

Rationale for the Site Development Plan

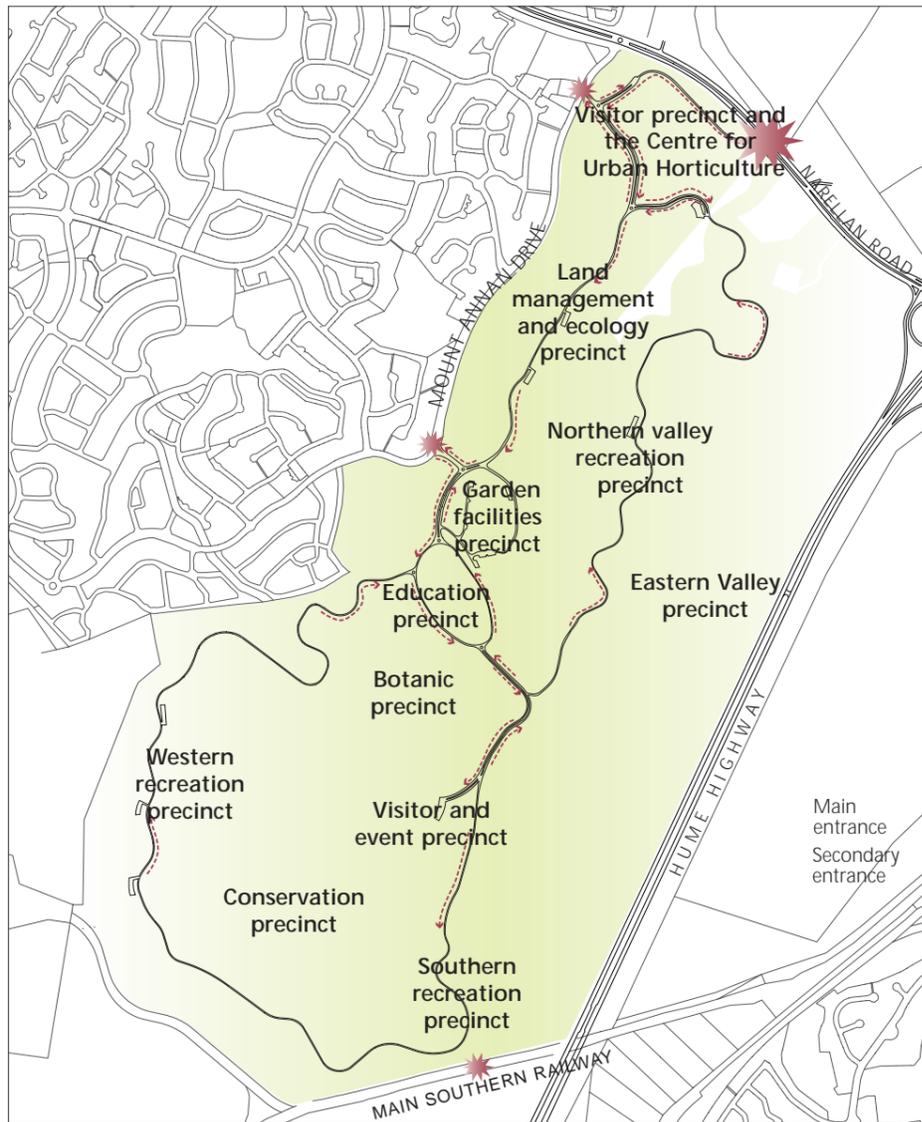


Figure 3
Garden precincts, entry and circulation

The Site Development Plan for Mount Annan Botanic Garden provides a visionary blueprint for the site's renewal and redevelopment, that seeks to redefine the role of the site as a contemporary Garden, balance scientific objectives with the needs of the broader and local community, and protect the inherent values of the place.

The plan for the Garden's future showcases the diversity of Australian native plants, educates about the multiplicities of Australian ecosystems and provides a range of innovative and engaging botanical experiences, which will change the way people experience the Garden, understand its relevance and interpret its messages.

The Site Development Plan recognises that the scale and complexities of the Garden requires a layering of precincts across the site. This layering identifies opportunities for areas of high design and development, as well as the importance of protecting semi-rural and open areas which are fundamental to the preservation of site's inherent landscape character as a remnant of the traditional regional landscape type.

The Garden is firmly anchored as the focus of a broader cultural precinct within south-western Sydney, and a high level of community involvement is demonstrated across a range of activities in the Garden. Externally, the Garden is well-connected to local and regional vehicle, pedestrian and cycle networks. Internally, coherent circulation patterns connect the site and a number of transport modes are available.

Garden precincts, entry and circulation

As detailed in the site planning principles, the site is conceptually divided into two zones: botanic parkland in the north and Botanic Garden in the south. Within these zones, a number of different precincts can be identified. These precincts are directly related to the types of activities and the intensity of use in different areas of the Garden. These precincts are shown in figure 1 and are described in further detail below.

The Site Development Plan addresses many of the entry and circulation issues identified by creating a new point of entry to the Garden and reconfiguring existing circulation patterns in response to the new entry. The new Garden entrance on Narellan Road utilises an intersection to be constructed as part of development to the north of the Garden. A one-way road entry brings visitors into the site and through proposed development within the visitor and commercial precinct, connecting to the existing anti-clockwise loop road system in the north of the site. A direct exit point is available onto Mount Annan Drive.

A roundabout is proposed to direct visitors south into the site, or east onto a new section of two-way road, allowing entry and exit from the land management and ecology precinct. Continuing south, the road travels through the conservation areas and is realigned to meet the existing entry point to the Garden on Mount Annan Drive. This becomes the entry point to the Garden proper. The entry from Mount Annan Drive remains open for bus groups and service access.

Circulation around the central loop is reversed and vehicular movement is anti-clockwise. The existing road along the dam wall, becomes two way, and connects again to the northern loop road, or to a section of two-way road along the southern loop road leading to the visitor and event precinct proposed south of the lakes. The southern loop road then remains a one-way road system and connects the southern parts of the site with the central loop road.

A comprehensive network of pedestrian and cycle paths traverse the site, connecting to local and regional systems through the water canal regional pedestrian and cycle route. A people-mover uses a combination of vehicular and sealed pedestrian and cycle paths to transport visitors around the site.

A future rail access point is located on the Gardens southern boundary, utilising a platform on the Main Southern Railway.



Botanic parkland

Visitor precinct and the Centre for Urban Horticulture

This precinct involves the development of a number of multi-functional buildings and community spaces including including a new entry to the Garden, a new Garden Visitors Centre with retail and eating outlets, the Centre for Urban Horticulture and demonstration gardens, and carparking facilities.

The new entry to the site is designed to provide sweeping views across the water to the new buildings, as the road is bridged over the existing dam (known as Lake Gilinganadum) and continues across the front of the development to the carpark. Strong avenue plantings frame the road as it moves through the precinct and meets the existing road system.

The developments proposed as part of the visitor precinct serve a variety of functions. The buildings house a new Garden Visitor Centre and Gardens shop, and will be the first point of contact for visitors to the Garden. There is potential for the development to fulfil a regional tourist role, functioning as a point of orientation for tourists and including a Tourist Information Centre for south-western Sydney. A number of food outlets would also be incorporated including cafe facilities that extend onto the decking area, and overlook the dam, and an outlet for quality convenience foods for the local community and commuters. Meeting rooms would provide facilities for the Friends of the Garden, community, local Aboriginal groups, and special interest groups to use the Garden as a location for meetings and seminars.

The proposed Centre for Urban Horticulture is also located in this precinct, and will incorporate advice on plants, garden design, model gardens, product information, education on aspects of gardening and domestic horticulture, pest and disease diagnosis and advice. The Centre would be complementary to and synergistic with the current and proposed facilities at Mount Annan Botanic Garden. The Centre's purpose is to educate the community about gardening, to convey an environmental message and to be commercially viable. As well as community services, industry partnerships will form an important part of the Centre's agenda.

The Centre will provide an outlet for the public to access the expertise that Mount Annan Botanic Garden and its staff have to offer. The Centre will provide a point for the public to access horticultural expertise, for example in the areas of soil pathology and garden design. The focus of the Centre will not be on retailing, but on a more comprehensive product with a focus on community service and education. There would be a focus on ecologically friendly gardens that are more suited to the Australian climate, with an emphasis on native plants and water efficient gardens.

The Centre would incorporate demonstration gardens; community gardens for therapeutic horticulture and permaculture; sensory and disabled gardens; general and specialist advice on gardening products and activities; products and services such as pest and disease diagnosis, landscape design and construction advice; plant identification and botany; plant sourcing/supply information; a reference library; and a number of community education facilities.

The Centre for Urban Horticulture would function to meet the needs of home gardeners locally and at large, and as a visitor attraction in its own right. It is anticipated that the Centre would generate significant economic and social benefits both as a tourism and an educational facility. The Centre will better enable Mount Annan Botanic Garden to pursue its aims and visions of educating people about plants and their critical role in the sustainability of our natural and urban environments - providing a service that goes 'beyond the Garden walls'.

The development of the visitor and commercial precinct would require some collaboration with local agencies such as Camden and Campbelltown Councils and possibly private enterprise.



Land Management and Ecology precinct

The Centre for Land Management depicted in the Site Development Plan provides an opportunity for Mount Annan Botanic Garden to work collaboratively with other organisations such as the University of Western Sydney, the Elizabeth Macarthur Agricultural Institute and the Hawkesbury-Nepean Catchment Management Trust on a diversity of land management issues. No other site at present in Western Sydney contains a diversity of endangered ecological communities in association with a leading plant research and development facility in association with leaders in the field of plant ecology and management (Plant Ecology Section of the RBG). Western Sydney currently has the highest number of scheduled endangered ecological communities in NSW with most of the present research being largely uncoordinated and the results spread over a large number of institutions (eg. Universities, TAFE, Hawkesbury-Nepean Catchment Management Trust etc). The Centre for Land Management at Mount Annan Botanic Garden can act as the primary repository and disseminator of information, coordinator and implementor of best practice ecological restoration and management in western Sydney.

The Garden would be promoted through this Centre as an advisory body, providing land management information, expertise and advice as well as displaying best practice management techniques to institutions, authorities and the broader community. Through the Land Management Centre, the Garden could provide expertise on issues such as the management of remnant vegetation and native grasslands, regional flora and fauna corridors, water catchments, the control of weed species, and the development of appropriate techniques for management of service easements and road and rail corridors.

This precinct represents the biological centre of the Garden, incorporating the main site water collection and drainage point to Mt Annan Creek, large areas of native grasslands, conservation woodlands and significant wildlife habitat. A native bird sanctuary and a series of constructed wetlands are located between the dam and the water canal. The wetlands are developed along the edge of the existing dam (known as Lake Nadungamba) and act as a water purification garden, utilising a series of macrophyte beds to treat site runoff before releasing the water into Mount Annan Creek. An interpretation area is located on the north-eastern edge of the dam, providing information on each component of the precinct, the importance of each of the different ecosystem types, the species and habitat requirements of native birds in the area and the process of water treatment.

The Stolen Generation Memorial is located within the woodlands south of this precinct, based on a scheme of minimal interference, and incorporating places of reflection, looking out and healing.



Northern valley recreation precinct

The open nature of the garden's northern valley is retained and protected within the proposed recreation precinct. The valuable Ironbark Woodland adjacent to the canal is extended, framing the edges of the lower northern valley, which is regraded to create a number of terraces for day and night activities and picnic areas. There is also potential for more active recreation zones and kick-around areas within the northern valley.

A series of water harvesting wildflower embankments lie along the contours of the upper northern valley. These embankments utilise the principles of Keyline Irrigation, creating swales along the contours, in which spectacular displays of native wildflowers and grasses could be cultivated. The embankments provide an opportunity for a unique display of land art using native flora which will be visible throughout the northern valley, whilst at the same time allowing ecologically sustainable site management principles to be implemented, displayed and interpreted.

The existing Eucalypt arboretum in the northern end of the valley is retained, and is developed to showcase a range of Eucalypt species endemic to western Sydney and NSW. The Ridgeline walk begins from the top of the arboretum and extends along the ridgetop to the Sundial Hill in the south. This route provides views east over the Campbelltown to the Sydney CBD, and west over the Garden towards Camden. The walk is demarcated by signature plantings of *Araucaria sp.*, which will become a signature planting along the ridgeline from the surrounding areas.

The walk along the ridgeline also marks the upper limit of two water catchments, and a timber platform is located near the centre of the ridge, providing an opportunity to interpret Total Catchment Management, the role of the community and the responsibilities of the Sydney Catchment Authority, as well as the Total Catchment Principles employed by the Garden across the site.

A signature grove planting of Wollemi Pines on the western slope of the ridge provides opportunities for visitors to interpret the unique story of the species and its relationship to the Garden. The grove conceptually marks the division of the site into botanic parkland and Botanic Garden and also demarcates the tunnel section of the water canal.



Eastern valley precinct

The area east of the central ridgeline has been identified as an important part of flora and fauna corridors both within the site and beyond. As such, a densely vegetated corridor along the steep upper slopes is maintained. This area, although currently heavily infested with African olive, has potential for regeneration and connects to wooded gullies in the lower slopes, and to areas of regenerating woodland to the south and west.

There is much potential for the Garden to include alternate landuse activities as part of its messages about environmentally sustainable development, and it is proposed that in the short to medium term approximately forty hectares of the lower slopes of this area are used for this purpose. The establishment of a production plantation under a commercial lease will allow a sustainable activity to develop whilst reducing overall levels of site maintenance for Garden staff. A number of appropriate landuses have been identified, such as volatile oils, woodlots, speciality timbers, orchards, market gardens, floriculture and viticulture, and a full feasibility study will be required to determine the most suitable activity.

Preliminary research has indicated that there is potential to focus this plantation on the production of eucalyptus oil. Over 90% of this product is grown and produced overseas. Discussions with the CSIRO indicate there is commercial demand in Australia for the growth of *Eucalyptus radiata* (narrow-leaved peppermint) for the production of oil. The distilling process for eucalypt oil is relatively simple, and could be carried out at an on-site depot, as indicated in the Site Development Plan. The plantation and its produce could provide a very marketable product for the Garden, with visitors able to tour the plantation, experience the distilling produce and purchase the final product.

In the long term, the area east of the central ridgeline could be made available for the development of additional Garden activities as visitation increases. There is potential in this area for the development of water bodies, as part of the proposed Camden effluent re-use scheme.

The Garden also demonstrates the increasing importance of clean, 'green' sustainable energy as part of its messages about ESD. Energy is harvested from the sun through a number of solar collection points across the site, and a wind farm is also established as a major source of 'green' power. Elevated above woodlands and native grass meadows, wind turbines are located at a high point in the north of the site across the park, providing an alternate power source for the Garden, as well as a strong visual element with which the Garden can be identified from Narellan Road and beyond.

Botanic Garden



Garden facilities precinct

The Nursery, Seed Bank and Administration Area continue to function in their current capacity, with adjoining areas available for future expansion as required. The main aim in this precinct is to extend visitor opportunities to increase visitor awareness of the research and development undertaken in this area. The Site Development Plan shows woodlot plantings between the Nursery, Seed Bank and the main entrance road, which will begin to define views into these facilities and reveal their operations to Garden visitors. Additional lay-by parking areas with interpretation bays encourage the important stories of the facility to be told, including this research centre as the 'home' of the Wollemi Pine research. Controlled public access through these areas will contribute to the education roles of the Garden, whilst also providing effective promotion and exposure for the research programs. Horticultural trial beds would also be located adjacent to the seed bank.

A constructed wetland is also established downslope of the existing nursery facility to improve water quality leaving the facility, before entering the natural drainage lines within the remnant vegetation areas adjacent to the water canal. This wetland facility could also be used to recycle treated water for re-use in the Nursery facility.



Education precinct

The existing cafe and Garden visitor centre buildings are adapted to become the new education precinct in the centre of the site. This siting is in close proximity to the educational resources provided in the botanical precinct, as well as allowing easy access to the precinct for school bus groups, using the Mount Annan Drive entry point. There is potential to use the existing cafe kitchen as a small kiosk to cater specifically for school and other groups spending the day at the Garden. The existing demountable buildings could also be relocated to this area to create a complex of buildings suitable for a range of educational activities. The existing children's playground is retained in this precinct.

The main garden carpark is located behind the education precinct, extending and reconfiguring the existing carpark area to increase capacity. The carpark is well-screened by vegetation and the gully divides the two main parking areas. The area north of the dam wall is regraded to provide improved overflow parking for Garden visitors.



Botanic precinct

This precinct represents the botanic hub of the site, and incorporates a series of Gardens with different interpretation opportunities and messages for Garden visitors. Existing activities such as the Wildflower displays in this area will be maintained and expanded.

The main focus of the botanic precinct is the Terrace Garden. The development of this precinct requires major modifications to the existing Terrace Garden, expanding the Garden's messages and displays to include interpretation of local geologies, regional vegetation communities, the taxonomy of Australian flora and the interrelationships of native fauna (both macro and micro) with these processes of evolution. A detailed study of the existing Terrace Garden is required to define these modifications, involving the development of simplified movement paths through the Garden, through a series of interconnected 'rooms' to explain each of the messages. After moving through the Terrace Garden and interpreting the natural processes of evolution, the area culminates in a platform on the western side of the slope, where visitors interpret human interventions and landuse in the modern landscape, looking over facilities such as the Jacks Gully Waste Management and Recycling Centre, the Nepean Riverine corridor and associated remnant vegetation, William Howe Regional Park and large areas of residential development.

The Indigenous People's Garden is located within the botanic precinct, and it utilises a variety of native plants to explain the diversity of indigenous uses of plants, for food, general use and medicinal purposes. It is important to note that many plants are used for different purposes in different areas and it is Aboriginal custom to gain permission from elders to divulge plant uses to other people. For these reasons local Aboriginal groups suggested inviting elders from other areas to visit the Indigenous People's Garden, and give permission to a full-time Aboriginal 'keeper' of the Indigenous People's Garden for the stories of the plants to be told. This will enable the 'Yandel'ora' meeting place theme to continue in the Garden, whilst also satisfying the Aboriginal custom for the verbal exchange of information and stories.

Aboriginal culture traditionally suggests different levels of information for different people, with Aboriginal story-telling offering multi-layered, subtle messages for the general audience, more information available for those who wish to pursue it, or are considered 'worthy'. This type of interpretation would be a good basis for Aboriginal learning within the Indigenous People's Garden.

On the western slopes of the hill, directly below the interpretation platform within the Terrace Garden, a series of contemporary Australian gardens are located, which use native plants as formal elements in a manner that is distinctively Australian, innovative and contemporary. These gardens, sited on a westerly slope, would be based on environmentally sustainable landscape design principles, utilise Keyline Irrigation techniques and include messages on water wise landscape design and plant cultivation. There is also potential to extend these gardens to the southern slopes of the Terrace Garden, as well as the banks east of the event lawns and lakeside areas.

The existing Western Garden is maintained and enhanced as part of this Australian Garden series. This Garden is surrounded by high quality Themeda grasslands, and provides restricted access by raised boardwalks across sections of the grasslands, providing opportunities to display and interpret the habitat values of the grasslands, and demonstrating seed collection and harvesting techniques.

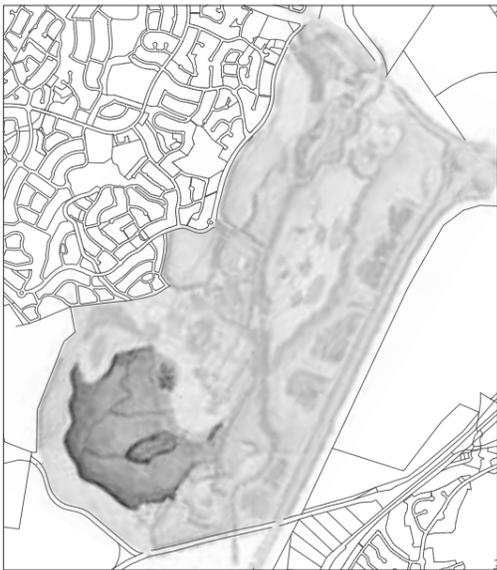


Visitor and event precinct

The existing event lawns and lakeside areas of the Garden are further developed to provide a focus for visitor and event facilities in the southern area of the site. Regrading of the northern lawns provides an amphitheatre area well-suited to large community events, and a decking area is located on the lake for concerts and performance. Groves of trees and bands of *Doryanthes excelsa* (Gynea Lily) line the western slopes of the main ridge and add to the aesthetics of the visitor and event precinct.

A new Garden cafe is also located in this area, providing refreshments for large events at lakeside. This cafe is set within a horticultural display house housing a variety of native orchids and ferns. This display is designed to reveal the different microclimate and ecosystem requirements of these delicate native flora as well as displaying the plants. Displays would be regularly changed to maintain visitor's interest and curiosity. A native rockery is also proposed for this area, demonstrating how native plants are best used in this type of Garden, using traditional botanical elements. The rockery could however, be regularly redesigned by maintaining structure plantings and replanting other native species every 3-4 years.

Set in the central valley with a much-desired north-easterly aspect, framed and sheltered by the the Mount Annan summit and Sundial and Dolerite hills, with extensive views over the lakes, up into the northern valley and along the main ridgeline is a new Garden restaurant and function centre. This centre will provide opportunities for quality dining, functions and events in the Garden, to be used both day and night, and will become a focal point within the Garden. The building design should embrace contemporary Australian architectural forms, and could be commissioned via a national design competition. Carparking for this centre is lowered into a gully south-east of the building to minimise visual impact. There is also potential to locate additional parking on the southern slopes of the Terrace Garden, connected by a loop road through the central valley. This requires further investigation at the detailed design phases.



Conservation precinct

The summit of Mount Annan is the highest point in the site, and across the region, commanding panoramic views over the Garden and beyond. The summit is located between two other highpoints, the Sundial Hill and the Dolerite Hill, which together shelter and frame the southern valley of the Garden. The topographical significance of this setting is retained and enhanced, with defined edges of conservation woodland aligning the hills and defining view corridors between the three high points. As depicted in the Site Development Plan, distinctive native grasses and groundcovers further accentuate this alignment.

The summit of Mount Annan will continue to undergo intense regeneration and restoration to become a conservation zone for the endangered western Sydney dry rainforest community. Access to the summit uses existing tracks and terminates in a viewing platform offering vistas of the surrounding area with appropriate interpretation. The viewing platform could be an architecturally unique structure, which begins to connect the summit to other regional highpoints such as Sugarloaf Mountain and Razorback range. The southern slopes of Mount Annan are dedicated to woodland conservation areas which extend to meet the southern loop road.

The ridgeline walk establishes a formal approach to the Sundial Hill with the proposed Araucaria plantings continuing to the summit. The panoramic views over the Garden from this point are retained and enhanced, as the top of the hill is kept predominately cleared and open.

A small and intimate amphitheatre space is proposed for the summit of the Dolerite Hill, utilising the quarry landforms. This amphitheatre could be used as a learning space for community and school groups, a place for traditional Aboriginal storytelling and location for night activities such as stargazing. The fig arboretum continues down the slopes of the Dolerite Hill into the valley.



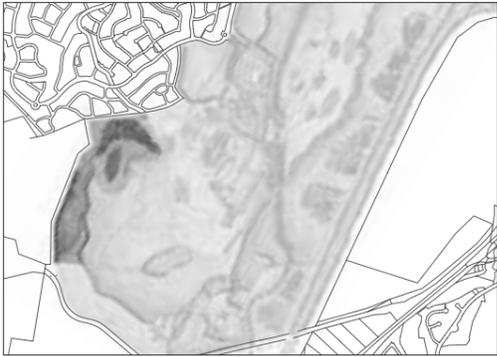
Southern recreation precinct

The southern recreation precinct incorporates a number of different places and activities, and is promoted as an area for family interaction, childrens activities and entertainment. The southern loop road moves north to south through this precinct, passing through the lakeside areas and overlooking the open southern valley, and and into the Eastern forest communities. This area incorporates a series of large scale plantings, utilising tree species from the eastern coast of Australia to create structured forests, groves, bosques, that extend south to meet the existing Eucalypt arboretum. The Eastern forest communities are designed to display a selection of species on a large scale in a contrived and structured manner, such as a forest of clear-trunked, tall-growing eucalypts, such as *Eucalyptus grandis* with a dense understorey of *Doryanthes excelsa* (Gynea Lily), or *Eucalyptus maculata* (Spotted Gum) with *Macrozamia sp.* (Burrawong). The Eastern forest communities will become important signature plantings that are associated with Mount Annan Botanic Garden. Picnic facilities are located within the structured forests and pedestrian paths lead from the ridgeline walk, across the aqueduct viewing platform, into the forests, and continue south to the Theme Gardens.

Connecting to the Eastern forest communities, a Palm Grove and rainforest walk is proposed, following the natural drainage line down the southern slopes of the Sundial hill. The grove displays a diversity of native palms and rainforest tree species and provides opportunities for visitors to interpret the different types of flora and fauna within these ecosystems. The palms extend across the southern loop road, enclosing the driver within the grove before the road continues down to the Theme gardens, where open views over the southern areas of the Garden are available. The final location and detailed design of the Palm Grove and rainforest walk should be determined by existing vegetation in the area, ensuring the integration of the existing Melaleuca groves into the scheme.

The Wattle and Bottlebrush gardens are maintained with increased shade, structural planting and picnic facilities, and are promoted as family picnic areas. As shown in the Site Development Plan, a Childrens Eco-Garden and Adventure playground is located between the Palm Grove and Rainforest Walk and the Wattle Garden. The Eco-Garden and Adventure Playground are designed specifically for children and focus on ecological themes, providing opportunities for hands on learning experiences, exploratory play and education, butterfly gardens, a series of walks and sensory trails, worm farms and composting facilities for all picnic scraps, playzones and cycle tracks. The Childrens Eco-Garden and Adventure Playground will be a unique facility in the Sydney region.

A future entry point to the Garden, from a platform on the Main Southern Railway, is located on the southern boundary, which will lead visitors up through the Bottlebrush Garden and onto the southern loop road, where a regular people-mover shuttle system would transport them around the Garden.



Western recreation precinct

The southern loop road leads the Garden visitor through the Western recreation precinct from south to north, through dense woodland conservation areas, past the Banksia Garden and around an open and elevated area of native grasslands. A series of water harvesting wildflower embankments are also proposed for the western side of this knoll, as depicted in the Site Development Plan. The visitor then moves through the expanded Callitris forest, which enhances existing structure plantings to establish a vegetative landmark in the Garden, where the strong, architectural and diverse forms of this species are extended across both sides of the road to engage the driver as they move through this precinct. The Callitris forest will also function as a signature planting of the Garden when views from areas west of the site.

The Banksia Garden is to be maintained and enhanced, with some expansion of picnic facilities. This Garden is promoted as a tranquil picnic area set in a cool and shady gully.



Precinct and interchange plantings

A corridor of distinctive roadside plantings are depicted along the Hume Highway, Narellan Road and at the interchange, which marks the gateway to Camden and Campbelltown. These tree plantings will help to raise the profile of Mount Annan Botanic Garden as well as the broader cultural precinct.

The strong contrast between these avenue plantings and the adjoining areas will not only signify the arrival to the Botanic Garden but will also identify the extent of the Garden boundary along the Hume Highway.

The development of this distinctive landscape treatment will involve close collaboration with adjoining landowners and managers including the Roads and Traffic Authority, both Councils and the University of Western Sydney Macarthur.