LEGEND LAND USE () LSP Boundary Subject POS Site Boundary Existing contours Built form Existing tree canopy Bush Forever Lot Environmental Conservation Lot Conservation Category Wetland 50m Buffer **DRAINAGE** To be read in conjunction with the accompanying cost plan summary Drainage basin 1:100 year average recurrence interval (ARI) Drainage basin 1:10 year ARI Drainage basin 1:5 year ARI Drainage basin 1:1 year ARI **SURFACE TREATMENTS**To be read in conjunction with the accompanying cost plan summary Irrigated planting Nutrient-stripping vegetation (estimated by others) Revegetation Supplementary planting to existing vegetation Concrete unit paving Gravel path Concrete path Concrete maintenance edge **ELEMENTS**To be read in conjunction with the accompanying cost plan summary Proposed tree Shelter (small) Shelter (large) Nature play elements Play elements Photovoltaic lighting Co Drink fountain Interpretive signage Universally accessible electric barbeque and picnic table Bin enclosure (Litter, recycling and FOGO) 异 Bench seating Bollards (removeable to paths) Black chainwire fencing to Env. Conservation lots and dog exercise areas Water hose cock 4 Electricity supply box 👸 Lookout Dog exercise area with bag dispenser Accessible self-cleaning WC





Forrestfield represents an opportunity to plan for open space of quality in both design and resilience. To achieve this requires an open space network that works harder, with more complexity and adaptability, whilst maintaining expectations of open space functionality and provision.

Design principles

Through site analysis, baseline research and benchmarking a series of themes have been established shown in the diagram above. The themes inform a set of design principles that guide the development of each new open space.

Urban Forest

Trees have always been an important component of open space, however, as urban areas grapple with the impacts of increasing temperatures, they are needed now more than ever for urban cooling. The open space design will identify where open space can support the growth of an urban forest.

Creating a cool environment



- 1. Support tree canopy cover targets across open space Protect and enhance existing tree planting in, around and between open
- Ensure a net gain of trees across open space.

Growing a healthy and resilient forest



- 4. Support tree planting through passive irrigation using stormwater Provide quality soil volumes and median for healthy tree growth or provide
- appropriate species for existing soil conditions Integrate future-proofing research into species selection that can adapted to
- forecast climatic changes.
- 7. Protect trees against pest or disease attack or extreme heat events.
- 8. Improve understorey to increase insect/bird diversity and reduce risk of pest and insect attack.

Growing a diversity of tree species 9. Optimise cooling through a mix of tree species with different canopy habit,



- height and form 10. Diversify tree species, genus, age and growth rate
- 11. Plant trees communally with under story planting where possible
- 12. Consider tree origin. Broad leaf exotics often provide greater shade and benefit to daily thermal comfort, however native trees support greater biodiversity, increase carbon capture and reduce leaf litter.

Integrating trees into the urban setting



- 13. Ensure tree planting avoids infrastructure clashes. If clashes are unavoidable, investigate whether infrastructure can be removed, relocated or reconfigured to create sufficient space for trees.
- Ensure appropriate area for root zone establishment and protection is planned, designed and implemented.
- 15. Understand how tree planting will integrate with the surrounding context, build on the character of open space and adds value for the community.

Providing connected cool routes



- 16. Improve sun safety, health and wellbeing through the provision of shaded walking and cycling routes to, through and between open space . Align tree planting with ecological connections between habitat areas
- Route orientation trees on the south side of east-west routes and the east side on north-south routes will provide the greatest shade benefit.

Successful urban ecology is often defined by two main spatial typologies; healthy habitat areas, and a strong network of ecological connections. In urban areas most habitat areas are found in open space. Open Space will deliver a net increase in ecological values (this could be species diversity, lifeforms, landscape types, size of patch, habitats) and develop a more ecologically connected open space network.

Liveable Neighbourhoods Objective

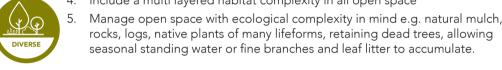
• To ensure the provision of adequate land to protect, and to provide public access to, river, creek, lake and ocean foreshores.

Increasing healthy habitat area

- 1. Maintain habitat and habitat health in all open space
- Integrate green infrastructure in place of hard infrastructure where possible
 - Expand on existing core habitat by providing buffer areas

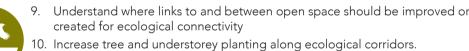


4. Include a multi layered habitat complexity in all open space



- rocks, logs, native plants of many lifeforms, retaining dead trees, allowing seasonal standing water or fine branches and leaf litter to accumulate.
- Protecting and enhancing ecology Restore, protect and enhance natural assets within open space Exclusively native planting apart from turfed areas
 - Ensure compatibility between human open space uses and nature, such as lighting, noise and human activity

Improving ecological connectivity



Encouraging community participation



- 11. Provide greater community access to and encounters with nature to improve social resilience and wellbeing
- Provide a balance between conservation and active and passive recreational uses in open space;

Open Space is where we meet, celebrate, gather, play, meditate, stay active and is an important part of our shared living experience. Providing a range of social and recreational experiences and settings in open space is critical in supporting a tolerant, diverse and inclusive community.

Liveable Neighbourhoods Objective

- To ensure that public open space of appropriate quality and quantity is provided in a timely manner to contribute towards the recreational and social needs of the community in appropriate locations.
- To facilitate the provision of land for community facilities where appropriate, as part of land ceded for public open space.
- To provide public open space that is safe and overlooked by nearby buildings.
- To facilitate the provision of the public open space contribution and its development as part of the subdivision process and to enhance local amenity. To provide a practical cash-in-lieu mechanism for open space allocation and
- improvements • To provide for regional variations that best reflect local community requirements.

Providing open space appropriate to its context



- Develop a network of integrated open space that support community hubs Celebrate reconciliation, belonging and coexistence through socially inclusive open space
- Deliver unique open space, in line with neighbourhood character
- 4. Ensure open space is universal in design and inclusive
- 5. Provide safe open space that responds to safety by design standards. 6. Maintain clear sight lines for overlooking nearby buildings for visual
- surveillance.

Creating a network of open space settings and uses



- Provide flexible open space appropriate for multi-use that works harder for Provide divers open space uses.

Incorporating open space amenity



- Provide local children's play that is reflective of the development structure, including small local parks or special purpose parks 10. Develop facilities for teenagers and young adults
- 11. Incorporate shade, seating, and drinking water in open spaces where
- 12. Provide resting places for the elderly or disabled people in appropriate

Enhancing sport and recreation facilities



- 13. Prepare for new and emerging open space trends in sports, recreation and 4. Develop the multipurpose nature and shared use of sport, recreation and
- leisure assets to maximise usage 15. Provide for district parks for a combination of passive (informal play areas) and active (formal playing fields)
- 16. Provide for neighbourhood parks for active (informal play areas) and passive

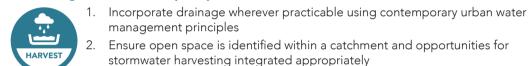
Hydrological

In understanding the influence of urban development on the natural hydrological systems there is growing need for open space to play a role in supporting stormwater and flood water management with the additional of improved water quality, urban greening and cooling outcomes. Open space has the capacity to become a blue-green network.

Liveable Neighbourhoods Objective

- To integrate urban water management functions with public open space.
- To protect and conserve margins of watercourses, water bodies and wetlands and establish public foreshores along the coast and watercourses adjacent to urban development.

Harvesting stormwater in open space



- management principles Ensure open space is identified within a catchment and opportunities for stormwater harvesting integrated appropriately
- 3. Improve water security by harvesting and irrigating open space through passive irrigation using stormwater run-off

4. Accommodate water-sensitive urban design in open space where usability

- for recreation purposes has not been compromised or where conservation values are enhanced. 5. Use sports grounds and passive recreational areas as part of the urban water
- management system to provide temporary detention areas during storm
- 6. Use open space for the detention of storm water during and immediately following a greater than five year average recurrence interval
- 7. Use restricted open space for the detention of stormwater for a greater than one year average recurrence interval.

Improving water quality through open space



8. Cleanse stormwater on the surface through natural filtration processes before being released into the wider stormwater network.

Using water for urban cooling



- 10. Increase evapo-transpiration by managing water on the surface, exploring soil capillary rise systems and enabling irrigation during the peak summer
- Use stormwater to irrigate trees supporting healthy canopy shade

Improving permeability open space



- 12. Reduce the use of impermeable surfaces
- Naturalise stormwater drains and increase surface permeability to retain more water in open space.

Movement & Access

A network of well distributed, accessible and functional open space also needs to be well-connected. The public and active transport systems provide sustainable connections to and between open space. Networks can occur along street, laneways, drainage lines, environmental corridors and through open space.

Liveable Neighbourhoods Objective

• To ensure that public open space is integrated into the urban structure to produce both land use efficiency and long-term sustainability.

Ensuring safe travel through and to open space

Provide cool routes for thermal comfort and sun protection

- Safely connect pedestrians to open space across vehicular routes Link bike
- Provide a clear path hierarchy within open space for cyclists and pedestrians. 4. Support legibility of the urban environment and the establishment of neighbourhood identity by incorporating natural and cultural features and

Prioritising sustainable transport and infrastructure

- 5. Make walking and cycling and other modes of active transport the easiest, most desirable option to travel to open space
- Allow the use of open space to produce seamless connections and incorporate land for connected or linear open space for walking and cycling; Provide bicycle parking in all open space
 - 8. Provide high quality, sustainable pathways for cyclist and pedestrians in open space.

While materials choice needs careful thought, it is important to also consider the bigger picture. Materials are just one piece of the sustainability puzzle and need to be balanced with many other issues such as energy performance, water use, asset upkeep, sense of Identify adjacent catchment stormwater that can be cleansed in open space place and social and ecological impacts. Making the 'right' material choice for public open space is no longer based purely on structural efficiency but a balance across a number of different factors.

SPP 7.0 Design of the Built Environment - Measure 5

• Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes

Materials, furniture and assets



1. Ensure efficient design and material specification to reduce the demand for excess material use thus equating to a lower environmental impact. Select materials that are fit for purpose and durable - In addition to meeting the necessary structural performance criteria (eg strength and deflection),

materials selection should consider materials that require minimal

maintenance, and which can accommodate future adaptation, significantly reducing its environmental impact during its lifetime. 3. Use lifecycle analysis and environmental product declarations to assess the likely cradle to grave impact of a building material to ensure low environmental impact, low embodied energy, capacity to store carbon and

use of recycled content. This will include issues such as consumption of raw

- resources, embodied carbon, water consumption, pollution impacts, etc. 4. Thought should be given to specification of materials that are appropriate given the environmental conditions and skills of the local labour force.
- 5. As well as selecting the most appropriate material it is important to consider the chain of custody and responsible sourcing of materials and the environmental credentials of the product supplier. This includes certification of timber to ensure that it has come from a legal source and responsibly managed forests.
- 6. Consideration should be given to how the structure will be constructed to ensure that construction waste is minimised eg through use of prefabrication and standard material units.
- 7. Consider the end of life (deconstruction) management of materials, first to whether materials can be reused in their original form, repurposed or, where this is not possible, how they can be recycled in a manner that limits future waste going to landfill to an absolute minimum.
- 8. Source materials as locally as possible to reduce transportation and reference the existing site reinforcing the sense of place tied to the local



FFN DCP POS

POS Concept Plan

Client:
The City of Kalamunda

Date: 2/11/2021
Scale: N/A





City of Kalamunda

FFN DCP POS

POS Concept Plan

L03A







City of Kalamunda

POS TO7

LEGEND LAND USE () LSP Boundary Subject POS Site Boundary Existing contours Built form **DRAINAGE**To be read in conjunction with the accompanying cost plan summary Drainage basin 1:100 year average recurrence interval (ARI) Drainage basin 1:10 year ARI Drainage basin 1:5 year ARI Drainage basin 1:1 year ARI **SURFACE TREATMENTS**To be read in conjunction with the accompanying cost plan summary Nutrient-stripping vegetation (estimated by others) Revegetation Gravel path **ELEMENTS**To be read in conjunction with the accompanying cost plan summary Photovoltaic lighting Bin enclosure (Litter, recycling and FOGO) 🖶 Bench seating Bollards (removeable to paths)





POS T06

FFN DCP POS

POS Concept Plan

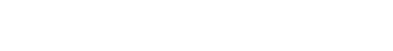
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Client: The City of Kalamunda Date: 2/11/2021 Scale: 1:250 @ A1 L05A



Public Agenda Briefing Forum 12 April 2022 Attachments











POS 09

LEGEND LAND USE

() LSP Boundary

Subject POS Site Boundary

Existing contours

Built form

Existing tree canopy

Bush Forever Lot

Environmental Conservation Lot

DRAINAGE

To be read in conjunction with the accompanying cost plan summary

Drainage basin 1:100 year average recurrence interval (ARI)

Drainage basin 1:5 year ARI

SURFACE TREATMENTSTo be read in conjunction with the accompanying cost plan summary

Irrigated planting

Nutrient-stripping vegetation (estimated by others)

Revegetation

Supplementary planting to existing vegetation

Gravel path

Concrete path

Concrete maintenance edge

ELEMENTSTo be read in conjunction with the accompanying cost plan summary

Proposed tree

Shelter (small)

Nature play elements

Play elements

Photovoltaic lighting

Tuniversally accessible electric barbeque and picnic table

Bin enclosure (Litter, recycling and FOGO)

Bench seating

Bollards (removeable to paths)

Water hose cock





POS T02, POS T03

FFN DCP POS

POS Concept Plan

L09A

Public Agenda Briefing Forum 12 April 2022 Attachments

LEGEND LAND USE () LSP Boundary Subject POS Site Boundary Existing contours Built form Existing tree canopy Bush Forever Lot Environmental Conservation Lot **DRAINAGE** To be read in conjunction with the accompanying cost plan summary Drainage basin 1:100 year average recurrence interval (ARI) Drainage basin 1:5 year ARI Drainage basin 1:1 year ARI **SURFACE TREATMENTS**To be read in conjunction with the accompanying cost plan summary Irrigated planting Nutrient-stripping vegetation (estimated by others) Revegetation Supplementary planting to existing vegetation Gravel path Concrete path Concrete maintenance edge **ELEMENTS**To be read in conjunction with the accompanying cost plan summary Proposed tree Photovoltaic lighting Bin enclosure (Litter, recycling and FOGO) ₩ Bench seating Bollards (removeable to paths) Directional signage





POS T04, POS 07, DB 04

LEGEND LAND USE () LSP Boundary Subject POS Site Boundary Existing contours Built form Existing tree canopy Bush Forever Lot Environmental Conservation Lot **DRAINAGE** To be read in conjunction with the accompanying cost plan summary Drainage basin 1:100 year average recurrence interval (ARI) Drainage basin 1:5 year ARI Drainage basin 1:1 year ARI **SURFACE TREATMENTS**To be read in conjunction with the accompanying cost plan summary Nutrient-stripping vegetation (estimated by others) Revegetation Supplementary planting to existing vegetation Gravel path **ELEMENTS**To be read in conjunction with the accompanying cost plan summary Photovoltaic lighting Bin enclosure (Litter, recycling and FOGO) ₩ Bench seating Bollards (removeable to paths) DB 03



DB 03

City of Kalamunda

FFN DCP POS

Road network, building footprints & public open space: concept only

L11A

POS Concept Plan

LAND USE () LSP Boundary Subject POS Site Boundary Existing contours Built form Existing tree canopy Bush Forever Lot Environmental Conservation Lot **DRAINAGE** To be read in conjunction with the accompanying cost plan summary Drainage basin 1:100 year average recurrence interval (ARI) Drainage basin 1:5 year ARI Drainage basin 1:1 year ARI **SURFACE TREATMENTS**To be read in conjunction with the accompanying cost plan summary Irrigated planting Nutrient-stripping vegetation (estimated by others) Revegetation Supplementary planting to existing vegetation Gravel path Concrete path Concrete maintenance edge **ELEMENTS**To be read in conjunction with the accompanying cost plan summary Proposed tree Nature play elements Photovoltaic lighting Bin enclosure (Litter, recycling and FOGO) Bench seating · Bollards (removeable to paths) Directional signage

LEGEND





POS 06, DB 02







POS 02 (PART), TOD BLVD (PART)

POS Concept Plan

L13A

LAND USE Subject POS Site Boundary Existing contours Built form Existing tree canopy Bush Forever Lot Environmental Conservation Lot **SURFACE TREATMENTS**To be read in conjunction with the accompanying cost plan summary Irrigated planting Nutrient-stripping vegetation (estimated by others) Revegetation Supplementary planting to existing vegetation Gravel path Concrete path Concrete maintenance edge **ELEMENTS**To be read in conjunction with the accompanying cost plan summary Proposed tree Shelter (small) (2) Nature play elements Photovoltaic lighting Interpretive signage 🛱 Universally accessible electric barbeque and picnic table Bin enclosure (Litter, recycling and FOGO) ₩ Bench seating Bollards (removeable to paths) FWater hose cock Dog exercise area with bag dispenser Directional signage

LEGEND





POS 04, POS 05

LEGEND LAND USE () LSP Boundary Subject POS Site Boundary Existing contours Built form Existing tree canopy Bush Forever Lot Environmental Conservation Lot **DRAINAGE** To be read in conjunction with the accompanying cost plan summary Drainage basin 1:100 year average recurrence interval (ARI) Drainage basin 1:5 year ARI Drainage basin 1:1 year ARI **SURFACE TREATMENTS**To be read in conjunction with the accompanying cost plan summary Irrigated planting Nutrient-stripping vegetation (estimated by others) Revegetation Supplementary planting to existing vegetation Gravel path Concrete path Concrete maintenance edge **ELEMENTS**To be read in conjunction with the accompanying cost plan summary Proposed tree Nature play elements Photovoltaic lighting Interpretive signage Bin enclosure (Litter, recycling and FOGO) 믉 Bench seating Bollards (removable to paths) Fencing





POS 03, POS 04

Directional signage