, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
53	Lot 1A, DP 346230	Rowlison Pde, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
54	Lot 2A, DP 346230	Rowlison Pde, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
55	Lot 4A, DP 431013	Rowlison Pde,Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council

56	Lot 5A, DP 431013	Rowlison Pde, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
57	Lot 6A, DP 346831	Rowlison Pde, Cammeray	Tunks Park	E2 - Environmental Conservation	North Sydney Council
58	Lot 18, DP 876370	Rowlison Pde, Cammeray	Tunks Park	RE1 - Public Recreation	North Sydney Council
59	Lot 24, DP 876370	Brothers Ave, Cammeray	Tunks Park	RE1 - Public Recreation	North Sydney Council
60	Lot 20, DP 876370	Rowlison Pde, Cammeray	Part Tunks Park/ Mortlock Reserve	RE1 - Public Recreation/ E2 - Environmental Conservation	North Sydney Council
61	Lot 193, DP 878978	Vernon St, Cammeray	Part Mortlock Reserve/ Tunks Park/ Brothers Ave	RE1 - Public Recreation/ E2- Environmental Conservation/ E4 - Environmental Living	North Sydney Council
62	Lot 192, DP 878978	Rowlison Pde, Cammeray	Mortlock Reserve	E2 - Environmental Conservation	North Sydney Council
63	Lot 7349, DP 1166085	Rowlison Pde, Cammeray	Part Tunks Park	RE1 - Public Recreation/ E2 - Environmental Conservation	Crown Land Reserve Trust: "Tunks Park (R41001) Reserve Trust" Reserve Trust Manager: North Sydney Council Purpose of Reservation/Dedication: Reserved for Public Recreation (R74114) on 30 March 1951.

Figure 2.5 Land Parcels

Figure 2.6 Land Ownership

SERVICE EASEMENTS

Ausgrid has an underground power supply on the northern edge of Tunks Park, which runs for the full length. There are no communication or gas services known to exist in the park. Refer diagrams below showing locations of existing services. Sydney Water did not indicate water supply services even though the amenities and canteen buildings, as well as park bubblers indicate there is water supply.

Refer to section 2.4.1 for further detail on existing services within the park.

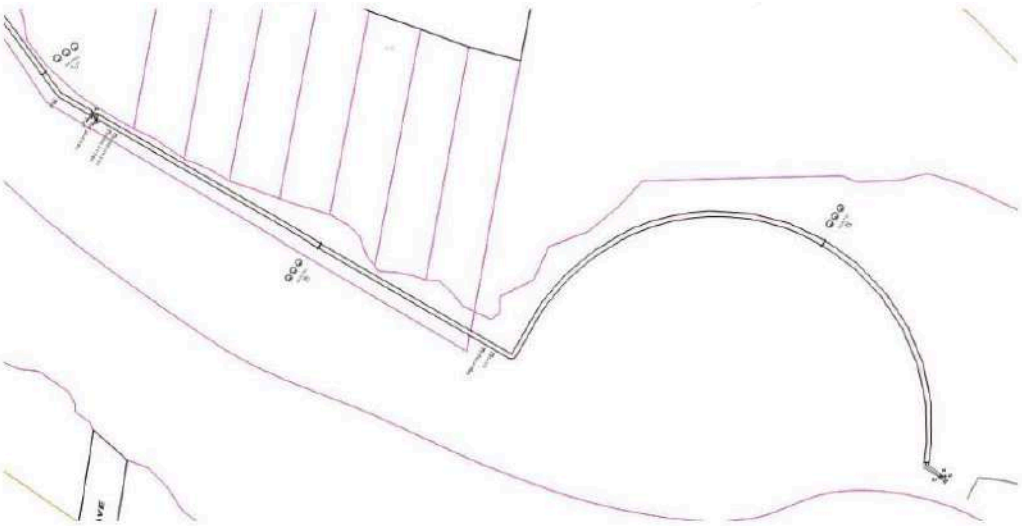


Figure 2.7 Ausgrid cables

Figure 2.8 Sydney Water Sewer aqueduct and southern oval sewer main

2.4 Environment

2.4.1 TOPOGRAPHY AND DRAINAGE

Tunks Park comprises a modified and reclaimed creek valley floor enclosed by steep bushland slopes that opens out to Long Bay. The reclamation commenced in the late 1940's and was completed by 1956 creating a long narrow level valley floor flanked by the vegetated bushland slopes.

Figure 2.9 Existing Topography and stormwater drainage map of Tunks Park

Site Photo: Long narrow grassed open area enclosed by steep valley slopes

DRAINAGE

Tunks Park lies on the Flat Rock Creek corridor which flows from west to east from Willoughby and has a catchment of about 5km2 over a distance of 4km. The creekline receives stormwater from the greater residential catchment of Cammeray. The piped stormwater enters the creekline below the junction of Hamilton Lane and Marks Street, Crows Nest. This tributary continues through the bushland and joins the main creek (Flat Rock Creek), originating from the neighbouring Willoughby Council bushland area in the upper catchment. Flat Rock Creek continues under the Tunks Park sports fields in six concrete box culverts which cover an easement 20m wide. Service information indicates the culverts are 3070m wide x 2150 high

Tunks Park forms a critical junction in the Northside Storage Tunnel (NST). The NST is one of Sydney's largest wastewater systems and comprises of four main overflow points which act as 'relief valves' when the pipes reach their capacity. Tunks Park is one of the largest overflow points in the 16km system that runs from Lane Cover River to North Head. The large metal doors lead to the Tunks Park overflow site and are situated beneath a rock outcrop on the edge of Tunks Park and Bryce Mortlock Reserve.

The existing oval buildings roofs collect stormwater and convey the flows to the culverts. The carpark and access road surfaces collect stormwater in pits and convey the flows to the culvert or to the Harbour via two stormwater pipe connections. Figure 2.9 shows North Sydney Council stormwater assets.

In the event that the piped in-ground stormwater system fails due to blockage, obstruction, or insufficient capacity, stormwater flow will be required to be conveyed as overland flow. The overland flow is directed through Tunks Park and towards Middle Harbour. The existing carpark location is in the direct path of stormwater overland flow from Flat Rock Creek. In addition the low lying carpark is subject to inundation during peak tides.

Site Photo: 'Natural' creekline of Flat Rock Creek prior to being diverted through concrete channels underground

SEWER

Traversing through the middle of the oval, from north to south, is a heritage listed, suspended concrete Sydney Water sewerage aqueduct. The aqueduct is about 5m above the field level, supported on four abutments which have two piers each abutment. A 750mm diameter sewer line runs from the toilet/canteen buildings towards Brothers Avenue and heads south.

IRRIGATION

Tunks Park sports fields are irrigated primarily from a dam harvesting stormwater situated in Cammeray Park and are part of the overall North Sydney Stormwater reuse project (constructed 2005-2010).

FLOODING

During storm events in the Flat Rock Creek catchment, water is conveyed to Middle Harbour under Tunks Park oval in six concrete box culverts. In large storm events, water can overtop the culverts and flow across the oval Lyall & Associates on behalf of Willoughby Council has produced a draft flood study (Flat Rock Creek Catchment Flood Study and Overland Flow Mapping (Draft for Public Exhibition), June 2017). This

draft report indicates that the oval is flood affected in most storms, with around 1m water depth in the 1% Annual Exceedance Probability (AEP) storm event. The draft flood report is found at https://www.haveyoursaywilloughby.com.au/flat-rock-creek-floodstudy/ documents (last accessed 29/05/2018).

The Lyall & Associates flood extent is shown in Figure 2.7 below. The North Sydney Council LGA Flood Study indicates similar levels of flooding for the 1% AEP storm event. Flooding will impact the design of new facilities such as decks, buildings, as well as for infrastructure. Flood levels need to be taken into consideration for setting of floor levels as well as the incorporation of appropriate freeboard.

Flood events coupled with: sea levels rise, storm surge, and high tides can impact the park leading to field, recreation, and parking area inaccessibility as well as oval use restrictions due to field condition.

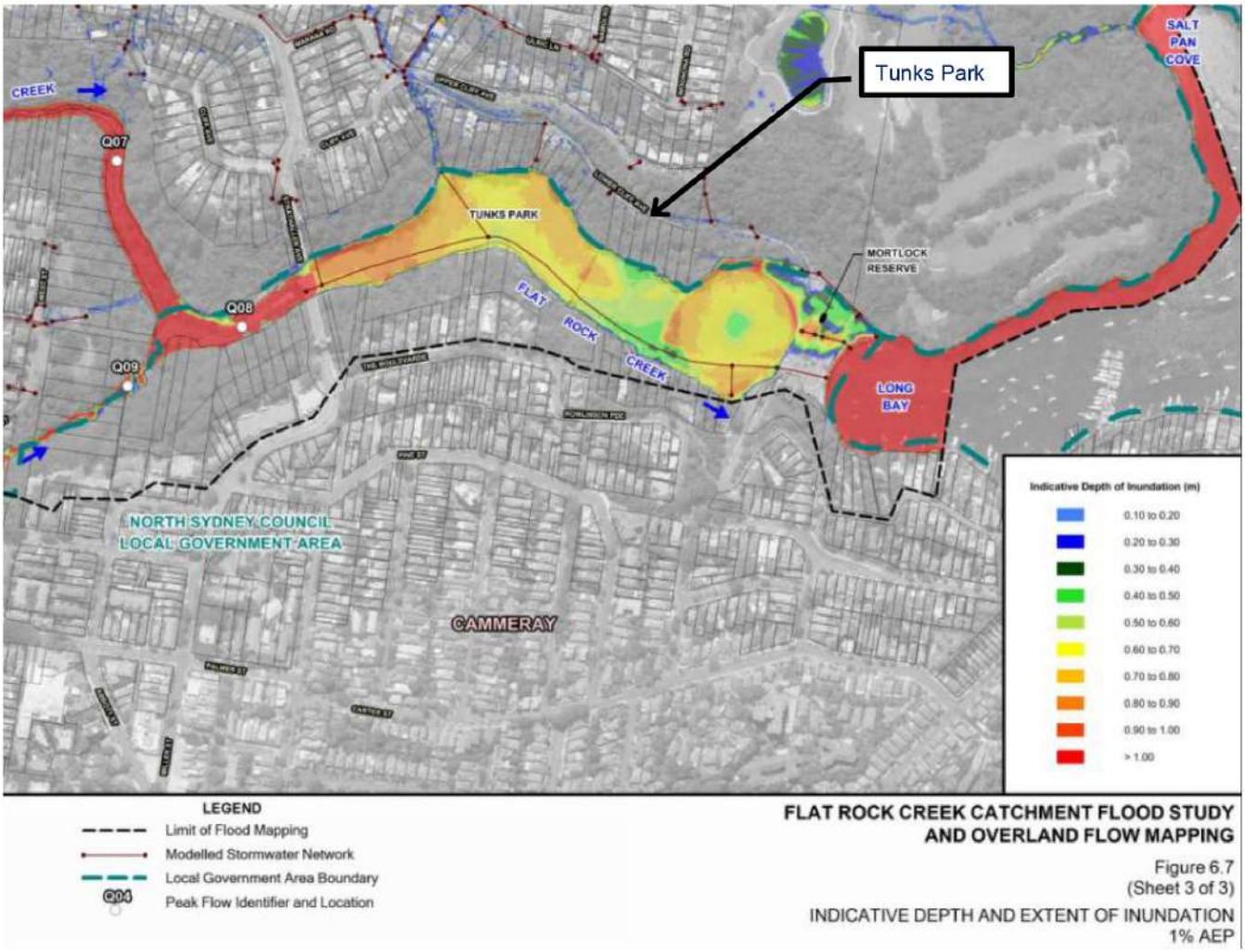


Figure 2.10 Flood mapping – Lyall & Associates – Willoughby Council

TIDAL INFLUENCES

Tunks Park ovals, Flat Rock Creek, including the underground culverts, are affected by tides. The tides affect Flat Rock Creek for a distance of about 1km upstream. During perigean spring tide events, tidal heights around RL2.00 (LAT - Lowest Astronomical Tide datum) (RL1.1 AHD) will cause inundation of the carpark and low lying oval areas. Photos from the high spring tide event on 3/01/2018 around the 9:56am peak, are provided opposite (permission to include photos in this report – following page was been received from resident Ronwyn North). Tide heights up to 2.07m have been recorded for the high spring tide event.

Site Photo: January 3rd 2018 King Tide event. Photo credit: Ronwyn North

Site Photo: January 3rd 2018 King Tide event – water bubbling up from drainage grate adjacent sports field 1. Photo credit: Ronwyn North

2.4.2 GEOLOGY AND SOILS

Tunks Park is located within the Sydney Basin, a geological province characterised by sedimentary rocks, with some localised igneous activity. Triassic sediments lain down between 230 and 180 million years ago form the dominant rock type within the basin, and include (in chronological order of deposition) the Narrabeen, Hawkesbury and Wianamatta rock groupings. Hawkesbury sandstone is the principal rock underlying Tunks Park and can be seen outcropping in numerous areas within the Park.

The endemic soils of Tunks Park are largely a function of the underlying sandstone geology. The nature of the Hawkesbury sandstone parent material produces poorly developed soil with a high sand component and low organic matter. Sandstone topography is characteristically rugged, severely limiting the build-up of soil-forming detritus. Mean depth from soil surface to bedrock within the Park is approximately 400 mm. The free-draining nature of sandy soil, combined with the relatively high rainfall of the Sydney coastal area (>1000 mm/yr) results in a strong leaching action. This loss of nutrients, combined with the low nutrient status of the parent material produces a soil with low fertility.

Over time, human presence in the Tunks Park area has modified the naturally occurring soil profile. Aboriginal inhabitants influenced soil development through the use of fire and building of shell middens. European settlement had a far greater impact on the soils of the area with the reclamation of the head of Long Bay and the subsequent construction of sportsfields on the reclaimed land.

The dumping of rubbish and construction debris in Flat Rock Gully and installation of underground services has contributed to the disturbance of the natural soil profile.

CONTAMINATION

Investigations by the Environmental Protection Authority (EPA) found the contamination of fill material, groundwater and sediment in parts of Tunks Park presented a significant risk of harm to the environment under the *Contaminated Land Management (CLM) Act 1997*. In particular, the part of Tunks Park located immediately west of the suspension bridge contained soils with a range of contaminants including heavy metals (lead and zinc), benzo(a)pyrene and petroleum aromatic hydrocarbons ("PAH's").

In January 2003, Council commenced a proactive program of assessing open space sites for contamination, and submitted a voluntary remediation proposal for the site, which was approved by the EPA in March 2003. In March 2003, a preliminary Soil Contamination Survey and report was completed. This included collecting 58 surface soil samples from locations that were spread out in a regular grid pattern across the park area. Each sample was collected from a depth of 0-0.15m and sent to a NATA-registered laboratory for chemical analysis.

Based on the results of the survey, the report concluded that the surface soils at Tunks Park meet the NSW EPA requirements for parkland and recreational open space to a 95% level of confidence. In December 2003, an EPA site audit certified that the site was appropriate for "park, recreational open space and playing field" uses. In April 2004, the EPA advised Council that the EPA had determined that contamination at the site no longer posed a significant risk of harm as defined under section 9 of the CLM Act. Accordingly, the EPA issued a section 22 Notice to End Declaration for the site in April 2004.

SALINITY

Due to proximity to Middle Harbour with a high water table (relevant to surface levels), with the occasional tidal and storm surge inundation, dry land salinity is relevant. A salinity management plan would be required for and future facilities development.

ACID SULFATE SOILS

The Acid Sulfate Soil (ASS) Risk map for the Parramatta/Prospect River area prepared by Department of Land and Water Conservation indicates that the site is located in an area classed as 'disturbed terrain.' An investigation into the site's acid sulfate potential has not been undertaken. As such, in any future development of facilities that require excavation consideration should be given to likelihood of acid sulfate soils on the site and whether an investigation will be required to assess the environmental risks associated with disturbing acid sulfate soils.

The "disturbed terrain" classification is adopted in large scale filled areas which often occur during reclamation of low lying swamps for urban development, in areas which may have been mined or dredged or have undergone heavy ground disturbance through general urban development or the construction of dams and levees. The majority of landforms within these areas are not expected to encounter potential ASS (PASS). However, localised occurrences may be found at depth.

SEDIMENTATION

In 2003, a sedimentation basin (a type of Gross Pollutant Trap) with an integrated fishway bypass channel was designed and constructed by Council to help mitigate siltation in Long Bay and improve water quality. The system involved placing a weir across the confluence of Quarry Creek and Flat Rock Creek at the western end of Tunks Park's playing fields. The design incorporated a narrow, vegetation-lined bypass channel that enables the movement of native fish species past the weir. Over time, however, the bypass channel has become choked by accumulated sediment containing contaminants, which prevent fish movement through the channel.

A review of the fish by-pass in 2014 recommended that although the bypass is silted and does not provide fish passage it is valuable terrestrial habitat and should be maintained in its present state. No desilting or disturbance to this area is recommended.

Silting upstream and downstream of the weir is an ongoing issue, which is to be expected with an urban catchment. Maintaining the habitats by removing silt from both sides of the weir is recommended. It would also be prudent to prevent silt entering the culverts considering their length, as it would be very difficult to remove slit from them. (Tunks Park Weir Fish Passage Remediation, Martin Mallen-Cooper Fishway Consulting Services, August 2014)

2.4.3 VEGETATION

Vegetation within Tunks Park consists of two key types:

-bushland areas including the strip of bushland along the south edge of the park bordered by residential properties and the eastern end of the Flat Rock Creek corridor

-maintained grassland areas with intermittent native tree canopy

Tunks Park bushland consists of two remnant vegetation communities that are part of the Sydney Sandstone Complex – Sydney Sandstone Gully Forest (10ag) as indicated by Benson and Howell, 1994. The vegetation is representative of the North Shore and consists of:

1. Angophora costata (Sydney Red Gum) and Eucalyptus resinifera (Red Mahogany) Open Forest dominated by a midstorey of Allocasuarina littoralis (Black She-oak), Hakea dactyloides (Broad-leaved Hakea), Grevillea linearifolia (White Spider Flower), Elaeocarpus reticulatus (Blueberry Ash), Glochidion ferdinandi (Cheese Tree) and an understorey of Lomandra longifolia (Mat Rush), Dianella caerulea (Blue Flax Lily) and native grasses (including Entolasia sp.).
2. Eucalyptus pilularis (Blackbutt) Open Forest with a dominant midstorey of Dodonaea triquetra (Native Hop Bush), Pittosporum undulatum (Sweet Pittosporum), Glochidion ferdinandi (Cheese Tree) and Entolasia stricta in the understorey.

Of the bushland area a relatively large proportion is in good or fair condition. There are also some areas of vegetation in poor or very poor condition particularly at the interface with managed grasslands and adjoining residences that require weed control and progressive rehabilitation. Management of bushland areas within Tunks Park is undertaken in accordance with the North Sydney Bushland Management Plan 2014 and with Council's Tunks Park Bushland Rehabilitation Plan 2018.

The Flat Rock Creek corridor is identified on the NSW Government's Sydney Green Grid 2016 which identifies important open space corridors that provide drainage, vegetation / habitat, and opportunities pedestrian and in some cases cycle access. The relationship of Tunks Park to the Flat Rock Creek corridor to the west is a fundamental aspect of the park's habitat, visual, and recreational values.

The maintained recreational grassland areas are a highly controlled environment with minimal native tree cover limited to areas between fields and at the Long Bay foreshore. Species generally focus on Eucalypt and Casuarina sp.

Creekline vegetation

Vegetation to the Flat Rock Creek corridor includes Black Wattle (*Callicoma serratifolia*), Lilly Pilly (*Acmena Smithii*), Coachwood (*Ceratopetalum apetalum*), Blueberry Ash (*Elaeocarpus reticulatus*), Cheese Tree (*Glochidion ferdinandi*), Elderberry Panax (*Polyscias sambucifolia*) and Hairy Clerodendrum (*Clerodendrum tomentosum*). Weed species are also found throughout the bushland edges of the creekline.

The original estuarine plant community at the mouth of the creekline adjacent to Long Bay was lost during the construction of the sports fields in the 1950s. This are would have contained native thickets, mudflats and habitat for a wide variety of estuarine flora and fauna. Remnant vegetation of the lost estuarine environment can still be witnessed on the lower edges of the bushland. Native species include Swamp She-oak (*Casuarina glauca*), Sword Grass (*Gahnia aspera*) and Common Rush (*Juncus usitattus*).

Weeds

The creekline in Tunks Park is a source of weed seed and increased nutrient pollution from the upper catchment. This has resulted in the spread of weed species along the banks of the creekline below. Large Leaf Privet (*Ligustrum lucidum*) and pockets of Lantana (*Lantana camara*) line the banks of the creek in some areas. Exotic vines such as Morning Glory (*Ipomea indica*) and Balloon Vine (*Cardiospermum grandiflorum*) are also present in the area.

Weed species found adjacent to the rear of residential properties contribute increased moisture and nutrients to the bushland edge. These weeds are present due to:

- 'Hard surface' runoff from impervious surfaces including driveways, concrete paths and roves
- Garden watering systems and pools
- Imported fill soil and major disturbance to the original soil structure
- Use of fertilisers
- Dumping of garden clippings over the back fence has enabled many ornamental species to invade the bushland

As identified weed species impact along the edges of the bushland areas. The perimeter of bushland to the edge of the sportsfields is bordered by lawn grass species and wind borne seeds are more likely to be deposited along these edges as the bushland slows down wind velocities.

Attempts to remove weed growth from sections of the Park are hindered by problems such as challenges such as lack of skilled labour and the ongoing pressures of sports and informal recreational use. Currently a mix of Bushcare volunteers, contract bush regenerators and bushland maintenance staff play a role in bushland management.

Site Photo: Angophora costata on sandstone outcrops

Site Photo: tree planting to foreshore

2.4.4 HABITAT

The *North Sydney Natural Area Survey 2010*, identified Tunks Park a biodiversity 'hotspot' for fauna – an area of special importance for biodiversity conservation and management. Tunks Park is a critical habitat for several identified reptile, plus frog, owl, bat, possum, bandicoot and wallaby species and forms a valuable natural resource for environmental education.

Birds –

Tunks Park supports the greatest local diversity of bird species, especially small bushland birds, a group that has largely disappeared from other North Sydney reserves. (Source: NS Natural Area Survey 2010 (Part 1) – P&J Smith Consultants). Tunks Park bushland is also locally significant for the Powerful Owl, a vulnerable species under NSW legislation. There is a known regular roost site in the bushland in the Quarry Creek gully area.

The park and the Flat Rock Creek gully was identified by Smith and Smith (2008) as the most important reserve for birds in North Sydney. In particular this applied to small bushbirds, such as the Superb Fairy-wren, Variegated Fairy-wren, Brown Thornbill, Brown Gerygone, Spotted Pardalote, Eastern Spinebill, Eastern Yellow Robin, Red-browed Finch and Silvereye. Birds of this type have declined dramatically in North Sydney since 1970, while larger birds better adapted to the urban environment have increased (Smith and Smith 2008). (Source: NS Natural Area Survey 2010 (Part 1) – P&J Smith Consultants)

The North Sydney Natural Area Survey 2010 identified parrot species in the site area including the Australian King-Parrot, Musk Lorikeet, Crimson Rosella, Eastern Rosella and Rainbow Lorikeet. The site provides adequate foraging habitat as all occurring parrot species tend to predominantly forage on the ground for leaves, seeds, fruit, flowers and insects. Understorey revegetation works would be of great benefit to parrots, to provide a greater range of food species for all species.

There has been few woodland birds species observed in the past fauna surveys which may be due to a lack of woodland bird remnant habitat in the area surrounding the site, poor overall bird habitat and pressures from domestic animal predation. The presence of Noisy Miners in high abundance within the site can suggest that they are excluding many other woodland bird species from the area.

Reptiles observed in the park included Eastern Water Dragons, Blue-Tongue Lizards, Eastern Water Skinks, Green Tree Snake; Diamond Python; Red Bellied-black Snake; Golden Crowned Snake; Burtons Legless Lizard. (Source: NS Natural Area Survey 2010 (Part 1) – P&J Smith Consultants)

Mammals

Mammals including Brush-tail and Ringtail possums are both expected to occur within the site. The North Sydney Natural Area Survey 2010 identified that Sugar gliders occur within the area and the surrounding vegetation is considered to contain foraging and resting habitat for possums and gliders, both in limited quantities. Long-nosed Bandicoot and the Swamp Wallaby are recently returned and now resident in Tunks Park bushland.

Tunks Park contains the highest diversty of microbats in North Sydney and the highest number of threatened microbat species. The site was considered to contain a range of definite and probable microbat species based on Anabat detections and the North Sydney Natural Area Survey 2010. The reserve does contain adequate foraging habitat along Flat Rock Creek and surrounding bushland, however roosting habitat may be of limited supply. Microbats occurring within the reserve predominantly feed on moths. (Source: NS Natural Area Survey 2010 (Part 1) – P&J Smith Consultants)

Aquatic

Despite human impacts, the Flat Rock Creek system provides habitat for a number of aquatic species including mullet, common jolly tails, striped gudgeons, long-finned eels, long-necked turtles, frogs and water birds.

Whilst adequate terrestrial foraging habitat is present, aquatic foraging and reproductive habitats are considered to be in very poor condition. The loss of native vegetation along Flat Rock Creek and the prevalence of mosquito fish is considered to be the cause of the decline in habitat availability. Woody debris is of low abundance across the reserve and around the water bodies, displaying a lack of shelter and reproductive habitat for frogs. (Source: NS Natural Area Survey 2010 (Part 1) – P&J Smith Consultants)

Introduced and Feral Animals

A regionally co-ordinated fox baiting program since around 2000 has had a significant impact on the return of fauna species to Tunks Park bushland. (Source: Council's Tunks Park Bushland Rehabilitation Plan 2018)

1080 Fox baiting can not occur in Tunks Park due to distance restrictions from private dwellings. Trapping is expensive, time consuming and ineffective as a stand-alone management approach. North Sydney's approach to fox management in Tunks Park is to limit the number of walking tracks/access points and to support 1080 baiting in Flat Rock Reserve carried out by Willoughby Council. (Source: NS Council Bushland Management section)

Bushland Linkages

The bushland at Tunks Park forms an important link to the bushland at Mortlock Reserve and Flat Rock Gully located in the Willoughby Council area. Over the last 20 years, Council has increasingly recognised its responsibility in managing bushland and has supported a large and enthusiastic volunteer workforce. The Tunks Park East, Tunks Park West and Mortlock Bushcare Groups, along with Council's Bushland Management Team continue to undertake regular maintenance activities as well as rehabilitation and regeneration works at Tunks Park.

Enhancement of Wildlife corridors / linkages is desirable between Mortlock Reserve and Tunks Park at Brothers Avenue and to the south edge of Field No 1 thus linking via the vegetated southern bushland slopes of the park with Flat Rock Gully Reserve in Willoughby local government area. (Source: NS Natural Area Survey 2010 (Part 1) – P&J Smith Consultants)

Figure 2.11 Map from *North Sydney Natural Area Survey 2010 identifying the Bushland as Tunks Park Biodiversity Hotspot*

Site Photo: The vegetation link between Mortlock Reserve and Tunks Park bushland slopes to the south edge of the park should be developed further to connect the "biodiversity hotspot

2.4.5 BUSHFIRE MANAGEMENT

Council uses managed burning to meet both ecological objectives of bush regeneration and hazard reduction to adjoining residential housing. The use of fire for either hazard reduction or ecological management must be carefully planned and should consider the implications of burning on local fauna, smoke emissions, soil erosion and weed management.

Hazard reduction and ecological burns are based on a strategic burn program consistent with the Mosman / North Sydney Willoughby Bushfire Risk Management Plan. Ecological burn regimes are to be implemented in a mosaic pattern to improve bushland function and biodiversity. Areas of high bushfire risk or core ecological resilience are usually prioritised in the annual burn program.

Hazard reduction and ecological burns have been carried out in the past in Tunks Parks. During 1996 a broad area burn was carried out in bushland on the western side of the Suspension Bridge. Preparation for the burn included tree injection of large woody weeds such as privet, and cutting fire trails to prevent the fire spreading to areas not being targeted. The results of the pre-burn and post-burn flora surveys revealed an increase in the diversity of native species present, marking the burn as a success.

The use of fire as a bushland management tool in recent years has seen the recovery of native species not previously known to exist in North Sydney.

Council's Bushland Plan of Management and the Tunks Park Bushland Rehabilitation Plan 2018 provides more detailed information and should be referred to for bushfire management specifically for the park.

2.5 Visual character and views

Tunks Park is a distinctive long and narrow open space strongly defined by the steep enclosing valley slopes of the Flat Rock Creek corridor to the west and opening out to Long Bay in the east. A range of Council studies highlight that one of the most important functions of North Sydney's foreshore parks and reserves is as public viewing points for enjoyment of the harbour environment. People come to the foreshore areas to enjoy the outlook and natural setting and undertake maritime activities.

Pleasant views in a number of directions are enabled across the park by the topography of adjoining streets. Views of the parkland, natural bushland and the water beyond can be obtained from many streets surrounding Tunks Park and residential properties above these streets.

There are a number of visual implications related to built facilities and elements in the park:

- The its visual continuity and appeal of the foreshore open space area is currently adversely impacted by the foreshore carparking area.
- the sewer Aqueduct occupies a central position within the park and dominates views from Brothers Avenue looking westwards and from within the open space area on the west side of the Aqueduct looking eastwards.
- dramatic views of the Northbridge Suspension Bridge are obtained looking westwards from a third of the way into the open space/sportsfields area as well as from the west side of the bridge looking back towards the open space/sportsfields.
- sweeping views from Brothers Avenue of the sportsfield No.1 / Cricket oval
- views from the foreshore park area to Long Bay

Figure 2.13 Tunks Park map - Key views and vistas map

Trees and resident view management

Through the Plan of Management consultation process a number of local residents raised concerns with potential impact on views from their properties of recent tree plantings by Council near the foreshore. These trees were planted by Council as part of ongoing programmes to improve tree canopy and related shade and habitat through its parks. This creates a challenging management dilemma for Council as the objectives for this tree planting are fundamental and important ones that Council is obligated to pursue.

Site Photo: View from the Foreshore park area to Long Bay

Site Photo: View from Brothers Avenue to open space / playing field No. 1

Site Photo: View from within the park west of the sewer Aqueduct looking towards the Northbridge suspension bridge

2.6 Existing features inventory

Tunks Park is a long narrow open space typified by a series of zones defined by key features and the use of those areas. The key recreational features of the open space include:

- 4 synthetic turf wickets and 1 turf wicket for cricket in the summer;
- 3 football fields and 5 mini fields for soccer, rugby league and rugby union in the winter;
- Ancillary Park facilities including exercise equipment, change rooms, a canteen, public toilets, shelter sheds, seats, barbeques, picnic tables, and car and trailer parking;
- A children's playground; and
- A boat ramp with dinghy storage and fish cleaning table facilities.

A more detailed analysis of features can be based on the park zones as indicated on Figure 2.14 below. Refer to the schedules following for an outline of each zone

Figure 2.14 Tunks Park Map - Park zones

2.6.1 FORESHORE

The foreshore is the open space between the shoreline of Long Bay up to Brothers Avenue. It is a generally flat zone with some tree canopy along foreshore and to the carpark island. There is limited shade for passive recreation. Of 6400m2 overall area including Brothers Avenue there is 2050m2 of usable open space comprising only 32% of the overall foreshore area. As one of the most valuable recreation zones on in the park. The carpark dominates the northern section and constrains access, use and views along the foreshore

No	Item /	Description	Condition
Foreshore Park Area			
1.1	Foreshore parking area	• 90 degree parking on road with additional off road parking • Landscaped central island • No charge for parking • Provides 94 spaces - 65 general spaces incl - 29 boat trailer spaces	Fair condition
1.2	Foreshore pathway	• 1.8m concrete path looping from carpark back to Brothers Avenue • Aligns with shared path within Tunks Park • No crossing provisions at Brothers Avenue	Good condition
1.3	Seawall	• Raking stone boulder wall • Major concrete culvert at stormwater outfall	Fair condition
1.4	Park furniture	• 2 picnic tables • 7 bench seats • 1 electric BBQ • 1 water tap(Boat use) • 1 general waste and recycling bins • 1 fish cleaning table • small craft storage rack (20 spaces)	Fair to good condition
1.5	Lighting & Signage	• pole top lighting to carpark • regulatory signage	Good condition
1.6	Tree canopy	• some tree canopy along foreshore and to the carpark island. • limited shade for passive recreation	Fair to good
1.7	Boatramp and Jetty	• District boat ramp facility • Floating pontoon with ramp access	Good

Site Photo: Foreshore zone

Figure 2.15 Tunks Park Map – Foreshore Zone

2.6.2 EASTERN PARK

The eastern park is the parkland area immediately west of Brothers Avenue incorporating field number 1.

No	Item /	Description	Condition
Eastern Park			
2.1	Field No 1	• grass cricket wicket Refer to section 3.7 for further details on arrangement of sports uses	
2.2	Park shared path	• 3m wide asphalt path on the south side of field • 1.8m concrete footpath adjacent Brothers Ave connecting to Lower Cliff Avenue	Fair to good condition
2.3	Amenities	• Kiosk with accessible toilet facilities • Water tank	Good condition
2.4	Park furniture	• 4 bench seats • painted timber posts to field boundary • 1 Sulo Bins (fixed) • Fitness node with softfall surfacing (4 stations) • 3 cycle stands • Painted timber railings adjacent Brothers Ave	Fair to good condition
2.5	Lighting & Signage	• stone entry walls with plaque and engraved stone • Sportsfield signage board (open/close)	Fair to good condition
2.6	Tree canopy	• some semi-mature mixed species tree planting adjacent field boundary. • limited shade provision • a number of trees to the east and north east have memorial plaques associated with them	
2.7	Bushland Slopes	• native tree canopy on slopes • Understorey vegetation – mix of natives and weed species • exposed sandstone / cliff edges	Fair to good condition

Site Photo: Eastern Park zone (Field 1)

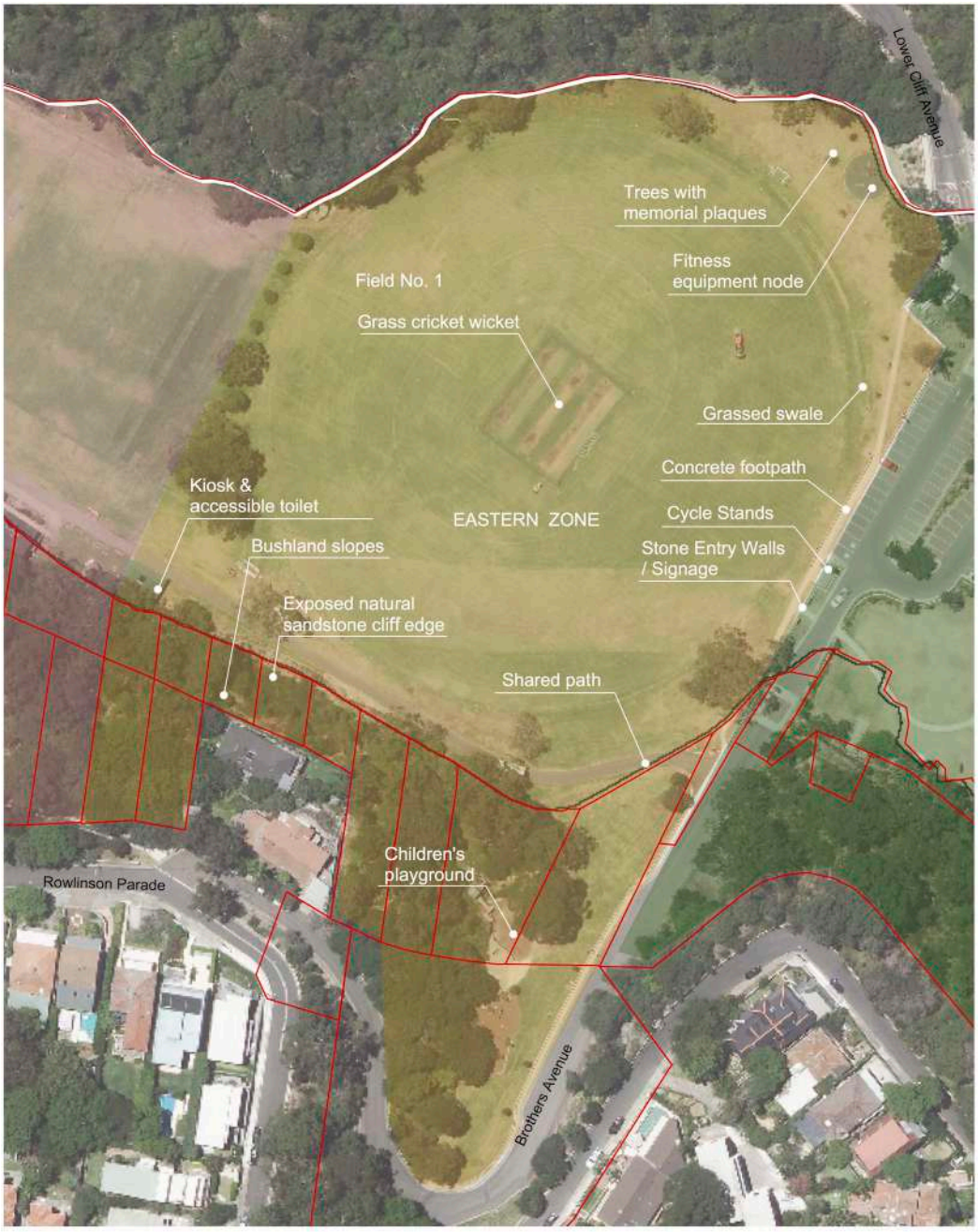


Figure 2.16 Tunks Park Map - Eastern Park zone

2.6.3 CENTRAL PARK

The central park is the parkland area immediately west of field number 1 up to the Sydney Water aqueduct

No	Item /	Description	Condition
Central Park			
3.1	Field No 2	• 1 synthetic wicket Refer to section 3.7 for further details on arrangement of sports uses	
3.2	Park shared path	• 3m wide asphalt path on the south side of field	Fair condition
3.3	Amenities	• Brick amenities toilets and change rooms with stepped access	Fair condition
3.4	Park furniture	• 1 picnic table • 2 extended length bench seats • 4 bench seats • 1 drinking fountain • 5 Sulo Bins (not fixed)	Fair to good condition
3.5	Lighting & Signage	• 1 street light arm on Electricity pole	Fair condition
3.6	Tree canopy	• limited to trees between Fields 1 and 2	Fair to good condition
3.7	Bushland Slopes	• native tree canopy on slopes • Under-storey vegetation – mix of natives and weed species • exposed sandstone / cliff edges	Fair to good condition
3.8	Bush Track	• Timber/earth steps path from the Boulevarde to the park • no handrails	Good condition

Site Photo: Central park zone

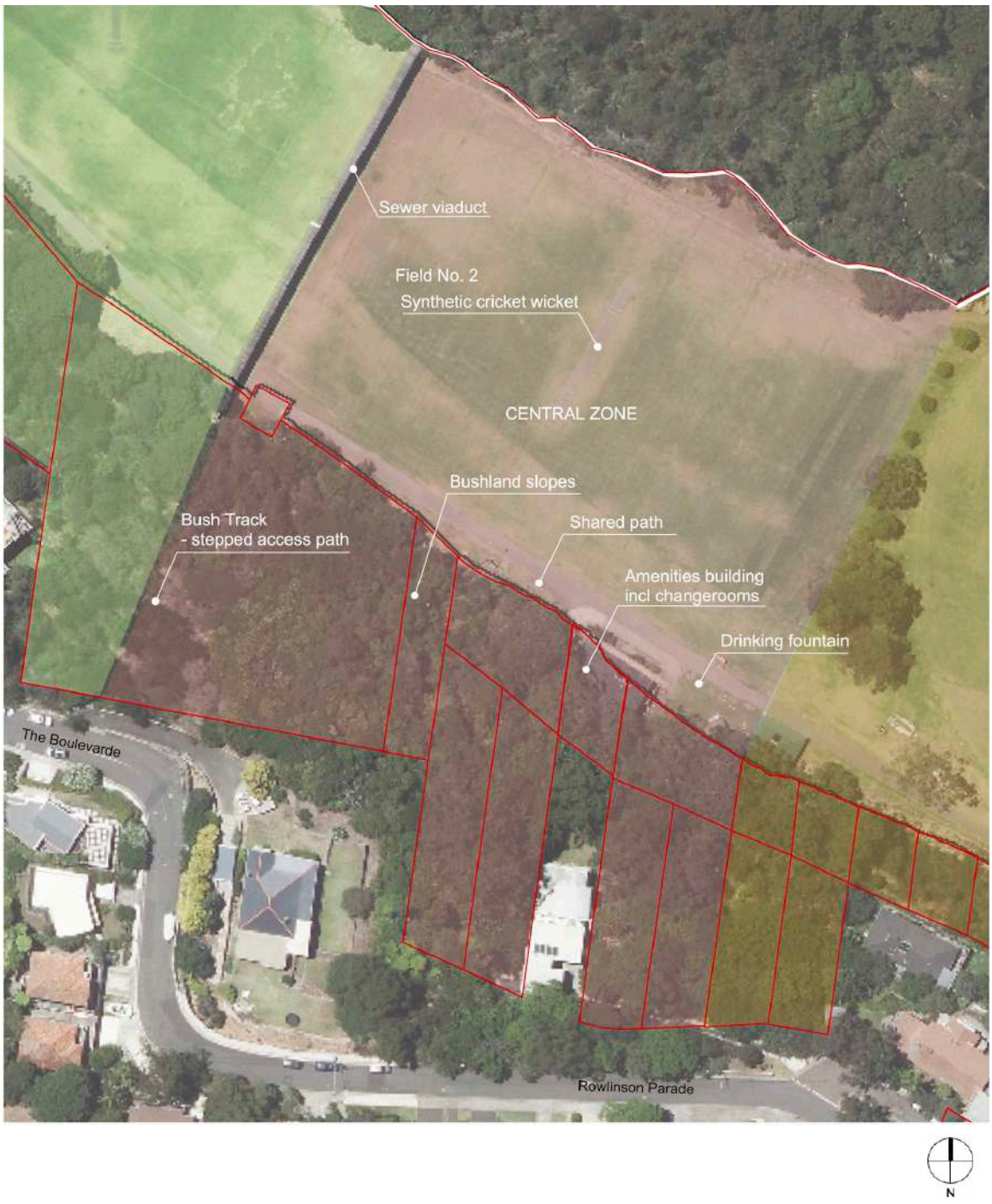


Figure 2.17 Tunks Park Map - Central Park zone

2.6.4 WESTERN PARK

The western park is the parkland area immediately west of the Sydney Water aqueduct up to the Long Gully Suspension Bridge

No	Item /	Description	Condition
Western Park			
4.1	Field No 3	• 3 synthetic wickets Refer to section 3.7 for further details on arrangement of sports uses	
4.2	Park shared path	• 3m wide asphalt path on the south side of field	Fair condition
4.3	Buildings	• brick hexagonal amenities building toilets and change room	Fair condition
4.4	Park furniture	• 3 bench seats • 1 drinking fountain(on wall of amenities building) • 3 Sulo Bins (not fixed)	Fair to good condition
4.5	Lighting & Signage	• 3 street lights on Electricity poles	
4.6	Tree canopy	• limited to bushland edge on either side of playing fields/open grassed area	
4.7	Bushland Slopes	• native tree canopy on slopes • Under-storey vegetation – mix of natives and weed species • exposed sandstone / cliff edges	

Site Photo: Western park zone looking east

Site Photo: Western park zone looking east

Figure 2.18 Tunks Park Map - Western Park zone

2.6.5 CREEK CORRIDOR

The western park is the parkland area immediately west of the Sydney Water aqueduct up to the Long Gully Suspension Bridge

No	Item /	Description	Condition
Creek corridor			
5.1	Flat Rock Creek	• natural creekline and tributaries which receive stormwater from the greater residential catchment of Cammeray. Flat Rock Creek originates in bushland within the Willoughby LGA in the upper catchment. • Fish-bypass • stone weir across creek	Fair to poor condition
5.2	Park shared path	• 3m wide asphalt path on the south side ends at culverts/pipes over creek • 3m wide gravel path	Good condition
5.3	Park furniture	• Timber deck and balustrade viewing area over Flat Rock Creek and fish by-pass • Interpretative signage	
5.4	Lighting & Signage	• interpretative signage panels	
5.5	Tree canopy		
5.6	Bushland Slopes	• native tree canopy on slopes • Under-storey vegetation – mix of natives and weed species	Fair to good condition

Site Photo: Creek Corridor zone looking west

Figure 2.19 Tunks Park Map - Creek Corridor zone

2.7 Access and Circulation

2.7.1 PEDESTRIAN ACCESS

Tunks Park is located at the end of the Flat Rock Creek valley, which is an important open space and habitat corridor identified in the Sydney Green Grid (NSW Government Architect). The creek corridor is also a highly popular bush walking corridor linking through to Hallstrom Park and beyond to the west and to the Long Bay foreshore in the east. Walking tracks through the Bushland areas of Tunks Park are limited, due to the need to protect existing habitat values from the impacts of track systems.

Figures 2.20 and 2.21 below indicate the existing walking context of Tunks Park.

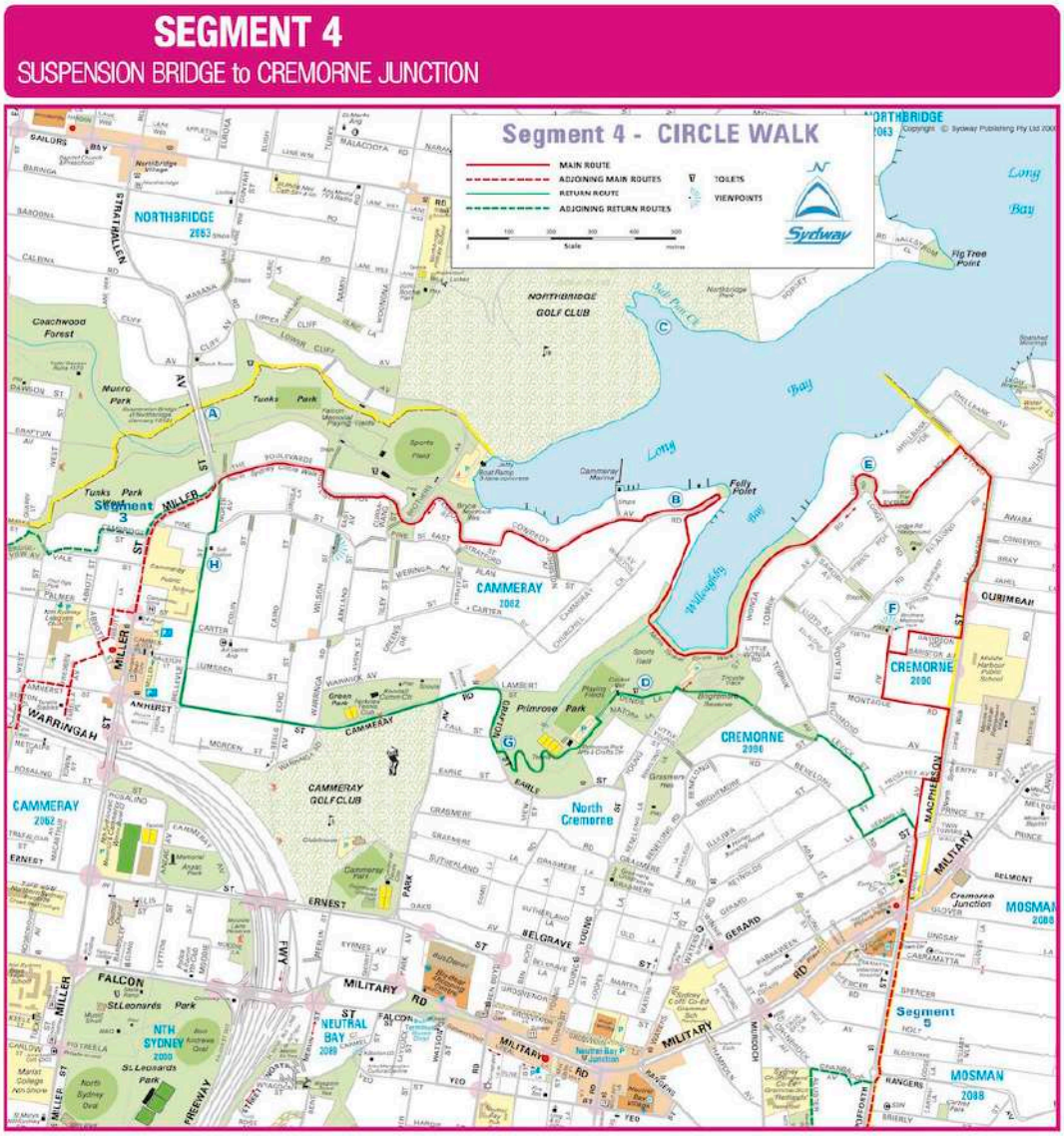


Figure 2.20 Walking routes.
Source: North Sydney Circle Walk segment 4

Pedestrian access into the park is focused on Brothers Avenue at the Long Bay water frontage. From the southern (North Sydney) side a bush track comprising of stepped access leads to the park from The Boulevarde. Walking access from the north (Willoughby) side is limited. There is a continuous footpath along Lower Cliff Avenue. See Figure 2.22 opposite.

At a local level the network of residential streets generally have narrow footpath walkways and the steep valley gradients to surrounding streets discourages walking for those less mobile and fit pedestrians.

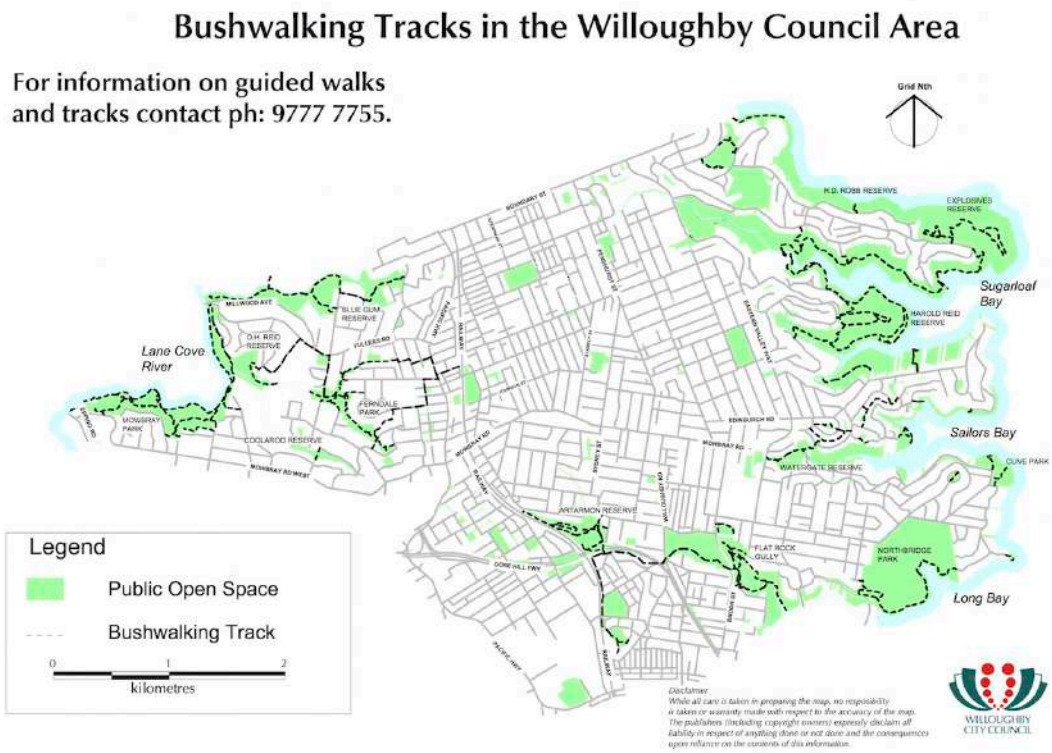


Figure 2.21 Walking routes.
Source: Bush walking Tracks in Willoughby Council Area

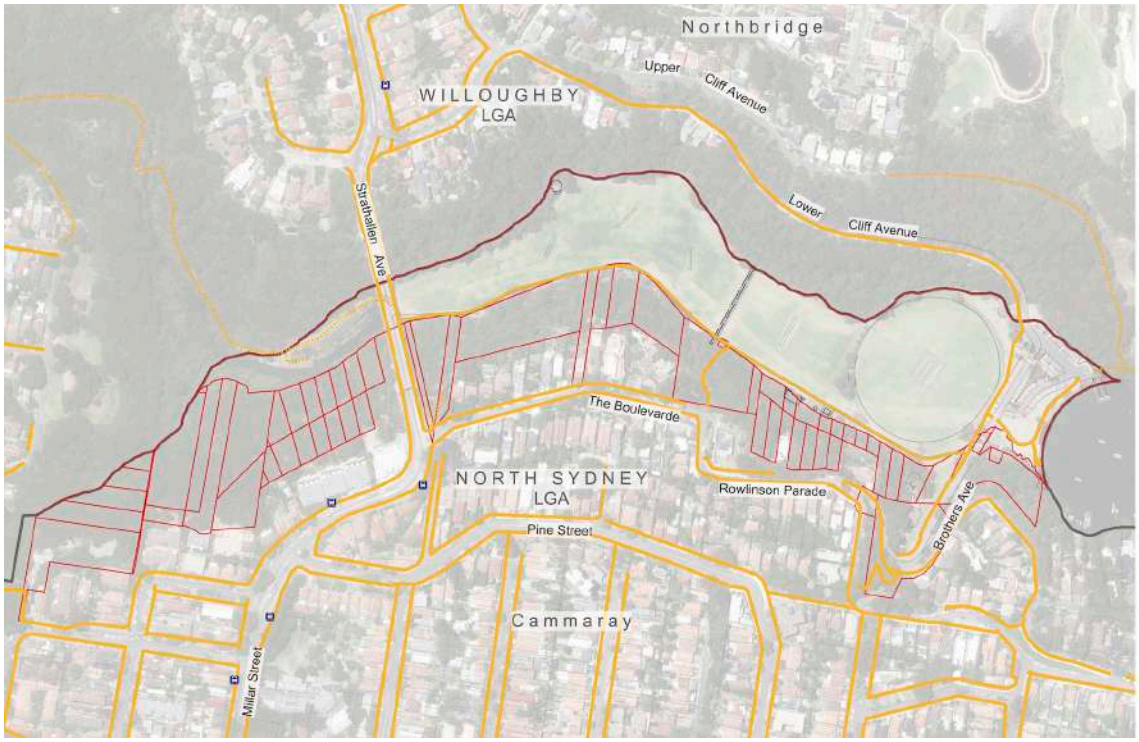


Figure 2.22 Existing Footpaths

2.7.2 CYCLE ACCESS

The North Sydney Cycle Plan 2014 identified that an 'on road general traffic' cycle link is designated from Strathallen Avenue along The Boulevarde, Currawang Street, Pine Street and Allen Street linking through to Cammeray Road. Refer Figure 2.23.

This network of residential streets generally have steep gradients which likely discourages some recreational cyclists. This is exacerbated by the narrow road width when streets are fully parked out and with high traffic volumes at times such as the Saturday morning peak Cycling is less safe and comfortable at these times.

An on road link down Brothers Avenue to Tunks Park is not currently identified either in the cycle plan or on site through road marking or signage.

The park itself has limited cycle facilities in the way of cycle parking, with 3 stands provided adjacent the stone entry gates to Field 1.

Figure 2.23 Cycle routes.
Source: North Sydney Cycle Plan 2014

2.7.3 VEHICLE ACCESS AND PARKING

Vehicular Access

Vehicular access to the Brothers Avenue frontage of Tunks Park is primarily from Strahallen Avenue along The Boulevarde and Rowlinson Parade (from the south) or Cliff Avenue and Lower Cliff Avenue from the north. Local access from the east also occurs along Pine Street through to Brothers Avenue. A pedestrian path provides access from The Boulevarde into the southern edge of Tunks Park. These streets are all generally local neighbourhood streets with limited width.

Pinch points arise where on street parking on both kerbsides limits 2 way movement. This creates "friction" between vehicles in peak times as they travel into and out of the park and along the Boulevarde and Cliff Avenue.

Vehicles travelling along Brothers Avenue move through the primary parking area for Tunks Park. During the Saturday peak, there is significant friction created as vehicles searching for parking try to move through while other vehicles manouvre in and out of parking.

Parking

There are 94 spaces provided within the Tunks Park carpark:

- 65 general spaces

- 29 boat trailer spaces

In addition there are 186 spaces to adjoining streets. Refer to Figure 2.24 and 2.25 following page.

During peak winter Saturdays there are 2 senior fields and 5 mini fields being used simultaneously. This results in a theoretical demand of approximately 180 spaces.

With overlap between a game finishing and the next game beginning, parking demand will increase during peak times.

The parking supply at the Brothers Avenue carpark is equal to 60 x unrestricted spaces, 2 x 5 minute spaces and 3 x accessible spaces. In the bordering street of the park there are approximately 190 on street parking spaces. Noting that resident parking would occupy a percentage of this capacity, parking in the immediate area cannot meet peak demand.

This parking demand does not consider passive recreational users or boating users adding to Saturday morning demand.

There are limited restrictions to the use of existing parking and the anecdotal perspective of park usage is that the restrictions that are signposted are not regularly enforced. As such the already limited parking resource is placed under further pressure.

Boat Ramp Access

Tunks Park is the only major boat ramp facility in North Sydney LGA. There are smaller ramps and slipways at Lavender Bay, Kurraba Point and Milson Park however no boat trailer parking is available at these other locations.

The Tunks Park Boat ramp was subject to a staged upgrade 2000 - 2005 (with grants from NSW Maritime) with the new Pontoon constructed in 2010 (funded by NSW Maritime)

The boat ramp is subject to management and use under a series of RMS Regulations including:

- All vehicles over 4 tonnes are required to apply for a permit from North Sydney Council
- Vehicles over 10 tonnes must also pay a bond
- Noise that will impact on the amenity of local residents or other users is illegal

Figure 2.24 Existing parking provision

Figure 2.25 Existing parking restrictions

2.8 Park Use

Whilst Tunks Park was initially constructed and dedicated with organised sports recreation as a focus it has evolved to provide for a diverse range of community uses both organised and non-organised.

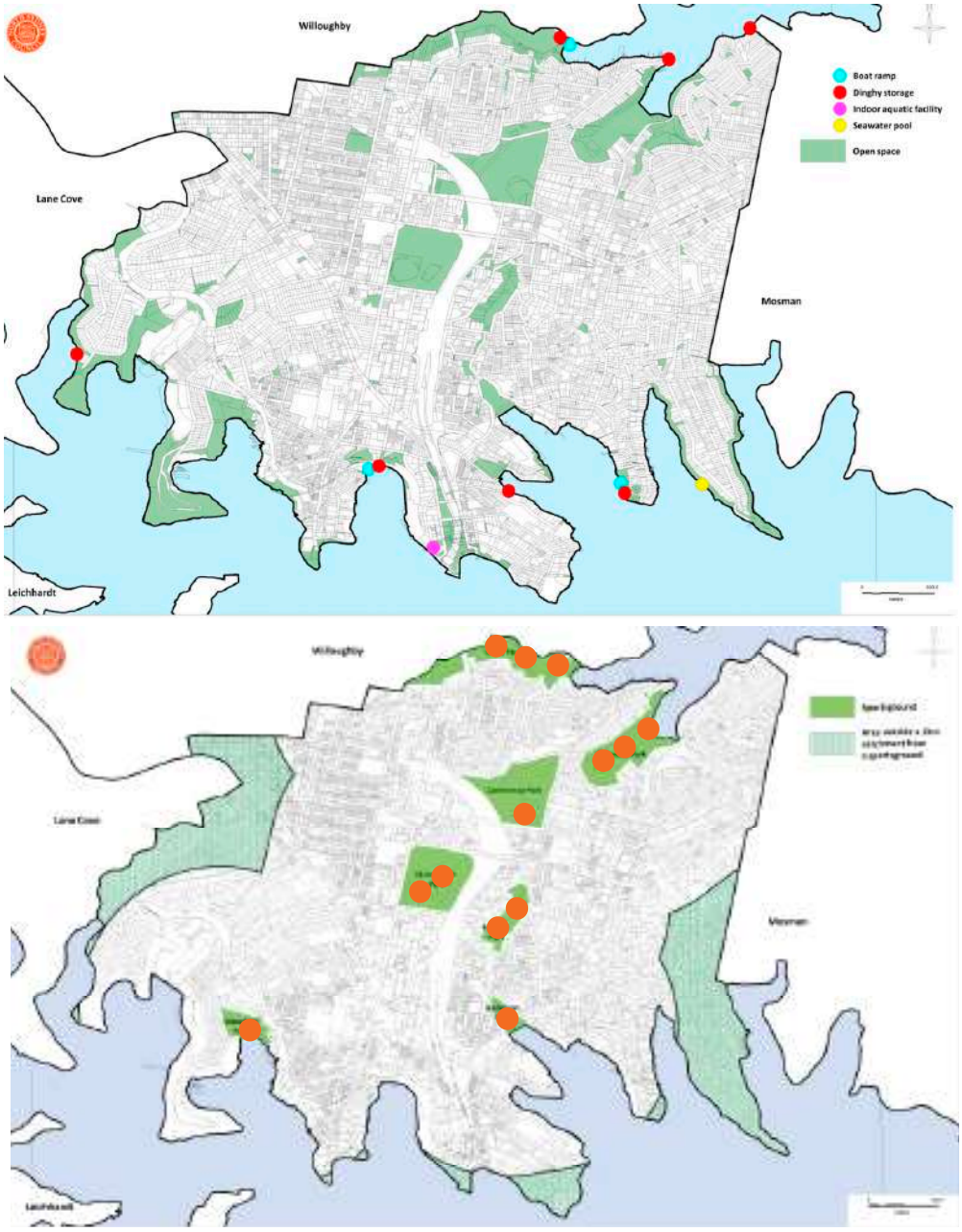
The popularity of harbourside reserves such as Tunks Park can lead to competition between the various user groups for available open space. In keeping with the Park's status as a significant public open space, it is important that a range of recreational opportunities be catered for and that all uses are compatible with the park's function as an area for public recreation.

The recreational context for Tunks Park is outlined following.

The North Sydney LGA has 150ha of open space of which:

- 125h is informal use parkland / bushland (83%)
- 25ha is sports grounds (17%)

2.8.1 ORGANISED SPORTS USE



Council has 13 playing fields 8 of which are located in foreshore parks (refer orange below)

Figure 2.26 Sports field locations

REGIONAL SPORTS FIELD CONTEXT

North Sydney's sporting fields are highly valued. Council has limited opportunities to provide additional sports fields, and the proximity of the existing fields to residences means that all fields must be carefully managed. Council works to maintain sporting infrastructure to maximise the capacity of the fields (within set limits) and to enable flexibility in use.

Ultimately North Sydney sports clubs also rely heavily on facilities in adjoining LGA's to supplement the local short fall. The table below outlines the make up of the sports field resource across the regional level as set out in the NSROC Regional Sportsground Strategy Review 2017.

Table 4: Breakdown of Supply by LGA

Area	Population	% of NSROC Pop.	Playing Area Count	Playing Space (Ha)	% of NSROC Playing Space	Average Site Area (Ha)	Pop/Ha	Ha/1000 Pop
Hornsby	149,650	25%	44	59.5	25%	1.35	2,516	0.40
Hunters Hill	14,500	2%	10	6.5	3%	0.65	2,238	0.45
Ku-ring-gai	123,500	21%	63	63.6	27%	1.01	1,943	0.51
Lane Cove	37,350	6%	7	9.3	4%	1.33	4,016	0.25
North Sydney	72,150	12%	13	10.1	4%	0.77	7,179	0.14
Ryde	119,950	20%	73	61.9	26%	0.85	1,936	0.52
Willoughby	75,450	13%	19	28.5	12%	1.50	2,651	0.38
Total	**592,550**	**100%**	**229**	**239.3**	**100%**	**1.04**	**2,476**	**0.40**

Source: *Draft NSROC Regional Sportsground Strategy Review 2017*

At a regional level the North Sydney Regional Organisation of Councils (NSROC) is looking to increase capacity across the region as a whole where opportunities are available, primarily at this time in Hornsby LGA.

From 2011-2036 regional population is projected to grow by 200,000 to 752,600 (+36%) which will place further pressure on sports facilities to maintain participation opportunities.

SPORTFIELDS TARGET USAGE

A generally agreed sustainable target for sports turf usage for Local Government open space is an average maximum 25 hours of formal field usage per week. However due to the challenges of sports field availability in North Sydney, North Sydney Council's general sports turf usage cap for formal bookings has operated at a maximum target of average 32 hours per week. Most sports fields in North Sydney with the exception of those at Tunks Park and Anderson Park currently operate at or near this maximum.

TUNKS PARK FIELD USAGE

Typical bookings distribution over an average week (based on Council's 2017 booking data):

	Winter	Summer
Weekdays		
Mornings	n/a	n/a
Lunchtimes/afternoons	12:45 pm - 5:00pm	12:45 pm - 5:00pm
Evenings		5:00pm - 8:00pm
Weekends		
Saturday	8:00 am to 5:00pm	7:30 am to 6:00pm
Sunday	8:00 am to 5:00pm	8:00 am to 12pm (Feb-Mar only)

Refer to the field layouts for summary and winter seasons on the following page.

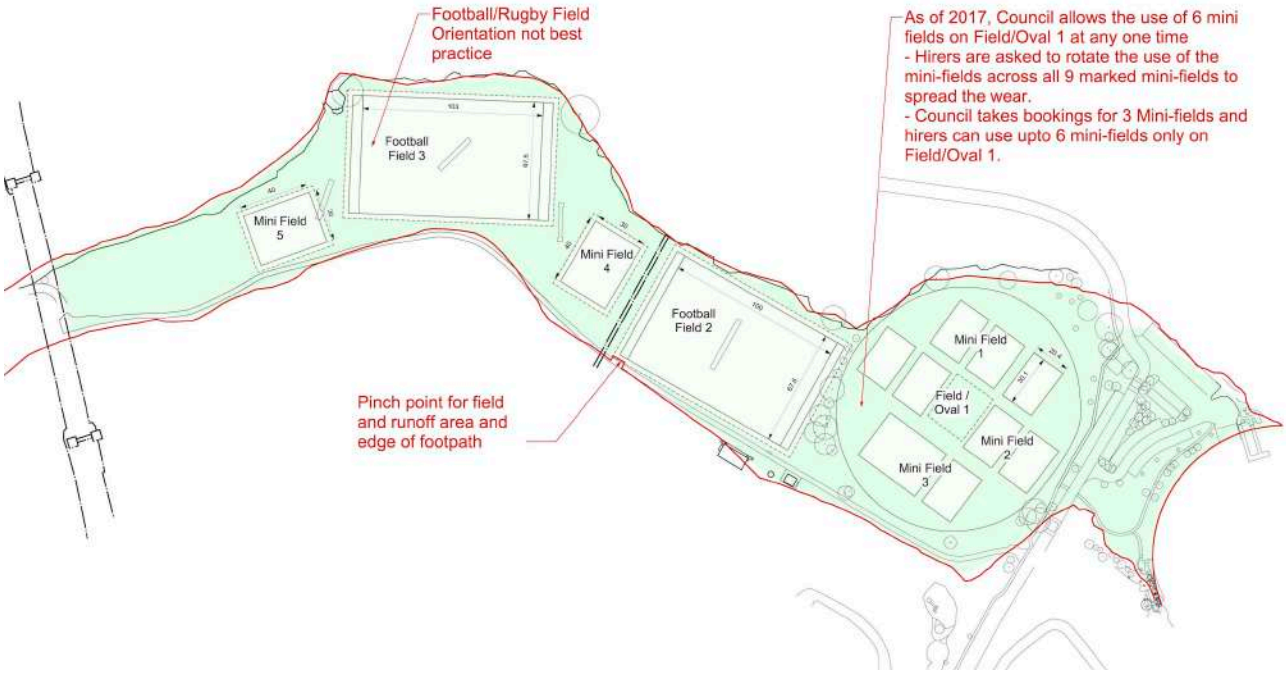


Figure 2.27 Sports field use - Winter

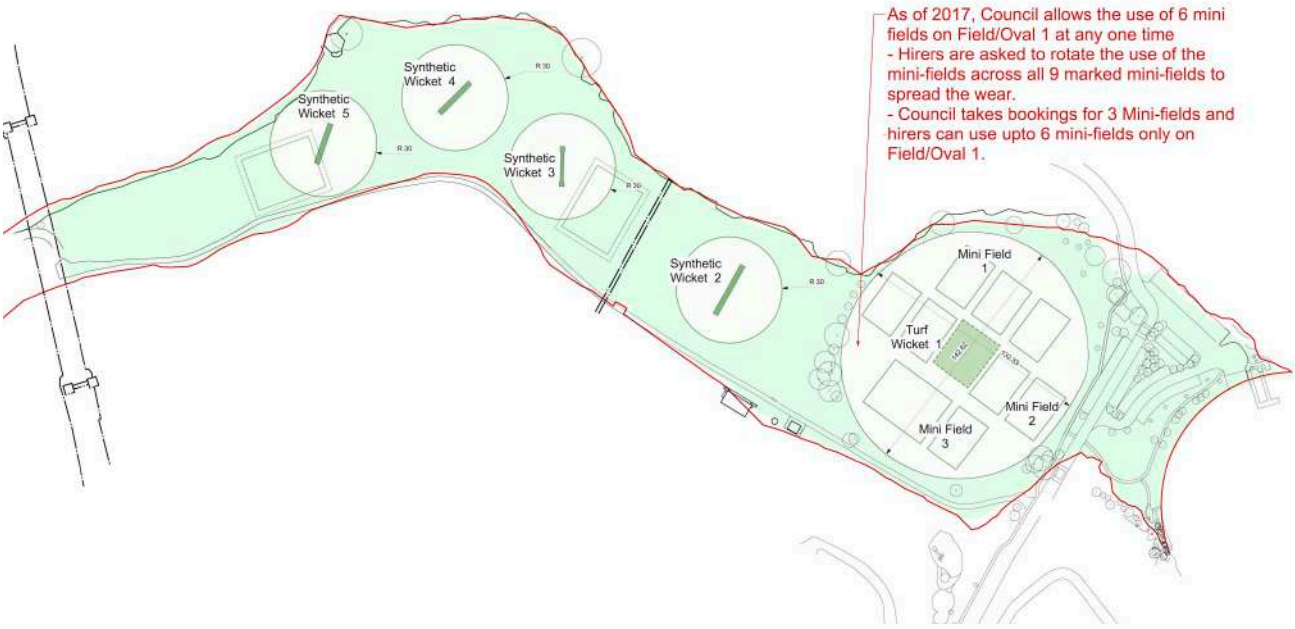


Figure 2.28 Sports field use - Summer

FIELD USAGE HOURS BY BOOKINGS

Average hours of Winter use	2014	2017	Difference
Tunks 1 (Minifields 1,2, 3)	N/A	8.49	N/A
Tunks 2	23.75	18	-5.75
Tunks 3	19	19	NIL
Minifield 4	N/A	9.5	N/A
Minifield 5	N/A	5.5	N/A

Average hours of Summer use	2014	2017	Difference
Tunks Turf Wicket 1 (incl mini field 1,2,3)	N/A	17.25	N/A
Tunks Synthetic Wicket 2	9.45	17.15	+7.7
Tunks Synthetic Wicket 3	8.9	16.75	+7.85
Tunks Synthetic Wicket 4	7.9	14.75	+6.85
Tunks Synthetic Wicket 5	6	12.65	+6.65

USER TYPE AND BOOKINGS BASED ON 2017 INFORMATION:

Percentages based on bookings over **2 typical weeks** during in winter and summer

Winter

Clubs, organisations, corporate	60%
Schools	40%

Summer

Clubs, organisations, corporate	49%
Schools	51%

Saturday Bookings - Winter 2017

North Pirates Junior Rugby Union	1 field	8am - 1pm
North Sydney Junior Rugby League	1 field	8am - 3pm
Northern Suburbs Football	various fields	8am - 1pm

Saturday Bookings - Summer 2017

North Sydney District Cricket Club	field 1	8am - 5pm
North Shore Junior Cricket Club	field 5	8am - 6pm
	fields 2/3	1pm - 6pm
North Suburbs Cricket Club	field 4	1pm - 6pm
St Aloysius School	fields 2/3/4	7.30am - 12.30pm

% of Use Saturdays - Summer 2017

Clubs	69%
School	31%

Sportsfield bookings are managed by Council's Customer Service Team.

CHANGES TO USE AND SCHEDULING ON WINTER SATURDAY GAME DAYS

As of 2017, Council allows the use of 6 mini-fields on Field 1. Previously all 9 marked mini-fields on Field 1 as per Figures 2.27 and 2.28 could be used. Council now require hirers to rotate the use of the minifields to spread wear across all the fields. The reduction in usage was aimed to help mitigate traffic and parking issues during the Saturday morning peak. In addition, games were spread from 8am-11am to 8am – 12pm to allow for staggering. It has been estimated that this arrangement resulted in 44 less players per hour for the peak period. Anecdotal feedback indicates that this measure has noticeably reduced traffic and parking congestion at peak times.

2.8.2 BOAT RAMP USE

Tunks Park boat ramp was constructed to cater for the maritime community and it has been identified by the Roads and Maritime Authority (RMS) as a "Regional Facility". The ramp has value not only for residents of North Sydney but also for the greater Sydney area. The Boating Industry Association has identified that the North Sydney LGA is home to 2350 registered boats of which 50% are trailer craft. Tunks Park is one of only two boat ramps with trailer parking to the north shores of Sydney harbor, the other being at Roseville. The existing boat ramp facilities (including facilities for users with mobility impairments) are of a high standard. Fishing and boating are a way of life for many people and access to the harbor and to moored boats can be needed 24 hrs. Use of the ramp and pontoon extends beyond trailer craft and includes those who provide essential marine services, commercial operators, marina customers, fisheries compliance vessels, marine survey services, and trades servicing waterfront houses and other waterfront facilities. At the same time it must be recognised that the facility is operating within the context of a residential area and that rules and regulations related to noise and the like need to be adhered to by all users.

2.8.3 INFORMAL COMMUNITY USE

The park has evolved a strong level of community use for informal community activities. These include walking, jogging, bush walking, picnicking, relaxation, exercise and fitness, access to natural areas by community bushcare groups.

2.8.4 DOG EXERCISE AND ACCESS

The park is used on a daily basis for users to exercise their dogs off leash in the open grass areas however they are not permitted on the sports fields when organised sport is being played or within 10m of the playground. They must be kept on a leash in bushland areas.

Dogs are required to be on leash when entering the Flat Rock Gully reserve (Willoughby Council) bushland track to the west of the suspension bridge. Tracks through Tunks Park bushland areas are limited therefore this has restricted issues with the presence of dogs and their faeces in habitat areas.

Under the 'Companion Animals Act 1998 (Section 14)', dogs are also prohibited in the following public places:

- In or within 10m of any children's play areas;
- Food preparation and/or consumption areas (unless it is a public thoroughfare such as a road, footpath or pathway);
- Recreation areas where dogs are declared prohibited;
- Public bathing areas where dogs are declared prohibited;
- school grounds (unless with the permission of the person controlling the grounds);
- Child care centres (unless with the permission of the person controlling the centre);
- Shopping areas where dogs are prohibited (unless secured in a vehicle, with the permission of the person controlling the place of going to or from a vet or pet shop); and
- Wildlife protection areas.

All dogs in public places must be under the control of a competent person. Council is required by the State Government to enforce the laws concerning dogs, and Rangers may issue on-the-spot fines for infringements of the regulations listed above.

This information and more about dogs in the North Sydney LGA is available on the website in Council's free booklet, 'Dog Control in North Sydney' which may also be obtained through Council's Ranger Services Department or Customer Service Centre.

2.8.5 BUILDINGS

Buildings and or structures within Tunks Park include a kiosk with accessible toilet facility, two amenities buildings with change-rooms, toilets, and a water tank. Features of the Park include the historic stone entry walls. The amenities buildings are all of different eras, styles and levels of accessibility. The main amenities building change-rooms and toilets are only accessible by steps. The hexagonal shaped brick amenities building to the north of Field 3 is currently being used as a storeroom for sports equipment.

Council is undertaking a building facilities audit for park buildings and the findings of this study will be reviewed for staged implementation as funds allow.

Other built features are the Suspension Bridge and the sewerage Aqueduct that passes overhead above the Park.

2.8.6 PARK FURNITURE

The existing items of park furniture such as seats, picnic tables, bins, park lighting, barbeque and drinking fountains are a mix of styles, age and usability

Tunks Park Playground sits comfortably against its backdrop of dense natural bushland adjacent Brothers Avenue. It has two main play areas separated by a small water-play area with elevated artificial creek. The focal point of the senior area is a 'tree house', allowing children to experience the fun of this once common backyard play item. Other activities in Tunks Park playground include a seesaw, a spring-mounted deck and a large 'gravel pit' with manual excavators and block and tackle operated winch, with the latter accessible to wheelchair users via a large curved access ramp. The opposite end of the play area features a bank of 4 swings and a junior play area.

Originally Upgraded in 1996 the Playground underwent expansion and refurbishment in 2012.

A separate fitness equipment node is situated on the north side of Playing Field 1 with variety of static equipment.

2.8.7 WAYFINDING

There is limited wayfinding signage within the park providing information on facilities as well to connecting pathways and routes around and through the park (for example to the foreshore walk and or the Flat Rock Gully Reserve track). There are a number of signs associated with regulation of use of the boat ramp and water activity located in the boat parking area.

Interpretative panels are located on the lookout platform over Flat Rock Creek which focus on the fishway/wetland construction, ecology. Marker posts related to a self-guided walking tour for 'Willoughby Walks App' are also located in the vicinity.

2.9 Maintenance

Current management practices are focused on achieving an acceptable standard of maintenance for the various areas of Tunks Park, and ensuring that the park is kept in a clean, attractive and safe condition.

Scheduled maintenance tasks are undertaken on an annual, monthly, weekly and or as required basis. Staffing levels and budgets for management and maintenance may change over time as community needs and priorities change and as new issues become relevant. Staff employed to maintain Tunks Park include green keepers.

The playing field areas(both summer and winter layouts) are irrigated. Grassed areas outside of the playing fields are not irrigated. The water supply for irrigation is provided from the Cammeray Park stormwater harvesting dam.

Records indicate that field closures after major rain events are common due to the potential for Flat Rock Creek to flood and low levels and gradients of the site generally.

3.0 Planning and Management Issues

3.1 Identifying the issues

The following key planning and management issues have been identified through the series of community consultation workshops undertaken for the POM, discussion and advice from council staff, background research undertaken by the study team.

The issues are explained with background on current conditions and factors and the problems to be addressed. The potential strategies to address constraints and to take advantage of opportunities are briefly outlined. The strategies are then reflected in the Implementation Framework at section 5.

3.2 Environment

3.2.1 TERRESTRIAL HABITAT MANAGEMENT

Council's Bushland Rehabilitation Plan for Tunks Park 2018 and the North Sydney Natural Area Survey 2010 identified a number of strategies for bushland rehabilitation, habitat enhancement and species recovery relevant to Tunks Park which have been undertaken or are in progress. Previous bushland managementwork on site has been planned and undertaken in accordance with Council's Bushland Plan of Management.

Willoughby Council's Flat Rock Gully and Bicentennial Reserve Plan of Management are also important management references given that they guide management through the Flat Rock Creek corridor to the west. Fundamentally North Sydney and Willoughby Councils have looked to pursue a collaborative approach to bushland management that reflects the seamless integration of the natural environment across the Council boundaries .

ISSUES

As identified by past studies key flora management issues within Tunks Park include:

- Weed management through bushland areas
- Continuing bush regeneration programmes
- Management of junction of maintained grass and bushland to prevent grass encroachment
- Management of weed escape and physical encroachment of domestic gardens edging the park
- Uncontrolled stormwater entering bushland from Council infrastructure and unauthorised outlets from private property
- Off-track access leads to trampling of regenerating native plants, informal track creation; entry points for feral animals; transfer of weed seeds and plant pathogens (i.e. phytophthora) and erosion.
- Dumping of garden and other waste and tree vandalism.

Key fauna management issues within Tunks Park include:

Issues deriving from park usage:

- Noise : potential disturbance to nesting/roosting fauna - overhanging trees and disturbance at edges of maintained grass
- Vehicle movements: impacts associated with car strike primarily between dusk to dawn
- Domestic Animals
  - Potential if dogs off leash to wander away from the sports fields into the bush and disturb or attack native fauna.
  - Domestic animal movement from house gardens
  - low roosting and nesting fauna are more at threat from domestic animal predation.
- Lack of nesting hollows / habitat available for roosting species ie Possums, Mirco bats, Woodland birds
- Quality of aquatic habitats - lack of shelter and reproductive habitat for frog species

Dogs and cats are regularly sighted in the bushland areas of the Park adjoining residential properties. To prevent problems associated domestic animals in bushland killing, injuring and interrupting lifecycle behaviours of native fauna, the Companion Animals Act, 1999, requires that all dogs kept on a leash in all bushland areas throughout North Sydney.

Tunks Park is a Wildlife Protected Area (WPA) requiring cats to be prohibited. Council's Bushland Management Team periodically undertakes strategic trapping programs to remove feral cats from WPAs. Council's adopted bushland WPA system and community education program seeks to strike a balance between responsible cat ownership and the protection of local native wildlife - helping to ensure healthy populations of native fauna for future generations to learn from and enjoy.

STRATEGIES

Continue implementation of strategies as defined by the North Sydney Bushland Plan of Management.

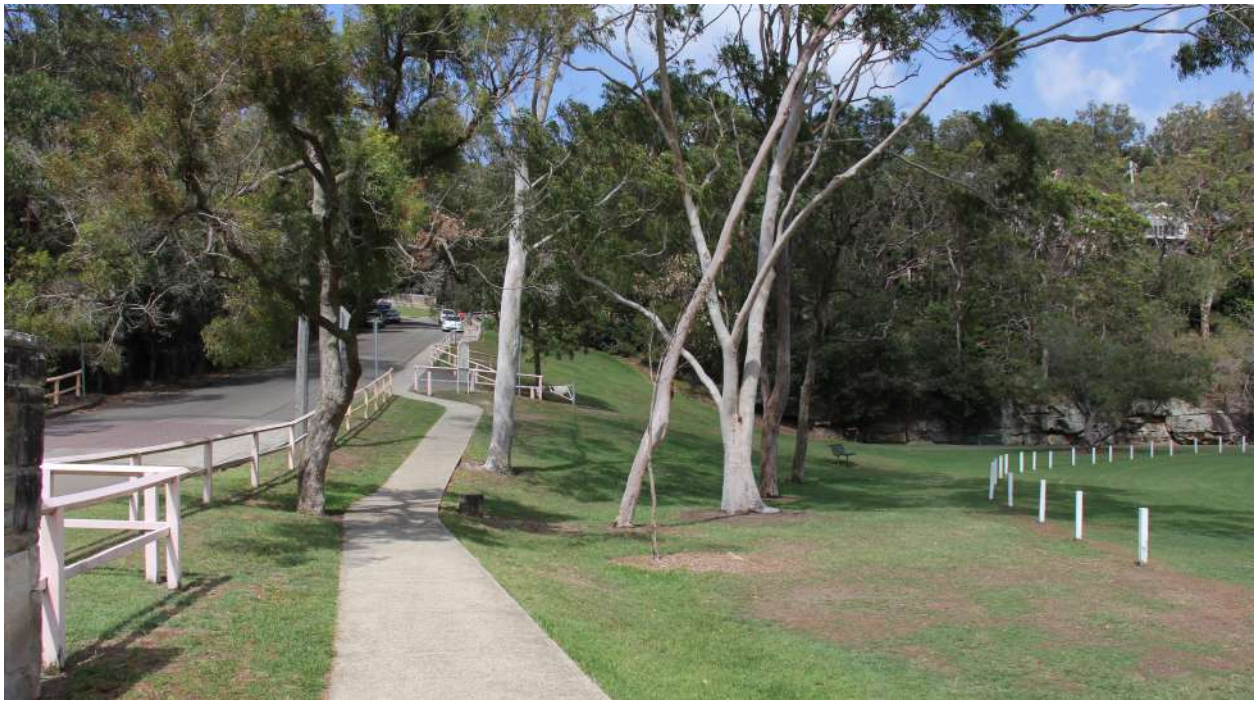
This includes:

- weeds and noxious weed control
- private garden escapees/ bushland edges
- pet management
- managing impact at sportsfield and bushland edges
- terrestrial fauna and bird habitat enhancement

Enhancement of Wildlife corridors / Linkages

- between Mortlock Reserve and Tunks Park at Cammeray, thus linking also with Flat Rock Gully Reserve in Willoughby local government area, which adjoins Tunks Park. (Source: NS Natural Area Survey 2010 (Part 1) – P&J Smith Consultants)

Figure 3.1 Map from *North Sydney Natural Area Survey 2010 identifying the Tunks Park Bushland and habitat corridors*



Site Photo: The vegetation link between Mortlock Reserve and Tunks Park bushland slopes to the south edge of the park should be developed further to connect the "biodiversity hotspot

3.2.2 CREEKLINE AND WATER MANAGEMENT

ISSUES

Flat Rock Creek is subject to a range of pressures from the adjoining urban environment including:

- Peak volumes and velocity of urban stormwater flows
- Pollutants from roads and drainage
- Urban sediment
- Weed encroachment
- Erosion from access and other activities

Most of these pressures derive from factors outside of the park area and outside of the direct control of the Plan of Management. This plan should formalise ongoing liaison and advocacy of effective point source control of water quality issues as noted above

Within the park sportsfield area the creek is piped underground through the twin box culvert infrastructure implemented in the 1950's. This work originally facilitated the construction and use of the sports fields. The grassed space west of football field 3 and mini field 5 is used for flexible recreational activities and could provide potential for partial "day-lighting" of the piped creek line by about 100 metres . This could provide enhanced opportunities for habitat and a potential passive recreational focus in the west area of the park.

STRATEGIES

Point source controls

Promote and purse effective point source controls both within North Sydney and Willoughby Council areas within the Flat Rock Creek catchment to improve water quality, reduce erosion and sedimentation, and reduce storm flows.

Daylighting of Creek through sports fields

It has been resolved that the benefits of "daylighting" the creek currently in culverts would not justify the significant costs. Ongoing water quality issues of the broader catchment would continue to limit potential for the creek to be an area where natural play could be encouraged

It was resolved that it will be more beneficial to focus improvements and funding opportunities on the existing creek corridor:

- to manage weeds, rehabilitation and revegetation
- to improve water quality
- to implement minor improvements to the fish weir
- to provide edge habitat enhancements

Weir and fish ladder

A review of the fish by-pass in 2014 by Fishway Consulting Services recommended that although the bypass is silted and does not provide fish passage it is valuable terrestrial habitat and should be maintained in its present state. No de-silting or disturbance to this area was recommended. This report also mentioned silting upstream and downstream of the weir is an ongoing issue, which is to be expected with an urban catchment. It was also noted that prevention of silt entering the Tunks Park stormwater culverts was desirable as it becomes very difficult to remove once in the culverts. As such removing silt from both sides of the weir was recommended. As such in 2014-15 sediment was removed from either side of the weir – the need for future desilting should be monitored (in particular in the vicinity of a seven year cycle).

A further review was undertaken by Kingfisher Ecology in 2018 as part of this Plan of Management process. This identified that the current configuration may not be operating most effectively and recommended the following actions be further investigated for possible future implementation:

Increase creek through flow:

Enhance areas of free-flow for small species that utilise fast flowing water- using terracotta pipes (reclaimed around 50cm long each and ~ 100mm diameter) between and under rocks which will also provide some protection from predation. It is preferred to not join pipes but have them close enough that a fish could go through one then the next to pass through the fishway.

Enhance alignment:

Reposition rocks at edge of weir to enable there to be at least 1 deeper access-way ~ 20cm wide and ensure the new configuration has a sinuosity (not just a straight run). The sinuosity would be such as to enable the water to move through while staying at least 5cm deep during time of medium water-level (preferable in low-water as well). Sinuosity to be not so great as to easily result in blockages and sediment deposition at each direction change. Place larger rocks along the sides of the 'channel' as these will be the least likely to move under higher flow events and water is expected to move faster in the channel area. If creating 'channels' ensure there is as much meandering as possible to reduce velocity in the passage. Ideally create a number of passages with some more wider than others (10cm to 100cm).

Protection from overhanging vegetation:

Where possible keep the open run where fish will be protected from over-hanging (like left hand bank – when looking upstream). This will offer some protection from predators (such as Egrets) that stand on rocks and eat the fish. Logs or equivalent have to be placed correctly otherwise they become predator perches. A log immediately down-stream of the run that enables fish to congregate safely (under or next to the log) prior to entering, or upon exiting, the run can increase the success of the fish-way.

Sediment removal:

Hand removal may be required from time to time to keep access to the fish-way runs open. Alternatively, a log/rock can be placed in the area of build-up to speed water going around it and scour a pool. It is noted that sediment will then build up else-where and on-going minor modifications will be required.

Site Photo: Flat Rock Creek weir and fish by-pass channel with lookout/viewing platform

3.3 Heritage

3.3.1 HERITAGE MANAGEMENT

ISSUES

The items of heritage significance as outlined in Section 2.2 require specialist management under the relevant statutory legislation and North Sydney Council policies.

Tunks Park Suspension Bridge and the Sewer Aqueduct are of historic, aesthetic and technical significance and are listed as heritage items under Schedule 5 of North Sydney LEP 2013. The sum worth of these heritage values along with natural values is significant both as a conservation legacy and as an added layer to the use and enjoyment of the park by users. However the understanding and awareness of these values is somewhat limited.

From an Aboriginal heritage perspective any proposed alterations and or additions to tracks would need to take into consideration the potential for increased access to sensitive sites, and liaison and approvals though the Aboriginal Heritage Office.

STRATEGIES

Meeting Conservation obligations

- Council will continue to meet its obligations for specialist management under the relevant statutory legislation and North Sydney Council policies.

Interpretation

Heritage and environmental values can be better interpreted and conveyed on site using a variety of mediums that may include:

- On site interpretive elements
- On line supporting mediums
- Artworks
- Temporary on site events and activities that create engagement

Site Photo: Sewer Aqueduct

Site Photo: Suspension Bridge

3.4 Visual and Landscape Character

3.4.1 SHADE AND TREE CANOPY THROUGH MAINTAINED GRASSED AREAS

ISSUES

Playing fields have been sited to use the reclaimed lands central area of Tunks Park configured as space allows and around other features such as the Sydney Water Aqueduct. Tree canopy through the playing field areas is opportunistic taking advantage of residual space. As a consequence across the year but in particular in summer there is little shade relief over large areas of the park.

At the same time the central sportsfield zone separates the northern and southern bushland slopes that fringe the park. Some degree of tree canopy continuity through the park would connect these bushland slopes visually and afford a degree of aerial habitat connection.

A greater level of tree canopy occurs through the foreshore zone albeit constrained by the carpark area. Recent Council planting programmes at the foreshore have raised some local resident concern related to potential for impacts to their access to water views

STRATEGIES

Existing opportunities within the park to enhance understorey plantings for improved habitat

- replace small strips of grass between path and bush
- underplant groundcovers in small swathes under existing trees

Tree canopy links within the park (refer Figure 3.2 Following page)

- investigate potential for tree canopy links across park that provide some degree of aerial linkage without unduly impacting the ground below
- investigate potential to compliment tree canopy with provide intermittent native grass under storey layer to enhance habitat and ground level movement for fauna

Enhanced shade tree canopy to park edges

- investigate potential for additional shade through park where possible – adjoining edges and existing trees

Foreshore tree planting

- review recent foreshore tree planting as part of foreshore open space enhancements – new planting to take into account views into the park from the harbour and out of the park to the harbour.

Nature and character of planting

- All new planting in Tunks Park should be appropriate and sympathetic to the desired landscape character of each section of the Park, whether it is bushland or the more structured planting associated with the playing fields and the Park buildings.

All work on trees on public land must be consistent with Council's Urban Forest Strategy 2011 and Council's Street Tree Strategy 2016.

Site Photo:
Existing canopy link between Fields 1 and 2

Site Photo:
Narrow strips of maintained grass adjacent shared path and bushland edge

Figure 3.2 Potential locations of canopy linkage planting across Tunks Park for further investigation

Example of understorey planting to tree canopy as envisaged where feasible for Tunks Park

3.5 Recreation

3.5.1 PARK USE

As outlined in Section 2.8 the popularity of harbor side reserves such as Tunks Park can lead to competition between the various user groups for available open space. Recommendations are provided for the various park uses with the aim of a workable and sustainable balance.

a. Organised Sports use

ISSUES

As outlined in Section 2.7.3 and 2.8 there have been issues with traffic and parking congestion particularly at peak demand times on game days on Saturday mornings. In 2017 Council re-organised the field use and scheduling of mini football activities to reduce player numbers in the peak winter Saturday morning period. Anecdotal feedback suggests that this has markedly reduced congestion.

STRATEGIES

Sports field use and scheduling

In follow up to the reduced field use and scheduling changes undertaken in 2017 further short term reductions in bookings are not considered feasible at this stage as neighbouring sports fields are at full capacity. Council will continue to monitor opportunities to fine tune scheduling to reduce peak demands for parking and traffic.

Refer also to the following page regarding involvement of sports clubs in pro-active strategies to limit impacts on the park, other park users and residents.

3.5.2 CRICKET NETS

ISSUES

Council has sought to provide additional cricket facilities, such as practice nets, at sportsgrounds within the LGA where both junior and senior cricket is held. The PoM examined a range of potential locations in Tunks Park as identified on Figure 3.3 below.

Figure 3.3 Potential cricket net locations reviewed

STRATEGIES

The Plan of Management process has been unable to determine an acceptable location due to the following issues (refer location number):

- resident concern about noise (all)
- provision of run-in (3)
- distance from parking (5,6)
- impact of fencing on circulation (1)

3.5.3 GAME DAY MANAGEMENT

ISSUES

The consultation process identified that there can be some game day conflicts between sports usage and general informal use of the park.

STRATEGIES

Both winter and summer sports clubs should be actively involved in game day management of their teams and spectators activities so as to minimise impacts to the park environment and other users.

Strategies include:

- active participation in traffic reduction strategies as outlined in section 3.6.
- manage extent of warm up / preparation areas so as to not impede general public access
- manage extent of viewing zones so as to not impede general public access
- potential for game day moveable markers / barriers setup by sports clubs to address both of the above
- provide additional mobile game day mobile bins in usage areas that can be brought in at end of play

3.5.4 INFORMAL COMMUNITY USE

The park has evolved a strong level of community use for informal community activities. These include walking, jogging, bush walking, picnicking, relaxation, exercise and fitness, access to natural areas by community bushcare groups.

ISSUES

The available space at Tunks Park is largely dedicated to organised sports uses, while the most important informal recreational zone for the community (the foreshore) is constrained by existing carparking.

Tunks Park is a potential location for natural play (that is, unstructured play in a natural setting). There are a number of constraints including:

- poor water quality in Flat Rock Creek
- habitat significance of bushland areas and the impact of increased access
- availability of space at the waterfront, safety of water edge, and water quality
- sports use of open grass areas.

STRATEGIES

Foreshore zone

Expand the role of the foreshore as a recreational destination.

Access to waters edge

Proposed foreshore decking over the top and to the east of the stormwater outfalls could provide:

- additional recreational opportunity to park enabling users to be over and closer to water
- visual screening of drainage outfall infrastructure
- Potential to link with stepped landing further to north (that doesn't not impact stormwater outfalls) that enables users to get closer to water beyond rock foreshore.

Enhance mixed use capacity of sports fields

Enhance potential of the sports field area to cater for informal recreation:

- shade tree canopy and understorey and natural play settings. Refer Section 3.4.1.
- path loop access options integrating existing access with potential additional access to north side

Integrate natural play settings / elements that can extend through park

- related to tree canopy through park open space areas
- In foreshore zone
- to Aqueduct zone (subject to feasibility – refer Action 5.1)

Park facilities

Provide supporting facilities to foreshore zone:

- Park seating
- Drinking fountains
- Picnic tables

Review opportunities for additional seating around the park in relation to shade and shelter and to view park activities.

Fitness equipment

- Fitness equipment to be integrated into extended foreshore open space zone with further nodes within main park considered for example in the eastern, central and or western zones to form an integrated fitness loop.

3.5.5 DOG ACCESS AND EXERCISE

ISSUES

The Wildlife Protection Zone status of the Tunks Park buhsland means that off leash pet access to bushland areas is illegal. Enforcement of these requirements will continue to assist in reducing issues associated with disturbance of wildlife and pollution by dog faeces and littering.

STRATEGIES

- Maintain current regime of on leash dog access during sports field game times with off leash to field areas only at other times;
- Maintain current regime no off leash access to bushland areas and Flat Rock Creek corridor.
- Enhance information including on line presence and on site signage
- Maintain enforcement to discourage non-compliance

3.5.6 BOAT RAMP

The Tunks Park boat ramp is a significant regional facility. It operates 24hrs a day 7 days a week and serves the local and regional boating and fishing community and various authority and commercial groups. Ancilliary facilities include an accessible jetty, trailer parking, and a wash down area with timer operated tap.

It's importance is heightened by the lack of other major facilities to serve the region, the only other facility with trailer parking being at Roseville within Davidson Park.

ISSUES

Conflicts with the local residential community have arisen over excessive noise after 10pm and later, while constrained access to the park and finite parking mean that both of these factors are under pressure in particular when sports fields are in use.

STRATEGIES

- Improve regulatory signage relating to boat ramp use and parking
- Enforcement of parking and other regulations by Council rangers
- Education and liaison with boat users to ensure impacts related to noise and the like are minimised

It is noted that a timer was installed by Council that prevents use of the wash down area for engine cleaning late at night, and that this has appeared to reduce the occurrence of late night noise.

3.6 Access

3.6.1 SUSTAINABLE TRAVEL

ISSUES

The key issues identified and considered which impact access and sustainable travel to the park include:

- The natural topography surrounding the park results in steep grades and forms a barrier to active travel modes.
- Lack of formalisation of bicycle and pedestrian infrastructure forming a barrier to active transport.
- The frequency of park users (particularly those participating in organised sports) needing to transport bulky equipment.
- The constrained nature of the surrounding road network and high traffic volumes during peak periods resulting in increased risk-taking road behaviours, decreases pedestrian and cyclist safety and emergency vehicle access.
- The requirement for boat ramp users to transport their boat via car and trailer which requires parking.
- High parking demand resulting in an overflow of parking on surrounding residential streets and misuse of parking within Brothers Avenue carpark and surrounding residential streets.

STRATEGIES

Strategies to address the key access issues are underpinned by a Sustainable Travel Plan. This was developed concurrently with the Plan of Management in order to inform a move towards more sustainable long term access to the park, and to guide detailed strategies for vehicular pedestrian and cycle access.

The Travel Plan is then supplemented by a series of detailed strategies for different aspects of access including vehicular access, parking and pedestrian and cycle access.

Travel Plan

The sustainable Travel Plan is a holistic approach to access that seeks to bring about a mode shift away from single occupancy car use for journeys to and from a location and increase the use of alternatives such as walking, cycling, public transport and car sharing.

Overall objectives of the Tunks Park Travel Plan include.

- Promote walking, cycling and public transport use
- Reduce Traffic Congestion
- Reduce Parking Demands
- Improve safety for “active travel modes”
- Improve health and wellbeing

A Travel Plan was developed for Tunks Park that includes a range of different strategies including physical changes to access systems on the site as part of a holistic approach to encouraging more sustainable access to the park. A summary of the proposed strategies is set out in the following table taken from the Travel Plan (refer Appendix 7.5). A description of the proposed strategies follows:

Summary of the proposed strategies:

Issue	Objective	Strategy
The natural topography surrounding the park results in steep grades which may form a barrier to active travel modes.	Promote sustainable transport use Improve health and wellbeing Reduce traffic congestion Reduce parking demands	Development of a Transport Access Guide
		Increased wayfinding
The frequency of park users needing to transport bulky equipment.	Reduce traffic congestion Reduce parking demands Promote sustainable transport use	Provision of a shuttle bus
		Conversion of boat trailer parking into bus parking
		Provision of further drop off and pick up
Lack of formalisation of bicycle and pedestrian infrastructure forming a barrier to active transport.	Promote sustainable transport use Reduce traffic congestion Reduce parking demands	Additional bicycle parking facilities
		Improvement of existing pedestrian footpath
		Expansion of on road bicycle routes
The natural topography surrounding the park results in steep grades with may form a barrier to active travel modes.	Improve health and wellbeing Promote sustainable transport use	Additional pedestrian access points
The constrained nature of the surrounding road network and vehicle volumes creating congestion.	Reduce traffic congestion Reduce parking demands	Introduction of a priced parking scheme
		Introduction of part time parking restrictions
		Reconfiguration of playing times
		Removal of pinch points
		Provision of an offline arrangement in Brothers Avenue
		Closure of Brothers Avenue
		Conversion of Brothers Avenue into a one-way system

Figure 3.4 Travel Plan Strategies Summary
(Source: Table 6.1, Tunks Park Travel Plan, TTW)

I. TRANSPORT ACCESS GUIDE

The Guide will:

- inform users about the sustainable travel modes available to them
- include a map showing public transport routes and safe walking and/or cycling routes
- indicate routes to the park within five, ten and fifteen minutes' walking distance
- be available on site and online (Council's and sporting group websites)

Example Transport Access Guide

II. INCREASED WAYFINDING

A significant barrier to active travel is a lack of knowledge of walking routes and distances to encourage active travel modes, Clearer wayfinding should be installed in local streets to highlight the expected walking distances to the park. Wayfinding will increase visibility of walking and cycling routes to the park, encouraging adoption of these modes while also providing increased driver awareness of these active travel modes

Wayfinding can include images painted on the footpath and/or signage indicating how many minutes' walk or cycle away the park is.

III. COMMUNITY SHUTTLE BUS

Community shuttle services operate in many LGA's providing access to community facilities. A Saturday shuttle could operate on a set route from a series of nodes in North Sydney (rail stations, parking stations etc) to the sports fields at Tunks Park, Primrose Park, Cammeray Park. A further shuttle could serve St Leonards Park, Anderson Park and Waverton Park

The shuttle would only stop at the designated parking locations and thus would not encourage parking at locations that cannot cater for the weekend parking use.

Example community shuttle bus

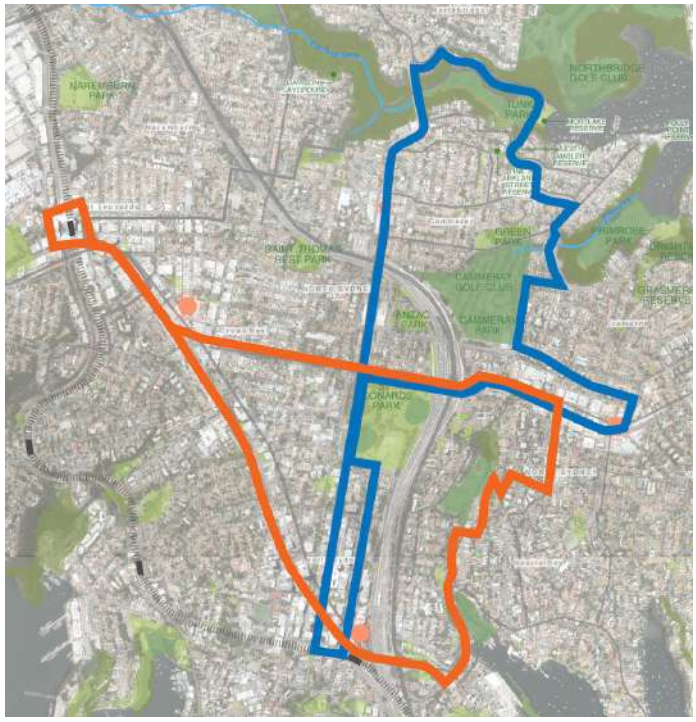


Figure 3.5 Example of potential shuttle bus routes

IV. INTRODUCTION OF PEAK TIME PARKING MANAGEMENT

The available parking area and local on street parking are not adequate for peak uses demand at Tunks Park. This is generally reflected across most metropolitan sports facilities. There are a number of potential strategies that can be further investigated and potentially trialled to determine effectiveness for permanent consideration. These would seek to ease demand for parking and peak period traffic volumes by encouraging sports field users to use other means of accessing the park during the peak use periods. As such these types of strategies can only fairly and practically be pursued if a viable alternative has been provided such as car pooling and park and ride shuttle as discussed at Item III. The strategies identified require a collaborative approach across a number of Council sections both in planning and implementation.

The parking management strategies are detailed in Section 3.6.3

V. MANAGEMENT OF BOAT TRAILER PARKING

The community consultation forums identified a high level of local resident concern with the impacts of boat trailer parking in particular during peak use times but also at weekends generally. Demand exceeds supply in terms of available boat trailer parking.

A number of strategies are proposed to be further investigated and then trialled for effectiveness and are detailed in Section 3.6.3.

VI. ENFORCEMENT

It was identified through consultation that a number of existing parking controls related to the site are regularly disobeyed and could be reduced through more regular enforcement. This includes:

- Overstaying time restricted parking spaces including overnight
- Parking beyond marked or accepted parking extents to local streets in particular at driveways
- Cars parked in boat trailer bays

The Plan of Management recommends that these existing controls are more effectively enforced

In addition, any combination of strategies such as those outlined for car and boat trailer parking at Item IV-V would heavily rely on ongoing enforcement of parking restrictions to be effective.

3.6.2 PEDESTRIAN AND CYCLE ACCESS

ISSUES - PEDESTRIAN ACCESS

Consultation for the Plan of Management identified community interest in improved access into the park from adjoining streets to the north and south as well as potential for linkages to the neighborhoods to the south west. The Plan of Management has included a review of potential new access links and an explanation of their feasibility and those recommended to be further investigated in the future.

STRATEGIES - PEDESTRIAN ACCESS

Possibilities to enhance pedestrian access to the park as identified by the study team and through consultation were reviewed. Figure 3.7 below summarises these. The discussion following explains the outcomes of the review process and recommended actions for each link. It is noted that the links that are recommended to be pursued are still subject to further investigations. The links that lie within Willoughby Council were the subject of initial liaison by North Sydney Council but at this stage are understood to not be supported by Willoughby Council's Bushland Management section.

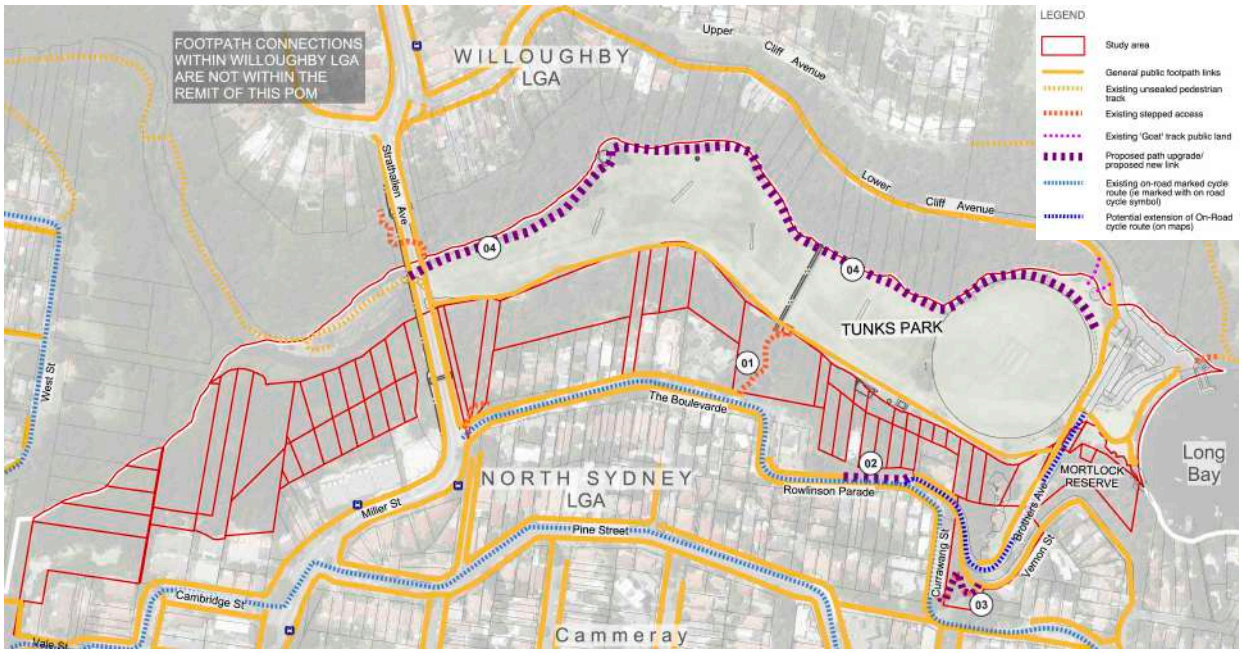


Figure 3.6 Potential pedestrian access improvements reviewed by Plan of Management

PROPOSED PATH LINKS / UPGRADES RECOMMENDED BY THIS PLAN OF MANAGEMENT

1. Existing path link from The Boulevarde

- Existing link to be maintained to ensure safe and effective access is provided

2. Continuous footpath to The Boulevarde / Rowlinson Parade

- Infill missing footpath section to The Boulevarde to provide continuous safe pedestrian access to the existing step linkage (3)

3. Upgrade linking access through Judith Ambler Reserve from Currawang Street

- Upgrade existing path steps linkage to better cater for pedestrian use

4. Provide gravel track margin to north edge of park

- Provide 1.5m approximate width gravel surface at junction of grass with slope to existing overshadowed area of poor grass cover
- Integrate catch swale at base of bush slope to collect water runoff
- Integrate park seat at several locations

ISSUES - CYCLE ACCESS

The surrounding area has topography that will continue to be a constraint to cycle access to Tunks Park.

As outlined in Section 2.7.2 a connecting link down Brothers Avenue to Tunks Park is not currently identified to either in the cycle plan or on site through road marking etc.

STRATEGIES - CYCLE ACCESS

The opportunity to improve cycle access to the park by extending the on road marked cycle route from Rowlinson Parade down Currawang Street and Brothers Avenue was identified.

This can be supported by the provision of improved cycle parking facilities within the foreshore open space and main park area. Figure 3.9 indicates the extended cycle route markings and signage.

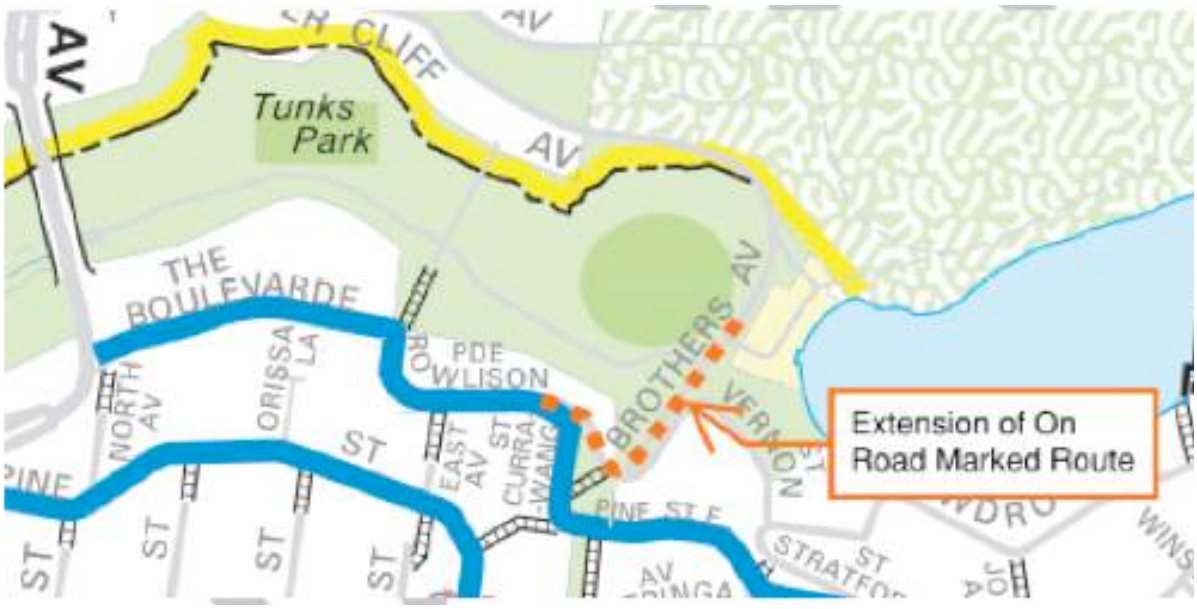


Figure 3.7 Potential cycle access improvements reviewed by Plan of Management

Site Photo: Area of Brothers Avenue where on road cycle route is proposed to be line marked and signposted

3.6.3 VEHICULAR ACCESS AND PARKING

ISSUES – VEHICULAR ACCESS

As outlined in Section 2.7.3 vehicular access to the park is via local neighbourhood streets.

Pinch points regularly arise where on street parking limits two-way movement. This creates friction between vehicles as they travel into and out of the park and along the Boulevarde and Cliff Avenue. Therefore during the winter Saturday morning peak period (specifically from 10am -11am) local residents have identified that their amenity is impacted, and through movement and movement to the park is impacted. During the Saturday peak, vehicle counts in both directions are roughly equal – this results in vehicles frequently storing to allow for passing vehicles and the roadway acts as a one lane two-way system.

Vehicles travelling along Brothers Avenue move through adjoining parking spaces. During the Saturday peak, there is significant friction created as vehicles searching for parking try to move through while other vehicles manoeuvre in and out of parking. Waiting for reversing vehicles disrupts traffic flow and creates queuing issues. This also reduces the ability for emergency vehicles to quickly access the park or streets beyond.

The Boulevarde and Rowlinson Parade residents identified that vehicles parked too close to driveways can make existing driveways challenging and potentially unsafe due to being unsighted to oncoming traffic.

The congestion to the approaches to Tunks Park at Saturday morning peak suggests that emergency access if needed during this time could be difficult.

STRATEGIES – VEHICULAR ACCESS

The Plan of Management can identify and recommend the strategies for road access that will most effectively address the stated objectives of the plan. However these proposals will need to be pursued through Councils relevant traffic channels including (if required) the traffic Committee. For the purposes of the plan the recommendations identified herein have been subject to liaison and in principle endorsement subject to further investigation by Councils traffic planning staff.

Traffic flow

The Draft Plan of Management considered options for altering traffic flow to provide potential improvements during the winter peak periods.

During the options phase potential to create a one way traffic system and potential closure of Brothers Avenue at the foreshore were reviewed but deemed not feasible due to various current constraints.

The Draft Plan of Management exhibited included a proposal to re-align Brothers Avenue to relocate a proportion of parking to the west side and create a larger and more usable foreshore space. However Council has resolved that comment received during the exhibition of the Draft Plan did not support this proposal.

ISSUES - PARKING

As outlined in Section 2.7.3 the existing supply of parking in Tunks Park cannot meet the peak demand (winter Saturday mornings) and competing needs of organised sport, informal recreational users and boat users.

There are limited restrictions to the use of existing parking and the anecdotal perspective of park usage is that the restrictions that are present are not regularly enforced. As such the already limited parking resource is placed under further pressure.

STRATEGIES – PARKING

INTRODUCTION OF PEAK TIME PARKING MANAGEMENT

As outlined in Section 3.6.1 Item IV the strategies identified require a collaborative approach across a number of Council departments both in planning and implementation. The parking management strategies are detailed as follows:

Community Shuttle Bus

Would operate in peak use times on winter Saturday mornings. Investigations are required to determine if service is feasible and viable in the long term. A trial may be able to assist in this process. Refer 3.6.1 Access for further explanation

Car Pooling

Sports users will be encouraged to car pool. This option is not available to the majority of boat ramp users

Other potential strategies

The Draft Plan of Management also considered several other strategies including the introduction of paid parking at peak use times and resident only parking to nearby roads also at peak times. Community responses received during the public exhibition period did not support these options, and they will not be considered further at this time.

MANAGEMENT OF BOAT TRAILER PARKING

ISSUES

There a high level of local resident concern with the impacts of boat trailer parking in particular during peak use times but also at weekends generally. However the Tunks Park boat ramp is a regional facility, and any actions must be consistent with it remaining as such. The boating community expressed concern with the potential loss of any trailer parking capacity, and noted that at times trailer parking is not able to be used due to general vehicle parking which is against existing signed regulations in the park.

STRATEGIES

Priced parking scheme for boat trailer parking

If priced parking was introduced to the general parking spaces at the park this would need to be applied at the same time to boat trailer parking. A priced parking scheme to the carpark and Lower Cliff Ave could also be considered for boat trailer parking only – or applied to boat trailer parking for the whole weekend. This strategy should be further assessed to determine its viability.

Use of some boat parking for general parking during peak times

The possibility for the existing boat trailer spaces that adjoin the foreshore grassed area to the south side of the boat ramp parking to be used for general parking during peak sports usage periods on winter Saturdays was identified in the Draft Plan of Management. However this would only yield 6 additional general spaces and as such is not deemed to be effective. Having dual use spaces would also necessitate a high level of enforcement which would need to be resourced. The boating community strongly objective to this idea and this will not be pursued further.

Site Photo: Trailer parking to south side of carpark

3.6.4 BOAT RAMP AND FORESHORE ACCESS

ISSUES

Residents in the community workshop forums identified that after dark noise through engine cleaning is a regular disruption to local amenity. The presence of potable water taps in the vicinity of the boat ramp which are used by boat users has been identified as the major root cause of the noise complaints when used late at night.

STRATEGIES

Regulatory signage and enforcement of existing laws / controls

- Improve existing regulatory signage related to noise and related penalties
- Review siting of regulatory signage to be most effective

Enforcement

- Council Rangers to enforce regulations relating to boat ramp use
- Council Rangers to follow up on resident reports
- At this stage security cameras are not supported by Council
- Improve awareness of boat ramp users regarding the minimisation of noise from the boat ramp in particular at night

Boat washing and engine cleaning

Provision of a dedicated wash-down bay has been identified by the boating community as a fundamental aspect of a regional boat ramp facility. As part of this clean water is necessary for washing equipment and flushing engines. Numerous submissions were received by Council noting that a proportion of boat owners do not have access to an alternative for boat cleaning (for example lthose who live in flats) and that cleaning at the time of use is the most effective process and requires less water. As noted earlier a timer has been installed on the tap which prevents it being used late at night. It is understood that the occurrence of late night boat noise has been reduced as a result.

Boat ramp improvements

At its meeting of 10th December 2018 Council resolved to undertake further discussion with NSW Roads and Maritime and boating / fishing representatives to seek to improve the regional boat facility at Tunks Park.

3.6.5 FORESHORE OPEN SPACE

ISSUES

The Tunks Park foreshore is a popular and well-used part of Tunks Park. Users gravitate to the harbour edge in this and North Sydney's other foreshore parks. However currently the Tunks Park foreshore is limited by the use of the parks most significant space for parking and the constraining of foreshore access between parking bays and the sea wall edge. The waterfront is an engineered edge including a sloping rock embankment which adjoin the extensive concrete outfalls that drain the creek corridor and stormwater to Long Bay. This severe character severely limits any potential to access the waters edge other than at the boatramp.

STRATEGIES

The Draft Plan of Management considered various options to provide an extended zone of foreshore open space and additional facilities for park users in this area. Significant changes involving realignment of Brothers Avenue and relocation of general vehicle parking to the western side of Brothers Avenue were however not supported by the community through the responses to the public exhibition. Smaller scale improvements such as additional seating, cycle racks and kayak storage were however supported:

Kayak storage

The park currently has dinghy storage but not kayak storage. There is an identified need for kayak storage facilities near the foreshore in Tunks Park. Provision of kayak storage is considered appropriate, and is consistent with Council's Small Water Craft Storage Strategy 2018.

Fitness equipment

It is proposed that an integrated fitness loop be provided within the park that will take advantage of different settings in the park and avoid a large and heavily used node that dominates the space it is in. One of the nodes should remain in the foreshore area integrated in a low key way into the space

Furniture

Enlarging of the foreshore space creates the opportunity to expand the opportunities for seating both with formal park seating and incidental seating to low walls and the like. Ongoing planning and implementation of this item should have regard for the recommendations for facilities and park furniture outlined in the North Sydney Council Access Audit Report (Tunks Park) 2018).

Community

The consultation process identified the potential for the foreshore to integrate a community information point / noticeboard which reflects the local communities activities and events.

Foreshore tree canopy

A review of recent foreshore tree planting as part of foreshore open space enhancements is also required so that shade and amenity are provided for all park users, while some views out of the park are also provided.

Foreshore toilets

The consultation process identified concern that with enhanced opportunities for use of the foreshore that there was a lack of a close toilet facility. Provision of a toilet structure would need to be carefully considered to avoid impacts of visual and character impact, vandalism, and anti social behavior. At this time a toilet to the foreshore is not recommended however it is recommended that should foreshore consolidation occur as recommended that this need be reviewed in the future based on further investigations and consultation and potential for a compact toilet facility to support foreshore passive recreation minimizing visual impact be considered.

3.6.6 WAYFINDING

ISSUES

Through the Plan of Management consultation and transport study process it was identified that there is limited provision of clear wayfinding on local streets and existing public transport stops. At the same time there are opportunities for greater provision of Interpretative signage throughout the park.

STRATEGIES

Coordinated approach

- Replacement and or new signage including interpretation panels should give consideration to suitable placement and appearance to provide a cohesive suite of fixtures sympathetic to the park character

Transport Access Guide

- It is recommended that the Transport Access Guide for Tunks Park be provided on Council's website.

Local wayfinding

- Increased pedestrian and cycle wayfinding to routes to park and adjoining streets.
- provision of gateway signage at key locations ie at the top of the existing pedestrian link from The Boulevarde through the bushland to Tunks Park.

Interpretation

- Develop integrated interpretive signage strategy for Tunks Park integrating:
  - Natural environment
  - Aboriginal heritage
  - European heritage
  - Water conservation awareness
- Implement integrated interpretive elements including signage artworks and events across the site.

Regulatory signage

- Improve existing regulatory signage related to noise and related penalties particularly in the area around the boatramp

3.7 Buildings

ISSUES

The amenities buildings within the park are all of different eras, styles and levels of accessibility. Council is undertaking an audit of all park buildings across the LGA to inform internal improvements required for compliance and provisions for sports and general park users.

STRATEGIES

Implement Amenities Audit recommendations:

- Amenities Building (Site # 30) - the current change room, toilet and green keeper's storage shed block.
  There is evidence of rising damp and cracking in the brick work. A structural engineer was engaged to investigate the cracking. The key finding was that there is some local settlement cracking under the front of the building causing the cracking to the brickwork. Some underpinning works and brick repair works have been recommended and included in the works program following further geotechnical investigations. The estimated costs of this work total to $170,000.00 over the next 10 years. $90,000 of this has been estimated to repair the cracking and rising damp issues by end of the 20/21 financial year.
- Kiosk (Site # 31) – canteen facility with accessible toilet.
  This facility is in good condition and only requires minor repairs and maintenance totaling $16,000 over 10 years which consists mainly of internal and external painting. Also included are minor repairs such as fixing back trims, easing and adjusting doors, removing redundant fixtures and minor patching of surfaces.
- Hexagonal Amenities building adjacent Field 3 (Site # 32) – change rooms and toilets.
  This facility is in good condition and only requires minor repairs and maintenance totaling $26,000 over 10 years which consists mainly of internal and external painting, repairs to rusted surfaces and installing mesh under the Skylights. Also included are minor repairs such as fixing back trims, easing and adjusting doors, removing redundant fixtures and minor patching of surfaces.

Potential for consolidation and removal of kiosk and western building

- Consider potential when existing facilities require major upgrade for consolidation of all building functions into a new improved and consolidated purpose designed building
- Any new building to replace existing facilities should take into account the park setting/character, universal access, flood control and the existing floor area and scale of the current buildings.

3.8 Park furniture

ISSUES

Existing items of park furniture such as seats, picnic tables, bins, park lighting, barbeque and drinking fountains are a mix of styles, age and usability. Many of these items are not universally accessible.

The type and amount of furniture and sports field-related infrastructure in Tunks Park, how well it meets user needs, and whether there is a need to upgrade or to install additional items should all be regularly considered. Thought must be given to the suitable placement and aesthetic appearance of all park structures, to the needs of park users with disabilities such as mobility impairments, and any new items should be consistent with Council's style manual, design codes and sympathetic to the established character of the Park.

STRATEGIES

Coordinated suite

- Facilities are provided and located to minimise visual clutter and to serve multiple users and in accordance with Council's Public Domain Style Manual and Design Code 2018.

Provision

- implement recommendations for facilities and park furniture outlined in the North Sydney Council Access Audit Report (Tunks Park) 2018
- Provide additional seating along northern park edge at edge of bush slopes
- Review placement of bins and bin enclosures to cater for day to day use including the provision and placement of dog waste bins.

3.9 Park maintenance

ISSUES

There are a number of grassed areas susceptible to wear:

- along the north edge of park near edges to fields. The northern edge is also the most heavily shaded and susceptible to remain wet for periods after rain events.
- at the Aqueduct structure

STRATEGIES

North edge of park

- Seek to improve drainage along base of vegetated slopes
- Investigate potential for gravel edge track between grass and slopes

Soil conditions and fertility

- Improve soil conditions in off season to improve infiltration

Irrigation

- Extend tank storage for roofwater capture to amenities buildings and integrate to irrigation
- Investigate potential for harvesting of water from creekline in high flow periods and use for irrigation and integrate to irrigation system

4.0 Basis for Management

4.1 Approach

The Tunks Park Plan of Management guides the future use, development, management and maintenance of this important urban park. The Park serves the recreational needs of both local residents and visitors and contributes to the visual beauty of North Sydney. Accommodating the various user groups with their differing needs and requirements and the increasing use and intensity of the park is a major challenge for Council. Management seeks to ensure that the park is appropriately maintained, that it continues to cater for a range of activities, that conflicts between user groups are kept to a minimum, and that any future improvements are appropriate and sympathetic to the established landscape character.

The Plan of Management provides both short and long term policy. It has the flexibility to respond to the changing needs of the community and users and to incorporate future requirements and changing needs as they arise.

4.2 Values and roles

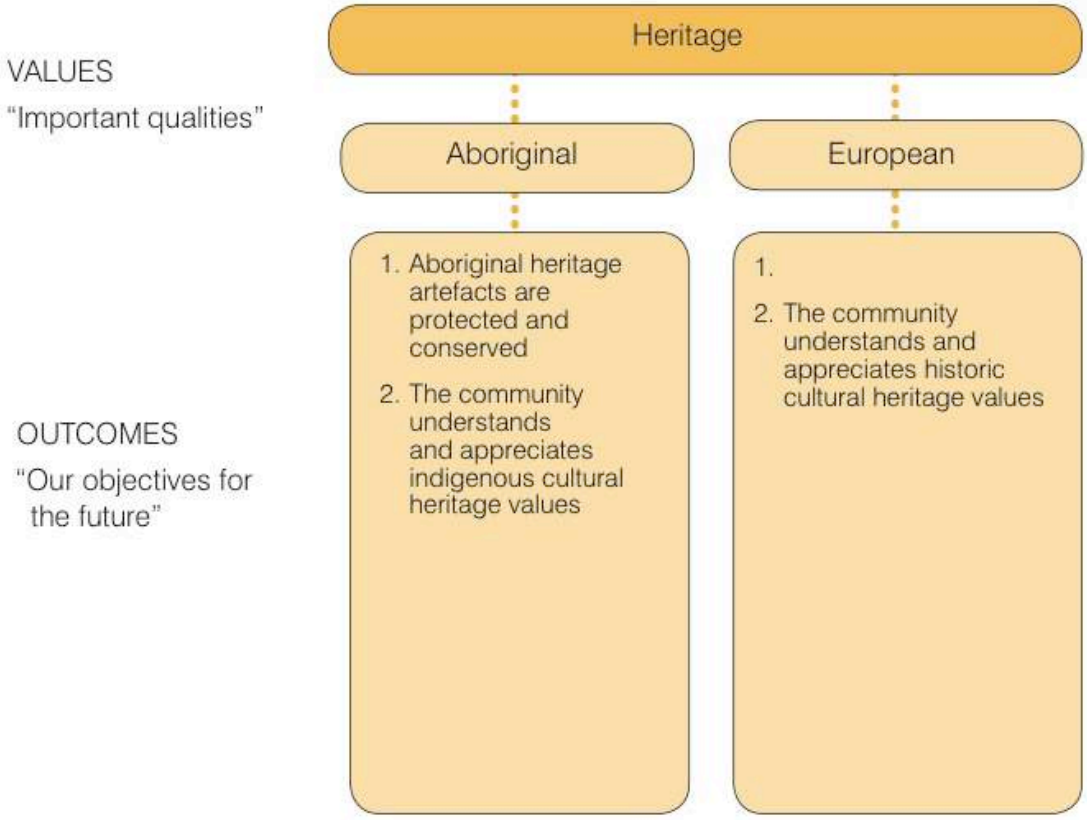
The values and objectives have been developed with significant community and stakeholder input through the consultation process outlined in Section 1.9 Community Consultation.

The following core values describe the most significant and important qualities of Tunks Park. These values must be considered when future management objectives, strategies and actions are formulated, to ensure their protection.

4.3 Objectives for park management

Based on the legislative goals, community needs and expectations, and the natural and cultural characteristics of Tunks Park, the following management objectives have been identified for each of the identified values.

These are then integrated into the Management Framework provided in section 5.0 Implementation.



Site Photo: significant Aboriginal and European heritage elements within the park

VALUES
"Important qualities"

Environment

Flora	Fauna	Water management

OUTCOMES
Our objectives

Flora	Fauna	Water management
1. The flora habitat values of the park are conserved and enhanced (trees, shrubs, groundcovers and soils) 2. The continuity of the Flat Rock Creek corridor vegetation system through Tunks Park and to foreshores is conserved and enhanced 3. The community understands and appreciates flora habitat values of the park and corridor	1. The fauna habitat values of the park are conserved and enhanced 2. The continuity of fauna habitat links between the Flat Rock Creek corridor, Tunks Park and the foreshores are conserved and enhanced 3. The habitat qualities of Flat Rock Creek are enhanced 4. The habitat qualities of the foreshore edge are enhanced 5. The community understands and appreciates fauna habitat values of the park, corridor and foreshore	1. Water quality of the Flat Rock Creek system entering the harbour is improved 2. Water quality of stormwater runoff from the park and adjoining roads entering the harbour is improved 3. If feasible harvested stormwater and roof water contribute to park maintenance 4. The community understands and appreciates the benefits of good water management

Site Photo: Foreshore, creek corridor and Bushland links to be conserved and enhanced

VALUES

"Important qualities"

Visual & landscape character

Overall park character

1. The park is conserved and enhanced as a "green" corridor integrating bushland and maintained park grassed areas
2. The creek corridor is recognised and celebrated
3. Park use reflects a wide range of community needs from organised sports to nature appreciation and a range of other informal uses

Park facilities & fabric

1. Park facilities contribute to a unified and appropriate character of the park
2. Facilities are provided and located to minimise visual clutter and to serve multiple users
3. Facilities implemented from a coordinated suite of elements

OUTCOMES

"Our objectives for the future"

Site Photo: a long narrow level grassed open space area enclosed by steep valley slopes

VALUES
"Important qualities"

Recreation

Organised sports	Experiencing nature	Informal recreation
1. Opportunities for involving whole of community in active recreation, contributing to building lifelong habits of health and fitness are conserved and enhanced.	1. Natural qualities of park including bushland, park trees, open grasslands and foreshore are conserved and enhanced	1. Flexible role of park for informal and casual community use is conserved and enhanced
2. Opportunities for children to be involved in community sports and recreation are conserved and enhanced.	2. Opportunities for children and adults to experience nature are conserved and enhanced	2. Role of park as a community "green" and gathering place is conserved and enhanced
3. Flexible role of park for a sustainable level of organised sports use is conserved	3. Opportunities for "nature based" play experiences are enhanced	3. Opportunities for non-structured play are enhanced
4. Impacts of sports user vehicular access and parking on local area are reduced	4. Quality of waterfront for water edge access and general public use is improved	
5. Conflicts between organised sports users and informal users are minimised		
6. Impacts of organised sports use on grass surface are managed		

OUTCOMES
Our objectives

Site Photo: View from Brothers Avenue toward Playing Field 1

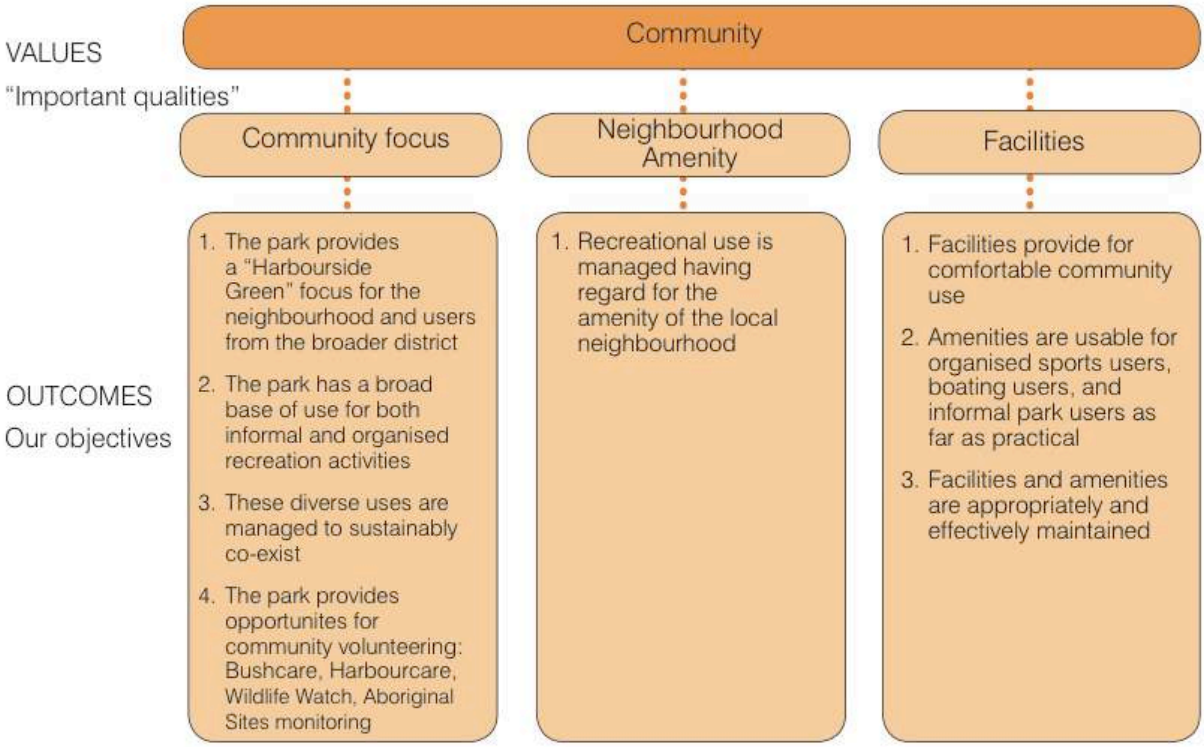
VALUES
"Important qualities"

Access

Pedestrian / cycle	Waterfront	Traffic & parking
1. Where possible, improve pedestrian access into park 2. Where possible, provide improved access from public transport to park 3. Where possible minimise barriers to free and flexible pedestrian movement through and across park 4. Effective and safe public access through park is available when sports fields are in use 5. Cycle visitation is encouraged 6. Tunks Park is connected to the broader walking trail and foreshore access system	1. Public access and use of waterfront open space areas is enhanced 2. If feasible public access to waters edge is improved and extended 3. Public access and use of boat ramp and associated trailer parking and boat facilities are maintained as a regionally significant facility 4. Impacts of boat ramp use on park and local residential amenity are managed 5. Public access and use of waterfront areas is enhanced	1. Impact of vehicular access to park on amenity and safety of local streets at peak use times is managed 2. Where possible management of parking demand at peak use times is improved 3. Available parking is used effectively and equitably for all park users

OUTCOMES
Our objectives

Site Photo: Shared use path to south edge of park



Site Photo: Playground facilities

Site Photo: Foreshore park area

Legacy for future generations

VALUES

"Important qualities"

1. The natural environmental qualities and function of the open space are conserved
2. The role and condition of adjoining (and linking) corridor and open space areas is conserved
3. The park continues to serve a range of uses including both informal and organised recreation
4. The park continues to provide a point of access to Sydney Harbour (via boat ramp and jetty)
5. Park facilities are effectively updated when required

OUTCOMES

"Our objectives for the future"

Site Photo: Tunks Park viewed towards west and Flat Rock Creek corridor

5.0 Implementation

5.1 Format and definitions

The policies established in this document provide the framework for management consistent with anticipated availability of resources and anticipated community trends.

The priority ratings outlined on the following pages are subject to the availability of necessary staff and funds, and may require modification if special circumstances arise.

Codes used to define priorities in the following matrix:

ST	(Short Term)	- Action completed within 2 years
MT	(Medium Term)	- Action completed within 2-4 years
LT	(Long Term)	- Action commenced after 4 years *
O	(Ongoing)	- Action is carried out on a regular basis for the life of this Plan of Management
C	(Commenced)	- Action has commenced
CP	(Completed)	- Action has been carried out

* Note:

The Tunks Park Plan of Management is designed to be relevant for approximately 5 years. As defined by this document, long-term projects are those that are scheduled for commencement but not completion within 5 years.

Issue	Objective	Action	Key steps / Comments	Priority	Performance Indicators	Reference No / Other References
1. HABITAT MANAGEMENT						
FLORA						
Sensitivity of flora habitat	The flora habitat values of the park are conserved and enhanced (trees, shrubs, groundcovers and soils)	Bushland management is to be undertaken in accordance with Council's Bushland Rehabilitation Plan for Tunks Park 2018. This includes: - weeds and noxious weed control - private garden escapees/ bushland edges - pet management - managing impact at sportsfield and bushland edges - terrestrial fauna and bird habitat enhancement	Implement bushland management in accordance with Council's Bushland Rehabilitation Plan for Tunks Park 2018. Monitor bushland management	O	Bushland Rehabilitation undertaken as per Council's Bushland Rehabilitation Plan for Tunks Park 2018	Action 1.1
Lack of viable tree canopy connections across Tunks Park	Viable canopy and understory linkages are developed linking north and south bushland slopes	Investigate feasibility of providing tree canopy links across park between bushland areas Provide intermittent native grass under storey layer to enhance habitat and ground level movement	Prepare detailed design of planting arrangement and review *(consider potential to enhance natural play)* Review species Implement at the western of the sports fields only so as to not interrupt the "green swathe"	MT-O	Completion of tree planting works	Action 1.2
Impact of barriers on bushland continuity	Improve bushland continuity	Enhancement of Wildlife corridors / linkages is needed between Mortlock Reserve and Tunks Park at Cammeray, thereby linking also with Flat Rock Gully		O		Action 1.3 Source: NS Natural Area Survey 2010 (Part 1) – P&J Smith Consultants)

Issue	Objective	Action	Key steps / Comments	Priority	Performance Indicators	Reference No / Other References
Lack of summer shade through maintained grassed areas	Enhanced shade through park	Investigate feasibility of additional tree canopy links with strategically placed tree plantings to enhance shade for users, as compatible with the maintenance of the turf sportsfields	Review potential siting having regard for sports use and grass condition Prepare detailed design of planting arrangement and review Review species Implement	O	Enhanced shade to edge of field and between field areas and to foreshore park area Increased shade around the perimeter of the sports fields	Action 1.4
Opportunities for natural / bush play	Availability of natural play settings is extended through Tunks park proper to complement Flat Rock Creek bushland corridor	Investigate feasibility of integration of natural play settings / through park	Consider potential to enhance natural play when planning and implementing extended vegetation links through park	O	Increased level of informal / natural play undertaken through Tunks Park recreational area	Action 1.5
Resident concern with recent foreshore tree plantings potentially blocking views	Tree planting within the park considers multiple objectives and considerations to provide a balanced approach	Review recent foreshore tree planting as part of foreshore open space enhancements	Review arrangement and species of foreshore tree canopy in the design of foreshore improvements in conjunction with interested residents	ST	Resident concerns reduced Tree canopy and shade values managed appropriately	Action 1.6
Varied degree of knowledge about value of habitat and tree canopy through park	The community understands and appreciates flora habitat values of the park and environment	Enhance interpretation through the park regarding natural values	Include natural environment in integrated plan for interpretation	MT	Increased awareness as measured through reduced levels of damage to vegetation Increased participation in community vegetation management days	Action 1.7

Issue	Objective	Action	Key steps / Comments	Priority	Performance Indicators	Reference No / Other References
FAUNA						
Sensitivity of fauna habitat Presence of threatened species	The fauna habitat values of the park are conserved and enhanced	Bushland management is to be undertaken in accordance with Council's Bushland Rehabilitation Plan for Tunks Park 2018.	Refer Action 1.1	O	Refer Action 1.1	Refer Action 1.1
Proximity to Flat Rock Creek corridor	The continuity of fauna habitat links between the Flat Rock Creek corridor, Tunks Park and the foreshores are conserved and enhanced	Protect bushland vegetated slopes adjoining the park Enhance tree canopy and understory links through park where feasible and appropriate	Monitor any potential threats to bushland slopes Consider habitat values in management of existing and consideration of any new access links to park Refer Action 1.2	O O	Condition of bushland to vegetated slopes	Action 1.7 Action 1.8
Aquatic foraging and reproductive habitats are considered to be in very poor condition	The habitat qualities of Flat Rock Creek are enhanced	Restore extent of native vegetation along Flat Rock Creek		MT-O	Level of habitat quality improved	Action 1.9
Mosquito Fish present in creekline waterway	Mosquito Fish impact on aquatic habitat is in control	Implement mosquito fish management		MT	Mosquito Fish problem reduced	Action 1.10
REFER ALSO 3. CREEKLINE AND WATER MANAGEMENT FOR FISH WAY RECOMMENDATIONS						
Off leash dogs straying into Tunks Park Bushland areas and Flat Rock Creek Reserve	Control of off leash dogs at west edge of fields / start of creek corridor	Investigate potential for low key barrier to discourage off leash dog access into creek and bush corridor	Increased enforcement by Council rangers	ST-O	Increased patrols undertaken	Action 1.11
Limited habitat interaction between land edge and harbor edge	The habitat qualities of the bay foreshore edge are enhanced	Integrate overhanging vegetation to the waters edge where possible	Consider overhanging vegetation to future upgrades of foreshore open space as they arise	O	Enhanced fish activity at waters edge	Action 1.12
Varied degree of knowledge about value of habitat and tree canopy through park	The community understands and appreciates fauna habitat values of the park, corridor and foreshore	Refer Action 1.6				

Issue	Objective	Action	Key steps / Comments	Priority	Performance Indicators	Reference No / Other References
2. HERITAGE MANAGEMENT						
ABORIGINAL						
Proximity of artefacts to potential access routes	Aboriginal heritage artefacts are protected and preserved	Aboriginal sites to be protected in accordance with legislation and advice from Aboriginal Heritage Office		O	Aboriginal sites protected	Action 2.1
Lack of awareness of Aboriginal cultural heritage in area	The community understands and appreciates indigenous cultural heritage values. Opportunities for education and interpretation may be identified in cooperation with the Aboriginal Heritage Office.	Refer interpretive strategy development and implementation Actions 11.2 and 11.3		MT-O		
EUROPEAN / HISTORICAL						
Presence of items of European historical significance	Post European settlement heritage of local area and site is protected and preserved The community understands and appreciates historic heritage values	Refer interpretive strategy development and implementation Actions 11.2 and 11.3		MT-O		

Issue	Objective	Action	Key steps / Comments	Priority	Performance Indicators	Reference No / Other References
3. CREEKLINE AND WATER MANAGEMENT						
Variable water quality of Flat Rock Creek and harbor waters	Water quality of the Flat Rock Creek system entering the harbour is improved	Promote point source controls on stormwater systems entering the Flat Rock Creek system	Liaise with Council stormwater section	MT-O		Refer Bushland Management Plan
Potential for water harvesting	Harvested stormwater and roof water contribute to park maintenance	Investigate feasibility of providing more water storage through the harvesting system	If feasible, the tanks would be hidden	ST-MT	Reduced potable water demand	Action 3.1
Varied level of community awareness of water conservation goals	The community understands and appreciates the benefits of good water management	Integrate water awareness messaging into on site interpretation	Integrate to interpretive theming and design	ST	Reduced duration of water leak / loss problems	Action 3.2
Protection of riparian vegetation	The continuity of Creek corridor vegetation through Tunks Park to foreshores is enhanced	Implement Council's Bushland Rehabilitation Plan for Tunks Park 2018 for creek corridor		O		Refer Bushland Management Plan
Siltation at stormwater outfall to bay		Promote point source controls on stormwater systems entering the Flat Rock Creek system	Liaise with Council stormwater section	O		Refer Bushland Management Plan
Habitat function of creek in vicinity of Weir can degrade with siltation	Optimise habitat values of waters and foreshores in area of weir	Maintaining the habitats by removing silt from both sides of the weir is recommended		O	Ongoing management	Action 3.3
Function of fish movement channel	Enhance areas of free-flow for small species that utilise fast flowing water	Further review and investigate potential for integration of pipe linkages	Design based on principles defined in Kingfisher Ecology Report if feasible	LT	Fish movement increased	Action 3.4
	Creation of at least one deeper and sinuous fish movement channel	Review and investigate repositioning of rocks at edge of weir to create sinuous run	Design based on principles defined in Kingfisher Ecology Report if feasible	LT		Action 3.5
Siltation of fish movement channel	The fish way is adequately maintained to ensure siltation does not reduce effectiveness / function	Undertaken yearly inspections and implement siltation removal as necessary.	Integrate to maintenance programnmes for Bushland Corridor	O		Action 3.6

Issue	Objective	Action	Key steps / Comments	Priority	Performance Indicators	Reference No / Other References
4. VISUAL AND LANDSCAPE MANAGEMENT						
Role as part of larger open space system	The park is conserved and enhanced as a "green" corridor integrating bushland and maintained park grassed areas	Zoning of land and the POM actions reflect the key roles of the open space areas and provide for conservation of the creek and bushland areas in the park		O		Action 4.1
Lack of awareness of environmental values of creek system	The creek corridor is recognised and celebrated	Enhance interpretative representation of creeks environmental and habitat values	Refer interpretive strategy development and implementation Actions 11.2 and 11.3	MT-O		
	Park use reflects a wide range of community needs from organised sports to nature appreciation and a range of other informal uses	Maintain the organised sports role of the park	Consider potential impacts on the local community when managing organised sports		Continuation of organised sports at the park	Action 4.2
		Upgrade the foreshore park area to cater for the community and other visitors to the park	Seating, picnic tables, kayak storage, fitness equipment, and drinking fountains	MT-O	Foreshore area upgraded	Action 4.3

Issue	Objective	Action	Key steps / Comments	Priority	Performance Indicators	Reference No / Other References
5. PEDESTRIAN AND CYCLE ACCESS						
Lack of awareness of existing walking, cycling and transport options Need to make users aware of new options for getting to parks	Promote walking, cycling and public transport use Improve health and wellbeing	Development of a Transport Access Guide for Tunks Park		MT-O	Transport Access Guide developed	Action 5.1
		After review provide increased wayfinding to routes to park and adjoining streets	Refer Action 11.1	LT-O		
Limited pedestrian access from south side into the park	Improve pedestrian access into park Improve safety for "active travel modes" walking and cycling	See below		O		Action 5.2
	Enhance access where possible from North Sydney (south) side of park	Maintain condition of existing path link from The Boulevarde		O	Path maintained in good condition	Action 5.3
		Upgrade linking access through Judith Ambler Reserve from Currawang Street		ST-MT	Track upgrade complete	Action 5.4
Discontinuous pedestrian access on streets leading to park	Improve pedestrian access into park Improve safety for "active travel modes" walking and cycling	Investigate the feasibility of providing continuous footpath to The Boulevarde / Rowlinson Parade linking to existing step link to park		MT	Investigations complete	Action 5.5
Local "on road" mixed traffic cycle route are not legible	Improve legibility and usage of on road path links	Investigate the feasibility of providing on road cycle route markings to existing route to The Boulevarde, Rowlinson Parade Currawang Street, Pine Street E and Allan Street through to Cammeray Road	Liaise with Councils traffic division for implementation	ST	Investigations complete	Action 5.6

Issue	Objective	Action	Key steps / Comments	Priority	Performance Indicators	Reference No / Other References
Local "on road" mixed traffic cycle route does not connect to park	Improve legibility and usage of on road path links	Connect southern cycle route to park with on road cycle route markings	Liaise with Councils traffic division for implementation	MT-O	Usage of on road cycle routes	Action 5.7
Streets leading to the park all have challenging grades and limited width	Recognise limitations of on road cycle routes as option for cycle access to Tunks Park	Ensure Transport Access Guide for Tunks Park identifies limitations of cycle access route	Refer Action 5.1			Refer Action 5.1
Lack of cycle provisions within park	Improved cycle facilities available across Tunks Park	Investigate the feasibility of improving cycle facilities (eg cycle racks) within park	Provide cycle racks in appropriate locations to sports fields and to foreshore open space	ST-MT	Cycle racks installed	Action 5.8
Lack of safe pedestrian setdown / pickup location to access park	Setdown space is available that creates safer access to park and limits impacts on traffic movement	Investigate the feasibility of the provision of drop-off and pick-up bays for general vehicles that can also be used by buses during the week (school groups)		MT	Investigations complete Recommendations made	Action 5.9
Lack of defined access to north park edge in area of poor grassed cover	Low key northern track route for park users that integrates with potential track links from Lower Cliff Ave is available	Investigate the feasibility of providing gravel track margin to north edge of park Provide adjoining seating in several locations if investigations find feasible and desirable		ST-LT	Investigation carried out and work scheduled if feasible and desirable	Action 5.10
Lack of legible and functional connections to adjoining access	Tunks Park is connected to the broader walking trail and foreshore access system	Investigate the feasibility of improving wayfinding to track and footpath access system	Refer Action 11.1	MT		Refer Action 11.1
		Investigate the feasibility of improving access to adjoining track systems in North Sydney	Refer to Action 5.2	MT-O		Refer to Action 5.2
Asphalt path on the south side of the playing fields floods in winter	To ensure this path is usable at all times	Carry out required works to address intermittent flooding issues		SY-MT	Repair work complete	Action 5.11

Issue	Objective	Action	Key steps / Comments	Priority	Performance Indicators	Reference No / Other References
6. VEHICULAR ACCESS AND PARKING						
TRAFFIC						
Lack of awareness of existing walking, cycling and transport options Need to make users aware of new options for getting to parks	Promote walking, cycling and public transport use Improve health and wellbeing					Refer to Action 5.1
Impact of on road parking on Brothers Ave on traffic flow	Reduce Traffic Congestion Reduce conflict of parking circulation and through access at Brothers Ave at peak use times	Explore a Shuttle Bus service from transport nodes and parking stations to sports facilities Liaise with relevant Council sections	Assess feasibility Liaise with sports clubs Undertake trial period Implement if successful and potentially integrate with pay parking for non residents	ST-O	Feasibility and practically assessed	Action 6.1
Traffic volumes to The Boulevarde	Peak period traffic (Sat mornings) is not increased and is alleviated where possible	Continue system of reduced field use and scheduling changes introduced in the 2017 winter season for sportsfield use		ST-O	Increased us of alternatives including car pooling and shuttle bus (if pursued)	Action 6.2
Pinch points to The Boulevarde		No change recommended by The NSC Local Area Traffic Management and Action Plan (Zone 3 – Cammeray)				
Poor driveway visibility with cars parked adjacent	Mitigate the impact of parked cars driveway access	Liaise with Council engineering section to provide linemarkings reinforcing extent of parking near driveways		ST	Parking to adjoining streets is compliant with marked extent of parking on site	Action 6.3
		Enforce parking zones to adjoining streets	Liaise with Council rangers to provide ongoing presences to adjoining streets to police parking zones	O		Action 6.4

Issue	Objective	Action	Key steps / Comments	Priority	Performance Indicators	Reference No / Other References
PARKING						
Demand for parking during peak winter ports period (Sat mornings)	Reduce Sports Parking Demands Encourage other modes of transport	Investigate feasibility of provision of a Shuttle Bus service from transport nodes and parking stations to sports facilities	Refer Action 6.1			
		If found feasible after review, trial park and ride shuttle bus during winter season		ST-MT	Shuttle bus trial undertaken	Action 6.5
Lack of enforcement of existing parking restrictions	Full compliance with parking controls to carpark and adjoining streets	Liaise with relevant Council sections to enforce existing and future parking restrictions: -Trailer parking (including cars parked in trailer spaces) -Overstaying time restricted parking spaces including overnight -Parking beyond marked or accepted parking extents to local streets in particular at driveways		ST-O	Improved compliance with parking controls to carpark and adjoining streets	Action 6.6
Motorcycles can occupy car parking spaces	Ascertain the need for dedicated motorcycle spaces to serve park	Investigate the need / desirability of motorcycle parking within Tunks Park		ST-MT	Investigations complete Implement recommendations	Action 6.7

Issue	Objective	Action	Key steps / Comments	Priority	Performance Indicators	Reference No / Other References
7. PARK USE						
ORGANISED SPORTS						
Concern with balance of use in park between organised sports and informal uses	Flexible role of park for a sustainable level of organised sports use is conserved	Park use is managed to maintain historical organised sports role	Consideration is given to local amenity and the environment	O	Park continues to cater for organised sports and other forms of recreation	Action 7.1
Impacts of sports user vehicular access and parking on local area amenity	Impacts of sports user vehicular access and parking on local area are reduced					Refer Actions 6.1-6.7
Impacts of sports uses on use of park for informal activities	Conflicts between organised sports users and informal users are minimised	Liaise with school sports users to develop game day management strategies as required: -extent of warm up / preparation areas so as to not impede general public access -potential for game day moveable markers / barriers setup by sports clubs		O	Conflicts between sports usage and informal usage reduced	Action 7.2
Impact of sports use on grass condition	Impacts of organised sports use on grass surface are managed	Monitor grass condition and identify if there are future issues with level of sports use		O	Reasonable condition of throughout the year	Action 7.3
INFORMAL USE						
Foreshore has potential to provide greater passive recreational use	Low key upgrading of foreshore space	Provide supporting facilities to foreshore open space: -Park seating -Drinking fountain -Picnic tables -upgraded BBQ and picnic facilities -kayak storage facilities		MT-O	Facilities that meet the needs of users	Refer Action 4.3

Issue	Objective	Action	Key steps / Comments	Priority	Performance Indicators	Reference No / Other References
		Review potential for compact toilet facility to support foreshore passive recreation minimising visual impact		LT	Review completed	Action 7.4
Broad community appeal of park	Flexible role of park for informal and casual community use is conserved and enhanced	Manage extent of sports usage – Refer Action 7.2				Refer Action 7.2
		Investigate the feasibility of creating a loop path around the perimeter of the park		ST-O	Investigations complete and work scheduled if feasible and desirable	Action 7.5
		Determine locations for additional park seating related to shade Install seats		ST-MT	Additional park seats provided	Action 7.6
Natural context of park provides draw for non structured play	Opportunities for non-structured play are enhanced	Investigate the feasibility of integrating natural play settings / elements that can extend through park		MT-O		Action 7.7
Impact of foreshore changes on fitness equipment area	Fitness equipment provision within park retained and enhanced	Install additional fitness equipment in the park		MT		Action 7.8
EXPERIENCING NATURE						
Having access to natural experiences	Natural qualities of park including bushland, park trees, open grasslands and foreshore are conserved and enhanced	Bushland areas to slopes and creek corridor are protected and enhanced		O		Action 7.9
	Opportunities for children and adults to experience nature are conserved and enhanced	Track access through bush areas are maintained and extended where possible		O		Action 7.10

Issue	Objective	Action	Key steps / Comments	Priority	Performance Indicators	Reference No / Other References
CONCESSIONS AND KIOSKS						
Serving park users with concession facilities	Existing concession availability to compliment sports use is maintained	Sports clubs continue to operate kiosk facility during game times out of main amenities building		O	Satisfaction of park users	Action 7.11
DOG USE AND ACCESS						
Past incidences of off leash dog access to bushland areas	On leash access to park is maintained to support dog users without impact on habitat values	Maintain current regime of on leash dog access during sports field game times with off leash to field areas only at other times Investigate feasibility of installation of low barrier along bushland / park interface to deter access by off-leash dogs.	Refer to Council website: "Dog Control in North Sydney"	ST	Regular patrols carried out by Council Rangers	Action 7.12

Issue	Objective	Action	Key steps / Comments	Priority	Performance Indicators	Reference No / Other References
8. BOATRAMP AND FORESHORE ACCESS						
Character of foreshore area	Improve habitat value at foreshore	Investigate the feasibility of integrating tree and shrub vegetation into foreshore to overhang waters edge having regard for views Refer Action 1.12		ST-MT	Investigations complete	Refer Action 1.12
Limited recreational access at waters edge	Public access and use of waterfront open space areas is enhanced	Refer Action 4.3				Refer Action 4.3
Local resident concerns that Council tree planting for shade and environmental amenity in park may affect their views to water	A balanced approach to tree planting is applied where the site objectives of environment and park user amenity are integrated with consideration of resident desires for views	Review recent foreshore tree planting as part of foreshore open space enhancements in conjunction with interested local residents	Consider whether it is appropriate to plant additional trees on the northern side of the cricket oval near the exercise equipment	ST MT	Review completed Recommendations implemented	Refer Action 1.6
Impact of boat ramp on park and local residential amenity	Impacts of boat ramp use on park and local residential amenity are minimised	Improve existing regulatory signage related to noise and related penalties		ST O	Incidences of boat user / resident conflicts are reduced	Action 8.1
		Council Rangers to enforce regulations relating to boat ramp and carpark use		ST O	Incidences of boat user / resident conflicts are reduced	Action 8.2
		Council Rangers to follow up on resident reports		ST O	Incidences of boat user / resident conflicts are reduced	Action 8.3
Provision of facilities for people who wish to store kayaks in the Park	Kayak use in park is supported while ad hoc Kayack storage is controlled	Provide kayak storage in area of boat ramp	Minimise visual intrusion	ST-MT	Kayak storage available	Action 8.4

Issue	Objective	Action	Key steps / Comments	Priority	Performance Indicators	Reference No / Other References
Late night use of cold water tap to clean boat engines and engine noise disturbs local residents	Late night noise from boat ramp use is reduced Boat ramp continues to operate as a 24hr a day 7 day a week regional facility	Retain wash down facilities at Tunks Park Continue to monitor the effectiveness of the timer on the tap near the boat ramp related noise at night	Timer on the tap prevents use late at night	O	Ongoing monitoring	Action 8.5
		Ensure boat ramp users are aware of need to keep noise to minimum in particular at night		ST-O	Ongoing education	Action 8.6
Observation of regulations related to boat ramp use and parking	Improved adherence to regultions	Identify optimum locations for regulatory signage at boat ramp and trailer parking Implement improved sign locations		ST-MT	Improved locations identified Regulatory signs installed in preferred locations	Action 8.7
Regional role of boatramp	Maintain and enhance boatramp	Liaise with NSW Roads and Maritime and boating / fishing representatives to pursue improvements to boat ramp	Resolved at Council meeting of 10th December 2018	ST-O	Liaison commenced	Action 8.8

Issue	Objective	Action	Key steps / Comments	Priority	Performance Indicators	Reference No / Other References
9. BUILDINGS						
Facilities buildings are of varied quality and condition	Facilities provide for comfortable community use	Undertake and implement findings of Council's recent NSC Parks and amenities condition assessment		ST-O	Completion of review	Action 9.1
Informal park users are inadequately catered for in existing facilities	Amenities are usable for both organised sports users and informal park users as far as practical					
Building maintenance identified as an issue by community	Facilities and amenities are appropriately and effectively maintained	Implement building management and maintenance programme		O	Satisfaction of park users Number of requests for action	Action 9.2
Number of buildings through the park that are inefficient and don't adequately serve user needs	Building functions to serve organised and non organised park use are most effectively addressed in an appropriately scaled and styled building complimenting the park character	Investigate the feasibility of consolidating building functions into one footprint and a single built form to south edge of fields in location of existing main building		LT	Feasibility investigated	Action 9.3
Western building is isolated and ineffective		Consider removal of western masonry amenities building currently used for storage – liaise with clubs to resolve best means for game day setup		LT	Investigations complete	Action 9.4
With increased use of foreshore potential pressure for toilets may arise	Foreshore open space users needs are effectively met Visual and spatial impacts on foreshore are managed	Monitor potential future desirability of toilet to serve expanded foreshore reserve – locate to southern edge at Mortlock Reserve		LT	Satisfaction of park users	Action 9.5

Issue	Objective	Action	Key steps / Comments	Priority	Performance Indicators	Reference No / Other References
10. PARK FURNITURE						
Range of furniture types and ages	Park facilities contribute to a unified and appropriate character of the park	Progressively update park furniture to a coordinated suite of elements in accordance with Public Domain Style Manual and Design Code 2018 When updating refine locations and placement to be most effective		O	Unified visual character	Action 10.1
Ad hoc location of some furniture	Facilities are provided and located to minimise visual clutter and to serve multiple users	Plan and implement new furniture to serve park use		O	Satisfaction of park users	Action 10.2
Community raised concerns about bin available in particular in peak use times	A mix of permanent and bump in bins to serve peak periods provide for park waste management	Review placement of bins and bin enclosures to cater for day to day use		O	Satisfaction of park users	Action 10.3

Issue	Objective	Action	Key steps / Comments	Priority	Performance Indicators	Reference No / Other References
11. WAYFINDING SIGNAGE AND INTERPRETATION						
Lack of awareness of existing walking, cycling and transport options	Pedestrians and cyclists can easily find their way to park	Increased pedestrian and cycle wayfinding to routes to park and adjoining streets		MT-O	Increased walking and cycling access	Action 11.1
		Transport Access Guide for Tunks Park to be made available on Council's website Refer Action 5.1		MT		Refer Action 5.1
Lack of interpretive and supporting information to educate about site significance	Park users and non users are effectively informed about park values through on site and web based mediums	Develop integrated interpretive strategy for park integrating: -natural environment -Aboriginal heritage -European heritage -Water conservation awareness		MT-O	Number of hits to on line information Park user satisfaction	Action 11.2
		Investigate the feasibility of implementing integrated interpretive elements including signage' artworks and events across the site		O	Completion of interpretive programme	Action 11.3
Enforcement of regulations related to boatramp use	Boatramp users comply with RMS and other regulations	Improve existing regulatory signage related to noise and related penalties Refer Action 8.1		O		Refer Action 8.1

Issue	Objective	Action	Key steps / Comments	Priority	Performance Indicators	Reference No / Other References
12. PARK MAINTENANCE						
Grassed areas susceptible to wear along north edge of the park		Seek to improve drainage along base of vegetated slopes Investigate the feasibility of providing gravel edge track between grass and slopes Refer Action 5.15		ST-O		Refer Action 5.10
Grassed areas susceptible to wear to goal boxes		Continue to improve soil conditions in off season		O	Improved resilience to wear	Action 12.1
13. COMMUNITY LIAISON AND RELATIONS						
Community interest in the management of the park	Ongoing community involvement in improvement of the park	All major park improvement projects to integrate community consultation as part of design process	This is standard Council operating procedure. Relevant information can be found on Council's website: 'Community Engagement Policy'	O	Community involvement in design processes	Action 13.1
		Continuation of Council's community involvement programs including Bushcare; Wildlife Watch; Native Havens (for bushland neighbors); Streets Alive; Harbourcare etc		ST O		
Other park users	Ongoing liaison with other park users as required	Ongoing liaison with sports groups as required		ST_O	Liaison occurs as needed	Action 13.2
		Undertake further discussions with NSW Roads and Maritime and boating / fishing representatives to seek to improve the regional boat ramp facility	Refer resolution from Council meeting 10th December 2018	ST_O	Liaison occurs with relevant representatives	Action 13.3

6.0 Masterplan

6.1 Long term masterplan

The Long Term Masterplan on the following page illustrates and identifies the Plan of Management actions as outlined in the preceding Implementation section.

7.0 Appendices and supporting material

7.1 Other Policies and Strategies

Statutory Framework:

- Local Government Act 1993
- LG Amendment (Community Land Management) Act 1998
- Crown Lands Act 1989
- Environmental Planning and Assessment Act 1979
- Contaminated Land Management Act 1997
- National Parks and Wildlife Act 1974
- Threatened Species Conservation Act 1995
- Fisheries Management Act 1994
- State Environmental Planning Policy No 19 – Bushland in Urban Areas
- Sydney Harbour Regional Environmental Plan (Sydney Harbour Catchment) 2005
- Companion Animals Act 1998

Plans, Policies and Studies:

- North Sydney Local Environmental Plan 2013
- North Sydney Development Control Plan 2013
- Bushland Plan of Management 2014
- Playgrounds Plan of Management 2016
- Foreshore Parks and Reserves Plan of Management 2017
- Sportsgrounds Plan of Management 2017
- North Sydney Council 2020 Vision
- North Sydney Council Delivery Program
- North Sydney Community Engagement Protocol 2013
- North Sydney Community Strategic Plan 2013-2023
- North Sydney Recreational Needs Study 2015
- North Sydney Water-Based Recreation Needs Study 2006
- North Sydney Foreshore Access Strategy 2007
- North Sydney Council Open Space Provision Strategy 2009
- North Sydney Urban Forest Strategy 2011
- Draft North Sydney LGA Flood Study 2016
- North Sydney Council Playgrounds Methodology Document 2015
- North Sydney Council Synthetic Field Feasibility Study 2008
- North Sydney Natural Area Survey 2010
- Towards Sustainability Plan 2004
- Sportsground Amenities Buildings Condition Assessment Report 2007
- NSW Rural Fire Service Planning for Bush Fire Protection Guide 2006
- Greater Sydney Local Land Service Transition Catchment Action Plan 2013-2023

Site Specific Documents:

- Preliminary Report for the Soil Contamination Survey, Tunks Park 2003
- Tunks Park Bushland Rehabilitation Plan 2018 (Draft)
- Tunks Park Bushland Fauna Rehabilitation Plan 2003
- Tunks Park Weir Fish Passage Remediation Report 2014

7.2 Consultation reports

7.3 Public exhibition report

7.4 Habitat review

7.5 Tunks Park Travel Plan

7.6 Civil Engineering review