





# **3.0 DESIGN PRINCIPLES**

## 3.1 SALUTOGENIC DESIGN

The design process will establish and aim to achieve a range of salutogenic design objectives, including;

- / Integrated naturalistic forms
- / The use of natural materials and finishes
- / Design of human scaled spaces (physical and psychologically comfortable spaces)
- / Cohesive, comprehensible space planning and place making
- / Considering opportunities for integrating passive design principles
- / Integration of nature and landscape within the healing environment
- / Consideration of local architectural vernacular design



Figure 5: Royal Children's Hospital Sketch

## 3.2 BETTER PLACED - AN INTEGRATED DESIGN

The New Tweed Valley Hospital has been designed to deliver the best quality integrated health services and clinical outcomes to the community of the Tweed, Byron Bay and wider Murwillumbah Districts

The section below outlines the approach taken in the development of the new facility in addressing the seven objectives set out in the Better Placed – An Integrated Design policy. This will be an ongoing process that will be further developed in the future planning and design stages of the Project. The objective is addressed within the following categories:

- / Better Fit
- / Better Performance
- / Better for Community
- / Better for People
- / Better Working
- / Better Value
- / Better Look and Feel

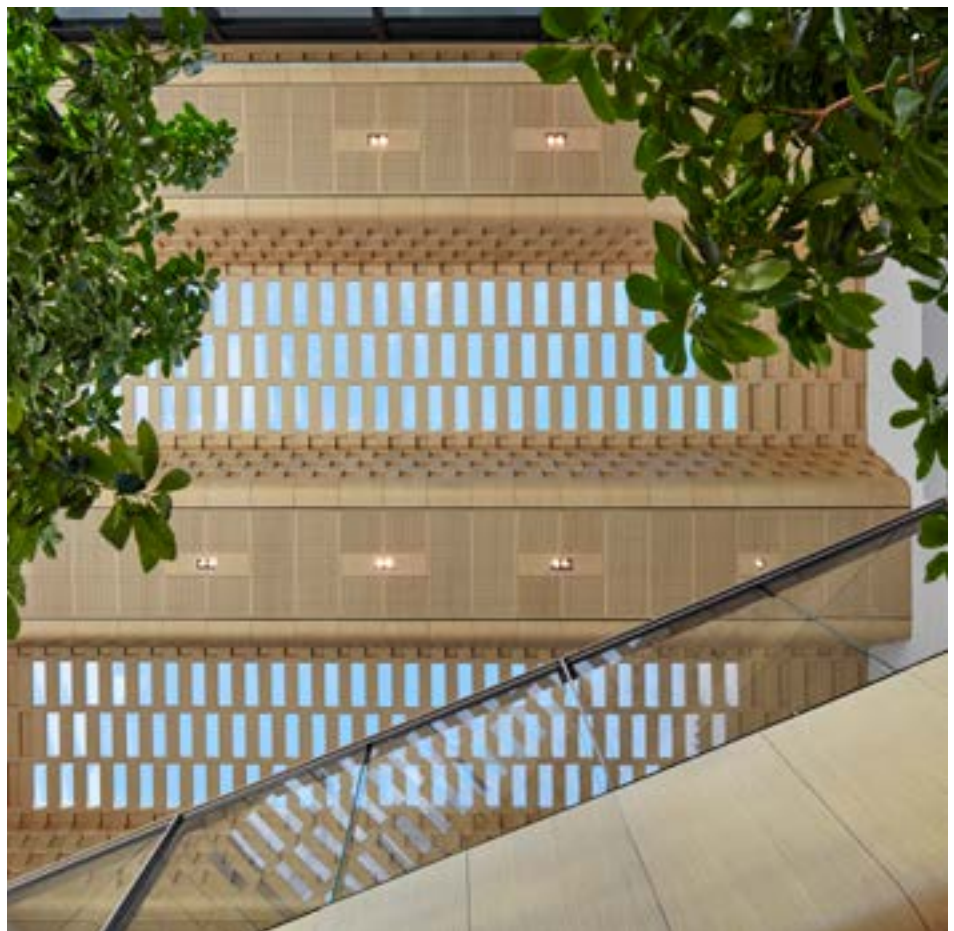


Figure 6: Bendigo Hospital

## 3.2 BETTER PLACED AN INTEGRATED DESIGN (CONT.)

### 1. Better Fit

The new hospital will be planned and designed having regard for its urban context within which it will integrate and belong.

The hospital campus is intended to provide community spaces that host and stimulate social interaction encourage a sense of local community ownership. The proposed Project will enrich the areas of Cudgen and Kingscliff, introducing healthcare to the established neighbouring residential and education land uses.

The hospital responds to the site's topographical features, maximizing the use of the developable plateau in the proposed positioning of the hospital. Maximizing the hospital set-back from Cudgen Road provides a deep/rich landscaped hospital forecourt zone with development zone for low-rise ancillary services along Cudgen Road with street fronting development being scale sensitive to the local urban environment. Development will occur along a linear spine arrangement along the ridge line, taking advantage of its elevated position and orientation to take advantage of 360-degree views surrounding the site.

The new hospital where achievable will be designed to include sustainable objectives including a high-performance building envelope, but also be regionally climatically responsive in the planning principles, material palette and associated detailing.

The hospital is setback from the title boundary to minimize impact to the established environmental area along the north boundary, respecting this community asset, which according to Council Planning Overlays also references koala habitat. The environmental area additionally visually buffers the hospital from distant north and west vantage point views.



Figure 7: Royal Children's Hospital Public Space

# 3.2

## BETTER PLACED AN INTEGRATED DESIGN (CONT.)

### 2. Better Performance

The new Hospital design will consider sustainable design principles, tailored to deliver a modern and efficient patient centred model-of-care, with facility flexibility and future expansion capacity allowances integrated from design inception. Specifically, the Project Site has been tested to validate future growth scenarios and future hospital renewal on site – refer section 5.0 for further detail.

The building is designed to endure, the lowest floor level raised well above the Probable Maximum Flood (PMF) level and complying with the more conservative Draft 2017 Bushfire Guideline which nominates and increased APZ depth for this category of site of 67m. The building will be designed using resilient materials and finishes to achieve a low-maintenance outcome.

The building design will be climatically appropriate, and at design development stage exploring opportunities for the integration of passive design solutions. The design with further seek to employ contemporary engineering solutions to optimize environment control in patient treatment areas that enhance both patient and support staff well-being, also promoting workplace satisfaction.

Introduction of sustainable rain water harvesting, management and re-use systems for use in landscape irrigation will be also considered during the detailed design process.

### 3. Better for Community

The New Tweed Valley Hospital Project will endeavour to deliver outcomes for the community through:

- / Adopting an inclusive design paradigm, being sensitive to varied ability, ethnicity, culture and religious affiliation associated with the staff, patient and their families that will access the service
- / Providing a sustainable therapeutic environment connected to nature, which helps speed up recovery and reduces in-patient stay time
- / Sense of connectedness with local community being available, open and generous, encouraging the local community as partners in health
- / Provide health service equality to diverse cultural groups including Australian Indigenous communities, promoting cultural awareness, community integration and development
- / Service and patient-centered Models of Care, scaled and tailored to support current and future community need and growth
- / Explore offering social infrastructure through introduction of community accessible landscape areas and parkland

## 3.2 BETTER PLACED AN INTEGRATED DESIGN (CONT.)

### 4. Better for people

The New Tweed Valley Hospital planning considers the principles of CPTED in developing the campus Masterplan and Concept Proposal to establish a safe and secure environment for staff, patients, and their families and visitors.

Key principles include:

- / Sense of place which is civic, yet comfortable and flexibility in its use
- / Sense of ownership, through use and good maintenance practices
- / Maximizing solar access to all areas of the hospital, and providing high quality covered and landscaped external spaces enhancing in increasing usability for clinical and non-clinical areas of the hospital
- / Development of public spaces that are human scaled, engaging, legible, safe and accessible

### 5. Better Working

An objective of the New Tweed Valley Hospital will be to:

- / Develop a facility that will provide a healing environment for patients and their families and a supportive work environment for staff
- / Facilitate a safe working environment that encourages collaboration between staff
- / Design for staff-only secure courtyard spaces, to facilitate break-away and refreshment, relieving the staff from stressful health work.



Figure 8: Royal Children's Hospital Public Atrium

## 3.2

# BETTER PLACED AN INTEGRATED DESIGN (CONT.)

### 6. Better Value

Key factors in the development of Better Value for the community in the New Tweed Valley Hospital are:

- / High quality design combined with spectacular site characteristics to inspire a shared sense of value in the hospital place, which is sustaining nurturing and promotes investment in the campus
- / The Project will assist local community by reducing requirement for patients and their families to travel outside the community to access health services, often at high personal cost
- / Where feasible, provide access to daylight, passive ventilation, landscaping and views into nature to help improve the amenity of the healing environment. This approach aligns with salutogenic design philosophy and is understood to promote reduced reliance on pain-relief medication during recovery and speed up recovery times.
- / Providing employment opportunities to the community at construction and operation stages and promoting future local business development
- / Establishing complementary linkages with the local tertiary education functions, and other local public and private allied health services, enriching community health services
- / Developing a greenfield site provides the opportunity to design a facility incorporating effective patient centred care models, complimented by facility planning efficiencies
- / High quality efficient workplace attracts medical practitioners and improves long term staff retention – being a place people want to work
- / Climate responsive building design supporting energy efficiency with reduced operational costs and support passive user-comfort levels

### 7. Better Look & Feel

The New Tweed Valley Hospital design will aim to respond to the following key drivers:

- / Develop a hospital focused on the combined virtues of function and high-quality place making
- / Develop a health nurturing facility that promotes a natural healing experience, utilizing warm materials and maximizing landscape interface opportunities
- / Develop an intuitive hospital campus entry and internal road network configuration to allow clear identification and ease of navigation to access health services
- / Develop a planning strategy that supports safe and efficient patient and staff movement, with clearly segregated front and back of house functional zones
- / A design that is visually attractive and engaging will attract staff and patients – the hospitals success in turn will attract business growth and investment in the community and local regions of Kingscliff and Cudgen

# 3.3

## CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN

The Crime Prevention through Environmental Design (CPTED) guidelines under Section 4.15 of the EP&A Act 1979, promote a multi-disciplinary approach to deterring criminal behaviour through environmental design and design of buildings and places that are safe and secure, by giving consideration at design stage to key design principles. CPTED strategies rely upon the ability to influence offender decisions that precede criminal acts. CPTED employs four key strategies, these are:

- / Territorial Reinforcement
- / Surveillance
- / Access Control
- / Space/Activity Management

The New Tweed Valley Hospital has adopted the principles of CPTED in developing the site Masterplan and concept planning to establish a safe and secure environment for the range of users and neighbouring local community. The principle strategies are detailed as follows;

### 1. Territorial Reinforcement

Territorial reinforcement is the idea of modifying the environment to emphasize 'ownership' by particular social groups and support social control intended to encourage law-abiding behaviour. Territorial Re-enforcement uses actual and symbolic boundary markers, spatial legibility and environmental cues to create community spatial association and sense of ownership. This encourages communal responsibility and communicates to people where they should (or shouldn't) be and what activities are appropriate. When designing the campus the following principles will be considered with achieving this objective in mind:

- / Clearly delineating public and back-of-house through considered departmental organization, physical barriers or appropriate way-finding means. The delineation device may be subtle, such as a change in ground finish texture, or via an integrated art installation strategy to indicate a difference between one territory and another – avoiding ambiguity where possible
- / Segregation of public, patient and back-of-house activity, avoiding confusion in the diverse users of the space. Spatial design can reinforce public space from private e.g. civic square, or hospital street
- / Appropriately situate and brand entry control points to clinical areas
- / Ensure that circulation patterns are intuitive offering clear and simple options for travel to and between functional areas
- / Activating public areas by introducing amenities such as seating, landscaping, art installation and other engaging elements, deterring anti-social activity
- / Circulation network planning accommodating secure medical operations routes without need for public route, zone cross over
- / Consistent appearance of public spaces informs a specific behavioural expectation of its users
- / A well-maintained property appearance implies an owner has sufficient resource to care for the property, which implies they will defend the space from those that would intend to disturb it

# 3.3 CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CONT.)

## 2. Surveillance

A key strategy in CPTED is the principle of employing passive (natural) surveillance over publicly accessible and gathering spaces, allowing space users to see and be seen by others. The following principles will be considered to achieve this:

- / Consideration for day and night functional collocation, activating public spaces for longer periods. Grouping areas that provide day services for secure zonal shut-down after hours
- / Promote visual connection between spaces where possible
- / Use passing traffic including; vehicle, bicycle and pedestrian as a surveillance asset
- / Facilitation and promotion of passive surveillance into public spaces from adjacent buildings, roads and spaces
- / Designing high quality outdoor public spaces, with sun access and shelter, collocated with functions connected to that space. Building layout, orientation and location all play a role.
- / Providing unrestricted sight lines between spaces and avoiding blind spots where possible
- / Providing considered architectural and landscape lighting to ensure safe use and effective surveillance of the space after hours

Where passive surveillance is unachievable, consider integrating mechanical/electronic or formal surveillance measures.

## 3. Access Control

Access Control delineates spaces open to the public and prevents access where these spaces are restricted. The design will incorporate natural barriers such as roadways and landscaping, electronic and physical barriers through the use of the following:

- / Limit the number of public entrances to the Hospital, improve management of these by employing passive surveillance principles.
- / Provision of CCTV monitoring of public areas to the Hospital supported by a security monitored point
- / Providing a 24-hour security station at the Emergency Department that can respond to other departments within the Hospital during occasions of duress
- / Providing a single point of public entry into the Hospital after hours e.g. Emergency Department
- / Providing electronic access points of entry and intercoms
- / Providing access control to clinical departments after hours
- / Providing 24-hour access restriction to engineering services areas and other back-of-house and sensitive sections of the Hospital

## 4. Space/Activity Management

Maintenance is a reinforcement of ownership of property where as decline in space management and maintenance signifies reduced jurisdiction by the owners of the space and therefore less control in relation to access – places that “appear” unused are proven to be more commonly abused. The following principles will be considered to achieve this:

- / Ensuring clear observation lines to open areas that would be of high risk to the public such as loading docks and staff parking zones
- / Restricting access to sensitive areas such as goods lifts and logistics yards
- / External spaces are to be designed with robust finishes requiring minimal maintenance

## 3.4 VULNERABILITY

A person's sense of vulnerability when experiencing a space impacts the use and subsequent success of that space self-limiting its activation and promoting anti-social behaviour. The following principles will be considered during the design process to achieve this:

- / Effective lighting at day and night, including avoidance of lighting glare
- / Clear and intuitive exit routes from all spaces, providing alternative exit options where practical (subject to location)
- / Avoiding blind spots, however adopting manned camera surveillance where this occurs
- / Collocate functions based on compatibility and hours of operation, ensuring spaces are adequately occupied and activated when in use

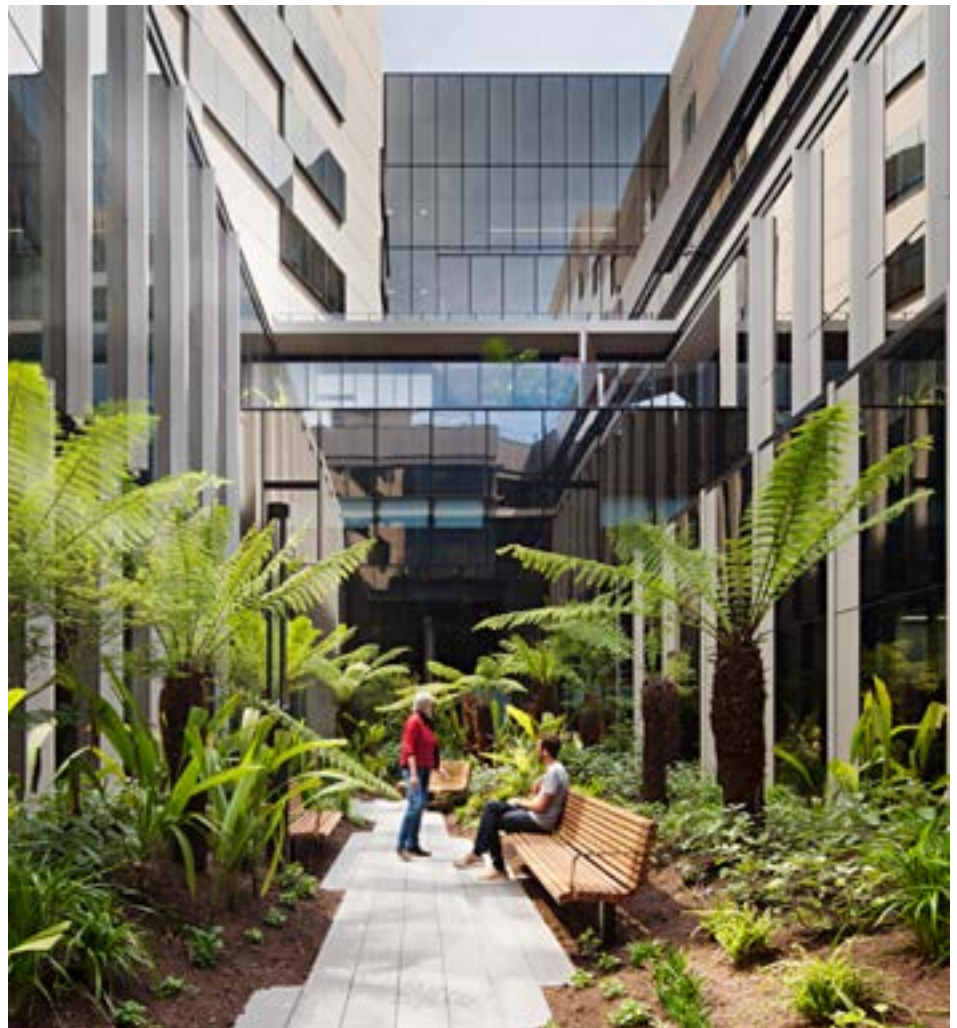


Figure 9: Bendigo Hospital Internal Courtyard

## 3.5 SUSTAINABILITY

The design of the new Tweed Valley Hospital will aim to integrate a range of ESD initiatives across all design disciplines, including architectural, mechanical services, electrical services and hydraulic services. The development of an ESD framework for the New Tweed Valley Hospital is based on the following key principles:

- / Developing a health service that will deliver better health outcomes to the Tweed Valley community
- / Self-sufficiency. Reducing the requirement for patients and their carers to travel outside their community
- / The new Hospital will enable the implementation of contemporary models of care that streamline patient hospital stay periods and deliver new and expanded clinical services
- / The new Tweed Valley Hospital will provide economic benefits for patients in terms of health gain as a result of reduced waiting time and improved access, resulting from improved patient flows, services configuration and capacity utilization
- / Providing both short and long-term employment opportunities to the community
- / Providing employment benefits for local support, health and education industries that provide services to the health industry and specifically to the new Tweed Valley Hospital
- / The New Tweed Valley Hospital will incorporate sustainable design principles, including recycling, sustainable products and energy efficiency
- / The new Tweed Valley Hospital will comply with the requirements of the NSW Governments Resource Efficiency Policy (GREP), aiming to reduce NSW Governments operating costs, by increasing resource efficiency
- / Enhancing existing Cudgen Road bus service, reducing reliance on private transport
- / Proposed hospital buildings to be positioned to take advantage of local available views, including adopting passive strategies where possible, augmented by the design of high-performance façade systems.
- / Building construction materials to be selected will aim to include timber from renewable sources, salvaged and recycled materials, low VOC emitting materials, material with high recycled content, low toxin floor finishes and so on.
- / Strategies for re-use of excavated soil on site, repurposed in fill or features to value add
- / Introduction of sustainable water management and re-use systems for use in landscape irrigation
- / Adoption of water efficient sanitaryware fittings and fixtures
- / Energy efficient light fittings, supported by adopting intelligent control systems
- / Structural engineering sustainability to be gained from adopting efficient and/or recycle content focused structural strategies, for example; post tensioned concrete, reducing overall mass of concrete required and the use of structural steel containing recycled steel content, and so on.
- / Hospital future service expansion, renewal and allied health services development capacity allowances defined from the outset in a developed long-term growth scenario Masterplan

## 3.6 ABORIGINAL CULTURE & HERITAGE

A comprehensive consultation plan for engaging with cultural and community groups during the planning and delivery of the Tweed Valley Hospital is under development. Initial meetings have been held with a number of NNSW LHD Aboriginal staff to assist with stakeholder identification and key contacts.

As part of this consultation plan it is proposed to hold a number of workshops with the project architects to integrate elements of Aboriginal Culture and Heritage holistically within the design.

A number of members of the Community Reference Panel identify as Aboriginal and Torres Strait Islander and have attended the orientation and masterplanning sessions to date.

Wider Stakeholder and Community Consultation is addressed in greater detail within other sections of the EIS Report.



Figure 10: Heritage Stone Wall on site

## 3.7 CONSULTATION, GOVERNMENT ARCHITECT, NSW

A comprehensive consultation plan for engaging the Government Architect NSW, during the design development stages has been prepared, with the first consultation meeting having occurred.

The consultation plan will include a feedback tracking and response mechanism to ensure all recommendations are duly considered by Health Infrastructure and the project team, and actioned where deemed appropriate and feasible.

A workshop was held with the State Design Review Panel on 3rd October 2018 where a work-in-progress version of the design was presented to the Government Architect NSW. The design content included site analysis and zoning proposals, masterplan design and a work-in-progress review of the building design.

At the time of submission of the Concept and Stage 1 SSD/EIS a formal written response had not been received from the panel. However, feedback on the detailed design of the Tweed Valley Hospital was raised at the meeting and will be incorporated into the design of the Tweed Valley Hospital as part of the Stage 2 SSD application. There was no significant feedback provided by the panel on items which relate to the current Concept and Stage 1 SSD application, i.e. site zoning and masterplan design.