Child Accident Prevention Foundation of Australia
Western Australia

Playground Strategy

City of Karratha
January 2023

Playground Strategy:

The purpose of the Playground Strategy is to guide the provision and management of playground facilities in the City of Karratha to meet the present and future needs of residents with Karratha, Roebourne, Wickham, Point Samson and Dampier.

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1. IMPORTANCE OF PLAYGROUNDS

The obesity epidemic is one of the greatest public health challenges confronting Australia today. We are now one of the most overweight of all developed nations, with 60% of Australian adults classified as overweight or obese, of which approximately one in three are obese. The rate of overweight and obese Australians has been increasing steadily over the past 30 years, and can be linked to changing lifestyles, modernisation and technological change which affect the type and amount of food we eat and the level of physical activity we maintain.

Overweight and obese children face the same health conditions as adults, and may be sensitive to the effects on their self-esteem and peer-group relationships. Nearly one in four of Australian children are classified as overweight or obese, with 17% of all 2-16 year olds overweight and 6% obese. This figure has grown markedly from an estimated 5% in the 1960s. It is widely acknowledged that it is important is to instil the participation in physical activity and healthy eating to children before they develop poor physical and nutritional habits. Children, however have different needs to those of adults, as do different segments amongst children (young and adolescent, boys and girls) so it is important that these issues are addressed when developing an active community strategy.

Playing outside is not just about letting off steam. It is a vital part of childhood that helps children develop physical strength, coordination and balance. It can also provide opportunities for children to learn and develop:

- Social Skills - when they play with other children they learn to communicate, share, collaborate and empathise with others.
- Imagination and creativity - outside play is often open-ended and children need to be creative about what and how games are played.
- Thinking and problem solving skills - as children assess risks and tackle new challenges they learn about having a go, persistence and perseverance and the success those attributes can bring.
- Sense of self - as they master new skills and play with other children they improve their competence and confidence in their own physical and social abilities.
- Sense of connection - to place, to peers and to their local community and environment.
- Self-care skills - managing physical and social challenges helps children to learn about keeping themselves safe.

To support these broad learning outcomes, play spaces should include areas for active, free, quiet, social, imaginative, creative, exploratory and natural play. By inviting children to use their own initiative, explore possibilities and take chances we can provide them with opportunities to learn.

Children of different ages (or the same age) can have very different physical skills. It is important to ensure your playground includes graduated levels of risk and challenge or that you provide different playground activities for younger and older children.

2. EXECUTIVE SUMMARY

2.1 Purpose

The purpose of this Playground Strategy is to provide Council with a plan for the provision of well located, well designed, fun and accessible playgrounds for the next 10-15 years and beyond. The strategy is primarily aimed at play facilities designed for children between the ages of 2 and 12 years old. Playgrounds provide a vital, low cost and accessible family focused environment for people to participate in leisure. The City of Karratha is committed to the provision of high quality playground facilities which are equitably distributed throughout their local government. The Strategy shall be flexible, any new or revised recommendations may be endorsed and included on a regular basis as required.

The City of Karratha engaged Kidsafe WA to conduct comprehensive playground inspection in November 2022. The following playgrounds were inspected:

BAYNTON	
Mara Guthara Park	Gardugarli Drive
Balyarra Playground & Pump Track	Balyarra Parkway
Church Way Park	Church Way
Hillview Park	Calliance Way
Miles Loop Playground	Miles Loop
BULGARA	
Bulgara Sporting Precinct	Hunt Way
Richardson Way Park	Richardson Way
Shakespeare Park	Nairn Street
DAMPIER	
Dampier Foreshore Pirate Playground	The Esplanade
Windy Ridge Oval Foreshore Playground	Ian Williams Crescent
Dampier Natureplay & Skate Park	High Street
Dampier Lions Park	Central Avenue
Hampton Oval	The Esplanade
GAP RIDGE	
Karratha Airport Indoor Playground	Bayly Avenue
MILLARS WELL	
Malster Park	Malster Place
Karratha Leisureplex	Dampier Road
Kevin Richards Memorial Playground 1	Balmoral Road
Millars Well Playground	Balmoral Road
POINT SAMSON	
Point Samson Community Park	Barker Terrace
NICKOL	
Ausburn Park	Ausburn Place
Egret Park	Brolga Meander
Goshawk Park	Goshawk Circle
Nickol West Park	Falcon Parade
Smith Delambre Park	Delambre Drive

PEGS CREEK	
Cattrall Park	Balmoral Road
Dodd Court Park	Dodd Court
Waters Park	Frinderstein Way
Youth Shed Skate & Half BBall Court	Hillview Road

ROEBOURNE	
Andover Park	Andover Way
Roebourne Pool Playground	Sholl Street
TAMBREY	
Tambrey Park	Flannelbush Turn
WICKHAM	
Wickham Pool Playground	Carse Street
Wickham South	Bottlebrush Road
Wickham Lions Park	Frizell Road
Saylor Park	Carse Street

2.2 Vision

'The City of Karratha aim to provide a diverse range of quality, fun, accessible, well designed and maintained playgrounds and play spaces that assist children's physical, cognitive, social and emotional development as well as providing a community meeting point that encourages interaction, understanding and community well-being.'

2.3 Hierarchy of Playgrounds

Most local governments have three classifications of playgrounds and define them as regional, district and neighbourhood. In practice, the proposed playground classifications and distribution criteria maximises the chance that every resident and their children or grandchildren have easy access to playgrounds, while ensuring that Council is not managing an excessive number of facilities. It also enables Council to offer a variety of playground designs styles and to ensure diversity of play experiences.

The playground categories are outlined below as defined in the City of Karratha's Parks, Garden and Open Spaces Operational Maintenance Levels of Service:

Regional Playgrounds

Regional spaces are greater than 7.5ha in size, and contain the following: Large playground with 8 + play activities; toilets; off-street car parking for 20+ vehicles; multiple senior-sized ovals for organised sports and events (such as festivals); clubrooms or pavilion; shade structures for play space and seating areas; lighting for sports activities in the evening, footpaths and picnic areas; path network for pedestrians, cyclists and landscape; BBQ and picnic facilities; outdoor gym equipment; reticulation and seating for social gatherings. Users mainly drive to the facility, and it may attract people from the wider region such as sports clubs. Community reach is shire-wide.

District Playgrounds

District spaces are 3.6-7.5ha in size and contain the following: Large playground with 5 + play activities; toilets; off-street car parking for 10-20 vehicles; oval area for organised sports; shade structures for play space and seating areas; lighting for sports in the evening; path network for pedestrians, cyclists and landscape; BBQ and picnic facilities; outdoor gym equipment; reticulation and seating for social gatherings. Users mainly drive to the facility, and it may attract people from the wider region such as sports clubs. Community reach is in excess of 800m.

Potential regional/district playgrounds identified for the City of Karratha:

Balyarra Park, Baynton
Bulgara Play Space, Bulgara
Cattrall Park, Pegs Creek
Hampton Park, Dampier
Karratha Leisureplex, Millars Well
Kevin Richards Memorial Playground 1, Millars Well
Millars Well Playground, Millars Well
Mara Guthara Park, Baynton West
Point Samson Community Park, Point Samson
Roebourne Pool Playground, Roebourne
Saylor Park, Wickham
Wickham Pool Playground, Wickham
Windy Ridge Oval, Dampier

Neighbourhood Playgrounds

Neighbourhood space areas are 0.4 – 3.6ha in size and contain: Medium sized playground with 3 – 5 different activities; some car parking; grassed area; shade structures for play space and seating areas; lighting for safety purposes only; path network; reticulation and seating for carers. Users mainly walk or cycle to these spaces. The space should cater to residents within an 800m radius.

Local Playgrounds

Local spaces are small parks are generally up to 0.6ha in size and contain natural shade; lighting for safety purposes only; reticulation and seating. Users walk or cycle through these areas. These spaces should be used as linkages. The space caters to residents within a 400m radius.
Potential local or neighbourhood playgrounds for the City of Karratha:

Andover Park, Roebourne
Ausburn Park, Nickol
Church Park, Baynton
Dampier Foreshore Pirate Playground, Dampier
Dampier Lions Park, Dampier
Dampier Natureplay & Skate Park, Dampier
Dodd Park, Pegs Creek
Egret Park, Nickol West
Goshawk Park, Nickol West
Hillview Park, Baynton
Karratha Airport Playground, Gap Ridge
Malster Park, Millars Well
Miles Loop Park, Baynton
Nickol West Park, Nickol
Point Samson Centenary Park, Point Samson
Richardson Way Park, Bulgarra
Smith Delambre Park, Nickol
Tambrey Park, Tambrey
Waters Park, Pegs Creek
Wickham Lions Park, Wickham
Wickham South POS, Wickham
Youth Shed Skate Park, Pegs Creek

3.10 YEAR MANAGEMENT PLAN

When playground equipment is purchased and installed, playground manufacturers should advise the approximate:

- Life expectancy of the different components of the product
- Any warranty conditions
- Moving Parts
- Possible effects of environmental conditions on the product, such as UV exposure, excessive heat or cold, saline conditions.

Taking these conditions into account and using the guide it is possible to work out expected life span of equipment.

In general, Timber equipment has an expected lifespan of 10 – 15 years, and steel equipment has an expected lifespan of 15 – 20 years.

The 10 Year Management Plan is based on a like for like basis equipment only. It does not include soft fall, retaining, shade or ancillary items.

City of Karratha

3.1 10 Year Replacement Plan Table

Site	Suburb	Hierarchy	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
Hillview Park	Baynton	N			50,000							
Smith Delambre Park	Nickol	N	70,000									
Windy Ridge Oval	Dampier	D			50,000							
Cattrall Park	Pegs Creek	D	40,000									
Church Way Park	Baynton	N	60,000									
Tambrey Park	Tambrey	N		60,000								
Miles Loop Park	Baynton	N	50,000									
Richardson Way Park	Bulgarra	N			95,000							
Karratha Airport Indoor Playground	Gap Ridge	N						24,000				
Wickham Pool Playground	Wickham	N					36,000					
Shakespeare Park	Bulgarra	N				60,000						
Malster Park	Millars Well	N			95,000							
Kevin Richards Memorial Park 1	Millars Well	D				60,000						
Millars Well Playground	Millars Well	D										100,000
Saylor Park	Wickham	R		95,000	60,000							
Andover Park	Roebourne	N				85,000						
Egret Park	Nickol West	N				75,000						
Roebourne Aquatic Centre	Roebourne	N				75,000						
Lions Park	Wickham	N					75,000					
Waters Park	Pegs Creek	N					85,000					
Karratha Leisureplex	Millars Well	D				95,000						
Mara Guthara Park	Baynton	N						240,000				
Nickol West Park	Nickol West	D						75,000				
Wickham South Playground	Wickham	N						75,000				
Dodd Court Park	Pegs Creek	N							75,000			
Hampton Oval	Dampier	N								110,000		
Lions Park	Dampier	N								85,000		
Balyarra Playground	Baynton	N							95,000			

Dampier Natureplay & Skate Park	Dampier	N						60,000				
Ausburn Park	Nickol	N							85,000			
Point Samson Community Park	Point Samson	D								95,000		
Bulgara Sporting Precinct	Baynton	R								120,000		
Dampier Foreshore Pirate PG	Dampier	N										75,000
Youth Shed Skate Park	Pegs Creek	N									50,000	
Goshawk Park	Nickol West	N										
Total			**220,000**	**155,000**	**350,000**	**450,000**	**196,000**	**474,000**	**160,000**	**215,000**	**50,000**	**175,000**

4. PLAYGROUND SAFETY & DESIGN

4.1 Natural Playspaces

AS 4685.0 now includes Nature Play. Nature Play is defined in the Australian Standards as:
The elements of a playground consisting of natural, non-manufactured items that are incorporated into the playground, including items such as logs, boulders, living plant materials, and surfaces, changes of level and other landscape elements.

It should be recognized that risk-taking is an essential feature of play provision and of all environments in which children legitimately spend time playing. Play provision aims to offer children the chance to encounter acceptable risks as part of a stimulating and challenging learning environment. Play provision should aim at managing the balance between the need to offer risk and the need to keep children safe from serious harm.

Natural elements incorporated into playgrounds are inherently diverse and open-ended, and many offer the benefit that children can manipulate them for their own play purposes. Such nature-based play environments can help build creativity, imagination, and problem solving skills. Unlike manufactured products and materials, natural elements are not necessarily predictable. They therefore increase the likelihood of children developing risk management skills as they negotiate natural environments, and build resilience through exposure to falls and minor injuries as they learn to adapt their behaviour to the setting.

The requirements of AS 4685 shall apply to natural play elements incorporated into a playground, however compliance with some aspects of this Standard may be difficult to achieve without compromising their inherent value or benefits. Where the contents of this Standard do not apply directly to natural elements, a risk benefit assessment may be required to determine the suitability of such elements. For example, while it may not be practical or desirable to place barriers or handrails on a log or boulder, the following requirements should still be addressed: corresponding to the *hc*;

- The impact area should be free of obstacles that could cause injury;
- Hazardous situations that may cause entrapment should be avoided; and
- Consideration should be given to preventing easy access to hazardous situations.

NOTE 1: The use of a risk benefit assessment does not allow designers to simply replace manufactured items with natural elements in an effort to avoid the requirements of the Standards.
Designers and operators should consider the local context of each play setting in weighing up the risks and benefits associated with the use of natural materials. Where children have few opportunities to explore and play in nature, the benefits of nature play might be given additional weighting even when they are associated with some risks.

NOTE 2: This is especially applicable to the management of loose elements in playgrounds.
Playing with branches, pebbles and other loose items offers significant benefit to children, and school and park managers should consider strategies to manage such activities rather than deny them.

There is a concern for vandalism in some natural playspaces particularly those with wooden components that can be set on fire.

Good examples of Local Governments developing a Natural Playspace are:

City of Stirling – Rannoch Reserve, Hammersley WA

City of Albany – Eyre Park All Abilities, Albany WA

Town of Mosman Park – Russell Brown Adventure Park, Mosman Park WA

A natural Playspace does not have to be just wooden play items; it can have different components such as using manufactured equipment in natural colours combined with landscaped areas. Local rock could be used for informal seating and edging to different play areas. Plants indigenous to the local area are best used for sustainability and from a water wise point of view.

4.2 Age Appropriateness

Children's physical capabilities, interests and play behaviour change with age. The greatest value will be derived from play opportunities which recognise appropriate skill levels and developmental milestones. Below is a brief outline of the play preferences and some design implications which relate to each age category.

Toddlers
Public play areas can cater for this age group with very simple settings for:

- Crawling and walking in well maintained grass
- Running up and rolling down gentle slopes
- Swinging in very low baby swings
- Climbing up and down very low level changes
- Rocking with an adult on a gentle rocker
- Play in a small sand pit
- Hiding between very low shrubs

Junior Children (3 to 6 years)
Public play areas should provide opportunities for young children to practice and hone skills in:

- Climbing
- Running
- Agility skills
- Skipping and ball play

It should also provide settings for dramatic play where children can play in small groups with sand and water, and build cubbies.

Older Children
Playgrounds are likely to be used for activities such as:

- Fine tuning gymnastic skills, such as on agility items, turnover bars and chin up bars
- Swinging in pairs
- Extending physical challenge, such as hanging from one hand only, jumping further and from higher levels, somersaulting from platforms and climbing onto roofs and other high points, and riding bikes down accessible slopes. [Note: this behaviour will test equipment to its limit, and may not be what the equipment was designed for but is foreseeable and must be anticipated.]

Older children also need spaces for:

- Ball games including grass area and hard court area
- Riding bicycles and skateboards
- Hiding and running
- Traditional small group games, such as hopscotch

4.3 Shade

Australia has the highest incidence of skin cancer in the world and as such shade needs to be integral to any play space design. Ideally play spaces should be designed so as to maximise existing shade opportunities. Additional planting of trees should occur as early as possible so they may become sufficiently established prior to the facility being utilised.

The most critical time of day for effective shade to be provided is between the hours of 10am and 2pm. Australian Standards for Playgrounds states that provision should be made in each playground for areas of sun protection and shade, both for the children using the playground as well as for any caregivers present.

It is suggested that any shade structure either shade sails or permanent shade structures be placed approximately 2.5 metres above the play equipment so children cannot access the top of the structure.

Adding shade elements should be promoted by playground providers. If an area feels uncomfortably hot or glary it may not be utilised. Trees provide the best shade quality, filtering sunlight and lowering summer temperature by an average of 8-10C. Conducting a shade audit will assist in determining the ideal positioning for shade structures and sails in the playspace.

4.4 Safety Surfacing

For any equipment that has a free height of fall more than 600mm, Australian Standards recommend that the impact area under-surfacing must meet certain minimum impact attenuating requirements. There are two main types of materials that comply:

Loose-fill: suitable sand or mulch, that is well drained, regularly checked, and raked/aerated to avoid compaction and replenished as required to maintain minimum depth. Kidsafe WA recommends a minimum depth of 300mm to allow for displacement during typical use. Suitable edging or borders for loose fill can include cement kerbing, limestone blocks and wooden boards/sleepers. Although loose fill is generally cheaper, it requires regular maintenance. Loose-fill surfaces do not need to be impact-attenuation tested on a regular basis provided:

(a) The generic product typically complies with the requirements of AS 4422 when tested;

(b) The loose-fill material has been installed to a depth of at least 300 mm and maintained so that it never drops below 200 mm.

Advantages	Disadvantages
• Low initial cost • Easy to install • Readily available • Drains well • Does not decompose (sand) • Non –flammable • Non-abrasive to skin	• Compacts • Decomposes (wood chips, mulch) • Susceptible to vandalism (woodchips, mulch – fire; glass, sharps) • Can conceal hazardous objects • Some sands compact to form a hard pan • Abrasive to playground equipment • Susceptible to animal fouling

Synthetic/rubber: wet pour rubber or synthetic grass can also be used. Surfaces should be free of trip hazards and checked periodically to ensure there is no deterioration (eg. sub surface bumps or dips). You should also ask for a certificate of compliance with Australian Standards. No one material has proven to be the best solution for all occasions and decisions must be made depending on environmental conditions, cost and preference.

AS 4685.0 Playground equipment and surfacing states that as a minimum, the unitary surfacing shall be tested in accordance with AS 4422 before opening the playground to the general public and at least every three years.

Advantages	Disadvantages
• Suitable for wheeled access • Low maintenance • Low life cycle costs • Not displaced by children's play • Consistent impact absorbency • Does not conceal foreign objects • Requires not retaining edges • Environmentally friendly • Porous • Can be installed over concrete, asphalt or hard services	• High cost for initial installation • Can get very hot • Susceptible to vandalism (may be flammable, deface or cut) • Edges can curl, joins can create trip hazards • Requires skilled installation • Synthetic grass requires sand to hold up pile which must be replenished periodically • Synthetic grass may cause friction burns

4.5 Fencing

There are no legal requirements for fencing public play spaces. A fence around the outdoor playspace may assist with the containment of children, preventing them running out into a hazard such as a busy road, and keeping animals and undesired traffic out.

While it is not required that a playground has a fence, the playgrounds that do have fences should follow guidelines and meet design requirements for playground safety and consider local government codes.

Where it has been assessed that a fence is preferred around a public playspace, the fence is usually installed around the boundary of the playspace. This enables the children to use the playground equipment and the surrounding open space without fear of injury by misadventure outside the perimeter of the designated play area.

Designers should assess the most appropriate form of protection. A boundary can make a playground appear tidier and more defined, though this of course may not necessarily be a fence. Possible measures include simple one or two rail fences, bollards, landscape planting, garden beds, hedges, mounding, stone/brick wall or combinations of these.

It is important to consider that the selected fence type does not introduce an additional hazard. Kidsafe WA recommends the fence meets (as a minimum requirement) AS 2423:2002 Coated steel wire fencing products for terrestrial, aquatic and general use.

Many fence contractors will be familiar with these standards. It is important to note that playground fencing is NOT the same as swimming pool fencing and may have a different opening threshold between vertical or horizontal members. Most fences are not designed to withstand the force of an automobile gone astray.

Examples of unobtrusive playground fencing in local government play spaces

4.6 Safety and Challenge

Good design of play spaces is a valuable strategy in reducing risk. Inappropriate use often occurs in play spaces that lack interesting features. Children are excited by the idea of risk; therefore, a carefully designed perception of risk will provide the element of challenge and reduce the risk associated with inappropriate use. Other safety hazards arise from poor location and site layout. In reducing risk, designs should:

- Encourage good supervision
- Plan with hazards in mind, for example, make access to roofs and shade structures difficult.
- Ensure that a range of choices are offered to cater for differing skill levels within each age grouping.
- Locate play opportunities with informal surveillance in mind.
- Avoid uninteresting play spaces which lead to boredom and risk seeking.

4.7 Australian Standards

In Australia, there is no regulatory requirement to comply with the Australian Standards relating to playgrounds. However, the Australian Standards are widely regarded as a minimum standard and failing to comply with these standards could lead to prosecution in the event of an incident leading to a serious child injury or death.

Australian Standard AS 4422 - Playground Surfacing
Specifications, requirements and test methods

Australian Standard AS 4685 – Playground Equipment & Surfacing
Part 0: Development, installation, inspection, maintenance and operation
Part 1: General safety requirements and test methods
Part 2: Particular safety requirements and test methods for swings
Part 3: Particular safety requirements and test methods for slides
Part 4: Particular safety requirements and test methods for cableways
Part 5: Particular safety requirements and test methods for carousels
Part 6: Particular safety requirements and test methods for rocking equipment
Part 11: Particular safety requirements and test methods for spatial networks

Australian Standard AS EN 16899:2020 – Sports & Recreational Equip– Parkour Equipment
Safety requirements and test methods

Australian Standard AS 16630:2021 – Permanently Installed Outdoor Fitness Equipment
Safety requirements and test methods

Australian Standard AS EN 14974:2021-Skateparks
Safety requirements and test methods
Kidsafe WA strongly recommends that playground owners ensure that any equipment not compliant with current Australian Standards is removed or modified to meet those standards and that any modifications or additions to these playgrounds must also meet current standards and guidelines.

Importantly, it must be acknowledged that even with the elimination of recognized hazards and full compliance with the Australian Standards accidents do still happen. However, to protect children from risk of serious injury it is crucial that playground owners implement a regime of regular playground inspections and maintenance to ensure that acceptable risks or hazards are identified and eliminated promptly.

4.8 Universal Access

Each type of disability has its own implications and design considerations for play spaces. In many instances, barriers to inclusion can be reduced through a more thoughtful approach to detail. It is important to note that play opportunities should be designed to be integrated for all users, rather than segregating opportunities for people with disabilities.

An accessible playground environment supports inclusion and participation within a welcoming space and where there are opportunities for people to meet and play together. Many children and adults who have a disability are not able to use public play spaces for a variety of reasons. The challenge for Council is to understand and acknowledge how and why play spaces can limit access to some children and carers and to identify achievable improvements that can be made to increase participation by all children and carers in play. Some 'access' solutions may be technically and physically accessible but do little to encourage play, and sometimes can be inconvenient or even segregating.
It is essential that access and inclusion be included from the outset, at the concept stage, so that accessibility does not become an 'after-thought' and an expensive 'add-on'.
There is no one way to provide access for every person and there is no set of rules to make a play space accessible. Some people have very specific requirements and these cannot always be met, especially in smaller, local play spaces.
Where a playground is to be developed as 'Universal Access', disability groups and services would be specifically engaged in the playground process so as to welcome and encourage use by residents and visitors with a disability.
The following criteria are discussed in detail:

Play Equipment for All Abilities

Design elements that can assist in the inclusion of children with a range of ***physical*** abilities include:

- having seamless access within the playground to a choice of accessible activities;
- providing graduated challenge (i.e. monkey bars/balance beams at different heights);
- tunnels of varying diameter and length can allow for different sensations of crawling, sitting, hiding, talking, walking, running or even allowing wheelchair access through;
- activities that are accessible front-on from a wheelchair;
- rockers with backrests, foot rests, wide seats, side by side seats or deeper seats that enable more people including adults to use them; and
- swings including hammock swings and wheelchair or 'Liberty' swings.

Birdsnest swing

Liberty Swing

Design elements to assist the inclusion of children with various ***sensory*** impairments include:

- having a variety of textural surfaces;
- having strong visual cues for level changes; and
- providing navigable connections between different activity areas.

Pathways with sound panels

Sandpits at wheelchair height

Design elements to assist inclusion of children with a range of ***intellectual*** or ***cognitive*** abilities include:

- providing larger seats on some activities typically provided for younger children (e.g. swings with wide or larger strap seats with back support for an older person);
- providing opportunities for all children to play alongside other children and join in socially with others;
- allowing carers with a disability to have an opportunity to play with their own children.

Sensory Play

Play spaces can provide sensory appeal or opportunities to enhance children's experience of texture, sound, colour, pattern, light, smell, space and motion. Examples of design elements that provide sensory opportunities include:

- planting can provide textures, smells, shapes, sounds, light and shade through trees and interest through seasonal changes to plants;
- 'squeeze' experiences can be provided by padded poles, close planting, positioning of boulders to squeeze through or items to squeeze under;
- small interactive elements that move and respond to touch;
- etchings or patterns that can be touched and followed with fingers, hands or feet; interactive sound and musical activities;
- natural elements such as sand, mud, water, pebbles, stones and bark;
- tunnels can create differences in light, colour, shade, sound and a planted tunnel provides a special kind of enclosure; and
- a story told through art works can create a distinctive and memorable character.

Outdoor musical play elements

Continuous Accessible Paths of Travel

Connectivity via hard or compacted pathways to the play space, to specific activities within the play space and also to accessible amenities is an essential design element. Parents and carers should be able to easily interact with children within the play space.

Accessible Amenities

It is essential to provide amenities for children and carers that are accessible (i.e. shelters, toilets, picnic tables, bench seats, car parking, water fountains and pathways).

Most playground manufactures have an all abilities range of equipment

4.9 Design Principles

In addition to the individual components to be included in each category of a playground, other design principles which should be incorporated are:

- Appropriately designed fencing (which forces young children to stop at the fence) or buffer zones (at least 10 metres) should be used to prevent young children inadvertently running on to roads directly from play equipment.
- Wherever possible natural shade trees should be planted around play equipment and caregiver amenities.
- Design playgrounds to encourage adult supervision. Caregiver seating should be located close to, and so as to supervise children using, play areas. Locate play areas in clear sightlines to allow informal surveillance.
- Establish physically separate play areas for different age groups on the one park.
- Locate kick about areas and sports practice areas so as to minimise conflict with users of play equipment.
- Install play equipment, which meets appropriate Australian Standards, including softfall material.
- Incorporate play areas to cater for cognitive play, creative play, social/dramatic play and physically active play.

- Design playgrounds to complement, rather than replicate, experiences in other parks in the City of Karratha.

- Site play equipment to prevent users overlooking private yards and gardens adjoining the park. Locate ball games areas away from neighbour's fences, to minimise balls being kicked, hit or thrown into neighbouring properties.

4.10 Access to Playgrounds

Proximity of a playground to the users' home is seen as a key attraction for playground attendance. In addition, survey the value of walking paths that provide easy access to both playgrounds and open space are viewed very highly within a community. In order to ensure equitable access to all playground facilities, Council may consider an implementation of walking and cycling strategies to ensure that they maintain sustainable linkages between paths, playgrounds, parks and reserves. Council should also investigate possibilities to provide additional direct connections between walking tracks and key playgrounds around the city.

4.11 Landscape Design within Playspaces

There is clear and consistent evidence about the many benefits for children and the wider community from exposure to and engagement with nature. Internationally, many public and private playground providers are moving to enhance playground provision by including planted landscapes and/or natural play elements into playground designs or by giving children opportunities to play in natural semi-wild spaces.

What the research says:

- Children who play regularly in natural settings are sick less often. Mud, sand, water, leaves, sticks, pine cones and gum nuts can help to stimulate children's immune system as well as their imagination
- Children who spend more time outside tend to be more physically active and less likely to be overweight.
- Children who play in natural settings are more resistant to stress; have lower incidence of behavioural disorders, anxiety and depression; and have a higher measure of self-worth.
- Children who play in natural settings play in more diverse, imaginative and creative ways and show improved language and collaboration skills.
- Children who play in nature have more positive feelings about each other.
- Bullying behaviour is greatly reduced where children have access to diverse nature-based play environments.
- Symptoms of Attention Deficit Disorder are reduced after contact with nature.



4.12 Early Years Framework

The Early Years Framework for children birth to five years is aimed at enriching and extending children learning though the transition to school. Play is an important part of this learning process for younger children including those in Kindy and Pre Primary. The Early Years Learning Framework tells us:

- Spaces with plants, trees, edible gardens, sand, rocks, mud and water invite open ended interactions, spontaneity, risk taking, exploration, discovery and connection with nature.

4.13 National Quality Standards

Similarly the National Quality Standards, states:

- Outdoor spaces include natural elements and materials which allow for multiple uses

4.14 Playground Standards Specific to Landscaping

The Playground Standards have long promoted the natural landscape in play spaces.

AS 4685.0 6.3.4 *Selection of play elements*
The landscape itself provides many valuable play opportunities and adds value to the equipment. Natural features of a site, such as trees, rocks, logs and sloping banks, can be incorporated into the design.

AS 4685.0 6.3.8 *Plant selection*
Plants are valuable design elements in playgrounds and should be selected for their potential to provide for play as well for their visual amenity; sensory properties; potential for shade; and potential to withstand compaction, extremes of climate and the impact of users. Avoid plants with allergenic properties, sharp thorns, leaves or spikes; poisonous species, or those with foliage, flowers and seeds that cause choking hazards. Avoid species notorious for limb dropping.

4.15 Climate

Australia has a hot climate and inevitably playground equipment and surfacing can heat up rapidly and retain heat. This can cause serious burns to skin upon contact. Young children are particularly at risk because they may be slower to pull away from hot surfaces.
A child is at risk of a burn when a surface exceeds 50ºC and when the skin is heated to 45ºC for a prolonged period. At surface temperatures greater than 50ºC, tender young skin can be burned severely within seconds and may require surgery. Many playground surfaces and equipment (including plastic parts) can exceed these temperatures when there is a low humidity, bright, sunny day in the high twenties.
Follow these recommendations to help prevent playground burns on hot, sunny days:
Test surfaces: Metal slides, poles, guardrails, barriers and other playground equipment are most likely to pose burn risks if the equipment is exposed to direct sunlight.
Playground Surfacing: Rubber and synthetic grass playground surfacing have been known to cause burn injuries to the soles of children's feet on scorching hot days. Dark coloured rubber surfacing optimises heat retention. Research has found that on low humidity, hot sunny days, dark coloured surfaces can exceed 60ºC.

Playground Construction Material: There is very little alternative to plastic, metal or wood used to create playground equipment. Each has its pros and cons, depending on a range of things like climate, sustainability, budget and vandalism. The recommended solution would be to provide shade over all playgrounds to counteract the heat element. There are some playground manufacturers that are designing playground equipment that is very industrial looking and less susceptible to vandalism such as fire, it is not made of a lot of plastic panels which encourage graffiti. There will never be playground equipment that is the answer to all issues. Examples of this equipment are shown below:

Manufacturer – Playrope

Manufacturer – Kompan

4.16 Seating

In designing and siting a playground within a park, special consideration should be given to appropriately located seating, so that children may be supervised in a safe and comfortable manner by carers. Seats should be located to maximise sightlines and comfort for carers, but should also be easily accessible to the playground should children need assistance. A least one seat provided should have a back and arm rests to support younger children, people with disabilities and older users.

4.17 Signage

If Council concludes signage is necessary in their playgrounds, these should be positive in nature, encouraging the use and care of the playground. It is important to remember that many children cannot read, so signage with symbols and pictures can sometimes be a way around this. Examples of information that can be provided on signage are:

- The prohibition of dogs
- No Smoking requirements
- The reporting of damage, vandalism and the like – Council contact details
- The supervision of children as a requirement
- The prohibition of the use of glass in playgrounds
- Age appropriateness of users

4.18 Supervision

Parents and carers need to provide close supervision for young children who are still developing their physical abilities and risk assessment skills. As children grow and develop, adults can gradually step back to allow children to practice their risk assessment skills and take responsibility for their own physical safety. This is an important life skill for children as they grow and mature.

Careful playground design and layout can ensure that the playground equipment is within sight of local residents who would become aware of any accident or of the presence of any undesirable visitors. Many Local Governments are using a list of guidelines based on CPTED Crime Prevention Through Environmental Design) principles. There is an increasing need for Council officers and playground designers to consider community safety in the design and siting of playgrounds and associated facilities. The community should expect to be able to access play areas without encountering crime, drug use and vandalism, or feeling threatened.

The police (and other equivalent bodies Australia wide) are encouraging all designers and responsible public officers to ensure the design and siting of public facilities take on board and utilise CPTED (**C**rime **P**revention **T**hrough **E**nvironmental **D**esign) principles.

CPTED is a branch of "situational crime prevention" which has as its basic premise that the physical environment can be changed or managed to produce behavioural effects that will reduce the incidence and fear of crime, thereby improving the quality of life of citizens. CPTED has as one of its primary aims to reduce the opportunity for specific crimes (or

undesirable or threatening behaviour) to occur. Those things which make normal or legitimate users of a space feel safe, (such as busy picnic ground) can make abnormal or illegitimate users of the same space feel unsafe in pursuing undesirable behaviours

CPTED:

- Recognises that there is a relationship between the design and management of the physical environment, and human behaviour.
- Aims to improve safety and prevent crime by designing a physical environment that positively influences human behaviour.
- Is one tool in crime prevention and community safety.
- Can be considered when designing a site or structure, when redeveloping a site, or when responding to actual crime incidents.
- Is best incorporated at the planning and design stage of a development.

4.19 Graffiti & Vandalism

Graffiti in community spaces can cause great concern to members of the community and to those involved in or responsible for the provision and maintenance of these spaces. If graffiti is left in community spaces it is unsightly and it has a negative effect on the users of the space. Graffiti needs to be removed as soon as possible although should not be ranked higher in importance than equipment which may have been vandalised and deemed unsafe for use.

Community facilities are subjected to vandalism especially when there is a lack of supervision or passive surveillance from nearby residences, passing pedestrians or motorists. Vandalism is a complex issue; however there are some simple strategies which may help to reduce its impact.

- A prime deterrent against vandalism is to make parks attractive to large numbers of 'legitimate users', whose presence will deter those with less legitimate intentions;

- Siting of parks and structures so that they can be kept under informal surveillance from streets and houses may also help.

- Constant, quick repairs after damage will reduce the impression that the municipality does not care about its reserves and reduce opportunities for further damage.

5. MANAGEMENT STRATEGY

5.1 Risk Management

Four risk factors contribute to problems occurring in playgrounds; surface under play equipment, design and arrangement of play equipment, installation and maintenance of play equipment, and how children use play equipment. There are three different types of inspections that should take place with in local government playgrounds.

- A weekly visual inspection to identify any obvious hazards due to vandalism, general use or weather conditions.
- Monthly physical inspection, which is more detailed and includes checking operation and stability of equipment, especially wear such as rubbing, rolling joints and bearings, smooth and proper operation, integrity, fixings and attachments.
- Annual inspection by a qualified/competent person for compliance with Australian Standards

In addition to the regular inspections, it is necessary to ensure that defects identified in the inspections are repaired immediately. Inspections are designed to monitor the wear and tear of a playground. Other risk management strategies to ensure playgrounds remain safe, include:

- Design playgrounds to minimise risk by installing equipment which meets Australian Standards, provide adequate and appropriate softfall material under and around equipment, provide adequate natural or artificial shade around equipment and caregiver amenities, and maintain adequate sightlines from perimeter roads to allow informal supervision.
- Encourage adult/caregiver supervision of playgrounds by providing adequate amenities such as appropriately located seating, shade and car parking. Informal supervision by neighbours and passing pedestrians or motorists can be enhanced by ensuring adequate sightlines are maintained.
- Security lighting along paths will minimise risk at night.
- Encourage parents and caregivers to inspect playgrounds and report defects to Council. Signs can be installed in each playground giving Council's contact details, but should be designed to reflect a positive environment.

Risk management in playgrounds is a major issue for Councils. Research has found that many accidents and injuries to children occur in playgrounds. Consequently, risk should be minimised, whilst at the same time providing children with an enjoyable leisure experience. Risk management is a complex issue, which requires specific solutions to each situation. Whilst one outcome of a risk management program is a safer play environment, a second outcome is reduced insurance costs.

Council must work with its public liability insurance underwriters to fine tune the risk management strategies detailed above, for example by establishing an appropriate inspection regime or installing advisory signs at some or all of its playgrounds. The end result will be a risk management program that best suits the needs of Karratha.

As a matter of risk management policy, all equipment, which is deemed unsafe and cannot be repaired, must be removed.

5.2 Maintenance

Importantly, it must be acknowledged that even with the elimination of recognised hazards and full compliance with the Australian Standards, accidents do still happen. However, to protect children from the risk of serious injury it is crucial that playground owners implement a regime of regular playground inspections and maintenance to ensure that acceptable risks are known and managed; and that any unacceptable risks or hazards are identified and eliminated promptly.

When planning a playground, regardless of its size or location, it is essential to establish a playground safety management system. This system should include the following details:

- Budget Allocation
- Playground Inventory
- Maintenance Routine
- Inspections
- Inspection Types and Frequency
- Inspection Checklists
- Risk Assessment and Management
- Documentation and Certification
- Records of Incidents and Injury

Budget Allocation

It is recommended that a minimum 10% of the entire playground budget is allocated on an annual basis to playground maintenance. This allocation allows for older items deemed no longer suitable or unsafe to be replaced within an appropriate timeframe rather than waiting for funds to become available. Resources also need to be allocated to enable regular playground inspections to occur either internally by trained staff or engaging the services of an independent playground inspection service.

Playground Inventory

An inventory enables the playground provider to account for all items within the playspace (including equipment and components, shade, litter bins, water fountains etc.) as part of asset management. As items are purchased or replaced the inventory should be updated allowing accurate expenditure to be attached to the playground. This then facilitates effective maintenance of the playground in accordance with the budget allocation. The playground inventory provides a means to appropriately manage the playground as an asset.

Maintenance Routine

A timeframe that outlines when individual components of a playground must be checked is necessary to ensure all aspects of the playground are maintained on a routine basis i.e. weekly, monthly, quarterly and annually. This will be determined based on individual playgrounds i.e. susceptibility to vandalism, components and surfacing materials, climate and the location of the playground and usage. When purchasing new equipment the manufacturer is required to provide a documented recommended maintenance schedule. Playground owners must avoid making modifications to playground equipment as it may void the manufacturer's warranty. Playground owners should contact the manufacturer for spare parts and/or necessary modifications.

Inspections

An accurate assessment of the entire playspace should be completed following installation of the playground and then on a regular basis. A checklist should be used to guide the inspector through every component of the playground. This should also act as the first step in the procedure to rectifying any issues that have been identified during the inspection. Once an issue has been highlighted it must be recorded and a procedure followed to ensure that the issue is addressed i.e. replacement part ordered. An example of procedure list may include:

- Hazards identified
- Control/repair methods
- Those responsible to implement controls/repairs
- Dates for controls/repairs to be completed
- Sign off when controls/repairs implemented

5.3 Developer Contributions

The City of Karratha should make a clear statement to Developers that the following guidelines are good practice when planning new public open spaces and playgrounds. These Guidelines should specify:

- Grass and irrigate all areas that are disturbed during construction.

- Provide landscape furniture and play equipment in all parks
  - Play equipment to meet Australian Standards
  - Design should cater for children up to 16 years
  - Council sets a provisional sum to be allowed for play equipment

- Provide a minimum open play area of 150m2.

- Provide shade trees in parks and playgrounds with a minimum of 1 tree per 100m2, group trees to provide maximum shade to play equipment, seating and other facilities.

- Minimum park furniture to include 2 litter bins, 2 bench seats, signage with park name.

- Maintain and repair all parks for 12 months after completion or until official handover to Council.

- Engage an independent playground inspector to perform a safety audit of the playground before handover to council.

- From an open space and playground planning perspective, it is important that; first an adequate amount of land is set aside for open space, and second, that open space is accessible and usable. This will require that the open space for a whole suburb be planned in advance.

- The level of developer contribution will be determined by Council based on the proportion of the total development to be allocated to open space and the cost to develop the open space areas. The proportion of open space within a development varies around Australia, with little scientific rationale for deciding upon 5% or 15%, except the financial impacts on the cost of land to the end purchaser.

- Many new developments do not require playground equipment, but simply open space. Developers could be encouraged to contribute to exiting playground improvements within the catchment area.

Child Accident Prevention Foundation of Australia
Western Australia

www.kidsafewa.com.au