

Draft Urban Greening Strategy

2023 - 2036



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The City of Perth acknowledges the Whadjuk Nyoongar people as the Traditional Custodians of the lands and waters where Perth City is situated and pays its respects to Elders past, present and future.

1. Introduction

Our green infrastructure (GI) is a fundamental part of the city because of the wide range of social, environmental, and economic benefits it provides. Consequently there is growing acknowledgment of the need to protect and expand GI within the urban environment by integrating urban greening into strategies, policy, and development outcomes across a range of spatial scales.

The Urban Greening Strategy (UGS) sets out the City's high-level aspirations for urban greening with a focus on maximising its contribution to Perth's ongoing development as a highly livable, prosperous, and sustainable city.

1.1. Strategic alignment

The Urban Greening Strategy builds on the three pillars of the City of Perth Strategic Community Plan 2022-2032, in particular the sustainability pillar.

It is a key component of delivering the Green City theme in the City's Sustainability Strategy 2022-2023 and provides a framework for the development of a suite of plans for key components of the city's GI, including:

- **Open Space Plan** - planning for an accessible network of resilient green open spaces.
- **Active Movement Plans** - includes planning for green links for pedestrians and cyclists.
- **Private Realm Greening** - planning policy and design guidelines for in ground landscaping, trees, green roofs & green walls on private property.
- **Integrated Water Management Plan** - planning for sustainable water supply and management, essential for healthy urban greening.

Each plan will have a strong focus on increasing the level of urban greening across the city. This new suite of plans will sit alongside the existing City of Perth Urban Forest Plan (see figure below).

The UGS has a time frame of 2023 - 2036 to align with the City of Perth Urban Forest Plan. It will be reviewed every four years in keeping with the City's business planning cycle.

Strategic Community Plan 2022 - 2032

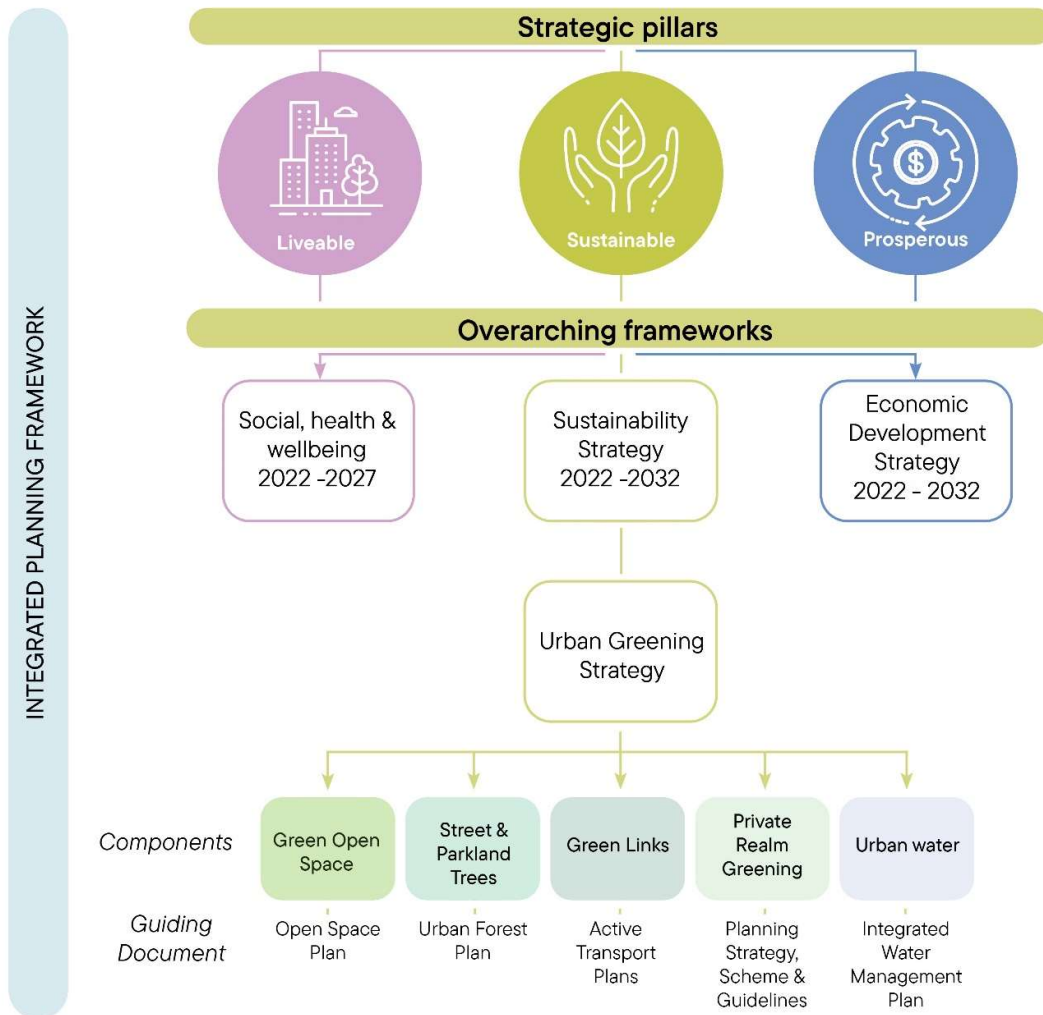


Figure 1: Integrated Planning Framework

2. Our urban greening commitment

By 2036 Perth city will be a greener, cooler, and more resilient place that is welcoming and vibrant.

Our status as a capital city within a recognised global biodiversity hot spot will be celebrated. Ribbons of native greening will weave across the city from Kings Park showcasing our unique floral heritage and creating a perception of a city within a park.

Our streets will be green threads that pull an expanded network of spaces together, providing cool oasis for city dwellers to catch their breath and escape the hustle and bustle of city life, and a refuge for our unique wildlife to bring more nature into the city.

Our buildings will be covered with a mosaic of green roofs, living facades, planted balconies and courtyards that provide small ecological stepping stones for wildlife and green views and spaces for residents to enjoy. Our parks and gardens will provide contemporary landscapes for gathering, playing and celebrating, welcoming a new generation of city dwellers.

Our community will be engaged and aware; actively contributing to the bigger greening picture and creating a green legacy for future generations.

We will have completed our transition to a water sensitive city and our green infrastructure network will provide a bulwark against the impacts of climate change on city livability, cooling and calming the city and protecting it from flooding.

The Urban Greening Strategy sets out a range of initiatives aimed at integrating our approach to land use planning and the design of our existing streets, open spaces and other city infrastructure to maximise greening outcomes and deliver on this commitment.



3. The City's role

As key custodian of the public realm the City has a fundamental role to play in urban greening. It will lead by example; adopting best practice and evidence-based approaches to protect against the loss of existing green cover, plan strategically for increased greening on City owned and/or managed assets and deliver on-the-ground greening projects in the public realm.

Our commitment to creating a greener Perth will not be fully delivered without effective engagement with the private sector, institutional landowners and other government agencies. The City will collaborate with these stakeholders to raise awareness of the importance of urban greening and advocate on behalf of our community for better greening outcomes in new development and major urban renewal projects.

The City will also explore the potential to partner with universities and other research agencies in the development of innovative urban greening projects that meet the specific environmental challenges of Perth's climate and capital city context.



Deliver

- Protect the City's GI network
- Plan strategically
- Public realm greening projects
- Supporting policy and design guidance



Collaborate

- Advocate on behalf of the community
- Partner with other government agencies
- Incentivise the development industry

4. What is urban greening?

Urban greening, also known as green infrastructure, refers to the city's network of natural, designed or cultivated vegetated spaces located on both public and private land*. Urban greening exists at a range of spatial scales, its key components include:

- Small city spaces such as balconies, small building setback areas, internal courtyards and city laneways featuring planting at the micro scale (i.e. pot plants, planters, climbers, small potted trees)
- Engineered vegetation systems on city buildings, such as green roofs and walls.
- Green streets featuring street tree planting and in ground planting or planters, where appropriate
- City parks and gardens cultivated with trees, a range of mid to low storey planting and featuring irrigated permeable green surfaces
- Wider open space network including the riverfront and large left over spaces around major city infrastructure (road and rail reserves)

(* definition adapted from Standards Australia's Handbook on Urban Green Infrastructure: SA HB 214:2023)

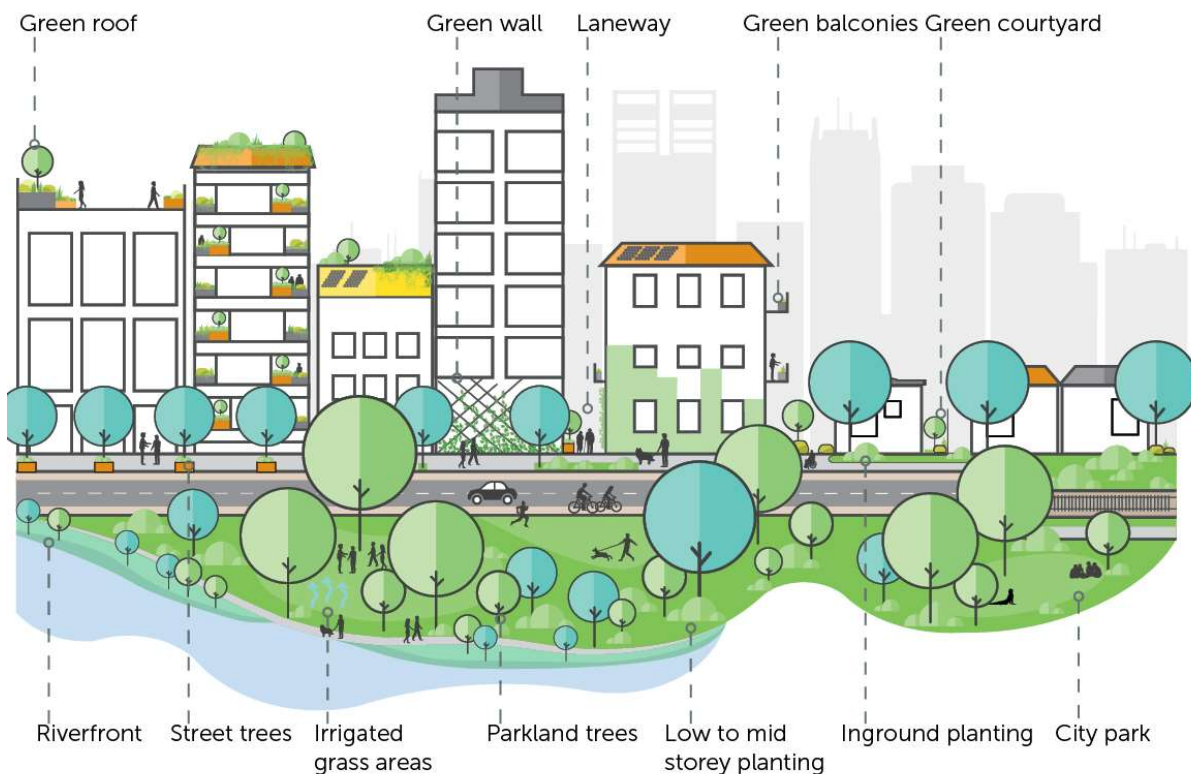


Figure 2: Urban greening

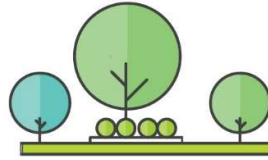
5. What do we have?

Key components of the city's existing green infrastructure are summarised below:



Street and parkland
trees

~16,000



New street and
parkland trees
since 2016

~2,000



City wide canopy cover

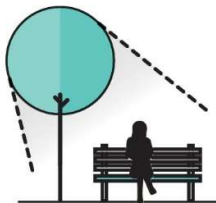
Source DPLH
including Kings Park

21%



City owned
green walls

2



Number of green open
spaces

50



River foreshore

11.2km

Figure 3: What we have

6. Why is it important?

Urban greening delivers a range of social, environmental and economic benefits including:

- Improved physical health – open spaces for active recreation, exercise, and play.
- Enhanced mental wellbeing – green places to relax and unwind, connect with people to build community and a sense of belonging.
- Climate change adaptation – irrigated, permeable green surfaces help to lower city temperatures and protect against flooding.
- Improved water management - water capture and storage and improved water quality.
- Enhanced biodiversity – refuge and connected habitat for plants, insects, birds and animals.
- Acknowledgement of the city's history and cultural identity – contributing to Perth's image and creating a strong sense of place.
- Stronger economy – activities and places that attract people and investment, supporting the local economy.

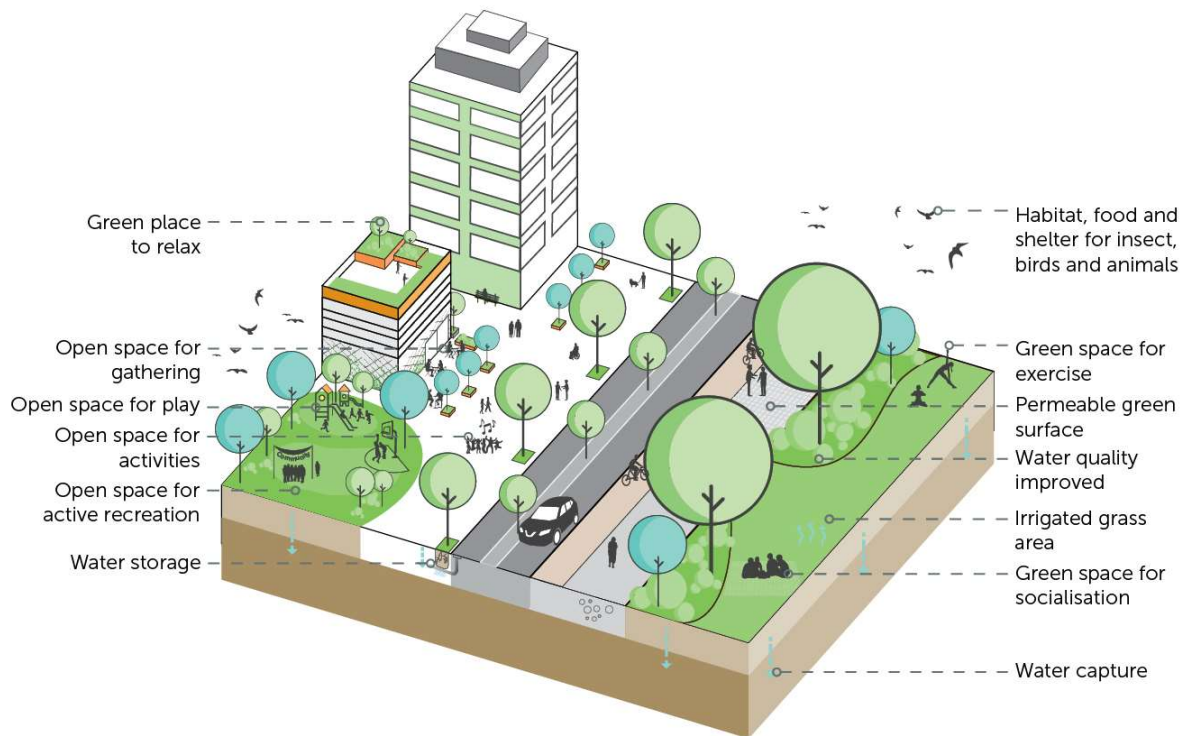


Figure 4: Benefits of urban greening

7. Urban greening challenges

Urban greening can be challenging. Perth's drying climate and lack of summer rainfall means our UGI network requires increasing levels of irrigation support to maintain high quality, aesthetically pleasing outcomes at a time of increasing water restrictions. Population growth is adding to this pressure, creating demands for a wider range of recreational opportunities essential for city livability.

As temperatures rise, more greening will be required to help cool the city. The contested nature of city space and a harsh microclimate makes it difficult to plant, establish and maintain healthy vegetation. City greening initiatives require careful planning and design and high levels of funding and resources to ensure high quality planting outcomes.

Key challenges include:

- high levels of activity create
- competition for space with other city infrastructure and functions
- changing community expectations and competing demands on use of green open space
- day-to-day wear and tear which damages and erodes planting quality
- higher city temperatures due to the urban heat island effect
- impermeable surfaces
- high construction and maintenance costs
- limited space and pressure for low maintenance greening on private property

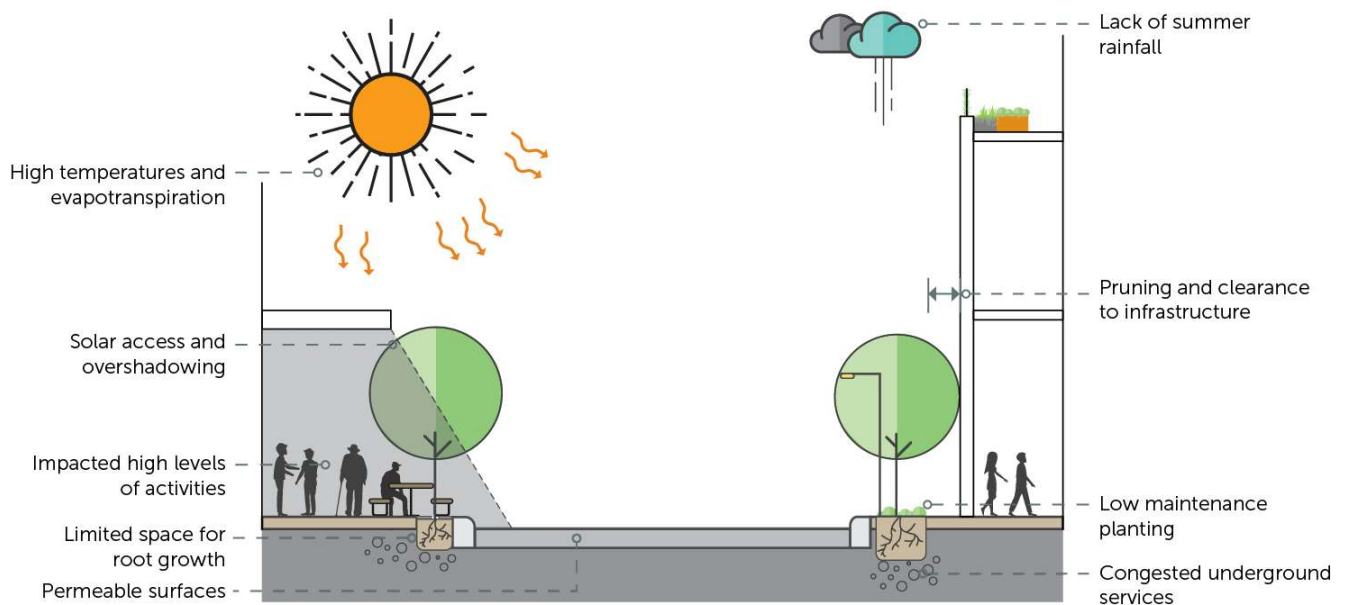


Figure 5: Challenges for urban greening

8. Urban greening principles

Urban greening initiatives will be underpinned by nine key principles:



Protect

No net loss of urban green cover.



Expand

Increase planting to meet greening targets and improve habitat creation.



Celebrate

Foster a strong sense of place by celebrating;

- Whadjuk Nyoongar culture
- the City's rich cultural heritage
- unique natural heritage



Cool

Maximise the potential of urban greening to;

- help lower city temperatures
- create a comfortable environment for people



Connect

A connected GI network including green links that promote;

- active movement
- accessible green open space
- wildlife corridors



Innovate

Promote innovative GI designs that;

- respond to local context
- integrate with other city infrastructure creating multipurpose systems



Deliver

Target initiatives in high impact areas and promote an equitable distribution of quality GI



Resource

Provide adequate project funding and resourcing to ensure sustainable, high quality outcomes.



Value

Acknowledge GI as;

- a key element of city infrastructure
- offering advantages over traditional grey infrastructure in promoting resilience.

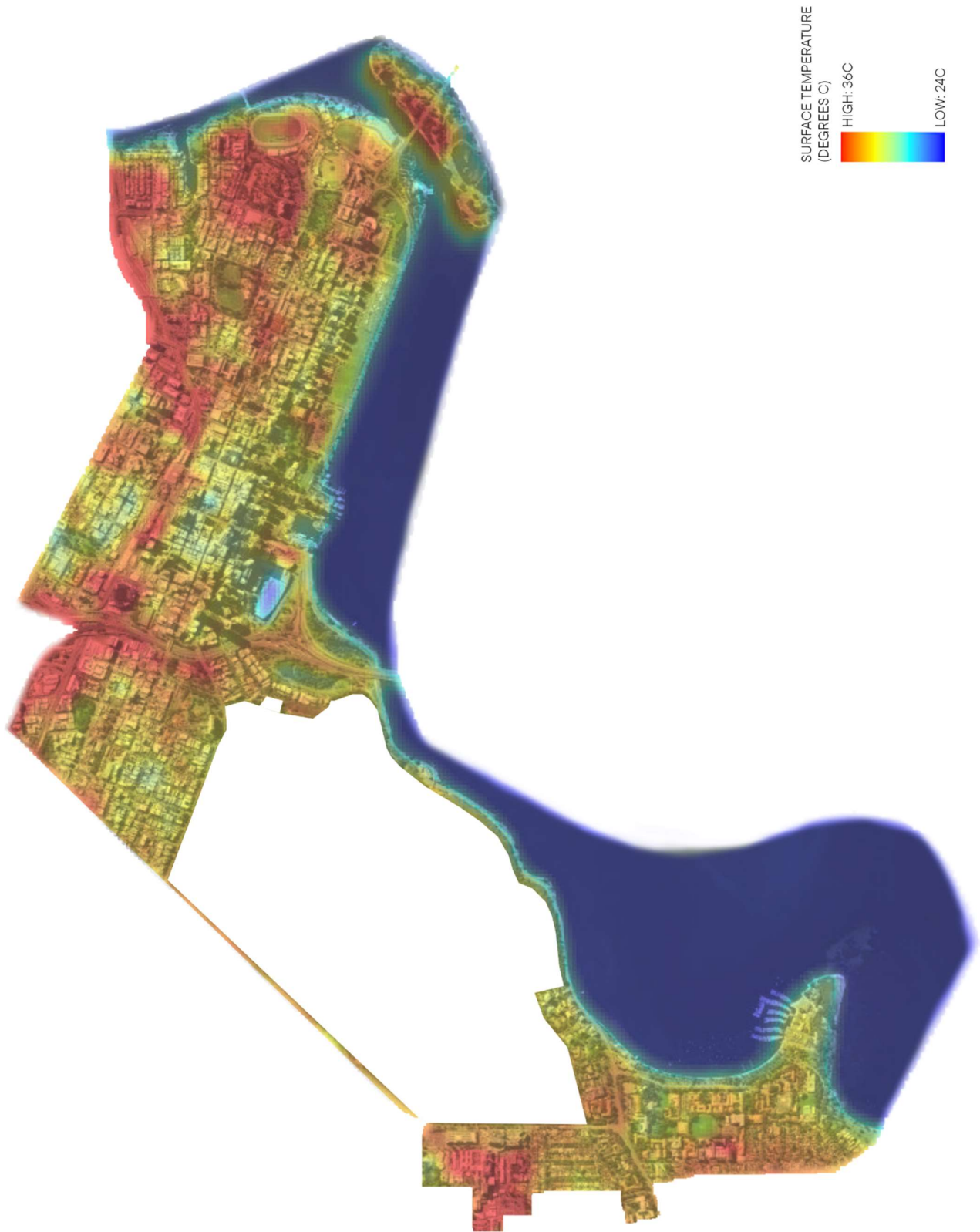


Figure 6: City temperature 'hot spots'

9. Key moves

Urban greening exists across different spatial scales, ranging from small pot plants and planters on city balconies to complex ecological corridors along the riverfront. With some key moves each has the potential to help make Perth a greener more resilient city.

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9.1 Creating a greener street network

As streets make up most of the public space in our cities (Gehl Architects have estimated that this can be as high as 80 percent) they can make a significant contribution to urban greening.

The City's approach to street design is focused on creating a comfortable, inviting and engaging space for pedestrians. Street trees are an important design element. They provide shade and cooling, introduce a human scale, and help buffer pedestrians from moving traffic improving their sense of safety. Studies also show that trees reduce the "optical width" of a street encouraging people to drive more slowly.

Trees often offer the main greening opportunity on busy city streets, and they will be planted wherever space is available. While planter boxes and in-ground planting offer other street greening opportunities these can be more problematic given the challenges of planting in urban environments and require careful planning and considered design. The city's laneways are engaging and intimate spaces that can offer other planting opportunities helping to make them leafier, greener and more usable spaces for residents and visitors where space is available.

Residential street verges in outer urban areas can offer the best opportunities and the City's residential verge management guidelines provide advice and information on how this can be successfully achieved.

In appropriate locations greener streets can also contribute to the creation of wildlife corridors that support biodiversity by connecting fragmented areas of habitat and facilitating movement of animals and birds across the urban landscape. The GI and Biodiversity Study mapped potential locations and set out high level design approaches to guide the creation of these corridors (see figure 7).

Initiatives	City's role	
	Deliver	Collaborate
9.1.1 Continue delivery of the annual Infill Street Tree Planting program as part of implementation of the Urban Forest Plan	•	
9.1.2 Finalise the City's Street Tree Guide (City's approach to street tree selection, planting and establishment)	•	
9.1.3 Identify potential green links in development of the City's Active Movement Plan	•	
9.1.4 Create a 5 year Street Greening Plan (green links & wildlife corridors)	•	
9.1.5 Include urban greening design response in projects for City owned laneways (where width allows).	•	

Key informing plans and documents:

- Infill Street Tree planting 5 year plan (currently being updated)
- Street Tree Guide (in development)
- Green Infrastructure and Biodiversity Study (2017)
- Laneways: Forgotten Spaces Episode 2
- Annual capital works program
- Micro Greening Guide
- Residential Verge Management Guidelines
- Main Street Refresh Program



Figure 7: Proposed biodiversity corridors

9.2 Greening buildings

Creating a greener Perth will require effective engagement with the private sector. Findings from the Green Infrastructure and Biodiversity Study indicate that 80 percent of our existing green infrastructure is located on private or crown land, including Kings Park, Matilda Bay/Pelican Point, UWA, QEII and Main Roads WA reserves. It is important that this is protected if we are to fully meet our greening commitment.

Improved planting and landscaping within these spaces can also significantly boost the level urban greening across the city. Small micro greening initiatives like simple potted plants and vertical climbers can transform the balconies, internal courtyards and small left over spaces around the edges of privately owned buildings. Green roofs and vertical greening (green walls, living walls) can provide additional greening where space is at a premium, also adding amenity for building occupants.

Suburban gardens, communal open spaces in high density developments and landscaped settings of larger commercial and institutional buildings provide additional opportunities for increased greening. Selecting native and pollinator friendly plants will create 'ecological steppingstones' for birds and insects and support wildlife corridors across the city.

Private realm greening can be encouraged through a combination of broader sustainable design incentives as well as requirements under the City's local planning framework. Demonstration projects and technical design guidelines that capture key learnings for green roofs and walls can help provide a level of assurance that viable outcomes can be achieved in the context of specific challenges created by Perth's local climate and environmental conditions.

Initiatives	City's role	
	Deliver	Collaborate
9.2.1 Identify significant trees worthy of special protection and introduce planning provisions to ensure their retention.	•	•
9.2.2 Investigate the potential to develop a Green Factor tool to encourage the inclusion of green infrastructure and increased vegetation in new development	•	
9.2.3 Review existing planning policy provisions to increase the amount of landscaping on private property and improve its design and quality	•	
9.2.4 Partner with key external stakeholders to capture key learnings from existing green roofs located on private property and assess their viability in the city.	•	•
9.2.5 Capture key learnings from the City owned green walls at Northbridge Piazza and City of Perth Library and assess their viability in the city.	•	

Key informing plans and documents:

- Local Planning Strategy
- Local Planning Scheme (under review)
- Local Planning Policies (under review)
- Micro Greening Guide (2020)
- GI & Biodiversity Study (2017)

9.3 Enhancing our green open space

The city has an extensive network of open space including traditional parks and gardens, large left over green space around road and rail reserves and Perth's riverfront. It is highly valued by the community for its aesthetic quality and recreational value and is increasingly recognised for its potential to provide benefits that can help the city adapt to climate change challenges.

At over 500 ha or 41% of the city's total land area (including Kings Park) this asset also has significant potential, through careful planning and design, to improve urban greening outcomes and environmental benefits.

Findings from the GI and Biodiversity Study (2017) found that while the network is performing well in terms of urban cooling there is room to improve in the areas of sustainable water management and biodiversity. It recommends consolidating areas of fragmented green space, increasing the structural complexity of planting and including more native vegetation to support habitat creation. These, and other findings, continue to inform the planting and landscape response in the City's major capital works projects including the revitalization of Wellington Square and the East End.

The potential of our open space network will be captured in the City's Open Space Plan; an action plan to guide planning, design and future investment in green open space with a focus on improved greening outcomes and the provision of accessible recreational space for our community.

Initiatives		City's role	
		Deliver	Collaborate
9.3.1	Complete Open Space Plan (currently in development)	•	
9.3.2	Finalise Perth City Riverfront Masterplan	•	•
9.3.3	Increase canopy cover along road and rail reserves as part of the Urban Forest Plan's Infill Planting program	•	•
9.3.4	Increase level of canopy cover in city parks by 15% by 2036 to help meet canopy target in City of Perth Urban Forest Plan	•	
9.3.5	Include <i>design response: planting and urban forest</i> in delivery of all open space and major capital works projects with a focus on enhancing biodiversity, water management and urban cooling	•	
9.3.6	Incorporate climate change risk into open space planning and maintenance	•	

Key informing plans and documents:

- Urban Forest Plan (2016)
- GI & Biodiversity Study (2017)
- Open Space Study (2018)
- Perth's Riverfront 2020: background & analysis report
- Open Space Plan (in development)

9.4 Making the blue-green connection

There can be no green without blue. Plants need water to survive and thrive and many of the community benefits of green infrastructure also depend on sufficient water. Permeable, irrigated green surfaces have a critical role to play in lowering city temperatures. Recreational, social and event spaces; a strong connection with nature; and sense of place and visual beauty all rely on water to stay green and support an active, vibrant and healthy community.

In return, plants help to improve water quality and management in an urban context. Permeable green surfaces, raingardens, tree pits and tree canopy capture, slow down and filter urban stormwater reducing flood risk and removing pollutants.

Perth's drying climate and lack of summer rainfall create a major challenge for increasing our green urban cover and ensuring high quality outcomes. As access to water becomes more restricted it is vital that we plan strategically and design creatively to maximise existing resources and ensure water is available where it is needed most to cool and beautify our city. The provision of integrated irrigation is particularly important to support new greening initiatives in dense inner city areas.

The City will also continue to implement a water sensitive urban design approach, and actively promote innovation to maximise the potential for alternative water sources (e.g. greywater, condensate) to help secure our future water resource.

Green and blue infrastructure enjoy a symbiotic relationship. By taking an integrated approach to urban water management and green infrastructure, the City can multiply the benefits of each. The completion of the Integrated Water Management Plan is a key initiative that will capture the City's water management strategies and set out key actions to ensure the planning and management of this important asset supports delivery of our commitment to a greener city.

Initiatives	City's role	
	Deliver	Collaborate
9.4.1 Implement the Integrated Water Management Plan	•	
9.4.2 Continue to include WSUD in new street tree planting where feasible	•	
9.4.3 Continue trialing of WSUD innovations & document outcomes	•	
9.4.4 Investigate options for permeable paving to support city greening	•	
9.4.5 Deliver grey water and condensate scoping study	•	•
9.4.6 Deliver a grey water pilot project	•	•

Key informing plans and documents:

- Urban Forest Plan (2016)
- GI & Biodiversity Study (2017)
- Feasibility Study - Alternative Water Sources for Irrigation
- Integrated Water Management Plan (in development)
- City Design and Construction (D&C) notes

9.5 Setting targets

It is important to set targets to monitor progress in delivering our urban greening commitment.

Similar to the way we monitor canopy cover as part of implementing the Urban Forest Plan we need to set evidence based targets that can measure changes in the level of green cover and benefits delivered by urban greening (e.g. lower city temperatures, equitable access to open space, biodiversity and water quality and supply).

A target of 30% canopy cover across the public realm has been set in the City's Urban Forest Plan. Progress in reaching this target currently relies on analysis of canopy cover data collected every two years by the Department of Planning, Lands and Heritage (DPLH); and four yearly audits of the City's street and parkland tree population, an asset with an estimated value of \$98 million when the last audit was completed in 2015/16.

Initiatives		City's role	
		Deliver	Collaborate
9.5.1	Fund and resource urban forest street & parkland tree audit in 2024/25	•	
9.5.2	Update the 2019 i-tree eco assessment & report on benefits provided	•	
9.5.3	Analyse canopy cover change using DPLH Urban Canopy Dashboard	•	•
9.5.4	Establish an evidence based target for urban green cover across the public realm	•	
9.5.6	Establish an evidence based biodiversity target & measure progress	•	
9.5.7	Monitor the impact of new street tree planting on street temperatures	•	
9.5.8	Complete four yearly thermal imaging surveys using satellite data	•	
9.5.9	Measure improvements to the accessibility of open space	•	
9.5.10	Develop a City Environmental Dashboard and measure UGS progress	•	•

Key informing plans and documents:

- Urban Forest Plan (2016)
- GI & Biodiversity Study (2017)
- Open Space Study (2018)
- I-tree eco assessment (2019)
- Integrated Water Management Plan (in development)
- Sustainability Strategy Implementation Plan (in development)

9.6 Greening together

Our community has an important role to play in delivering the City's commitment for urban greening, both by planting more plants, shrubs and trees on privately owned site and supporting increased greening of the public realm.

It is important for the City to raise awareness of the role and benefits of urban greening, encouraging our community to take part through a range of City led programs and initiatives.

Initiatives		City's role	
		Deliver	Collaborate
9.6.1	Community consultation on Open Space Plan	•	
9.6.2	Community consultation on Urban Greening Strategy	•	
9.6.3	Continue community engagement on the City's annual Infill Street Tree Planting Program to raise awareness and highlight progress	•	
9.6.4	Raise community awareness of the City's Micro Greening Guide	•	
9.6.5	Manage and update the Urban Forest Project page on the City's Website	•	
9.6.6	Continue annual community planting days	•	•
9.6.7	Plan and budget for participation in the annual WA Tree Festival	•	•
9.6.8	Investigate the potential for program of green grants / greening fund	•	
9.6.9	Community demonstrations on verge planting	•	

Key informing plans and documents:

- Urban Forest Plan (2016)
- GI & Biodiversity Study (2017)
- Micro Greening Guide (2020)
- Residential Verge Management Guidelines
- Annual Infill Street Tree Planting program
- Open Space Plan (in development)
- Urban Greening Strategy (in development)

Glossary

Blue-green infrastructure: network of natural or designed landscape elements dominated by vegetation that has a clear link to water, either permanently or occasionally. Examples included raingardens, bioswales, wetlands and vegetated zones along rivers, lakes and ponds *(taken from Australian Standards)*

Ecosystem services - benefits people obtain from ecosystems *(taken from Australian Standards)*

Green Infrastructure - all of the vegetation that provides environmental, economic and social benefits such as clean air and water, climate regulation, food provision, erosion control and places for recreation. GI includes urban parks and reserves, wetlands and stream corridors, street trees and roadside verges, gardens and vegetable patches, bikeways and pedestrian trails, wall and rooftop gardens, orchards and farms, cemeteries and derelict land. *(taken from CSIRO- Establishing a national agenda for urban green infrastructure)*

Green façade - supported or unsupported climbing plants that either grow up from the ground or a container, or cascade down from a container, to provide full or partial cover of a building wall or other shade structure. *(taken from Australian Standards)*

Green roof - building roof that is completely or partially covered in a rooting substrate that supports vegetation. They can be deep or shallow and may include solar panels. They typically include a protective layer, drainage layer, rooting medium and vegetation. *(taken from Australian Standards)*

Green wall: engineered support structure containing a rooting medium that allows plants to cover the exterior of a wall and requires regular irrigation to support growth completely or partially. *(taken from Australian Standards)*

Urban green cover: combined areas of tree canopy cover and other vegetation on the ground or building roofs when viewed from above in a urban environment. *(taken from Australian Standards)*

Water sensitive urban design: contemporary approach to the planning and design of urban environments that is sensitive to the issues of water sustainability, resilience and environmental protection. *(taken from Australian Standards)*