SECTION G: DESIGN GUIDELINES

SECTION SYNOPSIS

The Master Plan for the Kannaland tourism Node is intended to foster the development of the node as an invisible whole. Similarly, the detailed design of its various components should harmonise with the overall image of the area. Thorough design and detailing of these various elements will contribute to a visual and functional cohesive node. The guidelines in this section spell out important principles aimed at unified area node design for the following elements:

7.1 Stormwater Management and Erosion control
7.2 Parking
7.3 Pedestrianways
7.4 Planting
7.5 Building
7.6 Site Furniture
7.7 Lighting
7.8 Signage

7. DESIGN GUIDELINES

7.1 STORMWATER MANAGEMENT AND EROSION CONTROL

Special consideration must be given for stormwater management for the purpose of preserving natural drainage ways and slowing stormwater runoff from individual sites and route them to streams and rivers by use of catchment ponds and retention-sedimentation basins. Stormwater discharge should be directed away from slopes and into such ponds. The rate of discharge must correspond to the rate prior to site development.

7.1.1 CHARACTER
- Appropriate to the overall visual integrity of the area

7.1.2 FORM
- Visually unobtrusive in most intensively used areas
- Natural-appearing in open spaces wherever possible

7.1.3 SCALE
- Appropriate to function
- Appropriate to setting
7.1.4 CLIMATE RESPONSE
- Aligned according to natural overland flows, open channel and swale routings
- Stabilise and protect disturbed areas to minimise soil erosion
- Reduce water volume and velocity over unpaved areas to reduce erosion (fig42)
  - terraced lawns, recreation fields: 1:50 max slope
  - mowed grass banks: 1:3 max slope
  - unmowed banks: 1:2 max slope
- Re-establish vegetation on barren areas to reduce wind and water erosion
- Locate and design a system to accommodate periodic flooding

![Figure 42: Stormwater management – maximum slopes for planted areas](image)

7.1.5 STRUCTURE (fig 43)
- Stabilise outlets from pipes into natural drainage swales
- 1:100 – 1:33 (1 – 3 %) preferred longitudinal slope for drainage swales and channels (1:4 or 25 % max.)
- 1:100 – 1:10 (1 – 3 %) preferred side slopes for side slopes for drainage swales and channels (1:3,5 or 30 % max.)

![Figure 43: Stormwater management – preferred slopes for drainage swales](image)
7.2 PARKING

Parking will be a major circulation element within the Tourism Node. It should be located according to building and circulation requirements to accommodate the maximum number of vehicles and delineate efficient pedestrian and vehicular circulation. Provision must be made for efficient manoeuvring through appropriate dimensions for stalls, turning radius and suitable surface gradients.

Parking lots can be serious visual irritants and safety hazards and must be handled very sensitively. This can be ensured through appropriate siting, the use of planting and lighting and the provision for security surveillance.

7.2.1 CHARACTER

- Appropriate to the surrounding buildings and environment.
- Comfortable and easy to use.
- Be kept small and separated from each other by native vegetation or by landscaped areas.

7.2.2 FORM

- Fitted to the surrounding terrain.
- Regular rectilinear forms for maximum efficiency, manoeuvrability.

7.2.3 SCALE

- Suited to surrounding terrain and building sizes.
- Suited to the size and type of vehicles expected.
- Impact visually reduced with planted medians and screening.
- Vehicular scale restricted to vehicular areas, i.e., not intruding into pedestrian or other inappropriate areas.

Figure 44: Parking - Large expanses of unrelieved pavement create stormwater runoff problems and poor comfort conditions for pedestrians.

Figure 45: Parking - These problems can be lessened through landscaped planting areas, which include shade.
7.2.4 CLIMATE RESPONSE

- Paving materials:
  - low heat-absorption.
  - low radiation/ reflection.
  - permeable paving
  - positive surface drainage with gentlest slopes possible, i.e., 1:100 (1%) min., 1:50 (2%) preferred.

- Planting:
  - reduce heat, noise, pollution and visually break up expanses of paving.

7.2.5 STRUCTURE

- Access Roads:
  - 6–7 meters min. width for two-way circulation and emergency vehicle access.
  - no parking to be allowed along access roads.
  - no head-in parking along access roads.
  - 1:10 (10%) max. longitudinal slope.

- Aisles:
  - 7m min. width for parking.
  - 6m min. turning radius.
  - 8m turning radius for large busses
  - 1:20 (5%) max. slope for parking and service areas.
  - perpendicular to buildings.

Figure 46: Parking – In an optimum parking arrangement there should be no more than 10 cars in any continuous bay.

Figure 47: Parking – recommended dimensions.
7.2.6 MATERIALS
- Use same materials on parking areas throughout the node
- Select coarse surfaces for good traction, glare and noise reduction.
- Use pervious materials to reduce run-off

7.2.7 COLOUR
- Avoid light colours to reduce glare
- Avoid very dark colours to reduce head absorption
- Contrast with pedestrian way paving colour

7.2.8 SAFETY
- Signage in paved surface to clearly identify vehicular and pedestrian circulation
- Adequate lighting levels in parking areas and pedestrian ways leading to parking (refer to section on Lighting)
7.3 PEDESTRIANWAYS

Pedestrianways serve an important social, spatial as well as a circulation role. It should be properly designed to manage and direct the flow of pedestrian movement onto and throughout the area, connect major points of origin and destination with clear and conflict free routes. Reduce or prevent conflicts between vehicles and pedestrians and provide opportunities for social interaction throughout the area.

7.3.1 CHARACTER

- Appropriate to the domestic character of the surrounding buildings
- Pleasant and comfortable to use
- Easy to understand

7.3.2 FORM

- Built areas:
  - structured (Fig 50)
- Open space:
  - curvilinear, appropriate to natural topographic relief (Fig 51)
- Appropriate to function/direction of flow
- Lay-out organized to clearly lead users through the main activities and desired destinations

Figure 50: Pedestrianways – structured to buildings

Figure 51: Pedestrianways – curvilinear form to natural areas
7.3.3 SCALE
- Dimensions appropriate to function
- Primary walkways:
  - 3-6m width
- Secondary walkways:
  - 2-3m width
- Paving:
  - pedestrian scale unit pavers

7.3.4 CLIMATE RESPONSE
- Rain protection along primary walkways
- Sun protection continuous along primary pedestrian walkways
- Good natural ventilation along all walkways
- Pavement:
  - low heat-absorption
  - low radiation-reflection
  - positive surface drainage
7.3.5 STRUCTURE (Fig 54)

- **Ramps:**
  - 1:12 (8%) max. slope
  - 9m max. length (at 1:12 – can be longer if slope is less than 1:12)
  - 1:6 (17%) max slope for curb ramps

- **Primary and secondary walkways**
  - 1:20 (5%) max. long slope
  - short, level areas (about 1.5m every 30m) required for wheelchairs over sustained long gradients in excess of 1:25 to 1:20
  - 1:25 (4%) max cross slope

- **Stairs**
  - 1200mm min rise between landings in unprotected exterior stairs
  - 1800mm min between landings in protected exterior stairs
  - 1000mm min width, one-way circulation
  - 1800mm min width, two-way circulation
  - 380mm treads
  - 150mm risers
  - riser tread 530mm
  - nosing rounded or chamfered

7.3.6 MATERIALS

- Brick or unit pavers
- Durable, low-maintenance
- Non-skid surface

7.3.7 COLOUR

- Earth-tone, to co-ordinate with surrounding natural colours
- Complementary colour scheme throughout the area
7.3.8 SAFETY
- Change surface materials or textures at crosswalks, delineate clearly
- Non-skid surface
- Adequate lighting along all pedestrian circulation routes (refer to section on Lighting)
- Providing parking adjacent to the walk as an additional barrier and measure of safety
- Separating sidewalks from the roadway by a planted strip
- Providing for handicapped access along walkways at street intersections and whenever appropriate
- Depressing or raising the walk and constructing adequate barrier (Fig 56)

7.4 PLANTING
Planting design for the area should be an integral part with the development, reinforcing the lay-out and forms of structural elements and open space, tempering the effects of extreme climatic conditions and visually “pulling together” the various parts of the area. It should accent desirable and screen undesirable views, add variety, texture and seasonal interest of the physical setting.

7.4.1 CHARACTER
- Appropriate to the character of the area
- Harmonious with the indigenous vegetation of the area
7.4.2 FORM
- Suited to the various areas in which it will be used (i.e., open space, pedestrian paths, parking lots)
- Suited to nearby constructed forms
- Suitable for various architectural uses to create outdoor "rooms" (fig 58)
- Ceilings:
  - trees, tall shrubs or creepers on trellises to create canopies
- Walls:
  - shrubs varying in height, texture, form and colour to create total or partial enclosure as screens, baffles or barriers
- Floors:
  - grasses preferred, low spreaders, small shrubs to 45cm to create transitions from one room to another

![Figure 58: Planting - creating outdoor rooms: canopies](image)

7.4.3 SCALE
- Appropriate to the various areas in which it will be used (i.e. large trees in open spaces, more compact trees in plazas)
- Suitable for scaling down buildings to relate to human size
- Suited to scale of nearby hard landscape materials and patterns

![Figure 59: Planting - creating outdoor rooms: walls](image)

![Figure 60: Planting - creating outdoor rooms: floors](image)
7.4.4 CLIMATE RESPONSE

- Solar radiation: reduce undesirable effects of direct and reflected natural and artificial light
  - Trees: deciduous to increase winter solar penetration and summer solar deflection (Fig 61)
  - planted walls and screens: shield windows from low afternoon sun
  - grasses and ground covers: reduce glare from ground-level surfaces

- Air temperature
  - reduce surface temperatures over which air moves

- Air filtration
  - foliage traps air-borne particles and buffers winds which stir up dust and dirt

- Wind
  - block, direct or amplify wind

- Erosion control
  - break force of precipitation, bind soil and hold in place, enrich soil and create mulch layer

- Wildlife habitats
  - encourage the presence of insects, birds and some small mammals

Figure 61: Planting – climate response

Figure 62: Planting – screening for privacy yet visually accessible
7.4.5 COLOUR/TEXTURE
- Seasonal colour variation for visual interest throughout the year
- Co-ordinated colour themes throughout the area
- Foliage/flower colour used as focal point wherever required
- Avoid competition between building and planting colours
- Textures suited to surroundings (i.e. open space, buildings, river corridor)

7.4.6 INSTALLATION
- Co-ordinate comprehensive planting scheme installation with building construction phase
- Plant only after major construction or disturbance in each area has been completed

Figure 63: Planting – visual barrier between buildings

Figure 64: Planting – visual barrier between activities
7.4.7 SAFETY
- Locate and maintain plants to keep clear of sight lines, signs, building entrances
- Locate and maintain plants to keep clear of pathways

7.4.8 MAINTENANCE
- Appropriate to the local climate and growing conditions
- Ensure man-power requirements to retain desired conditions of growth, scale or form

7.5 BUILDING DESIGN GUIDELINES

Buildings will be a strong structural element in the area and their design should contribute to a clear understanding of the organization of both function and space throughout the site. This will be possible through the co-ordination of materials, colours and finishes for structures throughout the area, ensuring consistency of form and scale.

7.5.1 CHARACTER
- Easy to understand
- Comfortable to use
- Appropriate to the function of the development

Figure 65: Planting – Safety installation

Figure 66: Planting – visual impact

Figure 67: Buildings – form and topography
7.5.2 FORM
- Compact with min. exposed areas
- Conforming to topography
- Structure easily read
- Columns:
  - uniform character throughout
- Modules:
  - avoid monotonous repetition
- Roofs:
  - simple forms
  - pitched at 10 or 22.5 degrees
  - overhangs on all roofs
  - overhangs min. 910mm wide
  - eaves closed

7.5.3 SCALE
- Low buildings (1-2 storeys)
- Proportion appropriate to the site and other functions i.e. pedestrian scale
- Individual building units clearly expressed

7.5.4 CLIMATE RESPONSE
- Functions of the buildings should be arranged so that inhabited rooms exploit the equatorial solar gain in winter.
- Storage and buffer rooms should be placed to west and east
- Good natural ventilation, 1.5 m/s needed during summer days
- Glass:
  - shaded wherever possible by overhangs, trees or orientation
- Orientation:
  - longest building dimension along east-west axis
- Walkways:
  - protected from sun
  - protected from rain (concourse)
  - no heat-reflecting floors
- Walls:
  - cavity walls for thermal and moisture protection
- Windows:
  - none facing west, minimum number facing east
- Sun:
  - summer sun must be screened
  - winter sun must be allowed to penetrate

Figure 68: Buildings – roof pitch
7.5.5 MATERIALS AND FINISHES

- Materials appropriate to the local conditions
- Materials with high thermal capacities like water, dense concrete and brick are ideal
- Floors should be concrete finished with grano or hard finish
- Easy to maintain
- Columns:
  - rock
- Exterior floors
  - brick, unit pavers or granolithic
- Roofs:
  - painted corrugated galvanized mild steel sheeting

7.5.6 EXTERIOR COLOURS

- Floors:
  - earth-tone compatible with pedestrian concourse paving
  - light, to contrast with the walls
  - avoid reflective light colours
- Roofs:
  - terra cotta
- Walls:
  - contrast with roof and walls
7.5.7 SOLAR ACCESS

- Locate highest buildings to the southern side of the open space with lower buildings or trees (as enclosing elements) on the northern side.
- To provide adequate solar access to a building, the distance between buildings should be determined with the following:
  \[ \text{Distance} = 2 \times \text{Height} \]

7.6 SITE FURNITURE

A well designed site furniture system can help unify the area through the co-ordination of seating, lighting, bus shelters, planters, litter bins and other items throughout the site. These items should be standardized in design and manufacture and be co-ordinate wherever possible for multiple uses. This will prevent clutter in the landscape and contribute to a unified and well-ordered appearance.

Site furniture for the area would include the following items:

- Formal and informal seating
- Formal and informal bollards
- Litter bins
- Tree grilles and guards
- Bus shelters
- Drinking fountains
- Light posts
- Sign boards

7.6.1 CHARACTER

- Appropriate to area design
- Co-ordinated throughout the area
7.6.2 FORM
- Pleasing, simple, resilient appearance
- Appropriate to surroundings
- Comfortable and easy to use and maintain
- Easy form for local manufacturing

7.6.3 SCALE
- Suited to the locations in which they are used
- Proportioned to co-ordinate with nearby structures or natural features

7.6.4 CLIMATE RESPONSE
- Reduce solar penetration, glare and surface temperatures in seating areas
- Protection from wind and some extent rain

7.6.5 STRUCTURE AND FUNCTIONAL ARRANGEMENTS
- Seating
  - 1500mm from seat front to nearest obstacle
  - 1000mm between benches, end-to-end
  - 600mm between seating and adjacent walks
  - 450–600mm seat height
  - 300–400mm seat depth
  - 600mm seating space per person
  - complementary type throughout area
- Permanent planters (Fig 75)
  - 50cm – 1m between weep holes at bottom of walls for drainage
  - avoid draining planters across pavement

- Litter Bins (Fig 76)
  - 1m height above-ground for openings
  - removable liners
  - weep holes (but not draining onto paved surfaces)
  - complimentary type throughout the area

Figure 75: Site furniture – seat dimensions

Figure 76: Site furniture – recycle litterbins

Figure 77: Site furniture – permanent planters
- Bollards (Figs 78)
  - 600–1000mm height
  - 1000mm length of chains if used between bollards to obstruct vehicular or pedestrian movement
  - 1500–2400mm between bollards to block cars
  - colour similar to building walls, nearby structural elements but should contrast with surrounding paving
  - unified type throughout the area

- Tree Grilles (Fig 80)
  - install flush with pavement
  - 15mm min., 20mm max width of openings around trunk
  - 1m or 1 diameter grilles should be constructed in two sections
Bus Shelters (Fig 81)
- 1000mm set-back kerb, including roof overhang
- open or transparent sides for visibility
- seating, litter bins, display surface where appropriate
- access in and out of shelter at two points
- well-lighted
- designed to conform to appropriate architectural style

Drinking Fountains (Fig 82)
- 850 mm nozzle height for wheelchairs and children
- 1000mm nozzle height for adults
- wide paved area around fountain
- unified type throughout the area

7.6.6 MATERIALS
- Durable and easily maintained
- Resistant to ultraviolet and chemical weathering
- Vandal resistant

Co-ordinate with surrounding materials
Seating:
- easily drained/fast drying
- avoid rough materials or those that develop splinters
- comfortable for extended periods of use
Planters:
- co-ordinate with buildings, pavement and nearby walls
Litter Bins:
- interiors easy to clean
- co-ordinate with buildings and other site furnishings
Bus shelters:
- co-ordinate with buildings

COLOUR
- Co-ordinate with surroundings
- Bollards and other elements should contrast with surrounding paving but should not be visually obtrusive
- Co-ordinate throughout the area for a unified appearance
7.7 LIGHTING

The location and design of lighting throughout the site should provide adequate illumination for visibility, safety and pleasing appearance. Fixtures should be durable, multifunctional and easy to maintain.

7.7.1 CHARACTER
- Appropriate to the surroundings
- Suitable to the character of the area
- Co-ordinated throughout the area
- Appropriate to the design style of the area elements

7.7.2 FORM
- Suitable for the surrounding spaces
- Appropriate for surrounding structures

7.7.3 SCALE
- Suitable for areas in which it will be used:
  - bollards 1000mm height
  - walkways 3-4m height
  - roadways 9-15m height

7.7.4 CLIMATE RESPONSE
- Fixtures resistant to dust and high solar radiation

7.7.5 MATERIALS
- Co-ordinate with other site furnishings
- Vandalism resistant
- Easy to maintain

7.7.6 SAFETY
- Adequate light levels in various part of the site:
  - Plazas 100 lux
  - Pedestrianways 100 lux
  - Parking areas 100 lux
  - Bus shelters 500 lux
  - General grounds 100 lux
  - Building entrances 500 lux
  - Recreation facilities 500 lux
  - Illumination levels may vary to meet special requirements

7.7.7 ECONOMY
- Select energy-efficient systems consistent with the visual quality of the light colour

Figure 83: Lighting – recommended lights
7.8 SIGNAGE

The design and location of signage throughout the area should co-ordinate with the design and location of all the components. The directions or information contained on each signage element should be clear and suited to its particular function, while the appearance of the signage should complement and harmonise with the surroundings.

Sign types for the area would include the following items:
- Trail-blazer
- Entrance sign
- Arterial directory
- Internal directory
- Street signs
- Pathway guides
- Destination identification

7.8.1 CHARACTER
- Appropriate to particular functions
- Easily recognizable
- Co-ordinate throughout the area
- Appropriate to the design style and architectural forms

7.8.2 SCALE
- Fitted to surrounding areas
- Appropriate to particular functions:
  - motorist eye level 1070mm – 1200mm
  - pedestrian eye level 1740mm

- Characters/symbols easily read from appropriate distances
- Appropriate to reading distance and speed of viewer travel
- Character/Symbol size       Max. Reading Distance
  100mm          39m
  80mm           30m
  60mm           22m
  40mm           15m
  25mm           10m
  13.5mm         6m
  7.5mm          3m

Figure 84: Signage – typical eye levels
7.8.3 FORM
- Fitted to surrounding areas
- Appropriate to particular functions
- Co-ordinate throughout the area

7.8.4 CLIMATE RESPONSE
- Materials resistant to high ultraviolet radiation and dust
- Position to reduce potential glare on readable surfaces
- Locate to reduce maintenance associated with climatic exposure

7.8.5 STRUCTURE AND FUNCTIONAL ARRANGEMENTS
- Trail-blazer
  - located on the major approach roads to alert and guide visitors
- Entrance sign
  - placed inside property lines to announce arrival and help create an attractive portal

Figure 85: Signage – entrance sign

Figure 86: Signage – trail-blazer
Arterial directory
- located on the arterial approaches to every major intersection and list the major destinations

Internal directory
- placed at each intersection or activity centre and provide essential guidance

Street signs
- located with consistent setbacks, at every intersection. Preferably in combination with lighting

Pathway guides
- place and way information is to be provided at the main intersections of pedestrian walks and bicycle paths

Group signs into unified systems

Avoid clutter

Informational signs located at major access points, gathering spots

Incorporate into design of site furniture

Avoid interfering with pedestrian circulation

500mm min. setback from walkways

Avoid interfering with vehicular circulation and door opening

Convenient to describe or label displays

7.8.6 COLOUR
- Co-ordinate throughout the area
- Suitable to function
- Appropriate for settings

7.8.7 SAFETY
- Materials resistant to vandalism
- Adequate lighting wherever required
- Locate out of pedestrian and vehicular circulation routes

Materials resistant to vandalism

Adequate lighting wherever required

Locate out of pedestrian and vehicular circulation routes