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MACQUARIE RIVER CBD MASTER PLAN

FINAL MASTER PLAN REPORT

For: Dubbo Regional Council
Date: 08/04/2020



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Issue	Title	Date	Prepared	Checked
1	Discussion Paper	19/12/2019	AB	KE + JH
2	Final Master Plan	27/03/2020	KE	JH
3	Final Master Plan	08/04/2020	AB	KE
4				
5				
6				
7				
8				



1.0 EXECUTIVE SUMMARY

This master plan report provides a synthesis of work undertaken to date by the consultant team of Group GSA, supported by the Dubbo Regional Council. It provides a background briefing of the project, encapsulates the detailed site analysis and summarises the community engagement process.

The purpose is to utilise this information to establish a set of design principles (design drivers) and possible outcomes for discussion for the development of the Macquarie River CBD Master plan.

The project team has outlined key recommendations and design principles:

- Enhance the ‘Green Fingers’ by bringing the riverside vegetation into the CBD and increasing pedestrian connectivity between the river and Macquarie Street
- Value the ‘Green Fabric’ by establishing important green recreational areas throughout the Dubbo CBD
- Breathe life into the river by cooling the parks and streetscape and celebrating it as a place
- Enliven the town centre by continuing the landscape embellishment into Macquarie Street

The project team and roles are as follows:

GROUPGSA

- Project Lead
- Master planning
- Landscape Architecture and Urban Design
- Consultation

All members of the consultant team have been to site and have recorded their observations. The Site Analysis which includes physically mapping the streetscape will form part of the final Master plan strategy report.

This master plan document incorporates the following:

- Site Visits & Observations
- Site Analysis
- Community workshops
- Community Survey
- Online Survey
- Opportunities and Constraints Plans

A key component of the Macquarie River CBD master plan is consultation with key stakeholders and the local community.

The engagement process aimed to capture the community values within the area and what things they would like to see improved or changed, and to be considered in the development of the Master plan and Strategy.

The discussion paper presents and interprets the engagement process to aid in formulation of the Macquarie River CBD master plan which clearly links desires and aspirations of the community. These desires have been captured as a set of design principles which then drive the supporting strategies, to arrive at a set of outcomes encompassing both “strategic” to “on the ground” implementations, allocating priorities and time frames.

Key outcomes of the discussion paper are:

- + To establish design principles and provide guidance for the overall direction of the Master plan
- + To gain feedback from Council confirming the direction of the Master plan



1.1 METHODOLOGY

This discussion paper provides a synthesis of work undertaken to date by the Group GSA team of consultants supported by the Dubbo Regional Council. It provides a background briefing of the project, encapsulates the detailed site analysis and summarises the community engagement process. The purpose is to utilise this information to establish a set of design principles (design drivers) and possible outcomes for discussion and development of the Dubbo master plan options.

GroupGSA has been engaged by Dubbo Regional Council to prepare a master plan for the revitalisation and upgrade of Macquarie Riverside Precinct.

The Project team has outlined key recommendations and design principles:

- Provide links with safe access to strengthen the connection between Macquarie Street and Bligh Street using existing streets
- Improve the overall aspect of the riverside and provide options for community activities which can take place in that area
- Build upon the community's values

The project team and roles were as follows:

GROUPGSA

- Project Lead
- Master planning
- Landscape Architecture and Urban Design
- Consultation

All members of the consultant team have been to site and have recorded their observations.

The following paper incorporates the following:

- + Site Visits & Observations

- + Site Analysis
- + Community workshops
- + Community Survey
- + Opportunities and Constraints

A key component of the Dubbo Master plan strategy is consultation with key stakeholders and the local community. The paper provides an overview of the process and key findings as well as the proposal of two master plan options. Various environmental and material factors were also considered and outlined in this paper

The engagement process aimed to capture what the community values within the area and what things they would like to see improved or changed, and to be considered in the development of the Master plan and strategy. The master plan was placed on public exhibition for comment by the community.

To keep the discussion paper succinct, a condensed version of this information was presented to the attendees at the workshops and has been included within this report- the comments and concerns were then reflected on and turned into design drivers.

Key outcomes of the discussion paper are:

- + To establish design principles and provide guidance and justification for the overall direction of the master plan
- + To gain feedback from Council to confirm the direction of the master plan.

1.2 USER GROUP STAKEHOLDER WORKSHOP

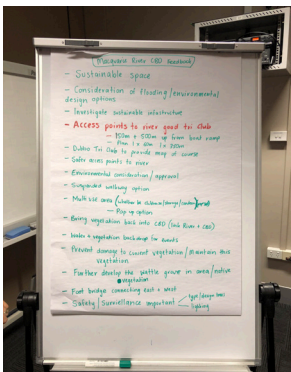
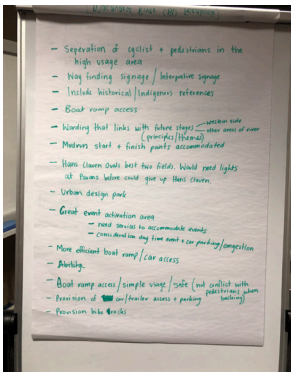
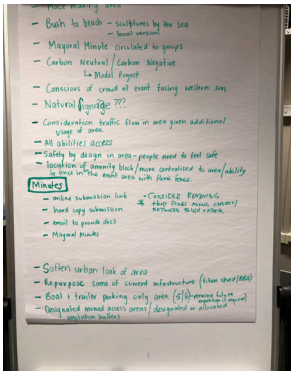
As the first part of the design process, we were able to present sketch designs and bubble diagrams to a selection of stakeholders and council members. The feedback from that information session/brainstorming was recorded. Further design and subsequent decisions have been made which are included in both master plans.

Feedback received in the workshop for consideration with developing master plan:

- Sustainable space
- Consideration of flooding/environmental design options
- Investigate sustainable infrastructure
- Access point to the river is currently good for tri club (would like steps to river at 60m, 150m, 350m and 500m from the river exit point.
- Dubbo Triathlon Club to map of their course
- Safer access points to the river
- Environmental consideration/approval
- Suspended walkway option
- Multi use area – possibly a clubhouse/storage/canteen – pop up options
- Water and vegetation back drop for events
- Prevent damage to current vegetation back into CBD (link river and CBD)
- Further develop the wattle grove in the area/ native vegetation
- Foot bridge connecting East and West
- Safety/Surveillance important – type and design of trees/ lighting
- Separation of cyclist and pedestrians in high use areas and separate to area where people back down to boat ramp
- Way finding signage/ interpretive signage
- Include historical/ indigenous reference
- Boat ramp access needs to be good. Need to be able to launch boat on your own.
- Wording (principles and themes) that links with future stages – western side and other areas of river
- Mudrun start and finish point accommodated
- Hans Claven Oval best two fields. Would need lights at Pavan's before forgoing Hans Claven Oval.
- Urban design park



- Great event activation area – need to consider access to services such as power, water and amenities to accommodate events/ consideration for day time event and car parking/congestion)
- More efficient boat ramp/ car access
- Boat ramp access/simple usage/ safe (not conflicting with pedestrians when backing)
- Provision of car/trailer access and parking
- Provision bike racks
- Place making area
- Beach to bush – sculpture by the sea/river (local version)
- Carbon neutral/ carbon negative (Model project)
- Conscious of crowd at events facing western sun
- Natural signage
- Consideration of traffic flow in area given additional usage
- All abilities access
- Safety by design in area – people need to feel safe
- Location of amenity block/ more centralised to area/ ability to fence in the event area with flexi fence e.g. Beers to the Bush
- Consider removing hoop pines along Church Street between Bligh and Macquarie streets
- Soften urban look of area
- Repurpose some of current infrastructure (Titan shed and BBQs)
- Boat and trailer parking only area and remove for future expansion if required
- Designated mowed access areas/ designated or allocated vegetation buffers.





MACQUARIE RIVER PARK MASTERPLAN-
QUESTIONNAIRE + FEEDBACK FORM

OPTIONAL : NAME :
CONTACT :



OPTION 1
THE DUBBO BOROUGH

1. Circle 3 of your favourite features of this design

- | | |
|-----------------|----------------------------|
| a) Stage area | e) Pedestrian Boardwalk |
| b) Seating lawn | f) Walking Track |
| c) Market lawn | g) Updgraded Sports Fields |
| d) Kids Play | h) Amenities building |

2. What additional features would you like to see in this area

3. How many times a week would you/your family visit this area if these facilities were implemented

- a) Never (once a month)
- b) Often (once or twice a week)
- c) Very Often (more than 3 times a week)

Why? _____

4. Overall how do you feel about this proposal



Thankyou for your feedback!

OPTION 2
THE WANDERING STAGE

1. Circle 3 of your favourite features of this design

- | | |
|-----------------|----------------------------|
| a) Stage area | e) Pedestrian Boardwalk |
| b) Seating lawn | f) Walking Track |
| c) Market lawn | g) Updgraded Sports Fields |
| d) Kids Play | h) Amenities building |

2. What additional features would you like to see in this area

3. How many times a week would you/your family visit this area if these facilities were implemented

- a) Never (once a month)
- b) Often (once or twice a week)
- c) Very Often (more than 3 times a week)

Why? _____

4. Overall how do you feel about this proposal

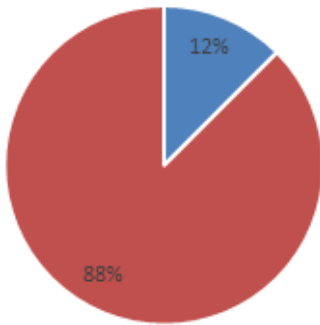


1.3 COMMUNITY STALL

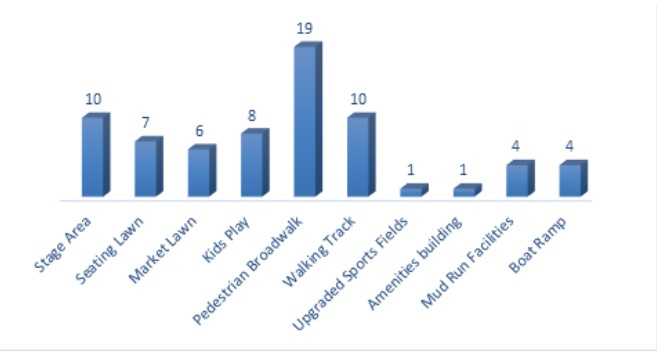
As part of our Master planning process, working illustrative master plans were presented to the community. The community was provided the opportunity to participate in a survey and provide feedback. This survey illustrated the options as well as listed activity areas which could be proposed in the Riverside Precinct of Dubbo. Furthermore, the preferred options made by the community have been included in both proposals.

FINDINGS

■ The Dubbo Borough ■ The Wandering Stage



Summary 88% of participants preferred Option 2- the wandering stage



Most popular answers were the pedestrian boardwalk, walking track and stage area- Secondary important spaces become the play area, seating lawn and market lawn spaces.

ADDITIONAL FEATURES:

Most repeated answers include

- Seating + BBQ areas
- inclusion of cafés or kiosks and restaurants along the riverside,
- river cruise or river entry points for swimming/ kayaking
- Boat shelters
- dog walking off leash areas
- Bligh Street pedestrian crossing
- Integration with town centre, art installations



■ Never ■ One off Event ■ Often/ weekly ■ Very Often ■ Monthly

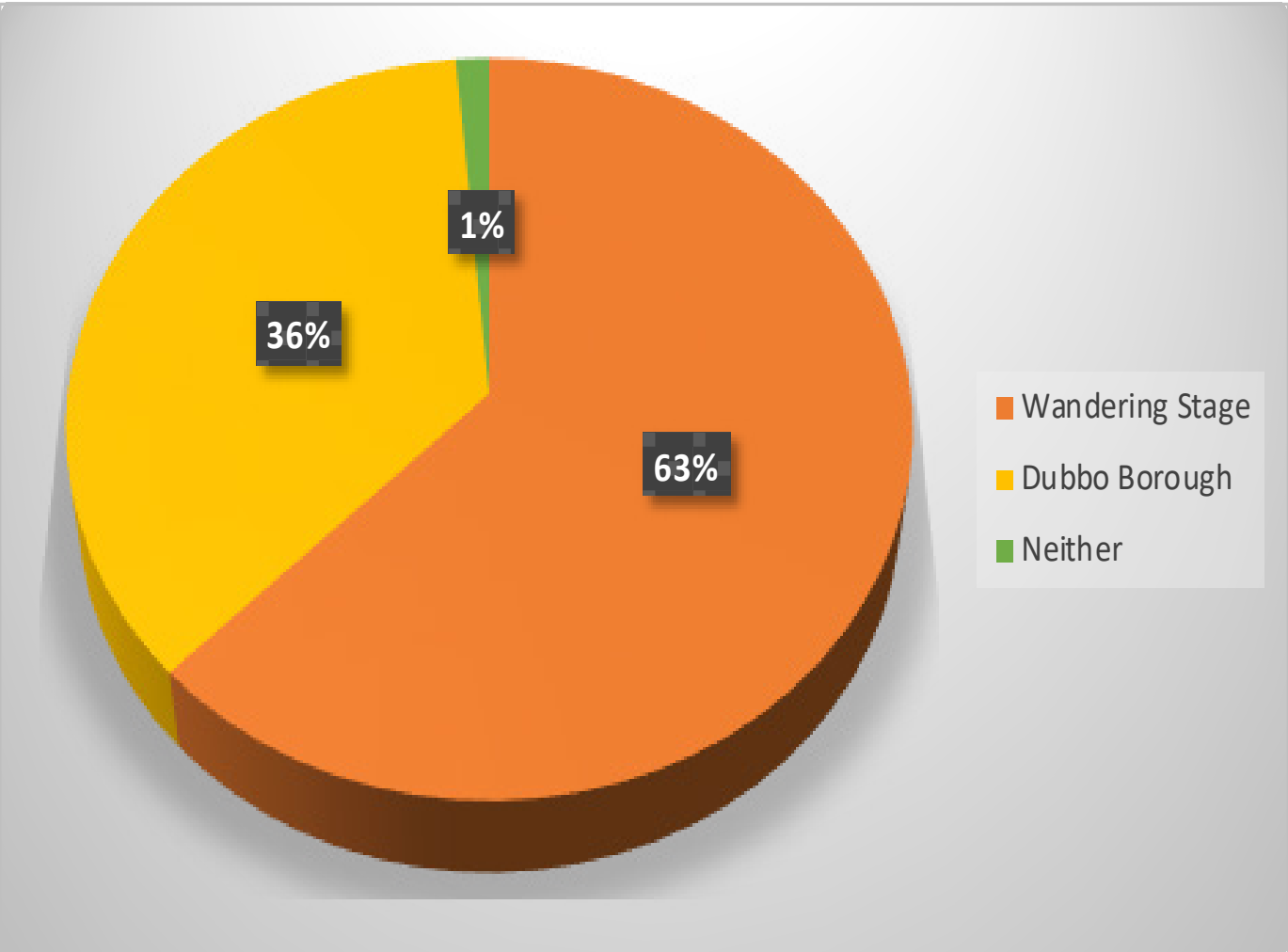
The survey indicates that most of the participants are visit or interact with this site on a weekly basis. This is an important and visited area of town. Therefore, there will be visitors on a regular basis.

All responded with positive comments about how the activation of the riverside was needed and that it would be good to showcase the towns natural riverside beauty. Other comments include that we should ensure appropriate parking and boat access to the river, as well proving more information on kayak options

1.4 RESULTS FROM PUBLIC EXHIBITION

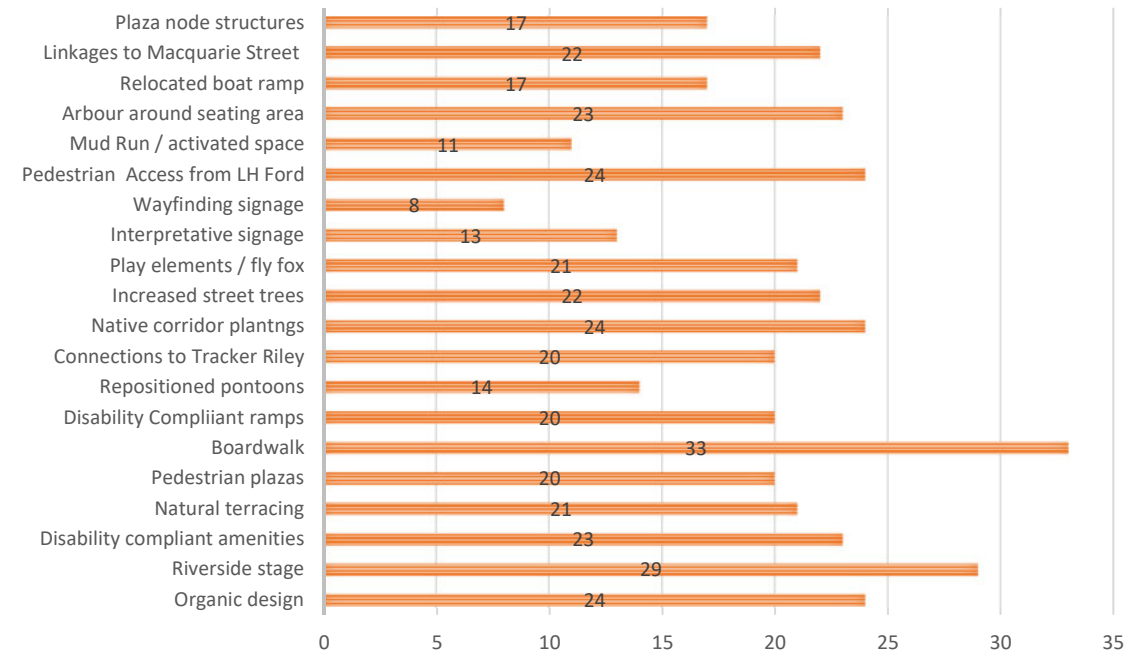
As part of the master planning process, Council publicly exhibited the master plan options on their corporate website. The community was able to view and comment. The results are shown below for Option 1 Wandering Stage and Option 2 Dubbo Borough.

The Wandering Stage was the most preferred option with 63% of the vote and 36% voting for the Dubbo Borough.

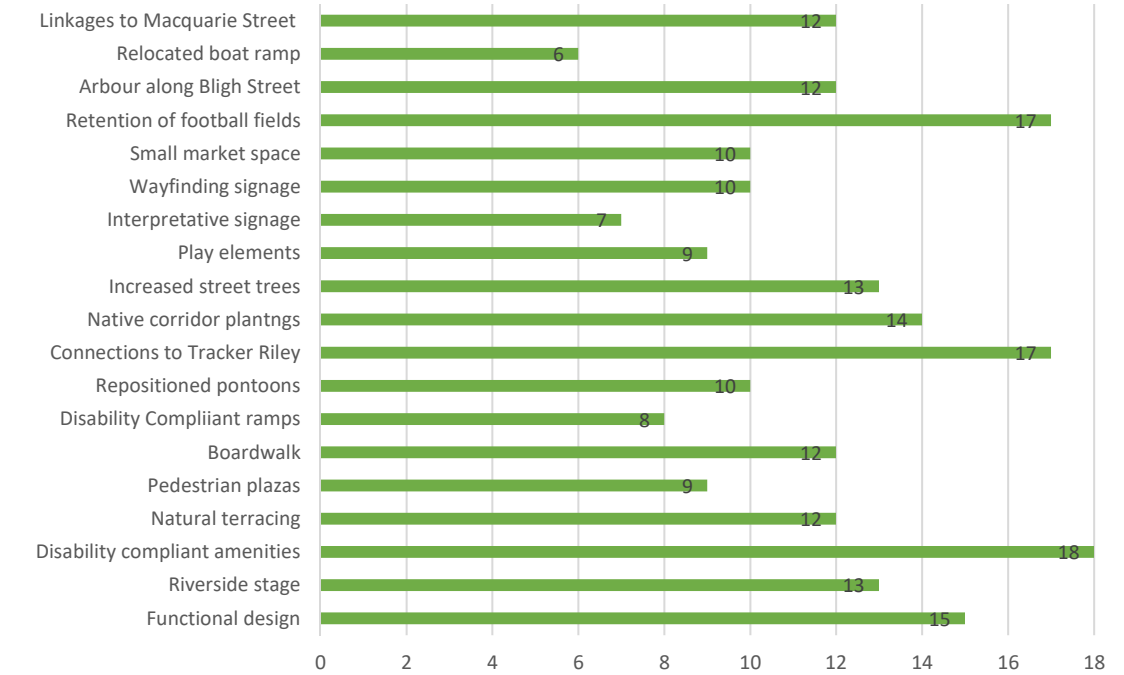


Furthermore each design was broken up into its key design features. The graph below indicates the popularity of the design features for each master plan option.

WANDERING STAGE

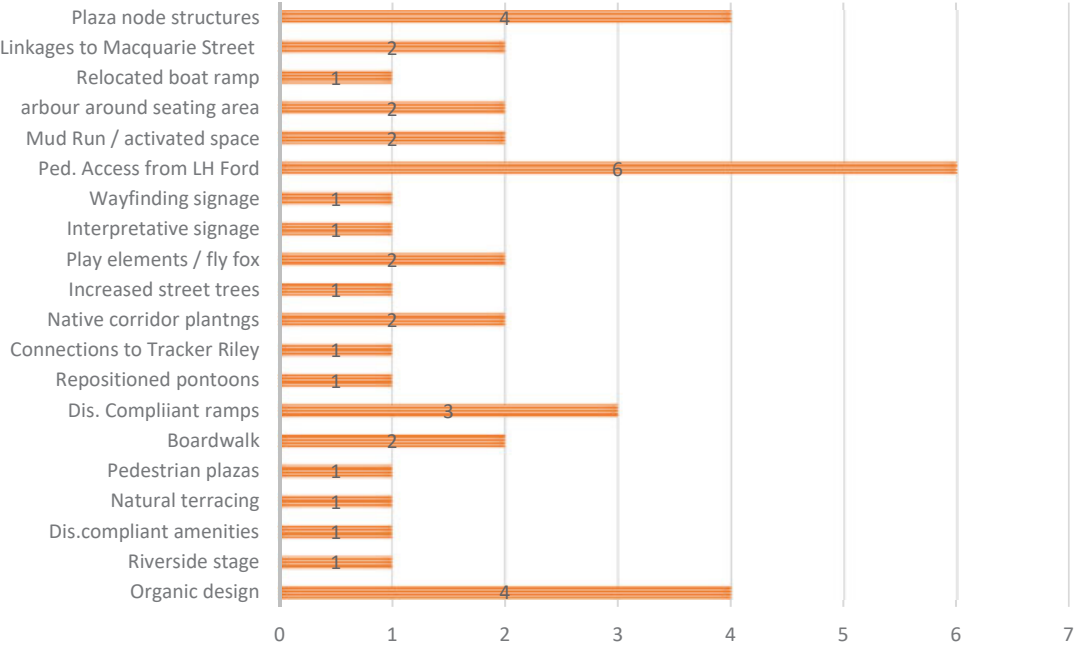


DUBBO BOROUGH



To ensure all respondents were given the opportunity to identify what elements they liked out of their preferred option. they could also identify preferences from the alternate option and where they were different from their preferred concept selection, these were recorded as secondary preferences shown below.

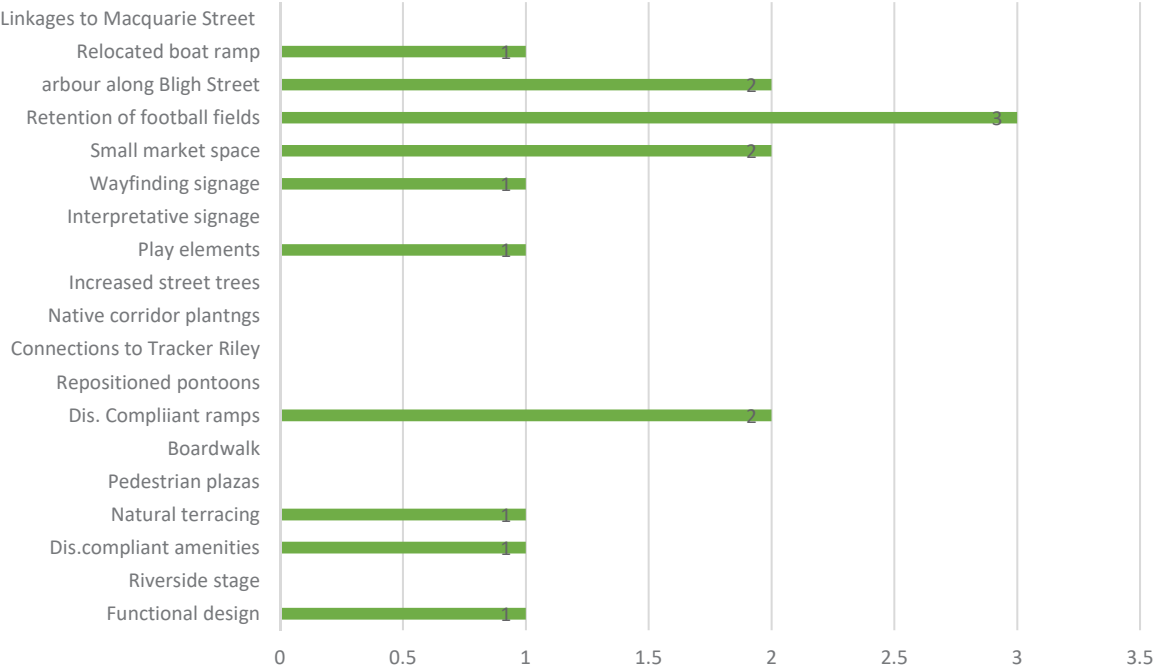
WANDERING STAGE



Additional community consultation and surveys allowed people to make comments and share their views about various design features. The following comments were categorised into sections 1. Riverside and Environment, 2. Event space 3. Sports and Recreation, 5. Other.

From the community consultation “Wandering Stage” was chosen as the base plan, with further modifications made as a direct response of the feedback received. Feedback was also pro-actively sought from the tourism and event management sectors. Information received has also been incorporated into the final master plan.

DUBBO BOROUGH





2.0 PLACE-MAKING AND URBAN FABRIC ANALYSIS

2.1 INTRODUCTION

The purpose of this discussion paper is to inform Dubbo Regional Council, the Dubbo community and stakeholders of the various factors that have influenced the two concept master plan options presented. There are many influencing environmental and social factors which have been identified and addressed in this discussion paper which will also influence the final design.

As Dubbo looks to the future, ever changing climate and environmental factors will dictate what is feasible in this area. Therefore adaptability and resilience are major design drivers.



Macquarie street



Bligh street and Sir John Taylor Bridge



Macquarie River Waterfront Park

2.2 BACKGROUND RESEARCH AND SITE ANALYSIS

The Dubbo area was inhabited by the Wiradjuri Tribe prior to European Settlement with evidence of habitation dating back over 40,000 years. John Oxley was the first European to report on the area known as Dubbo in 1818, with the first settlement established 10 years later.

The possibilities of Macquarie River as a north-south trade route for cattle was realised, leading to the establishment of permanent settlement and surveying of land from 1848.

Today Dubbo City has a growing population of around 42,000 people and is a diverse location with many attributes for locals and tourists.



Macquarie street, Dubbo



Old Dubbo Post Office



Historic Dubbo Community Photo



Dubbo Community

2.3 SITE CONTEXT

The Dubbo CBD study area is a compact hoddle grid of commercial, residential and educational land uses with an excellent array of parks and open space.

The Dubbo CBD open space fabric includes the 10ha - 1km long Macquarie River linear park, 19ha centrally located Victoria Park, 18ha Dubbo Showground and 4.2ha Elston Park. The streetscapes are generous in width and provide ample parking.

The north south running Dubbo main street, Macquarie Street, has mature tree canopies to the median and both verges. This creates a sense of place and green retail frontage.

Church Street, running east to west connects pedestrians from Victoria Park to the Macquarie Riverfront. Traffic calming elements have been integrated such as the roundabout embellishment at Brisbane Street and the creation of a plaza at the road closure between Church and Macquarie Streets.

LEGEND

- Overall Context Area
- Study Area
- Key Community Nodes



2.4 UNDERSTANDING PLACE

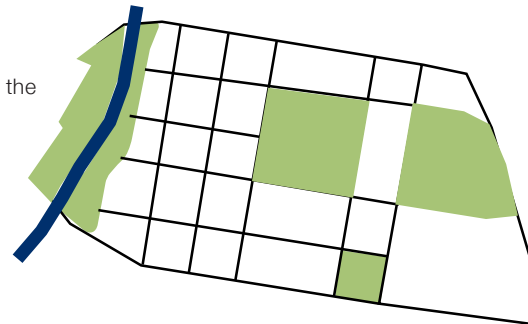
Identifying locations in Dubbo currently that are being under utilised. Conducting a site analysis as well as dissecting areas of the CBD that could facilitate new uses/enliven up the centre of Dubbo. Identifying areas that provoked various sentimental emotions the community can identify with.

Understanding the significance of historical elements, as well as the use and value of the Macquarie River is vital to the master plan as a whole.



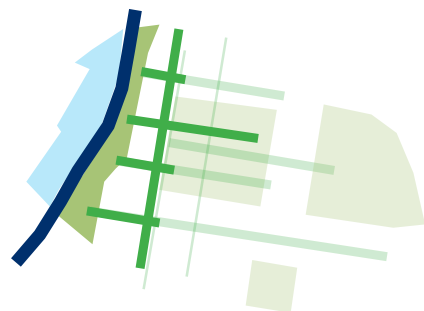
enhance the green fingers

Bringing the riverside vegetation through to the CBD



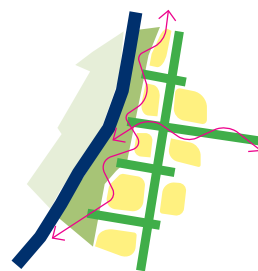
value the green fabric

Establishing important green recreational areas throughout the dubbo street fabric



breathe life into the river

Cooling the urban streetscape



enliven the town centre

Creating opportunities of excitement through landscape connections-



Recognising local heritage



Recognising the river



Utilising event space



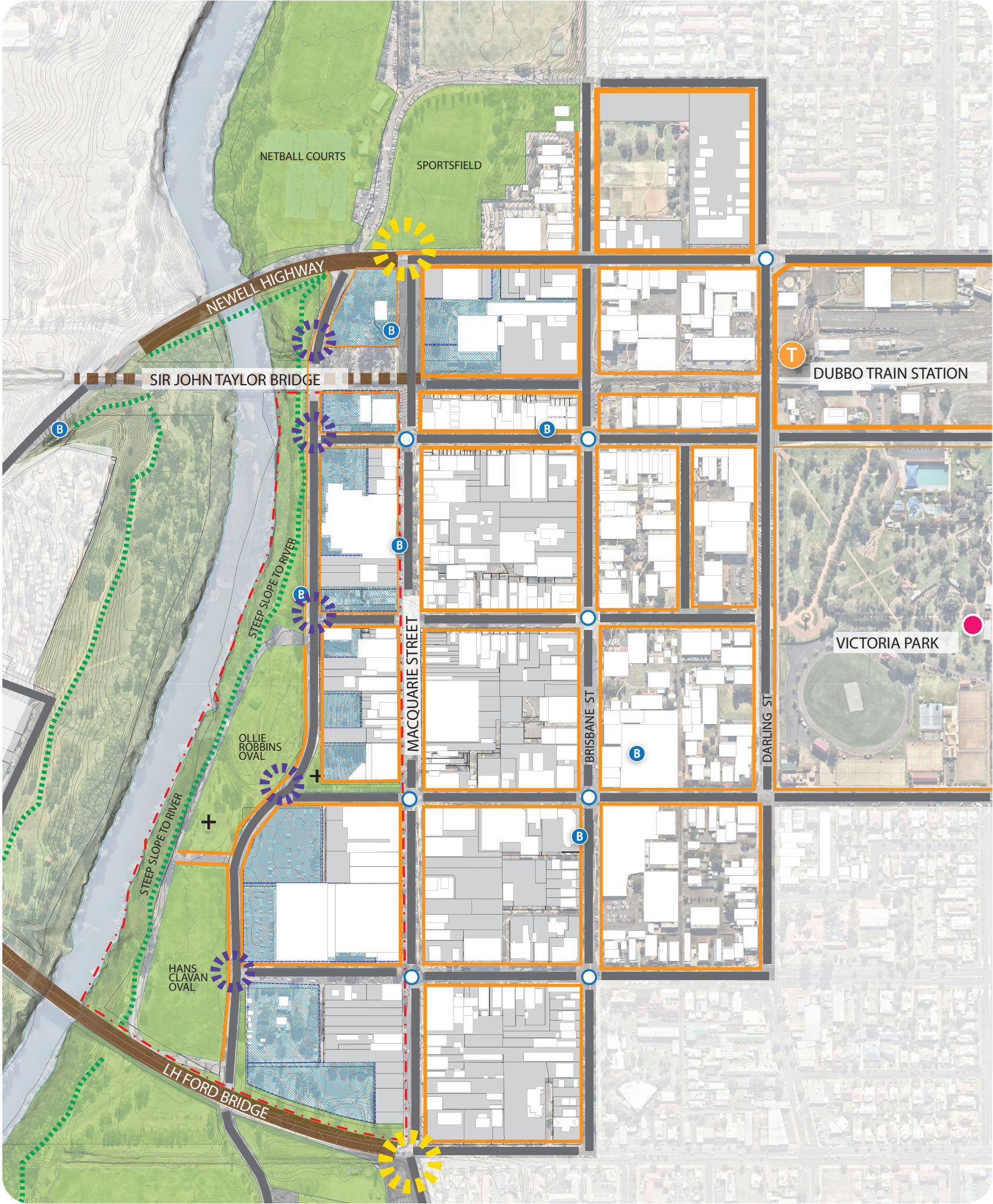
Linkages to CBD

2.5 CIRCULATION + ACCESS

The Dubbo CBD is centred around Macquarie Street with well connected pedestrian accessibility.

LEGEND

- MASTER PLAN SCOPE OF WORK
- ROAD NETWORK
- ROUND-ABOUT LOCATION
- PEDESTRIAN PATH NETWORK
- WALKING TRAIL ACCESS- CONNECTS WITH TRACKER RILEY
- BUS STOP
- TRAIN STATION
- SURFACE PARKING AREAS
- POTENTIAL PRECINCT GATEWAY LOCATION
- RIVERFRONT GATEWAYS
- PARKS AND OPEN SPACE



2.6 MASTER PLAN OPPORTUNITIES

GREEN OPEN SPACE

The Macquarie river front has many large open space areas such as Ollie Robbins Oval, Hans Claven Oval and Macquarie Lions Park. Activating these areas and providing a range of facilities will enliven up the riverside area and attract more people into the CBD, and to the rivers edge. Offering various shaded rest stops, picnic areas, activity trails and play trails will enable the user to explore and interpret the space rather just visiting one specific location. Potential uses could include event space such as a river stage, seating lawn, market green, pedestrian connectivity, boardwalk and pontoons with entry stairs to the river.

CBD AND PROXIMITY TO RIVER

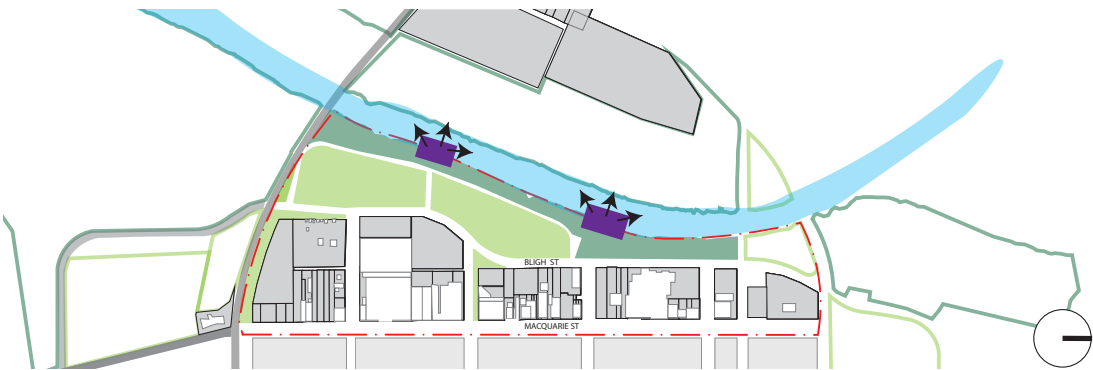
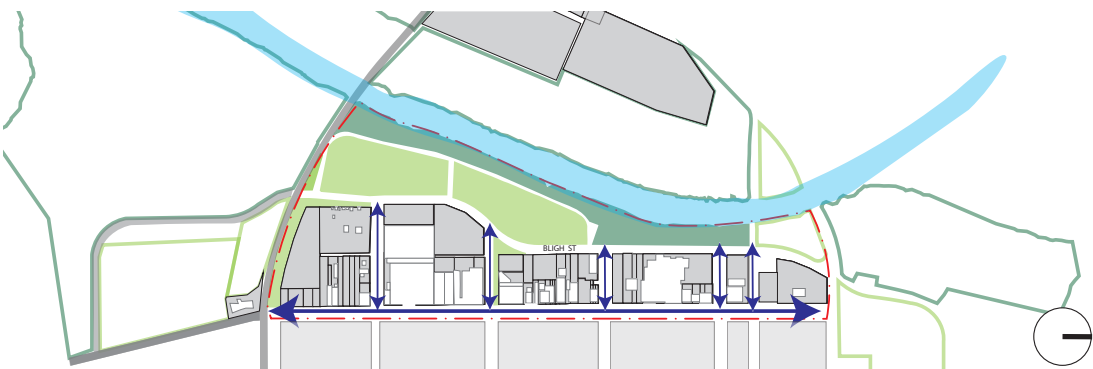
The Dubbo CBD is located one block to the east of the Macquarie River. It provides an excellent opportunity for interaction with both a vibrant city with an active river front. A core objective for this project is to promote activity between the two spaces and celebrate this riverside town.

PRECINCT GATEWAY OPPORTUNITIES

There are a variety of gateway opportunities to mark the entrance into the heart of the CBD and riverfront precinct. Some locations to be explored are at the north and south of Bligh Street and Macquarie street as well as the junctions of the east and west streets with Macquarie and Bligh.

RIVER VIEWS

Along the Macquarie River there are many unique opportunities for users to stop and interact with the Macquarie River interface. There are a number of vantage points along the river foreshore for locals and visitors to take advantage of the natural beauty of Dubbo.



2.7 MASTER PLAN OPPORTUNITIES

LINK TO EXISTING TRACKS

We see the river front master plan as an opportunity to link with the existing Tracker Riley cycleway and close the loop. There is also an opportunity to create a shorter CBD loop.



SIR JOHN TAYLOR BRIDGE AS A FEATURE AND PEDESTRIAN LINK

Dubbo has much to offer the local community and tourists. We have identified the Sir John Taylor Bridge- linking to west Dubbo as a potential to be a unique site feature to attract tourists. Or potentially be a part of an overall interpretive walk along the river front. There is also opportunity to take the visual cues from the criss cross design and materiality of the bridge and integrating it into the master plan.



OVERALL MACQUARIE RIVERSIDE ENVIRONMENT AND NATURAL LANDSCAPE

Macquarie River is a hidden gem, with most residents reporting that they want more community interaction with the river. They wanted spaces where the community can come and relax, learn and interact with the river, by providing rest stop, shaded picnic settings, as well as public play areas and exercise trails within the natural landscape



2.8 MASTER PLAN CHALLENGES

LACK OF SHADE

The Dubbo CBD and river front have been identified as having a lack of shade coverage to mitigate against urban heat island affect. The lack of shade has been identified on various streets including Bligh Street, Wingewarra Street Church Street and Talbragar Street, which all intersect Macquarie Street and follow through to the river. Large turf covered open space is also currently unshaded.

Shading strategies have been suggested in Part 4 of this report. The combination of both the implementation/ investment of built shade structures in addition to natural tree canopies is suggested to manage this issue.



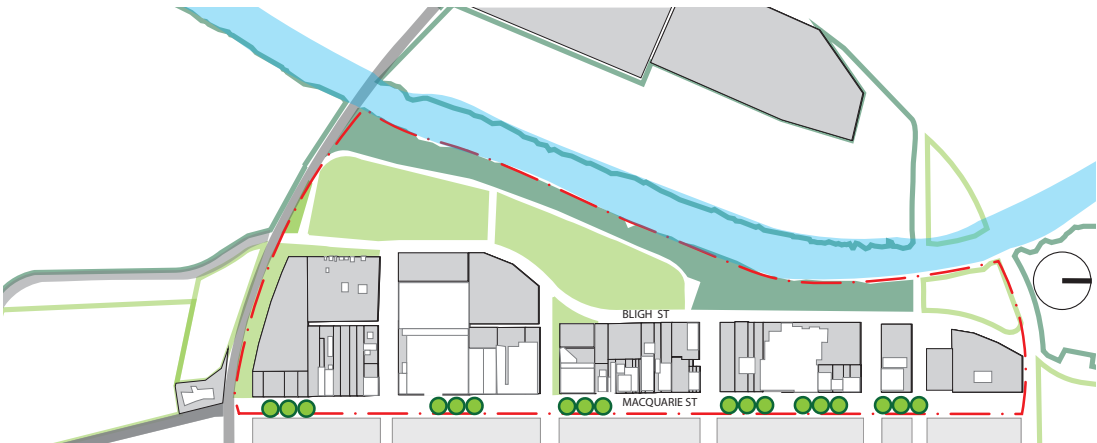
PREDOMINANT SURFACE PARKING LOCATIONS NEXT TO RIVER

Due to the flooding constraints along the eastern edge of the CBD along Bligh Street, the land use is predominantly surface car-parking. We see this as an opportunity to provide additional tree planting to visually mitigate large areas of asphalt and help reduce urban heat.



POORLY PERFORMING TREES

Poorly performing species are to be removed and replanted with climatically adapted species. Some tree species within narrow medians along Macquarie Street have been identified as performing poorly in providing a large shade canopy. We see this an opportunity to improve growing conditions for these trees, through the construction of root vaults and other innovations within the existing streetscape to provide an improved canopy cover. Increasing drought tolerant trees and planting as well as proposed planting which is consistent with the Street Tree Master plan.





3.0 PROPOSED MASTER PLAN

3.1 MASTER PLANNING

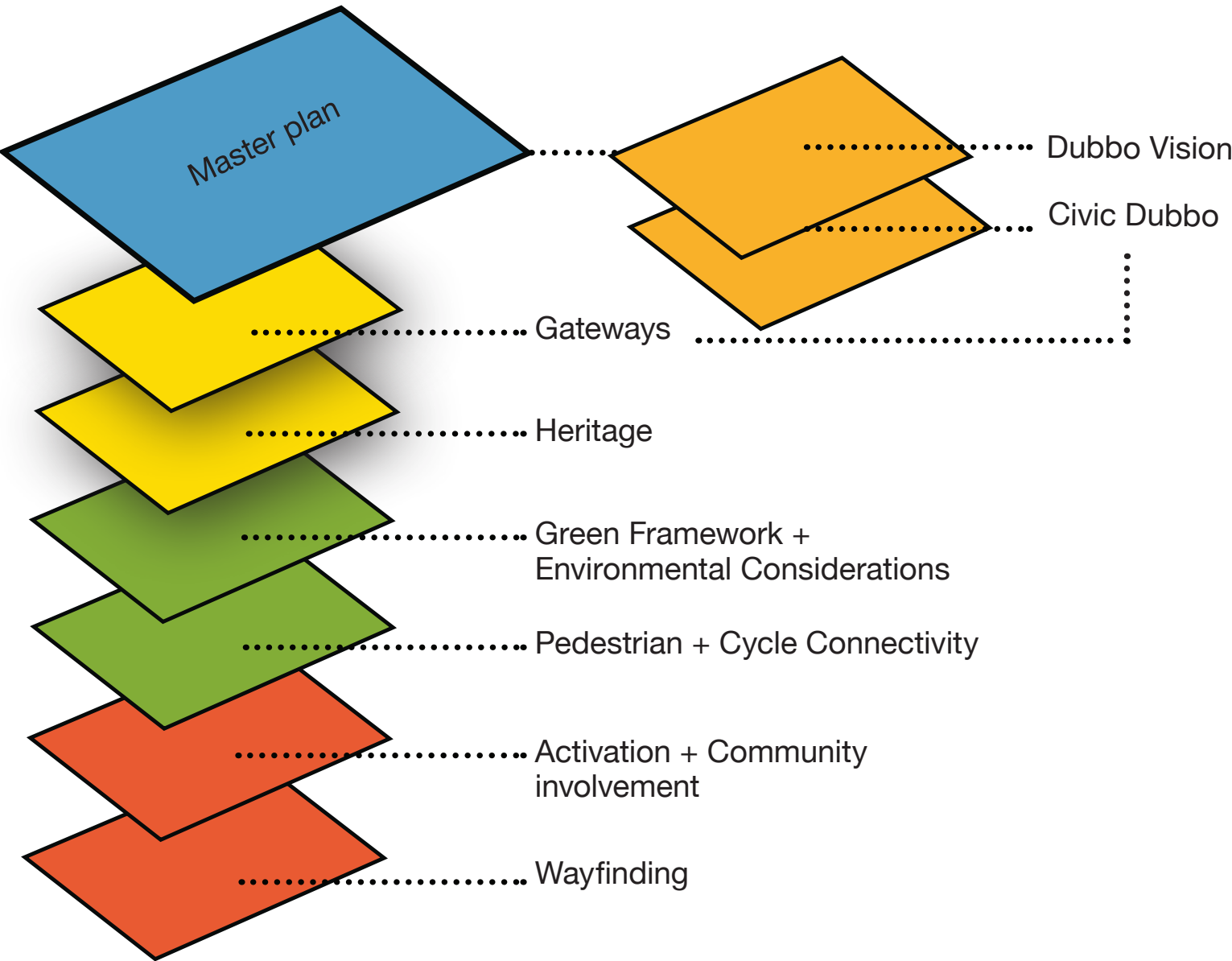
The process of master planning is manifold and involves the synthesis of several layers of information, as shown diagrammatically. This process takes the design principles and the supporting strategies, organising this information graphically into a legible set of plans which breaks down the complexity of the exercise into more digestible portions.

Each “Design Driver” or “Principle” is encapsulated on one or more plans. These layers of information interact with one another, highlighting the complex but holistic approach to public domain design.

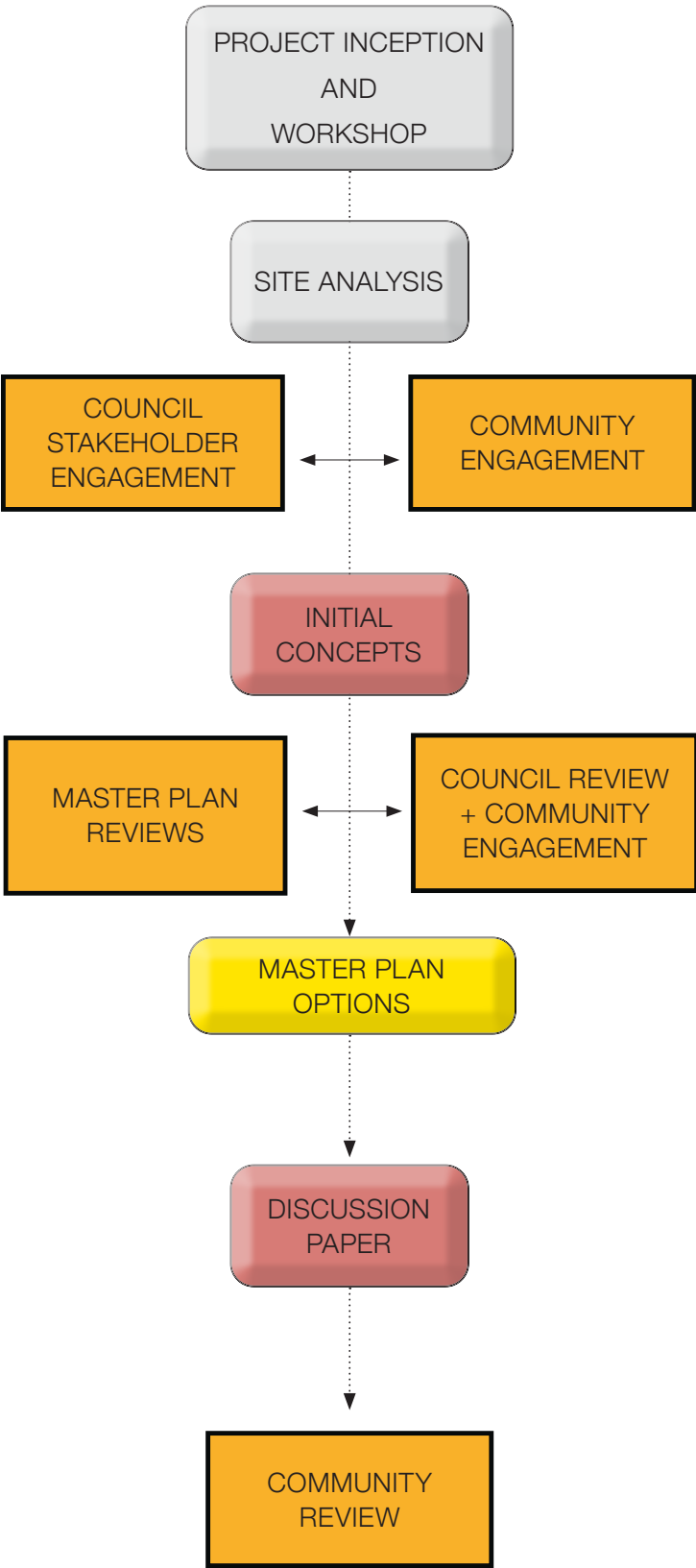
We are aware that much of the community feedback received focussed on the desire to improve the presentation of the Dubbo Riverside Precinct. Reinvention of public spaces can be a catalyst for renewal of buildings and ongoing economic vibrancy.

Ensuring the town centre becomes more walkable and connecting through to the river also makes good business sense. The following plan brings all of this information together into a cohesive “whole” developing the physical design strategies which work co-operatively with the economic strategies.

The supporting sections demonstrate how the re-alignment of existing wide road corridors allow for the insertion of trees and broader pedestrian verges, enabling better use of the streetscape, as well as the presentation of various social and interactive areas within the landscape.



DUBBO MASTER PLANNING PROCESS



3.2 WANDERING STAGE ORIGINAL CONCEPT

SPACIAL RELATIONSHIP DIAGRAM



LEGEND

- GATEWAY ENTRY
- PEDESTRIAN PLAZAS
- DENSE PLANTING AREAS
- LINEAR PARK AREAS
- SPORTING AREAS
- EVENT SPACE AND SPILL OUT AREAS
- AMENITIES
- KIDS PLAY
- BOARDWALK/PONTOONS
- STAGE
- SHADE ARBOURS



3.3 WANDERING STAGE
FOLLOWING PUBLIC EXHIBITION



LEGEND

- 01 RIVERSIDE STAGE MAIN WITH CAFE AND AMENITIES
- 02 OPEN EVENT SPACE
- 03 PEDESTRIAN PLAZA
- 04 PEDESTRIAN PLAZA VIA WINGEWARRA STREET
- 05 FEATURE SHADE ARBOUR
- 06 BOARDWALK
- 07 CONNECTION TO TRACKER RILEY CYCLEWAY
- 08 BOAT RAMP ACCESS WITH PARKING
- 09 REGENERATED PLANTING AREA
- 10 EVENT VEHICLE ACCESS
- 11 DDA COMPLIANT RAMPS
- 12 PEDESTRIAN ACCESS OVER EXISTING BRIDGES
- 13 PLAYGROUND TODDLER PLAY
- 14 PLAYGROUND SENIOR PLAY WITH FLYING FOX NINJA FIELDS
- 15 MARKET & FOOD TRUCK PROMENADE
- 16 SCULPTURAL ROUNDABOUT
- 17 PLAZA NODES SCULPTURES
- 18 REACTIVATED PUBLIC OPEN SPACE
- 19 POTENTIAL FUTURE PEDESTRIAN ACCESS

3.4 DETAIL MASTER PLAN

THE WANDERING STAGE

DETAIL PLAN OF CENTRAL AREAS

LEGEND

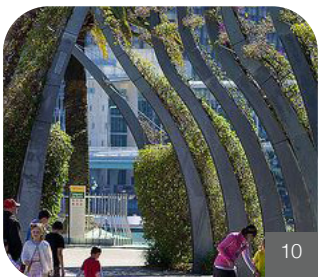
- 01 RIVERSIDE STAGE AREA WITH CAFE & AMENITIES
- 02 OUTDOOR EVENT SPACE
- 03 URBAN PLAZA
- 04 PLAZA SEATING
- 05 PLAZA NODE SCULPTURE
- 06 SEATING LAWN
- 07 INFORMAL MARKET LAWN
- 08 1:20 SUSPENDED RAMP TO BOARDWALK
- 09 1:20 RAMP TO PLAZA
- 10 FEATURE SHADE ARBOUR
- 11 PONTOON + RIVER ENTRY
- 12 EVENT VEHICLE ACCESS
- 13 MARKET AND FOODTRUCK PROMENADE
- 14 PLAY ELEMENT NODE
- 15 SMALL PLAY- ADVENTURE PLAY TRAIL
- 16 LARGE PLAY AREA- FLYING FOX
- 17 CARPARK FOR EVENTS
- 18 PEDESTRIAN LINK TO CBD
- 19 REGENERATED PLANTING AREA
- 20 AMENITIES BUILDING



CENTRAL STAGE AREA



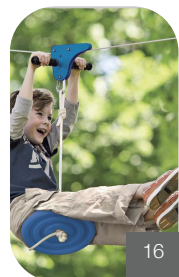
FEATURES STRUCTURE
REFER TO APPENDIX



FEATURE SHADE ARBOUR



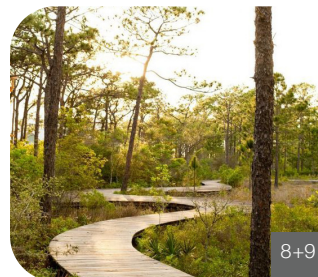
INFORMAL SEATING IN PLAZA



PLAY AREAS



AMENITIES BUILDINGS



WALKWAY+ RAMPS

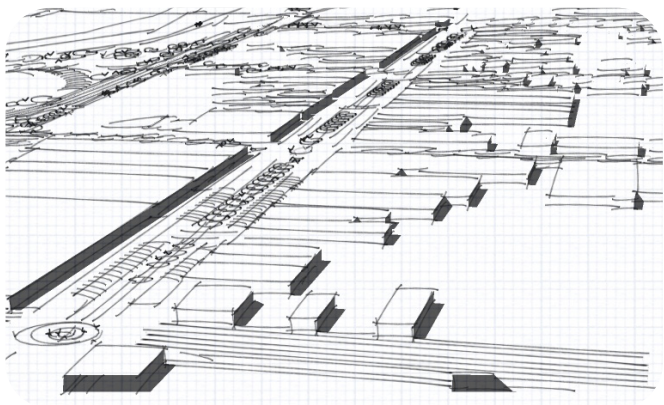


4.0 ENVIRONMENTAL CONSIDERATIONS

4.1 ENVIRONMENTAL AND CLIMATIC CONSIDERATIONS

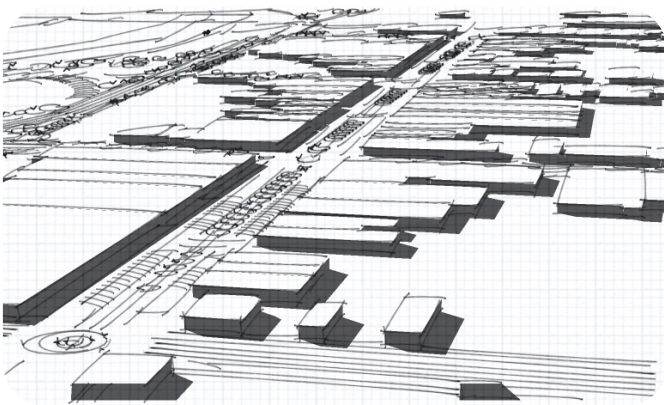
Dubbo is susceptible to extreme heat, drought and flooding events and it is therefore important that a sustainable focus is taken to ensure the resilience of the community. This section of the report looks at various thermal resilience, water conservation, waste management and conservation as well as reduction of energy consumption. Consideration of these factors and some suggested management strategies are outlined here.

The following strategies look at improving Dubbo’s resilience and adaptation to climate and weather conditions in addition to maximising opportunities for passive environmental design.



JANUARY 12.00pm

Summer Shadow diagram showing the shadows looking north towards Macquarie street.



JULY 12.00pm

Winter Shadow diagram showing the shadows looking north towards Macquarie street.



- LEGEND
- SITE EXTENTS
 - EXTERIOR SURFACE PARKING/ ASPHALT
 - OPEN SPACE- PUBLICLY ACCESSIBLE AREA
 - PRIMARY PEDESTRIAN PATH
 - SECONDARY PEDESTRIAN PATH
 - PRIMARY CYCLE PATH
 - RECREATIONAL TRACK
 - STREETS WITH A LARGE QUANTITY OF STREET TREE SHADING
 - NATIVE CONSERVATION AREA
 - GATEWAY

4.2 THERMAL RESILIENCE

Primary and secondary pedestrian routes have been identified and further re-enforced in the concepts. These routes currently have limited shading- With the average temperature in Dubbo in January up to 39 degrees-with risk of increasing in the future. Therefore the implication of various shading and cooling strategies is beneficial for the overall thermal comfort of the people in Dubbo CBD and Riverfront Precinct.

Various methods can be adopted and will be outlined as options to reduce urban heat, as well as provide comfortable urban areas for community activities. The surrounding built form does provide a small amount of shade. However, further shading is required from building awnings and canopy trees.

Shade is also important for community health. Australia has the highest rate of skin cancer in the world. The main cause of skin cancer is exposure to UV radiation. The implementation of awnings and shade structures in addition to larger canopy trees aims to mitigate against UV rays which are reflected and scattered by hard surfaces and ground materials. The further integration of misting machines can also be implemented as a mechanism to cool off.

The following tables are some percentages of shade that we look to achieve with a combination of built shade and natural shade systems. The current shade structure targets are those that we feel we can start to implement now. It is important to note that more stringent targets will needs to be considered in future.

TYPES OF BUILT SHADE



ADJUSTABLE SHADE SYSTEMS
DEMOUNTABLE SHADE STRUCTURES



PERMANENT SHADE SYSTEMS



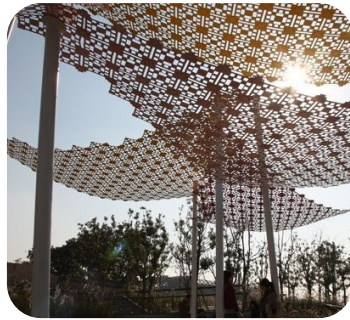
TENSION MEMBRANE SHADE SAILS



EXTENSION OF ROOFS/ AWNINGS



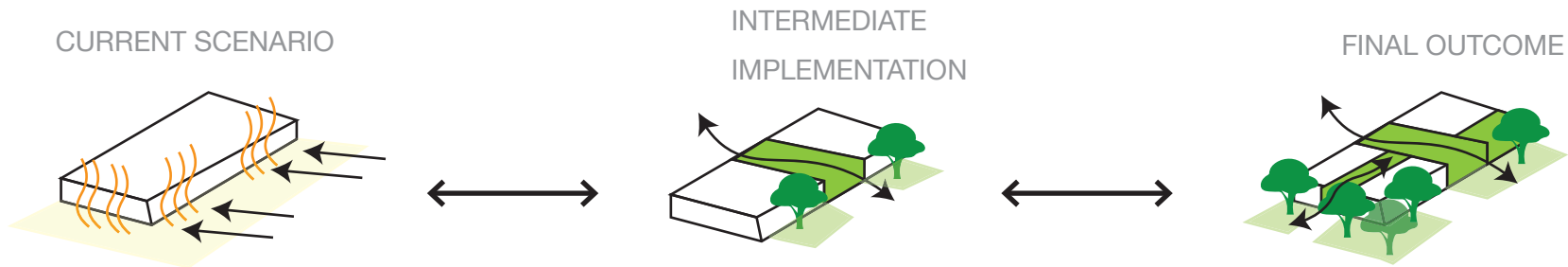
STRUCTURE WITH CLIMBERS



PERFORATED STRUCTURES



MISTING DEVICES



Landscape Category	Estimated Minimum Shade requirement
Exterior Surface- Parking areas with 15+ Parking spots	20% of area to be shaded
Public Open Space	50% of area to be shaded
Primary Pedestrian Walkway	50% of area to be shaded
Secondary Pedestrian Walkway	30% to be Shaded
Playgrounds	80% of area to be shaded
Cycle way	30% of area to be shaded

CURRENT SHADE TARGETS

Landscape Category	Estimated Minimum Shade requirement
Exterior Surface- Parking areas with 15+ Parking spots	40% of area to be shaded
Public Open Space	60% of area to be shaded
Primary Pedestrian Walkway	50% of area to be shaded
Secondary Pedestrian Walkway	40% to be Shaded
Playgrounds	80% of area to be shaded
Cycle way	50% of area to be shaded

INCREASED FUTURE SHADE TARGETS

4.3 WATER APPROACH

Drought is a major environmental consideration within this report and within the entire Master plan proposal. Drought has widely affected the Dubbo community. Due to climate change it is predicted to worsen.

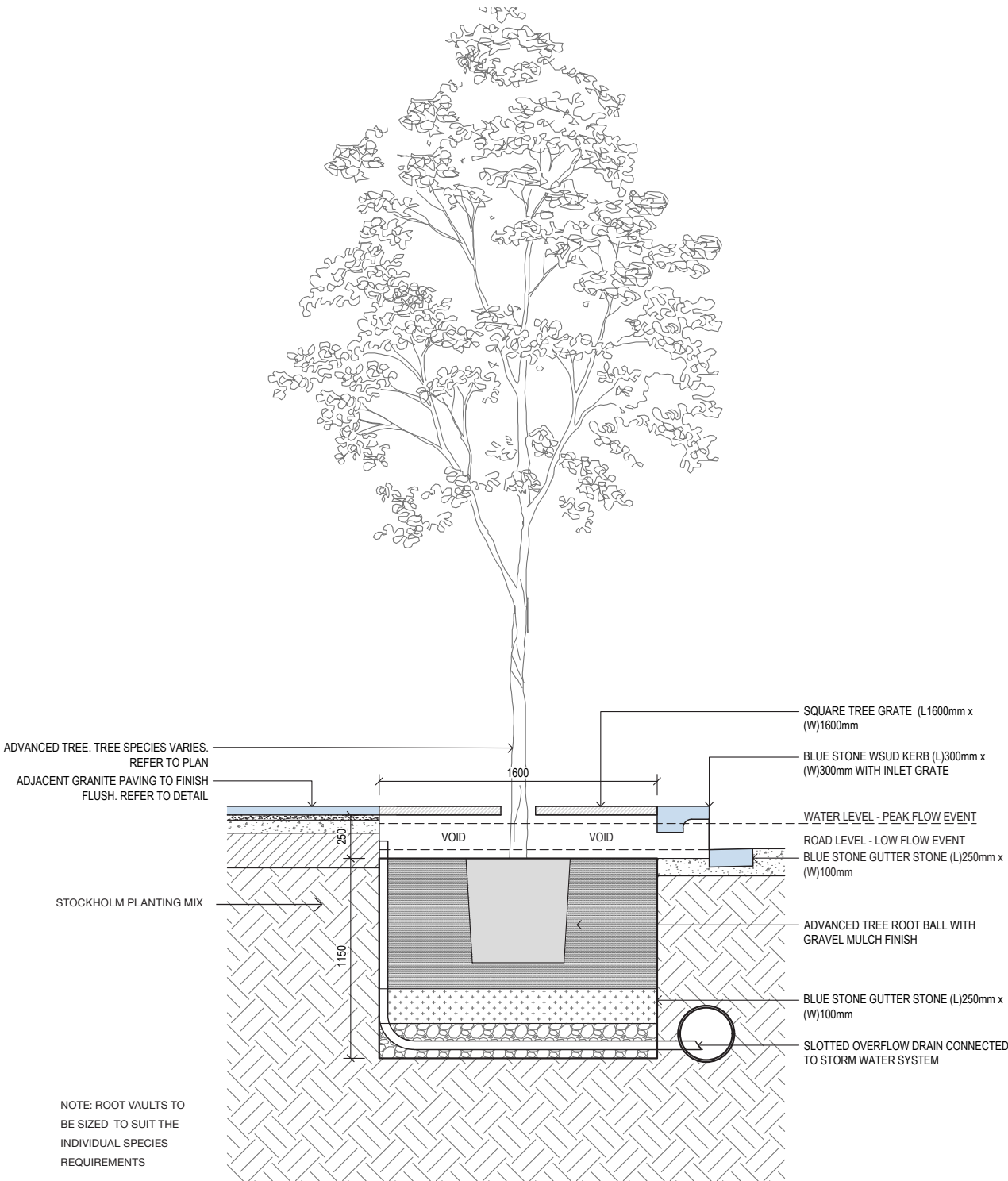
Currently Dubbo is upholding moderate water restrictions.

Proposed plant species have been suggested because of the following qualities

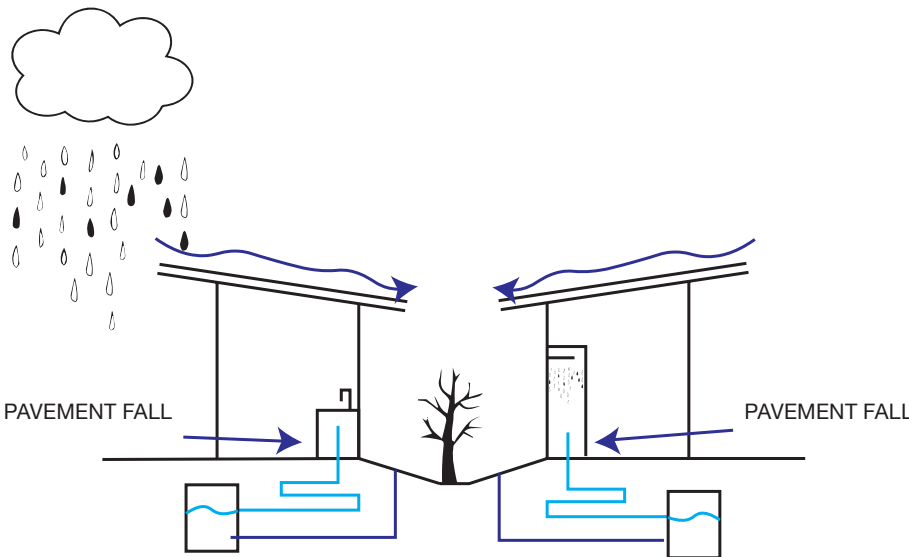
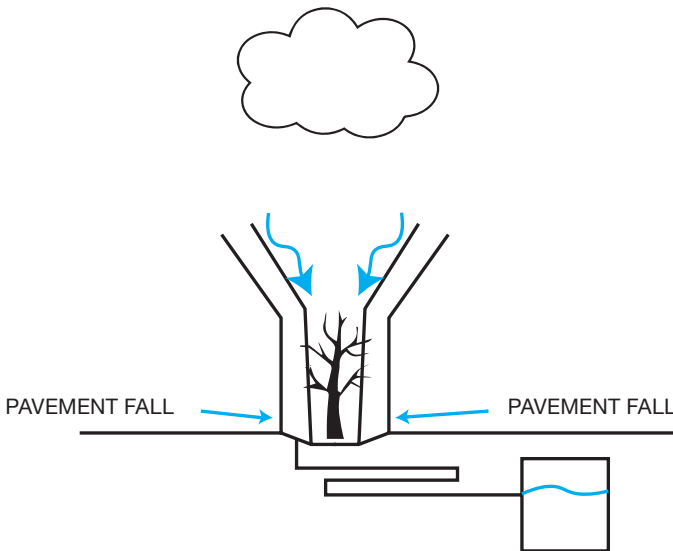
- 1. Adaptability to various soil types
- 2. Drought tolerance
- 3. Colour and variety (flower/ fruiting/ foliage colour)

Although water is scarce, water infrastructure can be implemented.

- Water monitoring
- Efficient use of water fixtures and fittings and ensuring efficient watering systems are in place
- Focusing landscape on immediate visual zones (rationing water to landscape zones)
- Storm-water strategy to maximize the capture of water into landscape areas or storage areas for future use
- Minimizing irrigation by the planting of native species
- Implementation of Rain garden systems and WSUD systems



Providing water catchment strategies is essential to maximise rainfall. If the right systems are in place they will be able to catch, harvest and take advantage of this resource.



4.4 WASTE MANAGEMENT AND MATERIAL SELECTION

Material selection impacts overall project sustainability in two main ways:

- + Material consideration in terms of the impacts of manufacturing, installation and life span of the product
- + Social impacts in terms of local economy, pollution and off gassing

Material sourcing when looking through the lense of sustainability is one of the most crucial and there are many factors to consider.

These can include the following:

- If the materials have been legally + responsibly sourced?
- Do these materials have a long life span?
- Are the sizes used able to reduce offcuts and waste?
- Do the materials used have a low embodied energy. eg materials that are locally sourced,high recycled content, and have a low processing and low transportation distance.
- Do these materials represent the local ecological values- eg permeability
- Use of sustainable timbers- that have been certified not treated with harmful chemicals
- Assessment of materials to include the harmful embodiment of energy towards the micro- environment this means- reflection, heat retention, health and safety implications choosing materials based on their SRI Values
- The use of materials that represent a low health risk



4.5 CONSERVING ENERGY

The overall goal is to reduce energy consumption to improve associated carbon emissions. Each concept presented has an associated lighting strategy. In conjunction with that plan, it is suggested that all fixtures are fitted with energy efficient LEDs and wherever possible to be solar powered.

Stage & Performance area -

Luminance mapping in planning process (to minimise the amount of luminaries used)

Providing low wattage instruments

Providing dimmers to lower power supply

LED stage lighting

Looking at “greener performances - a guide for energy efficient stage lighting”

Amenities building-

Building orientation- and ability for passive ventilation + cooling

Ensuring all lighting fixtures are LED

Streetscape Lighting-

Ensuring all street lighting is energy efficient, either LED or can be solar powered and power itself. This is important to consider not only for general lighting purposes but also for safety. Having sufficiently well lit public spaces ensures that there is a high level of passive surveillance + community safety. Wherever possible the use of solar panels to power street lighting should be used.

Dubbo Regional Council is transitioning all street lights to LEDs, with Macquarie Street identified as a priority site.

CASE STUDIES :

Reducing Urban Heat Islands:

Compendium of Strategies - Cool Pavements EPA.gov

Journal of Clean Energy Technologies, Vol. 1, No. 4, October 2013 - N. L. Alchapar, E. N. Correa, and M. A. Cantó



5.0 MATERIALS AND PLANTING SELECTION

5.1 SOFTSCAPE

Retain existing street tree species plus add new species to the planting palette to increase the variety in colour and foliage. Remove poorly performing trees and replace them with species that are climatically adapted to our environment and consistent with the Dubbo Street tree Master Plan. All these species have been selected for their adaptability and drought tolerance.

Wherever possible, root vaults are to be installed to provide more favourable growing conditions, leading to better trees in the hardscape environment.

TREES



Geijera parviflora



Callistemon 'citrinus'



Koelreuteria bipinnata



Lagerstroemia indica x fauriei 'Sioux'



Photinia glabra



Melaleuca linifolia



Casuarina cunninghamiana



Eucalyptus tereticornis



Angophora floribunda



Acacia pendula

SHRUBS



Phormium tenax - Various colours

GROUND COVERS



Gazania tomentosa



Liriope muscari 'Evergreen'



Themeda australis



Austrodanthonia sp.

CLIMBERS



Bougainvillea x buttiana

5.2 HARDSCAPE

Furniture elements have been selected to match with existing street furniture. Materials were chosen for their durability, easy maintenance and aesthetic value. Seeking fun, colourful and unique materials and furniture items to further strengthen the overall Master plan vision.

FURNITURE



VARIETY OF BENCH OPTIONS



PLAY TRAIL



SEATING LAWN



BOARD WALK/ WATERFRONT EDGE



SEATING STRUCTURES



PLAY SHADE



NATURE PLAY



AMENITIES BUILDING



NATURAL RAMPING TO WATERFRONT
EDGE



INTEGRATED LIGHTING SOLUTIONS

SURFACE FINISHES



HERITAGE/ MIXTURE OF PAVING
FORMATS



COR-TEN



TIMBER / NATURAL TIMBER FINISHES



SANDSTONE
WALLS

DECORATIVE
GRAVEL



6.0 APPENDIX

6.1 DESIGN AND PROPOSAL OF FEATURE STRUCTURES

Through design of the two master plan options, it was also an opportunity to integrate a feature into the design as a link from Macquarie Street to Bligh Street. These feature structures serve as way finding and also an opportunity for locals and visitors to connect with Dubbo. The following structures could be implemented

- A roundabout sculpture
- A plaza Node
- A play element

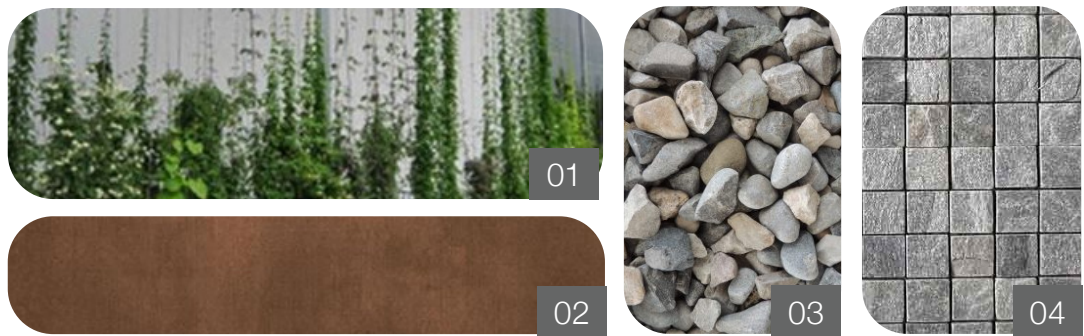
The three urban sculptures together form a suite that work together all using the same materiality and design aesthetic in conjunction with working in with the existing streetscape. The main aims for the sculptures are

- Sense of place and orientation
- Activate the streetscape + create seating nodes and activity areas to otherwise inactive locations
- Fun playful elements

01 SCULPTURAL ROUNDAABOUT

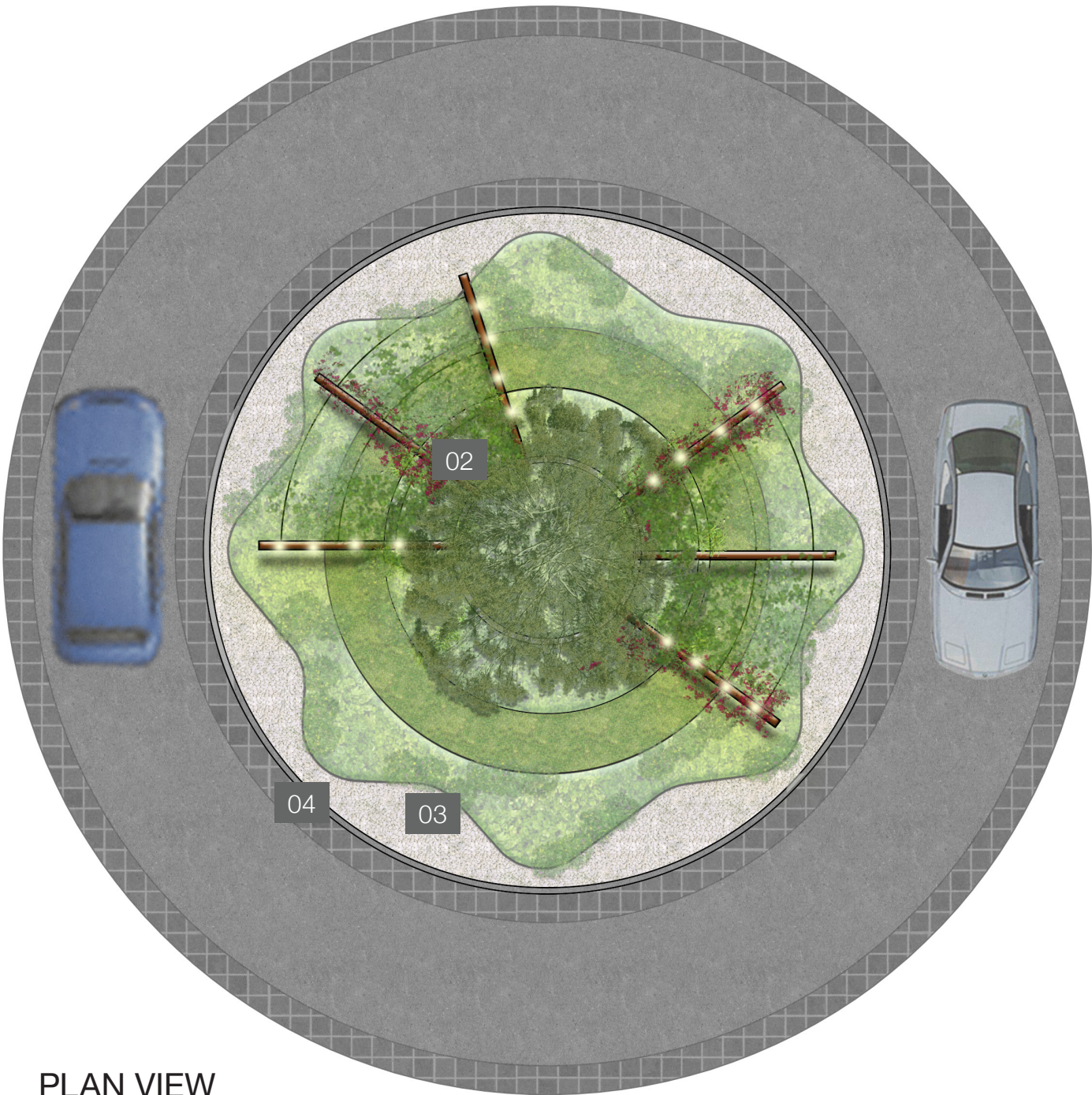
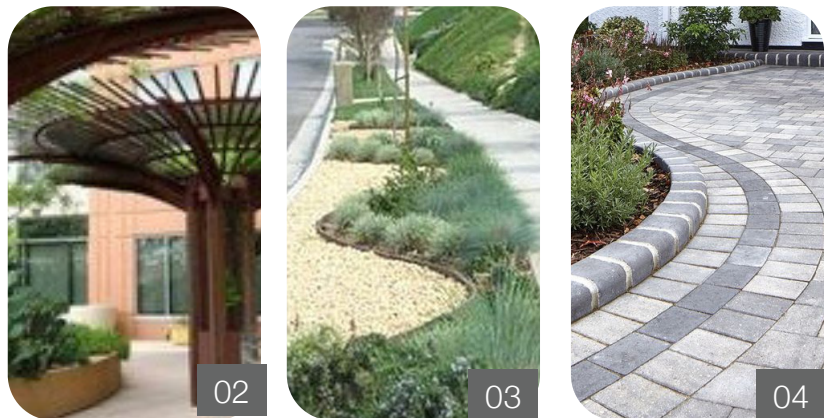
- AIMS
- To create a sense of arrival and placemaking
 - Wayfinding and directional
 - Connecting central streets throughout the CBD

MATERIALS

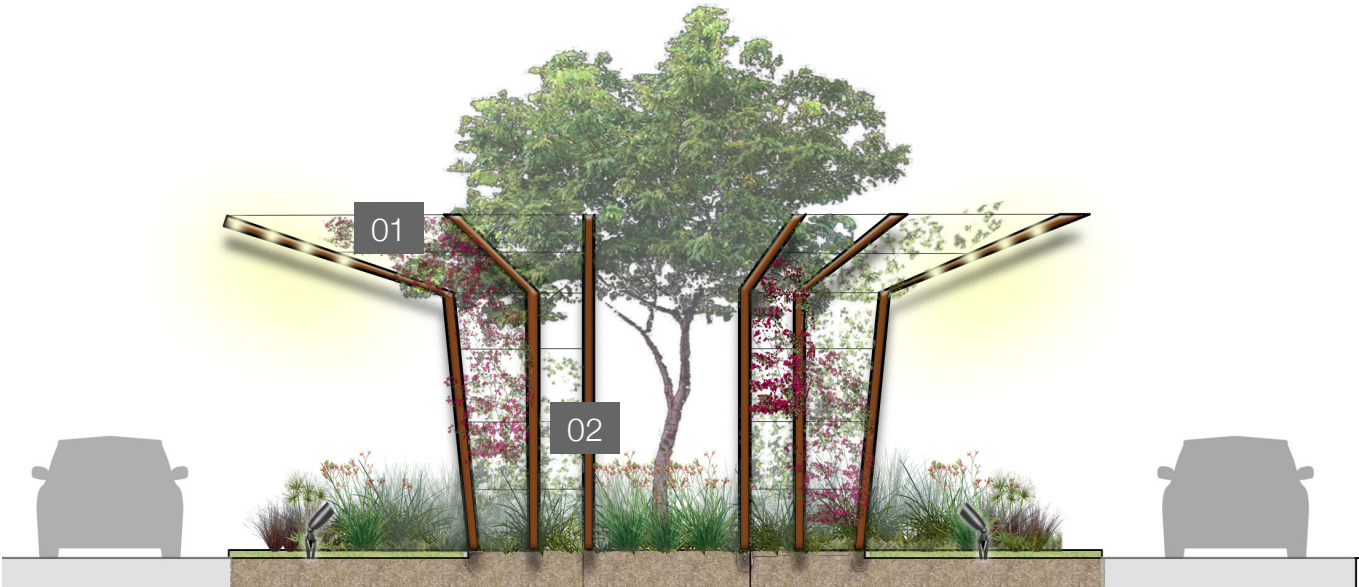


- 01- Stainless steel trellis system connected to structure
- 02- Feature corten structure
- 03- Pebble edge / permeable edge
- 04- Cobble/ varying road treatment to central structure

PRECEDENTS



PLAN VIEW

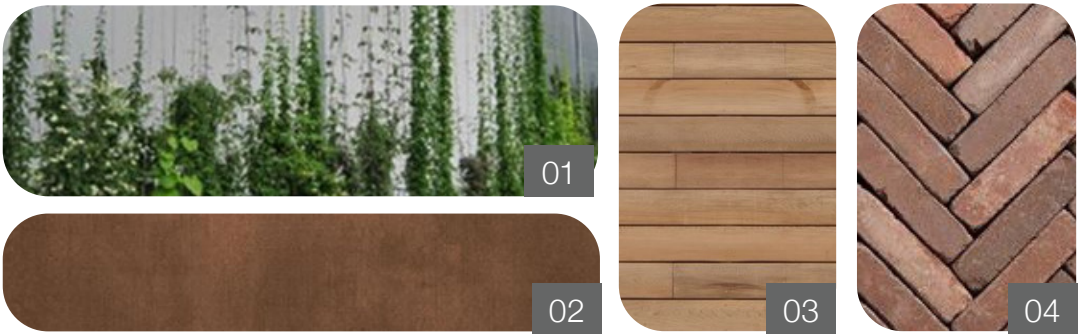


SECTION VIEW

02 PLAZA NODES

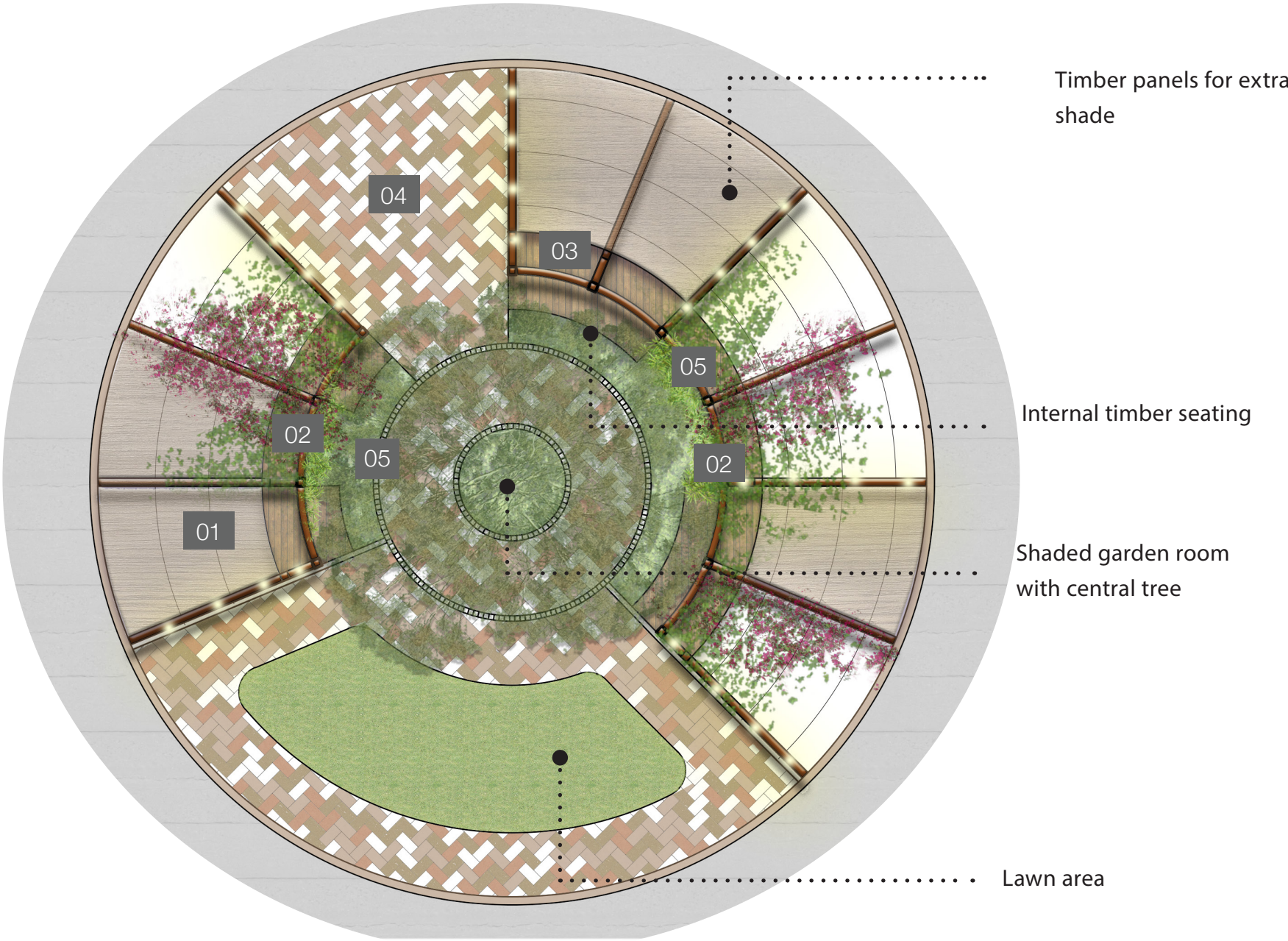
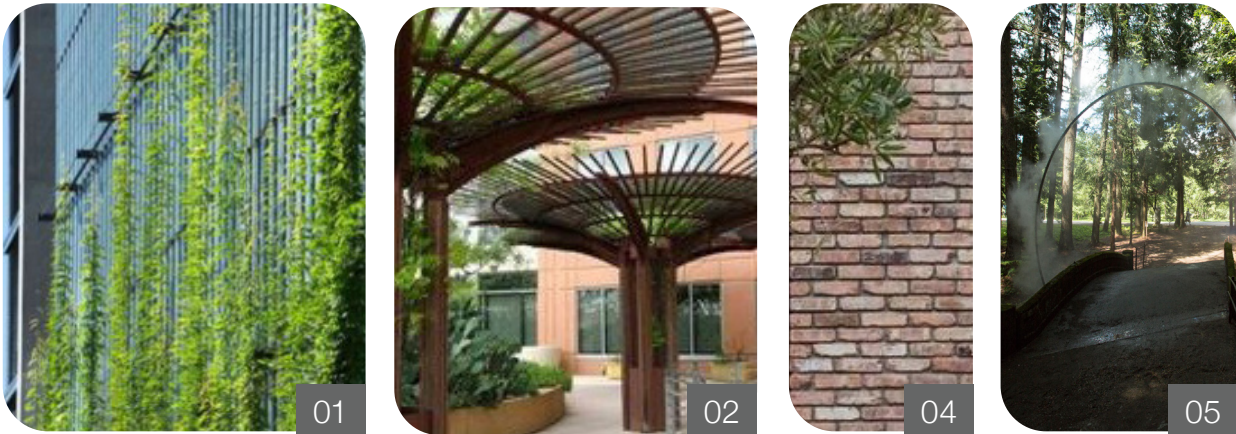
- AIMS
- To Provide Shade And A Resting Stop
 - Wayfinding And Directional Nodes
 - Creating A Strong Sense Of Place Through Repeating Elements
 - They Can Provide
 - A Place To Relax

MATERIALS



- 01- Stainless steel trellis system connected to structure
- 02- Feature corten structure
- 03- Timber seats + shade panelling
- 04- Varying heritage paving integration
- 05- Misting device integration

PRECEDENTS



PLAN VIEW

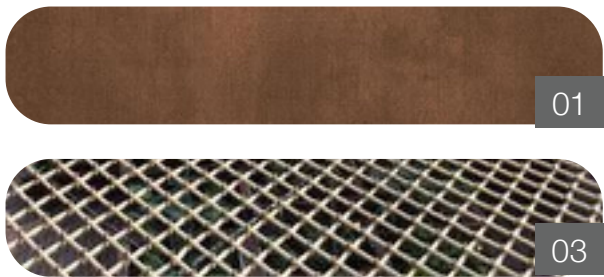


SECTION VIEW

03 PLAY ELEMENT

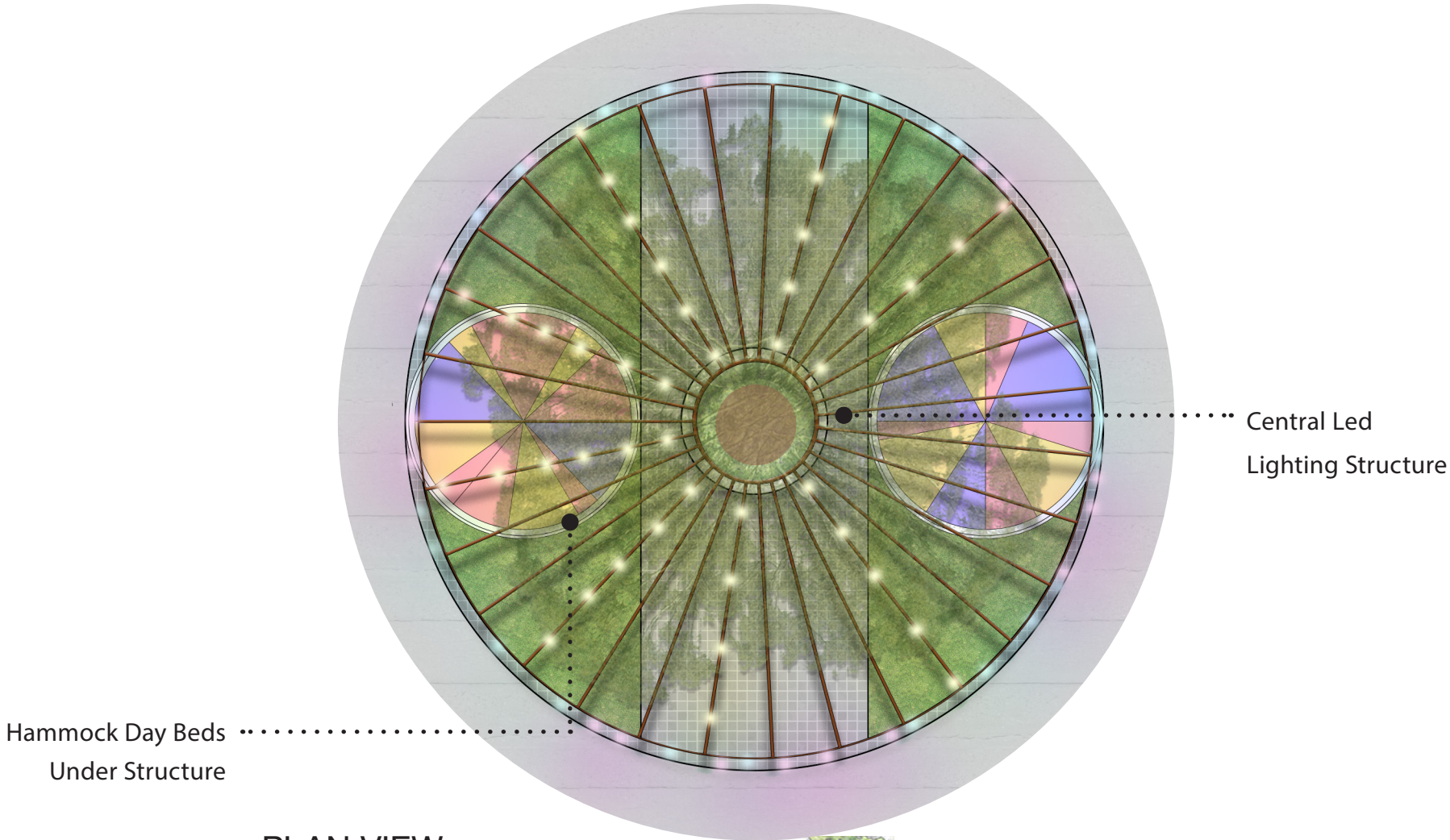
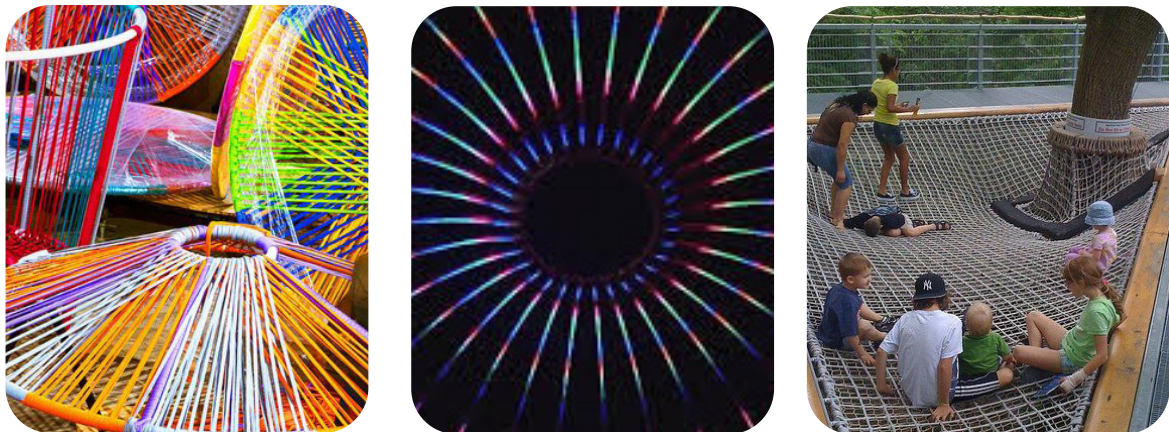
- AIMS
- To Create A Sense Of Arrival And Placemaking
 - Interactive And Interesting Light Display That Activates Spaces

MATERIALS

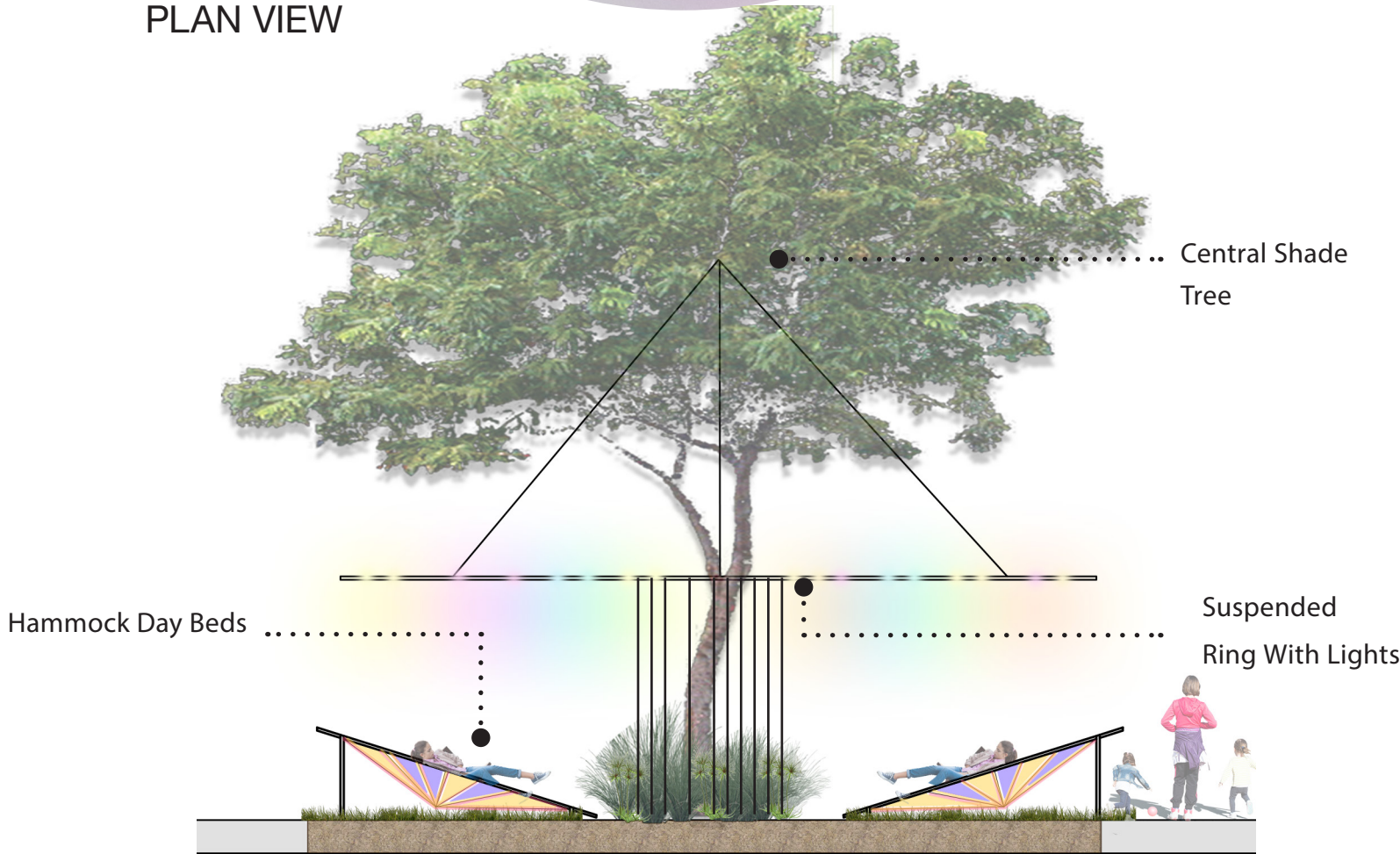


- 01- Feature corten structure
- 02- Colour display- at night becomes led light display
- 03- Hammock day beds

PRECEDENTS



PLAN VIEW





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