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GREENER PLACES

An urban green infrastructure
design framework for New South Wales

GOVERNMENT
ARCHITECT
NEW SOUTH WALES

NSW GOVERNMENT

Design principles for NSW

Four principles help deliver green infrastructure in NSW:

Integration

combine green infrastructure with urban development and grey infrastructure

Connectivity

create an interconnected network of open space

Multifunctionality

deliver multiple ecosystem services simultaneously

Participation

involve stakeholders in development and implementation

GA

NSW

Minister's statement

As our State grows and changes, there is an increasing need for green infrastructure – our trees, parks and green links – as well as high quality and accessible public spaces.

Well-planned green infrastructure is fundamental in fostering healthy, happy communities that are sustainable now and into the future.

That is why it's so important for us to think of these critical parts of the city as infrastructure, just like our roads, hospitals, schools and transport networks.

Great green places should be accessible to everyone, regardless of where they live. We want to ensure our communities are surrounded by established tree canopy, well-designed parks, and well connected open spaces.

Green infrastructure does more than just look good; it creates more prosperous cities.

That's why I'm pleased to introduce **Greener Places: An urban green infrastructure design framework for NSW**.

Greener Places has been developed by the Government Architect NSW team to provide a best-practice guide for the planning, design, and management of green infrastructure to deliver better places right across NSW.

To be publishing this document at a time when we are reminded of the value and importance of our green spaces is quite profound.

We want to challenge our planners, placemakers, industry, State agencies and councils to think differently about green space, and work together to deliver great spaces and green places for communities right across NSW.

Rob Stokes
Minister for Planning and Public Spaces

Government Architect's foreword

We publish Greener Places as our state has come through its most extreme bushfire season and our world has been rocked by a global pandemic. It has brought into sharp focus our thirst for green public spaces and has caused us to pause and reflect on how we value and treasure them – both their provision and our access to them.

Great places and cities don't happen by chance: they are designed, and continue to be designed, as we manage their transformation.

As our population grows, the challenge will be to shape the built environment to retain distinctive and liveable cities. Green space is a hallmark of liveability, and by establishing a network of high-quality green areas that join towns, public transport, and residential areas, we aim to maximise quality of life and wellbeing.

Greener Places reflects our collective vision and expectations in planning, designing, and creating a sustainable NSW. It is about the creation of a networked urban ecosystem of green space that encompasses parks and open spaces including urban trees, streets, squares, and waterways to help create a healthier, more liveable, and resilient place to live. We must make landscapes work harder for many users, and improve climate change resilience, through a multifunctional design approach.

To achieve this, green infrastructure needs to have a more influential role in the planning of cities and urban environments. It needs to be considered as essential infrastructure at the outset of the design process from strategy through to concept design, construction, and maintenance. It means that our cities, towns, and suburbs must reflect values that can only be fully realised if green infrastructure is considered at the forefront of the city-making process. Design creativity is also needed to deliver a green city ecosystem – from both city-wide strategic projects down to more imaginative uses of space within the layers of a city.

Greener Places is a framework for ensuring connection and integration of our green assets, ensuring their contribution to quality of life, and that the environment and the economy are maximised, rendering a working whole that is far greater than the sum of its parts.

Government Architect NSW (GANSW) developed Greener Places to deliver a greener NSW. Our vision is for a network of well-planned green infrastructure that will make NSW more attractive, better connected, healthier, and more resilient.

Abbie Galvin
Government Architect

CONTENTS

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Government Architect NSW acknowledges the Traditional Custodians of the land and pays respect to Elders past, present, and future. We honour Australian Aboriginal and Torres Strait Islander peoples' unique cultural and spiritual relationships to place, and their rich contribution to our society. To that end, all our work seeks to uphold the idea that if we care for Country, it will care for us.

SECTION ONE

INTRODUCING GREENER PLACES

This chapter outlines the NSW Government's commitment to creating green infrastructure.

Prince Alfred Park, Surry Hills, by Sue Barnsley Design
in association with Neeson Murcutt Architects.

Introduction

Greener Places is a design framework produced by GANSW to guide the planning, design, and delivery of green infrastructure in urban areas across NSW. It aims to create a healthier, more liveable, and sustainable urban environment by improving community access to recreation and exercise, supporting walking and cycling connections, supporting and maintaining Aboriginal culture and heritage, and improving the resilience of urban areas.

GANSW advocates for an integrated design approach involving all aspects of the built environment and all scales of design, combining places, spaces, time, fields of work, and disciplines who work towards collaborative outcomes.

Greener Places explains why green infrastructure is needed, and the vision and principles for its implementation. Green infrastructure should be developed as a network rather than separate components. Green infrastructure is essential and needs to be considered as an asset in its own right.

The **Greener Places Design Guide** (The Design Guide) supports the green infrastructure design framework. The Design Guide includes information relating to:

— **Open Space for Recreation** – Green infrastructure for people
— **Urban Tree Canopy** – Green infrastructure for climate adaptation and resilience
— **Bushland and Waterways** – Green infrastructure for habitat and ecological health.

In Sydney, Greener Places works alongside the Green Grid – the network of high-quality green areas that connect town centres, public transport networks and major residential areas in Sydney.

Greener Places is a statewide design framework which enables better opportunities for industry to embed the benefits of a greener approach to projects. This in turn will create better places and landscapes.

Green infrastructure is essential infrastructure. It needs to be accounted for in government asset management plans and community strategy plans, and considered as an asset in its own right.

1.1 What is green infrastructure?

Green infrastructure is the network of green spaces, natural systems, and semi-natural systems that support sustainable communities and includes waterways; bushland; tree canopy and green ground cover; parks; and open spaces that are strategically planned, designed, and managed to support a good quality of life in an urban environment.

Green infrastructure should be envisioned as a three-dimensional envelope that surrounds and connects buildings, streets, and utilities. The concept of landscape as green infrastructure provides a framework for integrating the work of designers, planners, developers, and policymakers, and leveraging this collaboration to achieve larger local or State goals.

Green infrastructure is as crucial as transport, cultural, and communications infrastructure and together they compliment each other. It contributes to the urban layout of a place delivering a range of benefits including:

— supporting healthy living
— mitigating flooding
— improving air and water quality
— cooling the urban environment
— encouraging walking and cycling
— enhancing local habitat and ecological resilience
— learning opportunities through Aboriginal story telling
— spaces for cultural celebrations.

Green infrastructure is integral to other forms of infrastructure and should be designed in coordination with these other layers. Green infrastructure projects should be collaborative, where infrastructure in general is redefined to include an essential green component.

By moving beyond a siloed approach, towards connecting agencies and physical networks of open space, the people of NSW will benefit.

What is well-designed green infrastructure?

Well-designed green infrastructure connects vital life support systems for urban environments. It needs to connect with other elements of a well-designed built environment created through urban design processes, involving a range of disciplines from architecture, urban planning, and landscape architecture.

Well-designed green infrastructure responds to four key principles:

1. Integration
2. Connectivity
3. Multifunctionality
4. Participation.

What is an urban area?

In Greater Sydney, the urban area is mapped in the Greater Sydney Region Plan: A Metropolis of Three Cities (Figure 51, Boundary of urban area, p 162). For regional NSW, urban areas are typically characterised by places that contain an urban centre – including Regional Cities, Strategic Centres and local centres (or other centre types) as outlined in the Department of Planning, Industry and Environment's (DPIE) Regional Plans.

Redfern Park by Spackman Mossop Michaels. Image: John Gollings.

The components of green infrastructure

Individual components of green infrastructure or assets range from residential gardens to local parks and housing estates, streetscapes and highway verges, services and communications corridors, waterways, regional recreational areas, State forests and national parks. The components also include existing assets that are part of the green infrastructure network. Many of our oldest parks and roads are the original meeting places and pathways built by Aboriginal people.

1. Natural green space including national parks and nature reserves, waterways, wetlands, and coastal zones. These spaces provide excellent opportunities to support and maintain Aboriginal cultural heritage.

2. Public residential and other tree-lined streets, including road verges.

3. Squares and plazas including both public and private courtyards and forecourts have the potential to accommodate trees, planting and water sensitive urban design.

4. Private and semi-private residential gardens including shared spaces around apartment buildings, backyards, balconies, roof gardens, and community gardens.

5. Parks and gardens including regional parks, well-designed urban parks, open space reserves, and formal gardens.

6. Greenways including river and creek corridors, cycleways, and routes along major transport (road, rail, and light rail) corridors.

7. Sports and recreational facilities including ovals, school and other institutional playing fields, and other major parks and golf courses.

8. Green roofs and walls including roof gardens and living walls.

9. Agricultural and other productive land and farms including vineyards, market gardens, orchards.

1. Narrabeen Lagoon Multi-use Trail, by Aspect Studios. Image: Simon Wood. 2. Bourke Street Cycle Network by Spackman Mossop Michaels. 3. Parramatta Square, by James Mather Delaney. 4 and 8. One Central Park, by Jean Nouvel, Patrick Blanc, Turf Design Studio (concept design) & Aspect Studios in collaboration with Oculus. Image: Simon Wood Photography. 5. Civic Park, Newcastle. 6. Parramatta Park. Image: Western Sydney Parklands Trust. 7. Redfern Park upgrade by Spackman Mossop Michaels with BVN. 9. Image: Milkwood https://www.milkwood.net/2014/11/18/planting-day-at-107-rooftop-garden/

Components of green infrastructure

Diagram indicating individual components (assets) that can be utilised across a green infrastructure network. While all of these are important assets in their own right, it is only when they are part of an interconnected system that they move from being individual components to be green infrastructure, that can be designed and managed to deliver maximum benefit. The diagram below is based on the winning K2K competition entry by Hill Thalis, Bennett and Trimble, James Mather Delaney.

See page 12 for key.

1.2 Why do we need green infrastructure?

The population of NSW is expected to grow to 9.9 million people by 2036. Sydney's metropolitan population is projected to grow by more than 2 million in the next twenty years to 6.4 million people.

A challenge is how we shape the built environment to respond to this growth, while ensuring that Sydney and urban areas across NSW remain good places to live.

Working together with Aboriginal people as custodians of the future, we need to think about how NSW will be transformed.

The provision of green infrastructure will help improve the quality of our urban and rural environments as well as help adapt and mitigate the effects of climate change. Well-designed and planned green infrastructure will help absorb flood water, cool the urban environment, clean the air, provide space for local food production, and ensure the survival of NSW's native fauna and flora as well promoting active living, health, and wellbeing.

Green infrastructure is an essential asset which contributes to creating well-designed built environments which are healthy, responsive, integrated, equitable, and resilient. It should be as integral to NSW as its roads, rail lines, and stormwater pipes. With proven value, it is an infrastructure asset that requires the same kind of investment and innovation we afford more familiar types of built infrastructure.

Green infrastructure outcomes are also part of wider urban design processes and shape other key urban elements such as buildings and streets.

Greener Places aims to create a network of attractive new and upgraded environments, routes, and spaces. The approach builds on existing green infrastructure components. Over time this urban ecosystem will generate a substantial range of social, environmental, and economic outcomes.

A key component of the design of green space is the promotion of multifunctional design where a range of benefits are provided in one area through careful planning.

NSW Premier's Priorities

The Department of Planning, Industry and Environment is responsible for two of the NSW Government Premier's Priorities: **Greening Our City**, seeking to increase the tree canopy and green cover across Greater Sydney by one million trees by 2022; and **Greener Public Spaces** aiming to increase walkable access to quality green, open and public space.

Greening our City
Trees play an important role in creating great open spaces for communities, enhancing the experience of outdoor recreation and exercise. Green canopy enhances the amenity of local parks and streets and is crucial in providing vital shade that reduces ambient temperatures and mitigates the urban heat island effect.

Trees improve local character, increase property values and contribute to improving people's health and well-being. They extend habitat, expanding the biodiversity of cities serving as a home for animals and birds. Air quality is improved by removing fine particles from the air and trees mitigate the impact of climate change, acting as a storehouse for carbon dioxide.

Greener Public Spaces
Quality green, open and public space is for everyone – they are publicly owned or of public use, and accessible and enjoyable by all for free. Public spaces are key to our health and wellbeing and include open spaces like parks and plazas, key streets, plazas , libraries and museums. Public spaces as green infrastructure include open space, streets and linear parks support walkable neighbourhoods promote healthier lifestyles and bring people together.

These inviting, inclusive and welcoming spaces can be accessed by everyone, add delight for communities and are especially important in growing cities and towns. A network of welcoming and connected public spaces will create communities where people love to live.

The Greener Places Design Framework supports both priorities by providing a consistent methodology to design and plan for green infrastructure. The guidance in the supporting documents provide an evidence based approach that can be used in a wide range of plans and processes, contributing to improved tree canopy coverage and quality green public space.

Pirrama Park Playground, Pyrmont by Aspect Studios. Image: Florian Groehn.

1.2.1 Challenges for NSW

Greener Places advocates for green infrastructure to help respond to challenges for NSW.

Health

There is a growing recognition that green space improves a community's health. It is well-documented that the benefits of having access to green space, including increased physical activity, mental health, and access to food, can be harnessed to improve health.

Well-designed greener places will make it easier for people to be physically and mentally active. Good urban tree canopy will provide shade and protect against over-exposure to sunlight, which can cause skin cancer.

Diverse spaces and places can also bring work opportunities closer to home. If people can cycle, walk, or catch public transport, health inequality is reduced. Studies that support this show that:

— living in areas with more green space reduces mortality by reducing cardiovascular disease (Gascon 2016)
— playing in green outdoor spaces fosters creative play and reduces symptoms of attention disorders in children (Shore 2017)
— patients with views of trees and greenery from their windows heal faster and need less medication (Cox et al. 2017)
— access to green space reduces stress (Husqvarna Group 2013).

Climate adaptation

Climate change will see everyday temperatures rising, sea levels changing and droughts increasing as well as threats to native species and ecosystems.

Climate change is also expected to have adverse effects on human health with increases in waterborne and foodborne diseases, and the effects of increased air pollution.

Practices like planting the right kind of trees and vegetation that will thrive in a changing climate, protecting existing local habitat and enabling the introduction of green roofs can improve air quality in urban areas, and reduce temperatures. The widespread use of water-sensitive urban design practices will reduce the risk of flooding. Local habitat can also be supported through good green infrastructure design.

Rapidly growing population

NSW's growing population, and a long-term trend towards higher density dwellings, will mean more people will require access to green spaces such as parks and sporting grounds for organised sport as well as active and passive recreation.

Green public spaces are areas for communities to gather and form meaningful connections with their neighbours. Working with Aboriginal people will help shape new and reinforce pre-existing green infrastructure and cultural landscapes.

With more people residing in apartments with no backyards, public green spaces are becoming a "shared backyard". Delivering green infrastructure to these areas will ensure NSW remains healthy, liveable, and sustainable during this time of rapid growth.

Changing lifestyle and demographics

Our population is not only growing, it is also getting older. By 2036, NSW's population aged over 60 will be more than 2.6 million people, an increase of 56 per cent. Another fast-growing age sector in NSW is the young. By 2036, the number of residents aged 0–19 years will have increased by more than 2.4 million people, an increase of 24 per cent.

Health expenditure is projected to increase as a proportion of gross domestic product until 2055 (Intergenerational Report Australia 2055).

The increase in young and old populations requires a denser, better connected, and walkable city model that benefits from a mix of uses on the doorstep, facilitating better access to employment, public transport, entertainment, and other opportunities.

Infrastructure and urban renewal

Government, together with the private sector, is delivering and upgrading infrastructure across NSW including transport projects, education facilities, and hospitals, together with a program of urban renewal on major government-owned sites. These projects have the opportunity to create open space and to improve the quality of existing open space.

The benefits of the space between buildings is of equal, if not greater value than the building itself, as this is where most of us live, work, and play. Fresh air, walking, sitting, riding, playing, and living in our streets, squares, parks, river frontages, harbours, and gardens is a human need.

The NSW Government's infrastructure and urban renewal projects are an opportunity for the delivery of integrated green and blue infrastructure. A focus on green infrastructure can provide efficient, innovative responses that maximise government investment. Continued investment in revitalising existing parks and improved public spaces alongside the creation of new open space destinations will play a major role in all development and infrastructure projects.

In urban areas, most green infrastructure is owned, funded, delivered and maintained by councils. Councils use a range of approaches to fund green infrastructure.

Biodiversity and local habitat

Biodiversity loss is one of the greatest threats worldwide and needs attention from policymakers at all levels. Despite the pressures of urbanisation on local habitat, urban areas can be home to significant numbers of species, offering local habitat protection and nature experiences for people.

Biodiversity is managed through the Biodiversity Conservation Act. Greener Places focuses on urban bushland with local habitat values.

Green infrastructure planning and design seeks to contribute to local habitat conservation, by providing habitats or establishing connections between habitats and populations. It is imperative that we support local habitat networks from large ecosystems such as forests to networks of urban parks, gardens, and green streetscapes. Urban biodiversity is more than just threatened species, it is all the plants, animals, and microorganisms that live in our urban areas. Biodiversity exists in our streets, our gardens, in brownfield sites, and other unexpected places.

1.3 The benefits of green infrastructure

Green infrastructure is an asset to our built environment that delivers multiple social, environmental, and economic benefits. Green infrastructure can frame and shape the growth of sustainable communities by promoting access to open space, nature, culture, and sport, which will improve the appeal to visitors and the quality of life for all.

Environmental Benefits

- Improves visual amenity
- Enhances urban microclimate
- Improves air quality
- Reduces flood risk
- Better water quality
- Improves local habitat
- Reduces ambient noise
- Reduces atmospheric CO_2
- Improves environmental resilience
- Reduces urban heat-island effect
- Controls erosion through soil stability

Economic Benefits

- Boosts property values including house prices due to proximity to green space
- Promotes faster property sales
- Encourages inward investment
- Reduces energy costs via microclimate regulation
- Improves chances of gaining planning permission
- Improves tourist and recreation facilities
- Lowers healthcare costs

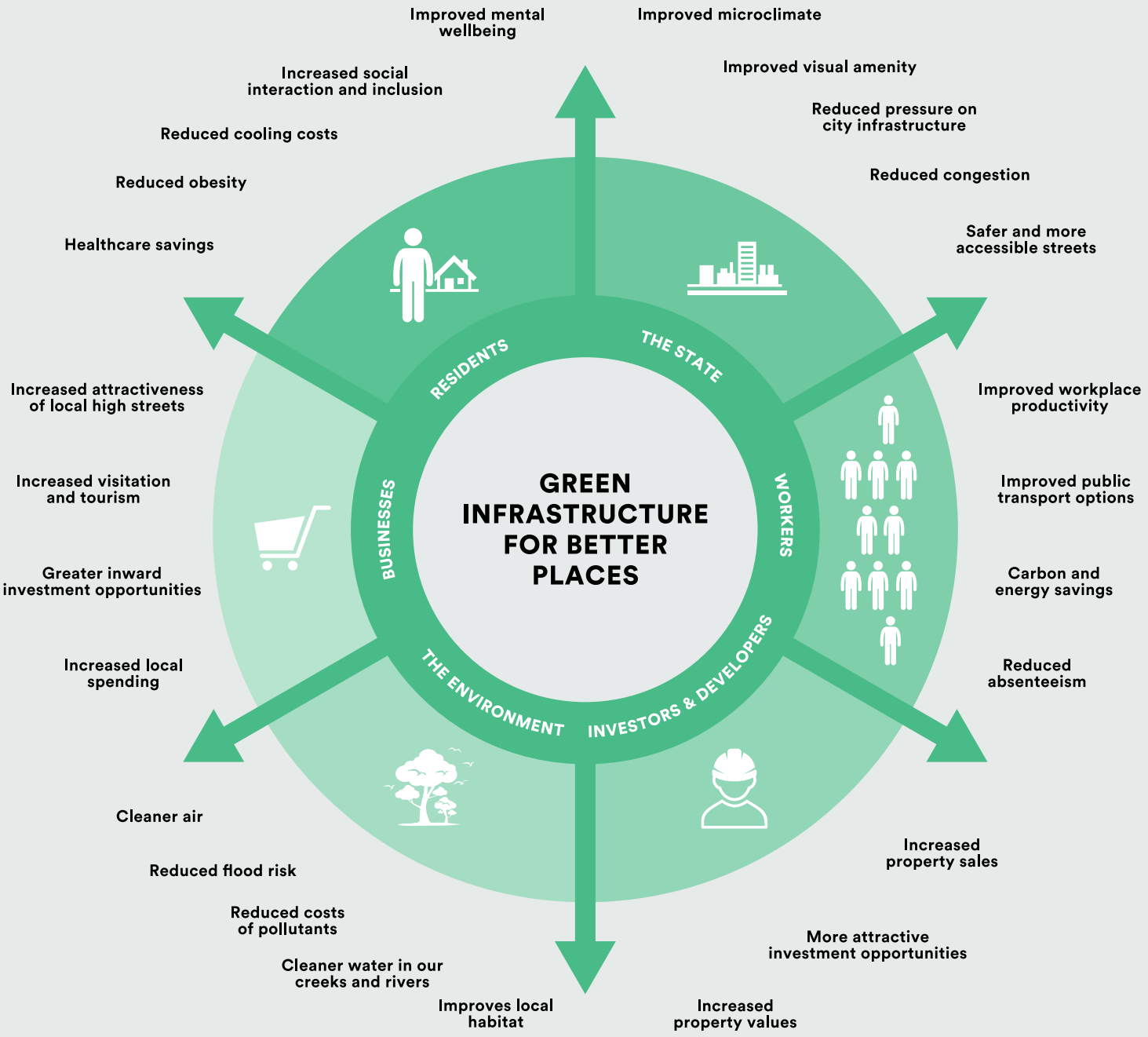
Social Benefits

- Supports and maintains Aboriginal culture and heritage
- Educational opportunities
- Encourages physical activity
- Provides more opportunities and places for children to play
- Improves mental health
- Creates and improves spaces for socialising, interaction, and events
- Improves workplace productivity
- Creates opportunities for community participation and volunteering
- Reduces stress
- Improves childhood development
- Improves quality of life and health and wellbeing
- Improves ease of access to social, recreation, and sporting activities
- Improves liveability for NSW
- Increases social cohesion
- Improves connection and travel time
- Enhances community ownership

"A compelling body of evidence suggests that green infrastructure is not only beneficial but essential in the design and development of healthy urban environments."

—Dr Martin Ely,
Green Infrastructure Project,
Botanic Gardens of Adelaide

Who benefits from green infrastructure?



1.4 What this design framework will do

Greener Places sets a framework for defining and achieving greener places for the people of NSW by:

— advocating for greener places, spaces, and outcomes
— supporting industry and government to deliver green infrastructure
— enabling effective outcomes in the planning, design, and delivery of green infrastructure
— raising awareness of what the NSW Government means by green infrastructure and its importance
— providing clear, consistent principles to achieve green infrastructure throughout the development process
— providing a framework for examining places and reviewing proposals from a green infrastructure perspective
— establishing key concepts and shared terminology associated with green infrastructure.

Objectives of the design framework

Greener Places aims to establish and communicate a clear NSW Government position on green infrastructure by establishing benchmarks for the future of our built environment. The design framework will expand awareness of green infrastructure principles and encourage discussion of the public benefits.

The objectives are:

1. To protect, conserve and enhance NSW's network of green and open natural spaces
2. To deliver a network of high-quality, high-performing, and well-designed green space, establishing a crucial component of urban infrastructure to address the environmental challenges of the 21st century
3. To protect and enhance local habitat including both native flora and fauna
4. To promote healthy living, encouraging physical activity, social cohesion, and enhancing wellbeing by providing liveable places for the NSW community
5. To create a more strategic approach to planning for green infrastructure, encouraging early and integrated investment through statutory planning
6. To deliver better tools for the delivery of green infrastructure across NSW.

Lizard log playground, Western Sydney Parklands, by McGregor Coxall. Image: Simon Wood.

1.5 Where Greener Places fits

Greener Places is positioned in a range of policies and provides direction for planning and development at State and local government levels.

At a national level, policy directions include Smart Cities Plan (Australian Government 2016), which advocates for green sustainable cities including tree coverage, green spaces, and high-quality urban design. This plan is important but currently has limited impact on the NSW planning system.

At a State level, State Environment Planning policies (SEPPs), Region and District Plans, local environmental plans (LEPs), development control plans (DCPs), and specific public domain guides provide policy and advice on sustainable development, but there is no overarching document outlining the NSW Government's position on green infrastructure.

Greener Places fills this gap. The principles identified in Greener Places will be incorporated into a new Design and Place SEPP being developed in 2020.

Greener Places inaugurates green infrastructure as a fundamental consideration in the strategic planning process from a regional to local scale.

This means a connection between region, district, and local plans. Each plan must recognise and value assets such as national parks, public bushland, and waterways. District and local plans must value and support large and small parks, open spaces, and streetscapes, and have this recognised in local plans by environmental and recreational zonings.

Greener Places responds to the EP&A Act by supporting and maintaining Aboriginal heritage and culture within the natural environment, and by supporting good design. It also promotes stewardship of place to ensure that nature is fully integrated into the urban fabric of any urban area. This creates a unique sense of place that enables nature to become part of everyone's daily experience.

Park and public art at Honeysuckle precinct, Newcastle by Zenscapes Landscape Architects and Milne & Stonehouse.

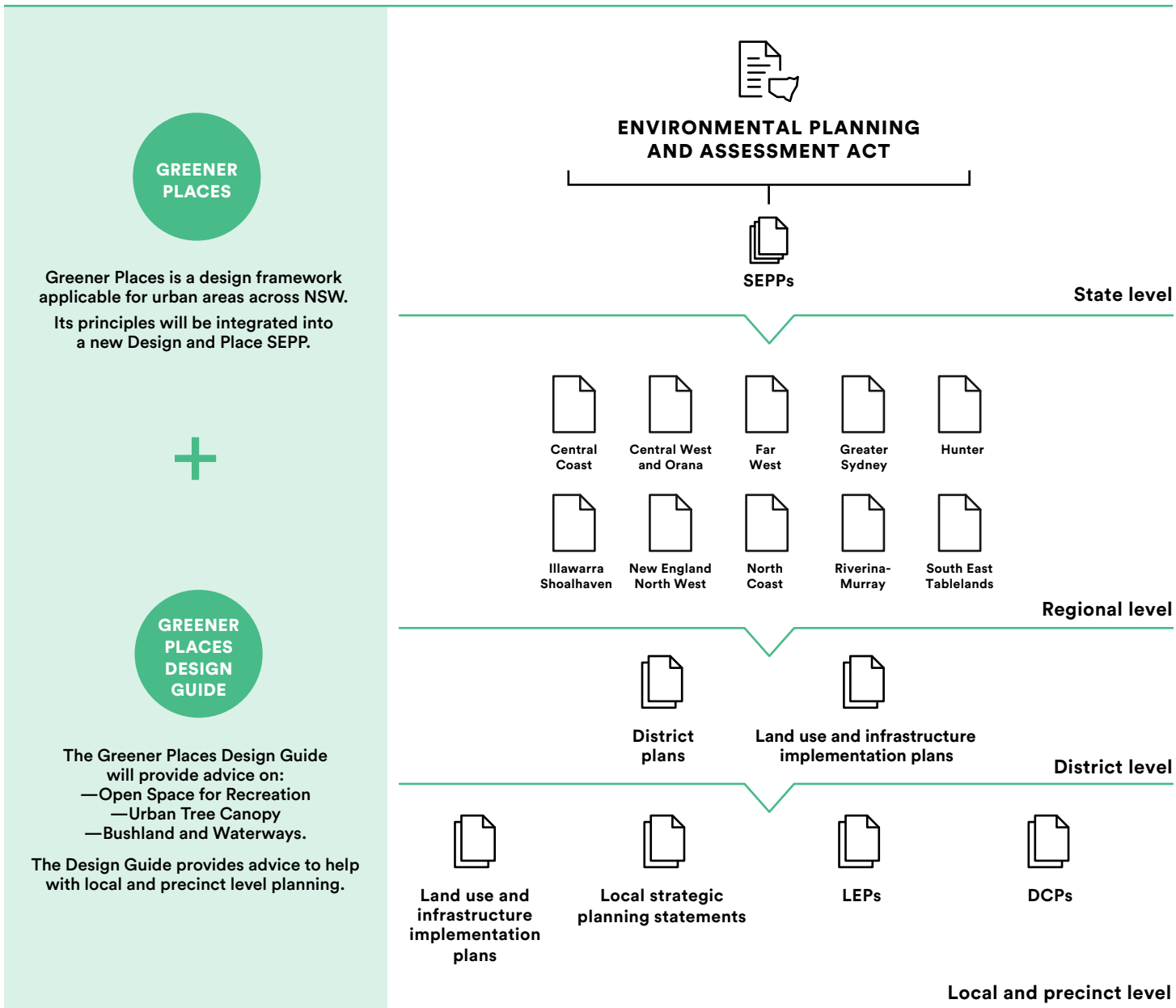
Greener Places sits alongside the strategic design policy Better Placed: An integrated design policy for the built environment of NSW (GANSW 2017).

Greener Places will inform and be integrated into regional plans and State infrastructure contribution strategies.

Greener Places may be useful in preparing project briefs and serve as a reference for strategic frameworks, master planning, urban design, landscape architecture, and architectural projects.

*Please note that land use and infrastructure implementation plans can work at either a district level or local level.

Greener Places and the NSW planning system



1.6 How Greener Places will help

Greener Places advocates for early integration and collaboration between design, planning, funding, and governance. It fosters long-term, coordinated decision-making in planning problems and processes.

It sets out principles intended to be adopted by industry and government agencies, as well as by communities who inhabit the places and spaces of NSW. The principles in this document can help guide the determination of planning applications.

Greener Places seeks to use the green infrastructure components that lie within our city environments and perform essential ecosystem services to create a network of healthy and attractive new and upgraded city environments, sustainable routes, and spaces that build on and strengthen existing green infrastructure components.

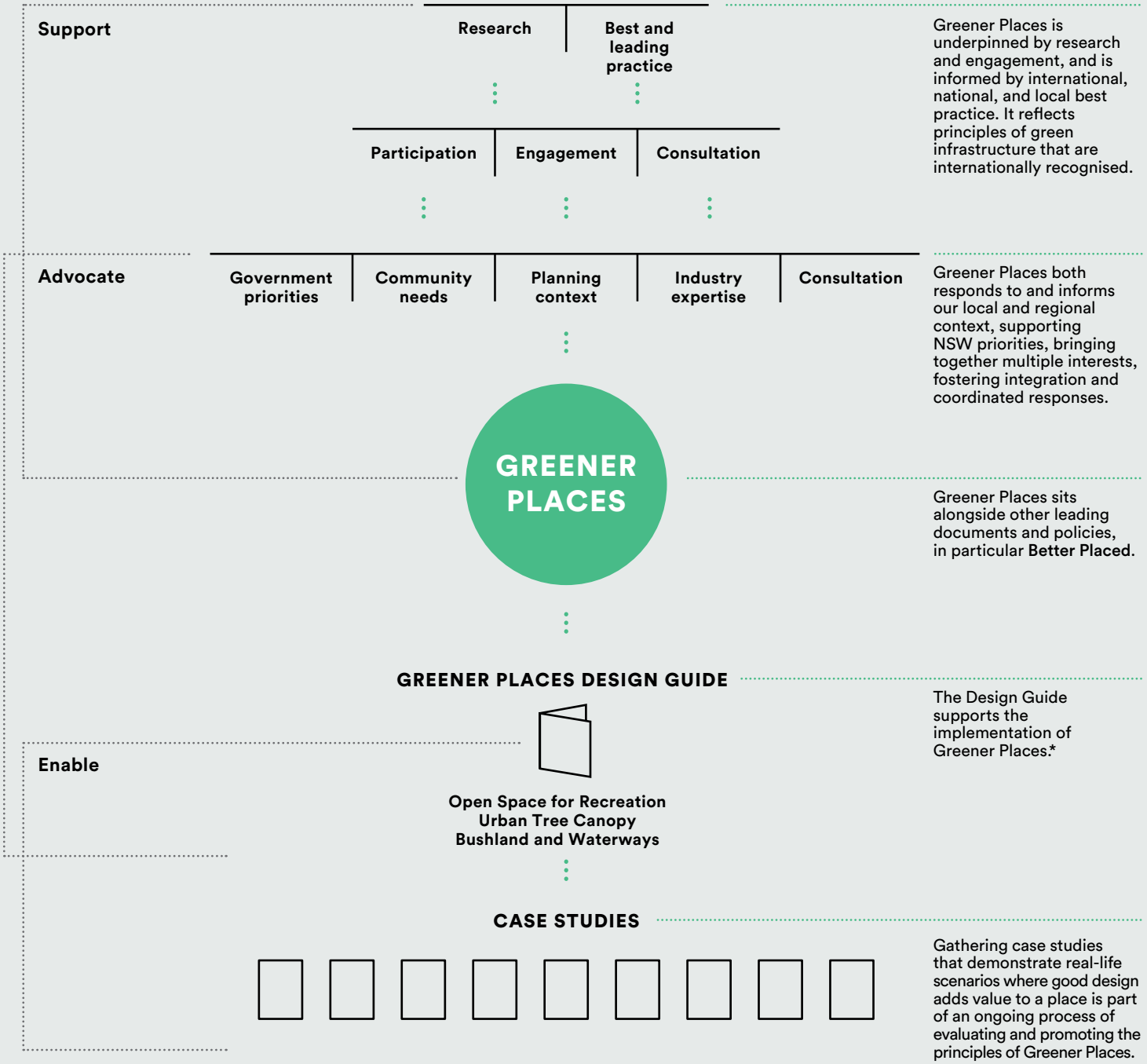
This approach will generate a range of benefits while offsetting the effects of climate change. It will also create an enduring legacy for future generations.

The Design Guide describes the operational processes to implement the design framework including:

— **Open Space for Recreation** – Green infrastructure for people
— **Urban Tree Canopy** – Green infrastructure for climate adaptation and resilience
— **Bushland and Waterways** – Green infrastructure for habitat and ecological health.

Greener Places

Greener Places is part of a suite of documents that are all about supporting and enhancing the quality of our built environment.



*Other design documents may be developed to support Greener Places.

1.7
How to use Greener Places

Greener Places advocates for shared responsibility for green infrastructure in NSW. GANSW envisages its adoption by multiple users in NSW. It is anticipated that:

State government can use Greener Places as the framework to champion green infrastructure across all sectors. It will provide the design framework and tools to ensure sustainable design of State Significant Developments (SSD) and infrastructure. The document will support strategic planning at the city scale and urban regeneration and shape planning through regional and district plans. Land Use and infrastructure Implementation Plans (LUIIP) and precinct planning.

Local governments can use Greener Places to help structure their own green infrastructure design and assessment policies, initiatives, and toolkits.

They can embed green infrastructure strategies into the LSPS and use the Greener Places principles and guides to support a strategic framework approach for implementation.

Aboriginal people can provide leadership and guidance in helping shape strategy and spatial planning of green infrastructure and networks.

The community can use Greener Places to understand green infrastructure and how it will deliver benefits to their neighbourhoods, streets, cities, and towns. They will be equipped to participate in the creation of greener spaces, better understanding the benefits they bring to the community.

Landscape architects, urban designers and design professionals can use Greener Places to promote the importance and value of green infrastructure with clients and communities. They can use the design framework to support the creation of green networks in the urban environment.

Developers can use Greener Places as a framework to support and integrate green infrastructure that will help create, evaluate, and deliver better projects with short- and long-term benefits, and create value.

Planners can use Greener Places to build skills and advocate for green infrastructure through both statutory and strategic planning processes.

Engineers can use Greener Places to create stronger collaborations for engineering solutions that embody green outcomes.

Builders can work with design teams to deliver effective project goals.

Businesses can use it to understand, support, and seek green infrastructure components for their commercial facilities, and contribute to maintaining and looking after local green infrastructure.

Land and asset owners and managers can use Greener Places to understand the benefits of enhancing, maintaining, and investing in new and existing green networks.

Prince Alfred Park meadow creating biodiversity, Surry Hills, by Sue Barnsley Design in association with Neeson Murcutt Architects.

SECTION TWO

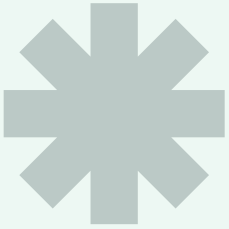
CREATING GREENER PLACES

One Central Park, by Jean Nouvel, green wall by Patrick Blanc (vertical wall), Turf Design Studio (concept design) and Aspect Studios in collaboration with Oculus.

This chapter outlines the design principles needed to best deliver green infrastructure and the outcomes and benefits this will achieve.

2.1 Principles of green infrastructure

The key to better management of landscape values lies in understanding how green infrastructure strategies can enhance the places and spaces of NSW. Greener Places makes a case for the importance of green space, how integration is essential and how greener thinking can make our cities healthier and more successful places. There are four principles that will help deliver green infrastructure in NSW.

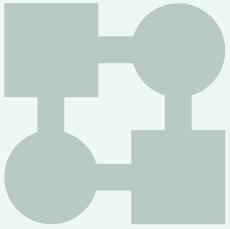


PRINCIPLE 1.

Integration

combine green infrastructure with urban development and grey infrastructure

There is a global transition away from single-purpose grey infrastructure to more multipurpose infrastructure that mimics nature, provides critical ecosystem services, and promotes healthy and active living. The principle of integration proposes to combine green space with urban development and grey infrastructure.



PRINCIPLE 2.

Connectivity

create an interconnected network of open space

Greener Places promotes the creation of a network of high-quality open spaces that connect with town centres, public transport hubs, rivers, creeks, and employment and residential areas – creating a network of open space. The network includes physical and functional connections that benefit people and wildlife.

Greener Places proposes a design approach for urban environments that promotes nature as a driver, resulting in high-performing, quality design. Designing and maintaining green infrastructure means a new way of thinking about urban environments.

PRINCIPLE 3.

Multifunctionality

deliver multiple ecosystem services simultaneously

Multifunctional green spaces should be high-quality and high-performing, producing, social, environmental, and economic benefits. Multifunctionality represents the ability of green infrastructure to deliver multiple ecosystem, environmental, and other services simultaneously.

PRINCIPLE 4.

Participation

involve stakeholders in development and implementation

Participation relates to a planning process that is open to all and incorporates the knowledge and needs of diverse parties. It involves stakeholders in the development and implementation of neighbourhood, local, district, and regional green infrastructure policies and actions.

PRINCIPLE 1.

Integration

There is a global transition away from single purpose grey infrastructure to more multipurpose infrastructure that mimics nature, provides critical ecosystem services, and promotes healthy and active living. The principle of integration proposes to combine green space with urban development and grey infrastructure.

Why is this important?

Greener Places considers green infrastructure as being integrated with other urban infrastructure such as built form, transport infrastructure, and water management systems to create high-quality urban environments.

Major infrastructure projects can be a catalyst for enhanced landscapes through green infrastructure investment. Integrated green infrastructure planning can contribute positively to air and water quality, energy use, and local habitat.

Design actions

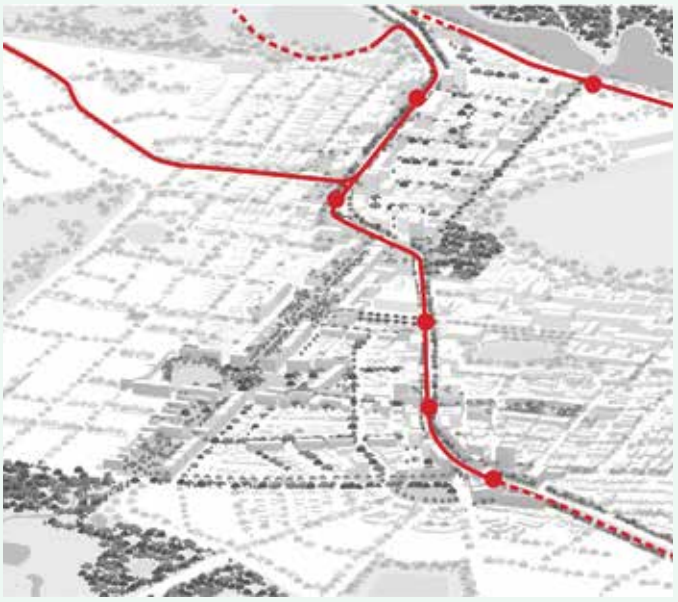
1. Integrate green and grey infrastructure (green-grey) to create urban communities that deliver quality of life to residents and the community.
2. Understand physical and functional synergies between urban green space and other infrastructure (e.g. built form, water supply, transportation, wastewater) to create a shared vision.
3. Implement wider environmental, social, and economic benefits from green-grey integration.
4. Use knowledge from different disciplines and sectors, and cooperate to deliver integrated green-grey approaches.
5. Balance recreational and functional requirements of parks with greening objectives to increase canopy cover.
6. Enable use of publicly owned assets such as disused railway corridors or land adjacent to creeks and stormwater channels.
7. Collaborate with road and rail authorities to maximise the opportunity to deliver green infrastructure along transport routes.

Integration

It is only when these components are integrated that strategies can be developed to enable the urban environment to operate as a green infrastructure system.

Stormwater harvesting – rejoin ponds and wetlands

Green links, parks and street tree planting



Public transport infrastructure

Public spaces Cycleways Pedestrian

PRINCIPLE 2.

Connectivity

Greener Places promotes the creation of a network of high-quality open spaces that connect with town centres, public transport hubs, rivers, creeks, and employment and residential areas – creating a network of open space. The network includes physical and functional connections that benefit people and wildlife.

Why is this important?

Achieving connectivity will ensure that the contributions of green spaces are optimised. This will anchor sustainable development while maximising health and wellbeing.

Linkages are fostered through enhancing existing assets, creating green spaces that will keep urban areas cool, encourage healthy lifestyles, enhance local habitat, and ensure ecological resilience.

Connectivity will provide access between places, encourage walking and cycling, highlight landscape, and support local economies. By providing informal places for people to visit and interact, social capital is created. Future investment in parks and recreation will play a vital role in NSW's ability to attract business and create jobs.

Design actions

1. Consider green space networks at multiple scales – including regional, city, and local.
2. Investigate and enhance physical and functional connections between different green spaces to create an interlinked system.
3. Design networks that serve humans and wildlife. Link physical sites that support ecological, wildlife, and social connectivity.
4. Enhance ecological connectivity through the restoration and conservation of urban ecology through regulating water flow or climate functions.
5. Enhance connections to recreational trails, particularly in and around high-density precincts.
6. Increase planting along stormwater, gas and power easements, main roads, and rail corridors.
7. Enhance streets by planting alongside all available footpath locations, including trees where appropriate.
8. Create a network of green streets that are connected and encourage walking and cycling.
9. Protect and minimise fragmentation of core bushland.

Connectivity

Disused rail lines have provided an opportunity for new public space in many cities around the world. Rail lines have been transformed into urban parks with multifunctional uses that provide new spaces in the city, as well as connecting people along a pathway.

The High Line, New York City, by James Corner Field Operations, with Diller Scofidio + Renfro

An elevated linear park created on a disused rail line. The success of this project has pushed cities to re-imagine obsolete infrastructure as public space. Image: Novak Hunsky www.flickr.com/. https://creativecommons.org/licenses/by-nc/2.0/au/legalcode.

The Goods Line, Ultimo, by Aspect Studios

A green open space connection utilising a disused rail line from Central Station through to Chinatown and Darling Harbour as well as connecting to UTS, The ABC and Sydney TAFE. Image: Florian Groehn.

The 606, Chicago, by Michael Van Valkenburgh Associates

The 606 is a former east–west railway line known as the Bloomingdale Line, Chicago. The new design brings together arts, history, trails for cyclists, runners and walkers, event spaces, alternative transportation avenues, and green open space for the community. Image: John Zacherle www.flickr.com/photos/jkz/18533188342 https://creativecommons.org/licenses/by-sa/2.0/legalcode.

The West Toronto Rail Path, Toronto, by Scott Torrance Landscape Architect Inc. with Brown+Storey Architects Inc.

Phase 1 of a multi-use trail utilising a disused rail line, developed and funded by the City of Toronto, for bicycle and pedestrian use by local area residents. Image: Sam Carriere www.flickr.com/. https://creativecommons.org/licenses/by-nc/2.0/legalcode.

PRINCIPLE 3.

Multifunctionality

Multifunctional green spaces should be high-quality and high-performing to maximise local habitat, social, environmental, and economic benefits. Multifunctionality represents the ability of green infrastructure to deliver multiple uses simultaneously.

Why is this important?

Green infrastructure projects can deliver multiple objectives:

— they can frame and shape the growth of sustainable communities to strengthen their image and identity
— they help offset climate change by reducing flood risk and overheating
— they promote access to open space, nature, and sport, improving the visitor experience and quality of life for all.

However, multifunctionality should be balanced against the need to protect and enhance local habitat, including some areas set aside for exclusive use by native fauna or to protect threatened plant species.

Design actions

1. Understand and support the development of multifunctional landscapes that offer ecological, socio-cultural, and economic benefits.
2. Determine a clear understanding of user needs and demands to understand the requirements for multifunctionality.
3. Design spaces that foster interaction and stewardship, community identity, sense of connectedness and community capacity.
4. Recognise the value of existing landscape performance via improved connectivity, stormwater management, flood mitigation, local habitat, and environmental quality.
5. Ensure that the parks within our cities contribute to the value and understanding of place.
6. Create open space as part of urban renewal that connects and enhances the new project through high-quality, high-performing green space.
7. Use the value of public art by integrating public art into green projects.

Multifunctionality

Sydney Park is an exemplar for multifunctional design, incorporating water re-use initiatives, recreation activities, public art, local habitat, and community gardens into the wider master plan, and also in each individual area as designated below.

Sydney Park Water Re-use Project by Turf Design Studio and Environmental Partnership

One of City of Sydney's largest environmental projects to date, built in partnership with the Australian Government through the National Urban Water and Desalination Plan. This project showcases water re-use, recreation, biodiversity and habitat, all integrated within the physical fabric of Sydney Park. Image: Ethan Rohloff Photography.

Sydney Park Playground by JMD Design

The playground design enhances passive and active play and learning opportunities within the park, while also considering the park's overall ecological and hydrological function. Image: Brett Boardman.

Sydney Park Children's Bike Track by Turf Design Studio and Environmental Partnership

This adventure-style bike track moves away from the conventional bike track layout and shifts the focus towards play and learning to ride. It incorporates barbecue and picnic areas, a refueling station, new trees, and planting areas. Image: Turf Design Studio.

***Water Falls* by Turpin + Crawford Studio**

Part of the Sydney Park upgrade, *Water Falls* is an integrated environmental artwork, and part of the Sydney Park stormwater harvesting plan. The artwork recycles water throughout the wetlands, piping water through the sculpture and into the pond below. Image: Ian Hobbs Media.

PRINCIPLE 4.

Participation

Participation relates to a planning process that is open to all and incorporates the knowledge and needs of diverse parties. It involves stakeholders in the development and implementation of neighbourhood, local, district, and regional green infrastructure plans and actions.

Why is this important?

Better solutions often appear when a diverse set of people participate. Embracing diversity and collecting knowledge, opinions, and perspectives from a wide range of users such as community, workers, Indigenous groups, and visitors will provide more balanced and inclusive solutions.

Greener Places advocates for community involvement as well as participation across government agencies including at State and local levels. Creating a network of green infrastructure requires collaboration from multiple agencies and user groups. Shared knowledge and resources will benefit the long-term planning of green networks throughout NSW.

Design actions

1. Engage stakeholders early in the process and participate throughout the life of the project.
2. Discover and balance the interest of many different stakeholders to maximise the benefits of proposed green space.
3. Improve equity of access to green infrastructure by considering the needs, values, motivations, uses, and barriers to engagement with various cultures and user groups.
4. Encourage the use of currently underutilised open space corridors for local community use.
5. Create accessible spaces for all members of our community, such as inclusive play spaces. Inclusive play spaces are designed to respond to the need for recreational opportunity for all people regardless of differences in abilities, age, gender, or culture. Each playground represents a unique opportunity to enhance outdoor recreational experience for the whole community.

Participation

There are many ways participation can be incorporated in planning for green infrastructure, including creating places for community gathering, stakeholder workshops, community facilities, and community consultation.

Creating places for community gathering

Spaces that promote equity of access create community value.
Market Street Lawn, Newcastle.

Stakeholder workshops

Embrace diversity and collect knowledge, opinions, and perspectives from a wide range of user groups. The best solutions often appear when a diverse set of people with disparate views collaborate. Image: NSW ARB.

Community facilities

Engage the community and observe culture, habits, and lifestyles.
Lizard Log Playground, Western Sydney Parklands, by McGregor Coxall.
Image: Simon Wood.

Community consultation

Involve relevant stakeholders and communities, and consult widely within a variety of disciplines.
Bays Precinct, Urban Growth
Image: Joe Bourke

2.2 Outcomes

What will an integrated, connected, and multifunctional green infrastructure network look like? The following projected outcomes will assist in the assessment of design proposals and are applicable at any scale. They address the issues and considerations that should be taken into account when making decisions about development.

Conservation of the natural environment

— protection and enhancement of natural resources and local habitat by improving the quality of watercourses, creating green habitat corridors and protecting endangered ecological communities
— promotion of social, cultural, recreational, and educational opportunities within natural landscapes.
— restoration and enhancement of wetland habitats and increased accessibility to them
— creation of new ecologies that support local habitat such as constructed wetlands and green roofs.

Increased access to open space

— improved connections to regional destinations, foreshores, beaches, and bays and continued investment in major parks and associated green infrastructure
— new open space allocation forms a part of urban renewal projects, infill development, and infrastructure projects
— equitable distribution of open space forms the basis for a well-connected and accessible network as well as ongoing investment in high-quality parks and public domain
— quantity, quality, distribution, and accessibility of green space enables the delivery of multifunctional open spaces that promote healthy lifestyles
— provision of a diverse range of outdoor space for cultural, educational, and community activities, including productive landscapes
— provision of high-performing open spaces which foster synergies between recreation, climate change adaptation, and local habitat conservation.

Improved connectivity to promote active living

— improvements to the public domain that promote exercise and alternative modes of transport such as walking, cycling, and jogging
— protection of green corridors that create a network of walking trails, cycle paths, and open spaces along river and creek corridors
— enhanced connections to the Green Grid, particularly in and around high-density precincts.

Increase urban greening to ameliorate climate extremes

— resilient built environments created through coordinated planning and design of green cover strategies including street trees, green walls and roofs, canopy trees, cool pavements, and water-sensitive urban design
— more green cover will keep our cities cool while providing benefits such as improved amenity, comfort, health, reduced stormwater run-off, improved air and water quality, and energy and resource efficiency
— promotion of the development of underused open space corridors for local community use such as community gardens.

Civic Park, Newcastle

SECTION THREE

IMPLEMENTING GREENER PLACES

This chapter outlines the approach and methods needed for the successful implementation of green infrastructure design principles.

Prince Alfred Park, Surry Hills, by Sue Barnsley Design
in association with Neeson Murcutt Architects.

3.1 Implementation

An integrated, connected, and multifunctional green infrastructure network is a complex system of parts. Effective delivery requires a clear implementation plan which involves all stakeholders and identifies statutory requirements, actions, and funding streams.

Integrating green infrastructure into the NSW strategic and statutory planning framework is considered essential, but this alone will not ensure delivery of outcomes. A collaborative and appropriately funded approach is needed.

Effective implementation will require:

— **Statutory measures –** Integrate the green infrastructure design framework into the NSW strategic planning framework including regional, district, land-use, infrastructure, and strategic implementation plans. Its consideration should be an early component of the strategic growth and infrastructure planning undertaken by State agencies and local councils and should inform the new Design and Place SEPP.

— **Collaborative action –** A collaborative approach between government, stakeholders, and communities will ensure greater understanding of the importance of green infrastructure, ownership of the design framework, and commitment to delivery of its intended outcomes.

— **Funding –** Existing and future funding mechanisms should aim to be linked and enhanced as required to ensure identified actions are delivered in a coordinated manner by the most appropriate stakeholder. Funding will need to consider the delivery and ongoing maintenance of green infrastructure.

It is important to note that Greener Places is not a “one-size-fits-all” approach. While it seeks to ensure integrated planning for sustainable green infrastructure outcomes, it is also a key component of strategic planning, and provides the tools for local government, relevant agencies, and other stakeholders to develop strategies, in collaboration with their communities, that are appropriate to location and circumstance. This will build on the very substantial amount of work already undertaken by many NSW councils.

Restoring the Waters Creek Restoration by Schaffer Barnsley Landscape Architects with Turpin + Crawford Studio, Clear Paddock Creek, Fairfield NSW

The reinstatement of a natural creek system through the removal of a concrete stormwater channel has vastly improved the waterway's ecological value and amenity for the local community while still providing flood protection.

The existing concrete stormwater channel.

The 'Memory Line', a 3-km living land art installation that followed the original line of Clear Paddock Creek. As an analogy for the waterway, the community could watch it grow and change over time to build appreciation for natural processes and the benefits of their reinstatement.

Three years on, the Clear Paddock Creek restoration area appears close to its original natural state. Revealing Country reconnects us all to the Aboriginal culture and heritage of this place.

3.2 Embedding green infrastructure in place-based plans

Greener Places will be implemented through a package of reforms to existing strategies and policies.

Fundamental to the success of implementation is a shift in thinking so that green infrastructure is considered essential infrastructure, making it part of up-front strategic land-use and infrastructure planning undertaken by DPIE, GSC, and other agencies and councils.

Green Infrastructure is already embedded in the Greater Sydney Region Plan and district plans with green infrastructure considered as essential infrastructure.

Further embedding green infrastructure planning can be achieved through:

— inclusion of green infrastructure strategic planning outcomes and requirements in regional plans
— considering how existing local infrastructure contributions frameworks can be refined to deliver green infrastructure
— inclusion of green infrastructure in place-based planning strategies and rezonings, with funding through a range of mechanisms including developer contributions
— monitoring and reporting of Greener Places outcomes and projects through the Department's People and Places Dashboard, using State and local government data and ongoing audits of open space, urban bushland, waterway health, and urban canopy cover
— development of model council DCP clauses regarding Greener Places requirements to assist councils in implementing the requirements of the design framework and related guidelines at the local level
— issue of guides to councils and other stakeholders about the requirements for preparing strategies in accordance with green infrastructure including but not limited to open space, urban bushland and waterways and urban tree canopy, and providing advice about preparation of planning proposals and LEPs to give effect to regional and district plans.

"Place-based planning is a design-led and collaborative way of examining the complexity of the city by viewing it as a mosaic of different places, each with unique potential and characteristics. It is a means of better understanding a place, and building relationships and collaboration to deliver a vision and solutions that respond to a place's potential."

—Greater Sydney Commission, Metropolis of Three Cities, 2018

3.3 Collaborative government action

Collaborative action will be required to ensure green infrastructure is integrated, connected, and multifunctional, and that all affected stakeholders participate in implementing the design framework.

Green infrastructure outcomes must be accessible and protect and enhance environmental assets and build resilient communities. Collaborative action across State government departments and agencies will be required to ensure Greener Places is reflected in different parts of the statutory framework and in policy and decision-making processes. Collaboration across all levels of government will ensure the right funding is in place to support green infrastructure and that it is implemented as efficiently as possible.

Civic Park, Newcastle.

3.4 Implementing the principles

The four principles that build the Greener Places strategy each require implementation actions to ensure the design framework delivers maximum benefits.

PRINCIPLE 1.

Integration – combining green infrastructure with urban development and grey infrastructure

IMPLEMENTATION ACTIONS

Develop methodologies to ensure multi-agency cooperation across all levels of government.

Develop legal and political mandates for grey and green integration.

Integrate the green infrastructure design framework into the NSW Strategic Planning Framework including regional, district, land-use, infrastructure, and strategic implementation plans.

Align the green infrastructure network with NSW infrastructure and urban renewal initiatives, particularly longer term transport plans.

Work across government agencies to incorporate green infrastructure in all major urban renewal plans and priority growth areas.

Ensure that strategic plans recognise and support natural assets such as national parks, public bushland, and waterways.

PRINCIPLE 2.

Connectivity – creating an interconnected network of open space

IMPLEMENTATION ACTIONS

Consider equitable access to open space for diverse range of social groups, ensuring inclusion for people with disabilities.

Improve the public domain and green corridors to encourage walking, cycling, and jogging both in urban areas and along river and creek corridors.

Protect and improve core bushland areas and green corridors.

Improve vegetation and native fauna connectivity along stormwater, gas, and power easements, main roads, and rail corridors.

Parramatta Park. Image: Parramatta Council

PRINCIPLE 3.

Multifunctionality – delivering multiple ecosystem services simultaneously, as well as providing added value, and improved health and wellbeing

IMPLEMENTATION ACTIONS

Enhance the capacity of urban green space to deliver multiple benefits for people and wildlife.

Ensure that the quantity, quality, distribution, and accessibility of green space enables the delivery of multifunctional open spaces that meet community needs, promote active and passive recreation, flood and stormwater management, and local habitat improvements.

PRINCIPLE 4.

Participation – the involvement of stakeholders in the development and implementation of neighbourhood, local, district and regional green infrastructure policies and actions

IMPLEMENTATION ACTIONS

Develop design-led planning processes that empower communities through collaboration and public participation design.

Develop consultation processes which engage a broad section of the community, with a special emphasis on vulnerable communities including young people, women, and minority groups.

Develop open space strategies in every local government area to support equity of access to green space for diverse social groups.

Encourage community involvement with projects at a neighbourhood level to enable citizens to take action in their direct surroundings and strengthen social cohesion.

Encourage community participation in planning and design, including on the meaning of their places, and the activities they undertake. Use community knowledge to test outcomes and develop design solutions for place-based responses.

3.5 Funding

Identification, integration, and coordination of funding streams from Federal, State and local government sources will be essential to deliver a green infrastructure network for NSW.

There are multiple grant programs for differing purposes (acquisition of land for open space and linkages, embellishment of open space, sporting facilities, cycleways, local habitat enhancement, water quality enhancement, bush regeneration, etc.) run by State government agencies, local councils, and non-government organisations.

Different funding programs and sources will be used to deliver the different components of green infrastructure. Where public and local infrastructure contributions are used, priority should be given to funding green infrastructure that is publicly accessible.

Existing green infrastructure funding sources include:
— grant programs including Federal and State funds
— developer contributions including local infrastructure contributions, special infrastructure contributions, and voluntary planning agreements
— investment in green infrastructure
— through general state government
— and local council revenue including levies
— community programs.

Options for future green infrastructure funding include:
— embedding green infrastructure as essential infrastructure in the NSW Strategic Planning Framework, facilitating improved coordination of funding programs across regions and districts
— developing costing models to put an economic value on trees and green infrastructure, including value capture
— integrating existing grey infrastructure funding with green infrastructure alternative solutions where they can be shown to be better performing by providing multiple benefits.

Stakeholders for green infrastructure funding include:
— State government agencies
— councils
— industry and peak bodies
— private sector.

Key existing NSW Government funding programs include:
— The Metropolitan Greenspace Program
— NSW Environmental Trust grants program
— Sydney's Walking Future and Sydney's Cycling Future programs
— 5 Million Trees for Greater Sydney
— Everyone Can Play in NSW
— Greater Sydney Open Space Program.

3.6 Monitoring, and reporting

Monitoring and reporting of Greener Places outcomes is essential. Monitoring and reporting will be achieved through reporting on implementation of regional and district plans, LSPS, and LEPs.

Embedding green infrastructure delivery into the NSW strategic planning framework means it becomes part of the regular monitoring and reporting of strategic plans. For example, standard review mechanisms for regional plans can include:

- **an Annual Monitoring Report –** to report progress on goals, directions and actions
- **Regional plan review –** every five years or as necessary, to review goals, directions, and actions. The reviews are informed by the annual monitoring reports
- **an annual implementation plan update –** every regional plan has an associated implementation plan that identifies priorities and timing for actions – in the immediate, short, medium and long term.

Similar monitoring and reporting mechanisms have been developed by the GSC for the district plans.

GSCs The Pulse of Greater Sydney provides an online dashboard to monitor and report on components of green infrastructure such as tree canopy and open space.

The EP&A Act requires that LEPs give effect to district plans. When district plans are finalised, each local council in Greater Sydney must prepare a report identifying what planning proposals will be prepared for relevant district actions and priorities. The NSW Government has recently exhibited proposals for amendments to the EP&A Act that will require review of LEPs every five years at a minimum.

The need for baseline data of green space across NSW will be achieved by expanding the existing GIS-based open space register for metropolitan Sydney, including:

- live Green Grid mapping of information displayed in A Plan for Growing Sydney and district plans
- known urban canopy coverage, and changes and trends in open space provision, urban bushland and waterway health, and urban canopy coverage, by LGA, district, and region
- information on priority and other projects identified in the district plans, as they are delivered to form linkages and extend the Green Grid
- monitoring and reporting on grant allocations from multiple green infrastructure funding programs.

The GSC has responsibility for monitoring and reporting on the Greater Sydney regional plan and district plans.

The Greener Public Spaces Premier's Priority will report and monitor the proportion of homes in urban areas within 10 minutes' walk of quality green, open and public space. The Greening our City Premier's Priority monitor the increase in trees planted, aiming for one million trees by 2022. All of these reporting mechanisms will help to monitor improvements to green infrastructure.

The Design Guide that supports Greener Places outlines a process to prepare a plan for change. These plans rely on an evidence-based approach to measure, report and monitor.

3.7
Next steps

Delivering on this design framework

GANSW has been charged with developing strategies to deliver well-designed green infrastructure for NSW.

This work has included:
— undertaking extensive stakeholder engagement in developing the strategies
— establishing a green infrastructure design framework for NSW (Greener Places) to provide the framework, principles, and guidelines for open space for recreation, urban tree canopy, and bushland and waterways
— establishing a range of design standards, and design guidance to support good design practice and outcomes for green infrastructure.

The NSW Government is focused on delivering well-designed green infrastructure across NSW. The greener places design framework will support this objective.

Immediate initiatives include:
— release of the supporting Greener Places Design Guide
— working across government to embed the principles of this design framework into all relevant legislation, plans, policy areas, and decision-making processes
— developing model clauses for inclusion in local plans, including LEPs and DCPs
— collaborate with Premier's Priority teams for **Greening our city** and **Greener Public Spaces** priorities to integrate guidance and support these initiatives
— integrate the green infrastructure design framework into the new Design and Place SEPP.

Short-term initiatives include:
— reporting and monitoring framework and processes
— developing statewide GIS-based open space benchmarking
— education and training support for local government
— industry-focused awareness campaign
— working with Aboriginal community to support and maintain Aboriginal culture and heritage.

Longer term initiatives include:
— development of additional curated case studies
— community education and awareness programs.

Civic Park, Newcastle

SECTION FOUR

GLOSSARY

Greener Places sets a standard for the whole of NSW. Key terms of this design framework have been defined to ensure consistent language for green infrastructure in NSW.

B	
Built environment	Comprises the extent of our human-made environment, as distinguished from the natural environment. It includes all aspects of our surroundings made by people that provide the place for human activity. The built environment can be understood to include cities and towns, neighbourhoods, parks, roads, buildings, and even utilities like water and electricity.
C	
Case study	A specific building, place or space that has been researched and analysed in order to demonstrate and evaluate its worthiness. A case study can assist in the design of new spaces by understanding best practice as well as lessons learnt.
Connectivity	Creating an interconnected network of open space.
Context	The physical, social, cultural, economic, environmental, and geographic circumstances that form the setting for a place or building.
Contextual	A building, place or space that responds to the context in which it is designed.
E	
Equitable	A built environment that is fair and accessible for all citizens.
G	
Greater Sydney Dashboard	A interactive digital tool that will provide access to key indicators that measure and monitor change across Greater Sydney. It will provide a dynamic view of the current state of play for Greater Sydney on key issues such as jobs and housing to help us understand how we are performing against the directions and strategies in the Greater Sydney Regional Plan and the priorities and actions in the district plans.
Greater Sydney	Defined as the 30 local government areas of Bayside, Blacktown, Blue Mountains, Burwood, Camden, Campbelltown, Canada Bay, Canterbury-Bankstown, Cumberland, Fairfield, Georges River, Hornsby, Hunters Hill, Inner West, Ku-ring-gai, Lane Cove, Liverpool, Mosman, Northern Beaches, North Sydney, Parramatta, Penrith, Randwick, Ryde, Strathfield, Sutherland, The City of Sydney, Waverley, Willoughby and Woollahra.
Green Grid	Strategic planning document for the greater Sydney region, and a precursor to the Greener Places design framework comprising a cohesive map of green assets across metropolitan Sydney.
Green infrastructure	Describes the network of green spaces and water systems that deliver multiple environmental, economic, and social values and benefits to urban communities. Refer to Section 1.1 of this document for entire definition.
Green space	An area of grass, trees, and other vegetation set apart for recreational or aesthetic purposes in an urban environment.
Growth areas	The growth areas for Greater Sydney are identified by the NSW Government as major greenfield development areas. Information about growth areas is available at http://www.planning.nsw.gov.au/.
Growth areas	The growth areas for Greater Sydney are identified by the NSW Government as major greenfield development areas. Information about growth areas is available at http://www.planning.nsw.gov.au/.
H	
Healthy built environment	A place or space that promotes positive social, emotional, and physical health for its people.
High-performing green space / high-quality green space	Multifunctional spaces designed to produce concurrent ecological, social, environmental, and economic benefits.
I	
Integration	Combining green space with urban development and grey infrastructure.
L	
Liveable	A built environment which supports and responds to people's patterns of living, and is suitable and appropriate for habitation, promoting enjoyment, safety, and prosperity.
M	
Master plan	A framework document showing how development will occur in a given place and including building parameters like height, density, shadowing, and environmental concerns. It is a visual document that details a clear strategy or plan for the physical transformation of a place, supported by financial, economic, and social policy documents which outline delivery mechanisms and implementation strategies.
Mitigating flooding	The planning, management and control of floodwater movement by redirecting flood run-off, that can include physical structures as well as utilising natural assets for landscape retention and catchment management.
Multifunctionality	The ability of green infrastructure to deliver multiple ecosystem services simultaneously, providing added value, and improved health and wellbeing.

O	
Open space	Land that has been reserved for the purpose of recreation and sport, preservation of natural environments, and provision of green space.
P	
Participation	The involvement of stakeholders in the development and implementation of neighbourhood, local, district, and regional green infrastructure policies and actions.
Place	A social and a physical concept – a physical setting, point or area in space conceived and designated by people and communities. In this sense, place can describe different scales of the built environment – for example, a town is a place, and a building can be a place.
Placemaking	Proposes a multifaceted approach to the planning, design, and management of public spaces. Placemaking looks at understanding the local community with the intention of creating public spaces that promote health and wellbeing.
Precinct	A designated area within real or perceived boundaries of a specific building or place. A precinct can be of different scales and usually responds to a study area of a particular place.
Public realm	The collective, communal part of cities and towns, with shared access for all. It is the space of movement, recreation, gathering, events, contemplation, and relaxation. The public realm includes streets, pathways, rights of way, parks, accessible open spaces, plazas, and waterways that are physically and visually accessible regardless of ownership.
Q	
Quality	The standard of something, measured comparatively against things of a similar kind.
R	
Resilient	Able to withstand or recover from difficult conditions.
S	
Scale	The relative size or extent of something – scale is a device used to quantify objects in a sequence by size; for example a city scale, or a building scale. In architecture, scale is also used to describe a ratio of size in a map, model, drawing, or plan.
Spatial framework	A design and research document that is produced to provide background understanding and analysis for a particular area or place. It is completed prior to traditional design stages or master plan phases of a project. The framework follows a process of analysis, data collection and reporting in order to propose a delivery strategy and vision for the area being analysed.
State environmental planning policy (SEPP)	A statutory plan, typically prepared by the Department of Planning, Industry and Environment and endorsed by the Minister for Planning. It can be a spatial plan for particular land in NSW, and/or it can set policy which applies to particular land or all land in NSW.
Strategic plan	Document that guides the implementation of a strategy for a particular area.
Statutory plan	A part of the planning process that is concerned with the regulation and management of changes to land use and development.
Sustainable	Relates to the endurance of systems, buildings, spaces, and processes – their ability to be maintained at a certain rate or level, which contributes positively to environmental, economic, and social outcomes.
U	
Urban area	In Greater Sydney, the urban area is mapped in the Greater Sydney Region Plan: A Metropolis of Three Cities (Figure 51, Boundary of urban area, p 162). For regional NSW, urban areas are typically characterised by places that contain an urban centre – including Regional Cities, Strategic Centres and local centres (or other centre types) as outlined in the Department's (DPIE) Regional Plans.
Urban tree canopy	The layer of leaves, branches, and stems of trees that cover the ground when viewed from above.
Urban forest	The layer of trees and tree populations that exist in urban settings.

SECTION FIVE

GOVERNMENT ARCHITECT NEW SOUTH WALES

GANSW provides strategic design leadership in architecture, urban design and landscape architecture. In this role, GANSW supports the NSW Government in delivering quality, managing risk and fostering innovation to maximise public value in the built environment.

The role of GANSW is critical in helping to deliver good design and planning outcomes across all projects in NSW. This strategic advisory role provides an opportunity to work across government, the private sector, and the community to improve social, environmental, and economic outcomes for NSW and its communities.

GANSW is charged with championing the Greener Places initiatives and supporting government agencies and local government to create and deliver high-quality architecture and design outcomes.

GANSW responsibilities:

Champion good design and the importance of great places.

Establish policy and practice guides for achieving good design.

Champion design excellence processes for government.

Provide independent, professional, and impartial strategic advice particularly for the delivery of public projects, to:
— Cabinet and senior government executives
— government departments and agencies
— local government
— industry and community.

Promote and advocate the value and benefits of good design by:
— ensuring government has the ability to make informed design decisions
— developing, supporting and leading design processes and building capability
— undertaking strategic commissioning, including ongoing management of the **Government Architect's Strategy and Design Excellence Pre-qualification Scheme**
— working to support and better educate industry on the value of design
— providing advice on performance, procurement and commissioning
— publishing design guides, case studies and other supporting documents
— partnering with others to ensure the objectives of good design are reflected in their processes, policy, and project delivery
— leading the design review for important public urban renewal, precincts, and buildings.

Undertake research and provide thought leadership on design and the built environment.

Communicate the benefits of good design and design-based processes.

Foster collaborative approaches to improving design across government, with industry and academia.

Support and promote the development of pilot projects that demonstrate the benefits of good design.

Create a culture of learning, and share local and global best practices that tackle design challenges facing NSW.

Support and nurture a culture of good design and great places.

GANSW is supporting:

Good design in the built environment
We enable built environment interventions and developments to contribute to better places across NSW cities and towns through improved design standards and quality in urban precincts, buildings, places, and spaces.

These projects will be:
— **healthy** for all members of our communities
— **responsive** to local context
— **integrated** with the place, public realm,natural environment and use patterns
— **resilient** and adaptable, to future change
— **equitable**, welcoming and accessible for all.

Better design processes for projects
We encourage all new interventions to employ good design, through application of the design objectives outlined in Better Placed.

We support effective design and procurement methodologies by:
— providing a framework that influences creation, governance, appraisal, and assessment of projects
— providing guides for delivery including methodologies (e.g. strategic frameworks), as well as building upon existing design review and advisory processes
— fostering design thinking, reframing problems, identifying opportunities, and testing scenarios and options early in project and planning processes.

A new way of working
We operate across disciplines and between systems to connect people so that tangible, long-term solutions can be found for a positive social, economic, and environmental impact across NSW.

We do this by:
— creating a chain of equivalence between different stakeholders and their individual demands to form a common agenda
— enabling city-makers to define, sharpen, and action ideas and projects to shape cities, places and communities
— advocating for an integrated design approach across all projects by all collaborators
— supporting design quality by providing design review and advice, with leadership grounded in a shared value system.

Capacity building
We create enhanced awareness of the role and value of design, and equip local authorities and communities with the tools, guidance and references to encourage and demand well-designed urban environments.

We do this by:
— fostering a change in design culture – design is not an “optional extra”, but essential from vision to conception to project completion
— creating a common language for design understanding, review, and advice in consistent terms
— empowering others to champion design and influence the creation of great places.

A stronger design culture and active engagement
We encourage community interest, participation and investment in better design, planning and development, raising awareness and expectations relating to design, facilitating better design, and supporting advocacy for better outcomes.

We do this by:
— encouraging the building and development industry to communicate and collaborate with local communities
— providing an informative website where information about design and processes is accessible to all
— surveying communities to understand their thoughts on design, and to raise awareness about design
— providing case studies where successful design processes and outcomes have been achieved, so the NSW community can be proud of their great places.

Through a series of collaborative events and discourse, GANSW promotes public conversations about the value of good design.

SECTION SIX

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SECTION SEVEN

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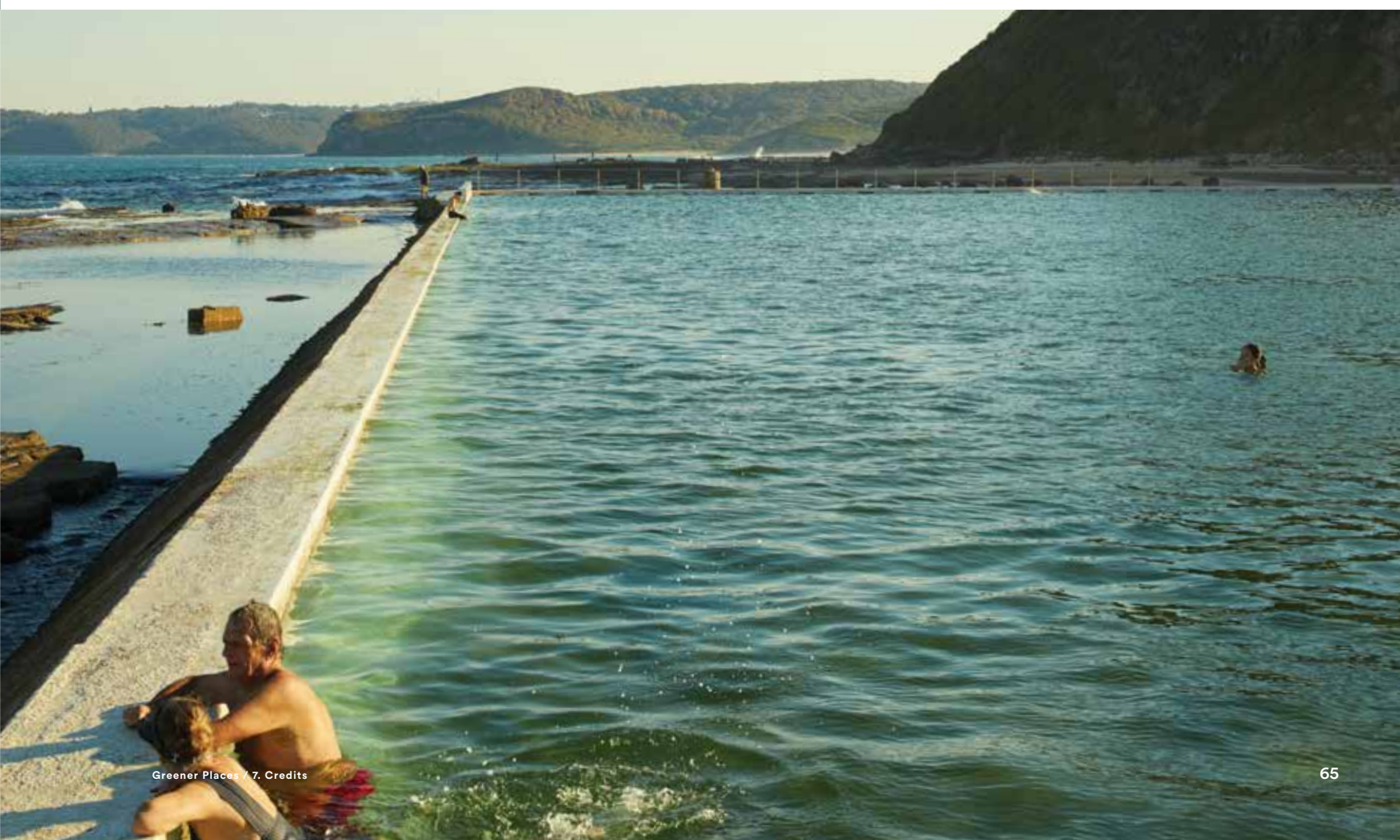
1	Oct 2017	Draft issue for discussion
2	Nov 2019	Greener Places Design Framework issue
3	June 2020	Greener Places Design Framework Final Issue



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NSW

An urban green infrastructure design framework for New South Wales

Integration
combine green infrastructure with urban development and grey infrastructure

Connectivity
create an interconnected network of open space

Multifunctionality
deliver multiple ecosystem services simultaneously

Participation
involve stakeholders in development and implementation

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