6. STRATEGIES

STRATEGIES

A suite of design strategies, ranging from the experiential to the technical are embedded into the Masterplan.

The various strategies have been themed as per the Design Principles of **Place, Environment** and **Movement**. When combined together they form a comprehensive and regenerative Masterplan design.

It is important all the strategies are afforded a high degree of planning and design attention. The Riverfront Masterplan presents an holistic vision which therefore requires all strategic aspects to be considered with a high level of thought and resourcing through the project planning.

PLACE



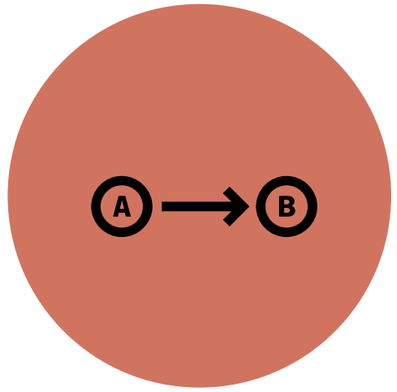
AN ACTIVATED PLACE – FOR EVERYONE
DYEEDYALLALUP RIVER WALK
BEING ON THE WATER
AMENITIES
EVENTS
PLAY
SPORTS
INTERPRETATION
PUBLIC ART
SAFETY AND INCLUSION
WAYFINDING

ENVIRONMENT



A CHANGING CLIMATE
WATER SENSITIVE CITY
URBAN GREENING – BIODIVERSITY
URBAN GREENING TREES
URBAN GREENING – PLANTING
ACID SULFATE SOILS
IRRIGATION

MOVEMENT



WALKABILITY
ACTIVE MOVEMENT
PUBLIC TRANSPORT
ROAD NETWORK
THE RIVER
PARKING
SERVICING

Hassell ©

AN ACTIVATED PLACE – FOR EVERYONE

The Masterplan envisages a place for the wide range of people who may wish to the use the area in very different ways. The 44 hectare, 2.2km long Riverfront is of sufficient scale to integrate a wide range of activation opportunities.

The open space analysis and community engagement work undertaken by the City of Perth has deduced that the Riverfront is severely under performing as an active open space resource, both for local residents and visitors to the city. With its position at the heart of the city it is clear the Riverfront should look to include more than parkland and paths. The Masterplan proposes a highly activated series of inter-connected experiences. These include,

- International quality destination attraction - The Lagoon.
- Multiple food and beverage outlets which bring life to the river edge, into the evening, throughout the week and in all seasons.
- Cultural spaces at multiple locations throughout the park and along the river's edge.
- A comfortable and leisurely river walk experience.
- Separation of cyclists and pedestrians.
- Mix of play spaces for a range of ages and abilities - from high energy sports and skate to a wide range of nature play and discovery experiences.
- High intensity programmed events on the large event lawns and at the river's edge.
- The experience of simply being in nature and taking in the views of the riverine environment.

One of the City of Perth Urban Greening Strategy key moves is ***Enhancing Our Green Open Space***. The Riverfront Masterplan supports this important aspect of the strategy by articulating a high quality public realm design. The City of Perth Open Spaces Study (2018) identifies the importance of the foreshore and Langley Park open spaces in the delivery of a resilient, robust and well designed Riverfront to realise its potential as an active capital city park.











DYEEDYALLALUP RIVER WALK

The 1.7km long Dyeedyallalup river walk is dedicated to the Whadjuk Noongar name associated with the Langley Park area of the Riverfront. It is a place which used to be an ecologically rich marshland environment with extensive reed beds and marine wildlife. It is also known for its ochre deposits, a traditional physical, spiritual and social well-being tool for Whadjuk Noongar people. Used for personal decoration, protection against the sun and insects, the ochre was also used to aid in the hunting of kangaroo and emu.

The Masterplan envisages a culturally rich river edge walk which winds and flows along the water's edge, taking in the views, immersed in nature. The existing straight river edge is removed. To create an interesting walking experience it is attractive to people to vary the orientation of the walkway.

The walk will be highly artistic and be full of cultural story telling. It will be colourful while emphasising the reds, whites and yellows of the ochre deposits.

Shade will be provided along the route via trees, shelter structures, the arbour and at the buildings at the activation nodes. Public art will enrich the route. Lighting will bring the walk to life at night. It will be a safe, inviting and comfortable experience. Seating, refreshment points and drinking water stations will be provided regularly.

The Dyeedyallalup river walk will be a vital component of the Perth Water (Buneenboro) experience. It will stitch together the experience for people who are wishing to spend the day exploring the Swan River from Kings Park in the west to Burswood Peninsula in the east.

All cultural aspects of the design will be developed in full collaboration with Whadjuk Noongar cultural elders and advisors.





BEING ON THE WATER

A important strategic objective for the Masterplan is to establish a condition where it is easier for people to connect with the water.

The key move of ***Re-imagining the River Edge*** facilitates this connection.

The removal of the dilapidated concrete wall allows a new range of edge conditions to be created which facilitates physical access to the water and a deeper spiritual connection with nature.

The Masterplan proposes a balanced mix of urban and more naturalised river edge conditions. The Riverfront is located in a transitional location between the urbanism of Elizabeth Quay and the re-naturalised wetland landscape of Point Fraser.

By combining features such as cut stone terracing, boardwalks, limestone headlands, beaches and wide expanses of predominantly Juncus Krausii reed beds, the interface between land and water will be transformed.

It will be a dynamic, more richer experience infused with nature, providing locations for people to paddle, swim, canoe, boat and fish in the water itself.





Towards the CBD and at the nodes an urban edge condition connects people with the water.



The river edge will adopt a nature positive response for large expanses of the water's edge.



Variety, interest and connection is provided with features such as beaches, headlands, terraces and the arbour.

AMENITIES

The Masterplan includes a range of strategically located amenities to support people's experience at the Riverfront.

The range of amenities include,

- Toilets
- Changing rooms/EOT facilities
- Shelters
- BBQs
- Cafés/coffee outlets
- Restaurants/bars
- Play spaces
- Public mooring/fishing jetties

The Masterplan also acknowledges existing amenities provided at Point Fraser and to the western end of the Riverfront.

The anticipated Aboriginal Cultural Centre (ACC) will also include a range of publicly accessible amenities.

Throughout the Riverfront there will also be a large number of smaller elements such as seating, drinking fountains, bike stands, wayfinding and interpretation signage and recycling stations.













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EVENTS

The City of Perth hosts some 600 events per year with 60% occurring in spring or summer. The Riverfront will remain an important location for the large-scale concerts, and outdoor lifestyle events. The Masterplan seeks to retain two large, flexible lawn spaces which can still attract a large number of patrons for outdoor exhibitions and concerts.

The focus for the larger events will be at the Event Precinct on the large lawn (30,000m2) between Bennett Street and Plain Street. The oval lawn in the Play Precinct is a more intimate space, yet still sized at 8,000m2.

To create a more balanced Riverfront, which integrates the benefits of nature and amenities, there are a number of interstitial and modest scale spaces which can include smaller scale events or congregation capacity.

There can be markets along the pedestrian spines and at the river edge nodes. The roof gardens to The Lagoon buildings create elevated event opportunities and the generous sized riverside lawns facilitate viewing of night-time drone/light/fireworks shows.



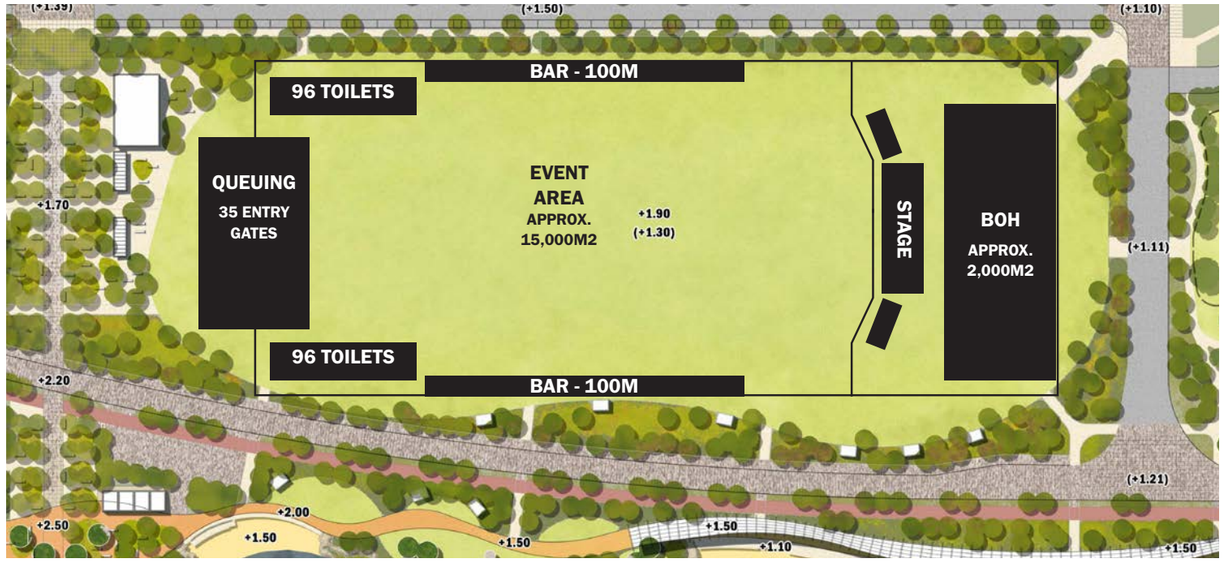


EASTERN LAWN - 30,000M2

CONCERT MODE

15,000m2 capacity
Approx. 30,000 people

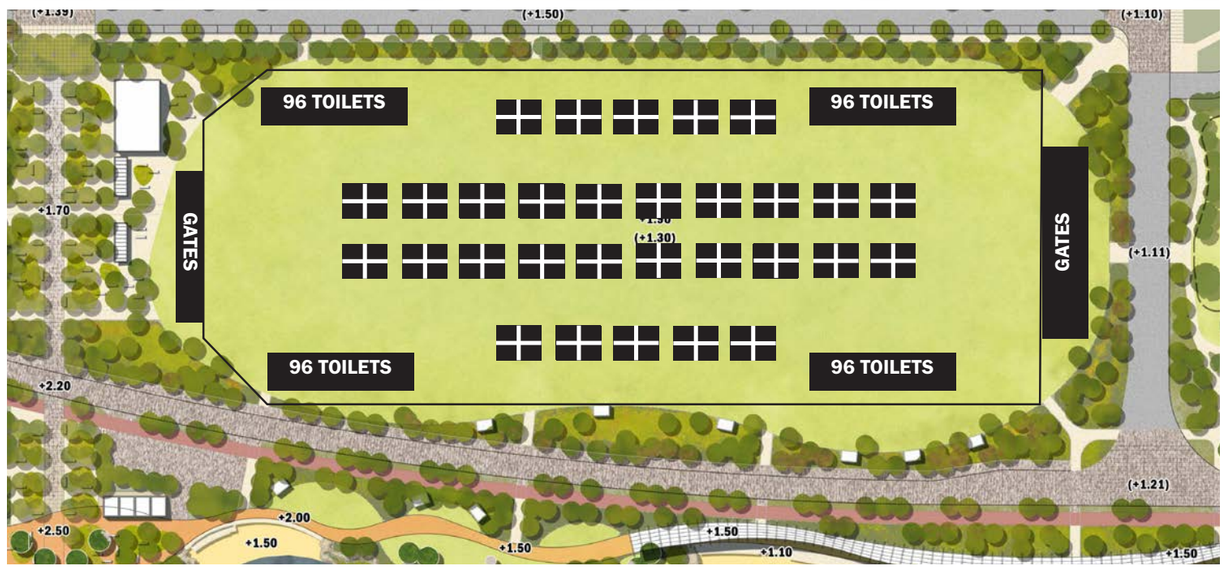
Standing viewing area - 0.5m2/person



OUTDOOR DISPLAY EVENT

18,000m2 capacity (Excluding display area)
Approx. 18,000 people

Standing viewing area - 1m2/person



DISPLAY AREA 130M2
4 DISPLAY AREAS
EXTENSIVE CIRCULATION

PLAY

Attracting families and children of all ages is a key component of the Masterplan. A multi-generational playspace (7,400m2) is located in the Play Precinct. This will include sports courts, skate and nature play.

Throughout the Riverfront there will be additional discovery play elements included in the design to provide moments of delight and wonder for kids, as well as adults. These will be located amongst the nature in Precinct 3, wetland zones, as well as along the Dyeedyallalup river walk and the arbour.





SPORTS

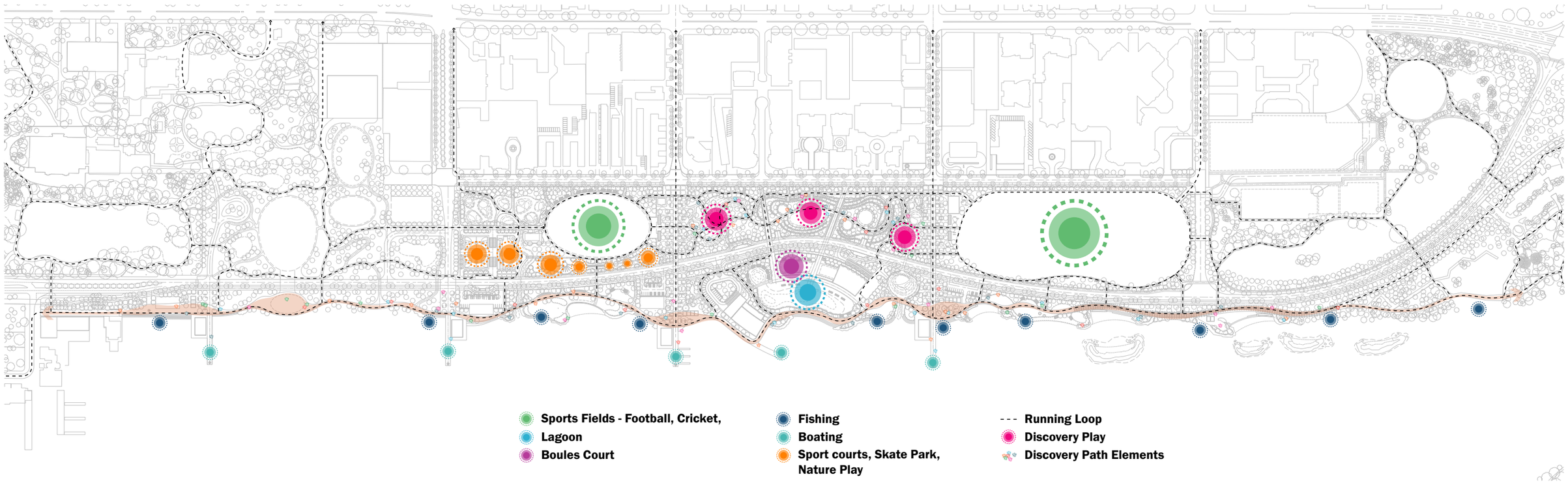
Community sporting activities of a formal and informal nature are facilitated by the Masterplan.

Two large playing fields are retained which can accommodate cricket, AFL and soccer.

More leisurely sporting activities can be founded at The Lagoon (swimming, boules) and by the river (fishing, canoeing, boating). The extensive, looping pathways create multiple experiences for runners throughout the Riverfront.







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INTERPRETATION

The Riverfront has a high level of cultural heritage significance. The stories of the Riverfront will be celebrated and communicated to the public.

The City of Perth developed a Local Heritage Survey in 2022 which has uncovered many stories relating to the Riverfront. The report covers the historical and thematic context, from the pre-colonial, colonial and post-colonial development and transformation of the waterfront, and the current and future plans and projects for the Riverfront revitalisation.

A bespoke Interpretation Strategy and Implementation Plan will be a requirement to ensure the cultural richness of the Riverfront is articulated.

There are many interpretive design opportunities throughout the Riverfront to tell these stories of place.



View of Perth and the foreshore looking over the Swan River from Mount Eliza, c1865 (City of Perth Cultural Collections)

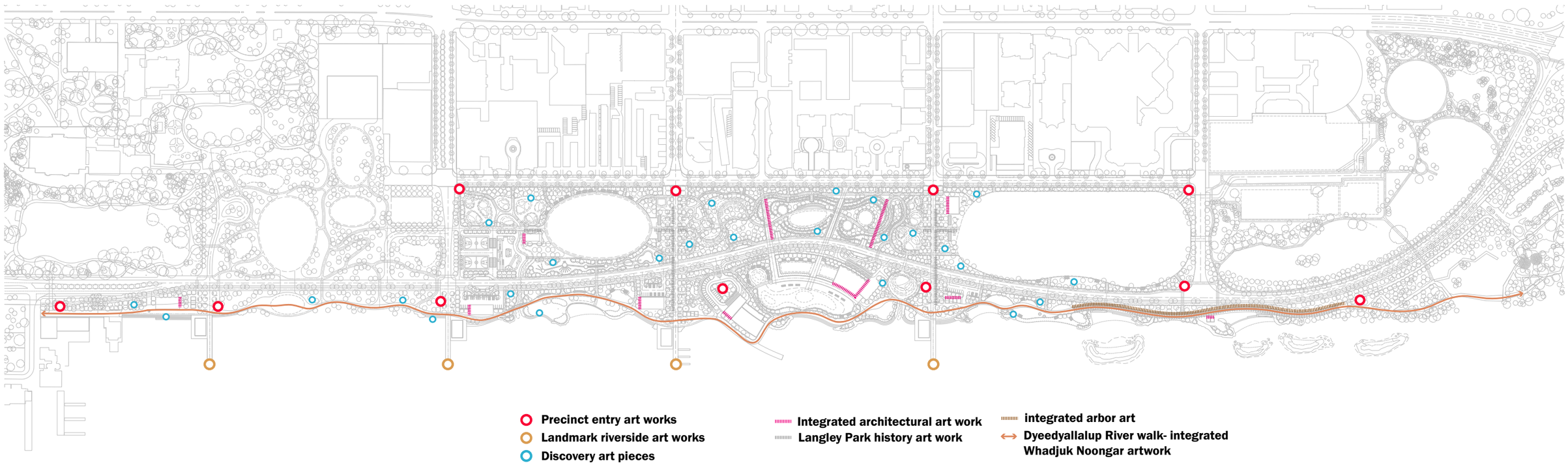
PUBLIC ART

A comprehensive public art strategy will be developed for the Riverfront. This will be managed by a specialist public art coordinator and look to engage with world class local and international artists. Whadjuk Noongar artists will be integral to the process.

The creation of a network of permanent, temporary, and mixed media art pieces can enrich the experience for visitors, showcasing the culture and stories of the Riverfront. The plan below illustrates how the Masterplan layout can support an exciting public art trail.







SAFETY AND INCLUSION

The City of Perth has a diverse residential community, vast workforce that visits the city every day and attracts millions of international and national visitors each year.

The Masterplan actively creates inclusive spaces for these women, men and non-binary people through developing a sense of safety, accessibility, participation through engagement, and importantly the feeling of legitimacy within the places that are created.

A gender sensitive approach will seek to understand and embrace diversity and re-address inequalities in the design of the public realm to create more inclusive and equitable environments for everyone.

The Masterplan creates the framework for inclusive places by providing opportunities for,

- Visibility through clear sight lines and safety through passive surveillance.
- Accessible, legible and connected places.
- Targeted consultation and post occupancy evaluation.
- Good place management and social places.
- Regular events, destinations creating reasons to enjoy the public realm.
- Comfortable places with a strong identity and unique sense of place.
- Inclusion of women and gender diverse stories to be reflected in the art strategy and wayfinding.
- Careful consideration of lighting and accessible pathways.
- Considered urban greening and access to shade.
- Urban furniture that supports the elderly, those with limited mobility and adults with small children.
- Ensuring clean, safe and well-maintained public toilets including the provision of Changing Places facilities.







WAYFINDING

The Masterplan creates a precinct that will support people walking, cycling, riding or driving to the Riverfront. An inter-connected approach to signage and intuitive wayfinding will support pedestrians to find their destination, guide visitors from CAT bus stops on Riverside Drive, assist people to find DDA parking, and importantly enrich the sense of place through the display of important stories of place alongside public artworks.

The Dyeedyallalup river walk runs the length of the Masterplan area at the river's edge. It is a strong east – west connection that joins Matta Gerup to the Aboriginal Cultural Centre, Barrack Street Jetty, Elizabeth Quay, and across to Kings Park (Kaarta Garu). The Dyeedyallalup river walk is a key wayfinding element within the precinct. To complement this strong wayfinding device there will be shady, protected seating every 60 metres that will accommodate all abilities, enabling parents and children in prams and those requiring wheelchairs to enjoy access to the Riverfront.

The Masterplan also provides the framework for an inter-connected wayfinding strategy that will include,

- Directional signage – Located at key decision-making points such as intersections with Riverside Drive and the pedestrian spines that extend from Hill Street and Bennett Street.
- Informational signage – Will display Whadjuk language and cultural stories along with the heritage of the diasporic migrant communities that live in WA. These signs will be co-located with artworks and places of interest.
- Identification signage – Marking a specific location (eg: City of Perth Community Sports Fields) and the inclusion of language and braille wayfinding.
- Waymarkers – Small signs strategically placed along a route to help people stay on the right path, especially through the green heart of the precinct.

The City of Perth will work closely with the City of Perth Elders Group and knowledge holders to create a cultural strategy to inform signage, wayfinding and art work in the precinct.

Importantly, the Masterplan and Aboriginal Cultural Centre will have complementary signage strategies to ensure the continuity of experience.

The final wayfinding implementation plan and detailed designs will align with the City's well established guidelines.

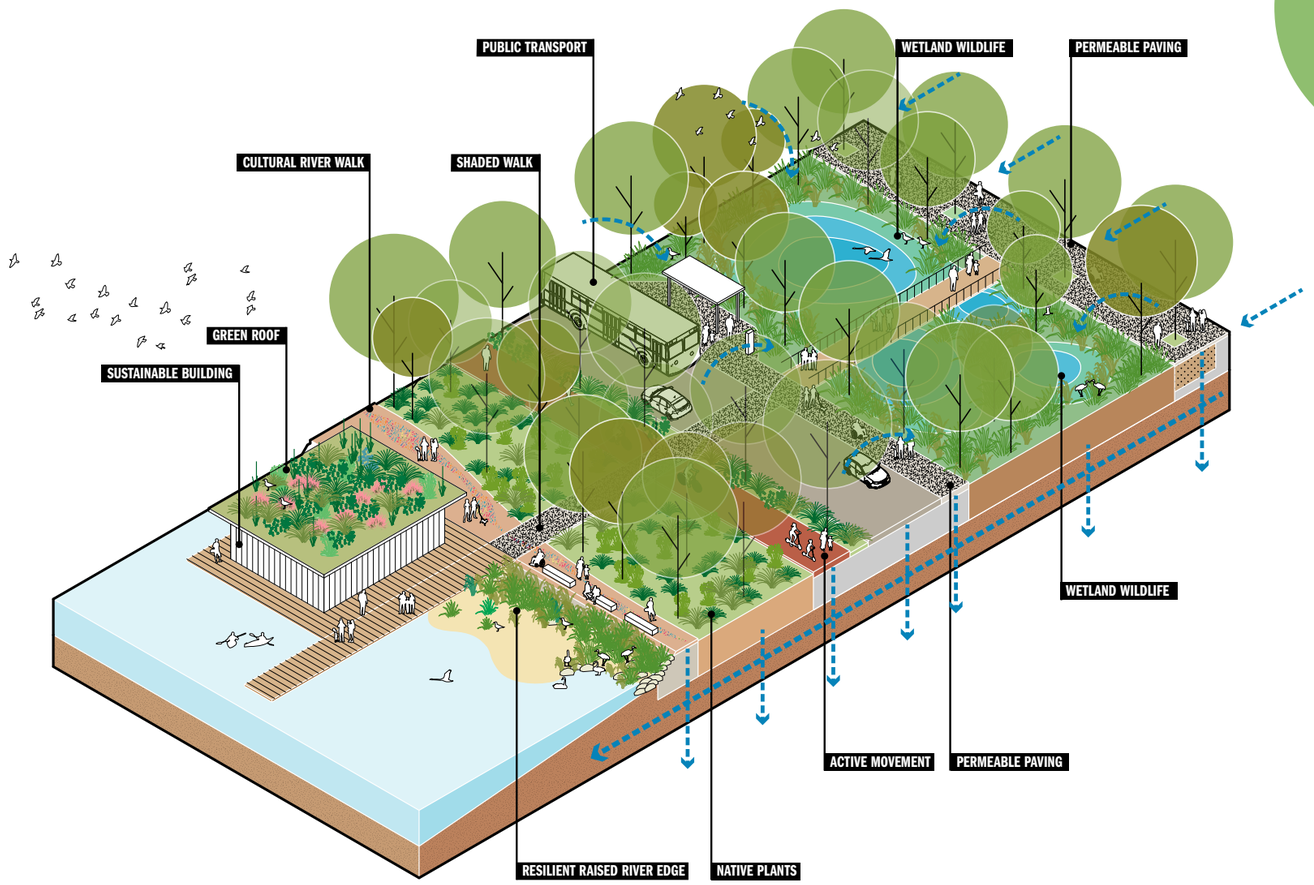






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A CHANGING CLIMATE



Climate change is widely recognised as the most important challenge facing humanity in the 21st century. The scale of this challenge requires concerted action and an integrated approach at a global, national and local level to reduce the potentially severe consequences.

With the completion of the Climate Change Adaptation Plan (2018), the City of Perth has joined the global movement of cities committed to plan for and manage the predicted impacts of climate change.

The Riverfront, as such a large asset, has a significant part to play in the City of Perth's ongoing role in implementing governance models, partnerships, strategies and plans to counter the effects of a changing climate.

WHAT DOES CLIMATE CHANGE MEAN FOR THE CITY AND THE RIVERFRONT?

- Drought conditions - 15% reduction in annual rainfall. Winter rainfall reductions, drier conditions.
- Increased temperatures - 2-2.9% increase by 2070. More hotter days over 30 degrees and more heat waves.
- Increased risk of bushfires - Frequency and intensity of very high and extreme fire danger days to increase.
- Extreme storm events - Increase in intensity of downpours.
- Sea level rise - 0.7m rise by 2070. Langley Park potentially inundated.

The City has recognised the need to embed climate change adaptation measures which is evident through a number of current initiatives, programs and policies.

The Adaptation Plan aims to,

- Incorporate adaptation initiatives that are appropriate at the local scale and yet support regional scale climate change adaptation.
- Build capacity and awareness of climate change adaptation of the local community and City employees.
- Enable climate-resilient and sustainable development across the Perth region.

The Riverfront Masterplan is intrinsically linked to the City of Perth's commitment to do its part to minimise the effects of climate change. The design reflects the initiatives included in the Foreshore Preservation and Management Plan / Riverbank Assets Management Plan. These include,

- Increasing setback between riverbank and infrastructure - Riverside Drive downgraded and re-aligned. Its levels will also be raised to ensure it does not flood.
- Setting the platform level of new developments 300mm above the high tide level - this will be adopted for all new built form.
- Increasing the height of river edge to protect nearby infrastructure from flooding - The Dyeedyallalup river walk will be raised to levels as determined by further detailed marine engineering advice.
- Increasing vegetation on riverbanks to increase stability and resistance to storm surges - The Riverfront includes for extensive new river edge planted zones.
- Implementing detention and retention basins to manage storm water quantity and quality. - Two new significant constructed wetlands are integrated into the design.
- Implementation of drainage nutrient intervention techniques such as bio-remediation and artificial/ engineered wetlands (and where feasible, utilising flood plains, native plants and vegetation to assist in achieving biodiversity and GI outcomes) - The constructed wetlands, as well as a range of WSUD initiatives will support the cleaning of storm water before it enters the Swan River.
- Promote Urban Forest Plan - preserve, plant, address hot spots - The Masterplan proposes a major increase in tree canopy with the planting of over 3,000 native trees, suitable for the Swan River environment.
- Biodiversity actions plans for GI assets - The mass planting of native trees, ground covers, wetland and river edge species will significantly increase the creation of habitat and support heightened biodiversity along the Riverfront.





Flooding at Langley Park 2021

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WATER SENSITIVE CITY

The City has developed an Integrated Water Plan 2023 – 2028 (Urbaqua 2023). The plan creates a strategic framework for progressing the vision for Perth as a Water Sensitive City.

A water sensitive Perth is where:

- City of Perth residents, workers and visitors enjoy the cultural and recreational values of the Swan River and the City's water attractions which support a cool, green and activated Capital City.
- The City of Perth demonstrates water sensitive leadership and builds a community of water stakeholders to deliver collaborative and integrated outcomes which are Liveable, Sustainable and Prosperous.

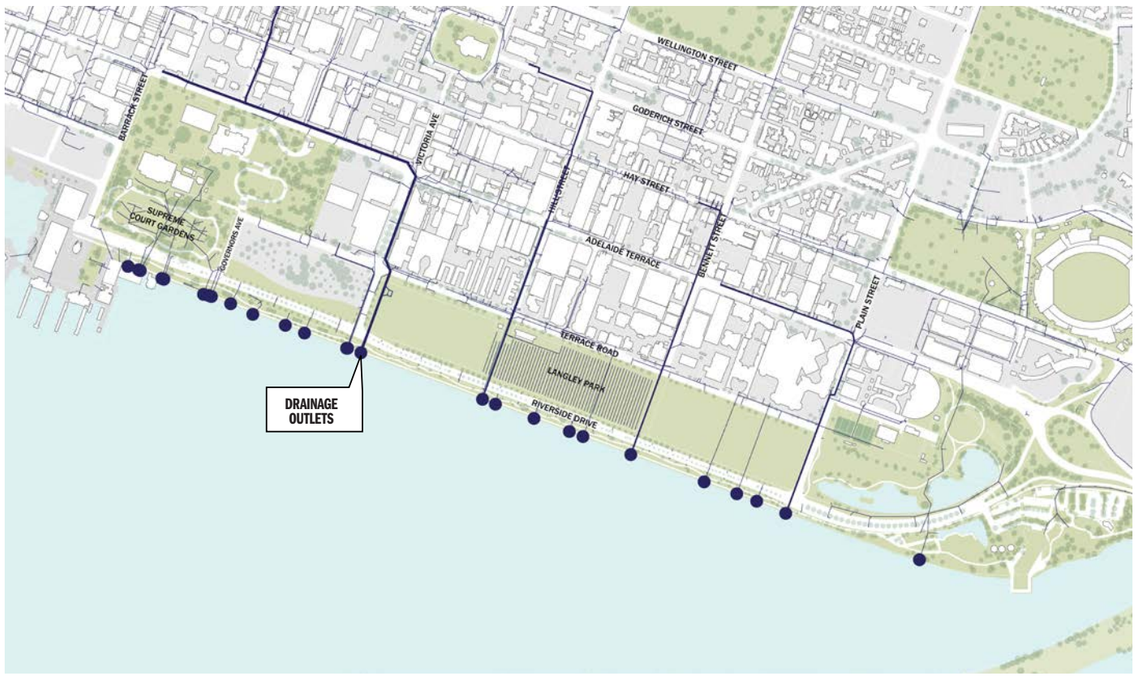
The plan assesses flooding risk, Swan-Canning water quality, groundwater levels, licences, usage, landscape, topography, contamination, potable water use and the storm water system.

The Riverfront Masterplan intends to make a significant contribution to the City's commitment to being a water sensitive city.

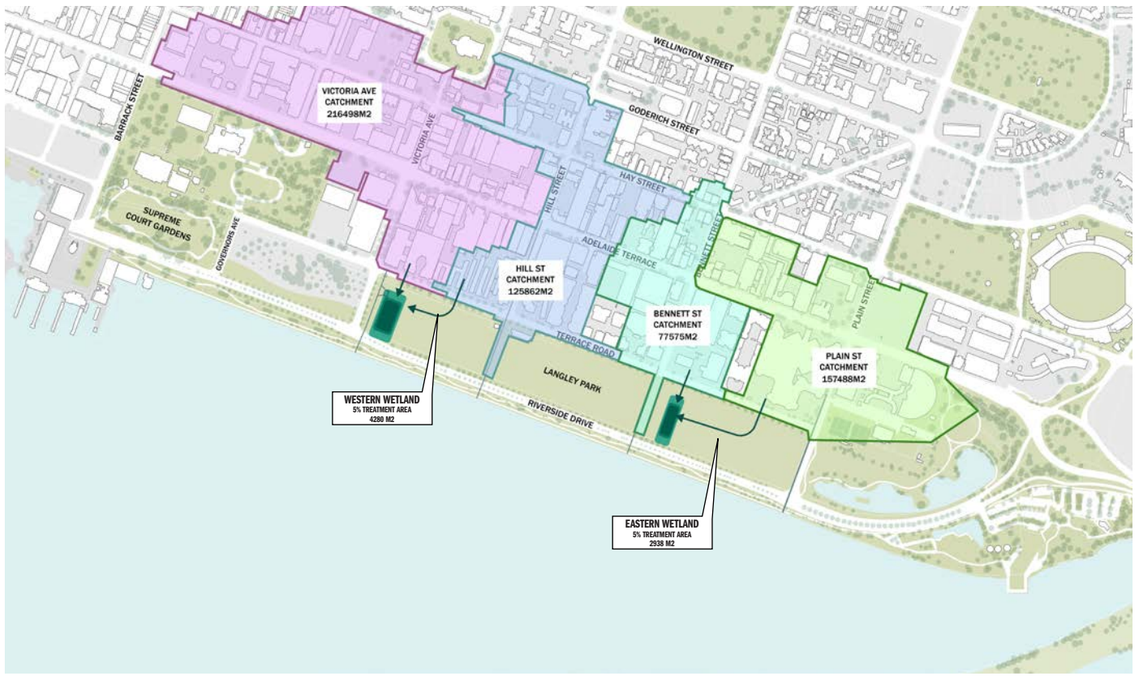
An analysis of the current storm water infrastructure which carries CBD rain water to the Swan River has identified at least 29 drainage outlets and associated pipe network. Many of these are damaged and there is minimal integration of design elements which help to remove pollutants and nutrients, as well as attenuate flows.

Storm water currently flows through Langley Park from four CBD catchments (Victoria Avenue, Hill Street, Bennett Street and Plain Street - see diagram below).

The Masterplan proposes two constructed wetland systems identified at strategic locations within Langley Park to intercept, clean and attenuate the water. These were recommended and sized by Urbaqua in 2021.



Approximate location of drainage outlets - Urbaqua (2021)



CBD catchments and constructed wetlands treatment areas - Urbaqua (2021)

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WATER SENSITIVE CITY

Making the blue-green connection

A key move of the City of Perth's Urban Greening Strategy is to combine the integration of open space and water elements within the city. The Riverfront Masterplan creates an exciting opportunity to enhance amenity, increase nature and bio-diversity through combining blue and green design.

Constructed wetlands

Existing drainage lines discharging to the river are low so difficult to raise and 'daylight' the existing runoff catchments from an engineering perspective.

However constructed wetlands can still be useful as these can interact with the site's high groundwater levels integrating lower invert levels to pick up the existing drainage lines.

Constructed wetlands at the Riverfront provide two benefits;

- Treat storm water from untreated catchments.
- Act as a fit for purpose land-use with regards to potential riverine flooding and storm surge.

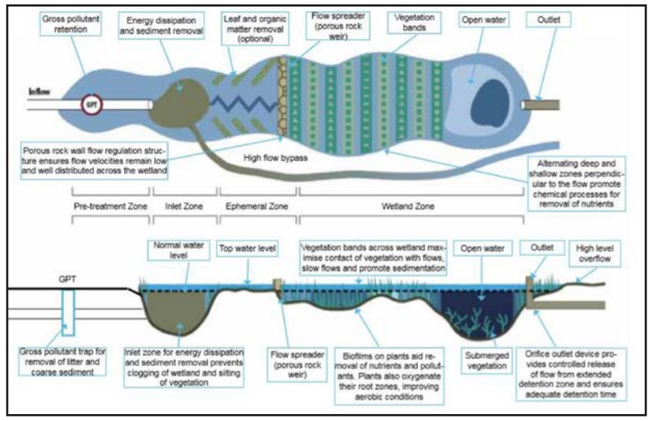
Integration of water sensitive urban design (WSUD) techniques

The Masterplan proposes that WSUD techniques are integrated to clean and attenuate water. In addition to the wetlands elements such as rain gardens, appropriately scaled hard surfacing and permeable paving can be considered.

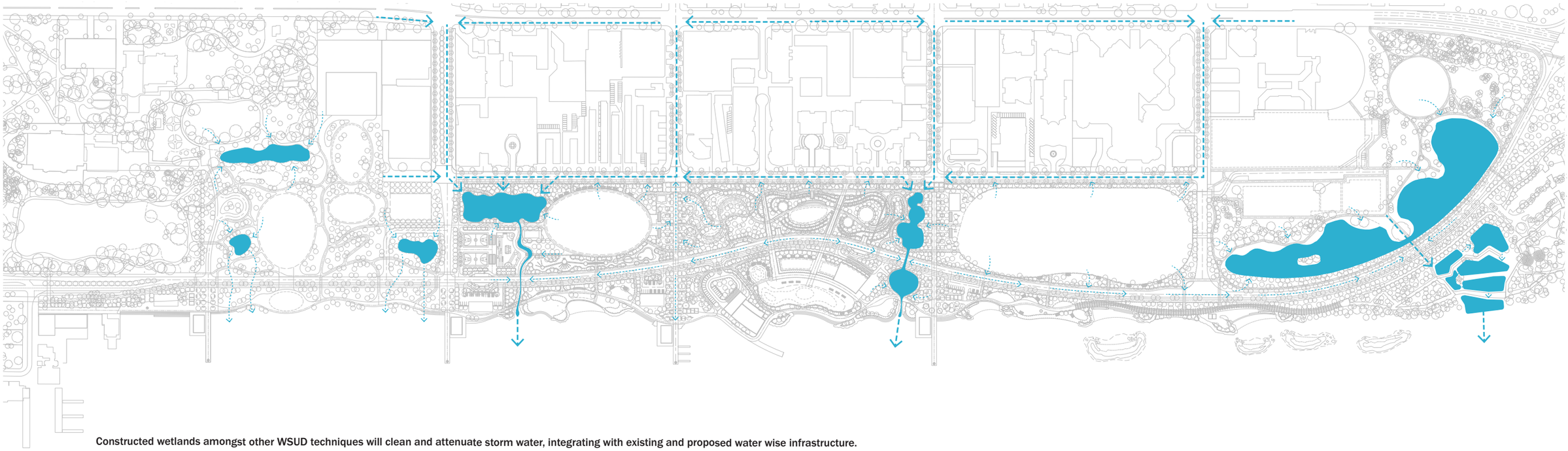
Further technical design work is required to ensure the Riverfront maximises its potential to contribute to Perth's goal in being a leading water wise city.



Urban wetlands can be designed with significant amenity and place making attributes



Constructed Wetland Schematic (Source: Melbourne Water)



Constructed wetlands amongst other WSUD techniques will clean and attenuate storm water, integrating with existing and proposed water wise infrastructure.

URBAN GREENING – BIODIVERSITY

The South-West Western Australian landscape is internationally recognised as a biodiversity hotspot. The Swan Coastal Plain features coastal dune systems of quartz and limestone, dominated by Banksia woodlands or Tuart on sandy soils, Casuarina obesa on outwash plains, and Paperbark in swampy areas. Life here has adapted to hot, dry summers and cool, wet winters.

The Derbarl Yerrigan (Swan River) is an ephemeral river and historically, the low intertidal area of Dyeedyallalup was a rich food source and gathering place, unlike today's grassed parklands.

The Masterplan aims to support the 130 species of fish and animals that inhabit the Swan River by re-wilding Dyeedyallalup and regenerating ecosystems.

Birds

The wetlands, swan islands, and intertidal areas will help to support the 80 species of water-birds in the Swan and lower Canning rivers, including the black swan, cormorants, herons, darters, pelicans, ducks, ibises, and egrets.

Amphibians

Healthier ephemeral ecosystems will attract frog species such as the motorbike frog, slender tree frog, moaning frog, and squelching froglet.

Insects

Native plant species like Eucalyptus and Grevillea flowers will attract pollinators such as bees, beetles, hoverflies, butterflies, and moths.

Reptiles

Reptiles like the long-necked turtle, bob-tailed skinks, and western bearded dragons will be enticed to return.

Marine Life

The naturalised river edge and water cleansing wetlands will enhance habitats for native freshwater fish like freshwater cobbler, western minnow, western pygmy perch, and nightfish. Improvements in river water quality will help to support jellyfish, seahorses, crabs, freshwater crayfish, and Indo-Pacific bottlenose dolphins.

Marsupials

Restoring diverse native habitats will help to attract marsupials like the southern brown bandicoot (quenda) and brush-tail possums.

Microscopic Life

Improving the quality of water currently draining into the Swan River will support the health of microalgae, macrophytes, and macroalgae, vital for the river's ecosystem.

Plants

The Swan Coastal Plain hosts over 1,500 plant species. The Masterplan will prioritise over storey species like Salt-water Sheoaks, Swamp Paperbarks, Freshwater Paperbarks, and Flooded Gums, along with rejuvenating sedge and rush communities. Detailed landscape planning, in consultation with ecologists, government agencies and cultural advisors, will inform species selection to uplift the biodiversity of the Riverfront.



Little Pied Cormorant



Indo-Pacific Bottlenose Dolphins



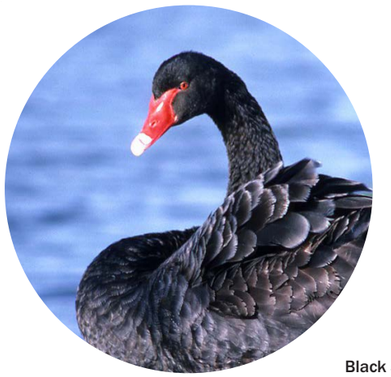
Motorbike Frog



Southern Brown Bandicoot (Quenda)



Masked Bee



Black Swan



Long Neck Turtle



Squelching Froglet



Melaleuca rhaphiophylla

URBAN GREENING – TREES

The urban forest contributes to physical and mental well-being, overall liveability, landscape character, biodiversity and climate resilience of a City.

Urban Greening Strategy and Urban Forest Plan 2016-2036

As part of the City of Perth's Urban Greening Strategy canopy cover is aimed to expand on the estimated 14,811 street and parkland trees, (excluding Kings Park) increasing it from 10.7% to 30% in a 'hot spots' targeted approach.

The Riverfront area will be a key contributor to this target.

Tree procurement and planting strategy

A comprehensive tree procurement and planting strategy is required for the Riverfront. It will be based on the retention, transplanting and introduction of a significant increase in appropriate native species.



1 Mature Fig Trees (various sp.)



2 Phoenix canariensis – grouped planting



3 Washingtonia robusta – avenue planting



4 Phoenix canariensis – avenue planting

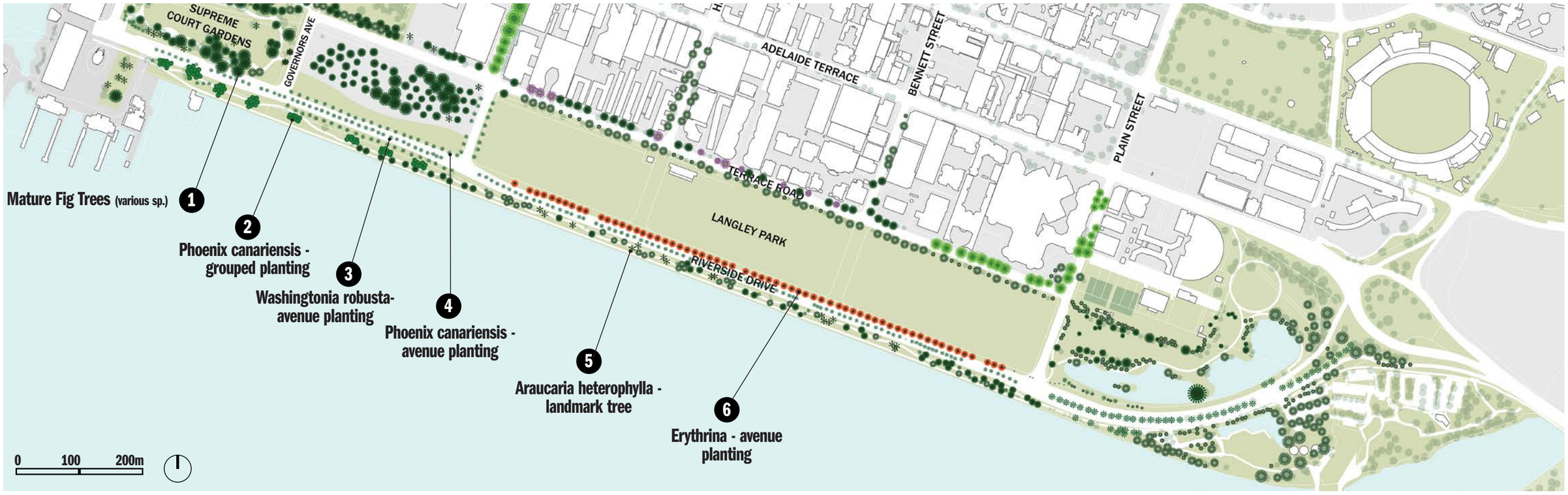


5 Araucaria heterophylla



6 Erythrina – avenue planting

The mainly exotic exiting site trees are shown on this plan



Hassell ©

URBAN GREENING – TREES

Trees to be retained

Across the Riverfront several groups of trees with amenity value and capacity to protect the river's edge from erosion will be kept (in particular the landmark Norfolk Island Pine trees).

Trees to be transplanted

There are a significant number of trees on site which can be transplanted either within the Riverfront (Sheoaks) or to other city sites (Erythrinas).

Exotic species to be phased out

Exotics such as the Washingtonia Robusta, planted along the current alignment of Riverside Drive will be phased out and replaced.

Vegetation themes/New trees

The Perth Water Buneenboro Locality lies within the Swan Coastal Plain. Vegetation themes are based on pre-existing landscape character of the vegetation complexes, soils, geology and hydrology. The Riverfront sits within the Vasse Complex and with the river's edge defined by Sheoak Woodland condition.

Species selection for new trees will be drawn from guidance by the Perth Water Buneenboro Landscape Planting Guideline (April 2024, WA Govt. DBCA) as well as the City of Perth's own Urban Forest Plan 2016-2036.

The Riverfront Masterplan envisages over 3,000 additional trees to be planted.

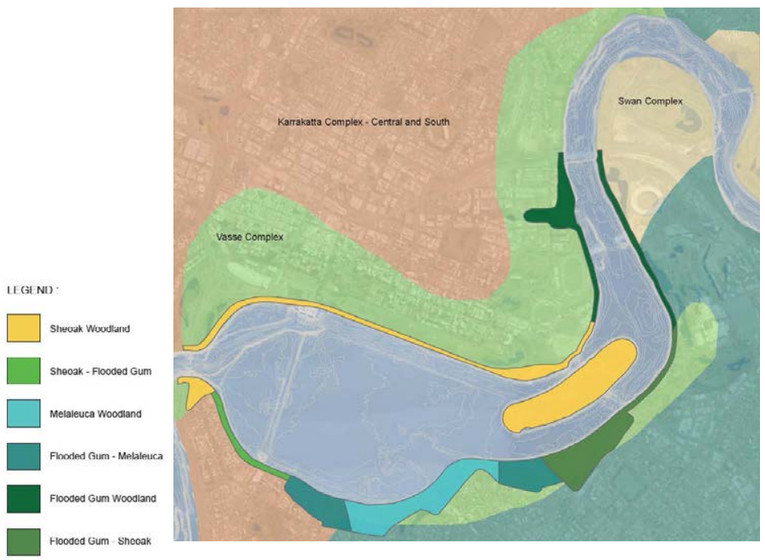
Community Planting

An exciting part of the project will be how the community embraces the planting of new trees as part of the City's regular tree planting events.



Landmark Norfolk Island Pine trees at the river edge are identified for retention in place as part of the Riverfront Masterplan.

Araucaria heterophylla
NORFOLK ISLAND PINE



Vegetation Themes
(Sources - Syrinx and DBCA Perth Water Buneenboro Landscape and Planting Guidelines).



Agonis flexuosa
PEPPERMINT



Allocasuarina fraseriana
SHEOAK



Eucalyptus rudis
FLOODED GUM



Banksia grandis
BULL BANKSIA



Eucalyptus gomphocephala
TUART



Melaleuca rhaphiophylla
SWAMP PAPERBARK



Melaleuca cuticularis
SALTWATER PAPERBARK



Eucalyptus marginata
JARRAH

Appropriate native tree species (selected from the DBCA Perth Water Buneenboro Landscape and Planting Guidelines).

URBAN GREENING – PLANTING

The Masterplan proposes a major extension in the quantum of native groundcover planting. Adding texture, colour and seasonal change, the planting will highlight the cultural and environmental significance of the Swan River Plain.

Over 500,000 natives will be planted at the Riverfront.

There is an opportunity to celebrate Whadjuk Noongar culture within the planting.

Throughout the Riverfront area there will be a variety of zones for planting which relate to their general location; river's edge, wetlands, roadscapes, margin planting, showcase wildflower planting and roof top planting associated with the buildings.

Species selection will be drawn from guidance by the Perth Water Buneenboro Landscape Planting Guideline (April 2024, WA Government Department of Biodiversity, Conservation and Attractions). The species shown here are drawn from this list. In future design stages the planting palette will undergo rigorous review and discussion to ensure stakeholders and the community understand how the planting will mature, the benefits it will have and of course implications for maintenance.



Juncus kraussii
SEA RUSH*



Carex appressa
TALL SEDGE



Anigozanthos manglesii
MANGLES KANGAROO PAW



Hardenbergia comptoniana
NATIVE WISTERIA (CLIMBER)



Macrozamia riedlei
ZAMIA



Grevillea bipinnatifida
FUSCHIA GREVILLEA



Baumea juncea
BARE TWIG RUSH*



Lepidosperma longitude
PITHY SWORD SEDGE



Anigozanthos viridis
GREEN KANGAROO PAW



Banksia dallanneyi
COUCH HONEYPOT



Melaleuca lateritia
ROBIN REDBREAST BUSH



Beaufortia elegans
ELEGANT BEAUFORTIA



Ficinia nodosa
KNOBBY CLUB RUSH*



Dianella revoluta
BLUEBERRY LILY



Conostylis candicans
GREY COTTONHEADS



Melaleuca huegelii
CHENILLE HONEY MYRTLE



Verticordia plumosa
PLUMED FEATHER FLOWER



Grevillea crithmifolia
GREEN CARPET

Appropriate river edge and groundcover species (selected from the DBCA Perth Water Buneenboro Landscape and Planting Guidelines).

ACID SULFATE SOILS

ACID SULFATE SOILS

Acid sulfate soils (ASS) are widespread in low-lying coastal areas of Western Australia. They are common along the coastal plains within water-logged, groundwater dependant and high groundwater table environments.

The Department of Environment Regulation (DER) has published ASS risk maps for most coastal regions of Western Australia where there is a high to moderate probability of ASS occurring. Where a development cannot be redesigned to avoid disturbing ASS, the risk maps are used to trigger site specific investigations and management strategies for ASS soil disturbance and/or lowering of the groundwater table.

Perth Riverfront is identified on the ASS risk map classes as Class 1 (red) - High to moderate risk of ASS occurring within 3m of natural soil surface which could be disturbed by most land development activities.

The Riverfront project will require a detailed investigation and management of ASS disturbance. Precinct 3, the wetlands, the jetties and the river edge works in particular will impact ASS. An ASS management plan will be required to be prepared and submitted to DER for review prior to the commencement of ground-disturbing activities.



Acid Sulfate Soils Risk Map (Class 1 - High to Medium Risk). Source DER National Map

IRRIGATION

IRRIGATION

With limited supplies of water to establish and maintain landscaping it is an important aspect of the Riverfront Masterplan to work to develop an integrated water use strategy. To make a significant contribution to an increase in urban tree canopy cover and to ensure the establishment of groundcover planting, an approach to irrigation design is required which seeks to minimise water use.

There are current restrictions on licensing of water for irrigation purposes in the Riverfront area. The Masterplan will seek to ensure water use is minimised for established and ongoing maintenance.

The considerable reduction in space allocated for lawns is a strong to start. Winter planting of water-wise natives, as well as planting of smaller rather than larger trees are typically adopted methods of establishing extensive areas of new landscaping.

There will be a requirement for an early next stage project to define these parameters, ensuring that ongoing water use is sustainable, acknowledges the challenges of this particular site and considers the wider effects of climate change.



Groundwater Availability for Irrigation - Fully Allocated. Source DWER Water Register/CoTerra Environment

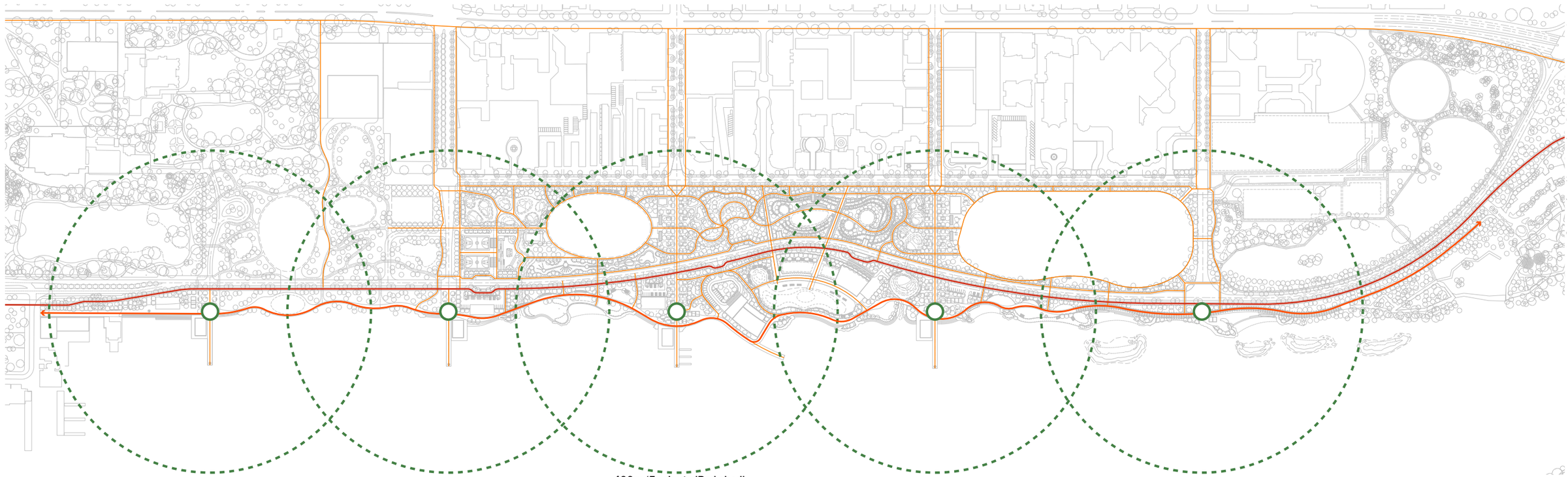
WALKABILITY

Enhancing the Riverfront's walkability is perhaps the number one aspect of improving how people move and through the area. The Masterplan aims to create enjoyable and comfortable walking journeys which are legible and attractive to undertake.

The inclusion of activation nodes at less than 400 metres apart (5 minute 'ped shed') establish easy to reach pause points. These help to facilitate an enjoyable river walk from Barrack Square to Point Fraser.

In addition, the north-south connector spines to the city grid will entice people through the parkland to the river.

There is also a range of walkable routes east-west through the heart of the park which move through the wetlands, playspaces, lawns and the two dynamic rising boardwalks which link to the roof top parkland over The Lagoon car park.



400m/5 minute 'Ped shed'

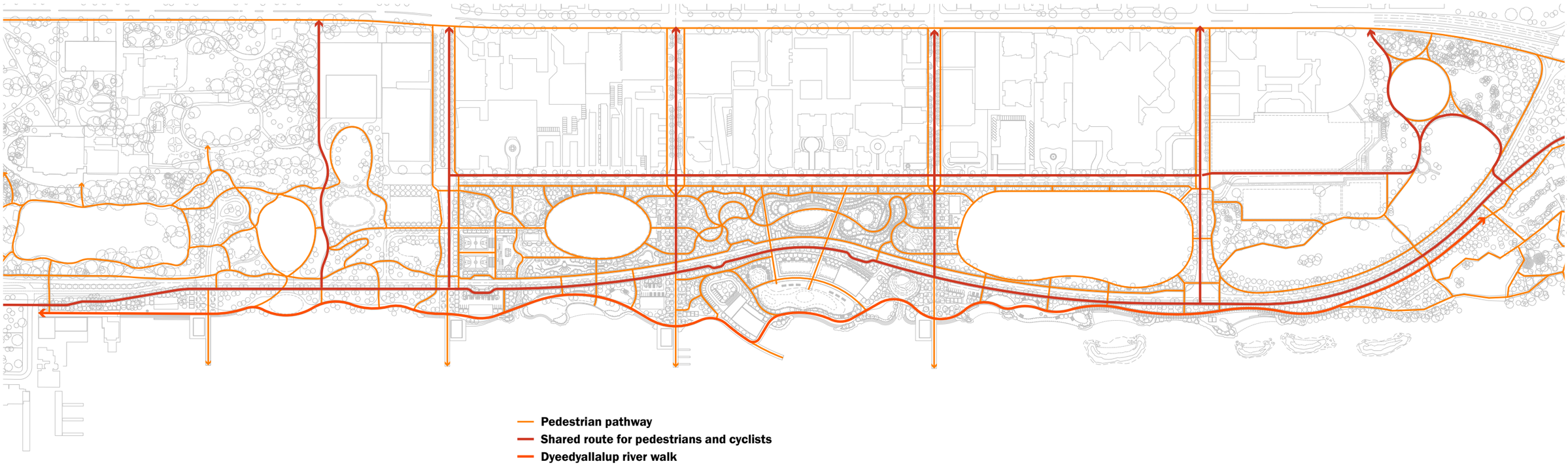
ACTIVE MOVEMENT

Active movement options via cycling and e-scooters are a high priority for the Riverfront Masterplan.

The re-alignment of Riverside Drive also sees the shared path re-routed alongside the road.

These pathways connect to Barrack Square/Elizabeth Quay, through the ACC and PCH sites and extend across the new Causeway Pedestrian and Cyclist Bridges.

More informal shared surface routes for active movement options exist along the new pedestrian spines connecting to Hill Street and Bennett Street and into the city centre.

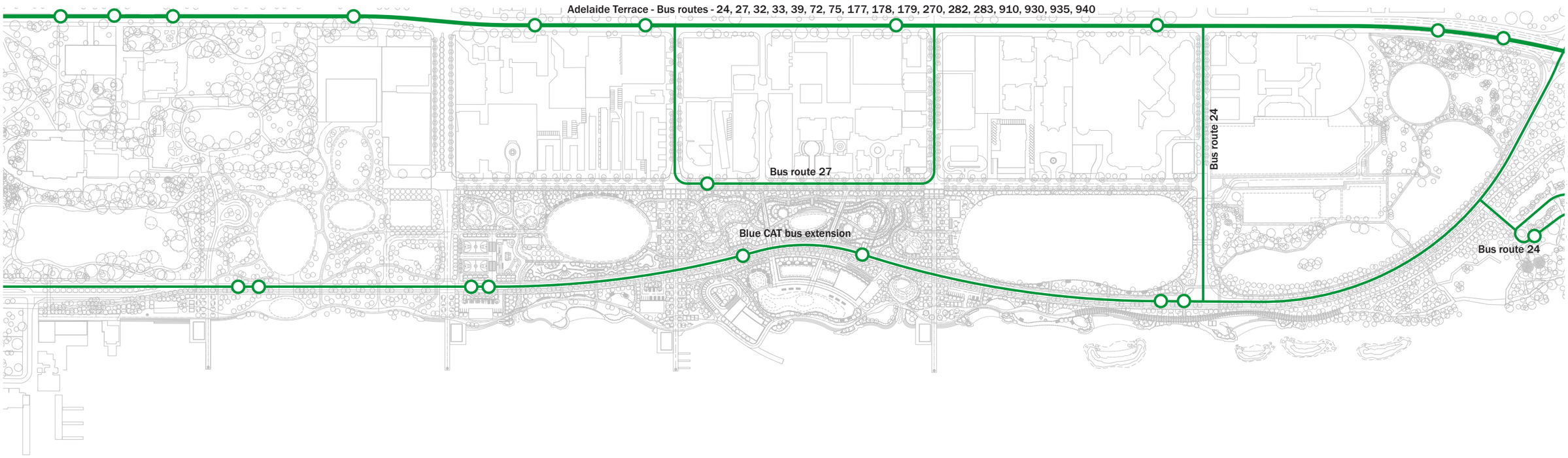


- Pedestrian pathway
- Shared route for pedestrians and cyclists
- Dyeedyallalup river walk

PUBLIC TRANSPORT

The Masterplan retains existing bus routes which connect with Terrace Road (No. 27), Adelaide Terrace (see diagram) and Point Fraser (No. 24).

The plan also promotes the extension of the Blue CAT from Barrack Square along the re-aligned Riverside Drive with stops envisaged at the Aboriginal Cultural Centre and Precincts 2, 3 and 4. It could then potentially connect with Point Fraser and across the river to Burswood Park and Optus Stadium.



ROAD NETWORK

The re-alignment and downgrading of Riverside Drive is a key road network initiative within the Masterplan.

It is important to retain a vehicular route along the Riverfront, in particular to ensure the feasibility of the Precinct 3 while limiting the impact on Terrace Road.

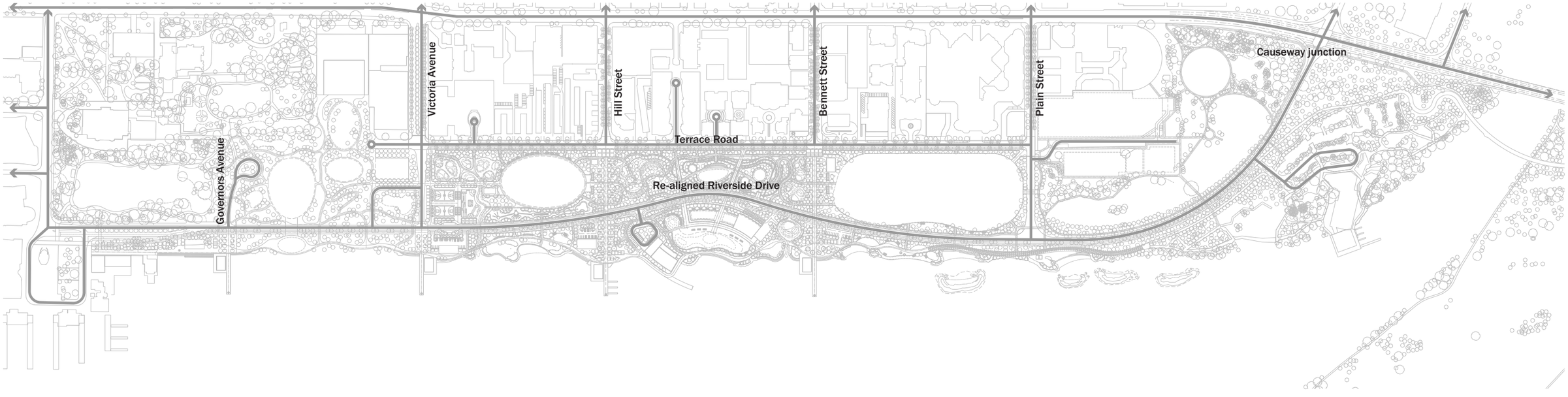
The downgrading of Riverside Drive retains one lane each in direction (see cross section). This extends from Barrack Square to the Causeway. At the Causeway the teardrop junction is rationalised into a simpler crossroads controlled system.

The Masterplan envisages upgrades to Terrace Road, Victoria Avenue, Hill Street, Bennett Street and Plain Street with wider pedestrian pathways, rationalised parking, WSUD initiatives and improved tree canopy.



Typical Precinct 4 cross section through the river edge and re-modelled Riverside Drive

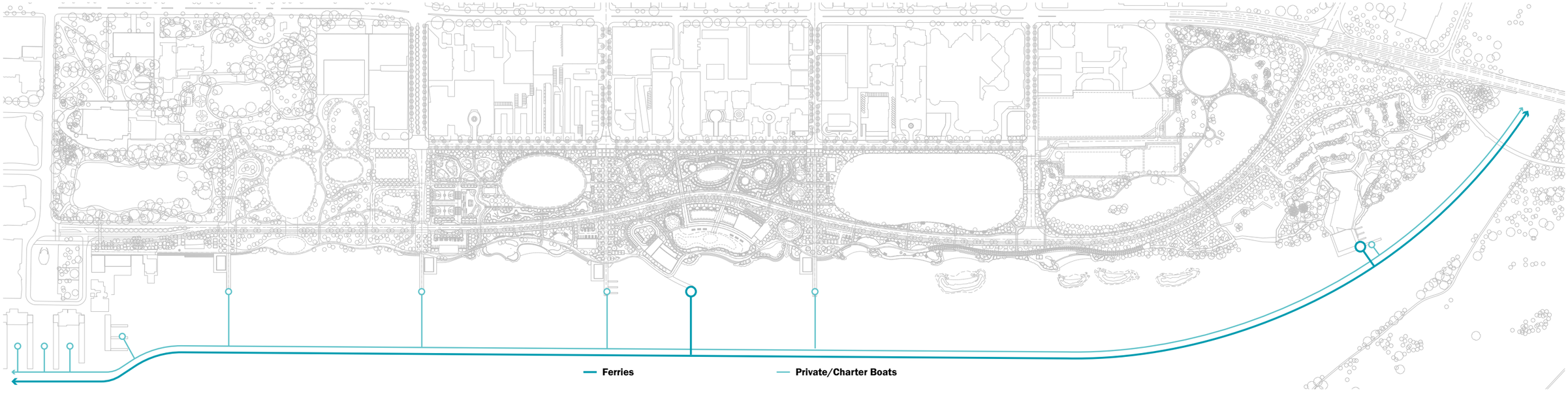
0 2.5 5 10m



THE RIVER

The Swan River can contribute more to the movement of people up and down the Perth Riverfront. The Masterplan proposes a public ferry stop in the Precinct 3, to support The Lagoon and multiple food and beverage outlets.

Additional public mooring jetties are proposed at the activation nodes. It is the intention to allow private boats to moor for extended periods to create more flexible boating leisure pursuits, as well as support the commercial viability of the restaurants and cafés.



PARKING

PARKING

Car parking is included in the Masterplan at key points. These include a large buried, two layer parking structure to support The Lagoon (approx 350 spaces).

Modest parking provision for DDA requirements, staffing, ride share drop-off and servicing are included at the riverside activation nodes. Entry parking with ride share drop-off is provided for at The Lagoon and food and beverage outlets in Precinct 3.

Street parking is retained along the western end of Riverside Drive, Plain Street, Terrace Road, Hill Street and Bennett Street.

Overall approximately 1,000 parking bays are retained in the area. Parking provision will be considered as part of a holistic movement strategy to the Riverfront, which will be further developed as the project progresses.

SERVICING

Servicing

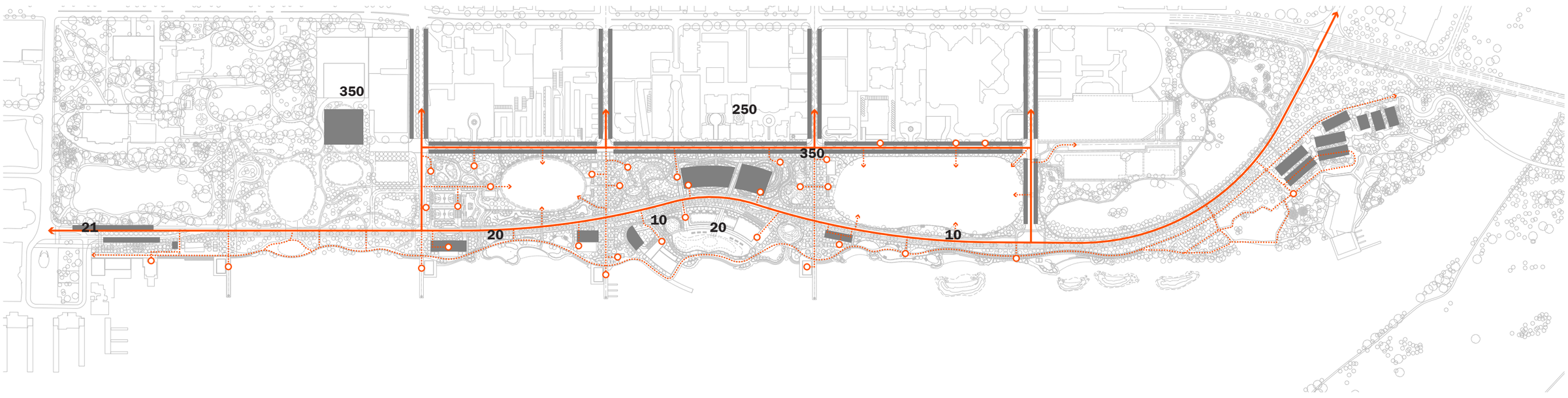
The diagram below highlights the key service and maintenance access points at the Riverfront.

Maintenance vehicles will be able to access the river walk and the beaches. There will be access points to the constructed the wetlands.

Designated access connections will be established for servicing the large lawns and extensively planted areas.

The proposed Lagoon and range of restaurants and other food and beverage outlets will all require service points.

All development projects will require a waste management and servicing strategy to be approved by The City and WAPC.



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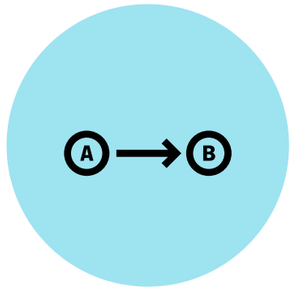
7. IMPLEMENTATION



PROJECT PLAN

The implementation of the Masterplan for Perth City Riverfront will occur over a number of years with the support of many stakeholders and the community. A transformational project of this scale requires a strategic approach that includes,

- Planning which coordinates with the development in adjacent projects.
- Phased approach.
- Government and private sector.
- Addresses degraded infrastructure.
- Ensure quick wins for community amenity.



WEST TO EAST

WORKS IN THE MASTERPLAN WILL BE DEVELOPED MOVING EASTWARDS

With significant projects occurring at the western end of the Masterplan it is logical to optimise the investment and extension of amenity that will occur in Precinct 1 – The Cultural Precinct. Projects such as the upgrade to Supreme Court Gardens, the Aboriginal Cultural Centre and the Perth Concert Hall that will draw people closer to the River's edge.

The Masterplan integrates these projects and ensures a continuity of experience through the precinct into other areas of the Riverfront.



RIVERSIDE DRIVE

ENSURING PEDESTRIAN FOCUSED CONNECTIONS

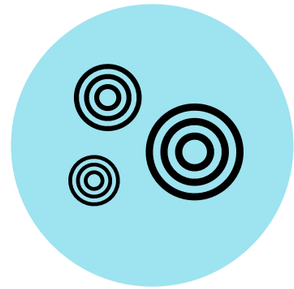
Riverside Drive is a key feature of the Masterplan landscape and one of the infrastructure elements that is a barrier to people connecting with the Swan River. The construction of Elizabeth Quay has reduced traffic demand along Riverside Drive by 60%, opening up the opportunity to re-think how this connection will contribute to the Masterplan. By creating a slower moving, pedestrian focused road that is placed away from the river's edge ,the Masterplan can ensure a naturalised, accessible riverfront while preserving a tourist drive experience.



RIVER WALL, RIVER EDGE

CREATING A RESILIENT RIVER'S EDGE BY RECONSIDERING THE RIVER WALL

An important trigger for the Masterplan is the need to address the degraded river wall. With Riverside Drive being re-aligned away from the river's edge there is sufficient area to propose a resilient, naturalised condition that will contribute to the health of the Swan River and protect infrastructure. The Masterplan ensures there is sufficient area to create protective headlands, resilient beaches, and intertidal areas for native plants and animals, creating healthy eco-scapes. A natural systems approach to the banks of the Swan River will support the health of the 130 species of fish and wildlife that make the Swan River their home.



QUICK WINS

DELIVERING ON THE PROJECT VISION

With a project of this scale, it is important to demonstrate the commitment to the long term vision through 'quick wins' that deliver on amenity, authentic community engagement and enhanced urban canopy. Precinct 1 and Precinct 2 integrate a range of short term quick-win projects that can quickly support the health and well-being of families living in the City.

Further engagement and collaboration with Whadjuk Noongar advisors and artists can lead to defined quick-win projects on the Dyeedyallalup river walk.

STAGING

The Masterplan provides a flexible framework for projects to occur over the long term. There are projects identified of varying complexity, scale and cost, some of which require sustained momentum between the Federal, State and local government, supported by the private sector. Three broad time frames are proposed: Short (1-5 yrs), Medium (6-10 yrs) and Long (11-20yrs).

By identifying three broad time frames the City of Perth is able to ensure key moves are undertaken to establish the framework for delivery, as well as undertake targeted projects to deliver on amenity in the short term. The identified time lines also enable community engagement and deep cultural understanding to infuse the design.

Short term projects include:

- **Stage 1** – Precinct 1 river edge and landscape works connecting to Barrack Square, Supreme Court Gardens and Aboriginal Cultural Centre.
- **Stage 2** – Precinct 2 wetland, playground, cafe and oval to the east of the Aboriginal Cultural Centre.
- **Stage 3** – Precincts 2, 3 and 4 re-aligning Riverside Drive, landscaping and establishing the pedestrian spines to the city. Excludes The Lagoon development
- **Stages 3a, b & c** – Precincts 2 and 3 river edge activation nodes.

SHORT TERM

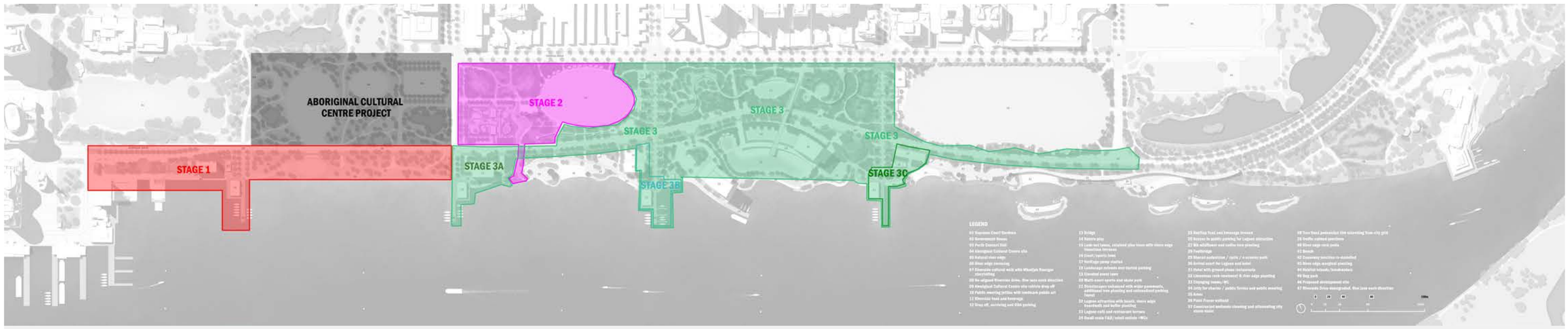
Stages 1, 2 and 3

1 – Barrack Square, Supreme Court Gardens, ACC connect

2 – Playground, wetlands, cafe and oval

3 – Riverside Drive, landscaping and pedestrian spines

3A, B & C – River edge activation nodes - public jetties, plaza nodes and cafés



STAGING

Medium term projects include:

Stage 4 – Precincts 2, 4 and 5 re-modelling of the river's edge.

Stages 4a & b – Precincts 4 and 5 breakwater/habitat islands.

Stage 5 – Precinct 4 upgrades to the eastern event and sports lawn, including new changing rooms and extensive areas of native planting.

MID TERM

Stages 4, and 5



4 – Re-modelling river edge

4A and B – Breakwater/habitat islands

5 – Event/sports lawn, changing rooms

STAGING

Long term includes:

Stage 6 – This is the most significant stage of the project resulting in the construction of The Lagoon with supporting amenities, retail and F&B outlets. A 350 bay car park structure under parkland is located north of Riverside Drive.

Stage 7 – Initially this Precinct 3 area may be landscaped to protect The Lagoon patrons from the prevailing winds. Through stage 7 this area will include a vehicle drop-off, landmark F&B development with public ferry jetty.

Stage 8 – Precinct 5 Riverside Drive downgrade to two lanes, landscaping, new pathways and a simplified Causeway Junction.

LONG TERM

Stages 6, 7 and 8

6 – The Lagoon, car park and landscaping

7 – F&B development, drop-off and jetty

8 – Riverside Drive



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