4.2 Landscape Improvement Plan

Milson Park has been identified as an under utilised and valuable open space for the local community. This project provides the opportunity to improve the range of uses available to the community as well as creating better connections to the park. The local community includes residents in the suburbs of Westmead, Constitution Hill, Wentworthville and Northmead as well as workers in the Westmead Health Precinct.

The strategic location of the park provides an opportunity to improve pedestrian and cycle connections to local and regional attractions including the Westmead Health Precinct, Parramatta Park and the Parramatta CBD.

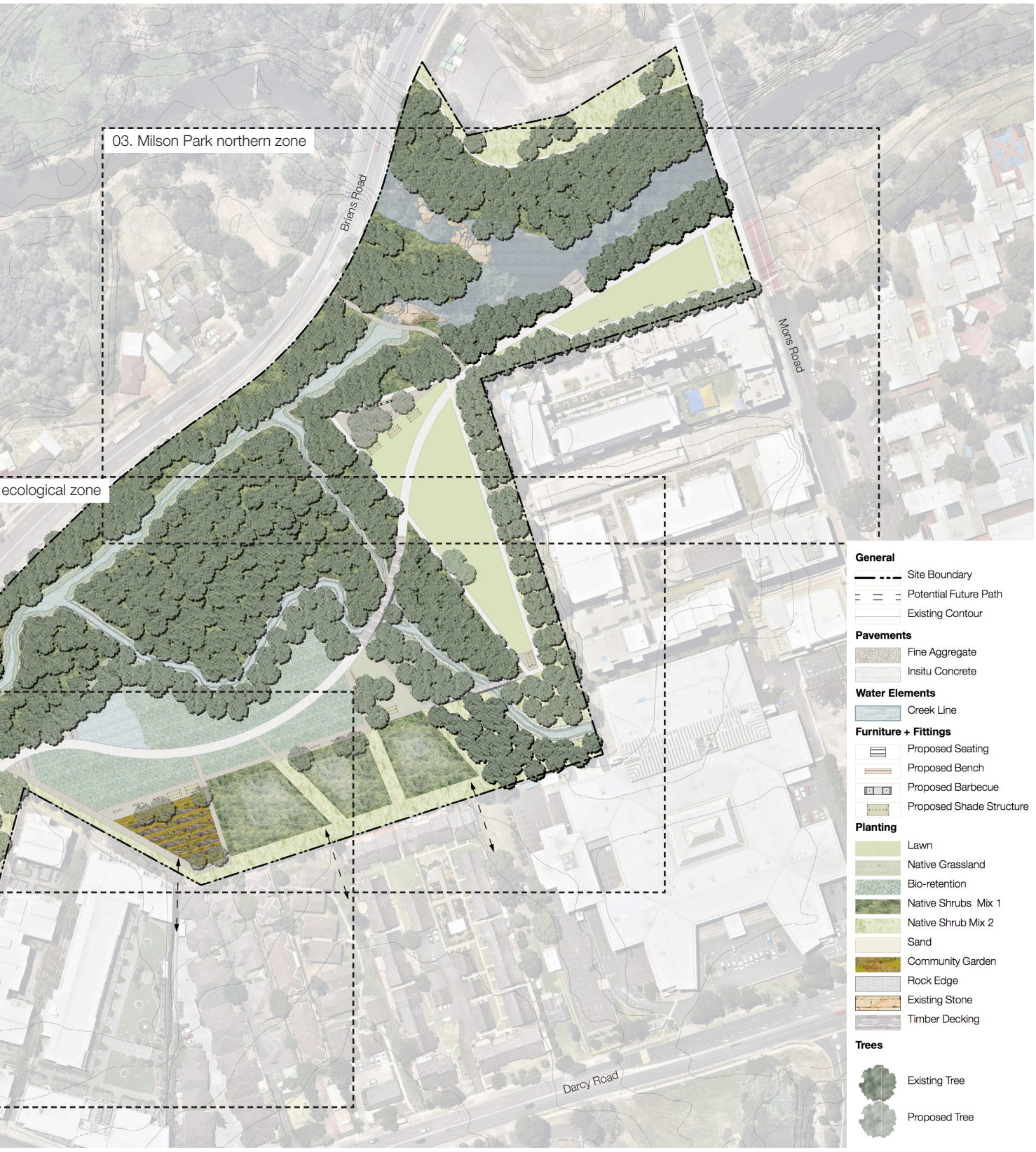
The landscape improvement plan seeks to create a design that balances the community's needs and desires with the protection and enhancement of existing ecological values of the site.

The design aims to create a safe and inviting park environment, that will enable the community to connect with nature and access a currently under utilised open space. The landscape improvement plan is made up of the following 3 zones.

01. Village Green and Finlaysons Creek naturalisation
02. Milson Park ecological zone
03. Milson Park northern zone

The proposed program and uses for each of these zones is outlined in detail in the following sections.

Figure 4.03 Landscape Improvement Plan


03. Milson Park northern zone
ecological zone
Briens Road
Moris Road
Darcy Road
General
Site Boundary
Potential Future Path
Existing Contour
Pavements
Fine Aggregate
Insitu Concrete
Water Elements
Creek Line
Furniture + Fittings
Proposed Seating
Proposed Bench
Proposed Barbecue
Proposed Shade Structure
Planting
Lawn
Native Grassland
Bio-retention
Native Shrubs Mix 1
Native Shrub Mix 2
Sand
Community Garden
Rock Edge
Existing Stone
Timber Decking
Trees
Existing Tree
Proposed Tree

4.2.1 Village Green and Finlayson Creek naturalisation

In the southern zone of Milson Park adjacent to Briens Road and Darcy Road it is proposed to naturalise the existing Finlaysons Creek concrete channel and realign the concrete channel to create a larger more usable area for open space. It is proposed to include a new entrance to the park on its southern boundary and to provide a shared path connection as a through link connecting Milson Park to the Westmead Hospital Precinct.

The proposed new village green area will create a formalised open space area for the local community and will provide a new turf area. There is an option for minor re-leveling to create a more even surface for informal ball games. The village green will also provide opportunities for picnics and barbecues in the park. The village green is designed to take advantage of the cooler microclimate provided by the creekline and the water running through the creekline as well as the existing trees in the park providing shade.

The naturalisation of Finlaysons Creek would include removal of the section of concrete channel in Milson Park between the existing culvert under Darcy Rd and the existing naturalised section of Finlaysons Creek within Milson Park. The channel naturalisation would involve vegetated natural banks to the creek, a natural bed to the creek including rocks and planting and potential for pools and riffles where the topography allows.

It is also proposed to include a very simple nature play area adjacent to the bushland. The nature play would include opportunities for interaction with an extended ecological area adjacent to the existing vegetation as well as natural play elements such as paths through the vegetation, timber play elements, rocks for climbing and loose surface elements such as rocks and sand, and opportunities for creative and imaginative play.

Figure 4.04 Landscape Improvement Plan - Village Green and Finlaysons

There are a number of large trees adjacent to Darcy Road, including a very large remnant Eucalyptus tereticornis. It is proposed to retain these trees and to create a native meadow underneath these trees which will be a part of a new southern entrance to Milson Park. This includes new proposed signage to the park. The native meadow would provide understorey planting to protect any damage to the trees from mowing. The new entrance to the park will be an important element to encourage and attract people into the central portion of the park which currently is not easily visible from the surrounding streets.

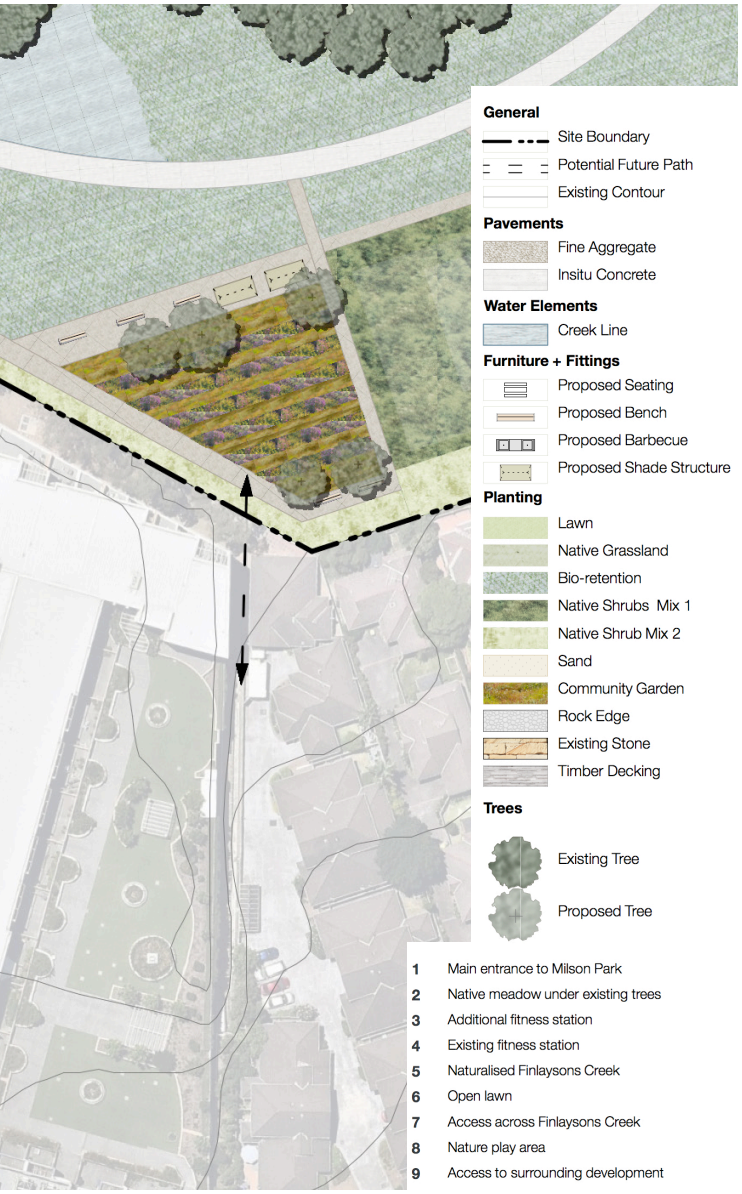



Figure 4.05 Ecological enhancement - Bee totem poles


Figure 4.06 Naturalised creek line


Figure 4.07 Nature play

4.2.2 Milson Park Ecological Zone

In the central zone of Milson Park there is currently valuable Cumberland Plains woodland communities and good habitat for a range of fauna, particularly small birds. It is proposed to retain and enhance these important vegetation communities and enhance the habitat in this central zone of the park.

It is proposed to include passive recreation opportunities for the local community to enjoy the ecological zone through the provision of nature trails, as well as opportunities for relaxation in nature including seating, shelters and opportunities for picnicking. The central zone will also include the main link through Milson Park, and will connect the southern and northern zones of Milson Park including a proposed new crossing over the tributary of Milson Creek.

It is proposed to include a natural stormwater filter system including raingardens, wetland areas and open water areas to treat a tributary of Finlaysons Creek before it discharges back into the creek. The stormwater treatment system will significantly improve the water quality discharging into the downstream reaches of Finlaysons Creek and will create additional habitat features within the ecological zone. The treatment system will be planted out with native vegetation from the Cumberland Plains woodland communities and be connected to the existing vegetation. At the southern edge to the ecological zone it is proposed to locate an open water zone which captures the treated water and provides for amenity.

The stormwater treatment system will require the removal of existing soil from the park. It is proposed to relocate this excavated soil material adjacent to the natural stormwater filter system to create landscape mounds which are planted out with native vegetation and contribute to an enhanced ecological and habitat zone. The mounds will also provide for an interesting feature within the park which creates areas of quiet relaxation for the community.

Figure 4.08 Landscape Improvement Plan - Milson Park ecological zone

There is an option for a community garden to be located in this zone. A community garden was identified during consultation by some members of the community as a potentially desirable feature. The investigation for options towards a community garden could provide an opportunity for the local community who are living in higher density residential dwellings and who have limited space for gardening an opportunity to grow their own, herbs, fruits and vegetables.

Figure 4.09 Stormwater treatment system

Figure 4.10 Planted mounds

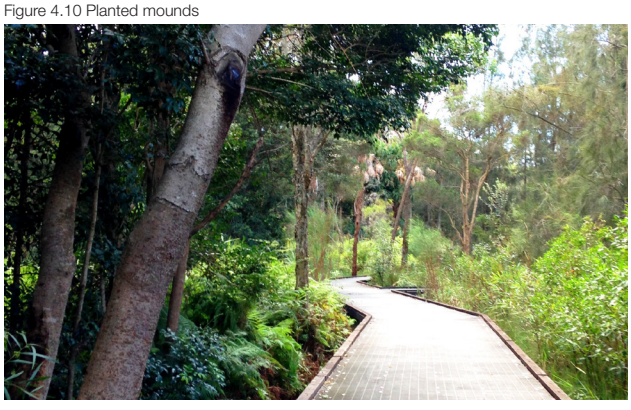


Figure 4.11 Elevated boardwalk

4.2.3 Milson Park Northern Zone

The northern zone of Milson Park currently consists of areas of turf and scattered trees. It is surrounded to the south by multi-storey residential apartments and to the north by creeklines. Toongabbie Creek is a dominant feature of this zone with it steep banks providing opportunities for views along the creek. This zone also includes the junction of Finlaysons Creek and Toongabbie Creek and a rocky outcrop near this junction which is an interesting natural feature. The area also has important indigenous heritage related to the natural features of the site.

The landscape improvement plan for this zone proposes to highlight the natural assets including the creek and rocky outcrops in the creeklines. It is proposed to provide a viewing area close to the creek junction to provide views looking north along Toongabbie Creek. It is also proposed to enhance the connections to the existing bush track crossing over Finlaysons Creek and connecting to Briens Road. Feedback from the community was that this track was an important connection to public transport buses along Briens Road.

The two existing turf areas in this zone are proposed to be formalised and where appropriate re-levelled to provide for more even surfaces for informal ball games and passive recreation. It is proposed to frame these areas by enhancing the existing vegetation and creating path edges to delineate the passive open spaces from the bushland areas.

In the northern zone it is also proposed to provide opportunities such as seating, benches, shade structures, and barbecue spaces. This area has the potential to be used in the future by the community as well as employees, patients and visitors to the expanded Westmead Hospital precinct due to its close proximity to these facilities.

Figure 4.12 Landscape Improvement Plan - Milson Park northern zone

The northern zone also provides an important connection to the north and allows for future connections to the Parramatta Ways shared path as well as the Redbank Trail. It also connects to Mons Road and across Finlaysons Creek to Briens Road. It provides an important role in providing connectivity to the adjacent surrounding areas to the north of the park.

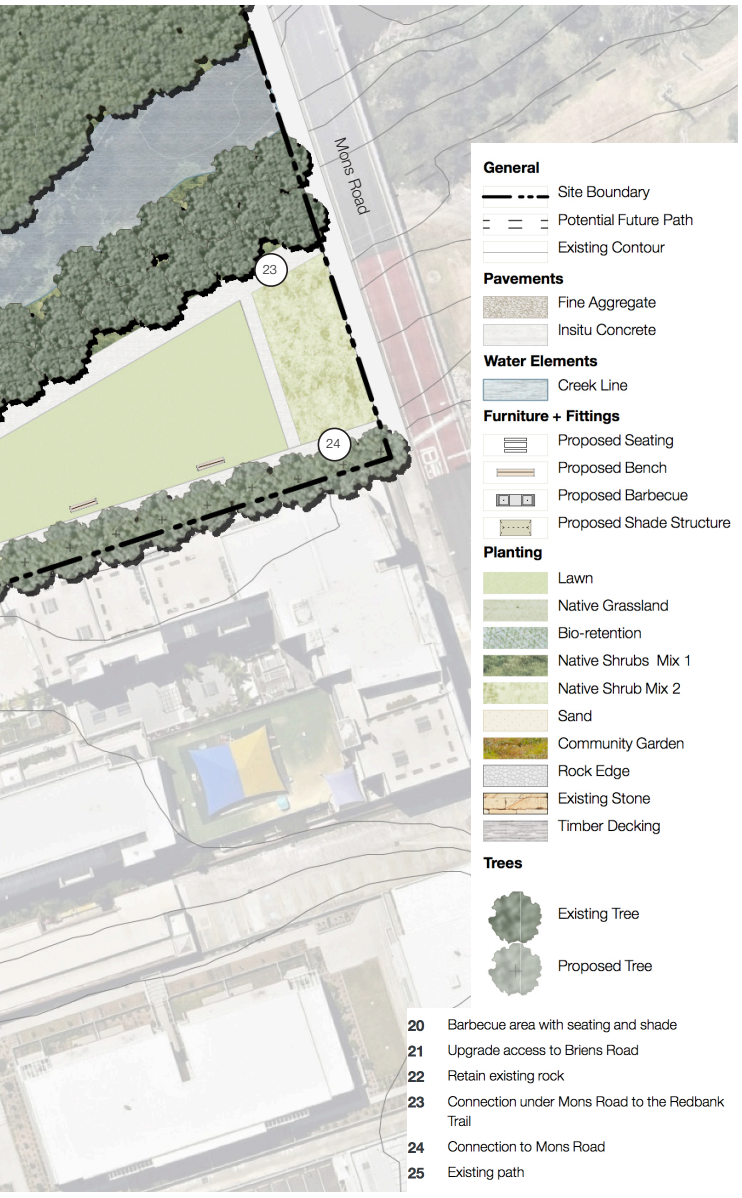


Figure 4.13 Viewing deck

Figure 4.14 Open lawn

Figure 4.15 Barbecue area with seating and shade

4.3.1 Water Management Outcomes

The project is able to achieve significant water quality outcomes. The proposed design is able to treat a large upstream catchment of more than 90 hectares to best practice. Treating this water will remove significant outputs of pollutants including:

- Total Suspended Sediment 58,930 kg/year
- Total Phosphorus 75 kg/year
- Total Nitrogen 401 kg/year.

By treating this large upstream catchment, the stormwater treatment system is helping to achieve the City of Parramatta's vision of bringing back swimming to the Parramatta River. For more information on the City of Parramatta's vision, visit http://www.ourlivingriver.com.au.

The proposed design also achieves protection of the Cumberland Plain woodland on site and enhances these native vegetation communities. The proposed design also includes naturalisation of the existing concrete channel by replacing it with a natural channel to improve the ecology and amenity of Finlaysons Creek.

Figure 4.16 Biofiltration at Edinburgh Gardens, Melbourne

4.3.2 Ecology and Habitat

Milson Park has been identified as having a number of ecological assets. These include:

- Cumberland Woodlands Swamp Oak Forest Endangered Ecological Community (EEC)
- Cumberland Woodlands Riverflat Forest Endangered Ecological Community (EEC)
- a high diversity of birds, particularly small birds which utilise the dense understorey for shelter
- use of the site by a range of microbat species for both habitat and foraging
- use of the site by a range of other fauna including frogs and lizards
- a significant large remnant Eucalyptus terticornis
- a remnant of Finlayson Creek channel
- connection to Toongabie Creek and Finlayson Creek.

The site is of particular importance for small bird habitat because of the nature of the dense understorey on site and the large connected area of vegetation. A wide number of bird species have been identified at the site which have not been found at other sites in the local area. It is considered to have one of the highest diversity of bird species in Parramatta LGA.

The proposed design is to protect and enhance the ecological assets on site. To enhance the existing ecological assets it is proposed to:

- replace sections of weedy vegetation with native vegetation. A large area of the vegetation is considered to be dominated by woody weeds (predominantly privet) and a weedy understorey (particularly lantana)
- undertake staged clearance of the weeds and replacement planting with native vegetation to ensure that habitat is retained for small birds. The staged removal of the vegetation will occur over a number of years to allow any new planted vegetation to establish
- re-direct treated flows into the old remnant channel at the site to help provide a more natural hydrological regime to the EEC.

It is also proposed to create habitat by:

- creating additional planting, including through the proposed stormwater treatment and in areas at the site which are currently dominated by pasture grasses
- creating new habitat on site such as freshwater wetland areas and open water zones to encourage aquatic species such as frogs
- installing selected habitat features such as woody debris suitable for native bees and designed 'bat flaps' habitat for microbats
- installing new hollows for birds, possums and other similar species.

Refer to Appendix 01 for the environmental assessment at Milson Park.

Figure 4.17 Dense weedy vegetation

Figure 4.18 Existing creek line

4.3.3 Connectivity

The Milson Park upgrade will provide approximately 850 m of the proposed Parramatta Bike Plan route that will travel through Milson Park. The proposed plan also links these new paths to the existing Redbank trail and new connections over Finlaysons Creek.

A secondary path network is also created, forming loops of varying lengths which will enable the community to use the park for walking, dog walking, jogging, cycling etc.

Potential future connections to Darcy Road should also be explored if land between the park and Darcy Road is redeveloped in the future. The locations shown on the plan are indicative only and any future connections will require further assessment by City of Parramatta Council should redevelopment of any of these sites be proposed.

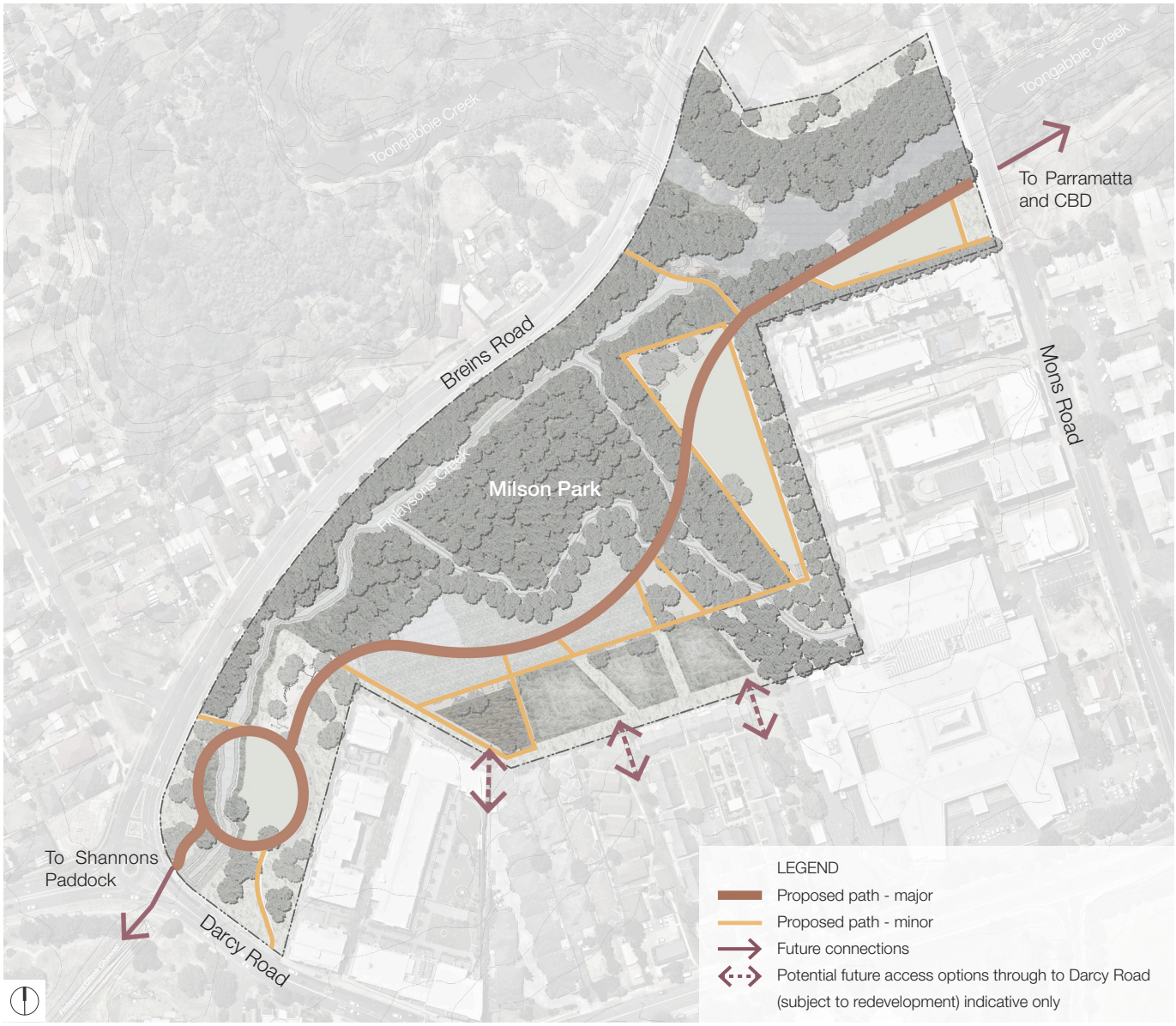


Figure 4.19 Improved connectivity at Milson Park

4.3.4 Amenity

Milson Park currently has limited amenity and limited site features. The design at Milson Park proposes to take advantage of the existing native vegetation to create a new parkland in a bushland setting. The proposed design approach to the park will be to create a place to enjoy and relax in nature. This amenity will be available for the local community as well as visitors, employees and patients at the Westmead Hospital Precinct. The amenity at the park will incorporate the existing natural assets such as the bushland areas, the creek line and the proposed stormwater treatment which will contribute to the natural amenity of the site.

The park upgrade increases amenity by providing:

- additional native planting areas through the treatment zone and ecological restoration area
- additional footpaths through the park
- seating and shade structures
- decks, boardwalks and viewing platforms
- barbecue and picnic facilities
- additional planting including tree planting within the park.

The design also proposes to provide a safe and secure path connection through the site.

Figure 4.20 Bioretention system at Joynton Park, Zetland

Figure 4.21 Furniture at Fairwater Park, Blacktown

Figure 4.22 Native planting and paths at Lizard Log Playground

Figure 4.23 Stormwater treatment system at Blacktown Showground

4.3.5 Recreation Opportunities

Milson Park currently has limited recreation facilities besides the fitness station and informal walking paths. The proposed design at Milson Park provides for improved recreation opportunities at the site. Due to the likely re-development associated with the Westmead Hospital Precinct, there is likely to be an increased demand for open space and a variety of recreational needs. The upgrades to Milson Park will help to meet the existing and future recreational needs of the community.

The park upgrade increases recreation facilities by providing:

- nature play opportunities
- bike and scooter tracks
- additional pathways and connectivity
- new open space area adjacent to Darcy Road
- formalised and upgraded lawn areas in the northern area of the park
- nature based recreation including bird watching and potential fishing
- opportunities for additional exercise stations
- opportunities for community gardens and similar activities
- facilities for picnics and informal social gatherings.

Figure 4.24 Lizard Log Parklands, Sydney

Figure 4.25 Nature play

Figure 4.26 Fitness station

Figure 4.27 Open lawn areas

5.0 Appendicies

Appendix 01 - Flora and Fauna Assessment

existing ecological assets

Finlaysons Creek bisects the site and flows north-east to Toongabbie Creek. A concrete weir restricts the flow of Finlaysons Creek however the weir pool may provide deep water refuge for aquatic species. Rock bars are present in both Finlaysons and Toongabbie Creek, the latter is mapped as Key Fish Habitat.

Plant Community Types (PCT) present at the site include PCT 1800 Swamp Cumberland Swamp Oak riparian forest) and PCT 835 Cumberland riverflat forest.

Both PCTs are Threatened Ecological Communities and listed under the Threatened Species Conservation Act, as “River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South-East Corner Bioregions”.

Vegetation connects the site to the major Toongabbie Creek riparian corridor: large tree falls have provided course woody debris with some occurring in-stream and creating ecologically beneficial snags.

proposed works: divert main channel into large bio-filtration system and ponds alongside Toongabbie Creek

ZONE 1

ZONE 2

ZONE 3

PCT 835

PCT 1800

protect natural rock bars in both Finlaysons and Toongabbie Creeks

protect Toongabbie Creek by reducing the frequency and duration of high velocity stormwater flows

enhance the aquatic ecosystem of Finlaysons Creek by removing the concrete weir (a barrier to fish passage between Finlayson and Toongabbie Creeks) and reducing the frequency and duration of high velocity stormwater flows

protect geomorphology of the anabranch of Finlaysons Creek by avoiding diversion of stormwater flows

protect existing canopy and midstory vegetation

enhance existing PCT 835 Cumberland Riverflat Forest vegetation community by removing weedy mid story and ground cover and revegetating with PCT specific species

create PCT835 Cumberland Plain vegetation community to link existing riparian vegetation and provide refuge and feeding resources for woodland birds, microbats, reptiles, amphibians and invertebrates

enhance roosting and nesting habitat for microbats and woodland birds via planting dense riparian vegetation within the Toongabbie and Finlaysons Creek corridors

enhance existing vegetation via a complex matrix of habitat including dense midstory shrub layer, open native grassy areas and course woody debris to encourage habitation and foraging by native woodland birds, microbats, arboreal mammals, reptiles, amphibians and invertebrates

create Sydney **Freshwater Wetland vegetation** communities within the bio-filtration system using appropriate species

create complex habitats within the biofiltration system by including deep pools, **large woody debris**, emergent and fringing vegetation which will provide refuge and feeding resources for aquatic and aquatic dependant species such as long-necked turtles, waterbirds and waders, frogs, native fish and microbats such as Myotis macropus (Southern myotis)

create habitat on the margins of the biofiltation system by **vegetating fringing areas** with species such as Melaleuca quinquenervia (Broad leaved-paper bark), Melaleuca styphelioides (Prickly leaved tea tree), Casuarina glauca (Swamp Oak), Leptospermum juniperinum (Prickly Tea-tree), Lomandra longifolia (spiny-headed mat-rush) and link fringing vegetation to native grassland

create feeding resources and refuge by installing course woody debris and native bee totems

create PCT 835 Cumberland riverflat forest vegetation community by revegetating with PCT specific species and link to existing riparian vegetation communities to expand habitat and feeding resources for woodland birds, microbats, reptiles, amphibians, arboreal mammals and invertebrates

enhance existing PCT 1800 Cumberland Swamp Oak riparian forest vegetation community by removing weedy mid story and ground cover and revegetating with PCT specific species

create roosting/nesting habitat for microbats, woodland birds and arboreal mammals via artificial hollows and bat flats in existing trees or by installalling bat totems

protect remnant large Eucalyptus tereticornis

SITE 1 MILSON PARK PARRAMATTA RIVER CATCHMENT

CTENVIRONMENTAL
ECOSYSTEM MANAGEMENT AND MONITORING