



Better Best Practice Note Planning for Green Infrastructure

Green infrastructure refers to purposefully designed and managed green spaces that provide multiple ecological and community benefits. Other terms used to describe green spaces and green infrastructure include urban greening, urban forester, living infrastructure and (where spaces include water) blue-green infrastructure.

This Better Best Practice Note provides guidance on early planning for green infrastructure projects to deliver better outcomes and high-quality green infrastructure. It is aimed at professionals working in and for government organisations involved in green infrastructure planning and delivery.

Green spaces come in many forms. However, green space that provides limited ecological value (eg a small urban lawn with no other vegetation) are typically not considered green infrastructure.

Green Space

Any natural and semi-natural space



Green Infrastructure

Green space purposefully designed and managed to provide multiple environment and community wellbeing benefits.



Green Infrastructure Network

Connected areas of green infrastructure that form an integrated and multi-functional landscape-scale network.

Green space comes in many forms

Green space includes open space, trees, shrubs, garden beds, lawn areas, raingardens, swales, roof gardens, green walls, wetlands, riparian buffers, conservation reserves, and more.

Step 1 Planning green infrastructure as part of a green infrastructure network

Green infrastructure has its greatest value when it is connected (networked) with other green infrastructure¹.

For example, a single tree gives greater wildlife benefits if it is located near other trees in a habitat corridor. It is even better, when trees are located to help pollinators move from one isolated conservation patch to another to help crossbreeding and resilience.

As another example, more than one raingarden located along a stormwater path will provide multiple opportunities to slow down stormwater. This will help decrease the amount of degradation and pollution to the local waterway.

Networked green infrastructure is the end goal. This can be applied at the scale of site, a precinct and a region. It will take many decades to achieve the larger scale, and every decision for enhancement along the way will help.

Action:

- Consider individual green space projects/opportunities as part of a future green infrastructure network (refer Fig 1) when preparing green infrastructure plans or project briefs.

Fig 1: Moving from Green Space to a Green Infrastructure Network.

Adapted from Scott A & Hislop M (May 2019) 'What does a good GI policy look like?' in [Town & Country Planning](#) 88(5) UK

Principles for high quality green infrastructure
<p>CORE GREEN INFRASTRUCTURE PRINCIPLES</p> <ol style="list-style-type: none"> 1. Green infrastructure forms a multifunctional network 2. Green infrastructure reflects and enhances the character of the local environment 3. The type, quality & function of green infrastructure responds to the local context. 4. Green infrastructure is resilient to climate change and enhances environmental quality. 5. Provision is made for long-term management and maintenance of green infrastructure.
<p>PRINCIPLES TO ENHANCE HEALTH & WELLBEING</p> <ol style="list-style-type: none"> 1. Green infrastructure is accessible and is situated close to where people live. 2. All people are encouraged to use and enjoy green infrastructure. 3. Green infrastructure is designed to be accessible at all times of year. 4. Green infrastructure supports the reduction and/or prevention of health inequalities. 5. Green infrastructure promotes socially sustainable and cohesive communities. 6. Green infrastructure is integral to the distinctiveness of place.
<p>PRINCIPLES FOR SUSTAINABLE WATER MANAGEMENT</p> <ol style="list-style-type: none"> 1. Green infrastructure is integral to sustainable drainage. 2. Green infrastructure has been used to improve water quality on site. 3. Green infrastructure related to water management also creates and sustains better places for people and nature. 4. Green infrastructure responds to drought and water scarcity conditions 5. Green infrastructure is used to improve water quality off site and downstream 6. Green infrastructure for water management enhances local distinctiveness and overall design.
<p>PRINCIPLES TO ENHANCE NATURE CONSERVATION</p> <ol style="list-style-type: none"> 1. Green infrastructure delivers long-term ecological enhancement in line with local priorities. 2. Green infrastructure creates, restores, enhances habitats and the linkages between them. 3. Populations of key species are more viable as a result of the green infrastructure. 4. Creation & conservation of high-quality habitat fully integrated with the built environment. 5. Green infrastructure plays a role in restoring and sustaining wider ecological networks. 6. Green infrastructure secures biodiversity enhancement at each stage of implementation.

Fig 2: Principles that can help set multiple benefits and objectives for green infrastructure planning (Adapted from Jerome et al 2019ⁱⁱ).

Step 2 Collaboration and engagement

The long-term success of greening and green infrastructure planning is dependent on:

- a clear purpose aligned with community valuesⁱⁱⁱ
- broad input from different specialists (e.g. ecology, water, soils, climate adaptation, health and wellbeing)
- public participation (urban greening required involvement from diverse stakeholders, including but not limited to technical experts and municipal staff)^{iv}.
- a holistic approach to green infrastructure network planning spanning public and private property.^v
- comprehensive policies, strategies and regulation, supported by appropriate funding, staffing, assessment tools, guidelines, community engagement, & education.

Traditional Owner involvement should be invited at the earliest stages of green space planning (refer [Better Best Practice Note- Traditional Owner Knowledge for Cities](#))^{vi}.

The knowledge and expertise of local communities and site users should be considered alongside other specialist input, rather than limiting community engagement to a narrow 'consultation period' once key decisions have been made.

Action:

- Develop a collaborative stakeholder engagement plan that enables people with different knowledge to come together early to maximise shared benefits and project stewardship (refer [BBP Note – Stakeholder Engagement for Urban Forest](#)).

Step 3 Multifunctional is best

Green infrastructure can deliver a wide range of health, wellbeing and environmental benefits for local communities.

For example, the primary objective of a street raingarden may be to improve water quality. However, a well-designed raingarden could also enhance local biodiversity and urban cooling (through plant selection), and community connection (through the incorporation of seating, artwork, etc.).

The best way to maximise the benefits in one green space is to consider all possibilities at the earliest stage of the project.

Actions:

- Identify multiple benefits that can be incorporated into a green infrastructure project at the earliest stages of planning and design. Use Fig 2 as a prompt.
- Prepare project briefs and development assessment criteria to incorporate above agreed public benefits in the design and/or approval of infrastructure and landscape plans. Each site will have different needs particular to their place

Step 4 Gather your data

Green infrastructure planning is spatial, and it can 'lay the bed' for development planning.

It helps fill a gap in the planning process by making sure that the topography, overland water flows, broad soil typology, urban heat spots and biodiversity corridors at a broader landscape scale are understood before undertaking activity plans, precinct plans and masterplans.

To achieve this, baseline data is needed. This will give an understanding of priority locations for green infrastructure and help determine objectives and targets. Some localised data will need to be gathered, so be sure to allow budget for this when developing plans. Other data is now made available for download.

Action:

- Ensure baseline data is used to inform green infrastructure objectives and targets.

Gather your data

Gathering baseline data for plans & projects is an important step.

There are now helpful datasets and reports that can help local government and other bodies on this quest.

Here are some examples used in Victoria.

- [Living Melbourne: Our Metropolitan Urban Forest](#). Sets out baseline data for canopy and vegetation, and a recommended target range for different areas.
- [Cooling & Greening Urban Vegetation Map](#). Developed by DELWP in partnership with RMIT, CSIRO, CAUL Hub.
- [Victorian Climate Projections 2019](#). Sets out data sets and scenarios for sea level rise, rainfall and temperatures
- [Australian Urban Observatory](#). Liveability indicators and datasets for open space, walkability, and more. This data goes beyond Victoria

Step 4 Monitoring and maintenance

Monitoring and maintenance is a critical part of green infrastructure management and needs to be considered when planning and design activities.

Incorporate monitoring as part of an adaptive planning and design approach to encourage 'learning by doing' in a context of uncertainty and incomplete knowledge^{vii}. This enables 'failures' to be rectified and builds the capacity of the organisation and the sector.

Consider maintenance requirements early in green infrastructure planning (for example, through a user-based design approach^{viii}) to support the long-term success of the initiative.

As practitioners collectively improve green infrastructure knowledge and data, it is possible to progress from measuring green infrastructure outputs (eg number of trees planted, increase in canopy cover) to measuring outcomes (eg increased biodiversity, improved community health).

Action:

- Incorporate monitoring and maintenance procedures and budgets in green infrastructure planning and design.



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- ⁱ Hansen R & Pauleit S (2014) From multifunctionality to multiple ecosystem services? A conceptual framework for multifunctionality in green infrastructure planning for urban areas. *Ambio* 43: 516-529
- ⁱⁱ Jerome G, Sinnett D, Burgess S, Calvert T, Mortlock (2019) A framework for assessing the quality of green infrastructure in the built environment in the UK. *Urban Forestry & Urban Greening*. 40 174-182
- ⁱⁱⁱ Goddard MA, Dougill AJ, Benton TG (2009) Scaling up from gardens: biodiversity conservation in urban environments. *Trends in Ecology and Evolution* Vol 25 No 2 90-98
- ^{iv} Ordonez C and Duinker PN (2013) AN analysis of urban forest management plans in Canada: Implications for urban forest management. *Landscape and Urban Planning* 116 36-47
- ^v Clark, J.R, N.P. Matheny, G. Cross, and V. Wake. (1997) A model of urban forest sustainability. *Journal of Arboriculture* 21:17-30.
- ^{vi} Loci Environment & Place (2020) [Better Best Practice Note – Traditional Owner Knowledge for Cities](#).
- ^{vii} Ahern J (2012) Urban landscape sustainability and resilience: the promise and challenges of integrating ecology with urban planning and design. *Landscape Ecology* 28: 1203-1212
- ^{viii} <https://watersensitivecities.org.au/content/lessons-on-offer-from-real-life-wsc-projects/>



Better Best Practice Notes are designed to help practitioners strive for best possibilities in delivering regenerative environments for all communities. We call them Better Best Practice Notes as a reminder that our best is always getting better.

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Last updated December 2020

Attach this Better Best Practice Note next time you request a quote and ask service providers how they can incorporate best possibilities for your project.