

DESIGN STANDARDS
for
URBAN INFRASTRUCTURE
14 URBAN OPEN SPACE



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14.1 Introduction

14.1.1 Overall goals for landscape design in the ACT

The overall goals for landscape design in the ACT are:

- to ensure that, consistent with a commitment to achieve sustainable living environments in the ACT, high quality landscape development, enhancement and protection are pursued as an integral part of the development of Canberra and its environs
- to apply the urban open space land use policies in the *The Territory Plan* and the *Proposed Policies for Residential Development in the ACT incorporating ACTCode* to develop public open space.

14.1.2 Objectives for urban open space

High quality landscape development, enhancement and protection within the policy framework shall aim to achieve the following goals:

- integration of buildings and engineering infrastructure with the natural landscape to create a unified and visually appealing design
- creation of aesthetically pleasing landscape environments, increased community enjoyment of everyday life and a greater sense of meaningful connection between people and the environment
- development of desirable community living environments through microclimate modification, air quality improvement and noise attenuation
- fulfilment of the recreational and social needs of the wider and evolving community that reflect the values of the surrounding regional community
- minimisation of energy consumption and carbon dioxide production
- contribution to cost efficient urban stormwater systems and improved stormwater quality through the protection of stream flow and environments
- maximisation of ecological benefits through acknowledging wildlife habitat, soil conservation and enhanced biodiversity
- incorporation of heritage values through the protection of landscapes with recognised special significance
- contribution to the economic vitality of urban Canberra and its environs and its attraction of ecologically sound economic development, particularly tourism
- contribution to a stronger sense of community commitment to improvement and promotion of community environmental responsibility and ethics.

14.2 Related codes of practice and guidelines

14.2.1 Legislation

Land (Planning and Environment) Act 1991(ACT)

Nature Conservation Act 1991(ACT)

14.2.2 Policy and guidelines

Development Control Code for Best Practice Waste Management in the ACT,
Department of Urban Services, Canberra, 1999.

Proposed Policies for Residential Development in the ACT Incorporating ACTCode,
Department of Urban Services, Canberra, 2000.

The Territory Plan, Planning and Land Management, Department of Urban Services,
Canberra, 2000.

14.3 Provisions for parks and open space

14.3.1 Town parks

Town parks are formal parks adjacent to and serving the main town centres serving 50,000 to 100,000 people. They are managed to a high standard, usually with trees, street furniture, mown and irrigated grass, paving, sculpture, shrub and flower beds. Town parks are subject to intensive use and may host special events. The minimum area of a town park is 1 hectare with the relationship of 0.05 hectare per 1000 people.

Examples of town parks include City Hill, Glebe Park, Margaret Timpson Town Park, Tuggeranong Town Park and Woden (Arabadoo) Town Park.

14.3.2 District parks

District parks are extensive informal parks ranging in size from 4 to 10 hectares and serving a catchment area of 25,000 to 50,000 people (0.45 ha/1000 people). They include mown grassland, car parking and a diversity of recreation facilities such as picnic areas, barbecues, swimming and wading beaches or pools, adventure playground and skateboarding facilities. District parks may be near water features, cycle ways, pedestrian parkland and district sportgrounds.

Examples of district parks include Acton Park, Black Mountain Peninsula, John Knight Memorial Park, Point Hut Pond District Park, Lennox Gardens, Weston Park, Eddison Park and Yerrabi Pond District Park.

14.3.3 Neighbourhood parks

Neighbourhood parks are small, usually 0.25 to 2 hectares in area (1 ha/1000 people), and reflect the character of the land and the neighbourhood. These are parks typically used for recreation that include playground facilities and are located in residential areas generally within 400 metres of each dwelling. Parents with young children are the main users. Neighbourhood parks are linked to surrounding areas by cycleways, pedestrian parkland (see below) and laneways.

A *local* neighbourhood park (0.25 to 1 hectare) may be integral to the design of a residential neighbourhood where its smaller size provides a site for safe play by children under surveillance by adults and generally within 300 metres of each dwelling (minimum of 150 dwellings).

A *central* neighbourhood park (0.5 to 2 hectares) may be located adjacent to or surrounding a neighbourhood sportsground or informal use oval. The land is generally flat to cater for informal ball games. This is generally located within 500 metres of each dwelling (minimum of 250 dwellings).

14.3.4 Pedestrian parkland

Pedestrian parkland forms corridors (minimum of 6 metres in width), of open space serving multiple purposes within and between suburbs. It usually includes a pathway or cycleway to link shops, parks, schools and workplaces with peoples' homes but may also serve dual purposes being located in natural drainage lines to provide for urban stormwater drainage. Pedestrian parkland may contain playgrounds in suitable locations (one playground per 1000 people).

See Design Standard 13 Pedestrian and Cycle Facilities.

14.3.5 Informal use ovals

Informal use ovals are generally located adjacent to schools and shopping centres. They are large flat areas of dryland grass used for informal sports and other recreation.

14.3.6 Native grassland and grassy woodland sites

Remnant grassland or woodland sites are important for nature conservation purposes. Several proclaimed sites contain endangered plant species and may be subject to action plans for their conservation prepared under provisions of the *Nature Conservation Act 1991*.

14.3.7 Semi-natural open spaces

Semi-natural open spaces are areas of remnant grazing land or native vegetation including hill-top areas, creek corridors, ridges and buffer areas between suburbs. These areas provide a bushland setting for Canberra, habitat for wildlife and help maintain biological diversity. Such areas may provide sites for community activity by urban Landcare, Parkcare or bushland regeneration groups.

Examples of semi-natural open spaces include the Molonglo River Corridor and Mt Rogers.

14.3.8 Special purpose areas

Special purpose areas are large areas of open space or lake surface which for safety or management reasons are dedicated for particular specialised recreational activities or sporting events.

Examples include the Yarralumla Equestrian Area (48.9 hectares), the Molonglo Reach Water Ski Area (83.5 hectares) and the Hall Showground.

14.4 Water and sewer infrastructure

Water and sewer infrastructure are often located in open spaces such as trunk mains, reservoirs, pump-stations, large access structures and ventilation shafts. Where these exist, special provisions must be made for works such as access routes, tracks, gates, locking arrangements, fencing, security, location and height of structures, encumbrances, cable routes, communalisations, telemetry, maintenance/replacement provisions, tree planting etc. and all need to be negotiated with and approved by ActewAGL.

Any meter pits in open spaces must be located in an approved location and made safe to prevent trips and falls by the general public. The pit and lid must be strong enough to carry expected traffic and must be maintained for the life of the connection.

14.5 Heritage places

Some urban open spaces are, or in future may be, listed on the Heritage Places Register or the Interim Heritage Places Register under the *Land (Planning and Environment) Act 1991*.

Designers should check the status of sites with the Heritage Unit of Environment ACT before starting design work in order to comply to statutory requirements under the *Land (Planning and Environment) Act 1991*.

14.6 Urban wildlife and nature conservation

14.6.1 Wildlife corridors

Landscape restoration and the conservation of biodiversity can be achieved using wildlife corridors to link habitats and remnant vegetation into a functional and legible ecological network through public open space. Wildlife corridors can lessen the environmental pressures emanating from urban development.

A wildlife corridor puts wildlife movement as a priority over the needs of people. To improve the contribution of wildlife corridors to the conservation of biodiversity, it is important that wildlife corridor design and management approaches incorporate factors that influence the connectivity function and habitat provision for wildlife.

Wildlife corridors can either be linear or non-linear and occur in diverse sizes and urban environments. Areas which may form part of a wildlife corridor include semi-natural open spaces, heritage places, waterways, road corridors, parks, informal use ovals and native grassland and woody sites. Each site has its own specific requirements, project needs and opportunities (or constraints) for nature conservation and wildlife movement potential. Designs and techniques will need to be adapted to suit each site.

14.6.2 Principles of nature conservation and wildlife corridor management

Well managed urban green spaces and parks can make a significant contribution to the enhancement of local biodiversity values as well as providing recreational facilities valued by the community. Effective nature conservation in urban areas usually requires:

- controlling unauthorised vehicle access
- minimising the impact of domestic and feral dogs, cats and other vertebrate pests
- managing pedestrian movement and any associated wear and surface erosion
- controlling illegal dumping and domestic garden encroachment
- minimising site pollution by litter, chemicals and fertilisers directly, by runoff or ground water transfer
- implementing sediment control runoff management using filter ponds, swales and erosion management
- effective design and management of the interface between natural and development areas
- removal of unsafe tree limbs in select access areas (the method of tree surgery should consider undercutting to allow wildlife continued access to hollows).

For a wildlife corridor to have the greatest value for wildlife, the following design principles apply.

- Use a diversity of indigenous native plant species to provide resources that are adapted to the local environment and to recreate habitat suitable for a range of endemic species.
- Include a variety of flowering trees, shrubs and grasses appropriate to the site to provide a diversity of resources for wildlife within a vegetated area and to help restore the natural ecosystem.
- Include all strata found in original, pre-existing vegetation of the area (that is, before clearing by Europeans) to ensure structural diversity to meet the different needs of species.
- Keep corridors as wide as possible to reduce the potentially negative impact of edge effects.
- Limit access where appropriate to prevent loss of habitat quality through damage to understorey and ground cover species and to protect the remaining original vegetation.
- Ensure external factors such as fertilisers and changed water regimes do not contribute to corridor degradation.
- Control weeds.
- Encourage natural regeneration.
- Control land degradation.
- Utilise screening and buffers if appropriate.

Existing vegetation corridors not primarily established or maintained for nature conservation can be optimised as wildlife corridors through the following design and planning principles.

- Apply the precautionary principle: assume that corridors do have a potentially useful function, not only in providing habitat, but also in enhancing movements of wildlife.
- Smaller corridors or native conservation patches in urban areas must be viewed as a sub-component of a broader regional and major reserve conservation system such as the National Parks and the Canberra Nature Park reserves. The smaller urban open space areas support the main corridors by providing options for wildlife populations within the fragmented urban landscapes. This includes habitat for migratory, transient and relatively fixed home range species.
- Connectivity is not necessarily defined or determined by physical continuity of habitat. Some populations are connected in patchy landscapes.
- Barriers lower the quality of a corridor by increasing the risk of death by either traffic or predators. Examples of barriers include roads, car parks and vehicular bush tracks.
- To get the most from linear vegetation corridors, landscape design to restore sites for nature conservation should aim to recreate and maintain as many natural strata species and as much spatial mix as possible. The ecosystems created should be diverse and self-sustaining. Elements that affect the survival of native flora and fauna such as exotic weeds and pests need to be limited.
- Ongoing protection, maintenance and monitoring are essential components of the corridor development process. They are essential to ensure habitat suitability over

the long-term, to assess corridor function and effectiveness and to provide information to make further improvements to corridor design.

- Consider if there is cover for movement; refuge; mix of habitats and successional stages; topographic variety; and the ability to increase the foraging area for a wide range of species or provide a source to recolonise surrounding environments when suitable habitats become available.
- Consider local genetic diversity, risk species, targeted species, competitors and predators.
- Corridor dimensions (width, length, continuity of retained vegetation and size of patches), presence of gaps and barriers, and the impact of the surrounding land matrix is critical. For instance, narrow corridors may be dominated by aggressive edge species.

14.6.3 Habitat assessment

All projects should include a site analysis and assessment to identify habitat occurrence, significance and potential. On environmentally sensitive sites advice should be sought from specialists in flora, fauna, ecology, natural resource management, hydrology and archaeology as appropriate. Site planning should then balance and integrate the site opportunities and constraints and as many specialist recommendations as are feasible within project requirements.

In most instances projects need not have significant adverse impacts and the emphasis should be based on designing sustainable and functional solutions with active integration of suitable wildlife habitats into the urban framework.

If a rare or threatened species or community occurs on or near the site then the environmental context of the development becomes paramount. The requirements, viability and specific management needs of the target species require thorough investigation. Sufficient buffer protection should be provided.

The assessment and analysis should consider the following issues.

(a) Vegetation

Assessment criteria	Yes	No	N/A
What vegetation occurring on the site is worthy of retention? <ul style="list-style-type: none"> • remnant trees • shrubs and groundcover • native grasslands • wetland or periodic inundation zones 			
What other key habitat features are present? <ul style="list-style-type: none"> • nesting sites, roosts or breeding hollows • fallen logs • vegetation strata and/or other shelter • rock outcrops/crevices • heavy leaf litter 			

<ul style="list-style-type: none"> others 			
Are a range of vegetation layers or strata present?			
Does the site have diverse flora species?			
Are there any endangered, vulnerable or otherwise significant flora on site?			
Can wetlands be increased or have the potential to be created?			
Would a specialist vegetation survey be beneficial?			

(b) Fauna

Assessment criteria	Yes	No	N/A
Is the existing site likely to be regularly used by: <ul style="list-style-type: none"> birdlife reptiles animals fish and amphibians. 			
Would a wildlife survey be beneficial?			
Is the site part of a recognised wildlife movement corridor?			
Are there any endangered, vulnerable or otherwise significant fauna species present on site?			

(c) Site disturbance

Assessment criteria	Yes	No	N/A
Is the site stable based on slopes, soils and surface cover?			
Has the area been disturbed by: <ul style="list-style-type: none"> erosion fire grazing clearing. 			
Are siltation, erodability, surface flows, or ground water regimes an issue?			
Are degrading weeds present? Is their impact significant? Can they be readily managed and controlled?			
Are degrading feral animals present? Is their impact significant? Can they be readily managed and controlled?			

Is the site susceptible to potential weed infestation?			
Is the site susceptible to high fire hazards?			
Can effective fire management be incorporated into the design?			

(d) Natural regeneration potential

Assessment criteria	Yes	No	N/A
Is there potential for regeneration using: <ul style="list-style-type: none"> • seed or cuttings collected from site • topsoil stripping • vegetation mulching. 			
Would a prescription burn encourage indigenous seed regeneration for rehabilitation?			
Would a prescription burn encourage regrowth and produce a better age class and species diversity in the vegetation?			
Is there evidence of regeneration on site?			

(e) Other issues

Assessment criteria	Yes	No	N/A
Will remnant vegetation or other nature conservation values on the site be affected by: <ul style="list-style-type: none"> • existing movement patterns, for example, human desire lines, service easements and vehicle access • potential movement patterns • site construction management and environmental controls • future maintenance. 			
Are significant cultural or heritage features present?			

14.7 Other policies affecting urban open space

ACT Greenhouse Strategy, Environment ACT, 1999.

ACT Nature Conservation Strategy, ACT Environment

- includes:
- Management of Pest Species
 - Management of Environmental Weeds
 - Management of Changed Fire Regimes
 - Management of Degradation of Aquatic Systems
 - Management of Decline and Loss of Native Vegetation

ACT Weed Strategy, Environment ACT, Canberra, 1997.

Action Plan for Threatened Species, Environment ACT (as required under the Nature Conservation Act 1991 (ACT)), Canberra.

Air Environment Protection Policy, Environment ACT, Canberra.

Contaminated Site Environmental Protection Policy, Environment ACT, Canberra, 2000.

Development Control Code for Best Practice Waste Management in the ACT, ACT Waste, Canberra, 1999

General Environment Protection Policy, Environment ACT, Canberra, 1998.

Living with Eastern Grey Kangaroos in the ACT – Public Land, Third Report, Canberra ACT Kangaroo Advisory Committee, Canberra, 1997.

Noise Environment Protection Policy, Environment ACT, Canberra, 1998.

The national strategy for the conservation of Australian biodiversity, Commonwealth of Australia, 2001 (available online: www.environment.gov.au).

Water Pollution Environment Protection Policy, Environment ACT, Canberra, 1999.

Willow Management Strategy – Upper Murrumbidgee Catchment, Willow working Group of the Environment Advisory Committee and Willow Working Group of the Upper Murrumbidgee Catchment Management Committee, Canberra, 1997.

Note: all publications produced by Environment ACT are available online at www.act.gov.au/eviron/

14.8 Further reading

ACT Crime Prevention & Urban Design, Resource Manual, ACT Department of Urban Services, Canberra, 2000.

BDP Environment Design Guide, Vol 1, The Australian Council of Building Design Professions Ltd, 2000.

BDP Environment Design Guide, Vol 2, The Australian Council of Building Design Professions Ltd, 2000.

Belconnen's Urban Parks, Sportgrounds and Lake Ginninderra Plan of Management, Canberra Urban Parks, Department of Urban Services, Canberra, 1998.

Canberra's Urban Lakes and Ponds Draft Plan of Management, Canberra Urban Parks and Places, Department of Urban Services, Canberra, 2000.

Consultation Manual, Australian Capital Territory Government, Canberra 2000

Consultation Protocol, A Guide to Consultation Processes for the ACT Government, Australian Capital Territory Government, Canberra 1997

Inner Canberra's Urban Parks and Sportgrounds Draft Plan of Management, Canberra Urban Parks and Places, Department of Urban Services, Canberra, 2000.

Woden and Westons Creek's Urban Parks and Sportgrounds Plan of Management, Canberra Urban Parks, Department of Urban Services, Canberra, 1998.