SUSTAINABLE COMMUNITIES

Infrastructure Development Guidelines
City of Greater Geelong

October 2010

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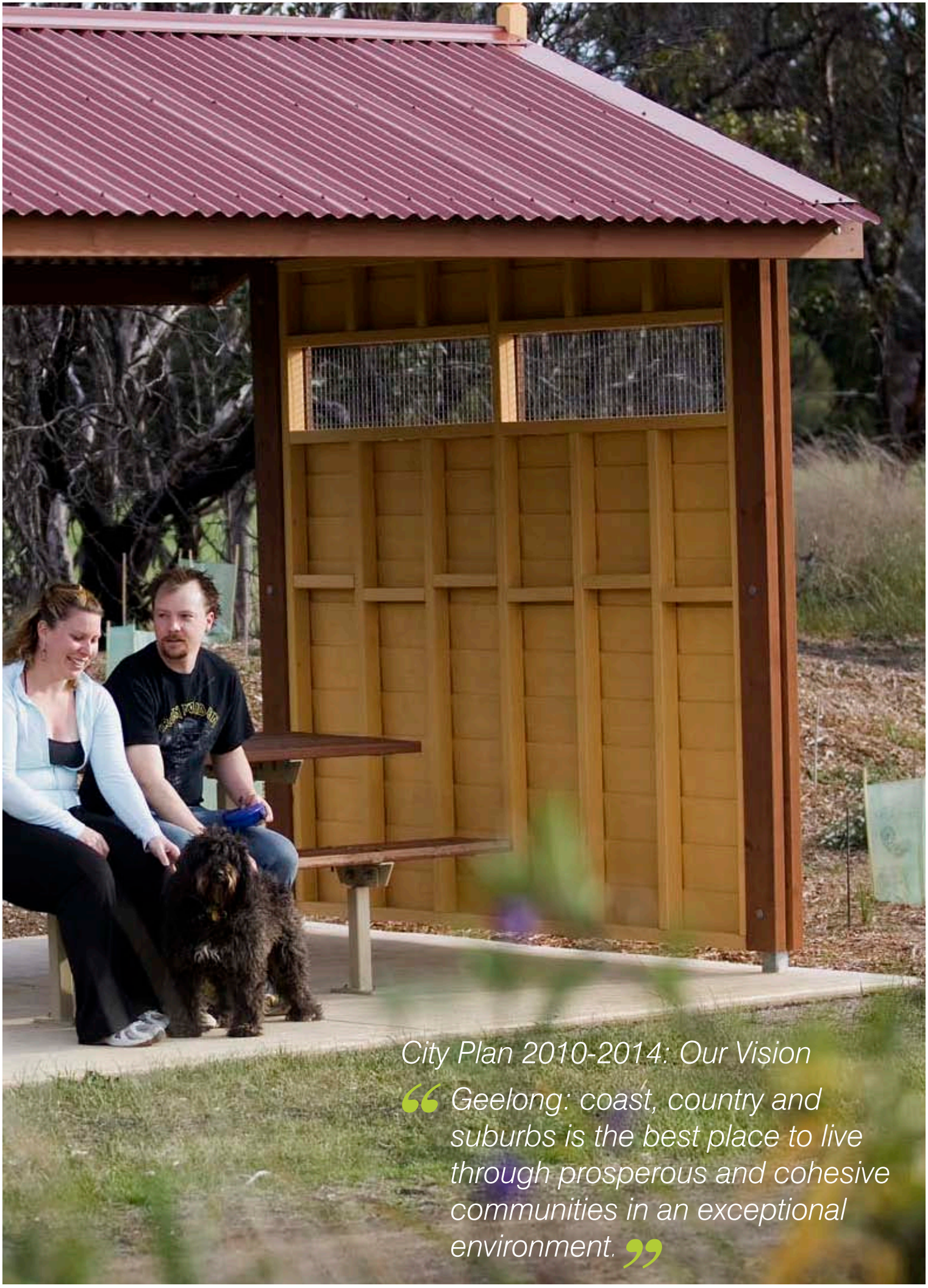
CITY OF GREATER GEELONG



City Plan 2010-2014: Our Vision

"Geelong: coast, country and suburbs is the best place to live through prosperous and cohesive communities in an exceptional environment."

1. Introduction

These guidelines have been prepared to facilitate the development of sustainable communities through quality planning, design and construction of infrastructure in the City of Greater Geelong. They will assist with the upgrade and redevelopment of existing infrastructure as well as the establishment of new communities throughout the municipality.

Sustainable Communities:

- Are places where people want to live, work and play;
- Meet diverse needs of existing and future residents;
- Offer a high quality of life and promote community connectedness;
- Lead the way with environmental outcomes and maximising natural settings;
- Are safe, inclusive and engaging;
- Possess economic vitality that promotes diverse activity;
- Focus on integrated planning of all aspects of community and liveability;
- Offer good access to quality services and community facilities; and
- Are well connected and welcoming for residents and visitors.

Community infrastructure is the collection of physical and publicly accessible assets used by the community that support its health, well being, sense of place and community. The City of Greater Geelong Council expects that infrastructure will be of high quality, responsive to changing community needs and aspirations and will be able to be maintained within operational budgets. Minimum standards may be specified to ensure that an acceptable standard of development is achieved; however creative design that maximises sites' natural settings and features will be encouraged. Innovative design solutions and construction techniques will result in communities that are individual and promote their unique qualities.

City Plan 2010-2014 identifies outcomes for the communities of Greater Geelong as:

- Community Wellbeing
  - Objective: To improve the health and quality of life of all residents of Greater Geelong
  - Outcomes:
- Improved healthy eating and physical activity
- Increased lifelong learning and literacy
- Liveable neighbourhoods
- Growing the Economy
  - Objective: Securing Geelong's Economic Future
  - Outcomes:
- Plan and develop the National Transport and Logistics Precinct
- Development of the Cosmopolitan Heart
- Managed Growth
- Community Wellbeing
  - Objective: The City of Greater Geelong leads the community in sustainable planning and environmental action.
  - Outcomes:
- Increased use of public transport and active transport
- A reduction in the organisation's environmental footprint
- Agreed standards for sustainable development are in operation
- The Climate Change Adaptation Strategy is established
- Enhancement and protection of natural areas

Council acknowledges the importance of balancing economic growth, providing vibrant and informed communities and preserving and protecting the City's unique environmental assets. The Geelong Sustainability Framework 2006 - 2011 establishes directions to be pursued to be a more sustainable City.

Geelong's natural assets - forests, air, water, land, plants, animals and climate – must be protected and a balance between their use and maintaining the ecosystem services they provide must be achieved.

Consideration must also be given to how natural resources are used and the need for greater efficiencies to reduce consumption of resources and the generation of waste.

The Geelong community also needs to understand how choices made in their everyday lives can reduce their impact on the environment. To this end, the importance of environmentally sustainable design (ESD) is reinforced throughout this document.

It is important to plan, design and construct community infrastructure in a responsible and sustainable way because such infrastructure:

- Affects people's ability to go about their everyday life;
- Can incorporate adaptable and flexible environments that cater for changing needs over time;
- Increases people's chance of meeting others, accessing services and being active members of communities;
- Preserves natural values and incorporate environmental features; and
- Enhances health and well being through opportunities for physical activity and active lifestyle.




It is anticipated that these guidelines will be used by Developers, Agencies and Authorities, Council staff, and Consultants on behalf of Clients.

The next few sections of these guidelines outlines the various types of infrastructure and the relevant standards and reference documents that should be used in the planning, design and development of infrastructure. In some cases, the requirements are summarised with reference to other documents that contain greater detail, in other cases, the requirements are detailed in this document. These sections should be closely followed to ensure that minimum requirements are achieved.

Some sections refer to infrastructure in terms of its hierarchy – eg. regional, sub-regional, local, etc. These levels of hierarchy, which will guide development standards, may differ for various types of infrastructure. Each section should be read according to its own definition of hierarchy.

Master planning is an important consideration and often a requirement for community and open space infrastructure. It will be important that master plans are prepared by professionals with appropriate qualifications and are developed in accordance with these development standards.

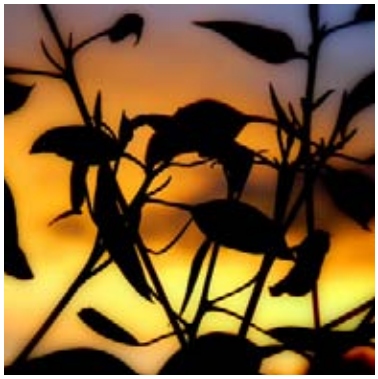
This document has been prepared with a standard format for each type of infrastructure. Within each section:

- The objectives and principles of development are summarised;
- The relevant standards and policies are outlined including legislation, industry standards, policies and guidelines;
- Planning considerations are discussed with particular reference to relevant resource materials that should be used in planning phases; and
- Design and construction guidance and requirements are covered to ensure that there is consistency and compliance with minimum standards of infrastructure development.

The infrastructure discussed in these guidelines includes:

Transport and Movement	Roads, Footpaths and Pathways Public Transport Street Lighting, Utilities and Waste Management
Landscape and Streetscape	Park and Street Planting Turf and Planting Preferences Weed Management Furniture and Signage Entry Treatments
Water Management	Irrigation Water Sensitive Urban Design Wetlands and Waterways – constructed/modified
Sport, Recreation and Open Space	Informal Parks Sporting Open Space Pavilions and Built Infrastructure Play Spaces Linkages and Connections Public Toilets
Social and Community Facilities	Community Hubs Libraries Infrastructure for all age groups
Environment and Biodiversity	Conservation of Flora and Fauna Natural Waterways Fire Management



These guidelines are intended to be used as a guide for planning, design and development. While there are many aspects of the guidelines that are quite specific about development outcomes, Council encourages innovation and creative solutions to the development of sustainable communities.

A pre-application meeting for applicants seeking planning approval is critical to discuss and negotiate aspects of proposed developments. Any application area will form part of the larger neighbourhood or region and it will be important to understand the context for every development and consider other requirements for community outcomes that will be important for Council to achieve.

It should be noted that strategic planning documents that include structure plans, urban development frameworks and urban growth plans provide critical detail and/or direction in relation to streetscapes, road and footpath treatments, linkages and landscapes. These documents should be examined to ensure infrastructure provision is consistent with these approved documents. Examples of key documents are:

Structure Plans	Barwon Heads St Leonards Ocean Grove Indented Head
Urban Growth Plans	Armstrong Creek Jetty Road
Urban Design Frameworks	Portarlington Barwon Heads St Leonards

Section 8 of this document describes the process for application and approval. It also provides points of contact within Council should further information be required.

Document Governance

The Infrastructure Development Guidelines are produced by the City of Greater Geelong. Ensuring the information it contains is accurate and current would not be possible without the contributions and assistance of staff across the organisation.

The Infrastructure Development Guidelines are continually reviewed and updated, not only to account for changes in agency information, but also to better describe and define improvements and changes in the management of infrastructure and the development of sustainable communities.

Formal Infrastructure Guidelines Document Review

The Infrastructure Development Guidelines document is reviewed annually by a committee. Membership of the Committee will be drawn from a core group of officers from Council. The role of this group is to review the document and consult with other council departments and external agencies to ensure best practice in the development of infrastructure. The core group consists of the following officers:

- City of Greater Geelong's Co-ordinator Infrastructure Management (Chair);
- City of Greater Geelong's Co-ordinator Recreation & Open Space;
- City of Greater Geelong's Co-ordinator Community Facilities;
- City of Greater Geelong's Co-ordinator Urban Growth Area Planning;
- City of Greater Geelong's Co-ordinator Sustainability;

As part of the review process it may be deemed necessary to create sub-committees and working groups to investigate new standards or industry trends for inclusion into the Infrastructure Guidelines. It is proposed an updated version of the Infrastructure Guidelines is produced every 12 months.

Copies and updates to the Infrastructure Development Guidelines are available from the website **www.geelongaustralia.com.au**. Users of the Guidelines are also invited to suggest improvements and amendments via the City Web project page feedback box. These will be discussed and considered as part of the formal review process. Recommended changes to the infrastructure guidelines will be forwarded to the executive management team at the City of Greater Geelong for approval following a two-week exhibition period of the draft alterations.

2. Transport and Movement

2.1. Objectives

Urban infrastructure is designed to promote on-street activity and community life by promoting amenity for pedestrians and cyclists and safety for all road users. This includes canopy shade; seating; appropriate on-path lighting; comfortable and accessible public transport infrastructure; transport stop infrastructure that facilitates access by aged and disabled persons; comfortable places with visual amenity for resting and relaxing; and interesting spaces for children and young people.

The City of Greater Geelong encourages developers to take an integrated and innovative approach to designing new infrastructure.

Streetscapes and roads must facilitate efficient and safe movements for road users; include water sensitive urban design; encourage active and public transport; be easy to maintain; and include street trees whilst minimising issues with access and damage to underground utility services. (Refer to Section 3 for Landscape and Streetscape and Section 4 for Water Management).

This section applies to the following Planning Zones:

- RDZ – Road Zone.
- RZ – Residential Zone.
- BZ – Business Zone.
- PUZ – Public Use Zone.
- SUZ – Special Use Zone.

2.2. Principles

The design of urban form, streets and infrastructure must ensure that:

- Transport corridors, pedestrian networks and cycling networks are designed to recognise the long term use of the area.
- Open space corridors and green belts are promoted and encouraged.
- Current and projected community demographic characteristics inform the design process.
- Infrastructure provides for people of all abilities.
- Non-motorised modes of travel are encouraged.
- Streets are designed to: maximise community life; look and feel safe; and connect people to their community and destinations of choice.
- Infrastructure is responsive to the nature, sustainable capacity and characteristics of proposed locations.
- Construction and material selection enables easy and cost effective maintenance.
- Environmental impacts are minimised.
- A consistent aesthetic is provided across the City (branded development styles are to be negotiated).
- Treed community spaces including both parks and streets reduce the heat island effect as part of the overall benefit provided by treed environments.
- Materials used for construction are sustainable and readily sourced.

2.3. Relevant Standards and Policy

Key documents relating to the design and construction of new communities include the following:

2.3.1. Legislation

Disability Discrimination Act 1992 (Com.)

Road Management Act 2001 (Vic)

Subdivision Act 1988 (Vic)

2.3.2. Industry Standards

AS 1742.9 – Manual of uniform traffic control devices – Bicycle Facilities.

AS 2890.3 – Parking facilities – Bicycle parking facilities.

AS 2156.1 – Walking tracks – Classification and signage.

AS 2156.2 – Walking tracks – Infrastructure design.

AS1428 - Design for Access and Mobility.

AS/NZS 3661.1.1: 1993 Slip resistance of pedestrian services.

AS/NZS 3661.2: 1994 Guide to the reduction of slip hazards.

AS/NZS 1158 Set: 2007 Lighting for roads and public spaces.

AS 1742.5 – 1997 Street name and community facility name signs.

AS 3996 – 2006 Metal access covers, road grates and frames.

AS/NZS 3000 :2007 Australian/New Zealand Wiring rule.

Australian Standards that provide references for Way Finding

Austroads– Guide to traffic engineering practice, Parts 1-20

Austroads – AP R194/01 – Forecasting demand for bicycle facilities

Austroads – AP R193/01 – Traffic flow model allowing for pedestrians and cyclists

Austroads - Guide to Road Design – Part 6A: Pedestrian and Cyclist Paths 2009

VicRoads Bicycle Notes: 1 -19.

2.3.3. Policy and Guidelines

City of Greater Geelong Infrastructure Design Manual, (2009)

Standard Drawings 500 series, City of Greater Geelong

Standard Path Design, City of Greater Geelong (2009).

City of Greater Geelong Planning Scheme including State Planning Provisions Clauses 55 and 56

Appropriate Structure Plans

Central Geelong Urban Design Guidelines

Walking and Cycling Development Guidelines, City of Greater Geelong, (February 2009)

Healthy by Design: A Planners Guide to Environments for Active Living – National Heart Foundation

The Bicycle Parking Handbook – Bicycle Victoria

Safer Design Guidelines for Victoria – Department of Sustainability and Environment

Clause 56 Walkability Toolkit – City of Greater Geelong

Greater Geelong Cycle Strategy – Volume 1 (2008) – includes works toolkit

Walking More: Walking Safely – City of Greater Geelong Walking Study (2004)

Street Sign Policy 9, City of Greater Geelong, (October 2009)

Guidelines for Walkable Coastal Environments – City of Greater Geelong

Fire Services Guidelines

Growth Area Authority – Engineering Standards Manual (2010)

2.4. Planning

Whilst the Infrastructure Design Manual (2009) provides a guide to road reserve widths and the types and styles of infrastructure built within; the City encourages developers to consider the full range of road users or uses and infrastructure for inclusion within the road reserve prior to simply applying the road width standards.

Figure 2.1 below illustrates the range of road uses and infrastructure that needs to fit within the road reserve.

Figure 2.1: Infrastructure in road reserves.

Innovative road reserve designs that facilitate efficient and effective motorised transport; includes water sensitive urban design; encourages active and public transport; are easy to maintain; and considers the need for street trees whilst minimising issues with access and damage to underground utility services are encouraged. All designs need to be cognisant of all recurrent operational costs involved in maintenance.

Many areas will contain paths for use by both pedestrians and cyclists. Wherever possible, pedestrian and cyclist routes should be physically delineated from vehicular movements and clear site lines should be maintained at vehicular crossovers.

2.5. Design and Construction

2.5.1. Circulation Infrastructure

2.5.1.1. Safety

Urban form, streets and all associated infrastructure should be designed in accordance with the 'Clause 56 Walkability Toolkit' and 'Safer Design Guidelines for Victoria' to maximise the safety of people. Safety shall be improved by:

- Maximising visibility and surveillance of the public environment.
- Providing safe movement, good connections and accessibility.
- Maximising activity in public places.
- Clearly defining private and public space responsibilities.
- Ensuring that public space can be easily maintained to ensure ongoing attractiveness and use.

2.5.1.2. Accessibility

Footpaths shall be designed and provided in accordance with Australian Standard AS1428 'Design for Access and Mobility'.

Tactile Ground Surface Indicators (TGSI's) shall be provided along pedestrian networks in accordance with Australian Standard AS1428.4 - 'Design for Access and Mobility – Part 4: Tactile Indicators'.

Refer to Table 2.1 for the range of tactile indicators approved for use by City of Greater Geelong.

Table 2.1: Tactile indicators approved for use.

Tactile Indicators	Approved for use
Plastic Strip Cut	Yes
Ceramic	Yes
Rubber with contact adhesive	Yes (less effective in high traffic streetscapes)

2.5.1.3. Way-finding

Way-finding networks must be designed in accordance with the "Clause 56 Walkability Toolkit". Way-finding signage is to be designed to enable people to maximise their use and enjoyment of their surroundings.

Street name signs must be standard street blades on galvanised poles in accordance with City of Greater Geelong Standard drawing CGG710.

Signage should indicate distance and time by foot and cycle to key destinations including public transport, shops, parklands, schools and other amenity.

Heads-up maps must be included at key points in the walking and cycling networks and at all destinations. Signage must be included to enable people to most easily navigate their environment. These must be fixed at a reasonable height to ensure a 7 year old child, or person in a wheelchair can read and see this information and include Braille and or other acceptable indicators for visually impaired persons.

2.5.2. Footpaths, Cycle Ways and Shared Paths

The principles for design of footpaths must comply with Walking tracks, Classification and Signage - AS2156.1; and Walking tracks, Infrastructure Design - AS2156.2.

The principles for design of cycle paths must comply with AS1742.9; AS2890.3; Austroads – AP-11.14/99; Austroads – AP R194/01; Austroads – AP R193/01; and VicRoads Bicycle Notes: 1 -19.

To complement these standards, the City of Greater Geelong has developed strategies to guide walking and cycling development for both commuting and recreational users throughout the municipality. These include:

- Walking More: Walking Safely – City of Greater Geelong Walking Study (2004).
- Clause 56 Walkability Toolkit – City of Greater Geelong.
- Guidelines for Walkable Coastal Environments – City of Greater Geelong
- Greater Geelong Cycle Strategy – Volume 1 (2008)

Footpaths must be a minimum of 1.5 metres wide and be constructed in accordance with the Standards. The desirable maximum crossfall on footpaths is 1 in 50 and the absolute maximum crossfall is 1 in 40.

Kerb crossings shall be provided in accordance with Australian Standard AS1428 'Design for Access and Mobility' at locations identified in consultation with the Council's Engineering department.

Footpaths shall be constructed of either concrete or asphalt, and shall conform to Australian Standards AS1428 'Design for Access and Mobility' Parts 1 – 3 for surface finish.

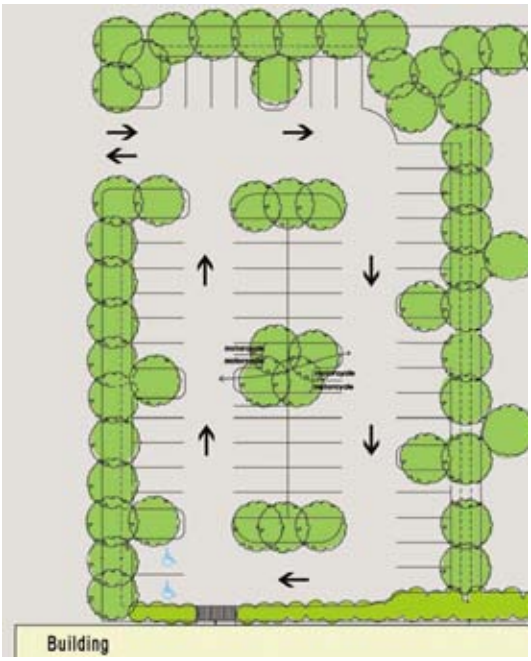
Pedestrian and shared paths shall be constructed from concrete, asphalt or finished with a gravel topping. The gravel topping shall be in accordance with Council approved material.

Path width and materials should be selected based on use and the setting

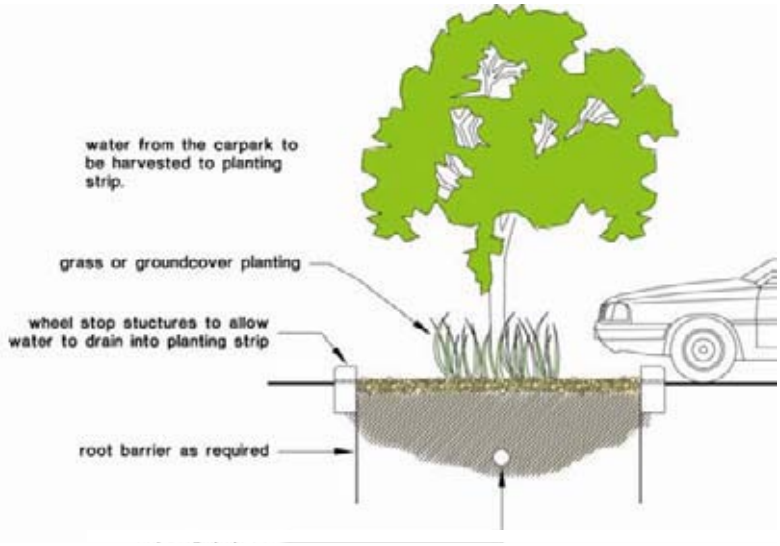
2.5.3. Car Parking

- Car parking and efficient vehicle circulation are key design considerations. Parking areas should provide an adequate number of spaces for any proposed use or development.
- Car drivers prefer to park in the shade therefore all car parking areas are to be landscaped and planted to an appropriate level to provide shade and screening for cars and a safe environment for users. Integration of car parking within the landscape design is an essential requirement for both aesthetic and functional outcomes.
- The following guidelines should inform design.
- The car park layout is to be designed to be sympathetic with the building form and surrounding landscape;
- Car parks must include canopy trees which are spaced to provide shade for vehicles at the rate of approximately one large canopy tree to every 6 vehicles. Planting “islands” should be incorporated into very large car parking areas;
- Plant species for all landscape areas (including canopy trees) are to be selected to allow clear sightlines for all users;
- Car parking areas must be set back the required distance from the front of the property, as specified in the table at Schedule 18 of Clause 43.02 of the Greater Geelong Planning Scheme.
- Wherever possible, car parking areas should be visible from inside relevant buildings;
- Set backs are to be landscaped to partially screen cars whilst preserving site lines into and throughout the car park for user safety. Planting must not provide hiding spaces;
- Designs must provide for all vehicles to enter and exit car parks n a forward direction;
- Overall designs should minimize the probability of vehicle/vehicle or vehicle/pedestrian conflict;
- Car parks should provide direct access via pedestrian paths to designations;
- Provision of car parking spaces for people with disabilities should be provided and conform to Australian Standards. Full width access ramps should be provided along the front of disabled car parking bays.
- Sealed pavements must be used rather than gravel surfaces. Pervious pavements could be used to harvest storm water run-off to provide plant irrigation;
- Sufficient lighting must be provided where car parking will be regularly used after dusk;
- Car parking areas must not be sited adjacent to outside air intake or natural ventilation;
- Car parking areas must not be used for the temporary or permanent storage of goods for servicing, usage or loading;
- Designs of car parks must take into account site drainage, sewer mains, water pipes and easements;
- Common themes in design and materials should be used for car parks and driveways;
- In addition to these guide lines, all car parking must comply with the standards set by the Greater Geelong Planning Scheme and the relevant Australian Standards.

Indicative car park layout



Indicative car park cross section showing water harvesting



2.5.4. Public Transport Infrastructure

Bus stops must be placed approximately every 400 metres along bus routes. Shelters must be designed and installed in accordance with City of Greater Geelong standard drawings CGG711 and CGG712.

Bus shelters and benches must be installed in appropriate locations based on modelled patronage and each areas demographic characteristic.

2.5.5. Utilities

Service utility corridors are to be installed in accordance with the adopted Infrastructure Design Manual (2009). Where possible, utilities are to be installed along corridors that will minimise disruption to roads and footpaths and avoid street tree roots.

2.5.6. Street Lighting

The main requirements of the relevant Public Lighting Code and guidelines are set by the Essential Services Commission and the Australian Standards AS/NZS 1158 – Lighting for roads and public spaces.

Globes must be selected to minimise greenhouse gas emissions. Recently approved 42W CFL lighting shall be used as a minimum application unless T5 or LED technology is approved prior to commencement of development.

Non standard lighting might only be approved for use in un-metered supply situations.

All street lighting will be maintained by the designated authority as per contractual arrangements with Council.

Restrictions will apply to both the selection of luminaries and poles to ensure that only the latest approved energy efficient lights are installed and practical pole replacement issues are minimized.

Un-metered off street lighting schemes will be subject to Council's Asset handover approval process and specific criteria will apply to ensure energy efficient technologies are utilized.

Solar powered lighting (and other sustainable lighting solutions) should be considered in preference to mains powered lighting supply, and consideration should be given to minimising shade across the location of solar panels.

Grid connected solar lighting utilises renewable energy with the back up of mains power. Suitable applications would be all Community facilities, such as Halls, club rooms and associated buildings due to the availability of installation opportunities. Grid tied solar lighting is also highly visible, demonstrating sustainability practices and making an environmental statement to the community.

Table 2.2 describes the lights recommended for use across the City of Greater Geelong.

Table 2.2: Recommended lighting types.

Lighting Types	Recommended for use
Compact fluorescents (CPL)	Yes
Twin fluorescents (T5)	Yes - With separate metering
High Pressure Sodium	Yes - At major traffic intersections
250watt Metal Halide	Yes - High use pedestrian areas
Mercury Vapour	No
Solar	Yes

2.5.7. Waste Management

The design of road and streetscape infrastructure must ensure that all residential collections be completed in a single loop without the need to reverse at any time.

Road and nature strip widths should be able to accommodate collection vehicles with the following dimensions:

- Height – 3.63m
- Width – 2.48m (5.98m with bin lifter extended)
- Length – 9.67m
- Weight – 25 tonnes

The provision of street litter bins shall only be in commercial precincts and active recreation reserves and must be within 20 metres of the closest vehicle access point and any identified litter source (i.e., takeaway shop etc).

A minimum unobstructed road width of four metres is required for waste collection vehicles to travel along.

Pavement strength must be sufficient to enable 25 tonne gross weight for 2 waste collection cycles per tenement per week.

Where collection vehicles are required to drive into a development for kerbside collections, minimum vehicle clearance and pavement gradients will apply.

Where staged construction results in a dead end, a temporary turnaround facility shall be provided by the construction of a suitable all weather hard stand area to accommodate the turning radius of 12.5 metres required by the collection vehicle.

The placement of trees and other road furniture shall be such to allow for two bins to be presented side by side. A minimum of 1.76 metres per bin will be required.

The placement of trees in nature strips shall also consider that when mature, they do not inhibit street sweeping operations.

Nature strips shall have a maximum of 10% crossfall in all directions to accommodate the placement of bins for collection. If this cannot be achieved, the construction of a suitable bin standing area may be required.

3. Landscape and Streetscape

3.1. Objectives

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

- Integration of engineering infrastructure and buildings with the landscape features 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.
- Application of water sensitive design principles 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 landscape features with recognised special significance.
- Contribution to the economic vitality of the municipality 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.

This section applies to the following Planning Zones:

- RDZ – Road Zone.
- RZ – Residential Zone.
- BZ – Business Zone.
- PUZ – Public Use Zone.
- SUZ – Special Use Zone.
- PPRZ – Public Park and Recreation Zone.




3.2. Principles

Ensure that the planning and design for landscape in Streetscape and Open Space settings is sustainable and follows Councils guidelines and best practice principles.

These principles are:

- To make open space areas contribute to the health of the local community and to provide an experience and landscape that creates opportunity for active and passive recreation.
- Develop a sustainable landscape that is drought tolerant and minimises maintenance requirements.
- Enhance biodiversity through maximising the use of indigenous vegetation in appropriate settings.
- Develop street and landscape designs that are consistent with water sensitive design principles.
- Encourage the use of materials used in design that are sustainable and readily sourced.

3.3. Relevant Standards and Policy

The following standards and policy apply to the design of landscape in Streetscape and Open Space settings including species selection, planting and maintenance.

3.3.1. Legislation

3.3.2. Industry Standards

AS 1428 -2003 Design for access and mobility.

AS/NZS 3661.1.1: 1993 Slip resistance of pedestrian services.

AS/NZS 3661.2: 1994 Guide to the reduction of slip hazards.

AS/NZS 1158 Set: 2007 Lighting for roads and public spaces.

AS 1742.5 – 1997 Street name and community facility name signs.

AS 3996 – 2006 Metal access covers, road grates and frames.

AS/NZS 3000: 2007 Australian/New Zealand Wiring rule.

AS 1250 / Amdt 2 – 1984 The use of steel in structures.

AS 4373 Pruning of Amenity Trees, Standards Australia.

AS 4970 – Protection of Trees on Development Sites

AS/NZS 1768: 2007 – Lightning Protection

3.3.3. Policy and Guidelines

Armstrong Creek - Tree planting species list 2010

Table 3 of Clause 21, City of Greater Geelong Planning Scheme.

Environmental Weeds Brochure, City of Greater Geelong.

"Garden Thugs, a national list of invasive and potentially invasive garden plants" from Plant Protection Quarterly, Volume 16, Issue 4, 2001.

Street Tree Profile Plan.

Indigenous Plants of the Geelong Region Information Sheets, City of Greater Geelong.

City of Greater Geelong Street Tree Policy

City of Greater Geelong Street Tree Strategy

City of Greater Geelong Street Tree Planting Guidelines.

City of Greater Geelong Urban Furniture Style Manual (1996).

National Aquatic and Recreational Signage Style Manual, Victoria (2006).

Appropriate Structure Plans

3.4. Planning

All new streets, reserves, parks, housing developments and industrial developments should be fully landscaped as per the following requirements.

3.4.1. Landscape Plans

A Landscape Plan, addressing both form and function, is required for all street and open space reserves (environmental areas to have separate guidelines) for final approval before landscape construction commences. The Plan shall include, but not be limited to the following components: park furniture, shelters, bridges, paths, fencing, lighting (if required), car parking, playground, garden areas, tree planting, turf, mulch material, plant selection, irrigation (if required), and traffic control devices.

This plan is to be undertaken by a suitably qualified Landscape Architect, who is a member of the Australian Association of Landscape Architects.

A plant selection schedule should form part of the landscape plan detailing the plant species used, planting locations, container size and numbers of plants used in each location and totals of plantings to be used.

Landscape plans are to reflect best practice in water sensitive design.

Landscape plans with engineering requirements and details will require the approval of Council's Engineering Department.

Landscape plans shall not incorporate the use of environmental weeds. For a list of environmental weeds, refer to Council's Environmental Weeds Brochure.

It is advisable that Landscape Architects consult with Council in the 'concept' stages of the planning and prepares a planting schedule for all locations referred to in the plans for discussion with Council.

3.5. Design and Construction

3.5.1. Plant and Turf Selection and Management

Plant selection is to be based upon the use of plants that are indigenous to the Geelong region as per the 'Indigenous Plants of the Geelong Region Information Sheets' available from the City of Greater Geelong's Environment Unit.

Further information on indigenous plants suitable for each location can be sourced through Council's Tree Planner or Council's Environment Unit. As a general guideline:

- Plants for parks should be indigenous in all or nearly all cases.
- Trees for streets should be native in most cases. Indigenous trees should be used near environmental areas in streets.
- Exotic trees are good for deciduous species.

Unless there is an overriding design objective (for example: specific form or solar outcomes, etc), plantings must be allied as closely as possible to indigenous species. Any plants along road reserves or traffic control devices must be clumping forms rather than running forms. Clumping varieties such as Chrysocephalum apiculatum, Dianella revoluta, Dianella tasmanica are examples. Only local running form examples such as Kennedia Prostrata will be considered as an exception.

If plant species are selected outside of this list then, as part of the permit approval process, the developer will be required to have discussions with Council regarding the species selected, where it will be used, and must provide a full description 'fact sheet' from the plant breeder detailing the growth habit and requirements.

Any discussion on other plant selections should be held at the concept stages of the design project for approval.

Turf species must be suitable warm season varieties and be selected taking into consideration the soil type and environmental conditions and available water.

Grassed areas are to have a minimum 90% recognised grass cover of the approved grass species selection at the time of inspections and handover to Council.

Street trees should generally be Australian native species

3. Landscape and Streetscape

Grassed slopes or gradients in a reserve or open space must not be greater than 1 in 6 where possible. If this cannot be avoided an alternative landscape design / treatment will need to be implemented that would not require the use of machinery to maintain. Any form of grassed slope or gradient must have a significant run-off area at the base of the slope for machinery to operate on safely.

Retaining walls of one metre or more require a safety barricade to avoid the risk of falls.

Street tree plantings must be in accordance with the City of Greater Geelong Street Tree Planting Guidelines. In the case of new subdivisions and approved developments, the developer is responsible for the planting and establishment of all street trees.

Tree planting is recommended between the months of May through to September as this is the optimum time for planting success.

Tree planting undertaken within streets or on public land shall be completed in accordance with all relevant Council engineering standards (i.e. footpath clearances) and legislative requirements.

Council requires a minimum of one street tree per average house block; two to three street trees would be considered where frontages or nature strips are larger than the average size or where smaller trees are used.

Two to three street trees may be required on the long side frontage of blocks depending on spacing requirements.

All trees must be selected from the approved species list provided by Council and trees will be selected based upon the planting criteria required for each species.

Street trees will be selected on the basis of "Planting the Right Tree in the Right Place' taking into account nature strip width or available planting space to select the most appropriate tree for the location. Council can advise further on tree selection criteria to minimize future engineering damage.

No tree planting will be permitted on the floor of a drainage basin or in locations where earthworks have been raised above ground level.

The use of large 'iconic' trees will be considered in public park and recreation reserves greater than 1 hectare in size to develop planting vistas and avenue plantings. The use of 'iconic' trees will not be limited to only Geelong region indigenous trees however where possible indigenous Geelong region trees should be considered. Other native trees from Australia will be considered and possibly some exotic trees will be considered depending on the location and rationale. Any tree other than Geelong Region trees must be selected on the basis that they will not become an environmental weed species.

All plant species (trees, shrubs, ground covers etc) selected need to be able to thrive on natural rain fall when established at the end of the maintenance period.

Plant material selected for planting within each reserve must be of a minimum container size suitable for each particular landscape treatment, and must be discussed with Council Officers prior to planting.

For parks and reserves less than 1 hectare in size –

- Trees must be in 300mm minimum size containers with a minimum height of 1 metre;
- Shrubs must be in 150mm size containers or greater; and
- Grasses /sedges in tube stock size containers or similar.

For parks and reserves greater than 1 hectare in size –

- Other planting arrangements using smaller stock can be negotiated with Council Officers.

Street trees are to be in a minimum 45 litre size container with a minimum height of 1.5 metres depending on the tree species. Trees must be self supporting in the container and in a sound and healthy condition. Where indigenous trees are to be used they need to be ordered early enough for supply to be ensured.

All tree plantings are to be fully mulched with a minimum mulched area of 0.75m radius from the tree trunk with mulch 100-150mm in depth. Due to the current hotter climatic conditions, larger tree mulched areas are required to cool soil and prevent water loss to established trees.

All street trees are to be planted with a constructed water well berm.

Council encourages the installation of street tree storm water treatment systems that capture and utilise storm water to assist with tree irrigation.

A water retention material is to be used during planting to assist in water retention and establishment of new plantings.

Deciduous trees in urban space provide for winter sun, summer shade

3.5.2. Planting in Roundabouts and Traffic Control Devices

The design and planting of traffic control devices including roundabouts must consider the following:

- Roundabouts must have a concrete or similar apron
- Any planting must maintain sightlines at all times.
- Plant heights on roundabouts must not exceed 400 mm when in flower
- The surface mulches including gravels must be of a binding nature
- Roundabouts and small traffic islands are not to be planted up with turf
- Road centre medians of a width 5 metres or greater can include warm season turf varieties, with trees planted along the centre of the median strip.
- Road centre medians less than 5 metres can be planted with appropriate tree species, but must be then mulched with gravels or tree mulches approved by Council. The use of grass in these areas will not be approved.

3.5.3. Landscape Materials

Mulches are to be approved by Council. Mulch types will include organic and inorganic materials; e.g. stone mulches, for consideration. The mulch should be free of propogule and green material.

Landscape treatments adjacent to footpaths must have suitable edging to retain mulch and should be mulched with a binding material that will resist scattering by pedestrian traffic or wind. Edging next to paths are a potential tripping and maintenance hazard. Mulch should be flush with the path but rebated to 50mm deep.

Soil samples, like mulch and other materials, must be suitable for the purpose and approved by the City of Greater Geelong. Imported soil must be totally weed and fungi free and be certified as weed and fungi free.

3.5.4. Trees and Underground Services

It is recommended that total avoidance be a priority to trees, their root systems and other plantings during any renewal and maintenance periods involving works to Utility Services Infrastructure.

An underground tree planting zone with no underground services should be equal to 50% of the nature strip width located in the centre of the nature strip. To assist with this occurring a desired model would see a “common trench” adopted and utilised in agreement with service providers; using individually color coded sustainable materials (Refer to Section 2 – Circulation Infrastructure).

3.5.5. New Developments – Maintenance Period

All Landscapes including Street Trees, Reserves, Parks and Traffic Control Devices are to be fully maintained by the Developer for two (2) years, or a greater period of time if agreed with the Developer.

All plantings are to be maintained by the developer in a sound and healthy condition as per approved plans and specifications. Failure to maintain plants to these specifications will result in an extension of the maintenance period to suitably cover the required establishment of plants to Councils satisfaction. The maintenance period could be extended for a further 12 months or more.

An inspection is required of the landscape on Practical Completion to authorize the commencement of the maintenance period. This inspection is to be arranged by the developer.

The Developer is to arrange six monthly inspections throughout the maintenance period to review the establishment of the landscape.

At the end of the Maintenance Period a final inspection, arranged by the Developer, is required to assess readiness for hand over to Council.

If rectification works are required at any of the six monthly inspections or the hand over inspection, the Developer may be asked to undertake a further extension of the Maintenance Period for up to 12 months (or more) depending on the rectification works required.

Works are to be bonded with an independent report by an appropriately qualified consultant at the end of the maintenance period.

3.5.6. Weed Management

A weed management plan must be developed prior to handover which includes a risk base assessment framework to identify and prioritise weeds and areas for control. The plan shall include the following:

- An action that requires a minimum 95% reduction of noxious weed infestations prior to handover.
- An action that requires infestations of priority Environmental Weeds reduced by an agreed minimum with the Council.
- Control of woody weeds to consider habitat values and in some cases re-poisoned and left in situ to provide habitat until revegetation is established.

3.5.7. Furniture and Other Infrastructure

Street furniture, park furniture and other infrastructure should be confined to those items in the City of Greater Geelong Urban Furniture Style Manual that specifies both urban design and park standards. They must be:

- Constructed of appropriate material with high durability that is capable of withstanding intensive use, and a reasonable level of maintenance. Recycled materials can be considered.
- Designed in accordance with a contextually relevant theme.
- Located to achieve optimum usage being positioned in appropriately designed areas and encourage shared use by different facilities.
- Resilient to vandalism and cost effective to repair and replace.
- Of a high quality and construction standard.
- Public seating should be sited in accordance with the “Clause 56 Walkability Toolkit”. Benches must have armrests and backrests.
- Installed with a base material that considers need for accessibility.
- All materials, structures and fittings should be sourced in Australia and parts readily available.

Streetscape furniture: St Leonards

3.5.8. Signage

Signs are required for the following purposes:

- Identification – to identify entrances to places and open space.
- Information – to increase user appreciation of a site, minimise management problems and maximise safety. These may include:
  - notice signs indicating a current location (e.g. car park);
  - information signs relating to features and facilities;
  - interpretive signs providing a deeper understanding of the site and its surroundings;
  - maps giving graphic and / or worded indication of a current location, landmarks, features, routes and amenities; and
  - regulatory / advisory signs controlling movement and activity, informing users of known dangers, and warning against unsafe behaviour.
- To provide directions – to specific destinations, attractions, facilities and amenities.

Signage should be clear and provide simple communication, maximising use of universal signs wherever possible. Consideration should also be given to the need for signs to contain communication in other languages.

Signage must be included to enable people to most easily navigate their environment. These must be fixed at a reasonable height to ensure a 7 year old child, or person in a wheelchair can read and see this information and include Braille and or other acceptable indicators for visually impaired persons.

Signs should be able to withstand graffiti and vandalism. Recycled materials should be considered in construction. There should be no use of vinyl adhesive lettering in any signs.

No private signage, permanent or otherwise will be approved in any Council controlled park, street or other public area.

3.5.9. Entry Treatments

Entry treatments involve beautification at the entry points to new subdivisions. They are not encouraged and Council will not take responsibility for the management or maintenance of these areas either during development or following completion of subdivisions.

Entry treatments are not considered to be permanent developments or public open space.

Streetscape principles should be used in the establishment of an entry treatment – refer 3.5.1 in this section for guidance.

Design for any entry treatments will be approved as part of the Landscape Plans that are prepared for planning permit approval.

Estate Identification Signage will be the responsibility of the developer for the life of the signage.

Figure 3.1: Example of Place Name Sign for Conservation Reserve

Figure 3.2 Example of Place Name Sign for Recreation Reserve

4. Water Management

4.1. Objectives

Sustainable water resource management is a challenge for all new urban developments given predictions for a warmer, drier climate in south eastern Australia. Integrated water management is an appropriate response. Developments designed to facilitate efficient and sustainable water use at the household scale and optimize opportunities to capture and reuse non potable water within the urban landscape are encouraged.

Several documents outline the City's approach to water cycle management including the City's Environment Management Strategy; the Water Futures Strategy; The Sustainable Water Use Plan and an endorsement of Melbourne Water's Water Sensitive Urban Design Engineering Procedures: Stormwater. Urban Growth Strategies and Infrastructure Delivery Plans also specify the Councils approach to Water Sensitive Urban Design.

The City of Greater Geelong supports Barwon Water's alternative water strategy utilising 3rd pipe technology for new developments throughout the municipality and region. Sustainable options for use and supply of water will be encouraged.

The design and use of urban landscapes as well as the buildings and their use in the landscape will include water sensitive urban design. This broader interpretation of water sensitive urban design includes housing and building designs that require water efficient appliances and gardens, incorporates the reuse of grey water and stormwater on site and the traditional landscape approach to managing the quality and end use of urban stormwater.

This section applies to the following Planning Zones:

- RDZ – Road Zone.
- RZ – Residential Zone.
- BZ – Business Zone.
- PUZ – Public Use Zone.
- SUZ – Special Use Zone.
- PPRZ – Public Park and Recreation Zone.




4.2. Principles

The Council has endorsed principles for new urban developments that seek to recognise the downstream benefits from investment upstream and to encourage developer investment in contemporary sustainable water cycle management design and construction practices. Key principles include:

- Adopting an integrated approach to stormwater and flood management that meets objectives for hydraulic capacity, flood management and water cycle management;
- Protecting existing flora and fauna attributes in the preservation of existing environments and ecosytsems;
- Minimising the disturbance of waterways created by altered flow regimes and protect natural drainage and aquatic ecosystems;
- Maintaining and protecting the water quality in receiving waters and the down stream environment;
- Enhancing the value and public amenity of the existing stream corridors, biodiversity and environment;
- Including the principles of water sensitive urban design and water re-use/conservation; and
- Encouraging the full range of urban design, water conservation and local stormwater infrastructure options.

4.3. Relevant Standards and Policy

Drainage infrastructure including water quality treatment, wetlands, storage ponds, swales, sedimentation basins and other WSUD features are to be planned, designed and constructed in accordance with the following standards and policies:

4.3.1. Legislation

Water Act 1989 (Vic)

City of Greater Geelong Planning Scheme Clause 56.07 – Integrated Water Management

4.3.2. Industry Standards

AS3500.3 - Stormwater Drainage.

4.3.3. Policy and Guidelines

Stormwater Management Plan 2002, City of Greater Geelong.

MUSIC Guidelines - City of Greater Geelong

Stormwater Harvesting Policy, City of Greater Geelong (December 2009)

Water Futures Strategy, City of Greater Geelong (2009)

Water Management Policy, City of Greater Geelong (December 2009).

Wetlands Strategy, City of Greater Geelong.

Sustainable Water Use Plan, City of Greater Geelong.

Infrastructure Design Manual (2009).

Infrastructure Design Manual, City of Greater Bendigo, City of Greater Shepparton and Shire of Campaspe (2007).

Water Sensitive Urban Design: Engineering Procedures: Stormwater, Melbourne Water - CSIRO Publishing. (2005).

WSUD Engineering Procedures, Melbourne Water.

Urban Stormwater Best Practice Environmental Management Guidelines, CSIRO (1999).

Urban Stormwater Best Practice Environmental Management Guidelines 1999

VicRoads Road Design Guidelines Part 7 – Drainage.

Tender specification for irrigation design, City of Greater Geelong (2009).

National Guidelines for Water Recycling: Managing Health and Environmental Risks (Phase 1 Guidelines), Natural Resource Management Ministerial Council, Environment Protection and Heritage Council and the Australian Health Ministers' Conference (2006).

Guidelines for Environmental Management of Reclaimed Water, Environment Protection Authority (Victoria) (2003).

Australian Guidelines for Water Recycling: Stormwater Harvesting and Reuse (Phase 2 Guidelines), Environment Protection and Heritage Council, National Health and Medical Research Council and the Natural Resource Management Ministerial Council (2008).

Guidelines for Water Safety - Urban Water Developments, Royal Lifesaving Society of Australia.

Water Supply Code of Australia: Melbourne Metropolitan Reticulation Design (Potable and recycled network).




Best practice Guidelines for Urban Irrigation, Irrigation Association of Australia (2006).

Rainwater use in urban communities. Guidelines for Non–drinking Applications in Multi-residential, Commercial and Community Facilities. Victorian Government, Department of Human Services, Victoria (2007).

City of Greater Geelong Planning Scheme Provisions

Australian Rainfall and Runoff – Flood Analysis and Design (2001).

Guidelines for Water Safety in Urban Water Developments – Royal Lifesaving Society Australia.

4.4. Planning

4.4.1. Permits and Permissions

There are a range of permits and permissions that may need to be obtained for the construction and use of infrastructure designed to capture and use stormwater. Some of these permits and conditions include:

- Farm dam licence (Southern Rural Water)
- Irrigation licence (Southern Rural Water)
- Works on waterways permit (Catchment Management Authority)
- Works approval (Environment Protection Authority)
- Cultural Heritage Management Plan
- Section 173 Agreement
- Council's Open Space Development Approval Process

Designs should be prepared by certified designers with appropriate qualifications and expertise.

4.5. Design and Construction

4.5.1. Wetlands and Waterways

Wetlands are an integral part of Council's overall strategy to protect water quality.

A secondary function of wetlands is the provision of storage for flow retardation to minimise the environmental impact of flood flows on down-stream areas. Retardation of stormwater flows, hence flood peaks and water velocities, reduces the erosion and damage potential of floodwaters. Also, flow retardation can lead to reduced floodway capacity requirements and hence reduced land take requirements for drainage reserves in downstream areas.

Wetlands must be off-line from the channel system to ensure that macrophytic growth is not impeded by regular high flows, which would flatten them.

Other secondary functions of wetlands are related to the provision of enhanced environmental amenity. The benefits are:

- Habitats for nature conservation.
- Potential source of second class water for reserve irrigation.
- Improved landscape values.
- Restricted recreational uses.

Grassed slopes or gradients in retention basins and surrounding wetlands and water features must not be greater than 1 in 6 where possible. If this cannot be avoided an alternative landscape design / treatment will need to be implemented that would not require the use of machinery to maintain. Any form of grassed slope or gradient must have a significant run-off area at the base of the slope for machinery to operate on safely.

Retaining walls of one metre or more require a safety barricade to avoid the risk of falls.

Ongoing maintenance of artificial wetlands shall be in place for a minimum of two years.

It is recognised that once established, wetlands may become a natural environment over time.

4.5.2. Drainage

Drainage infrastructure is to be designed and installed in accordance with the adopted Infrastructure Design Manual (2009); Australian Rainfall and Runoff – Flood Analysis and Design - 2001 and Australian Standard AS3500.3 Stormwater Drainage.

Stormwater treatment systems must be designed and tested conceptually with the latest version of MUSIC. Input parameters must be in accordance with the City of Greater Geelong's MUSIC input parameters guidance note.

MUSIC simulations must use the City of Greater Geelong's rainfall data available from Council officers and from the City's website.

4.5.3. Alternative Water Supplies

Community facilities must be constructed in a way that potable water use is minimised. Facilities must be designed to accommodate water smart appliances and conserve water as a first priority.

Water used to irrigate open space and to flush toilets must utilise alternative water sources including recycled water, stormwater or roof water. If it is proposed that recycled water will not be supplied to some community facilities, stormwater harvesting and rainwater tanks must be included in the design and construction of these facilities.

The use of alternative water for other purposes is also encouraged.

4.5.4. Stormwater Harvesting and Reuse

Stormwater connections to drainage infrastructure must be designed; installed and managed in accordance with the City's Stormwater Harvesting Policy.

Treatment and storage of water must be in accordance with WSUD guidelines; the Australian Guidelines for Water Recycling: Stormwater Harvesting and Reuse (Phase 2 Guidelines); and the Guidelines for Water Safety - Urban Water Developments - Royal Life Saving Society.

The City supports Managed Aquifer Recharge (MAR) as a potential method of storing and reclaiming stormwater for reuse. Any MAR projects must be designed in accordance with the Australian Guidelines for Water Recycling: Managed Aquifer Recharge (Phase 2 Guidelines).

Pumps; transfer infrastructure and irrigation equipment must be adequately sized and designed to efficiently supply demand centres whilst minimising running and maintenance costs.

It is appropriate to model the estimated yield, treatment and demand profile for stormwater harvesting and reuse in MUSIC in accordance with the MUSIC User's guidelines and the City of Greater Geelong's input parameters guide.

Where it is proposed that stormwater will be captured and reused within a precinct, a report must be submitted that details:

- The catchment size.
- The catchments hydraulic characteristics such as the extent of urbanisation and open space and estimates of area of impermeable surfaces. This should be broken down into sub-catchments where appropriate.
- Estimates of the harvestable volume of stormwater in accordance with best practice (and legislated) harvest limits in a 3rd Decile and 5th Decile rainfall year using a minimum of daily time-steps.
- A description of the demand centres characteristics such as the proposed use and usage rates of active and passive surfaces, area estimates, soil types, proposed plant varieties and irrigation system. Alternatively, a demand centre might be a public toilet or an industrial use. In any instance, describe the demand centre and the characteristics of the water use.

Calculations illustrating the volume of water required by a demand centre (such as an oval or sporting precinct) in a 5th decile and 3rd decile rainfall year. These estimates must include:

- Peak annual, monthly, weekly, daily and instantaneous demand for water.
- Design details of storage and water quality treatments.
- Details of proposed pumps and transfer infrastructure.
- Estimates of supply volume available to a demand centre tracked against the demand profile.

4.5.5. Rainwater Tanks

Rainwater tank installations must be designed and installed in accordance with HB 230-2008: Rainwater Tank Design and Installation Handbook.

Rainwater tanks at community facilities must also be installed in accordance with the City of Greater Geelong's Rainwater Tank Policy 2008. Tanks are to be fitted with an approved connection that allows for CFA tankers to connect to.

The Victorian Department of Human Services provides detailed information regarding planning for and managing risks associated with the use of rainwater in their publication "Rainwater use in urban communities. Guidelines for Non–drinking Applications in Multi-residential, Commercial and Community Facilities."

4.5.6. Irrigation Design and Installation

Guiding principles for Irrigation System Design will be that irrigation systems will be designed to achieve the best possible efficiency in water application and use, measuring and reporting and maintaining the landscape or facility to the desired level.

All irrigation systems must be designed and installed according to industry best practice. Appropriate guidelines include City of Greater Geelong's tender specification guidelines for installation (COGG 2009a) and the Irrigation Association of Australia's "Urban Irrigation Best Management Practices".

Irrigation designs must be completed by a suitably qualified and certified irrigation designer and include details for flow, pressure, precipitation rates, water budget and irrigation schedules.

All irrigation system equipment must be compatible with the City of Greater Geelong's Rain Bird central control system.

Where possible Water Sensitive Urban Design should be provided or considered to water all new tree plantings in streets and parks.

Where possible, alternative sources of water should be supplied to irrigation systems. Appropriate potable water alternatives include stormwater and recycled water, but must meet strict quality criteria to ensure no detrimental affects on soil, plant or irrigation equipment.

Alternative supplies must be fully assessed and tested as part of the design process to ensure:

- Suitable treatment processes are incorporated to ensure water quality;
- That the supply will meet expected seasonal demands;
- That the water quality is fit for the intended use.

Irrigation equipment specified and used must be of commercial quality and where possible smart watermark approved.

Sub-surface irrigation systems should be installed in passive parkland areas with high visitation. Not all passive areas will require irrigation systems; consult with Council officers to reach agreement on which areas require irrigation and which ones do not.

Active playing surfaces are to have pop-up sprinklers installed as a preference but sub-surface irrigation systems will be considered.

Each irrigation system will incorporate flow meters and rain gauges connected to the controller. Soil moisture sensors should also be considered.

An approximation of irrigation demand profiles for typical open space facilities can be obtained from council officers.

5. Sport, Recreation & Open Space

5.1. Objectives

The provision of sport, recreation and open space in communities is vital to provide for the long term recreation and sporting needs of an active and healthy community.

The objectives for the development of sport, recreation and open space are designed to promote 'sense of place' and community for people of all ages, providing opportunities to meet and interact in appropriate spaces in suitable ways and times. They can also give character to an area, define landscapes and provide a focus to connect a community.

Sport, recreation and open space should provide popular and responsive active (sport and active recreation) and passive (including walking, sitting, contemplating, picnicking, etc) spaces and landscapes.

Spaces should be well designed and create places that are 'fit-for-purpose', useable and be places where people want to be. They should maximise active and passive surveillance from adjoining areas and passersby. Benefits for the community should be easily and clearly defined.

Active recreation spaces and facilities should be designed to facilitate shared use including schools and community and different community users.

Open space should have due regard to the environmental and cultural heritage values that are embedded in the landscape. (Source: Study of Open Space Networks Aug 2001)

Master planning for sport, recreation and open space sites should be undertaken by appropriately qualified professionals with consideration to the principles and development standards contained in this document and other relevant industry standards.

This section applies to the following Planning Zone:

- PPRZ – Public Park and Recreation Zone.




5.2. Principles

Council endorsed principles as part of its Study of Open Space Networks (Aug 2001) that are applicable to the provision of sport, recreation and open space. These form the basis of the following principles:

Conserve and protect the natural and cultural environment:

- Protect and enhance natural and cultural environments, particularly areas of remnant vegetation / habitat / indigenous cultural value.
- Maximise visual amenity and maximise views into and out of each space.

Reflecting community needs:

- Decisions guided / influenced by community interests, needs and aspirations, actual participation trends and demographic characteristics.
- Encourage participation in physical activity and social activities to connect people within a community.

Enhancing recreation and tourism opportunities:

- Reflecting importance of recreation and tourism to the City of Greater Geelong and regional economies.

Improving provision and optimising access:

- High priority will be given to creating an equitable distribution of open space types, linkages between various origins and destinations throughout communities. (Open space types include linear and linkage, sports, informal parks, landscape and amenity, conservation and heritage, waterways and lakes, etc)
- Optimising circulation, parking, access and egress in sites to provide safe and accessible arrival and departure for users.

Ensuring diversity of provision:

- Open spaces with a wide range of characteristics will be developed, ensuring that conservation and heritage values and retained and where possible, enhanced.

Expanding the network of linkages:

- Enhance existing pedestrian and bicycle trail networks and provide additional trails to meet recreation and commuter needs.

Providing for people with disabilities:

- Providing for the needs of all community members, including those who may have disabilities.

Site responsive uses:

- Ensuring appropriate uses of space for the capture, sustainable capacity and characteristics of sites.
- Maximising amenity and safety of sites and minimising hazards.
- Minimising the use and reliance on potable water.

Maintenance:

- Ensuring that sites are located, planned and maintained to agreed service and safety standards with due regard for economic sustainability.

Providing clear guidance to Council:

- Planning processes must provide Council with clear actions that are affordable and consistent with government policy and funding criteria.

Contribute to social and/or economic well-being and growth:

- Planning and provision should contribute to the social and/or economic wellbeing of the community.

A flexible and long term focus:

- A focus on long term strategic outcomes will provide flexible opportunities to meet and adapt to future needs. All outcomes should ensure that alienation of open space is minimised.

Provision partnerships:

- Opportunities for partnerships in planning and management should be integral to any planning process.




5.3. Relevant Standards and Policy

5.3.1. Legislation

The Subdivision Act, 1988 (Vic)

The Planning and Environment Act, 1987 (Vic)

The Sport and Recreation Act, 1978 (Revised February 2008)

5.3.2. Industry Standards

Open Space Planning and Design Guide 2010 – Currently a Report in Progress

Precinct Structure Planning Guidelines 2009 – Growth Areas Authority (Vic)

Planning for Community Infrastructure in Growth Areas 2008 – Cities of Wyndham, Casey, Hume, Melton and Whittlesea

Crime Prevention through Environmental Design – Safer Design Guidelines for Victoria (DSE)

Healthy by Design - A Planners Guide to Environments for Active Living – 2004 (National Heart Foundation)

Supportive Environments for Physical Activity (National Heart Foundation)

Sport Dimensions for Playing Areas - 2008 (WA Govt)

Design Standards for Urban Infrastructure – Territory and Municipal Services, ACT Govt

Royal Lifesaving Guidelines for Water Safety

Sport and Recreation Victoria Skate Park Guide

SRV – Football and Netball Lighting Guide 2008

AS/NZS 1158 Set 2007 – Lighting for roads and public spaces

For Play Spaces:

- AS NZS 4422 (1996) Playground Surfacing
- AS NZS 4486 (1997) Playground Development and Installation
- AS 1924 Part 1 (1981) Playground General Requirements
- AS 1924 Part 2 (1982) Playground Design and Construction
- AS 4685.1 (2004) General safety requirements & test methods
- AS 4685.2 (2004) Particular safety requirements & test methods for swings
- AS 4685.3 (2004) Particular safety requirements & test methods for slides
- AS 4685.4 (2004) Particular safety requirements & test methods for runways
- AS 4685.5 (2004) Particular safety requirements & test methods for carousels
- AS 4685.6 (2004) Particular safety requirements & test methods for rocking equipment

For Sports Facility Development: Specifications and requirements of various sporting codes, for example:

- AFL Preferred Facility Requirements, 2006 & GRFA Regulations
- FFV Regulations

5.3.3. Policy and Guidelines

City of Greater Geelong Planning Scheme Provisions including State and Local Planning Provisions Clauses 55 and 56, and 52.01

Open Space Networks Study 2001 – City of Greater Geelong

City of Greater Geelong Cycling Strategy 2008

City of Greater Geelong Irrigation Guidelines

City of Greater Geelong Public Toilet Guidelines 2007

City of Greater Geelong Walking More Walking Safely – 2004

City of Greater Geelong Walking and Cycling Guidelines for External Agencies

City of Greater Geelong Playground Development Guidelines

Bellarine Peninsula Recreation and Leisure Needs Study 2005

City of Greater Geelong Skate Park and BMX Management Plan 2010




5.4. Planning

Sport, recreation and open space planning is based on the following hierarchy:

- Regional (municipal wide and can also provide for surrounding municipalities)
- Sub-regional (part of municipality that cover numerous townships / suburbs)
- District (whole township/suburb as a key facility for a community)
- Local/Neighbourhood (providing for communities usually within walking distance)

All aspects of development will need to define which level of the hierarchy is the relevant context for development.

5.4.1. Master Planning

A detailed master plan must be developed for all sport, recreation and open space facilities that are proposed as part of community infrastructure. Each plan must provide detail about linkages and connections, access/circulation and car parking, key components including playing fields, pavilions, other built infrastructure, parkland facilities/ furniture, shelters, lighting (if required), fencing, irrigation, drainage and landscape features.

This plan is to be undertaken by a suitably qualified Landscape Architect who is a member of the Australian Association of Landscape Architects.

5.5. Design and Construction

5.5.1. Informal Parks

Informal parks are sites developed to meet a range of casual and passive recreation activities. The following provides a guide for the development of informal parks:

Table 5.1: Guide for provision of informal parks

Hierarchy	Population Range	Characteristics
Local/ Neighbourhood	750 – 3,000	Generally minimum of 1ha, but if a special feature is identified, could be as small as 0.5ha
District	3,000 – 5,000	Minimum of 2ha
Sub-regional	30,000+	Minimum of 5ha
Regional	200,000+ or 20 mins drive	Minimum of 5-10ha

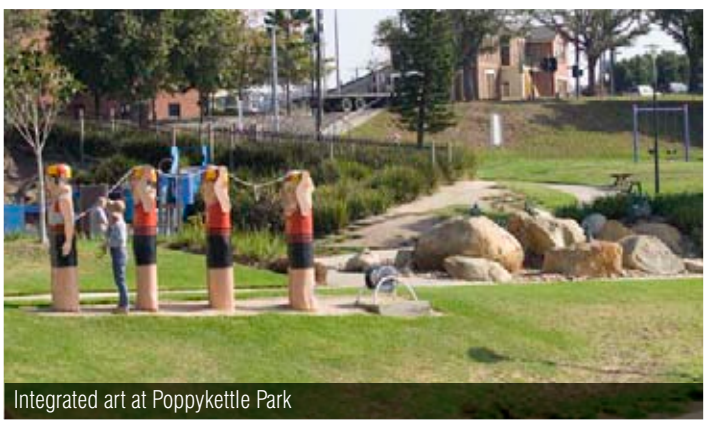
Informal parks should be of a size (and shape) that allow for flexibility of use and diversity across a range of activities, and be planned, designed and constructed in response to the principles for provision of sport, recreation and open space.

It is important that informal parks are designed and constructed within subdivisions to create safe, useable and valued open space reserves. Parks should be developed on unencumbered land and in accordance with clause 56.02 of the Greater Geelong Planning Scheme that states public open space should:

- Be provided along foreshores, streams and permanent water bodies;
- Be linked to existing or proposed future public open spaces where appropriate;
- Be integrated with floodways and encumbered land that is accessible for public recreation;
- Be suitable for the intended use;
- Be of an area and dimensions to allow for easy adaptation to different uses in response to changing community active and passive recreational preferences;
- Maximise passive surveillance;
- Be integrated with urban water management systems, waterways and other water bodies; and
- Incorporate natural and cultural features where appropriate.

Informal parks should have street frontage on at least two / three sides with the edges of the open space being open and welcoming to encourage a range of activities and uses by the local community.

All households should be located within 500m of informal parkland and these open space areas should demonstrate good connection to other open space sites and community facilities/destinations.


Integrated art at Poppykettle Park

5.5.1.1. Development Standards for Informal Parks

The following guide is to be used for the design and construction of informal parks

Infrastructure	Local / Neighbourhood	District	Sub-Regional	Regional
Park Theme / Attractor	×	×	✓	✓✓
Pathways	✓✓	✓✓	✓✓	✓✓
Circuit Pathway	✓	✓	✓✓	✓✓
Disability / Wheel access	✓ where landform allows	✓	✓✓	✓✓
Car Parking – on-site	××	✓	✓✓	✓✓
Car Parking - off-site	✓	✓✓	✓✓	✓✓
Bicycle Rack	✓	✓✓	✓✓	✓✓
Picnic Table	✓	✓✓	✓✓	✓✓
BBQ	××	✓	✓✓	✓✓
Access to Water	✓	✓	✓✓	✓✓
Drinking Fountain	×	✓	✓✓	✓✓
Shelter	××	✓	✓✓	✓✓
Shade	✓✓ Natural shade only	✓✓ Natural shade preferred	✓✓	✓✓
Public Toilet	××	×	✓✓	✓✓
Seating[1]	✓✓	✓✓	✓✓	✓✓
Play Space	✓	✓✓	✓✓	✓✓
Fitness Station [2]	××	××	✓	✓
Basketball Backboard / Hitting Wall / Half Court	××	×	✓	✓
Signage	✓	✓✓	✓✓	✓✓
Lighting	××	✓	✓	✓✓
Bin	✓	✓✓	✓✓	✓✓
Dog Poo Dispenser	✓	✓	✓✓	✓✓
Landscape - trees	✓✓	✓✓	✓✓	✓✓
Landscape – garden beds	×	✓	✓	✓✓
Lawn area	✓	✓✓	✓✓	✓✓
Fencing / Barriers	✓	✓	✓	✓
Ornamental Water features	××	××	×	×
Public Art – in appropriate setting [3]	✓	✓	✓	✓✓

✓✓ = Must have ✓ = Might have × = Should not have ×× = Must not have

1: Seating:

- Should be spaced at distances of 200 metres apart for shared paths.

2: Fitness Stations:

- Fitness station proposals will be assessed for merit and compliance with these guidelines upon application.
- In the absence of Australian Standards applicable to fitness equipment, the City of Greater Geelong will require Playground Safety Standards to be applied to any fitness equipment proposed for approval.
- A design inclusive of any scissor type motion or alternative moving part will not be approved.
- A risk assessment of the concept design and a post construction assessment by a credible risk assessor would be required as a condition of permit approval.

3: Public Art

- Public Art is to be defined a part of a process of developing a design brief – it should demonstrate a relevance to the open space setting

Figure 5.1 Regional Parkland - Typically 8ha

Seating | Bike racks | Connector Path | Drinking Fountain

Figure 5.2 Example of District Parkland - Typically 2ha

Seating | Bin area | Limited shrub beds | Bike rack

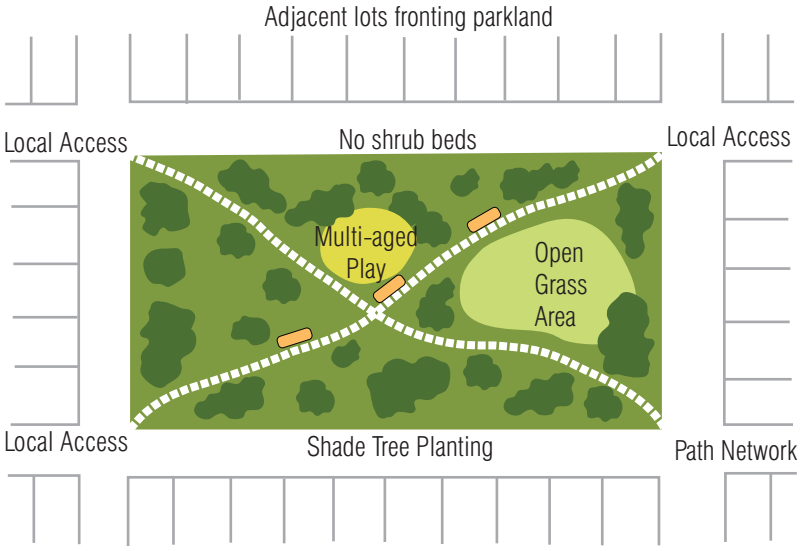


Figure 5.3 Example of Local Parkland - Typically 1ha

Seating

5.5.2. Sports Reserves and Active Playing Surfaces

Sports open space sites are used for active, competitive recreation. They include sports grounds used for a wide range of team and individual competitions and often have associated facilities such as change rooms and spectator areas. It is important that passive and unstructured activities are also provided for in the planning and design of sporting reserves.

Sporting open space should be of a size and shape that offers flexibility and diversity for various sports and activities. They should accommodate future growth of sports and emergence of new and different sports to the area. Single use provision should be avoided.

Where relevant and/or possible, the level of provision should reflect research into the minimum number of playing areas to provide for viable sporting clubs and competitions.

The following provides a guide for the development of sporting reserves:

Table 5.2: Guide for provision of sporting reserves

Hierarchy	Population Range	Characteristics
Local/Neighbourhood	N/A	
District	3,000 – 5,000	Minimum 8ha At least one for every township / suburb / community
Sub-regional	30,000+	Minimum 10ha+ Covering a sub-region of the municipality, e.g. Bellarine Peninsula
Regional	200,000+ or 20 mins drive	Size dependent on type of provision

The development of sports reserves and active playing spaces will take into consideration the standards of each sport to be provided, through reference to the state/peak sporting body.

For irrigation requirements for sporting reserves, see section 4.5.6. – Irrigation Design and Installation.

Landy Field Regional Athletics Facility

5.5.2.1. Development Standards for Active Sports Reserves

The following guide is to be used for the design and construction of active sports reserve – it should be noted that active, passive and informal components are very important in all park developments in this category of open space.

Infrastructure	Local / Neighbourhood	District	Sub-Regional	Regional
Buffer distance from sporting boundary to:				
Residential Boundary - Side	20m	20m	20m	20m
Residential Boundary – goal posts	30m	30m	30m	30m
Roadway - Side	30m	30m	30m	30m
Roadway – goal posts	40m	40m	40m	40m
Oval playing field:	✓ Maybe 1	✓ Up to 2	✓✓ Up to 4	✓✓ Up to 4
Turf	Warm season turf	Warm season turf	Synthetic Warm season turf	Synthetic Warm season turf
Cricket Wicket	✓ Synthetic	✓ Turf/Synthetic	✓✓ Turf/Synthetic	✓✓ Turf/Synthetic
Cricket Practice Nets	✓	✓	✓✓	✓✓
Irrigation / Drainage	✓	✓✓	✓✓	✓✓
Sports Lighting	✓	✓✓	✓✓	✓✓
Fencing around oval	×	✓ 1	✓✓ Up to 2	✓✓ Up to 2
Scoreboard	×	✓	✓✓	✓✓
Coaches boxes	×	✓	✓✓	✓✓
Scorer/Timekeeper box	×	✓	✓✓	✓✓
Rectangle playing field:	✓	✓	✓✓	✓✓
Surface	Warm season turf	Warm season turf	Synthetic Warm season turf	Synthetic Warm season turf
Irrigation / Drainage	✓	✓✓	✓✓	✓✓
Sports Lighting	✓	✓✓	✓✓	✓✓
Fencing around field	×	✓	✓✓	✓✓
Athletics Track	××	×	✓ grass possible synthetic 100m straight	✓ Synthetic
Spectator Shelter	✓	✓	✓✓	✓✓
Player Shelters	✓	✓✓	✓✓	✓✓
Pavilion:	✓ Up to 100m²	✓✓ Up to 350m²	✓✓ Up to 450m²	✓✓ Up to 600m²
Change Rooms	✓ 1-2	✓✓ 2-4	✓✓ 2-4	✓✓ 4-6
Kitchen / Canteen	×	✓	✓✓	✓✓
Spectator Areas	×	✓	✓✓	✓✓
Storage	×	✓✓	✓✓	✓✓
Umpires Change Rooms	×	✓✓	✓✓	✓✓
Office	×	✓	✓✓	✓✓
First Aid Room	×	✓✓	✓✓	✓✓
Public Toilets	✓	✓	✓✓	✓✓
Gym/Trainers/Massage Rm	×	✓	✓✓	✓✓
Social Room / Bar	××	✓	✓✓	✓✓
Media Rooms	××	××	×	✓
Tennis Courts	×	✓ 5-8	✓ 8-12	✓✓ 16-22
Netball Courts	×	✓ 1-3	✓ 4-6	✓✓ 6-9
Netball/Tennis Multi-lined	✓ 1 Only	✓	✓	✓

Infrastructure	Local / Neighbourhood	District	Sub-Regional	Regional
courts - preferred				
For all tennis & netball crts: Fencing Sports Lighting Surface Player/Coach/etc Shelters	 ✓ × Asphalt or Acrylic Surface ×	 ✓✓ ✓✓ Acrylic Surface ✓✓	 ✓✓ ✓✓ Acrylic Surface ✓✓	 ✓✓ ✓✓ Acrylic Surface ✓✓
Park Theme / Attractor	×	×	✓	✓✓
Pathways	✓	✓✓	✓✓	✓✓
Circuit Pathway	✓	✓	✓✓	✓✓
Disability / Wheel access	✓✓ where landform allows	✓	✓✓	✓✓
Car Parking – on-site	✓ unsealed up to 50	✓ Up to - 150 spaces sealed /unsealed	✓✓ 200+ spaces sealed	✓✓ 500+ spaces sealed
Car Parking - off-site	✓	✓✓	✓✓	✓✓
Bicycle Rack	✓	✓✓	✓✓	✓✓
Picnic Table	✓	✓	✓✓	✓✓
BBQ	××	✓	✓✓	✓✓
Access to Water	✓✓	✓✓	✓✓	✓✓
Drinking Fountain	✓	✓	✓✓	✓✓
Shelter	××	✓	✓✓	✓✓
Shade	✓✓ Natural shade only	✓✓ Natural shade preferred	✓✓	✓✓
Public Toilet	××	×	✓✓	✓✓
Seating	✓✓	✓✓	✓✓	✓✓
Play Space	✓	✓✓	✓✓	✓✓
Fitness Station	××	××	✓	✓
Basketball Backboard / Hitting Wall / Half Court	××	×	✓	✓
Signage	✓	✓✓	✓✓	✓✓
Lighting	××	✓	✓	✓✓
Bin	✓	✓✓	✓✓	✓✓
Dog Poo Dispenser	✓	✓	✓✓	✓✓
Landscape - trees	✓✓	✓✓	✓✓	✓✓
Landscape – garden beds	×	✓	✓	✓✓
Lawn area	✓	✓✓	✓✓	✓✓
Fencing / Barriers	✓	✓	✓	✓
Ornamental Water features	××	××	×	×
Public Art	✓	✓	✓	✓✓

✓✓= Must have ✓= Might have ×= Should not have ××= Must not have

Spectator amenities and movement should be catered for in sports reserve development

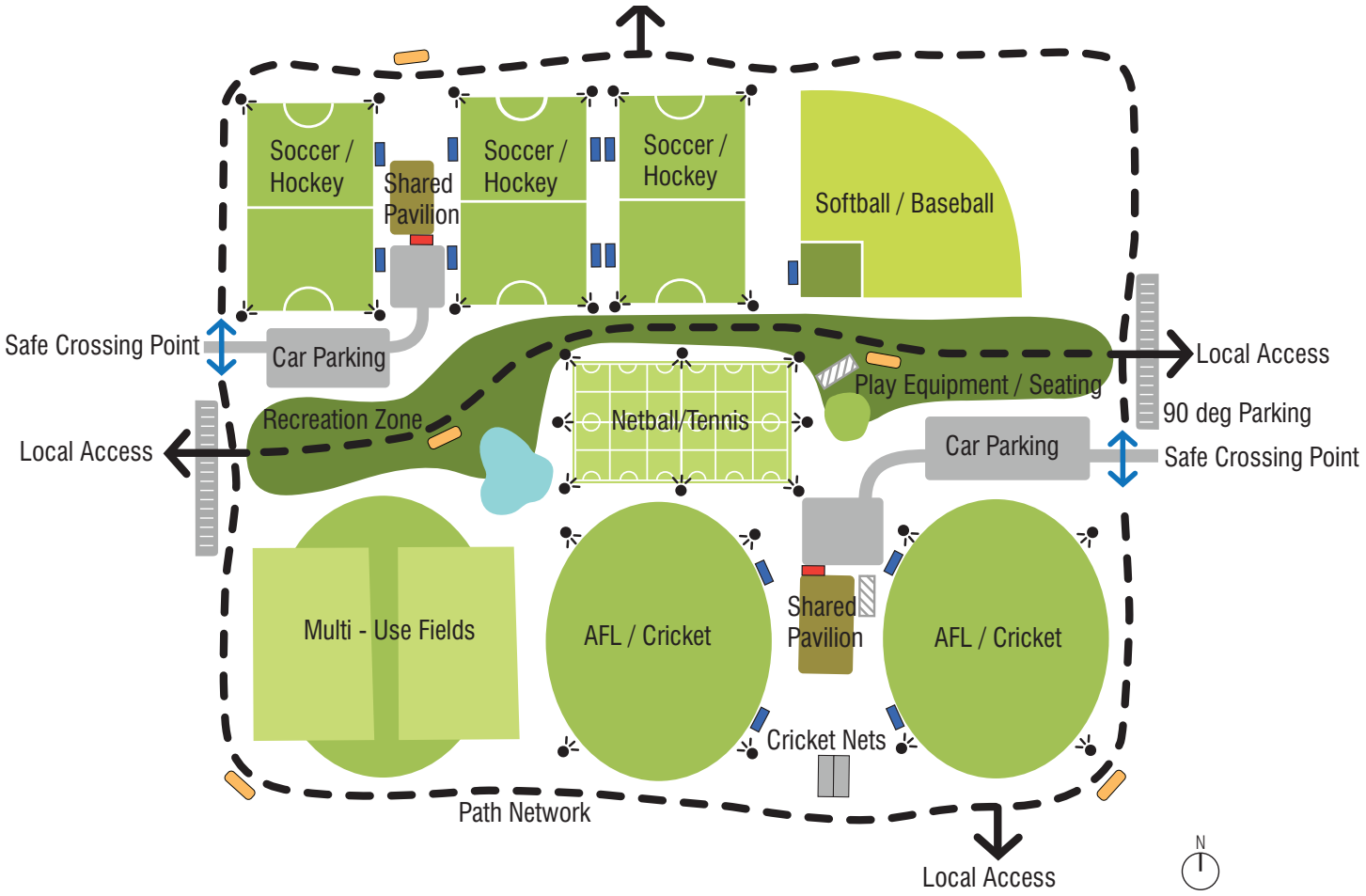


Figure 5.4 Example of Sub-Regional/Regional Sporting Facility - Typically 20ha

Seating
Bin storage
Coaches boxes
Sports field lighting
Bike racks
Scoreboard/Scorers Box
Water capture and re-use

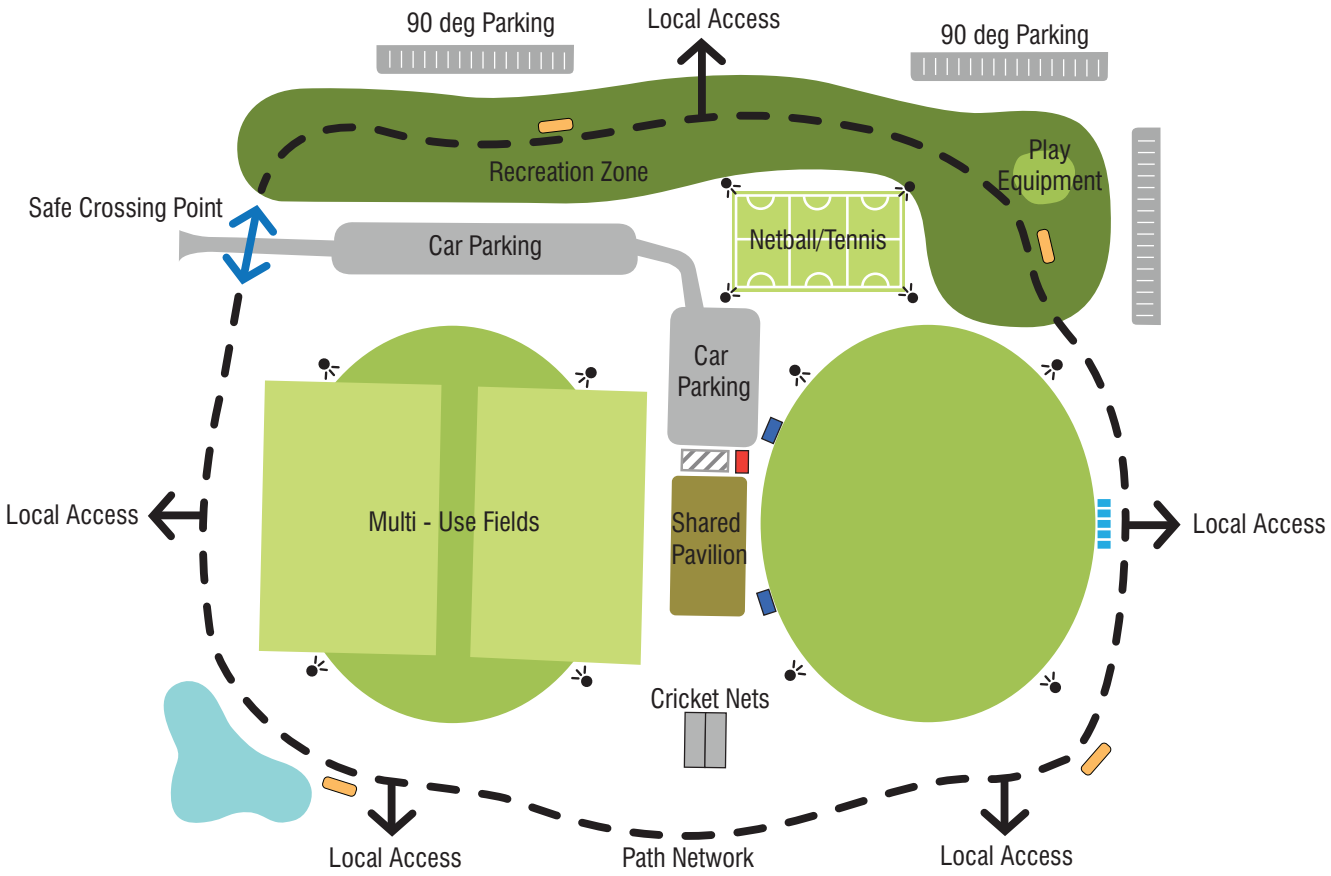


Figure 5.5 District Sporting Facility - Typically 10ha (NTS)

N

Seating
Sports field lighting
Coaches boxes
Bin storage
Bike racks
Scoreboard/Scorers Box
Water capture and re-use

5.5.2.2. Pavilions and Built Infrastructure for Sporting Reserves

Typically, sporting facilities and their spatial requirements will be determined by:

- The type of sport being played
- The level of competition, (Local, District, Sub-Regional, Regional)
- The number of club members/competitors (number of teams)
- Other community user groups

The space allocation and total building areas of the facility will vary according to some or all of the above factors. Other factors that may affect the requirements include:

- The playing conditions (summer/winter seasons)
- The level of sport(s) being played e.g. AFL vs Local
- Either and/or Male or Female competitors
- Combined sports being played
- Access to other community groups for multi-use and shared access
- Disability access

As there are many factors influencing the functional requirements of a purpose built sporting facility, general building area allocations and arrangements need to be established based on an assessment of the sports competition; team, support personnel and spectators numbers.

Design of these facilities will incorporate Environmentally Sustainable Design (ESD) principles in both construction and for the benefit of operations, minimising energy consumption wherever possible.

The following summarises some of the key requirements for pavilions. Peak sporting organisation guidelines should also be consulted for more specific details.

Component	Regional	Sub-regional	District	Local
Change rooms	✓✓	✓✓	✓✓	✓✓
Numbers	4-6	2-4	2-4	1-2
Genders	Male and Female			
Access	Internal and External			
Showers	All partition cubicles			
Umpires	20m² Separate showers and toilets Male and Female / Internal and External access			
Bench Seating	450mm per player			×
Area	Each: Min 30m²	Each: Min 15m²	Each: Min 15m²	Each: Min 15m²
Showers	Up to 5/6 showers per team			
Toilets	2-4 toilets and up to 2m of urinals			
Store Room	12m²	8m²	8m²	6m²
Social Rooms	1.5m² per team member	1.2m² per team member	1.2m² per team member	1m² per team member
Kitchen/Kiosk	Up to 35m²	15m² – 35m²	15m² – 35m²	Up to 15m²
First Aid Room	8m²			

✓✓ = Must have ✓ = Might have × = Should not have ×× = Must not have

5.5.2.3. Sporting Surface Dimensions

For minimum and maximum dimensions for all sporting surfaces, including run-off distances and buffers, refer to the peak sporting bodies' documentation regarding their surface requirements. Also refer to Sports Dimensions for Playing Areas – 2008 (WA).

The following information can be used as an initial guide:

AFL : AFL Preferred Facility Requirements, 2006	The guide provides a thorough outline of specifications required for grounds and infrastructure at a number of competition levels: state league, district and local. Listed elements such as change room size and quantity are listed as either a core or optional facility component. Included are generic pavilion floor plans for each level
Baseball International Standards	The international standards provide details referring to field dimensions, lighting and pitch layout. Requirements at a district and local level require consultation with Baseball Victoria.
Cricket Victoria – Strategies for maximising use of cricket facilities	A brief publication that outlines ways to ensure that all cricketers have access to appropriate facilities throughout the cricket season.
Hockey - Synthetic Hockey Pitches Information Manual	Hockey Victoria has developed this manual to assist clubs and Council in the planning and installation of synthetic hockey pitches.
Netball - Netball Court Planning Guide	The Netball Court Planning Guide provides details for developing and upgrading netball precincts. Including surface type, run off, multi use and positioning of adjacent infrastructure, in addition to technical details: court dimensions and goal post height. The guide overviews a number of case studies, which highlight factors that need to be taken into consideration when developing facilities in line with standards.
Soccer – Football Stadiums: Technical recommendations and requirements, 2007 (FIFA) 2009 Rules of Competition Guidelines for the lighting of Football Pitches	The 2009 Rules of Competition includes details for all levels of play regarding facilities and ground arrangements, essential requirements for the different levels: playing area measurements, player and officials amenities, spectator amenities, other (including media room, public address system and scoreboard details). The lighting guidelines outline the function of lighting, details regarding levels of illumination and design criteria, maintenance requirements, training and competition standards, along with best practice management by clubs in obtaining appropriate lighting for their facility.

5.5.2.4. Sporting Maintenance and Storage Facilities

Wherever possible, storage and maintenance facilities should be provided within the building footprint of the main pavilion. While Council recognises the need for these facilities, it is inefficient and often unsightly for these facilities to be stand alone structures.

Council will not approve the use of shipping containers for these purposes.

5.5.3. Play Spaces

Play occurs in a range of environments and children interact with natural and built features through playful activity in a diverse range of settings. While play in all places is valuable and is to be encouraged, this section addresses playgrounds in defined open space areas with playground equipment.

Playgrounds will be provided at a rate of 1 playground for every 250 children under the age of 12 and will be developed in open space parkland within 500m walking distance from every household, with consideration given to barriers such as major roads, railway lines, rivers and creeks, etc. In addition to the guidance provided below for the development of playgrounds, Council's Playground Development Guidelines should be referred to for site selection and other key considerations.

All new playground areas should have a tree planting plan for the planting of trees for aesthetic and shade purposes.

5.5.3.1. Local / Neighbourhood Playgrounds

Neighbourhood playgrounds should be small facilities located so that "mobile" children (5 years and above) may access at least one site without having to travel long distances or cross main roads or other major barriers. The size of these facilities will vary depending on their location in regard to other facilities and the demographics of the area.

The play structures should be designed primarily for children aged 3 - 7 years with standard access to all levels. It is considered appropriate to have a selection of activities suitable for:

- Solitary play – where children like to spend time playing on their own;
- Parallel play - where children shadow and play alongside one another; and
- Group play - where children interact more, share and take turns.

Multi-activity play equipment is encouraged to ensure all levels of play are catered for. The play structures should be designed primarily for children aged 3 - 7 years with standard access to all levels. Swings should be fitted with both toddler and strap seats to ensure suitability for all ages. All equipment at these locations should be carefully sited to maximise the available open space for other sports and activities. A seat for carers should also be provided.

Example of Neighbourhood playground

5.5.3.2. District/Sub-regional Playgrounds

District or sub-regional playgrounds should be medium to large facilities with equipment catering for both Public Junior (3-7) and Public Senior (7-14) age groups Sites should be chosen with regard to location, visibility and accessibility.

This type of playground should also have adequate seating, shade/shelter and access to toilet facilities and drinking fountains to ensure the comfort of parents who will bring young children to the site. It should be noted that well sited district playgrounds with comfortable facilities, attract far less vandalism due to the consistent presence of adults.

Example of District playground

5.5.3.3. Regional Playgrounds

Regional playgrounds should be facilities that because of their size and standard of provision draw from a broader catchment of the community than the smaller playground facilities. In some instances they not only provide for the whole of the City of Greater Geelong but for neighbouring communities as well.

All age groups should be catered for at a regional playground. Junior equipment should be low theme based structures to encourage role play whilst providing a list of challenges within the capabilities of that age group. Senior equipment should be more activity based providing linked accessories which will assist in the development of motor skills, hand-eye coordination, balance and agility.

This type of facility should also incorporate good supporting infrastructure such as toilets, drinking fountains, picnic facilities, park furniture and access to people with disabilities.

5.5.4. Linkages and Connections

See 2.5.2 for details about resource documents for footpaths and shared pathways. In addition to these considerations, the following also applies:

- It is important that linkages and connections are permeable and safe for users. They may also serve as habitat/landscape corridors and might include land such as easements, road reserves as well as open space set aside for cycle and pedestrian paths.
- The size and length of linkages and corridors will depend on the physical features of the site, the key purpose and location, but it will be a requirements that cycling and pedestrian pathways clearly show origins and destinations to demonstrate that they are genuine connections within a community.
- As a guide, active transport/walkways should be no less than 10m and no more than 20m in width. In addition, should a section of pathway be less than 10m wide it should be no longer than 50m without a point of safe entry/exit.
- Pathways within open space will generally be unsealed, however major shared use pathways and pathways for active transport and walkways in urban areas will generally be sealed.

The following guide should be used to provide linkages and connections for active transport and recreation access:

- All-weather shared pathways should be of a minimum width of two metres;
- Safe entry and exit points with high level of visibility for passive surveillance;
- Seating on concrete pads required for resting points along pathway and adjoining the main path, with sufficient room for wheeled access;
- Natural shade to be provided through planting of high canopy trees of appropriate species along the pathway edges;
- Vegetation along linkages should be compatible with the landscape character of the surrounding area and should be designed to maximise passive surveillance; and
- Signage should be provided to indicate distances to specific destinations and any guidance about recommended users for pathway.

5.5.5. Lighting in Open Space

The main requirements of the relevant Public Lighting Code and guidelines are set by the Essential Services Commission and the Australian Standards AS/NZS 1158 – Lighting for roads and public spaces.

Public open space lighting should maintain adequate lighting standards whilst minimising the number of lighting installations.

Consideration should also be given to sustainable options such as solar lighting and timer automated cut-off sensors, etc.

5.5.6. Public Toilets

Planning and design consideration for the provision of public toilets will consider the following key points:

- Location, visibility and high profile
- ESD principles
- Access and accessibility
- Safety
- Construction materials and standards
- Power and lighting
- Signage
- Maintenance

6. Social & Community Facilities

6.1. Objectives

The built environment, with appropriate housing, public spaces and community facilities provides a basic platform to ensure residents have the best opportunity to build their own community. An ideal sustainable community will be planned and well resourced, with attractive and functional built form and open space, providing opportunity for life long education, recreation and cultural activity. It will foster citizenship and be safe and accessible.

Sustainable communities are places where people want to live and work, now and in the future. When planning new community facilities it is important that they are well connected to public transport services, open space, recreation facilities, and employment and education opportunities.

Although this document is primarily concerned with hard community infrastructure, it is also important that the corresponding services are relevant to local people and can be flexible enough to respond to changing needs. In addition community services infrastructure should be equitably distributed so that all groups in the community are able to benefit.

The provision of or advocacy for community services infrastructure is a key responsibility of local government to meet local needs in a range of service areas including family and children, aged, youth, libraries, community programs, lifelong learning, information and arts and culture. It is important that this infrastructure is integrated well into its surroundings and the landscape and natural attributes of sites and settings.

This section applies to the following Planning Zones:

- PUZ – Public Use Zone.
- SUZ – Special Use Zone.
- PPRZ – Public Park and Recreation Zone.

6.2. Principles

The following qualities and objectives articulate the values and characteristics of sustainable communities from a social and community facilities perspective:

- Equitable, accessible and inclusive, providing for the whole community
- Provide for community health and wellbeing including the most basic of community needs: housing, education, employment and basic health support
- Develop community life and connection with others
- Engaging and including all people in community life
- Demonstrating economic vitality and providing support
- Using resources sustainably and showing environmental leadership
- Co-located with compatible services being integrated where possible (community hubs)

6.3. Relevant Standards and Policy

6.3.1. Legislation

A range of legislation and industry standards are relevant to the provision of social and community facilities including but not limited to:-

- Play spaces must be accessible and invite all users to participate. A service should include access for children and adults with physical or sensory disabilities.
- Environmentally sustainable design and incorporation of natural elements into design should be considered at the planning stage
- For long term maintenance durable and cost effective materials should also be considered.
- All Playground equipment must meet Australian Standards:

  AS 4685: 2004 – Playground equipment

  AS 4422: 1996 - Playground Surfacing, Specifications, Requirements & Test Methods

  AS 4486.1: 1997 - Playground and playground equipment, Part 1: Development, installation, inspection, maintenance and operation

6.3.2. Industry Standards

- Shared Facility Partnerships – A Guide for Good Governance for Schools and the Community
  – DEECD (December 2007)
- PRAV - Play Spaces for Early Years Services
- Planning for Community Infrastructure in Growth Areas 2008 – Cities of Wyndham, Casey, Hume, Melton and Whittlesea
- Place based planning reports detailing benchmarking for facilities per population
- Outdoor Play Guide for Victorian Children's Services (DEECD 2007)

6.3.3. Policy and Guidelines

- Municipal Strategy Statement (MSS)
- City of Greater Geelong Planning Scheme Provisions
- Relevant Structure Plans and Urban Growth Area Plans
- Housing Diversity Strategy
- Youth Strategy 2007-2011
- Retail Strategy 2006
- Public Library Buildings Development Strategy
- Neighbourhood Houses Policy
- Municipal Early Years Plan: Creating Communities for Children
- Draft Municipal Early Childhood Infrastructure Plan (2010)
- Council Policy – Community Facility Partnership (April 2009) City of Greater Geelong
- Relevant place based Council reports and studies
- DEECD Playground Development Guidelines
- Spatial Guidelines for Critical Floor Space Allocations – Refer City of Greater Geelong Community Facilities Unit.

6.4. Planning

Community Infrastructure needs to be considered from a local, neighborhood and regional perspective.

The way that buildings are planned and arranged will affect people's use and connection to the services provided within the infrastructure. Council encourages the joint use / co-location of services that are compatible and where the management of services allows for multi-use with other services. At a minimum, locating multiple services in their own sections of a single building or precinct provides efficiencies and improved access to services for the general community.

Planning for new facilities in subdivisions should consider the broader regional context, linkages and connections that provide good access and placement in a high profile and visible location in addition to the co-location and siting near other compatible services such as schools, local shops and open space. Providing infrastructure in central locations improves the community's capacity to access facilities and services by public transport and active transport such as walking and cycling.

The floor plan of some larger community facilities may need to be able to operate as Emergency Relief Centres (ERC). Enquiries may need to be made to see if any such provision needs to be designed into a building so as to achieve a dual purpose.

Master Planning

A concept master plan must be developed for all proposed social and community facilities. Plans should be prepared by an appropriately qualified consulting team, e.g. architect, social planner, urban designer and must include precinct context and landscaping.

Examples of Community Hubs

6.4.1. Community Hubs

International, Federal and State policy direction encourages the development of 'Community Hubs' which supports the co-location and/or integration of community spaces. Community Hubs provide multiple spaces clustered together on one site servicing the neighbourhood / district / sub-region / region. Council's future planning approach is reflective and responsive to this trend.

Community Hubs:

- Create a sense of belonging and community
- Allow different people to meet and interact
- Create and important focal point for community activity
- Bring people together and build a sense of place
- Increase efficiencies in the built form
- Provide better return on infrastructure costs as they enable multiple service providers to share facilities over an increased span of hours

A community hub may include all or some of the following:

- Library
- Community hall, performance and playgroup space
- Meeting spaces
- Kindergarten
- Family support, playgroup and toy library spaces and parenting information
- Maternal and Child Health Services
- Consulting Services
- Outreach support services
- Community garden
- Customer services and community information
- Computer and other IT facilities
- Primary school and before and after school care / vacation care
- Children's health services
- Playgroups

6.4.2. Benchmarking

Effective planning distributes community facilities and services in accordance with an activity centre or hub hierarchy that serve varying sized catchments. The composition of each activity centre or hub and the size of the population it serves will vary depending on local conditions. The hierarchy that is used by the City of Greater Geelong for guiding planning for sustainable communities is shown in the following table.

At each order of the network, community facilities should be geographically co-located, central to their catchment and close to public transport. Clustering of facilities and services encourages single destination, multi-purpose trips and walkability to lower order services. The availability of centrally located facilities and services also contributes to community building by providing opportunities for social interaction and reduces social isolation by making essential services accessible to all.

Network of Activity Centres or Community Hubs

Regional	Population catchments	Description
Urban Regional Hubs	Located in Central Activities Area Serves population of 200,000+ May serve beyond the municipality	Access to multi modal public transport connections. Facilities and services that serve a regional community e.g. comparison shopping, higher order health and educational facilities, sport and recreation, arts and cultural, etc.
Urban Sub-regional Hub	Located in the centre point of multiple neighbourhoods in Major or Principle Activity Centre 30,000+ households, 50,000+ persons Within 2 to 5 kilometre radius of residents	Provides facilities that cater for a number of suburbs or neighbourhood. Integrated into retail centre, close to public transport. Co-located to support multi-purpose single destination trip co-located to facilitate integration and co-ordination of services and cross referral, e.g. family and children's services hub
Sub-regional Township	Comprising a number of smaller neighbourhoods of at least 10,000 persons but less than 25,000 persons	Service capacity for satellite and outlying smaller townships
Mid-sized Townships	Comprising a number of smaller neighbourhoods of at least 10,000 but less than 15,000 persons	Service capacity for smaller neighbourhoods
Smaller Townships	Less than 5,000 persons and separated by more than 3 kilometres from a larger town.	Provides access to open space, child care, sessional delivery of M&CH, pre-school education, meeting space, etc.; but on smaller scale; plays local role; supports local networks and community cohesion.
Neighbourhood/local	Between 3,000 and 5,000 households Within 400 metre radius of residents	Provides access to areas such as open space, early years programs, meeting spaces etc.; supports local networks and community cohesion.

6.4.3. Benchmarking Standards

Community infrastructure benchmarks are developed for a region based on demographic, planning and lifestyle conditions and influences. There is no single optimum benchmark for each type of community facility. Furthermore, facilities that service the whole population in a community such as meeting spaces do not tend to have benchmarks.

Therefore, while benchmarks provide a basic guide for the provision of services and facilities they need to be complemented by investigation into the local social, political and economic conditions within an area and the needs and priorities of each local community.

Suggested local level requirements for a population of between 0 - 15000 people

Facility Type	Benchmark for Provision
Community meeting room/Multi-purpose hall	1:6,000-10,000
Neighbourhood Centre	1:3,500-15,000
Neighbourhood Library	1:6,000-15,000
Maternal and Child Health	1.2 to 1.4 sessions: 100 children aged 0-2
Childcare centre (long day care) 120 place childcare centres now seem to be the preferred number for viability.	1:4,000-8,000 or 1:5-7 children aged 0-4
Occasional Care	1:12,000-15,000
Kindergarten The co-location of kindergartens with other complementary family services is preferred.	Single Kindergarten 1:3,000-5,000 Double Kindergarten 1:6,000-7,500
Early Childhood Centre • Child health and parenting information and referrals • Children's medical services	1:4,000-6,000
General Practitioners	1.48:1,000
Public/Community Housing	6-7 dwellings: 1000 people
Aged Persons Housing • High Care (Nursing Home) • Low Care (Hostel) • Community Aged Care Packages (CACPs) • Self care	40 beds: 1,000 people 70+ 48 places: 1,000 people 70+ 20 CACPs: 1,000 people 70+ 50 places: 1,000 people 70+

Suggested district level requirements in addition to local level requirements for a population of between 20-50,000 people

Facility Type	Benchmark for Provision
Multi-purpose Community Centre	1:20,000-30,000
High School	1:20,000
Youth Facility/Service	1:20,000
Branch Library	1:15,000-30,000
Aged Care Centre	1:10,000-20,000
Neighborhood Centre	1:20,000-30,000
Community Health Centre	1:20,000-30,000
Police and Emergency Services	1:25,000-30,000
TAFE Campus	1:30,000

Suggested municipal wide or regional requirements for populations of between 30,000 – 150,000

Facility Type	Benchmark for Provision
Art Gallery	1:30,000-150,000
Museum	1:30,000-130,000
Central Library	1:50,000-150,000
Civic Centre	1:30,000-120,000
Performing Arts/Exhibition/Convention Centre	1:50,000-200,000
Supported (Emergency) Accommodation	1:50,000-100,000
Hospital • Public • Private	2.6 beds: 1,000 people 1.7 beds: 1,000 people
TAFE District Facility	1:150,000
University	1:150,000-200,000

Source: Maxine Cooper & Associates

6.4.4. Importance of Community Spaces

Social sustainability draws from a variety of underlying ideas and principles. The following provides guiding principles with respect to planning, design and locational requirements for community infrastructure.

Community infrastructure or facilities are physical buildings and spaces that are publicly accessible and offer opportunities, programs and services for a range of affordable, locally appropriate, recreational, social, developmental and cultural activities.

Various components in developing outcomes for social sustainability relate to:

Access and Equity

- Providing housing mix and choice – with an adequate proportion of affordable and adaptable housing opportunities – to meet the needs of a diverse and balanced population and respond to changing demographic requirements;
- Convenient and equitable access to local facilities and services at the neighbourhood level;
- Access to locally available and appropriate employment opportunities;
- Access to opportunities for lifelong learning and training;
- Connectivity with the surrounding district and access to services, facilities and resources in the wider region – particularly by public transport;
- Integration with the surrounding area – social as well as physical – to promote social cohesion and inclusiveness and ensure fair access to resources.

Health and Well-being

- Appropriate urban design features to create a safe, high quality and attractive environment
- Providing pedestrian friendly, walkable neighbourhoods that encourage an active street life and healthy lifestyles;
- Providing meeting and gathering spaces;
- Providing access to a network of open space and recreational opportunities;
- Providing access to a range of social, recreational and cultural facilities that utilise resources efficiently, have flexibility to adapt to changing needs, and allow for sustainable management and maintenance arrangements.

Identity and Expression

- Creating memorable and distinctive places and spaces that give rise to a sense of place and identity for the community;
- Creating opportunities for cultural expression that promote creativity, place-making, civic pride and celebration of the community;
- The recognition, interpretation and understanding of natural and cultural heritage;
- Developing community life and connections with others.

6.5. Design and Construction

6.5.1. Design Principles for Community Services Facilities

Flexibility and Innovation

Community infrastructure must recognize the dynamic and changing nature of communities. The design of facilities needs to be flexible, innovative and adaptable to meet the needs of the future population.

Joint Provision

The option of providing facilities in partnership with other organisations could be considered by Council to broaden access, maximize usage and rationalize costs.

Safety

Where possible the location should be a mixed use area, close to shops, services and public transport. The design of the facility must consider the Safe Design Guidelines including natural surveillance and lighting. Fencing should be designed in accordance with children's services regulations.

Sustainability

The building design must also utilise environmentally sustainable concepts such energy efficiency and waste minimisation.

Building Materials, Standards and Long Term Maintenance

The facility must be built according to City of Greater Geelong standards using appropriate and durable materials, adhering to building standards and other regulatory requirements. Prior to construction there needs to be sign off by the City on the maintenance implications of any structure.

Co-location

Council encourages the joint use / co-location of services that are compatible and where the management of services allows for multi-use with other services. At a minimum, locating multiple services in their own sections of a single building provides efficiencies and improved access to services for the general community.

Compatible facilities should be clustered where possible and related services co-located at the one site to increase participation opportunities and include a range of amenities to meet community needs.

Access

In order to enhance pedestrian safety community facilities will be located away from arterial roads and roads with high traffic volumes. Walking distances to bus stops, shops and associated facilities should not involve crossing such roads except where safe crossings are provided.

All community facilities providing direct services to the community should be located on or near public transport routes appropriate to the user groups of the facility within 500 metres of the bus or train station.

Location

It is important that community facilities are located adjacent to other activity areas such as public open space, retail centres or mixed use areas.

Separation

Facilities likely to generate noise (such as performance venues) should be located so that they do not reduce residential amenity, nor constrain or preclude later residential development in surrounding areas.

Importance of Community Infrastructure

The way that buildings are planned and arranged will affect people's use and connection to the services provided within the infrastructure. Community facilities provide spaces for meeting, learning and connecting to the community for the residents. The way they are designed and where they are located are key elements for any development of a neighbourhood.

6.5.2. Critical Floor Space Allocations

Many services that form part of social and community infrastructure are highly regulated and the minimum floor space requirements are determined through government policy or legislative requirements and change from time to time. These details must be sought and any design needs to clearly demonstrate compliance with relevant regulations. In addition, the footprint of the facility and the level of fit out will vary depending on the number and type of identified functions as well as other adjacent services and where the particular facility fits within the hierarchy of facilities (refer to tables re benchmarking standards and hub hierarchy).

The ability to deliver effective operational multi use facilities is dependent on the appropriate allocation of floor and storage space.

Spatial Guidelines can be obtained from Council's Community Development Department in regards to the various community services components. Footprints will vary depending on, number and types of identified components, adjacent community services, regulatory requirements and contextual place based planning.

It is important that facilities (both indoor and outdoor spaces) are on the one hand flexible, and designed for multi-purpose, and on the other hand, responsive to modern standards and innovations in design and usage.

6.5.3. Playgrounds within Community Facilities

Playground requirements for early childhood services may differ from public playgrounds.

Playgrounds need to provide a diverse range of quality, fun, accessible, well designed and easily maintained amenities that assist children's physical, cognitive, social and emotional development. Playgrounds attached to community facilities are usually part of the children's services program and are not available to the general public and are required to meet Children's Services Regulations as well as Australian Standards.

The planning and design of outdoor spaces should focus on how children interact with materials, equipment, the environment, other children and adults.

They should be adaptable to many different activities across the hours of the day, the four seasons and the age of children.

Spaces and structures that can be used in a variety of ways are always preferred over single-use items.

An outdoor space should be flexible enough to enable staff to set out a variety of experiences to meet the individual needs of children to offer them variety and challenge in their play experiences.

Ongoing maintenance of the area should also be considered because of community involvement.

6. Social & Community Facilities

Principles to be used in the provision of playgrounds within community infrastructure are:

- Spaces should be adequate to the number of children and provide opportunities to develop fundamental skills. The Children's Services Regulations 2009 identifies the minimum requirements for outdoor space for each child.
- The selection and placement of appropriate equipment, suitable to the developmental needs of children is integral to achieving the aim of the children's program.
- Minimal fixed equipment should be considered as area needs to be available for flexible, changeable equipment;

In some instances the Australian Standards will make special reference to 'supervised early childhood settings' where the regulation differs from that of a public playground.

- Play spaces must be accessible and invite all users to participate. A service should include access for children and adults with physical or sensory disabilities.
- Environmentally sustainable design and incorporation of natural elements into design should be considered at the planning stage.
- For long term maintenance durable and cost effective materials should also be considered.

7. Biodiversity & Conservation Areas

7.1. Objectives

The objectives of biodiversity and conservation areas are founded on the need to recognise the importance of biodiversity and acknowledge the need to protect, restore and enhance the diversity and resilience of our natural systems. It is achieved through the creation of biodiversity corridors which provide habitat and allow for the migration of animals between major areas of remnant vegetation and which also assist in the exchange of genetic material through transfer of native seeds/ pollinators.

This section applies to the following Planning Zones:

- PPRZ – Public Park and Recreation Zone.
- PCRZ – Public Conservation and Resource Zone

7.2. Principles

Building on the objectives key principles relating to biodiversity and conservation areas are:

- To provide open space for the primary purpose of protecting and enhancing biodiversity. These areas are therefore effectively encumbered land set aside for this purpose.
- To protect and enhance biodiversity values by largely excluding human activity and associated facilities such as shared pedestrian trails, car parks, toilets etc from natural areas.
- To improve the ecology of an area (interaction between plants and animals and the cycling of nutrients, energy and water) as opposed to the improvement of one ecological component such as vegetation.
- To contribute to the conservation of biodiversity in Geelong.
- To minimise impacts on the natural environment resulting from human activity and invasion by weeds and pest animals.
- To improve connections between isolated pockets of native vegetation and provide buffers from above mentioned impacts.
- To provide opportunities for passive recreational and interpretive activities in designated areas where the above conservation objectives can be met.
- To locate infrastructure and human activity as far away from high biodiversity value areas as practical.
- To assist in avoiding extinctions of native plants and animals that may result from insufficient genetic diversity and to allow migration before local extinctions. This migration will help sustain populations during periods of stress (e.g. insect attack, fires etc).
- To enable safe controlled access and use of biodiverse areas.
- To enable periodic ecological burns to be carried out to reduce fuel loads and enhance biodiversity.




7.3. Relevant Standards and Policy

Key documents relating to the planning, design and management of biodiversity and environment areas include the following:

7.3.1. Legislation

The Flora and Fauna Guarantee Act 1988 (Vic)

The Planning and Environment Act 1987 (Vic)

The Catchment and Land Protection Act 1994 (Vic)

The Wildlife Act 1975 (Vic)

The Fisheries Act 1995 (Vic)

The Environment Effects Act 1978 (Vic)

Victoria's Native Vegetation Management - A Framework for Action (2002)

The Environment Protection and Biodiversity Conservation Act 1999 (Com.)

7.3.2. Industry Standards

Not Applicable

7.3.3. Policy and Guidelines

City of Greater Geelong Planning Scheme Provisions including State and Local Planning Provisions, specifically Clause 52.17 and overly control requirements.

Open Space Networks Study, City of Greater Geelong (2001).

Biodiversity Strategy, City of Greater Geelong (2003).

Barwon River Land Use and Open Space Corridor Plan, City of Greater Geelong (2003).

Environment Management Strategy 2006-2011 Geelong's pathway to a sustainable future - Local Agenda 21, City of Greater Geelong.

Roadside Vegetation Management Strategy, City of Greater Geelong, (2003).

Biodiversity Guidelines, VicRoads (2005)

7.4. Planning

7.4.1. Approach to Spatial Planning for Areas with Environmental Values

Planning for areas of biodiversity should be undertaken based on a system such as the Recreation Opportunity Spectrum (ROS), which locates land use zones and activities so that a best fit within a setting is achieved and that buffering of areas of high natural value is achieved.

Within the zones of the spectrum, various activities or development interventions may occur based on their appropriateness with the over riding management based on conservation principles. Typically, existing remnants and areas identified as future biodiversity networks are zoned PCRZ.

Referrals or pre-application discussions with appropriate agencies may be appropriate, e.g.: CFA, DSE, CCMA.

Table 7.1 illustrates allowable interventions within buffer zones and areas of biodiversity.

7.4.2. Management Planning

A Management Plan must be developed for each conservation reserve and works required by this plan carried out prior to handover and maintained for a period of two years unless otherwise specified by an offset management plan.

Each plan must include:

- Management actions for the establishment and maintenance of any native vegetation management within the 2 year maintenance period and include references to any further native vegetation offset plans and maintenance agreements.
- A re-vegetation program to fill in the gaps between vegetation remnants. This should include the planting of the full range of species contained in the original Ecological Vegetation Class (EVC), including ones that form the habitat for wildlife using the corridor. Refer to "Indigenous Plants of the Geelong Region" for species lists.
- Management actions for the establishment of vegetation types that relate to plant regeneration and habitat.
- Actions to provide and enhance habitat for invertebrates, reptiles, amphibians, birds and mammals such as by retaining and/or adding dead trees and woody habitat
- Pest plant and animal bench mark assessments and actions to control pest plants and animals.
- Signage including regulatory, interpretive and warning.

Table 7.1: Allowable Interventions - Biodiversity and Buffer Areas.

	Transition Area / Buffer Zone	Low Biodiversity	High Biodiversity
			
Open Space Management	Use of indigenous vegetation Regular mowing (Aesthetic) Weed control Pest animal control Passive Open Space approach	Indigenous vegetation Periodic mowing Weed control Pest animal control Ecological management approach	Indigenous vegetation Waterways Wetlands Indigenous fauna Ecological management approach Weed control Pest animal control
Infrastructure	Toilets Car parks Picnic Table/seats BBQ's Shared paths	Non Hard Surface Pedestrian trail WSUD grass swales Seats	Interpretive Signage Seats
Drainage	Hard infrastructure GPT	Soft Infrastructure Grass swales Constructed wetlands	Soft Infrastructure Grass swales
Recreation	Active Cycling, jogging, walking	Passive Walking	Minimal passive Walking Viewing/ contemplating
Fire Management	Asset Protection Zone Intensive fuel management Wildfire buffers	Wildfire moderation zone Fuel management for ecological enhancement (mowing/brush cutting)	Ecological management zone Prescribed ecological burns
Typical Width		30 – 50 metres	30 - 50 metres
Typical Zoning	PPRZ	PCRZ/Ecological Management Zone	PCRZ/Ecological Management Zone

7.5. Design and Construction

7.5.1. Conservation of Flora and Fauna

Surveys are required that clearly identify existing flora and fauna within the proposed development and nearby fauna species that may use existing habitat and any potential expanded biodiversity networks into the future.

Opportunities for connectivity between remnant stands of vegetation and enhancement across the total area or width of the wildlife corridor is encouraged.

Conservation reserves must be adequately sized and include buffers to maximise the survival rates of existing flora and fauna and to provide opportunities for enhanced, more resilient ecological communities.

Pedestrian and vehicular access may be permitted but must be limited and controlled within environmentally sensitive areas. Biodiversity areas must be designed to allow access for active management including ecological burning where appropriate to assist in plant regeneration and weed suppression.

Table 7.2 describes the types of vegetation approved for use in and adjoining conservation reserves.

Banksia Integrifolia

Table 7.2: Examples of vegetation types in and adjoining conservation reserves.

Vegetation Types	Low Biodiversity Area	High Biodiversity Area
Existing remnant vegetation		✓
Existing indigenous scattered trees	✓	✓
Revegetation of open space with indigenous species to provide strategic connections between existing vegetation remnants	✓	✓
Plant species restricted to DSE's EVC species lists and "Indigenous Plants of the Geelong Region"		✓
Dead trees containing branch hollows		✓

7.5.2. Waterways and Water Sensitive Urban Design Infrastructure

Typically, natural waterways and surrounding areas of riparian vegetation are zoned PCRZ. Generally, WSUD features and major stormwater infrastructure should not be located in areas zoned PCRZ. However, low impact stormwater features may traverse PCRZ to connect to existing creeks and waterbodies.

Table 7.3 summarises the types of water bodies and WSUD features approved in and adjoining conservation reserves.

Table 7.3: Water bodies and drainage features approved in and adjoining conservation reserves.

Water bodies and drainage features	Low Biodiversity Areas	High Biodiversity Areas
Existing waterways and riparian vegetation		✓
WSUD Artificial wetlands (no mechanical maintenance)		✓
Grassed swales	✓	
Major stormwater infrastructure such as gross pollutant traps	✓	
Stormwater harvesting storages	✓	
Specific drainage and road infrastructure such as square culverts with rock riprap		✓

7.5.3. Fire Management

Areas of public open space must be designed in accordance with the "Code of Practice for Fire Management on Public Land" (DSE 2006). Each fire management zone should include an asset protection zone, a wildfire moderation zone and an ecological management zone. These zones are described below:

- The Asset Protection Zone provides the highest level of protection to human life, property and highly valued assets vulnerable to radiant heat and ember attack. Fuel management in these areas must be intensive and aim to maintain a nominated range of fuel load characteristics within defined limits.
- The Wildfire Moderation Zone will include areas of sufficient width and continuity to provide a substantial barrier to the spread of wildfire. This zone while delivering asset protection objectives, will aim to maximise ecological outcomes.
- The Ecological Management Zone will provide for the use of prescribed burning for specific land management objectives including using prescribed burning to achieve ecologically appropriate fire regimes.
- Fire buffers must not be placed in conservation reserves. They may be placed adjoining conservation reserves.

Any development should undergo the Victorian Fire Risk Register assessment process, or similar.

Figure 7.1 – Fire Management Zones and Objectives

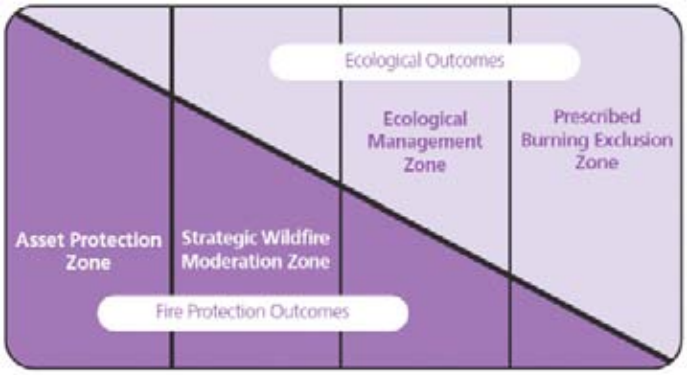
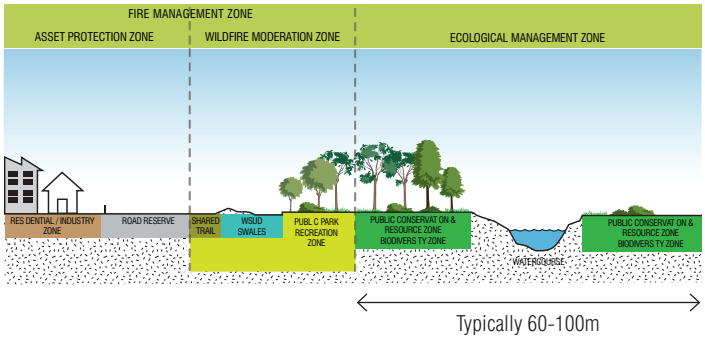


Figure 7.2: Conservation Resource Management Zoning – Fire Management



7.5.4. Management of Public Access

The planning provisions require PCRZ "to provide facilities which assist in the public education and interpretation of the natural environment with minimal degradation of the natural environment or natural processes" unless otherwise specified by the responsible authority.

In accordance with this provision, shared pedestrian trails shall largely be accommodated outside conservation reserves and only enter into the conservation reserve where minimal impacts on the natural environment and processes can be demonstrated.

Low impact interpretation nodes designed for walkers that connect to a shared trail outside the conservation reserve can be accommodated within the conservation reserve in areas where it can be demonstrated that there is minimal to no impact on the natural environment and processes.

Vehicle access for fire and vegetation management needs to be considered within the conservation reserve.

Access paths for interpretation nodes that enter conservation reserves must be designed and installed in accordance with the City of Greater Geelong's Standard Path Design (2009). (Refer to Section 2 – Circulation Infrastructure).

Table 7.4 describes the paths and trails recommended within and adjoining conservation reserves.

Table 7.4: Typical paths and trails approved for use in and adjoining conservation reserves.

Paths and trails	Low Biodiversity	High Biodiversity
Boardwalks	✓	(Subject to approval)
Waterway crossings	✓	(Subject to approval)
Minor gravel paths (refer to COGG specification)		✓
Shared pedestrian trail (sealed or unsealed).	Typically outside PCRZ (Transition Area)	

Public access to water edge managed through use of boardwa k at Balyang Sanctuary

7.5.5. Weed Management

A weed management plan must be developed prior to handover which includes a risk assessment framework to identify and prioritise weeds and areas for control. The plan shall include the following:

An action that requires a minimum 95% reduction of noxious weed infestations prior to handover.

An action that requires infestations of priority Environmental Weeds reduced by an agreed minimum with the council.

Control of woody weeds to consider habitat values and in some cases poisoned and left in situ to provide habitat until revegetation is established.

7.5.6. Infrastructure in Conservation Reserves

7.5.6.1. Furniture and Facilities

A range of park furniture and infrastructure should be included in conservation reserves. Table 7.5 below provides some indication of the range of furniture and infrastructure that can be included in and adjoining reserves. (Refer to Section 3 for design guidelines for furniture and infrastructure.)

Table 7.5: Recommended allowable furniture and infrastructure in and adjoining conservation reserves.

Furniture and infrastructure types	Wildfire Moderation Zone (PPRZ)	High and Low Biodiversity Values - Ecological Management Zone (PCRZ)
Nesting boxes	✓	✓
Viewing/ fishing platforms	✓	(Subject to approval)
Seating	✓	(Subject to approval)
Drinking fountain	(Transition Area)	
Shelter/BBQ	(Transition Area)	
Lighting	(Transition Area)	
Community Information Boards	(Transition Area)	
Playground and fitness equipment	(Transition Area)	
Irrigation	(Transition Area)	
Car parking	(Transition Area)	
Utilities, e.g., electrical and communication	(Transition Area)	(Subject to approval)

7.5.6.2. Signage

Signage near waterways must be designed and installed as per the National Aquatic and Recreational Signage Style Manual (State Government of Victoria 2006).

Regulatory, interpretive and warning signage should be installed in conservation reserves. Community information boards must not be installed in conservation reserves.

7.5.6.3. Fencing

Fencing to protect biodiversity values such as rabbit proof fencing and vehicle barrier and pedestrians control will be required at varying locations. See specifications for fencing details.


Unobtrusive fencing to manage public access

8. Process for Application / Approval

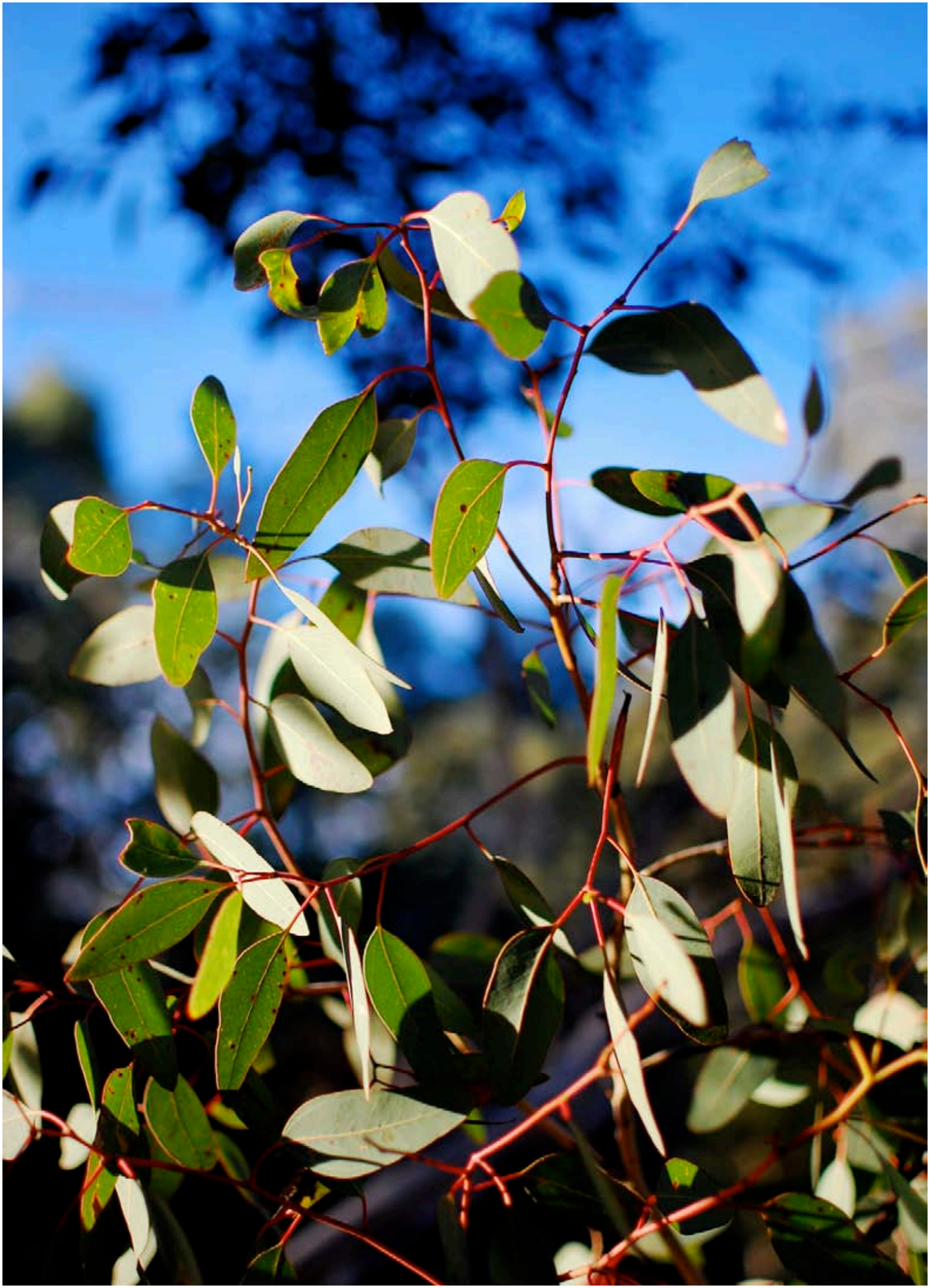
These guidelines are intended to be used as a guide for planning, design and development. While there are many aspects of the guidelines that are quite specific about development outcomes, Council encourages innovation and creative solutions to the development of sustainable communities.

8.1. Pre Application

The pre-application meeting for applicants seeking planning approval is critical to discuss and negotiate aspects of proposed developments. Any application area will form part of the larger neighbourhood or region and it will be important to understand the context for every development and consider other requirements for community outcomes that will be important for Council to achieve.

8.2. Making Contact with Council

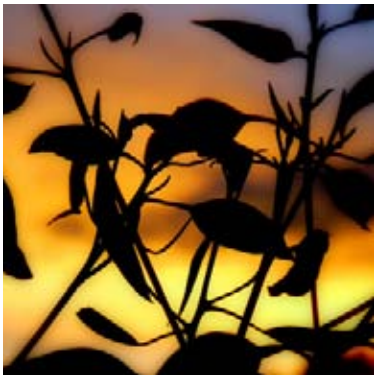
In the first instance, all contact with Council will be directed through Statutory Planning on 5272 5272 for enquiry, discussion and negotiation. Referral may be made to the most appropriate Council office to provide technical advice and further assistance.











sustainable communities

INFRASTRUCTURE DEVELOPMENT GUIDELINES
for the City of Greater Geelong 2010

APPENDICES

CITY OF GREATER GEELONG



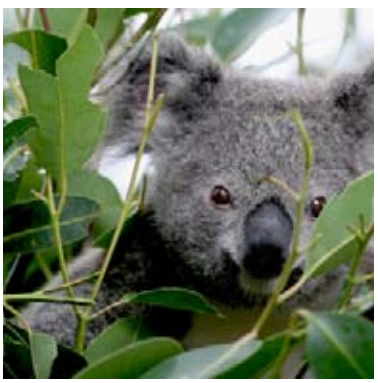



TABLE OF CONTENTS

Template for Appendices

The following is the template that is being used by Council to develop the Appendices. This will result in a complete series of “Fact Sheets” for Facility Details for various types of community infrastructure.

CITY OF GREATER GEELONG

[Facility Type that is detailed on this Sheet]
[Reference Number]

For use in:
- [Types of application/s]
- [Types of application/s]
- [Types of application/s]

[ ]
[ ]
[Photo example of Facility Type]
[ ]
[ ]

Application:
- [Facility] is applicable for:
  - [Types of settings]
  - [Types of settings]
  - [Types of settings]
  - [Types of settings]
- Variations in style that might apply are:
  - [Examples of materials and textures]
  - [Examples of colours, etc]
  - [Other examples]
  - [Other examples]
  - [Other examples]
- Requirements of this [Facility] and its design are:
  - [Examples of services / connections, etc]
  - [Examples of ESD requirements, etc]
  - [Examples of buffer requirements, etc]

Materials:
- Requirements for the development of this [Facility] are:
  - [Material requirements, etc]
  - [Material requirements, etc]
  - [Material requirements, etc]
  - [Material requirements, etc]
  - [Material requirements, etc]
  - [Material requirements, etc]
  - [Material requirements, etc]
  - [Material requirements, etc]

Installation:
- Requirements for the installation of this [Facility] are:
  - [Installation requirements, etc]
  - [Installation requirements, etc]
  - [Installation requirements, etc]

Drawings / Details:

[Graphics /drawings. Cross-sections to indicate requirements……]

For use in:

- RDZ – Road Zone
- RZ – Residential Zone
- BZ – Business Zone
- PUZ – Public Use Zone
- SUZ – Special Use Zone
- PPRZ – Public Park and Recreation Zone

Application:

- Picnic tables are applicable for:
    - Use in all landscape settings
    - Informal locations to provide a seating/table combination
    - Formal/informal picnic areas
- Requirements of picnic tables and their design are:
    - Standard seat height will be between 450-460mm and width 300-400mm.
    - Table height should be set between 750mm and 850mm above ground level.
    - Tables with cross beam to support the seat are not to be used, as they are inconvenient to access, especially for the elderly.
    - For wheelchair access, tables should be almost square with a minimum width of 760mm, with pedestal bench seating on 2-3 sides.
    - The top surface of seats and tables should be self-draining.

Materials:

- Requirements for the development of picnic tables are:
    - Timber and/or stainless or galvanised steel should be used.
    - All timber components are to be dressed or sanded smooth durable timber. Class 1 or 2 Hardwoods and Cypress Pine sourced from plantations or sustainable yield forests.
    - All bolts are to galvanised steel or other approved non-staining and long lasting metal. All bolts are to be tack welded to prevent vandalism and unauthorised removal.
    - Water or weather resistant stain or linseed oil to improve surface and durability of timber should be used.
    - Surfaces should be checked to ensure they are smooth to prevent splinters and/or cuts.
    - Under-surfacing/paving should be provided at each installation, to prevent puddling of water and wear to the surface underneath or around the table. The under-surfacing is to be either a concrete slab or compacted granitic sand. The under-surfacing/paving should extend 1m minimum beyond the extent of the table and bench unit. Surrounding land should be battered up to the level of the under-surfacing.

Installation:

- Requirements for the siting and installation of picnic tables are:
    - A comfortable buffer distance is kept between tables for privacy. Where large groups are anticipated, a cluster of tables may be located closer together.
    - Should not be located where they will dominate park features or viewing points.
    - Should be orientated so that users do not have their back to the view.

- Where more than one table is being provided, a number of settings should be considered (i.e. sun/shade, open/closed, central/remote).
- Should not be located under dangerous overhanging tree limbs.
- In exposed locations, it is preferable to orient the table north/south.
- Provide tables to allow adults to supervise play areas whilst remaining at the table.
- For ease of movement, a minimum clear space of 2m is allowed between picnic table and other obstacles.
- Consideration should be given to locate tables within easy access of any car park and toilet facilities.
- There should be an accessible path to the table.

For use in:

- RDZ – Road Zone
- RZ – Residential Zone
- BZ – Business Zone
- PUZ – Public Use Zone
- SUZ – Special Use Zone
- PPRZ – Public Park and Recreation Zone

Application:

- Seats / Benches are applicable for:
    - Providing relaxation at a viewing point or feature, for nature observation, reading, lunching or supervising a children's play areas. They provide rest stops along major walking tracks and can be grouped in a setting for outdoor education and interpretation.
    - Seats with backs and armrests should be used in areas where people are likely to be sitting longer and require additional comfort.
    - Plain bench seats may be used in all landscape settings, particularly where seating needs to be unobtrusive. Usually where people are likely to rest for less than 15 minutes.
- Requirements of Seats / Benches and their design are:
    - Seating height should generally be 450 – 460mm, but up to 520mm where there is a high proportion of older users.
    - The back of the chair should be within the height range of 750 – 790mm.
    - Where armrests are provided, the top surface should be 220 – 230mm above the seat.
    - They should be simple in shape and style, but comfortable and ergonomic for use.
    - Length of single bench/seat should be sufficient to comfortably accommodate 3 people.
    - The front edge of the seat should have a minimum radius of 25mm.
    - The top surface of seats should be self-draining.

Materials:

- Requirements for the development of Seats / Benches are:
    - Timber and/or stainless or galvanised steel should be used.
    - All metal frames shall be powder coated 'Brunswick Green', 'Charcoal Black' or other suitable colour for the setting involved.
    - All timber components are to be dressed or sanded smooth durable timber. Class 1 or 2 Hardwoods and cypress Pine sourced from plantations or sustainable yield forest.
    - All bolts are to be galvanised steel or other approved non-staining and long lasting metal. All bolts are to be tack welded to prevent vandalism and unauthorised removal.
    - Water or weather resistant stain or linseed oil to improve surface and durability of timber should be used.
    - Surfaces should be checked to ensure they are smooth to prevent splinters and/or cuts.
    - Undersurfacing/paving should be provided at each installation, to prevent puddling of water and wear to the surface underneath or around the table. The undersurfacing is to be either a concrete paving or a stabilised crushed rock. The undersurfacing/paving should

extend 1m minimum beyond the extent of the table and bench unit. Surrounding land should be battered up to the level of the undersurfacing.

Installation:

- Requirements for the installation and siting of Seats / Benches are:
    - Should face activity or views
    - Should not be located under dangerous overhanging tree limbs.
    - Back against solid objects, such as embankments, vegetation or tree trunks.
    - Avoid the midday summer sun, but take advantage of the winter sun.
    - Adjacent to pathways, but set back at least 600mm to allow legroom without obstructing the path.
    - Adjacent to a focus of activity such as a playground.
    - At suitable but regular intervals along path/trails, 250m intervals should be used as a guide along linear trails.

For use in:

- RDZ – Road Zone
- RZ – Residential Zone
- BZ – Business Zone
- PUZ – Public Use Zone
- SUZ – Special Use Zone
- PPRZ – Public Park and Recreation Zone

Application:

- Shelters are applicable for:
    - Settings where the satisfaction of the park user relies upon being protected from the elements, whether they are sun. wind or rain.
    - Generally when longer duration of park use is envisaged.
- Requirements of Shelters and their designs are:
    - Should be simple and sturdy
    - Any shelter with a roof area in excess of $10m^2$ requires a Building Permit under the Building Act.
    - Lightning conductors will also need to be installed, subject to a risk assessment.
    - Roof over hangings should be generous to provide adequate shade and prevent water splashing into the shelter.
    - Adequate ventilation needs to be provided, particularly in enclosed shelters or where barbeques are provided.
    - There should be 900mm clearance around tables and benches and other features within the shelter to allow wheelchair mobility.

Materials:

- Requirements for the development of Shelters are:
    - Timber or steel with corrugated iron or colourbond roofing
    - Material should be sturdy, durable and vandal resistant.

Installation:

- Requirements for the siting and installation of Shelters are:
    - Shelters should be sited to avoid dominating the setting
    - Shelters should be sited to take advantage of views
    - Surveillance from the shelter to toilets, playgrounds and potential dangers such a water bodies and escarpments should be considered.
    - Advantage should be taken of the site orientation and vegetation to minimise wind chill and maximise sun penetration.
    - The ground surface should fall away from the shelter in all directions to prevent puddling of water.
    - The shelter should be designed to avoid bird perching.

For use in:

- RDZ – Road Zone
- RZ – Residential Zone
- BZ – Business Zone
- PUZ – Public Use Zone
- SUZ – Special Use Zone
- PPRZ – Public Park and Recreation Zone

Application:

- Barbecues are applicable for:
    - Sub-regional or regional informal parks, where views or activities are likely to increase the length of a visitors stay.
- Requirements of Barbecues and their design are:
    - Prefabricated electric barbeque units are to be used, inserted into designed surrounds / enclosures.
    - A self-timing device is to be incorporated to minimise power wastage.
    - Press button (free use) rather than coin operation which has proven to be prone to vandalism, must be provided.
    - Incorporate adequate bench preparation space on either side of the barbeque hotplate that meets food hygiene standards.
    - The cooking surface should be approximately 760mm high and as close as possible to the front of the barbeque for easy access and to minimise the need for reaching.
    - Easy to clean barbeque preparation area and surround.

Materials:

- Requirements for the development of Barbecues are:
    - Units should be an enclosed structure made of cut stone, rendered concrete block or brick. Alternatively a metal casing by the manufacturer of the barbeque unit may suffice.
    - Stainless steel hotplates.

Installation:

- Requirements for the siting and installation of Barbecues are:
    - Barbeques should be sited in a clear open area and away from overhanging limbs.
    - Preferably barbeques should be located within a shelter to enable use in all types of weather.
    - Barbeques should be located centrally between picnic tables, to facilitate sharing, rather than domination by one group.
    - Barbeques should be located directly adjacent to hard paved path with easy access to car parking and toilet facilities to enable easy access by the elderly and people with a disability.

For use in:

- RDZ – Road Zone
- RZ – Residential Zone
- BZ – Business Zone
- PUZ – Public Use Zone
- SUZ – Special Use Zone
- PPRZ – Public Park and Recreation Zone

Application:

- Drinking Fountains / Taps are applicable for:
    - Where activities are likely to increase the length of a visitors stay, particularly areas with barbeques and/or playgrounds.
- Requirements of Drinking Fountains / Taps and their design are:
    - Spring loaded drinking fountains should be used to reduce water wastage.
    - Should have the potential to provide dog bowl below fountain to catch the overflow and provide drinking opportunities for dogs.

Materials:

- Requirements for the development of Drinking Fountains / Taps are:
    - Lever operated drinking fountain.
    - Stainless steel or mild steel.
    - Plumbing components may sit on a timber or steel pedestal.
    - Metal components should be resistant to rust and corrosion.
    - Timber elements should be sealed to prevent decay.
    - The materials and design should discourage vandalism and theft.

Installation:

- Requirements for the siting and installation of Drinking Fountains / Taps are:
    - The site should be self-draining with water draining to an appropriate location away from paths and activity.
    - Stormwater drainage connection should be undertaken where feasible. A gravel soaker pit should be constructed in other instances.
    - Drinking fountains should be clearly visible and located at major nodes of activity.

For use in:

- RDZ – Road Zone
- RZ – Residential Zone
- BZ – Business Zone
- PUZ – Public Use Zone
- SUZ – Special Use Zone
- PPRZ – Public Park and Recreation Zone

Application:

- Requirements of Fencing / Residential / Reserve Interfaces and their designs are:
    - In new residential developments, open space reserves shall be designed to ensure maximum active streetscape interface. Reserves should not have residential fencing abutting more than two sides. Fencing must comply with all relevant standards and constructed with sustainable and readily sourced materials. Council encourages the use of individualistic styles in fencing design however these must be submitted to Council for final approval.
    - Fencing abutting Council reserves must promote passive surveillance and it is preferred that adjoining properties utilise consistent design and materials.

For use in:

- Regional Sporting Reserves
- Sub-regional Sporting Reserves
- District Sporting Reserves
- Local Sporting Reserves

Application:

- Sports Pavilions are applicable where:
  - Sports playing fields require change facilities for players
  - Sporting codes specify that pavilions are required to meet standards
  - Community access to facilities requires that amenities are provided

- Variations in style that might apply are:
  - Level of development will depend on hierarchy and classification of sporting facilities and space available
  - Dependent on types of sports being played and the requirements for facilities
  - Pavilions might service any number of playing fields and the orientation of these facilities may vary according to their placement on a reserve

- Requirements of Pavilions and their designs are:
  - Must be connected to mains water plus have water tanks installed for toilet flushing, watering of landscape and possibly turf wickets (if required)
  - Must be connected to approved electricity, gas and telephone connections
  - Must maximise ESD initiatives in design with features such as solar panels, double glazing, use of recycled materials, etc

Components:

- Requirements for the development of Pavilions are:
  - Change Rooms:

    The area required for a change room will predominantly depend on the sport being played and the number of competitors. Change rooms and facilities would need to be provided for both home and away teams and available for either male or female use. Flexible spaces are required and the installation of operable walls/ partitioning is supported to maximise the shared use and flexibility of pavilions. Change rooms will generally have both internal and external access for the convenience of players and teams.

    Generally the space required would be similar for all levels of competition except for junior sporting levels. Junior competitions run at a local level may not require full facilities and may be accommodated within shared change rooms.

    The away team change rooms and facilities are normally utilised by a number of club teams during training sessions.

    The number of toilet and shower facilities required would also depend on the number of users and type of sport. For privacy during use of facilities by both males and females, partition walls between all toilets and showers are essential. Each cubicle should be big enough to change in. To accommodate unisex use of change rooms a separate room installed with a urinal could be provided for larger team- based sports such as cricket and football.

    During normal competition, change room facilities may be occupied by other teams preparing for the next game. Clubroom space is also often used by teams prior to a scheduled game. Hence change rooms for accommodation of one home and away team per playing field will generally suffice. A separate room for Umpires with both corridor and external access should be provided. This should have its own separate showering and toilet facilities.

The change room should provide 450mm of bench seating per player including reserve or interchange players. An area of 450 x 900mm plus circulation space relates to 0.8m^2 per team player at local level, 1.2m^2 at sub regional and 1.5m^2 at regional level players. A minimum size should be 15sq metres per team at local and sub regional level and 30m^2 at Regional level per team.

The number of showers category 1 for sports (football, soccer, cricket and gridiron) shall be 0.25 per team member for local and sub regional teams and 0.3 per team member for regional teams - between 5and 6 showers to be provided per football team based on 18 players and 4 reserves.

Category 2 sports (netball, basketball, hockey, baseball and softball) shall be 0.20 per team member for local and sub regional and 0.25 per team member for regional teams. Between 2 and 4 showers per team.

Category 3 sports (badminton, bowls, table tennis and volleyball) shall be 0.12 per team member for local and sub regional, 0.25 per team member for regional teams. Between 1 and 2 showers per team.

Toilet facilities to be provided at a rate of 0.12 per team member for local and sub-regional and 0.15 at regional with 0.1 metres of urinal per team member for local, sub-regional and regional levels. Between 2 and 4 toilets with 900m and 2 metres of urinal.

- Storerooms

All sports require the need for equipment in some form to be stored at the clubrooms. In general, most competitors possess their own personal equipment and clothing in which they bring to the sporting facility. Separate and secure areas should be provided for each team to store their bags.

Equipment used for matches, team training and warm-up is generally items that are owned by the club and therefore require on site storage. 6m^2 of store for local level, 8m^2 for sub-regional and 12m^2 for regional level.

Bulky and cumbersome equipment such as nets, mats and gym equipment require sufficient space that is both secure however easily accessible. A suitably sized storage area that is divided or shelved to allow for storing of various sports and individual team equipment is preferred. In some cases additional storage areas may have to be considered due to the specific requirements of a sport (e.g. 'Vickick' equipment such as portable goals).

- Social and Club Rooms

Social and clubroom requirements will vary according to the level of sport being played and the number of club members.

Clubrooms may be used for a wide variety of uses including:

- Before and after match gatherings
- Training and coaching purposes
- Club and team meetings
- Viewing matches
- Small functions
- Display of club memorabilia and notices.

Generally, clubrooms at a local level are used as a gathering point for members prior to a match. Often parents use the clubrooms during matches whilst waiting for children competing in inter-club or local competitions. Local clubrooms are used occasionally for small committee meetings and for team gatherings for training, coaching or social purposes.

Sporting clubs at sub-regional level with large membership numbers typically require larger areas to allow all activities, particularly social and after match gatherings. Social rooms shall be 1m^2 per team member for local 1.2m^2 for sub-regional and 1.5m^2 for regional.

The minimum area for local competition should be 25m^2. Depending on the sport and size of pavilion facilities should include a sink for making coffee, kitchenette and servery bench.

Generally, large social areas beyond that required for team meetings, training, etc are the club responsibility. Bars and commercial kitchens are also a club responsibility.

- Kitchens / Kiosks

  In order for sporting clubs to run sporting competitions and to hold inter-club functions, a kitchen/kiosk is usually required. The size of the kitchen/kiosk facility would vary according to the number of people and type of function it needs to cater for.

  Typically, a local sporting clubroom would require only small facilities for match day selling of smaller packaged food and drinks. .

  Larger clubroom holding functions or gatherings with large attendance numbers require significantly larger kitchen/kiosk facilities. Food may be required to be prepared and cooked before being sold. Some food may also be required to be stored on premises between matches and functions. Clubrooms that incorporate a larger kitchen/kiosk are generally operated by a catering or social committee group. 15m^2 in small clubs to 35m^2 for larger clubs. The need for a grease trap will also have to be considered.

- Meeting Room / Office

  A meeting room and an office are required to provide sufficient space for administration tasks and to accommodate committee meetings. The rooms would generally contain file cabinets for storing club records and files and a desk or table for small group meetings of approximately six people.

  Typically, committee meetings are held on a weeknight when sporting activities or training are not scheduled. When required, larger group meetings are often held in the clubs social rooms.

- Umpires Change Facilities

  It is recommended by most sporting associations that a separate umpire's room with toilet and shower facilities be provided.

  As umpire rooms are increasingly being used by both males and females, walls between all toilets are required and showers should be cubicles incorporating changing space. External access directly into and from the umpires change rooms is required. Area shall be 20m^2 with separate toilet and shower 1.8m^2 each.

- First Aid Room

  A room large enough to accommodate a bed, first aid supply cabinet and a hand basin is required. It is recommended that the room be provided with double doors and internally located to facilitate access for stretchers and first aid/ambulance offices. Typical room should be 8m^2.

- Cleaners Store

  A cleaners store is required to securely store general cleaning equipment and chemicals and disposables such as toilet rolls. A cleaner's sink with hot and cold water supply and in-built storage shelves and cupboard would be required

- Indoor Gym/Training Facility

  These are generally a club responsibility.

For use in:

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Application:

- Public Toilets are applicable for:
    - Where activities are likely to increase the length of a visitors stay, particularly areas with barbeques and/or playgrounds.
- Requirements of Public Toilets and their design are:
    - Access – The entrance to the toilet building and to toilet cubicles should be a highly visible area, facing or oriented towards the most publicly used space nearby. There should be a sealed footpath, preferably a minimum of 1.5 metres wide to provide access for people with disabilities (wheelchair users) and parents with prams/strollers. Steps are to be avoided. Footpaths are to be at a grade of 1:50 and maximum cross grade of 1:40 and slope away from the building. Ramps may be used where steeper gradients do not permit access. The obvious entrance will be supported by good clear signage. Footpaths at access points to facility are to fall away from the entrance so as to facilitate free drainage.
    - Safety – floor plan should not include corners that could allow someone to hide in the facility. Upon entry by the cleaner they must be able to establish quickly whether anyone is in the facility.
    - Power – must be supplied to the facility
    - Facilities - It is preferable that all new public toilets are made unisex and fully accessible. Syringe units need to be obvious for users however a highlighted inbuilt wall recess with catchment tray would be preferable.
    - Signage – should be simple and use universal symbols to ensure clear understanding for all users including those from cultural and linguistically diverse backgrounds.
    - Lighting - A combination of natural and adequate artificial lighting is to be used to ensure the requirements of AS 1680 are met. Luminare controls to be fitted to external lighting. Any skylights are to be protected and heavy duty.
    - Maintenance – All materials used in construction should require minimum maintenance. If possible, the design should include a service duct and if in event space areas, a storage space of at least 1200 x 900 mm. Additional hose bibs are to be supplied to facilitate cleaning and the facility should be designed so that hosing out addresses the majority of cleaning issues.
    - Environmental Sustainability - Toilets should be designed and constructed in accordance to ESD principles, specifically considering energy and water use. Any design that includes ESD principles must also address odour issues.

Installation:

- Requirements for the siting and installation of Public Toilets are:
    - Street frontage with good active and passive surveillance is preferred. Toilets should be constructed as close as practicable to streets, footpaths and car parking areas for public access, safety & visibility. There should be minimal (low level) vegetation and good access to pedestrian areas.
    - Construction – design and materials should be standard and easily available robust products. Non-porous and robust surfaces are to be used. The building should be able to withstand a reasonable amount of vandalism. If brick walls are used, mortar joints are to be rodded (round) and not raked so that the brickwork can be easily painted if graffitied. Render or bagging and painting of brick walls could be provided at lower levels. The use of compressed cement sheet, prefinished board with epoxy paint, or similar flat surface is acceptable. The use of wall tiling is to be minimized as future tile replacement is often difficult to match the tiles and the tile grout absorbs graffiti paint. Window and mirror glass is to be avoided. The use of perforated or expanded type mesh can be used as an alternative to glass and provide large area of ventilation. Polished stainless steel should be used as an alternative to mirrors. Stainless steel fittings are preferred over porcelain. Cubicles are to include an external door release latch or key mechanism. Floor covering is to be no slip epoxy paint or similar material that is hardwearing, suitable for hosing down, fire and flame proof. Internal floor corners are to be rounded. Adequate floor drainage grates are required. All PVC pipe fittings are to be concealed. Any enclosed roof supports must not become roosting areas for birds.
    - Brick style toilet constructions to include a sturdy metal external gate to allow for a total lockdown if required.