Draft Reserve Action Plan
Market Garden

2023

WILLOUGHBY CITY COUNCIL
City of Diversity

Market Garden Park Bushland Actions

Priorities will be given to programs for the long term benefit to the reserve. Natural assets at greatest risk will be given priority to avert irreversible deterioration. All measures cannot be implemented simultaneously - resources may not be available or it may not be appropriate.

1. Bushland Contractor to continue maintenance weeding in area previously revegetated. Additional plantings may be required in areas.
2. Monitor macrophyte species in the drainage line so they do not restrict the flow of stormwater into the creek. If required, complete work to maintain water flows..
3. Bushland Contractor to continue gradual removal of woody weeds including Lantana, Broad-leaf Privet and Small leaf Privet on the slope adjacent to Shore School playing fields. As weeds are removed follow with indigenous plantings including Hakeas, Grevilleas and Acacias to retain wildlife habitat.
4. The creek bed in this section over time has accumulated sediment and weeds. These weeds will be removed gradually and replaced with indigenous species.
5. Bushland Contractor to complete maintenance weeding in revegetated area around drainage pipe and outlet from Shore School playing fields..
6. Monitor and conserve historic stone walls and water pump built by Chinese market gardeners in the 1880s along the creek.
7. Bushcare group to continue maintenance weeding to preserve bushland values in accordance with Bushcare Action Plan.
8. Areas directly adjacent to pathways to be maintained by Council's Open Space staff and bushland to be maintained by Council's Bushland staff. Following this period, investigate options to plant additional native plants that are more consistent with the reserve character adjacent to shared path and properties.
9. Bushland Contractor to control non-local Lemon-scented Gum (Corymbia citriodora) and Tallowwood (Eucalyptus microcorys) seedlings throughout Park and monitor for new seedlings further down the catchment into Warners Park and Watergate Reserve. Mature trees to remain as they provide habitat for wildlife.
10. Install interpretive signage along the shared cycling/pedestrian path that highlights local history of Market Garden Park, Willoughby's network of walking tracks and bushland reserves, the importance of the Park providing habitat for wildlife and how it acts as an ecological link to other bushland reserves.
11. Riparian Vegetation Zone 10m either side of Sailors Bay Creek channel to be maintained in accordance with Guidelines for riparian corridors on waterfront land, NSW Office of Water (Water Management Act 2000). This zone is to be maintained or revegetated as fully structured native vegetation.
12. Liaise with Council's transport planning staff to ensure that pathway markings are maintained and are consistent with other shared paths within Willoughby.

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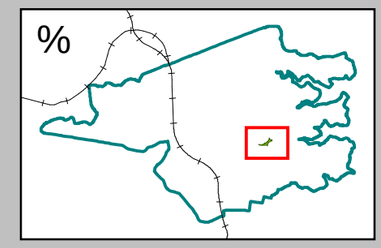
RESERVE ACTION PLAN
MARKET GARDEN PARK



Plan details

Status:	Final
Prepared by:	N. Yu
Drawn by:	N. Prasad
Date printed:	30/05/2023
Approximate Scale:	1:1200 on A3

Legend

- 16 — Property number
- 12 — Action plan activity
- . — Stormwater node
- & — Approximate fire hydrant location
- 35 — 2m contours
- RG — Rain Garden
- GPT — Gross Pollutant Trap
- Stormwater network - Underground *
- Stormwater network - Overground / Unknown *
- Shared path *
- Pedestrian path *
- Property boundary
- Reserve / bushland
- Bushland Contractors
- Bushcare Group

* The accuracy of this data is not guaranteed and must be verified prior to use.

References

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Market Garden Park Bushland - Reserve Action Plan

Reserve Profile

Market Garden Park is approximately 1.65 hectares in size and includes revegetated bushland, Sailors Bay Creek, parkland and a future community garden located at the top of the Sailors Bay catchment in Willoughby. It is bordered by Eastern Valley Way and private residences to the east, Shore Sydney Church of England Grammar School playing fields to the south, Alpha Road to the west and a recently completed medium density resident development to the north and north-west.

Bushland within Market Garden Park protects the headwaters of Sailors Bay Creek, which originates at Alpha Road, runs through Market Garden Park, under Eastern Valley Way into Warners Park, then through to Watergate Reserve and flows into Sailors Bay. As a 1st Order Stream under the Riparian Corridor Matrix, 10 metres of riparian vegetation is required to remain each side of the stream banks (Guidelines for riparian corridors on waterfront land, Water Management Act 2000).

'Market Garden Park previously was a Chinese Market Garden and was possibly the last Chinese Market Garden to operate in Willoughby. In the mid-1950s, the terraced gardens disappeared and some of the area was turned into a park and children's playground. From 1945-1970 most of the market gardens were purchased by the RTA for the route of a proposed extension of the Warringah Freeway, but this plan was later discarded due to resident opposition. Over time sections of Market Garden Park have had a number of different owners including public and private entities, State Planning, RTA, Shore School, a local resident and Willoughby City Council.

PLANT COMMUNITY: Originally the plant community was Coastal Enriched Sandstone Moist Forest, however today little if any remnant vegetation is left due to previous land use and significant soil disturbance. Increased levels of nutrients from dumping and sedimentation and increased water flowing into the site have encouraged the presence of invasive plants such as Privets, Lantana and Madeira Vine. Part of the site has been successfully revegetated since the 1970s and this area now has a canopy of Australian trees, *Eucalyptus saligna*, *Eucalyptus grandis* and *Eucalyptus pilularis,* and a generally dense mid-storey and ground layers. Additional works have helped to re-establish a native canopy and to restore the original plant community.

HABITAT: Tall trees provide habitat for possums and a variety of birds. The dense mid-storey in sections that includes weeds provides good habitat for small birds. A thick ground layer of vegetation, leaf litter and fallen branches covers most of the site and provides good habitat for insects and reptiles. The creek provides habitat for urban aquatic animals.

Statement of Significance

Parts of Market Garden Park are classified as bushland as defined in State Environmental Planning Policy No 19 (*Vol 1, 1.4), and is protected under State and Commonwealth Legislation (*Vol 1, 1.5.2). It is zoned RE1 Public Recreation in the Willoughby Local Environment Plan 2012. Market Garden Park is an important recreational and ecological link that connects Flat Rock Gully (south) to Castlecrag (north-east). A shared path through the reserve allows cyclists and pedestrians to travel between these areas. A new traffic light on Eastern Valley Way allows easy access to Warners Park. From Warners Park, a bush track links up to the Sailors Bay track providing further access to Castlecrag and beyond to other Willoughby bushland reserves.

HISTORIC CULTURAL SIGNIFICANCE: Market Garden Park is historically significant as the site of some of the last remaining market gardens in Willoughby. Six market gardens were situated adjacent to each other along the valley of Sailors Bay Creek between Alpha Road and Eastern Valley Way. These remained in operation until the 1960s and one until 1981. One section of Sailors Bay Creek is lined by a historic stone wall which is believed to have been built by market gardeners as early as the 1880s.

HABITAT SIGNIFICANCE: Market Garden Park bushland is an important ecological link forming a wildlife corridor from Flat Rock Gully all the way through to Warners Park and the Sailors Bay area, which in turn is part of the larger habitat linkages around Middle Harbour. It also provides habitat for a wide variety of birds, small mammals and lizards including water dragons.

ABORIGINAL CULTURAL SIGNIFICANCE: The Cammeraygal people originally occupied the area, however there are no recorded archaeological sites in the park.

Reserve Impacts

Soil disturbances have had a large impact in the past and will continue to in the future. During the time of the market gardens, vegetation was cleared and the land terraced. In the 1950s rubbish and debris from street sweepers was dumped into the creek in an effort to wash it downstream into Sailors Bay when water levels were high. Charcoal was then brought in from the nearby Flat Rock Incinerator and layered on top. In the 1970s the RTA dumped fill on the northern slope of the site. Fill was also used to construct the Shore playing fields to the south. Over time fill has washed downslope and raised the creek bed in some areas. Sections of the creek have been reconstructed. Sedimentation and dumping has resulted in increased levels of nutrients in the soil. During the construction of the recent residential development adjacent to Market Garden Park, sediment and weed seed has transferred into bushland and the creek sending material downstream into other bushland reserves.

A large stormwater outlet was constructed where Sailors Bay Creek emerges from Alpha Road. A sewer line runs almost parallel to the creek with a number of sewer access chambers along it. This has further disturbed the soil profile in this area.

Due to urban surroundings and housing construction adjacent, a lot of stormwater flows into the site off roads and other hard surfaces. To reduce the amount of stormwater directly entering Sailors Bay Creek raingardens, ponds, drains and a gross pollutant trap have been installed to reduce sediments and also pollutants entering the creek.

In some areas the sandstone base rock is quite close to the surface, resulting in poor drainage, creating swampy areas.

ENCROACHMENTS: There are no recorded encroachments.

Wildlife Habitat Issues

Thickets of weeds should be removed gradually so that habitat areas are retained and replaced. This is particularly important along the slope beside Shore playing fields as this was previously an area of dense weed vegetation which provided habitat for small birds.
Previously Bower Bird bowers have been observed here. Clearing of woody weeds will need to be done in stages and replacement trees and prickly shrubs such as *Hakeas sp.* and *Acacia ulicifolia* planted. Foxes have been observed around the area but fox baiting is not permitted on this site due to the close proximity to houses.

Achievements

A children's playground and community garden were constructed at the northern end of the park in 2019 and 2017 respectively.

A group for the community gardens was formally established in 2019.

Historical signage and information was installed at the park in 2018.

Bushland Management Goals – Market Garden Park

This bushland reserve action plan has identified the following management aims from the Urban Bushland Plan of Management 2014 as priority objectives:

4.1a Aim: Increase community understanding of bushland values and management.

4.1c Aim: Maintain and improve a high level of service provision in interpretative signage and on-site materials.

4.2c Aim: Provide a high level of planning, support, training and supervision of existing and future community volunteers.

5.2d Aim: Maintain water quality entering reserves at a level which is acceptable for sustainable bushland management.

5.3b Aim: To create and or maintain conditions in which creek and drainage lines are protected from increased erosion and / or sedimentation due to urban impacts.

6.2e Aim: All management of vegetation will have regard to habitat values.

6.2f Aim: To preserve and increase ecological links across the LGA and regionally to assist the movement of fauna

6.2j Aim: Control of domestic and feral animals that impact on native fauna populations

6.3b Aim: To implement weed control programs which are based on regeneration and restoration principles and which increase the bushland resilience to further weed infestation.

12.1b Aim: To protect cultural heritage items and places in bushland.

General Principles and Actions – All Bushland Reserves

a. Bush regeneration is a long term process that requires staged weed removal to ensure establishment of native plant communities. Work should proceed from good to degraded areas with techniques that encourage regeneration, including flame weeding, rather than spraying herbicide.

b. If possible, all weed refuse and natural debris to be composted or retained on-site.

c. When natural regeneration is deemed inadequate, supplementary plantings to mimic local plant communities and landscapes will be used with local provenance species.

d. Standing dead trees and forest litter (including logs and branches) to be retained for wildlife habitat unless deemed a risk to public safety.

e. Monitor, maintain and enhance vegetation connectivity for wildlife habitat within the reserve and reserve networks.

f. *Phytophthera cinnamomi* (a root rot pathogen) is listed as a key threatening process in NSW and has been identified as a threat to a number of species. Bushland workers are to use hygiene protocols to minimise risk.

g. Report and record all reserve encroachments. Monitor for tree vandalism and/or removal within the reserve and report to Council Compliance for appropriate action.

h. Continue to monitor wildlife habitat requirements and supplement where necessary.

i. Monitor feral animal activity and implement appropriate management actions where necessary.

j. Monitor and protect cultural and Aboriginal heritage sites within the reserve at all times. Bushland staff to notify Aboriginal Heritage Office prior to each burn to identify sites and implement protection measures and post-fire survey.

k. Bushfire management will be achieved through implementation of a strategic hazard reduction program consistent with the Bushfire Risk Management Plan.

l. Species diversity will be encouraged through an ecological burn program.

m. This reserve has a valuable role as an educational resource. Preserve natural features used for educational purposes and continue to inform the community of bushland issues through on-site educational activities and signage. Maintain appropriate signage.

n. Formal tracks to be regularly maintained and informal tracks to be closed to prevent damage to habitat and to impede access of feral animals, unless used for access by bushland management workers.

o. Establish photo points to monitor the progress of reserve management actions.

p. Reserve Action Plan progress to be reviewed annually and updated after five years.

Animal List for Market Street Garden

Market Street Garden provides habitat for a number native animals. A list of these species can be found at:
https://www.willoughby.nsw.gov.au/Residents/Parks-and-recreation/Parks-reserves-and-playgrounds/Market-Garden-Park

Native Plant List for Sailors Bay

CONIFERS	*Woollsia pungens*	*Banksia serrata*
CUPRESSACEAE	FABACEAE FABOIDEAE	*Grevillea linearifolia*
Callitris rhomboidea	*Glycine clandestina*	*Hakea dactyloides*
FERNS	*Glycine tabacina*	*Hakea gibbosa*
ASPLENIACEAE	*Gompholobium latifolium*	*Hakea sericea*
Asplenium australasicum	*Hardenbergia violacea*	*Hakea teretifolia subsp. teretifolia*
BLECHNACEAE	*Indigofera australis subsp. australis*	RUBIACEAE
Doodia aspera	*Kennedia rubicunda*	*Opercularia aspera*
CYATHEACEAE	*Platylobium formosum*	*Pomax umbellata*
Cyathea cooperi	*Pultenaea daphnoides*	RUTACEAE
DENNSTAEDTIACEAE	*Pultenaea tuberculata*	*Crowea saligna*
Pteridium esculentum	FABACEAE-MIMOSOIDEAE	*Phebalium dentatum*
DICKSONIACEAE	*Acacia ulicifolia*	*Zieria smithii*
Calochlaena dubia	*Acacia decurrens*	SANTALACEAE
GLEICHENIACEAE	*Acacia floribunda*	*Exocarpos cupressiformis*
Gleichenia dicarpa	*Acacia linifolia*	SAPINDACEAE
LINDSAEACEAE	*Acacia longifolia subsp. longifolia*	*Dodonaea triquetra*
Lindsaea linearis	*Acacia suaveolens*	PLANTAGINACEAE
PTERIDACEAE	*Acacia terminalis subsp. Long inflorescences*	*Veronica plebeia*
Adiantum aethiopicum	HALORAGACEAE	MALVACEAE
Cheilanthes austrotenuifolia	*Gonocarpus teucrioides*	*Lasiopetalum ferrugineum var. ferrugineum*
Pellaea falcata	*Haloragis heterophylla*	LAMIACEAE
Pellaea paradoxa	LAMIACEAE	*Clerodendrum tomentosum*
THELYPTERIDACEAE	*Plectranthus parviflorus*	VITACEAE
Christella dentata	LAURACEAE	*Cissus antarctica*
DICOTS	*Cassytha paniculata*	*Cissus hypoglauca*
ACANTHACEAE	MENISPERMACEAE	MONOCOTS
Pseuderanthemum variabile	*Stephania japonica var. discolor*	COMMELINACEAE
APIACEAE	MORACEAE	*Commelina cyanea*
Centella asiatica	*Ficus rubiginosa*	CYPERACEAE
Platysace linearifolia	PRIMULACEAE	*Caustis flexuosa*
Xanthosia pilosa	*Rapanea variabilis*	*Gahnia erythrocarpa*
ARALIACEAE	MYRTACEAE	*Lepidosperma laterale*
Hydrocotyle sibthorpioides	*Acmena smithii*	*Lepidosperma longitudinale*
Polyscias sambucifolia subsp. Long leaflets	*Angophora costata subsp. costata*	*Schoenus melanostachys*
APOCYNACEAE	*Corymbia gummifera*	ASPHODELACEAE
Marsdenia suaveolens	*Eucalyptus haemastoma*	*Dianella caerulea var caerulea*
Tylophora barbata	*Corymbia maculata*	*Geitonoplesium cymosum*
ASTERACEAE	*Eucalyptus pilularis*	*Xanthorrhoea arborea*
Cassinia aculeata subsp. aculeata	*Eucalyptus piperita*	*Xanthorrhoea media*
BIGNONIACEAE	*Eucalyptus punctata*	ASPARAGACEAE
Pandorea pandorana subsp. pandorana	*Kunzea ambigua*	*Lomandra longifolia*
CAMPANULACEAE	*Leptospermum laevigatum*	*Lomandra multiflora*
Wahlenbergia stricta subsp. stricta	*Leptospermum squarrosum*	*Lomandra obliqua*
Lobelia andrewsii	*Leptospermum trinervium*	*Lomandra fluviatilis*
Lobelia purpurascens	*Melaleuca quinquenervia*	*Eustrephus latifolius*
CASUARINACEAE	*Melaleuca styphelioides*	ORCHIDACEAE
Allocasuarina littoralis	OLEACEAE	*Cryptostylis erecta*
Casuarina glauca	*Notelaea longifolia f. longifolia*	POACEAE
CONVOLVULACEAE	PITTOSPORACEAE	*Cymbopogon refractus*
Dichondra repens	*Billardiera scandens*	*Dichelachne crinita*
CUNONIACEAE	*Pittosporum revolutum*	*Digitaria parviflora*
Bauera rubioides	*Pittosporum undulatum*	*Echinopogon caespitosus var. caespitosus*
Callicoma serratifolia	PHYLLANTHACEAE	*Eragrostis brownii*
Ceratopetalum gummiferum	*Breynia oblongifolia*	*Imperata cylindrica*
DILLENIACEAE	*Glochidion ferdinandi var. ferdinandi*	*Microlaena stipoides var. stipoides*
Hibbertia scandens	*Homalanthus populifolius*	*Oplismenus imbecillis*
ELAEOCARPACEAE	*Phyllanthus hirtellus*	*Themeda triandra*
Elaeocarpus reticulatus	PROTEACEAE	SMILACACEAE
ERICACAE-EPACRIDOIDEAE	*Banksia ericifolia subsp. ericifolia*	*Smilax glyciphylla*
Epacris longiflora	*Banksia integrifolia subsp. integrifolia*	
Epacris pulchella	*Banksia marginata*	

All actions within this plan relate directly to the Willoughby City Council Urban Bushland Plan of Management Volume 1, 2014

* = Urban Bushland Plan of Management Volume 1, 2014

February 2022

2022 - 2027