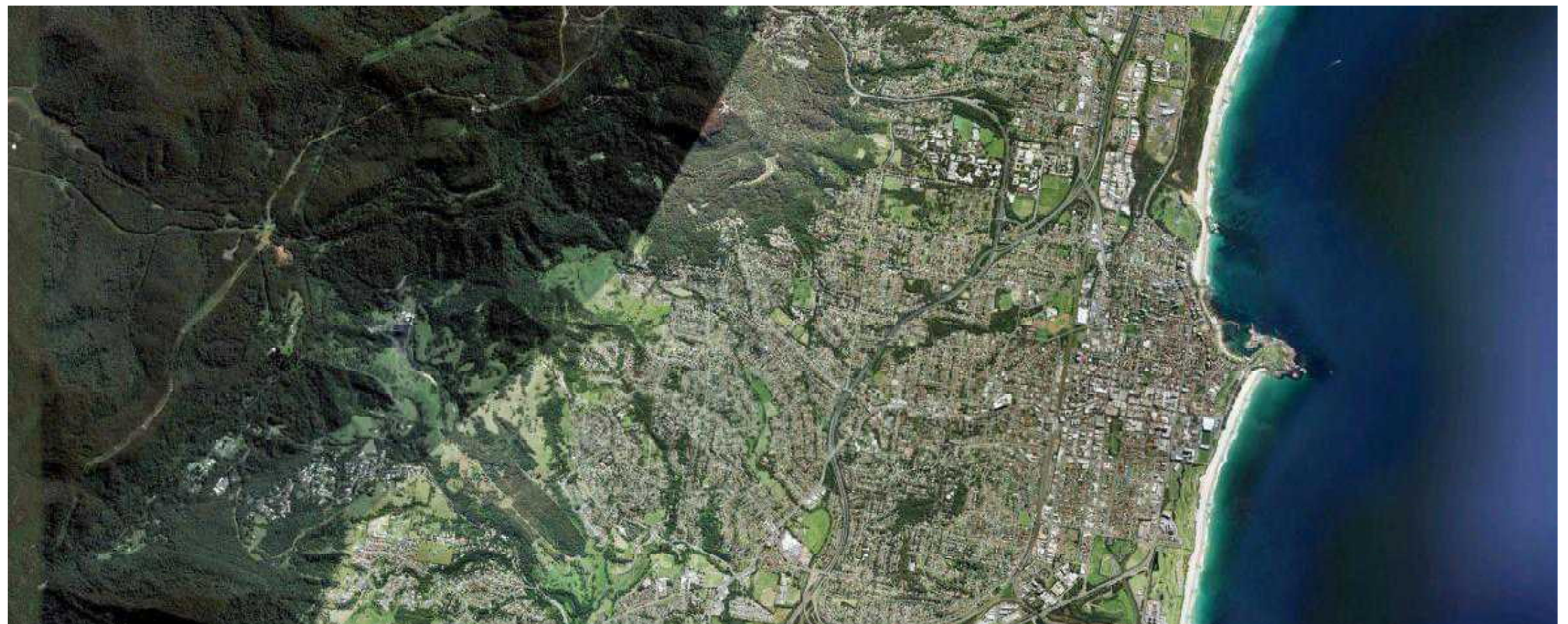


CROWN STREET MALL REDEVELOPMENT

Development Application Report: Summary of Analysis and Design



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Development Application Report: Summary of Analysis and Design

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Lighting Measurement Report	
on Existing Lighting for Crown Street Mall Wollongong	
prepared by Haron Robson, 21 April 2010	
Crown Street Mall Redevelopment	
Water Sensitive Urban Design and Stormwater Harvesting	
Concept design – August 2010 prepared by Equatica	

1. INTRODUCTION

Introduction

Wollongong Council commissioned the Government Architect's Office in December 2009 to develop concept plans for Crown Street Mall as part of an integrated public domain strategy to enhance the City Centre and contribute to the realisation of Wollongong as a major regional centre.

The key objective of the upgrade is to ensure that Crown Street Mall fulfils its role as the key public space within the Wollongong CBD with a clear and unique identity providing a positive link between the City Centre and the Blue Mile.

The primary focus of this project is the concept design of the Crown Street Mall for the area between Keira Street and Kembla Street including Church Street. Consideration has been given to the interfaces between the Mall and Globe Lane and connections to McCabe Park, however these areas are not within the current scope of works.

The following report is divided into three key components; site analysis, design principles and concept design. Section Two provides a summary of site analysis including topography, pedestrian connections, historic development, existing fixtures, services and planting. Section Three provides a summary of the guiding principles that have been developed for the mall based on the key issues identified. Section Four provides a detailed discussion of key components of the concept design including paving, planting, furniture, operation, lighting and program. The Development Application drawings are contained in an appendix to this document, and further detail may be found in supporting specialist reports pertaining to access, lighting and Water Sensitive Urban Design.

2. SITE ANALYSIS

Overview

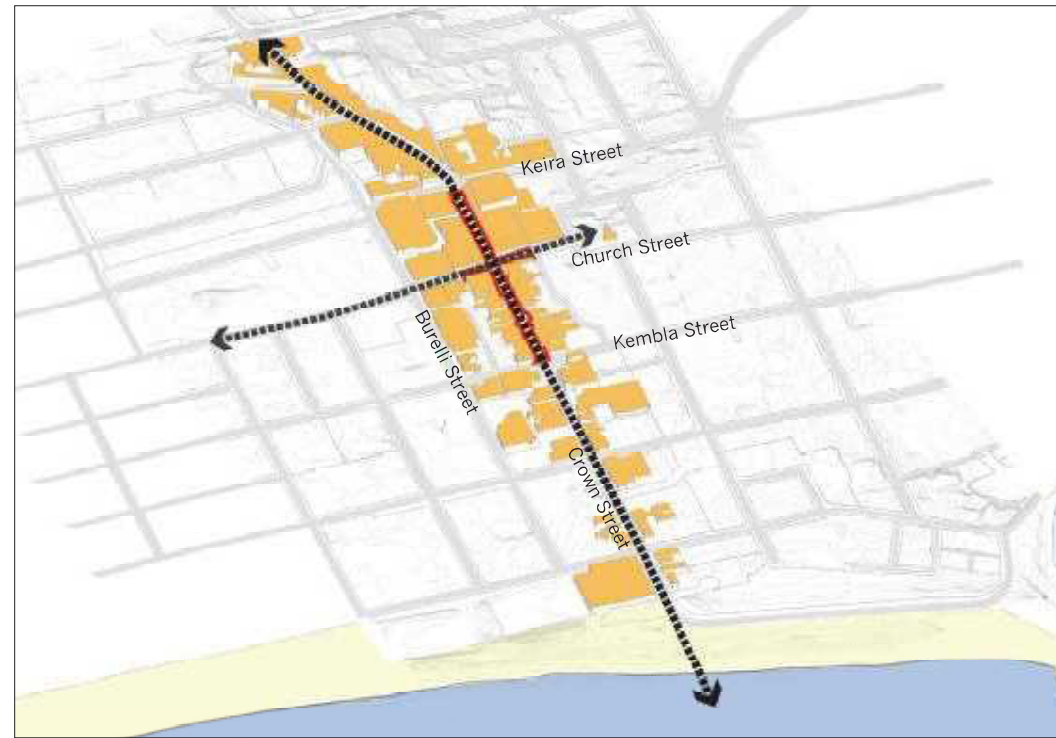
This section outlines existing site conditions including topography, pedestrian connections, historic development, existing fixtures, services and planting. The following text provides a summary of the key findings of the analysis.

- Crown Street is a historically significant street, providing the primary connection from surrounding areas to the town centre and to the Pacific Ocean beyond.
- The steeply graded terrain of the mall, particularly in the eastern sections of the mall from Church Street and Keira Street requires careful resolution to retain views and access.
- The mall acts as a key pedestrian connection from retail areas to public transport located at Burelli Street and Wollongong Station.
- The spire of St Michaels Cathedral and the Wesley Church are key visual landmarks. The opportunity exists to improve views to these elements and provide lighting.
- The majority of older buildings dating between 1880 and 1920 are located in the lower sections of the mall. The Wesley Church, Kawarra Chambers and Lang's buildings are located at the lower section of the mall and make a positive contribution to the streetscape. Significant changes to the building fabric in the upper reaches of the mall have occurred since 1960.
- Solar access into the upper sections of the mall differs from lower sections of the mall where buildings are lower. In the summer months there is solar access to the upper and lower sections of the mall, whilst in the winter months upper sections of the mall are shaded most of the day. Church Street has solar access year round.
- The existing temporary and permanent activities in the mall such as the markets and cafes are highly successful and opportunities exist to extend these facilities.
- Existing elements in the mall such as the covered stage, raised planter beds with tree plantings and steel columns create visual and physical obstructions and limit access. These elements also limit access for emergency vehicles.
- A range of furniture types and elements in a variety of finishes are currently located in the mall. The variety of elements makes it difficult to match and replace furniture.

- An independent audit of lighting elements on the mall revealed that lighting illumination levels are irregular and inconsistent. In some areas of the mall illumination levels are high, whilst in other areas it is substandard and does not comply with the appropriate requirements under the Australian standard (P6 rating). Existing pole top luminaries are inefficient with light output directed upwards. Flood lights have been included at low mounting heights and cause significant glare. Bollard lighting is primarily decorative and offers limited contribution to ground plane illumination. For further detail refer to the Lighting Measurement Report prepared by Haron Robson.
- The mall has a large number of underground services. These are located primarily along the building frontages on the northern and southern perimeters of the mall. These should be retained in their current location to minimise excess cost and impact on other users.

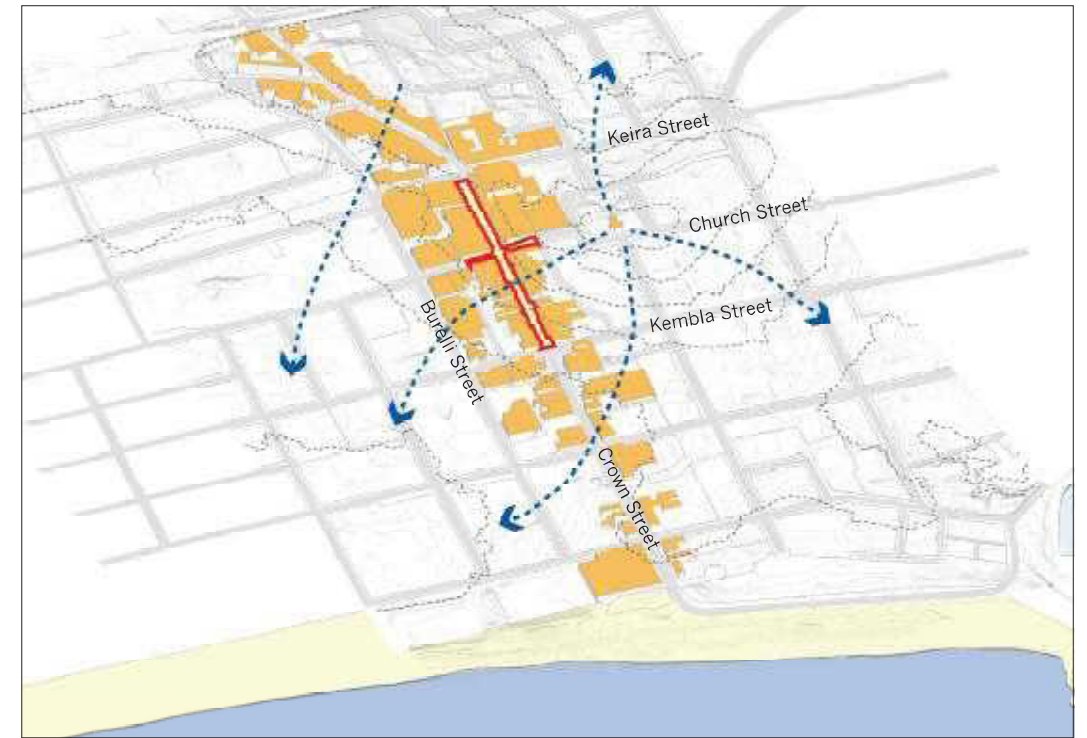
3. SITE ANALYSIS

2.1 TOPOGRAPHY AND LANDFORM



RIDGE TO SEA, CHURCH TO PARK

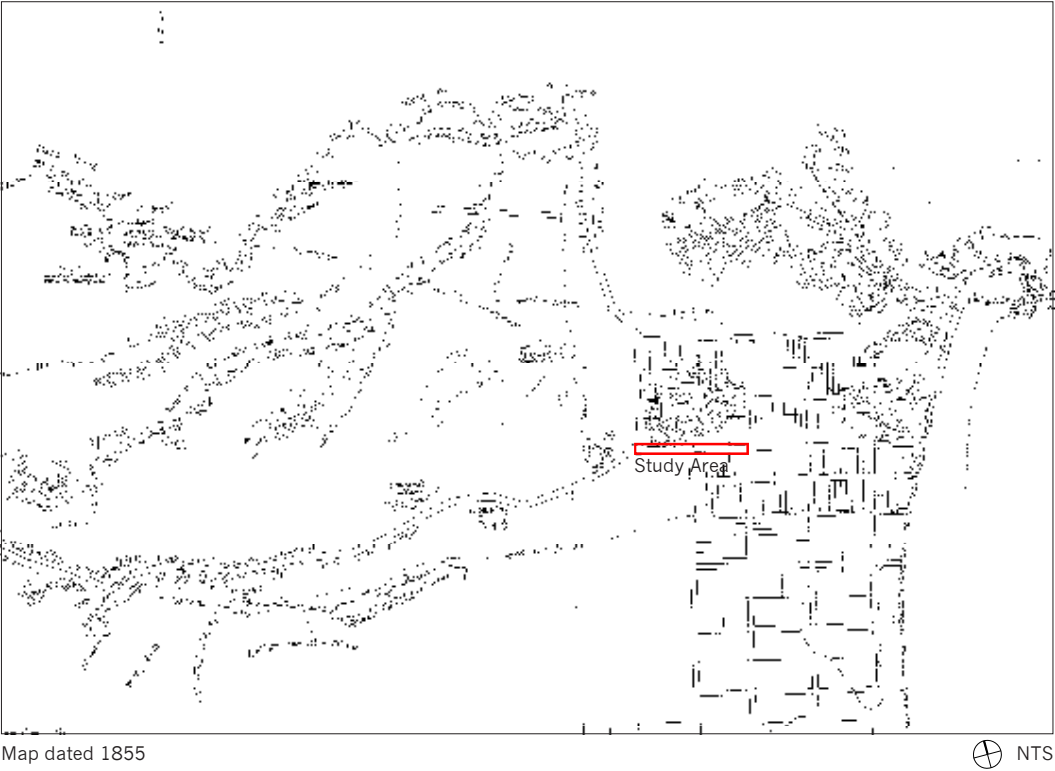
- Crown Street is a direct link from the ridge of the town centre to the Pacific Ocean.
- The mall is very flat between Keira and Church Streets, then displays a significant slope (1:36) between Church and Kembla Streets.
- A steep gradient is located on Church Street, connecting St Michaels Cathedral, McCabe Park and the low lying valley to the east.



WATER CATCHMENT AND FLOW

- Crown Street is the topographic highpoint in the study area, with overland flow directed to the valleys to the west and east.

2.1 HISTORIC MAPS OF WOLLONGONG

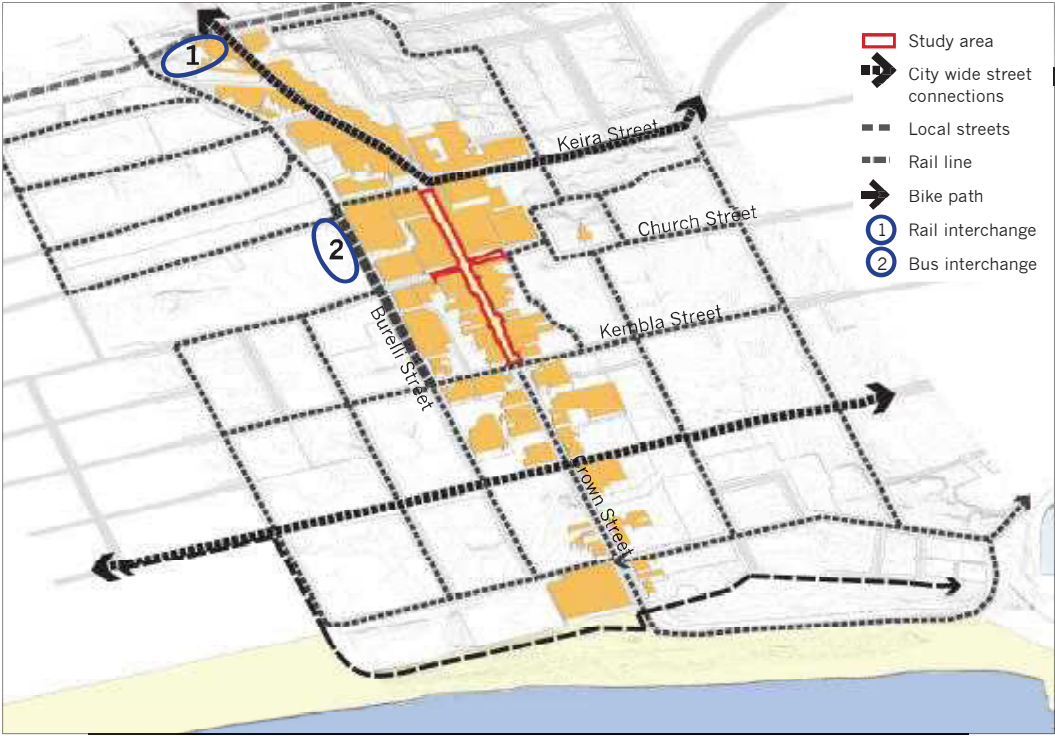


2.3 PARKS AND ACCESS



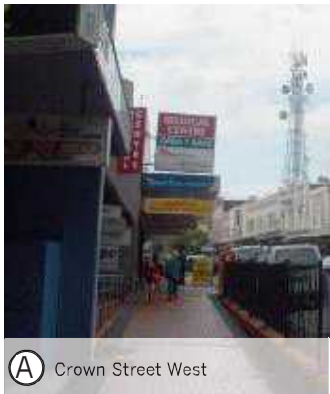
RELATIONSHIP TO PARKS AND PUBLIC SPACES

- Although public parks are located in close proximity to the Mall, they are hidden from view

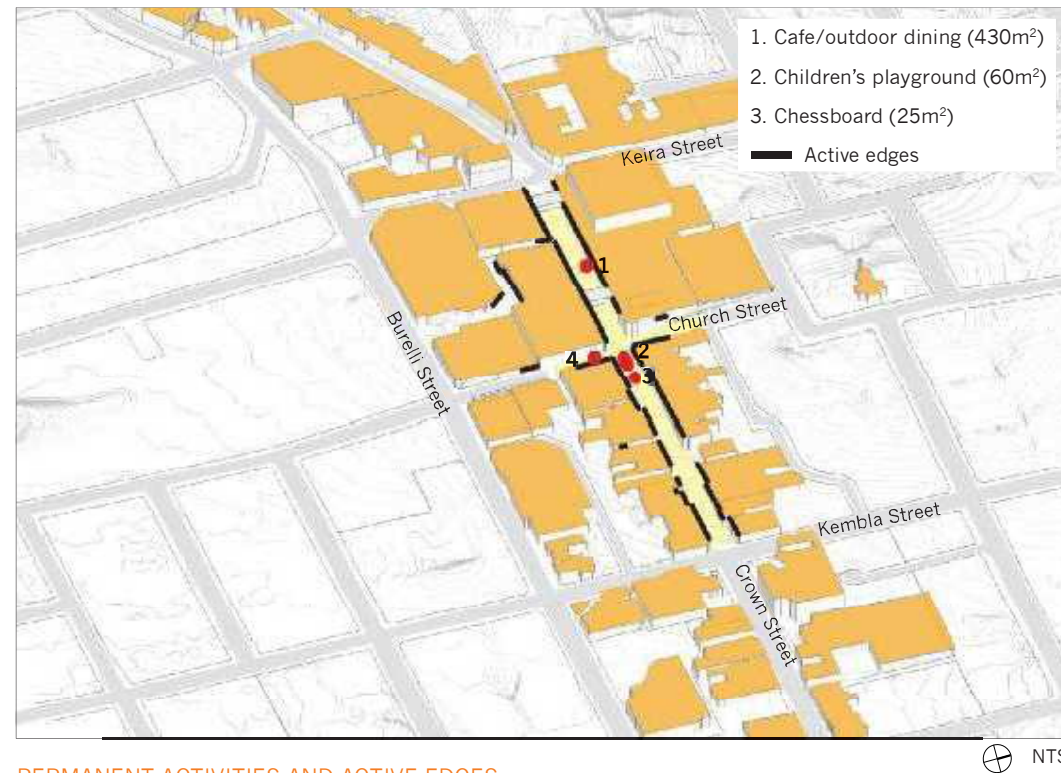


VEHICULAR ACCESS AND PUBLIC TRANSPORT

- Key public transport interchanges are located in close proximity to the Mall.
- Local streets surrounding the Mall are congested.



2.2 ACTIVITIES AND USES



PERMANENT ACTIVITIES AND ACTIVE EDGES

- Crown Street Mall has pockets of cafe seating that could be extended
- The chess board on Church Street is well used and highly successful.



① Gloria Jeans coffee external seating



② Central plaza: cafe seating



③ Children's playground



④ Chess board



TEMPORARY ACTIVITIES AND USES

- Temporary uses enliven the Mall. Excess clutter hinders the expansion of these uses. The location of the permanent canopy limits physical and visual access.



① Performance space on Church Street



② Weekly markets in Crown Street Mall

2.5 PHYSICAL AND VISUAL CONNECTIONS



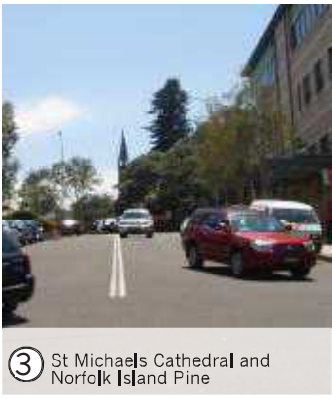
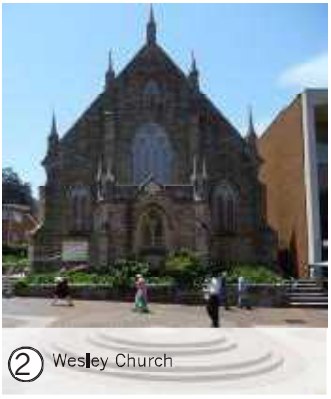
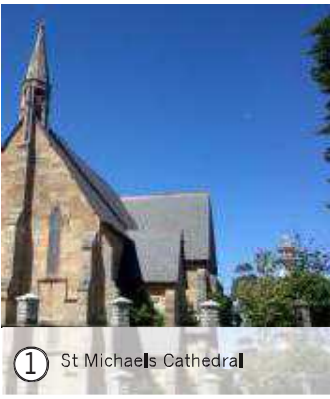
LOCAL CONNECTIONS

- A series of on-grade connections link surrounding streets to the Crown Street Mall. The Mall is punctuated by above ground walkways which impact views and reduce pedestrian traffic in the street.



KEY LANDMARKS

- The spire of St Michaels Cathedral and the Norfolk Island Pine (pre 1900 planting) are key visual landmarks from the Mall. The Wesley Church, located in the heart of the Mall, although not prominent from a distance, is a key landmark within the Mall.



2.3 HISTORIC DEVELOPMENT



DEVELOPMENT 1880 - 1920



DEVELOPMENT 1920 - 1960



DEVELOPMENT 1960 +



(A) c.1910



(B) c.1887



(C) c.1927



(D) c.1920



(E) 1971

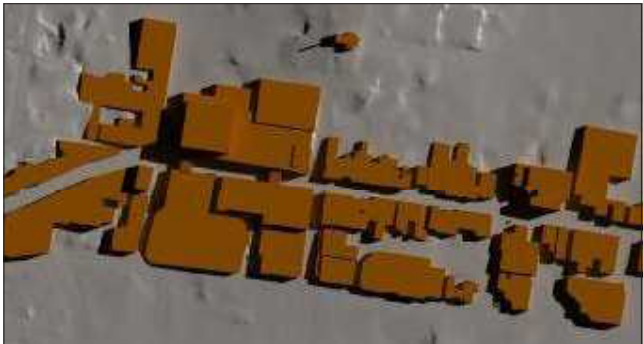


(F) c.1971

The majority of significant buildings are to be found in the lower section of Crown Street Mall, including the Uniting Church (No. 116-118), Kawarra Chambers (No.120-124), Lang's Buildings (No. 95-109), and Redback Music (No.133). In the upper section of the mall, the David Jones department store (No. 163-171), constructed in 1965 and designed by prominent architect Crawford Mackellar (who also designed the David Jones Market Street and Parramatta stores) is a highly intact significant building. The adjacent buildings (Nos. 179-185) and currently occupied by Payless Shoes, Angus & Robertson and Total Expressions also make a positive contribution to the streetscape. Significant changes to the building fabric to the upper reaches of the Mall have occurred since 1960.

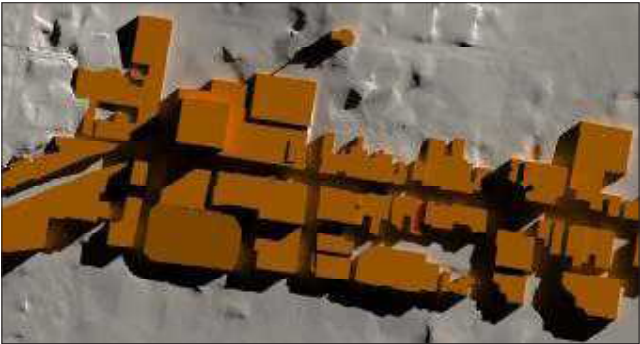
2.7 SOLAR ACCESS

MARCH



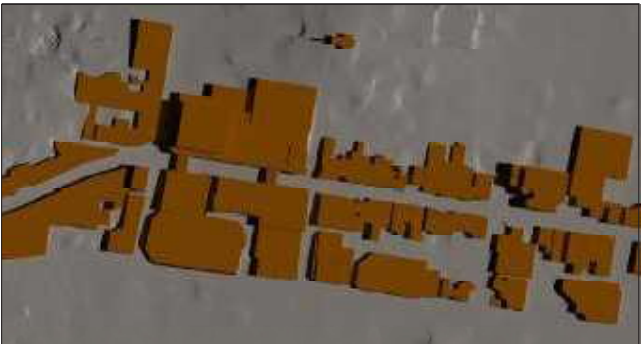
9am

JULY

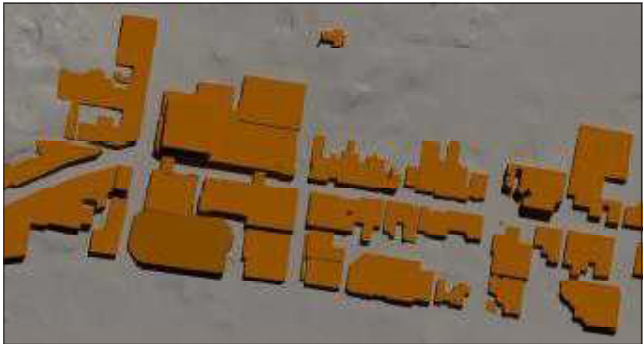


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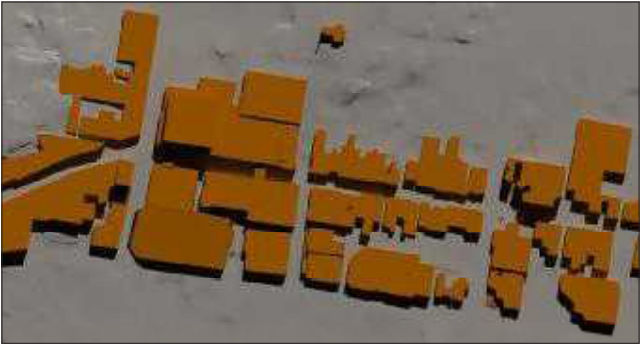
DECEMBER



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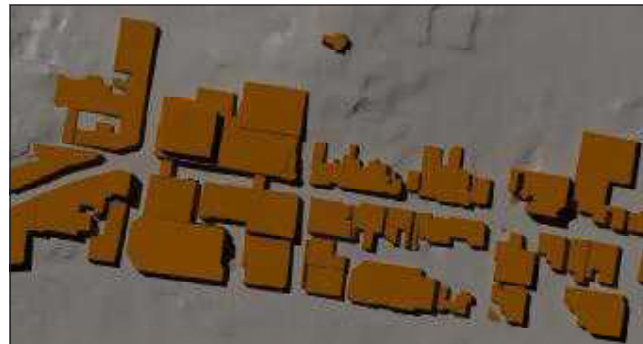
12pm



12pm



12pm



3pm



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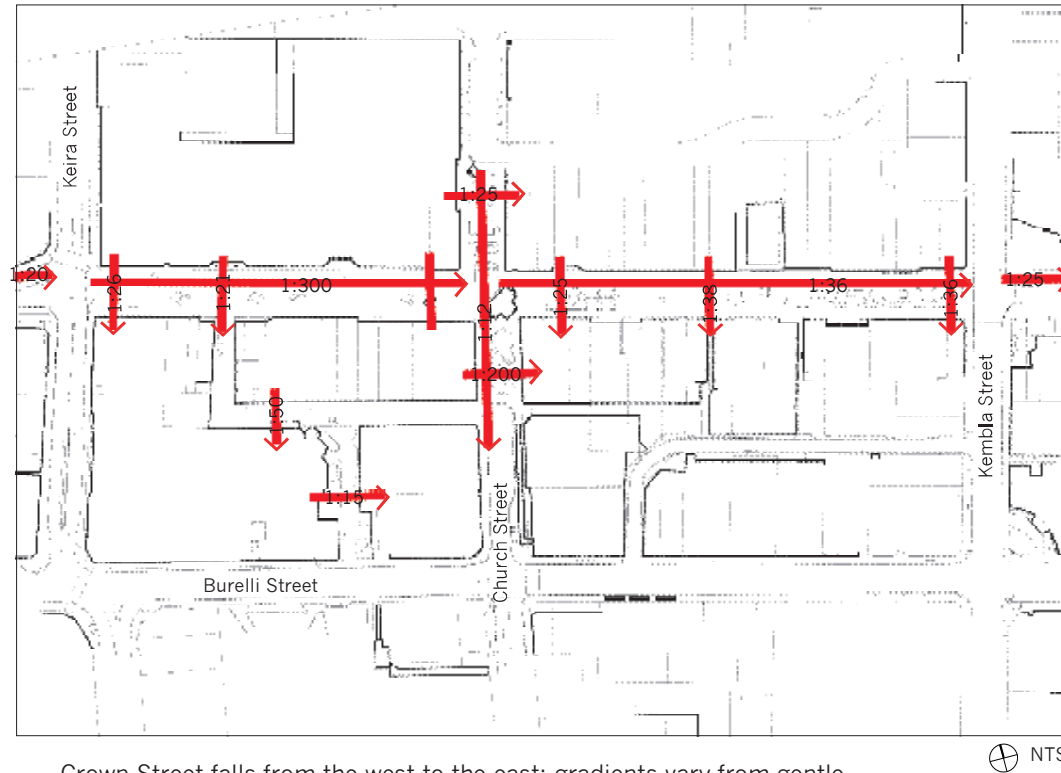


3pm



- The upper reaches of the Mall are largely in shade in mid-winter. There is good solar access to the lower sections of the Mall.

2.8 GRADIENTS



- Crown Street falls from the west to the east; gradients vary from gentle to more pronounced. There is currently a steep cross fall to the south of the Mall. Church Street is extremely steep, with prominent views of the steelworks to the south-east.

2.9 EXISTING TREE PLANTING



- The majority of tree planting on Crown Street is incorporated in raised planters, some of which are deteriorating with age.
- Planting in the western section of the Mall is limited, and located under the existing shade structure.
- A variety of native and non-native species have been used - Plane trees, Chinese Elm and Palms are the dominant species.

London Plane	<i>Platanus x hybrida</i>
Chinese Elm	<i>Ulmus parvifolia</i>
Palms	<i>to be confirmed</i>
Pencil cedar	<i>Polyscias morrari</i>
Small leaved Lilly Pilly	<i>Syzigium luehmannii</i>
Spotted Gum	<i>Eucalyptus maculata</i>
Wallangara White Gum	<i>Eucalyptus scoparia</i>
Sydney Blue Gum	<i>Eucalyptus saligna</i>
Sydney Peppermint	<i>Eucalyptus piperita</i>
Robina	<i>Robina sp.</i>
Swamp She-Oak	<i>Casuarina glauca</i>
Broad-leaved Paperbark	<i>Melaleuca quinquenervia</i>
Hills Fig	<i>Ficus hillii</i>

2.10 LIGHTING FIXTURES



- There are a number of light fixtures in the Mall, attached to existing structures, on freestanding posts and in garden beds. The existing lighting illumination levels are irregular and inconsistent. Existing pole top spherical luminaires are inefficient and difficult to maintain. Flood lighting is generally mounted too low and causes uncomfortable glare. Bollard lights contribute little to ground plane illumination.



Pole lighting



Light fittings mounted on columns



Garden bed lighting



Pedestrian overpass lighting

2.11 FURNITURE



- Crown Street has a range of furniture types in a variety of finishes. These include free standing benches, benches with back rests, wall mounted benches and fibreglass tables and seats. The variety of benches creates difficulty in asset replacement.



Fibreglass moulded table and seats



Bench



Brick seating

- Permanent outdoor dining
- ▨ Temporary outdoor dining
- Table and bench seats, cast iron base, timber slats: natural
- Wall mounted seat, cast iron armrests, timber slats: natural
- Bench, cast iron base, timber slats: natural
- Table and bench seats, steel base, painted timber slats
- Seat, steel base, painted timber slats
- Bench, painted timber slats
- Informal brick seating
- Fibreglass table and seats

2.12 OBSTRUCTIONS



- There are currently a number of obstructions in the Mall. These include raised steps, raised planters, steel columns supporting the existing shade structure and water feature pools. These elements create visual and physical barriers and limit access.



Brick planter/seating box



Brick seating steps

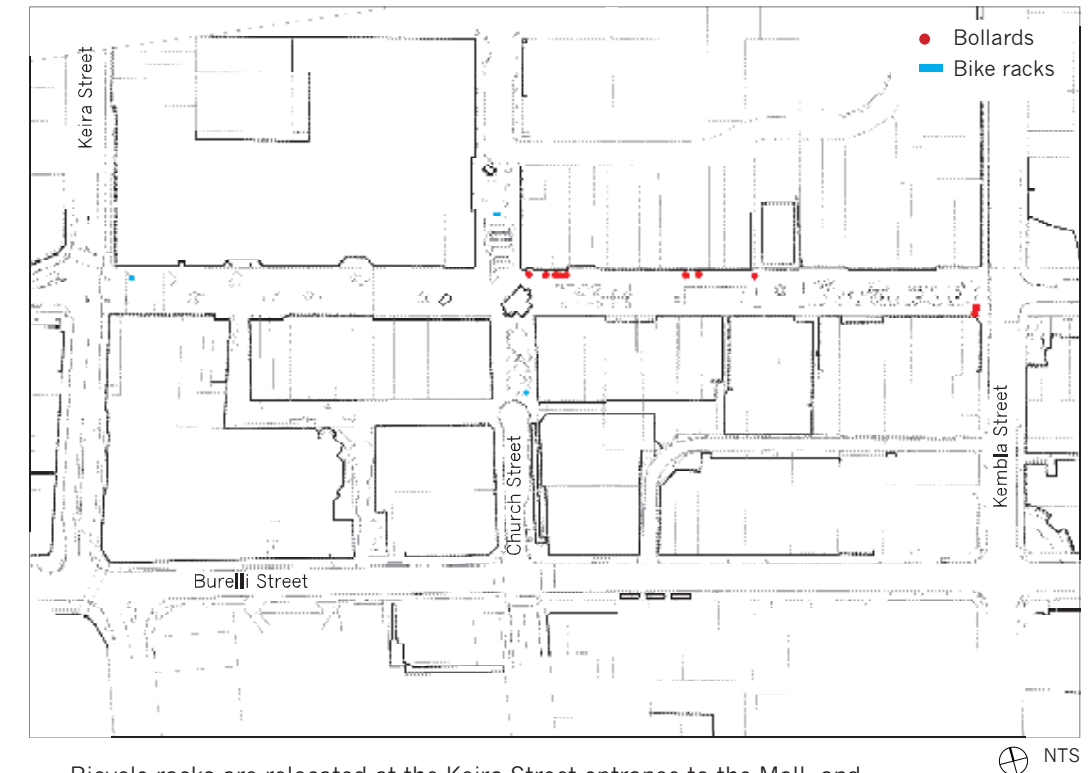


Raised edges



Amphi theatre

2.13 BOLLARDS AND ADDITIONAL FURNITURE



- Bicycle racks are relocated at the Keira Street entrance to the Mall, and on Church Street. Bollards are located primarily along the northern side of the Mall, to prevent damage to building facades from trucks.



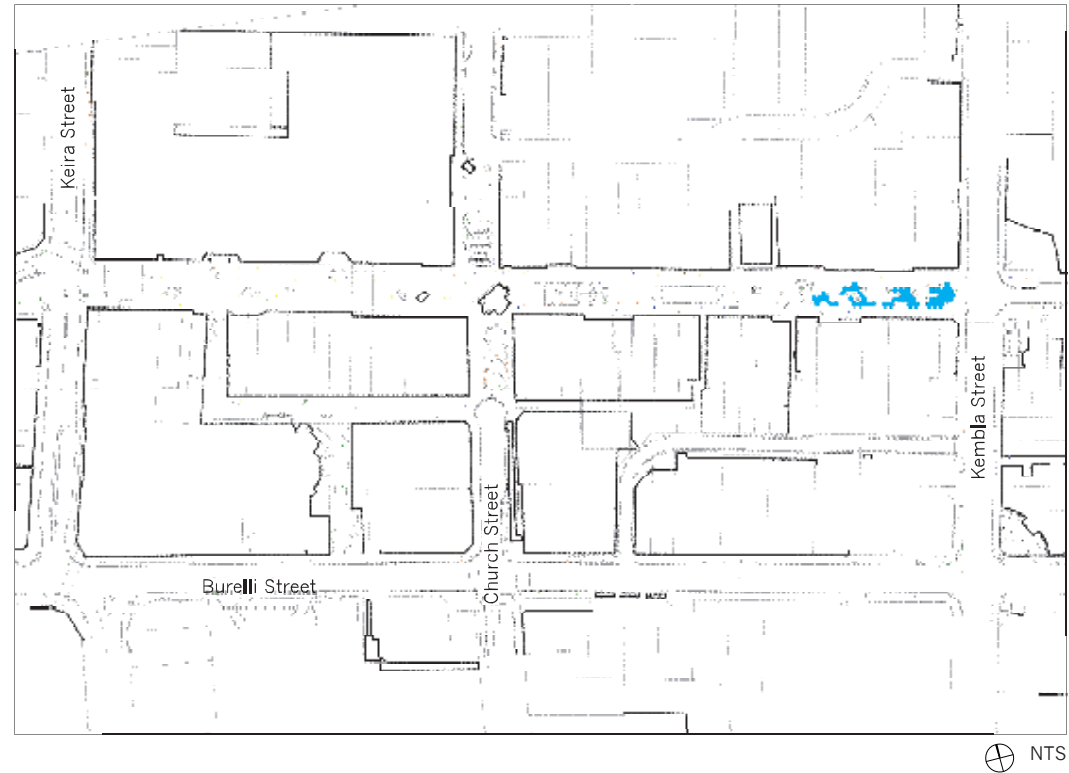
Bollards



Bike racks



2.14 WATER FEATURE



- A raised water feature is located in the lower portion of the Mall and provides relief from the exposed paved surfaces.
- Raised brick edges form and define seating areas, however higher elements pose a safety risk and layout limits the use of the space.

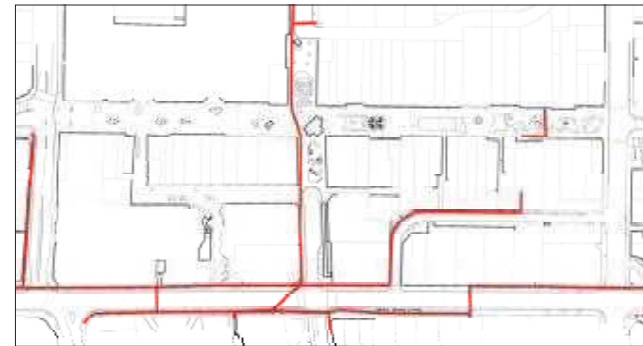


Water ponds



Water fountain

2.15 EXISTING SERVICE LOCATIONS



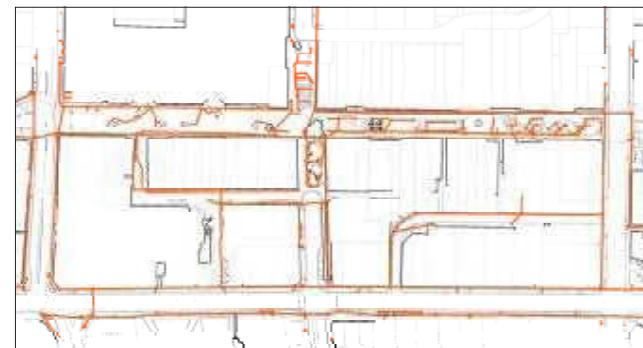
Electrical High Voltage



Telstra



Sewer



Electrical Low Voltage



Gas



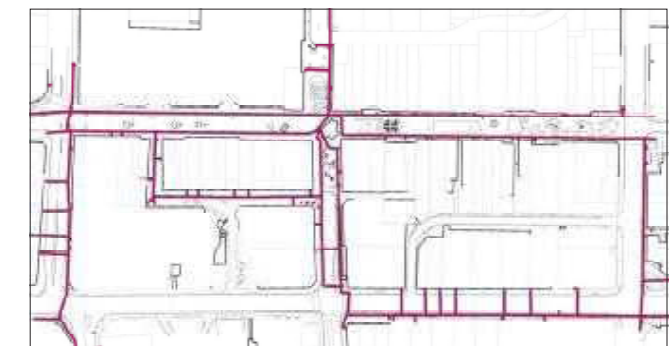
Stormwater lines



CCTV



Potable Water

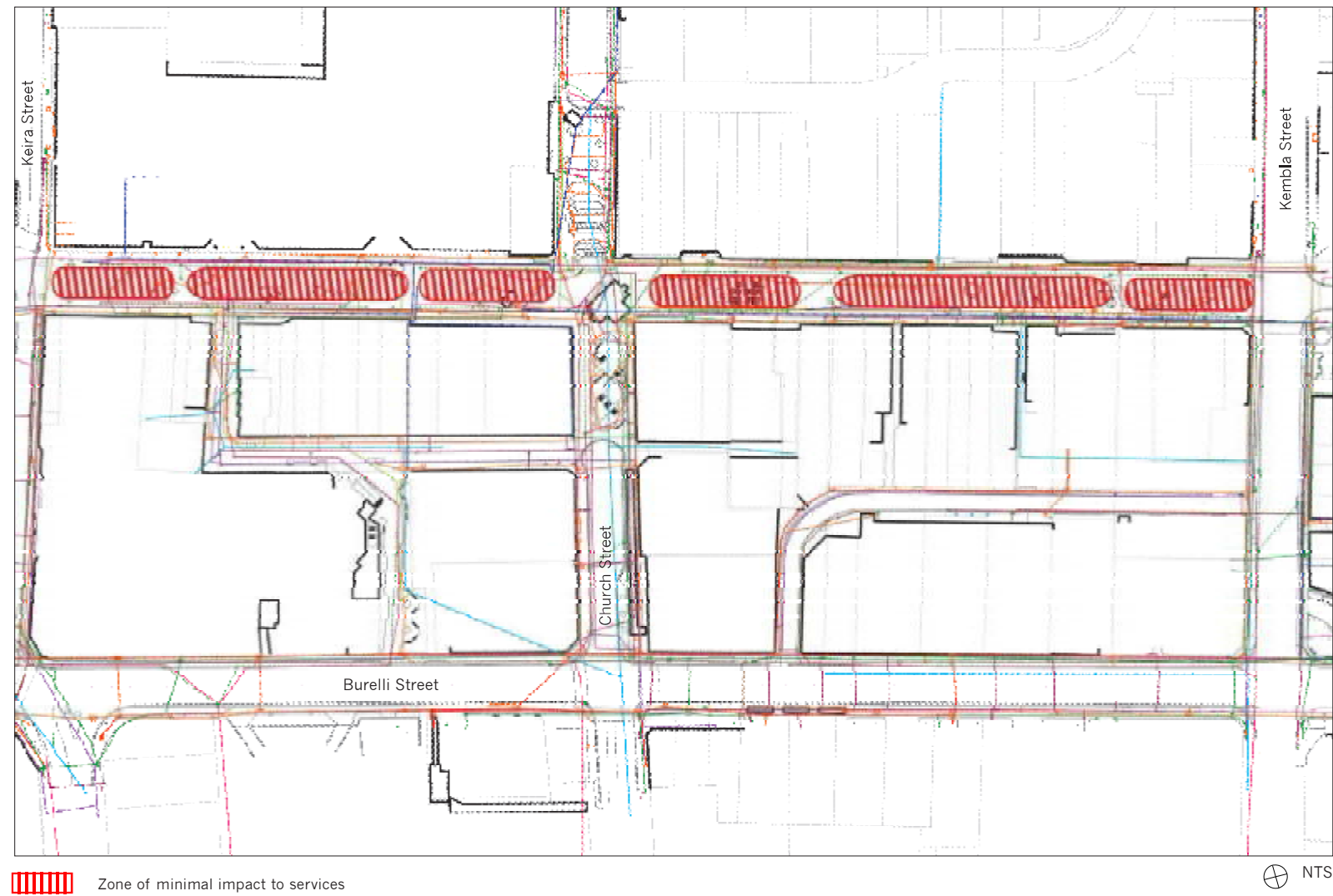


Stormwater



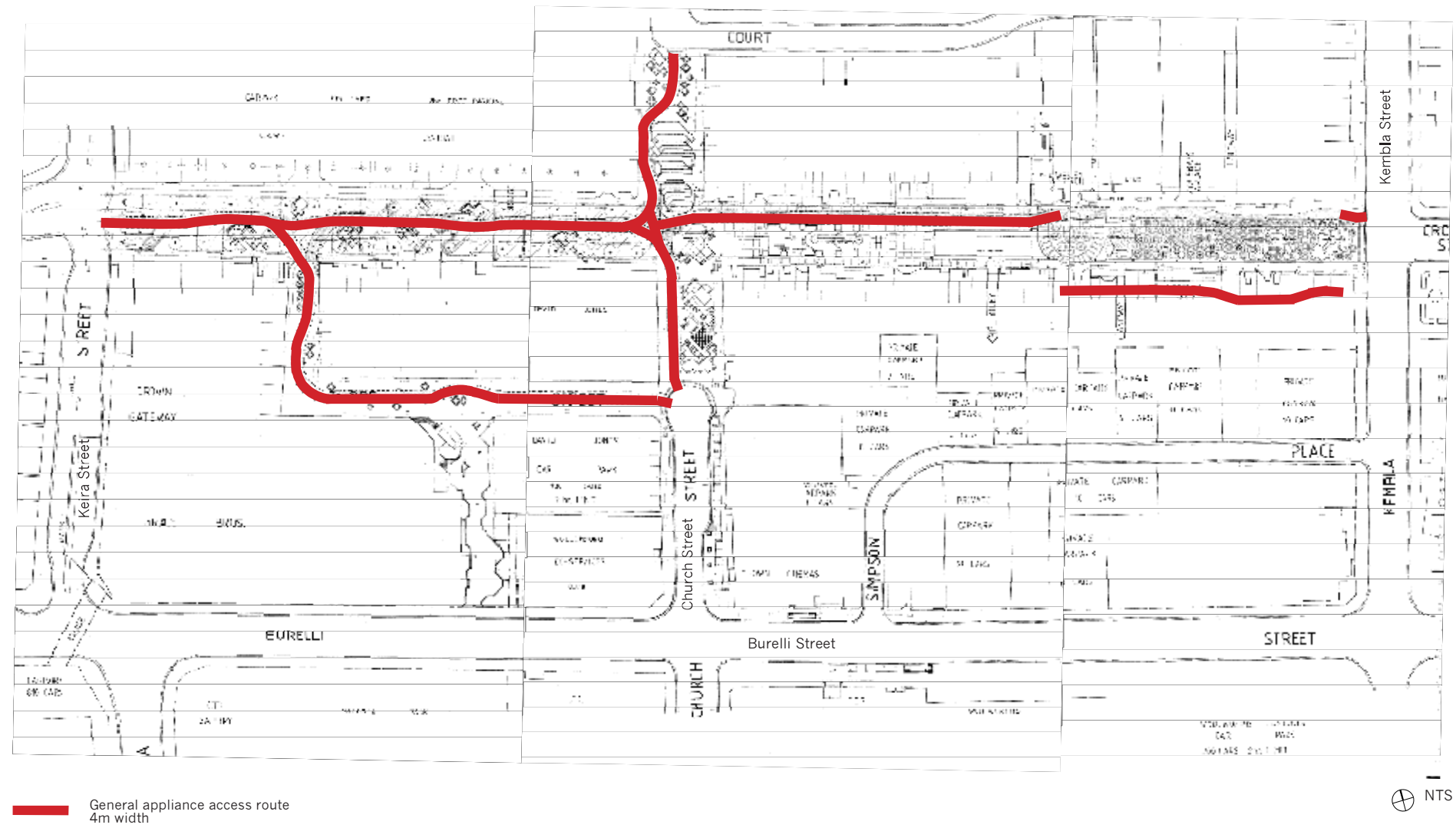
The above plans show separate diagrams for each underground service.

2.16 ZONES OF MINIMUM IMPACT TO SERVICES



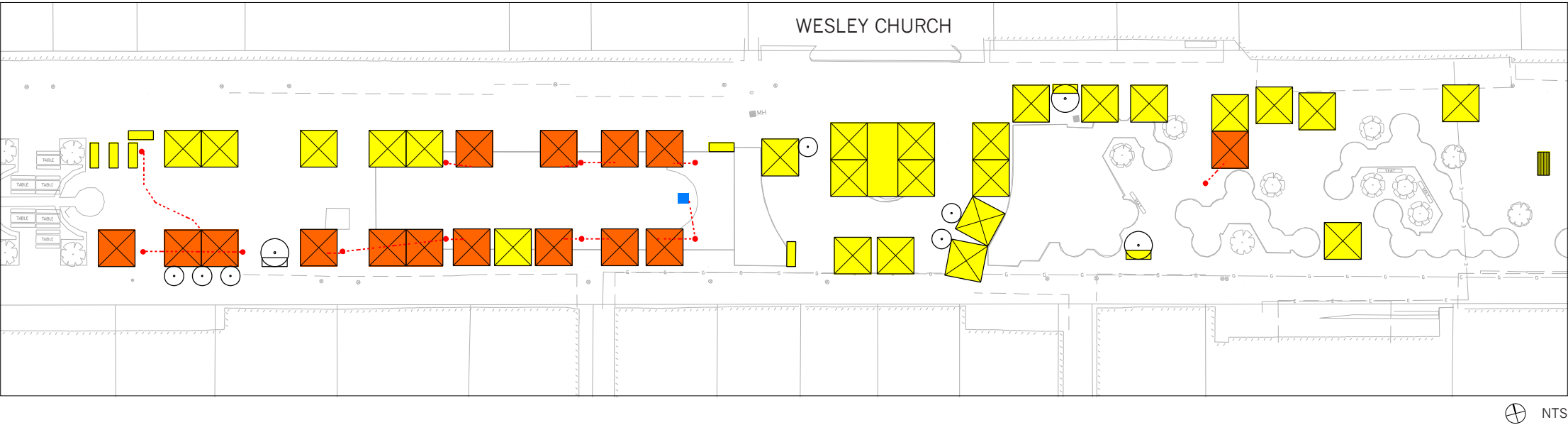
The mall has a large number of underground services. These are located primarily along the building frontages on the northern and southern perimeters of the mall. These should be retained in their current location to minimise excess costs and impact on other users.

2.17 EXISTING EMERGENCY VEHICLE ACCESS



- Currently access is via a standard pumper through the Mall. This is negotiated with care during market days.
- Ladder Platform has limited access and would have difficulty working effectively in some areas.

2.17 EXISTING MARKET LAYOUT



The existing market area comprises 229m² with a total of 48 stalls. The arrangement is haphazard and highly encumbered by existing obstacles. Current facilities are as follows:

- 6 no. (2 x 3m table & umbrella)
- 42 no. (3 x 3m gazebo)
- 18 of the stalls have access to power via aerial extension cords
- One ad-hoc water station services all stallholders.
- Vehicular loading is before 9am only and emergency access is extremely difficult during market days.

Key

3x3m Powered site

3x3m Unpowered site

2x3m Umbrella table

2x3 Table only

Electrical pole

Electrical cord

Hand washing station



3 x 3m Unpowered site



3 x 3m Powered site



2 x 3m Umbrella table site



Electrical supply



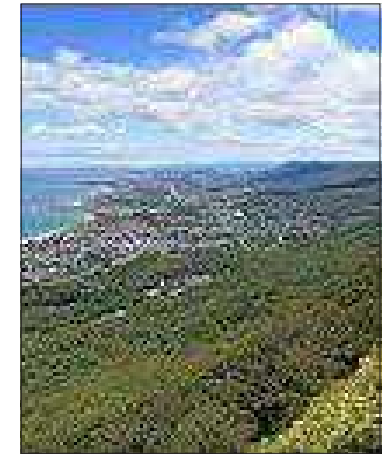
Hand washing station

4. DESIGN PRINCIPLES

Based on the brief, community feedback and analysis, a series of design principles have been developed to guide the concept design for the Mall. These are:

PRINCIPLE 1: AN INVITING LOCAL PLACE

- Respond to and reflect the natural, social and cultural dynamics of Wollongong. Incorporate the topographical qualities, the slope and fall to the ocean and the fine grain of the local lanes.
- Improve amenity and provide shade and shelter. Create areas of respite and resting places amongst the activity of the street. Address safety issues and create a night time environment that is safe and beautiful.



PRINCIPLE 2: SIMPLICITY AND UNITY

- Create a unified framework that informs materials and elements including furniture and lighting.
- Remove excess clutter to allow for movement across the space and clear passage.
- Create visual and improve physical connections



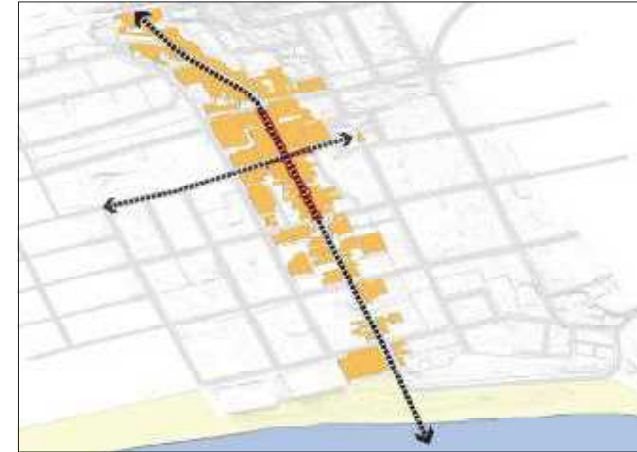
PRINCIPLE 3: A FLEXIBLE STRUCTURE

- Create a structure that facilitates temporary events as well as everyday events. These include children's play, concerts, markets, festivals, temporary art installations and busking.



PRINCIPLE 4: A CONNECTED PLACE

- Restore the view from within the Mall to the Pacific Ocean.
- Create visual and improve physical connections
 - escarpment to sea
 - ridge to valley
 - church to park
 - along the lanes



PRINCIPLE 5: A SAFE AND SECURE PLACE

- Provide clear sight lines
- Ensure tree planting is carefully selected to ensure clear views through the mall.
- Locate a variety of uses along the length of the mall.
- Create a clear hierarchy of safe night time paths.
- Ensure lighting is designed to ensure appropriate surveillance and avoid shadows and glare.



PRINCIPLE 6: DURABILITY

- Create a structure that facilitates simple asset management.
- Utilise materials and elements that are robust and easy to maintain.



4 SUMMARY OF CONCEPT DESIGN

Crown Street Mall is to be renewed as a new vibrant pedestrian space that reflects the unique context and character of Wollongong. The mall will be an inclusive and accessible public space that has active edges with opportunities for sitting, resting, interaction and enjoyment. The concept design has been developed to work with the existing site conditions to create a seamless public space that enables a variety of uses and activities to occur.

The design is reflected in the following key moves:

- Work with the existing drainage and cross fall
- Respond to aspect
- Provide clear circulation routes
- Create spaces for everyday and temporary events
- Create areas of rest and respite
- Create opportunities for play
- Create a safe, secure and delightful night time place
- Simplify and unify the groundplane
- Activate the mall with a vibrant, community-based program.

Key elements in the concept development are as follows;

- A stand of trees runs along the length of the mall, interspersed with open squares and spaces at key locations. This creates a pattern of shaded zones, with open spaces at Church Street and Church Square providing opportunities to gather, observe and play. This asymmetrical planting of Spotted Gum trees is located along the southern side of the mall, providing the most effective shade during summer months. These locally native trees have been selected for their high crowns and straight trunks to allow for unimpeded views through the mall.
- The amphitheatre is retained in Church Street and reconfigured to incorporate a stage. A square is located in front of the Wesley Church that can be programmed for events and the Friday markets. Illawarra Flame tree, a deciduous tree native to Wollongong, is planted at Church Square and Church Street allowing for opportunities to enjoy the winter sun.
- Play elements have been incorporated in the mall to stimulate fun, creativity and social interaction. At Church Square, an interactive and dynamic water play plaza is proposed. This incorporates water jets into paved areas that can be activated by ground sensors. A controller

allows a variety of different heights of jets at different times creating an ever-changing play environment. Water play is to be operated using a programmed timer allowing the jets to be switched on and off during key times or events.

- An interactive children's play element has been incorporated into the western section of Crown St Mall, adjacent to Church Street. Musical plates are incorporated into paving elements creating a musical 'hopscotch'. This allows children play melodies and scales individually or in groups.
- Other play elements including the giant chess board have been retained in reconfigured terraces in the lower section of Church Street. Tables and chairs are also located under deciduous trees.
- Clear circulation zones have been provided. A generous path is provided along the north side of the street to allow for easy access including access for servicing and emergency vehicles. This improves sight lines along the Mall by removing clutter to enhance way-finding, safety and security. Unimpeded access is provided along shop frontages to allow for browsing and window shopping. Tree planting is staggered to allow for informal pedestrian access under trees.
- Custom seating is provided under the tree planting and overlooking Church Square. This provides high quality seating, gathering and resting areas. The furniture has been designed to be comfortable, functional and unique to Wollongong. There are a number of configurations including seats with backrests, benches and bench and table combinations.
- Lighting has been designed to fulfil functional requirements as well as create a distinctive and beautiful space at night. Light columns are located at eight metre intervals in alignment with tree planting. Lighting fixtures, speakers, banners and CCTV are attached to the columns. Lighting has been designed to operate in two modes, "social mode" which provides lighting to a level appropriate for public pedestrian spaces (Australian standard P6 level) and "secure mode" which provides high illumination flood lighting during key periods. The secure lighting mode can be activated as required.
- Decorative lighting has been incorporated on outreach arms fixed to light columns. These decorative lanterns with LED lights weave through the tree canopy. LED lamps incorporate various colour filters to allow for a

changing palette of lantern colours throughout the evening.

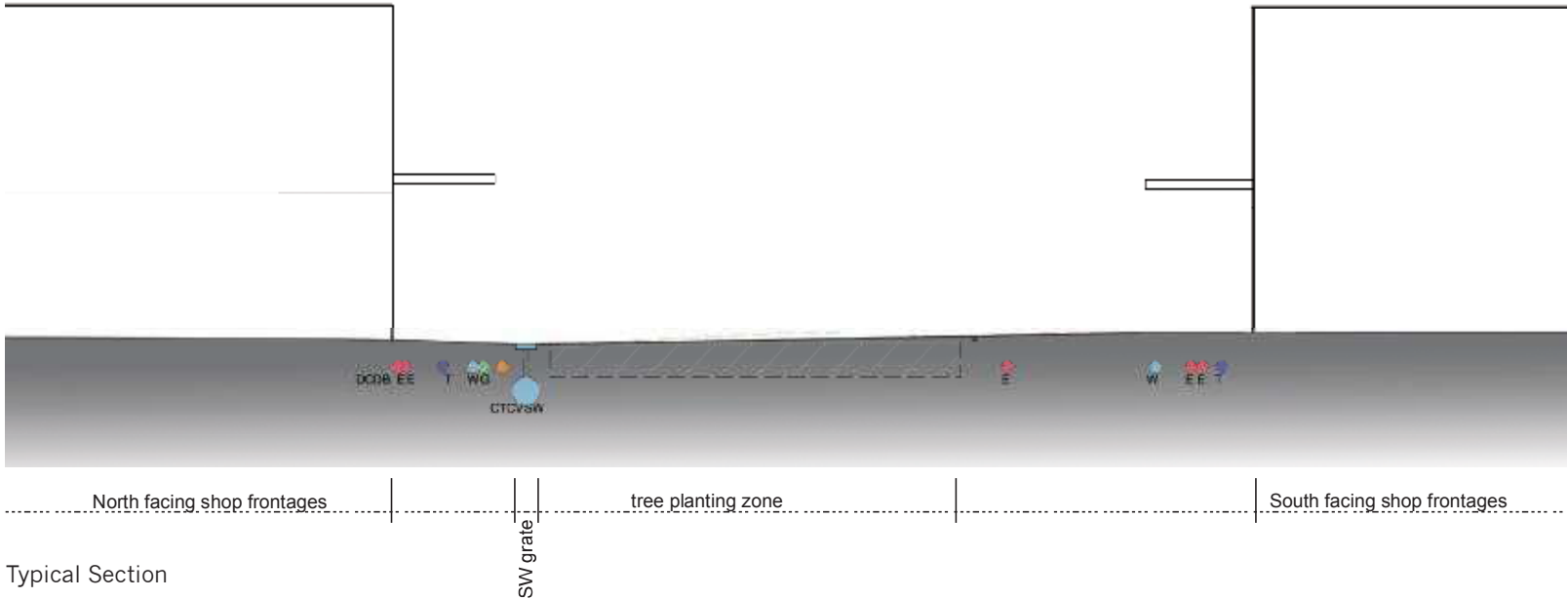
- Market stalls are retained in approximately the same location as existing, in Church Square. The scheme allows for market stalls to extend along the full length of the mall, allowing opportunities for additional use such as night markets.
- The ground plane has been slightly modified to work with the existing drainage and cross falls. A series of decorative grates direct storm water runoff into tree pits to maximise tree health.
- The design incorporates Water Sensitive Urban Design principles including safe overland conveyance of flood flows and filtering and harvesting of runoff from small rain events. Runoff from the mall will be collected within a network of grated trenches and delivered to the street trees during each rain event. Energy efficient lighting and sustainable materials will be sourced.

These elements are explored in more detail in the following section.

4.1 DRAINAGE AND CROSS FALL

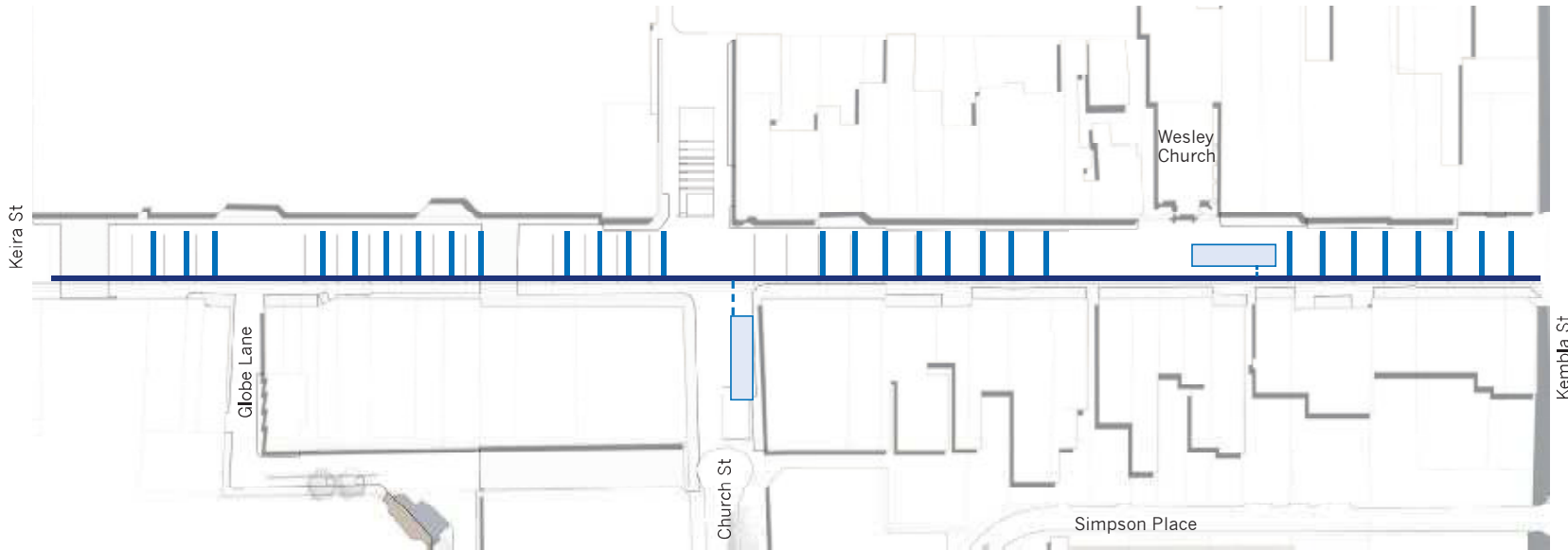
The design works with the existing grades as much as possible in order to minimise disturbance to existing services.

- An existing crossfall is apparent on the street which connects to a series of circular pits.
- An opportunity exists to install a single continuous element to collect stormwater along the southern side of the street.
- Secondary grates provide supplementary capacity and allow for filtration into tree planting zones for irrigation.
- The proposal aims to articulate and celebrate the flow of water.



Key

- Trench grate type 1**
400mm wide linear trench grate; asymmetrical location over existing SW pipe
- Trench grate type 2**
100mm wide secondary trench grate at 8m centres.
- SW storage tank**
Option for location of SW tank for irrigation



⊕ Not to Scale

4.1 DRAINAGE AND CROSS FALL

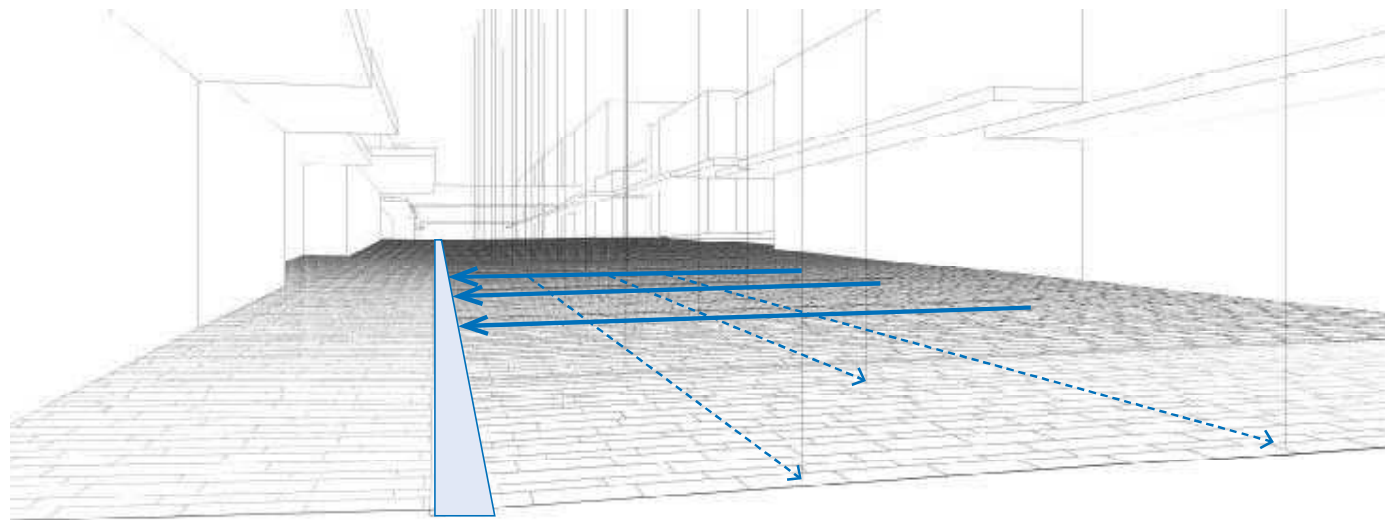
The design incorporates Water Sensitive Urban Design principles and adopts the following philosophy:

- Safe overland conveyance of flood flows (1:100yr ARI)
- Filter runoff from small rain events and harvest for reuse or infiltrate to ground water
- Pipe and channelise medium rain events (5 yr ARI)
- Runoff from the mall will be collected within a network of grated trenches and delivered to the subsoil surface during each local rain event.

Refer Water Sensitive Urban Design and Stormwater Harvesting Concept design Report – Equatica August 2010 for more information.



Precedent images



Perspective diagram: stormwater runoff collected and diverted to tree pits

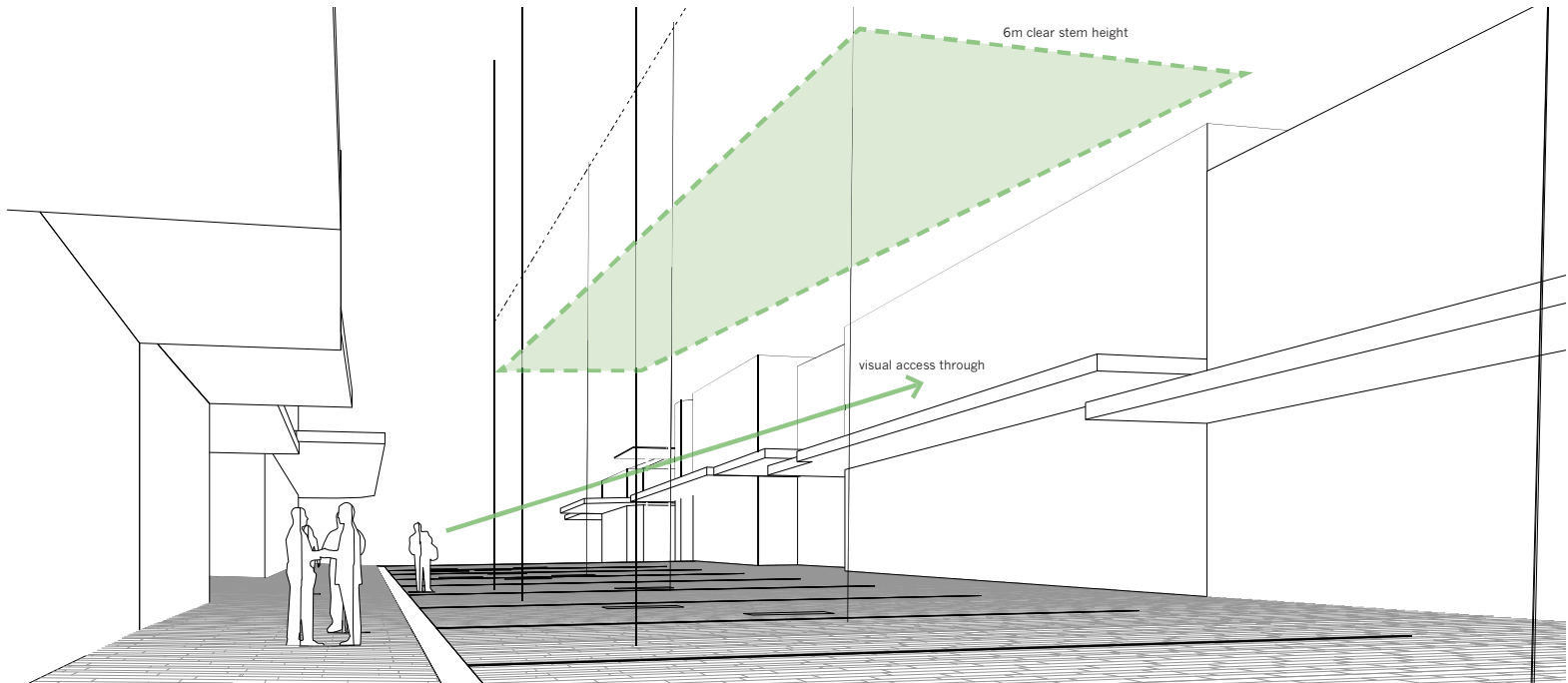
4.2 ASPECT AND TREE PLANTING

Tree planting forms an essential component of the proposed design to mitigate unfavourable climatic conditions and provide amenity within the mall.







The selection of tree species must balance shade provision and visual connections to meet requirements for safety by design. A matrix was formulated in order to select the preferred species.

Criteria for selection:

- Light canopy cover to allow for appropriate microclimate and shade during summer and winter
- Native species to reflect local character
- Clear stem height - minimum height 6m at maturity to allow for provision of lighting under
- Availability in large size to minimise damage from vandalism
- Quick establishment



Perspective diagram showing height of canopy

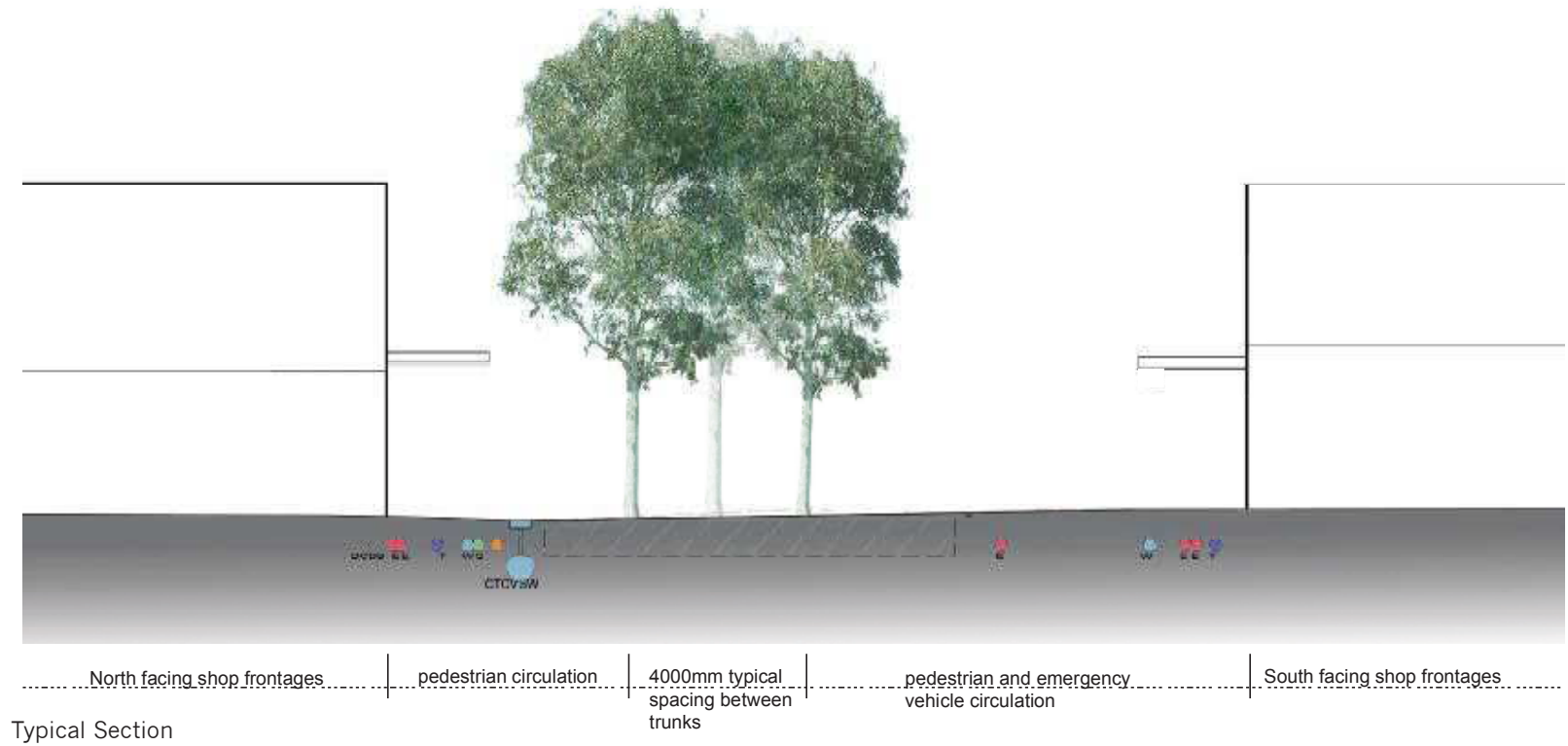
CRITERIA	SPECIES						
		Corymbia maculata	Elaeocarpus reticulatus	Brachychiton acerifolius	Flindersia xanthoxyla	Podocarpus elatus	Agathis robusta
Straight trunk		●	●	●	●	●	●
Clear stem height >6m		●	○	● if pruned	● if pruned	● if pruned	● if pruned
Management issues		○ leaf litter	○ flowers and fruit	○ flowers and seed pods	○ spiny fruit	○ fruit	○ spiky trunk, large fruit
Light canopy		●	○	○	○	○	○
Suitable mature height (approx 15m)		○ 20m	○	●	●	●	○ 18-30m
Quick to establish		●	●	○	●	○	○
Advanced stock available		● 400L	● 300L	○ 100L	○ 100L-300L	○ 100L	○ 150L
Locally native		●	●	●	○	●	○
Widely used in urban setting		●	●	○	○	○	○

Matrix of tree selection options


4.2 ASPECT AND TREE PLANTING

The proposed design includes the following approach to planting:


- Assymetrical planting of trees to provide a unifying visual quality as well as much needed shade on the southern side of the mall. The intention is to create a strong avenue quality fostering views up and down the mall.
- Trees will be chosen for their high crowns and straight trunks to minimise visual clutter
- Strategic splashes of colour from tree planting will contribute to the articulation of secondary spaces
- Maintain use of local species - Spotted Gum as the primary species, supplemented with Illawarra Flame trees at Church Square and Church Street
- The trees will be planted within a continuous strip of soil media along the entire mall. Pavement will be reinstated over the tree roots to provide for pedestrian amenity.



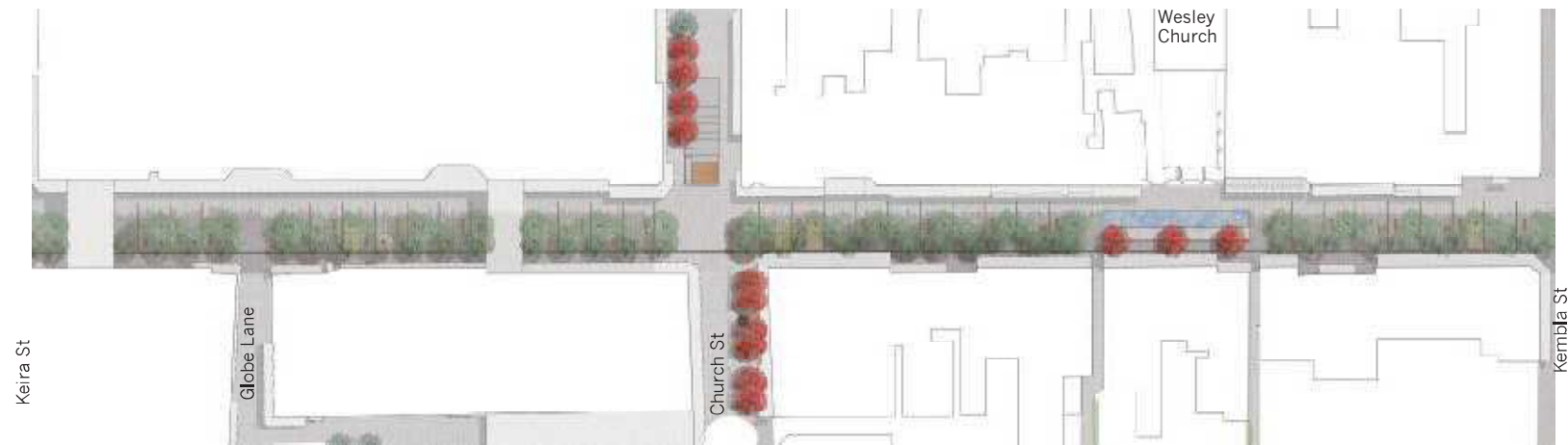
Key



Spotted Gum
(*Corymbia maculata*)



Illawarra Flame Tree
(*Brachychiton acerifolius*)



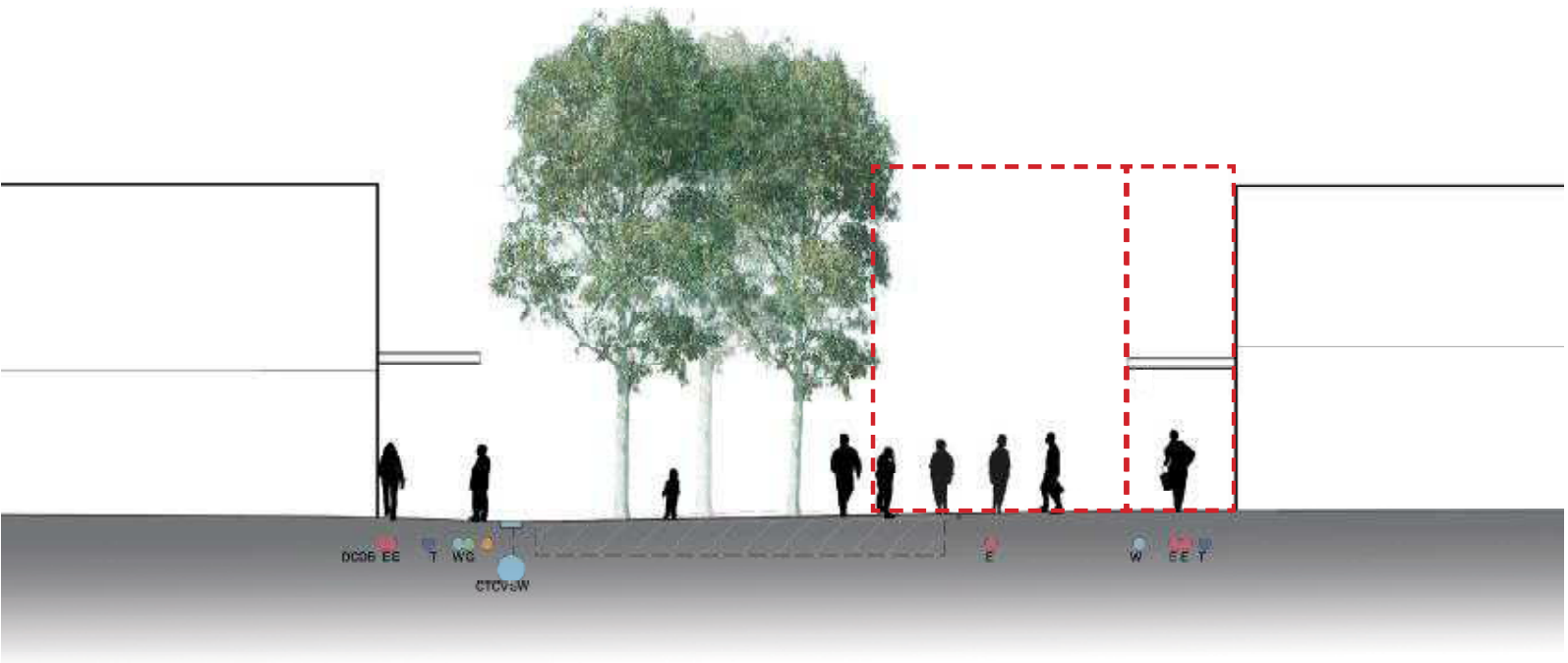
Plan diagram: tree planting

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4.3 CIRCULATION


The proposed design allows for the following circulation:


- A generous path on the shady side of the street which can accomodate emergency vehicles and access for servicing
- Unimpeded access along shop frontages for window shopping and browsing
- Informal circulation through the seating area under the trees

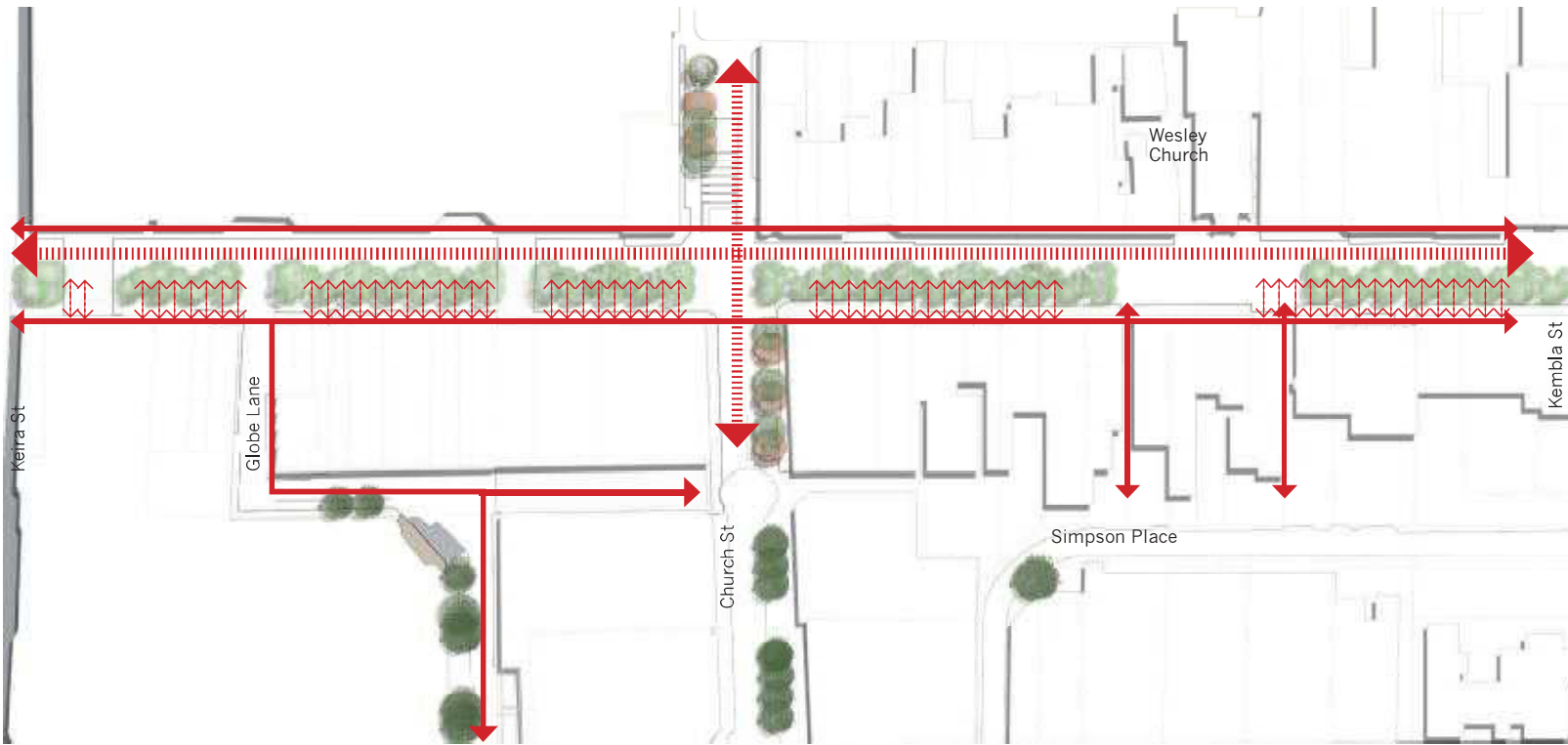


Key

Primary circulation

Secondary circulation

Circulation through trees



Plan diagram: circulation hierarchy

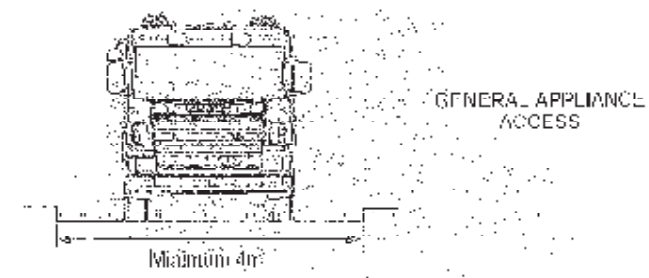
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4.3 CIRCULATION

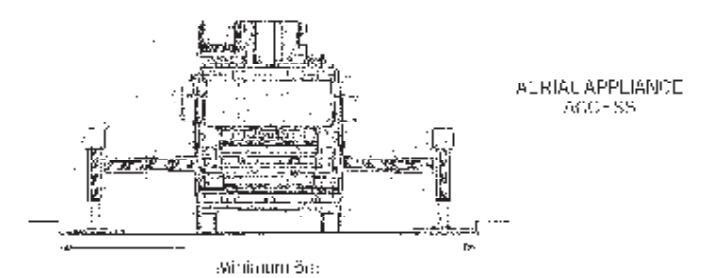
EMERGENCY AND SERVICE ACCESS

The proposed design allows for the following emergency and service access:

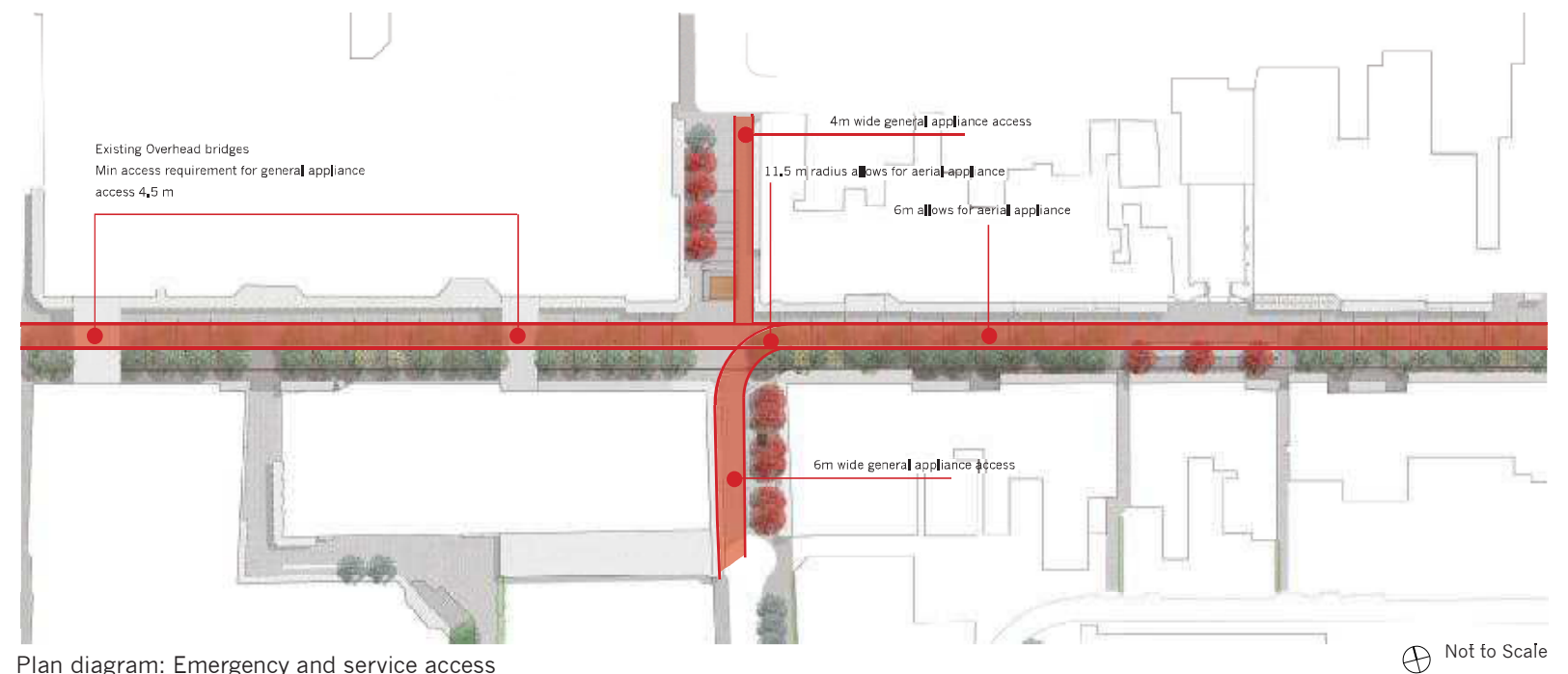
- 5m width allowance for aerial appliance along the mall between Church and Kembla St. This includes the turning circle for access up Church Street from Burelli St. 6m width is available along the majority of the length to allow set down of aerial appliance supports.
- 4m width allowance for general appliance along Church St
- The overhead pedestrian bridges restrict general appliance access (4.5m height) along the mall between Keira and Church St, however width of 6m is maintained.



Typical access requirements



Source: Policy No. 4 Guidelines for Emergency Access
Manager : Structural Fire Safety Unit, NSW Fire Brigades



4.4 EVERYDAY AND TEMPORARY EVENTS

MARKETS

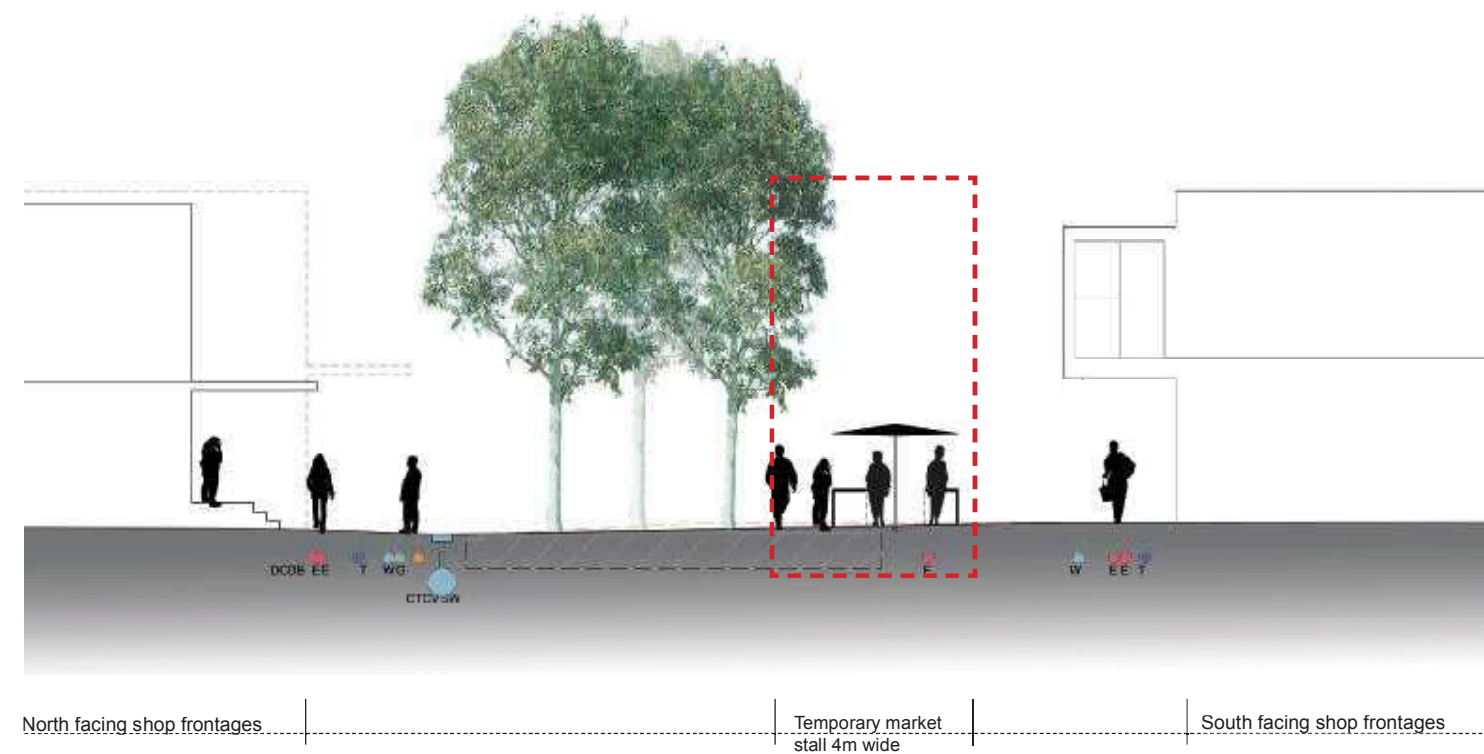
The proposed design retains the location of the existing market area and provides the opportunity to extend the market up and down the Mall as required. An opportunity exists to establish a night time noodle market in the western end of the mall.

This configuration allows for:

- Consolidated larger market stalls at Church Square.
- Standard 3 x 3 m stalls with canopies configured in three blocks.
- Power outlets are provided in cavity within custom benches.
- Additional 3 x 3m stalls extend up the length of the eastern mall to Keira Street and Kembla Street.
- There is provision for powered and non-powered stalls.
- The configuration maintains emergency and service access.

Key

- 3x3m Powered site
- 3x3m Un-powered site



Typical Section



Plan diagram: market layout

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4.4 EVERYDAY AND TEMPORARY EVENTS

MARKETS

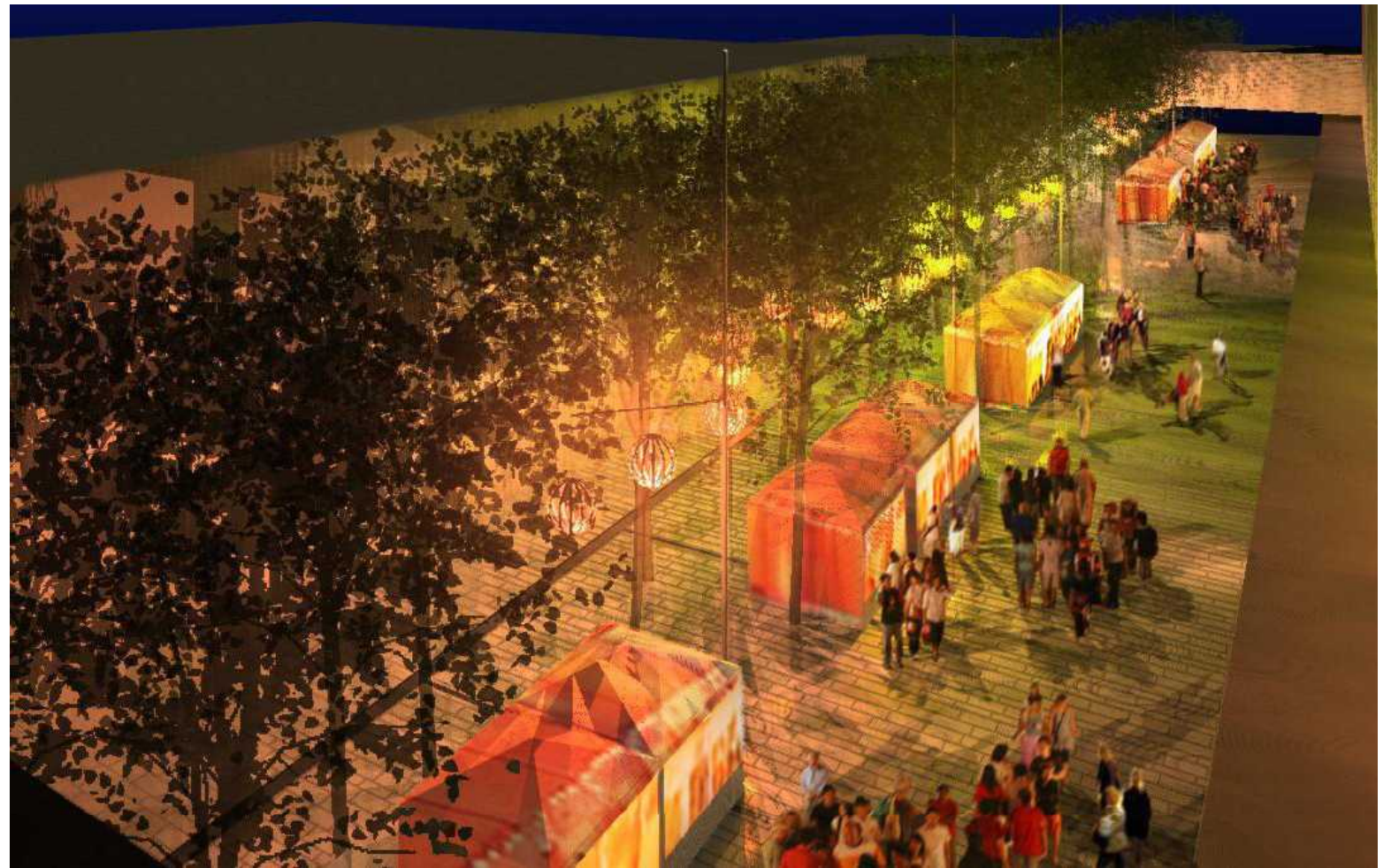


Artists impression: Markets

4.4 EVERYDAY AND TEMPORARY EVENTS

NIGHT MARKETS

The proposed design increases the potential for temporary activities such as a night time noodle market. The lighting scheme and clear sight lines contribute to the sense of safety and enjoyment of the event.



Artists impression: Night markets

4.4 EVERYDAY AND TEMPORARY EVENTS

OUTDOOR CAFE SEATING

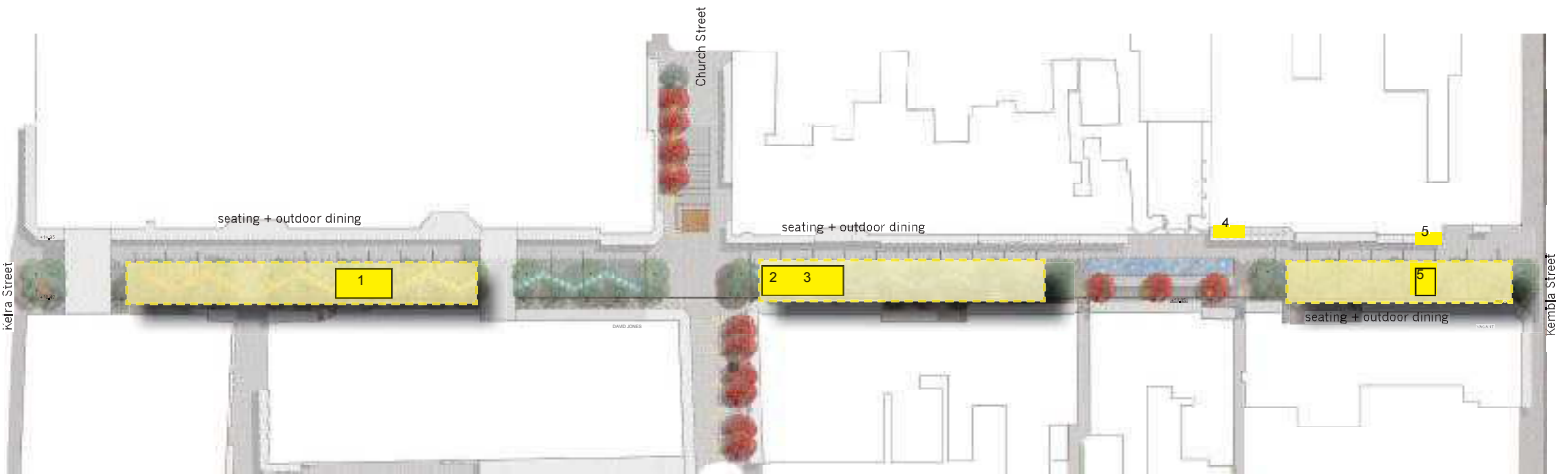
The proposed design increases the potential for outdoor cafes on the mall. Such tenancies could fit seamlessly within the layout of urban elements if an appropriate balance of private and public space is maintained. It is recommended that Council develop and adopt an outdoor cafe policy to guide the establishment of cafe seating. Some preliminary design principles are as follows:

- promote an overall ratio of 50% outdoor cafe to 50% public space - maximum 3 consecutive tenancies along the mall to permit sufficient pedestrian circulation
- identify suitable locations for tenancies
- identify unsuitable locations e.g. civic or ceremonial spaces
- give priority to pedestrian and emergency vehicle circulation
- allow clear distance of at least 2 metres adjacent to the outdoor seating area
- identify zones by marking of the ground plane - barriers and enclosures should not be permitted
- provide shade and shelter with approved umbrellas
- use movable furniture from an approved palette

Key	
1	Gloria Jeans 13 tables : 4 seats per table
2	Cino Cafe 12 tables : 4 seats per table 2 x umbrellas
3	Aussie Cuisine cafe 12 tables: 2/3 seats per table 2 x umbrellas
4	Sopranos on the Mall
5	BJ's on the Mall 2 x tables : 4 seats under awning; 2 x tables 2/3 seats in mall
	Cafe seating + casual seating zone



Standard cafe seating - colourful, robust



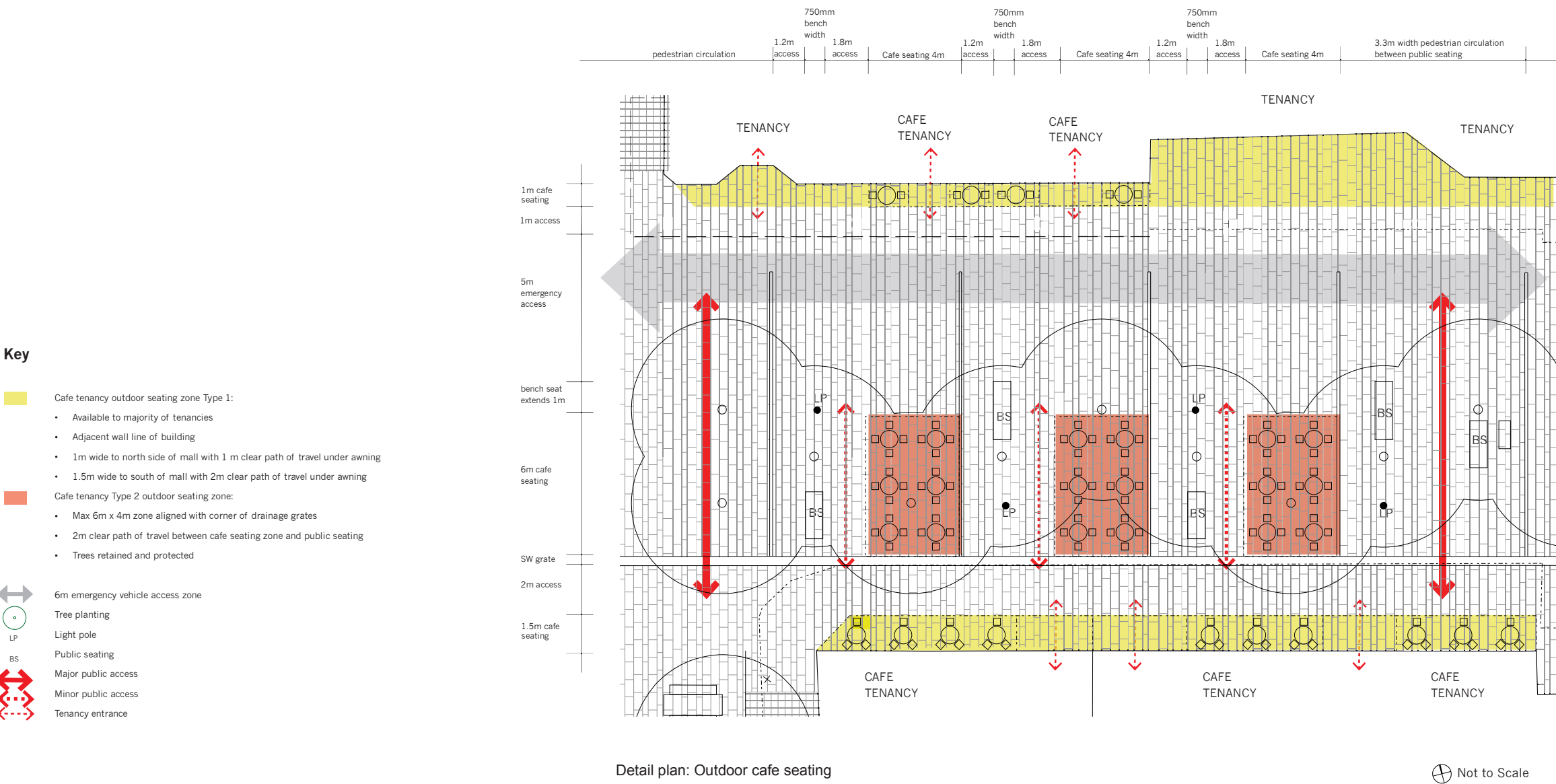
Plan diagram: Outdoor cafe seating

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4.4 EVERYDAY AND TEMPORARY EVENTS

OUTDOOR CAFE SEATING

The detail plan shows an indicative layout for outdoor cafe seating amongst the urban elements within the proposed design.



4.4 EVERYDAY AND TEMPORARY EVENTS

OUTDOOR CAFE SEATING



Artists impression: Outdoor Cafe Seating

4.4 EVERYDAY AND TEMPORARY EVENTS

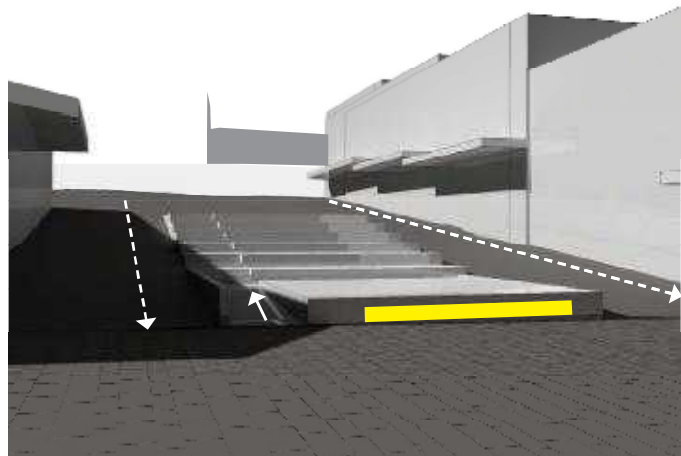
PERFORMANCE - OPTIONS FOR SHELTER

An open air amphitheatre is located on the northern edge of Crown Street. The existing steep slopes allows for the design of informal bleacher style seating. Access stairs and ramp to the stage and disabled seating zone are located on the western side.

Proposed shade trees on western edge (not shown in the view) provide lunchtime shade and provide unimpeded views to the St Michaels Cathedral and the Norfolk Island Pine on the ridge.

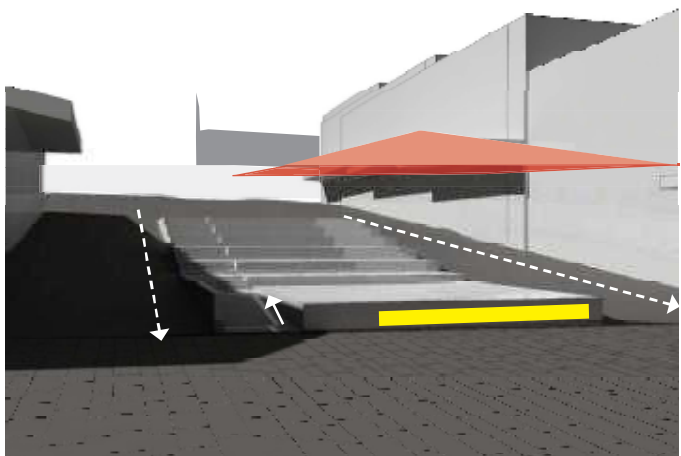
Temporary cover may be provided for events and performances as required. A temporary 8 x 8 m tensile structure can be erected in 30 minutes by 2 people to provide all weather protection. Tensile structure design minimises uprights and clutter on the stage. Structure could be hired from Wollongong Council on a ‘as needs’ basis.

This solution provides flexible solution to requirements of cover without compromising views or solar access.



- Key
- Opportunity to house switchboard cabinet within wall cavity
 - Unimpeded access
 - Disabled access to amphitheatre

Perspective diagram: open air amphitheatre



- Key
- Opportunity to house switchboard cabinet within wall cavity
 - Unimpeded access
 - Disabled access to amphitheatre
 - Temporary canopy

Perspective diagram: temporary canopy

4.4 EVERYDAY AND TEMPORARY EVENTS

PERFORMANCE · AMPHITHEATRE

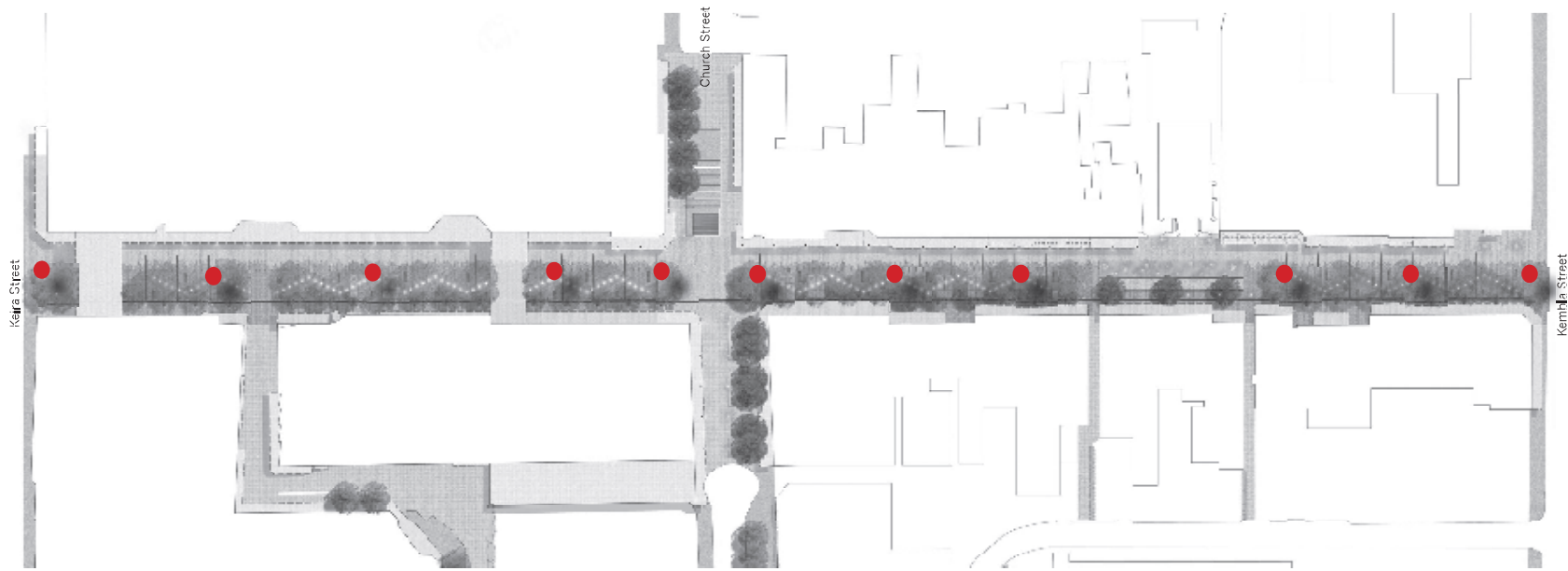


Artists impression: Amphitheatre View on Church St

4.4 EVERYDAY AND TEMPORARY EVENTS

BANNERS

Banners may be mounted from every second light pole on the northern edge as shown. The poles may also support speakers as required for emergency notifications.



Plan diagram: banner location

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4.5 REST AND RESPITE

STREET FURNITURE

Seating is located amongst the trees providing opportunities for rest and respite.

- The location of seats allows for movement across and along the length of the mall and maintains clear pedestrian zones occur along the footpath adjacent to shops
- Clear pedestrian zones occur along the footpath
- The seating strategy includes provision for benches as well as seats with backrests and armrests.

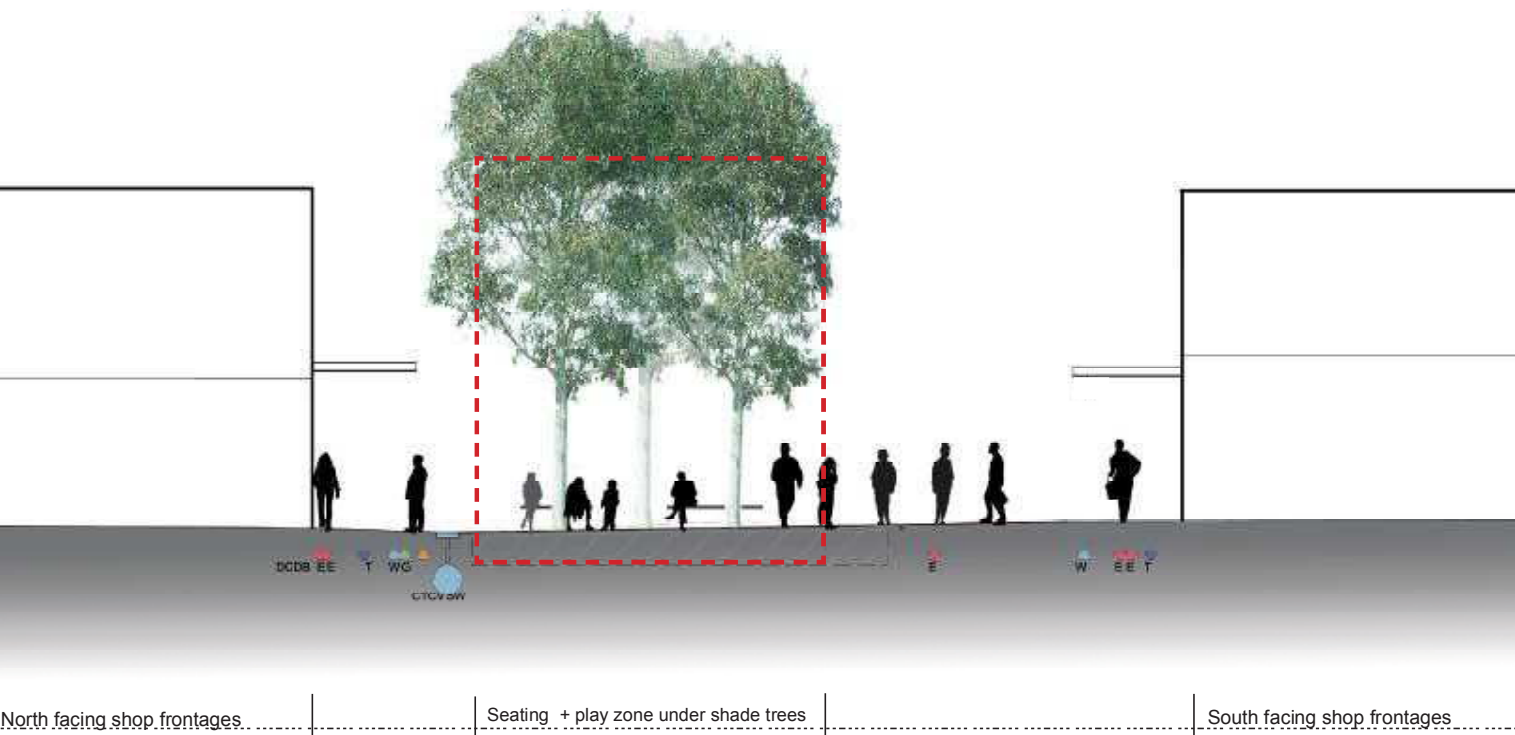
A suite of furniture is envisaged that reflects local materials and provides comfort within the mall environment. Furniture will be developed referencing the requirements outlined in the Wollongong City Centre Public Domain Manual.

- Seating profiles will be based on ergonomic design principles as outlined in AS1428
- Timber battens will be incorporated to provide comfort
- Seating elements will be designed to house services for the mall such as power outlets

Note: Opportunities for individualisation from the standard model incorporated in the Public Domain Manual will be explored during design development to develop unique Crown Street Mall furniture elements

Key

- bench (length varies)
- seat with back rest
- bench with table
- seating integrated into steps and low walls



Typical Section



Plan diagram: proposed location of seating types

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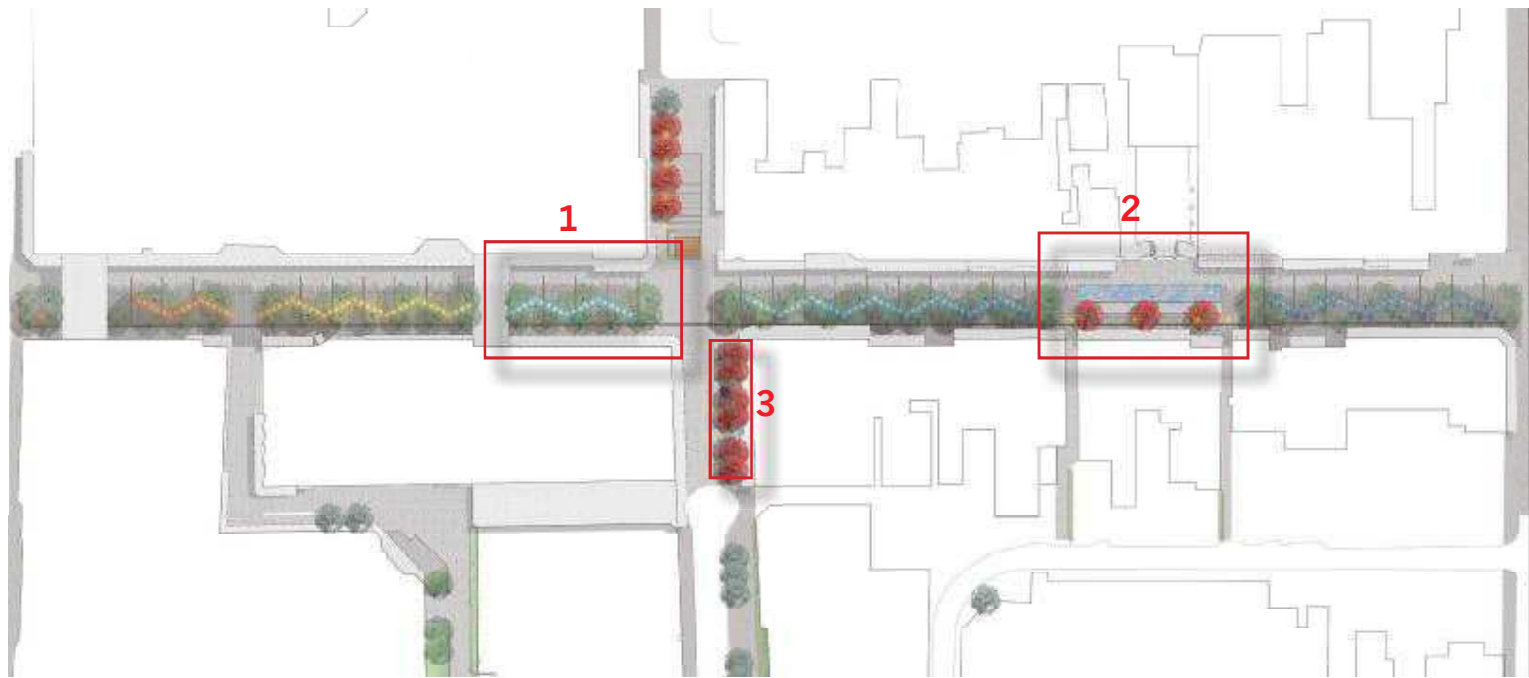
4.6 CREATE OPPORTUNITIES FOR PLAY

The design creates opportunities for incidental and imaginative play at key locations within the mall. Integrated play features maintain clear sightlines as parents sit nearby on public or cafe seating.



Play can be integrated with the urban experience

- Key
- 1 music play
 - 2 water play
 - 3 chess



Plan diagram: Location of play opportunities

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4.6 CREATE OPPORTUNITIES FOR PLAY

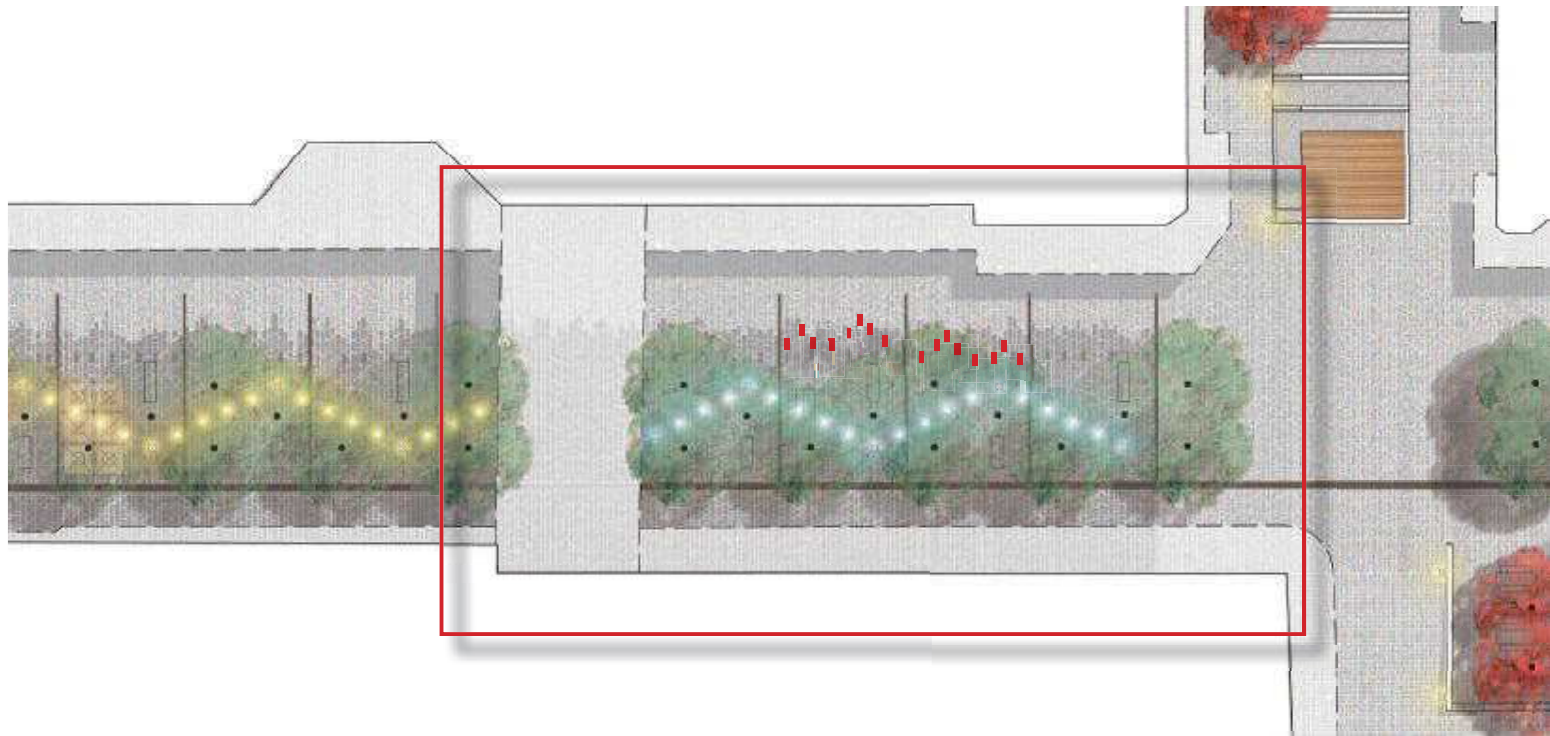
MUSIC PLAY

The design proposes an interactive play zone to the west of Church Street comprised of musical plates activated by stepping or hopscotch.

- Plates will be integrated with the ground plane. They will be the same size as paving units with a coloured steel finish.
- Play is accessible to all children
- Each plate is tuned to a different note or sound and can be used to create impromptu performances
- Conducive to individual and group play
- Can be switched off when required



Concept images of interactive music play



Plan diagram: Location of music play

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4.6 CREATE OPPORTUNITIES FOR PLAY

WATER PLAY

The mall can incorporate water elements that allow for a variety of sequences at different times of the year.

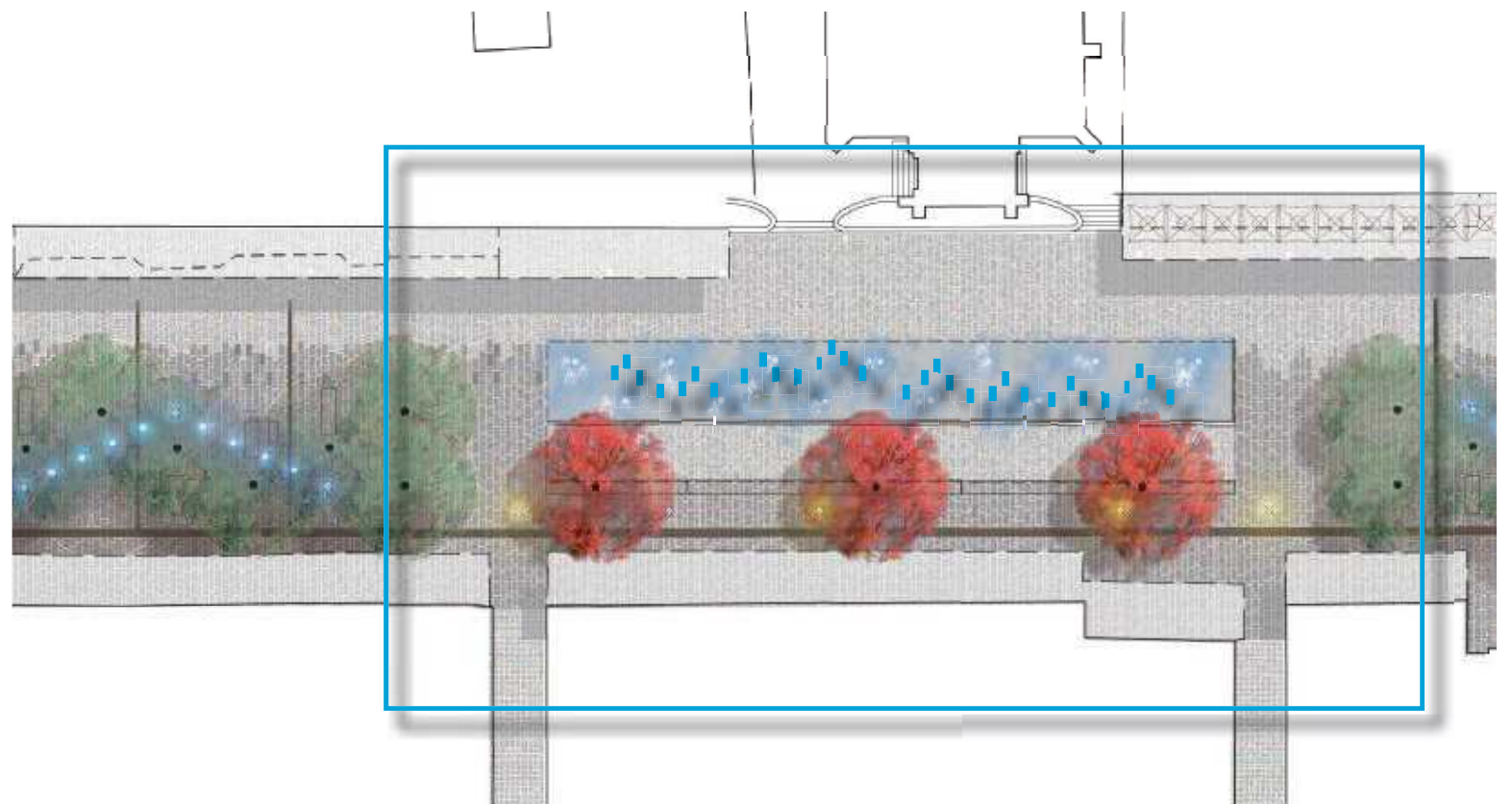
- Water elements can include a shallow water feature at the front of the church. This can be operated via timer system that can activate at key time periods throughout the day.
- Overspray areas will be incorporated to ensure passers-by remain dry
- The water feature will be switched off during ceremonial events and market days
- Jets can be activated at alternative periods and act as informal play elements.
- Interactive water jets could be activated by stepping or hopscotch to sequence the jets to dance.
- There is great potential for other modes of operation (eg. reflective) to enhance the presence of the church on the square.

Functional requirements

- 10 000 litre tank (2500 dia top X 2790 depth)
- Waterwise controller (600 x 400x 200mm)
- Control centre wall mount (1200 x x 205 x 950mm)
- Treated chlorinated water
- Filter pump
- Non slip paving



Concept images of interactive music play



Plan diagram: Location of water play

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4.6 CREATE OPPORTUNITIES FOR PLAY

WATER PLAY

The proposed water play area in front of Wesley Church will bring life to the space when jets are activated.



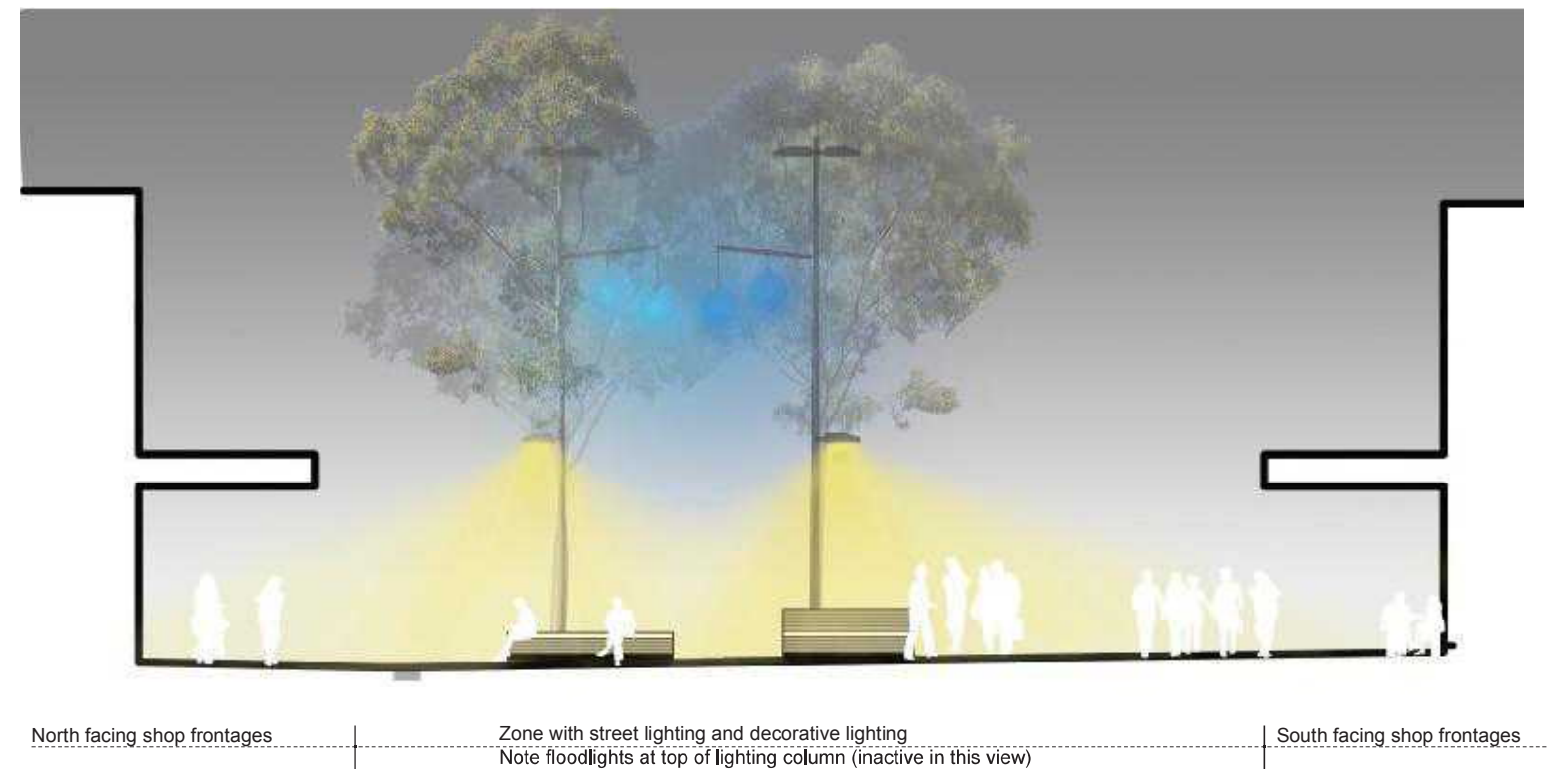
Artists impression: water play

4.7 LIGHTING

The lighting design allows for two modes of operation social mode and secure mode. Social mode will create a safe and delightful night time setting with street lights and decorative lanterns. Secure mode will incorporate pole-mounted floodlighting at key periods. The proposal contains the following:

- Layout of column lights located within grid of tree planting to ensure unimpeded access. Lighting will use energy efficient technology and meet all relevant statutory lighting requirements
- Columns along the tree planting zone incorporate decorative lamps and floodlighting for 'secure mode' operation during nominated times.
- Light columns provide support for CCTV

Refer to Haron Robson report for more information.



Typical Section - by night



Key

- 10m high column for lighting + floodlight
- 8m high column for lighting
- Floodlighting for church frontage

Plan diagram: lighting types

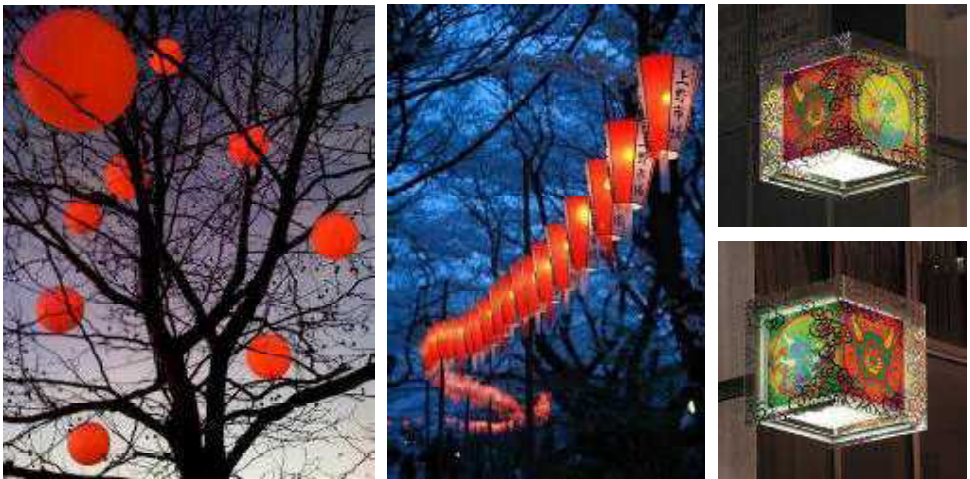
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4.7 LIGHTING

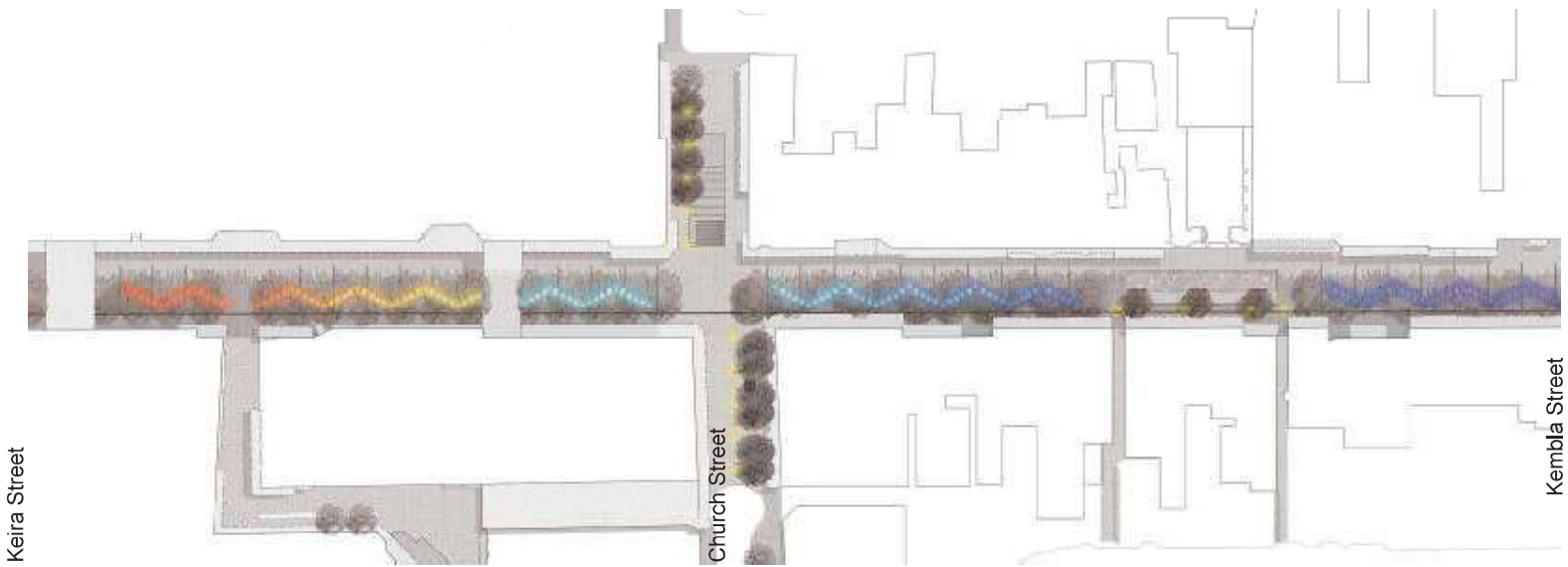
DECORATIVE LIGHTING

The proposal incorporates decorative lighting to enliven the night-time experience of the mall.

- The lights weave through the tree colonnade utilising the tree canopies like a reflective fabric, creating a rich and alluring night image along the length of the mall.
- The dappled shade of the day is echoed by the play of light and shade at night.
- Custom designed lanterns incorporate coloured LED lights that can be sequenced to change from one end of the mall to the other.
- Decorative floodlighting is proposed to Wesley Church



Decorative lighting precedents

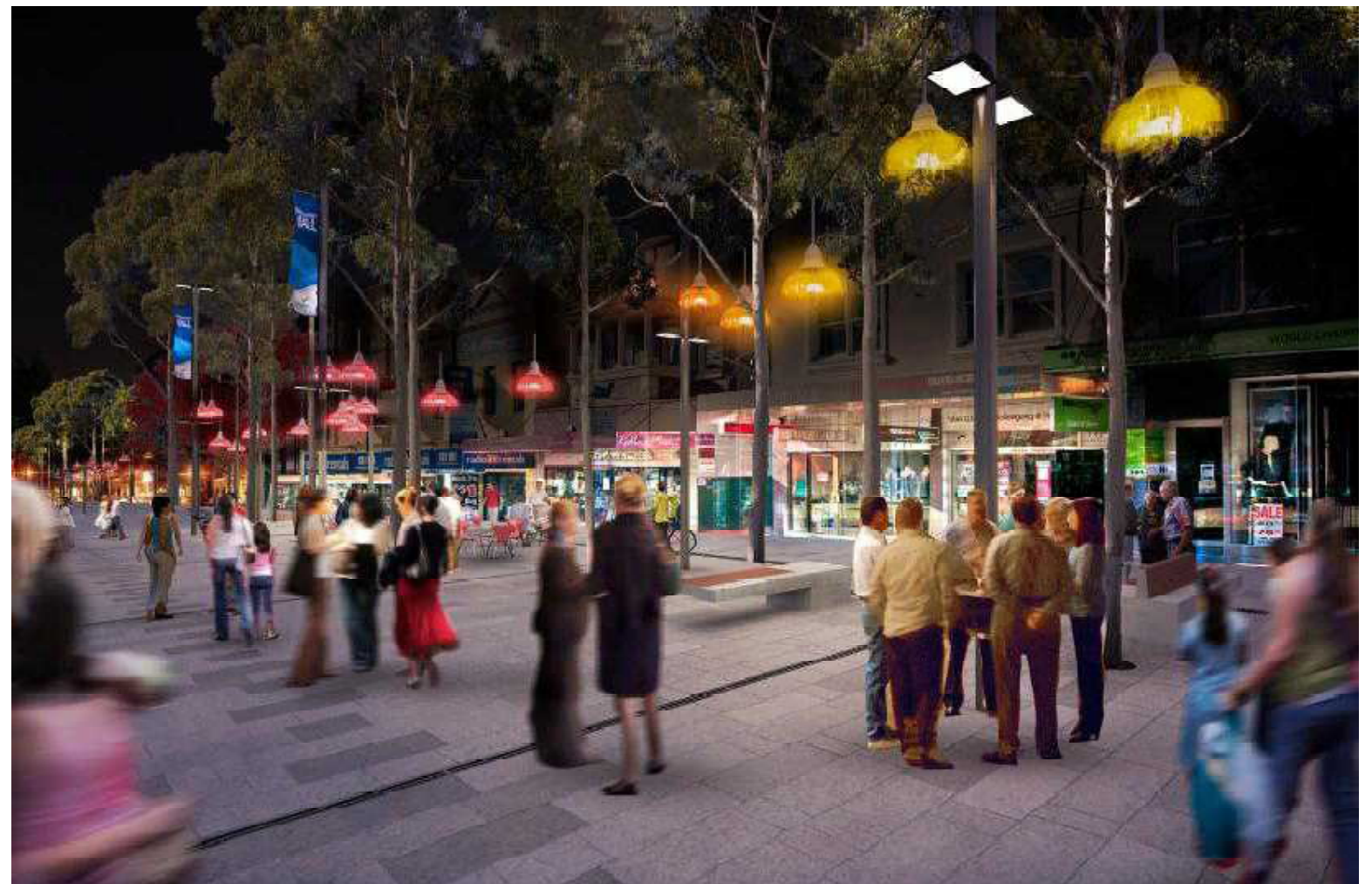


Plan diagram: Decorative lighting changing colour along the mall

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4.7 LIGHTING

DECORATIVE LIGHTING



Artists Impression: Decorative Gum Blossom Lanterns at night

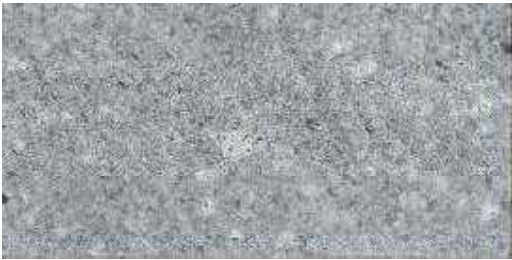
4.8 PAVING

A unifying paving strategy is proposed for the mall with the following guiding principles:

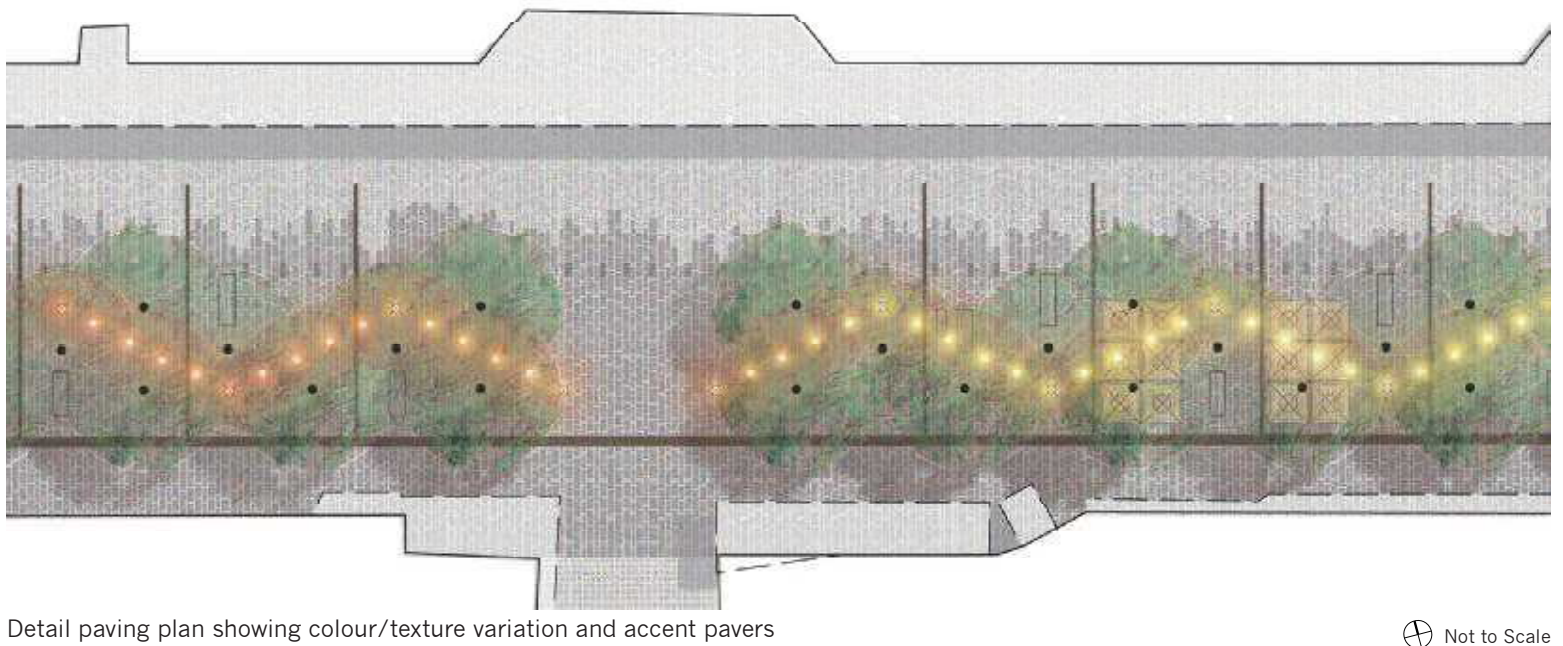
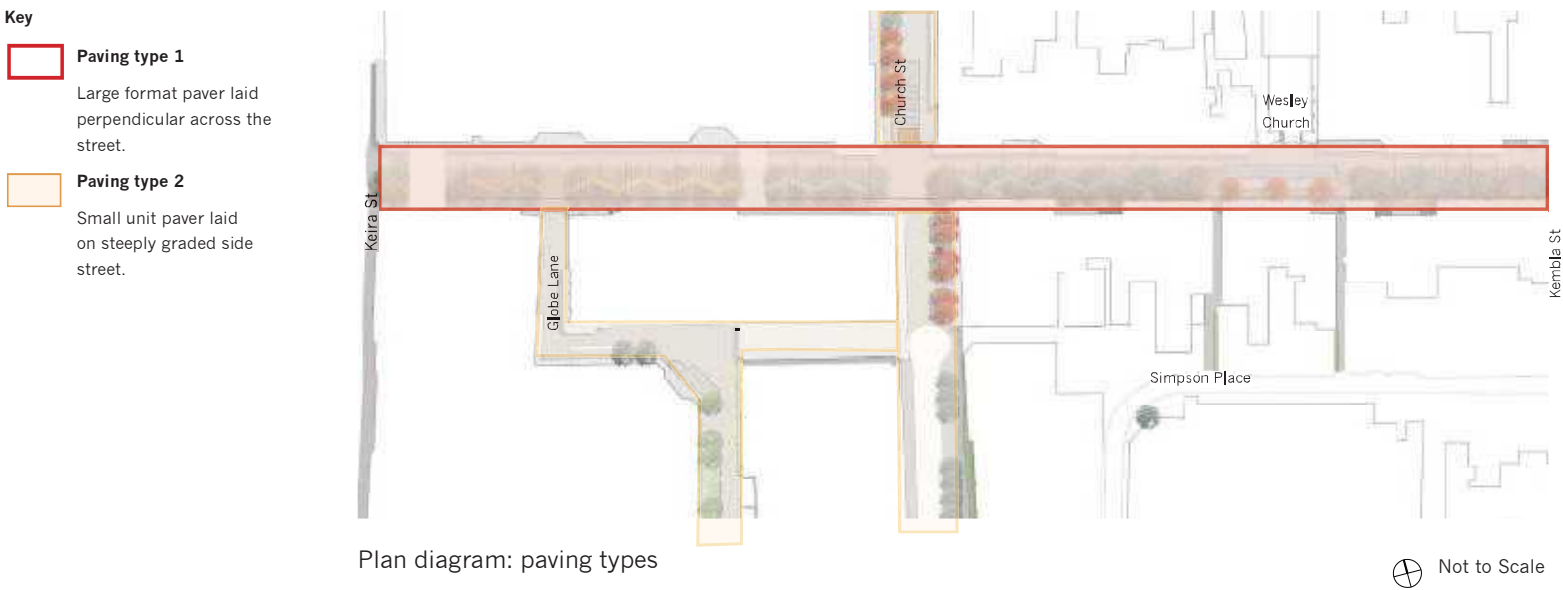
- Allow for variety in tone and texture to provide interest
- High quality finish
- Durable, low maintenance
- Easy to match for extensions or repairs
- Unit paver for maximum flexibility
- Meet slip resistance criteria
- Able to withstand heavy vehicle loading

The design proposes granite pavers with two formats:

- longitudinal paving bands in Crown St Mall
- square unit pavers in Church St



Sample stone colour



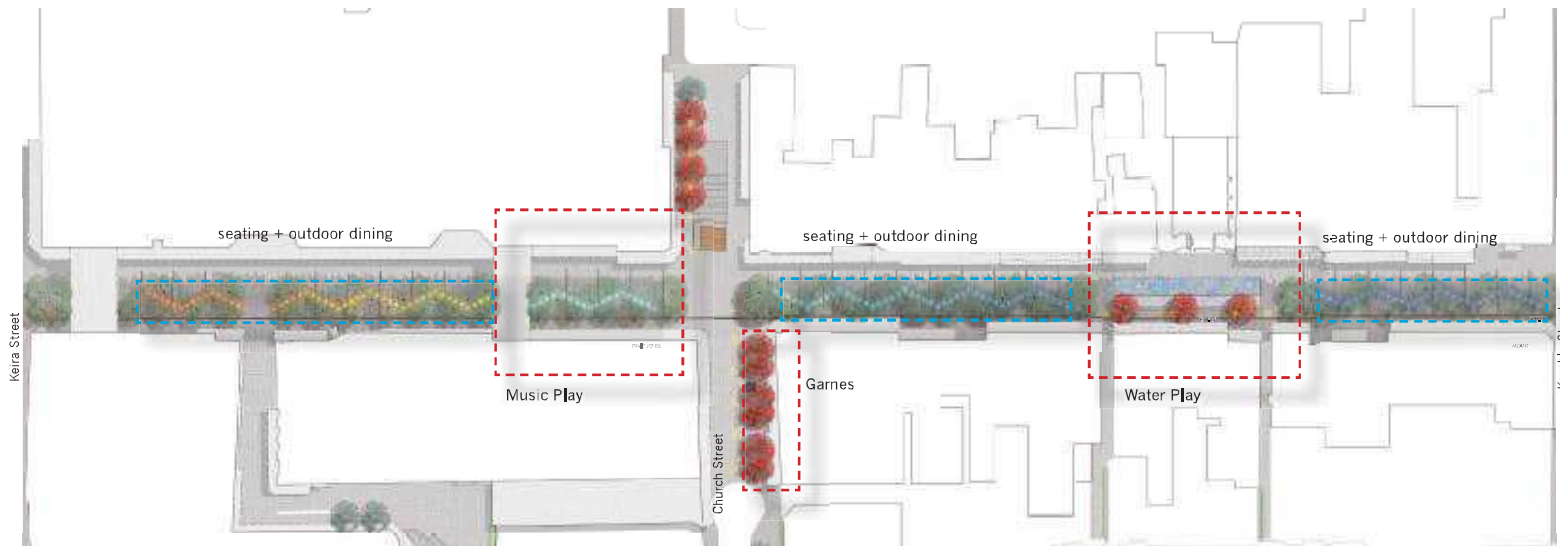
4.9 PROGRAM

THE MALL - EVERY DAY

The proposal allows for great flexibility in programming. Everyday activities are supported such as shopping, gathering, chess and games, people-watching, outdoor dining and incidental play.



Concept images of daily activity



Plan diagram: everyday activity

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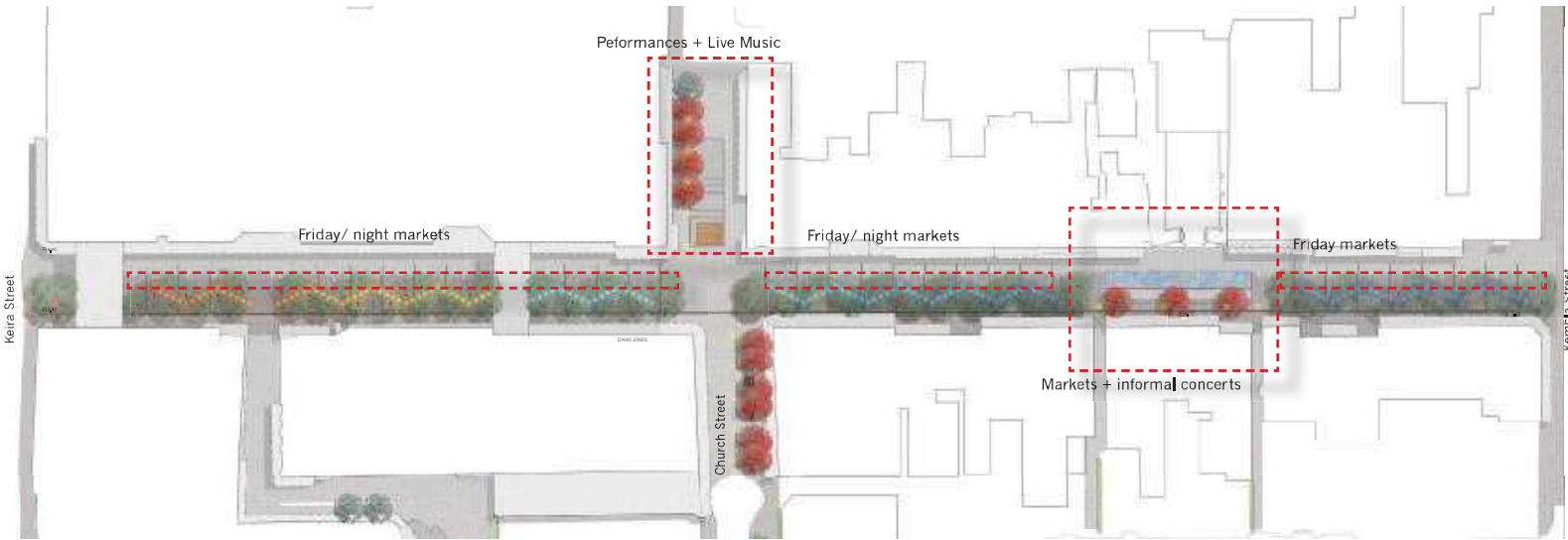
4.9 PROGRAM

THE MALL - EVERY WEEK

Weekly events such as the popular Friday markets are enhanced and extended with the potential for night markets, live music, fashion shows, school and outdoor performance.



Concept images of weekly activity



Plan diagram: weekly activity

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4.9 PROGRAM

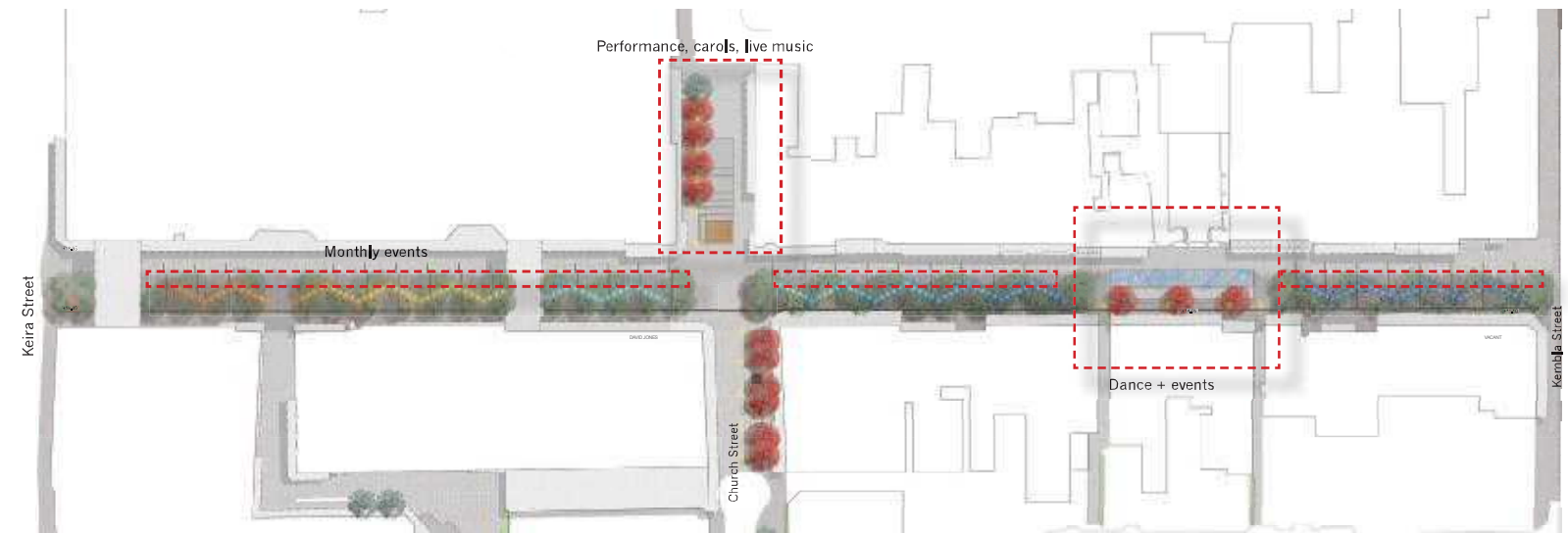
THE MALL - SEASONAL

The scheme is designed to be attractive to potential event organisers to utilise the flexible space and great exposure within the mall. Seasonal events could include:

- Art exhibitions
- Art Express
- Lantern festivals
- Night noodle markets
- Coffee + food festivals
- Salsa in the square
- Jazz on the mall
- Moonlight cinema
- Viva la Gong



Concept images of seasonal activity



Plan diagram: seasonal activity

⊕ Not to Scale

5 APPENDICES

APPENDIX 5.1

LANDSCAPE PLANS