Green Infrastructure

Commitment

Government of South Australia
Department for Infrastructure and Transport

Document Amendment Record

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0	Original Version	September 2021	DIT	DIT Executive Director, Transport Planning and Program Development
1	Minor updates to reflect revised canopy figures from 2024 'Urban tree canopy, green spaces and built environment data analysis and reporting'	May 2024	DIT	Principlal Sustainability Advisor

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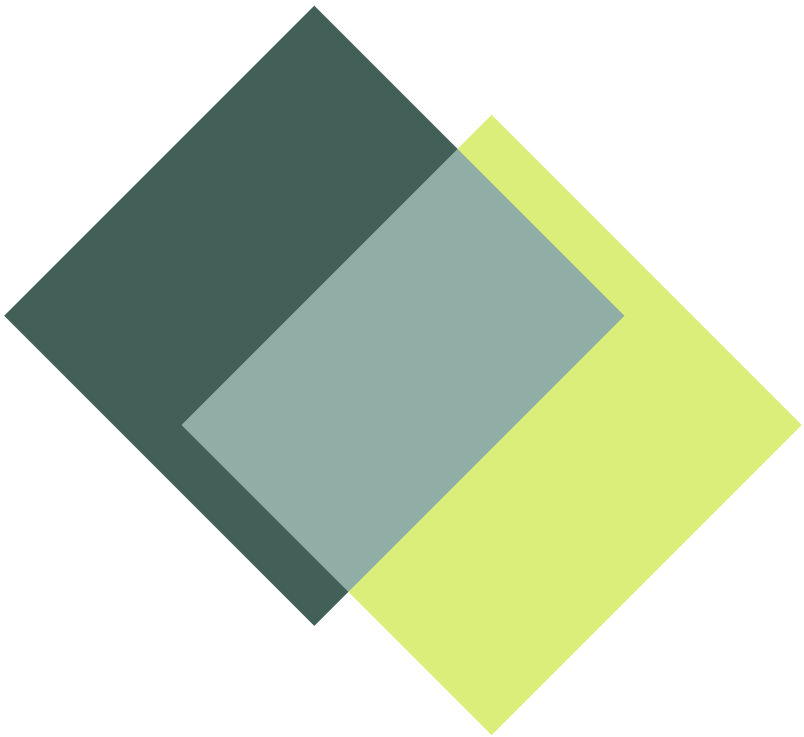
Contents



1. Introduction

South Australia has set a target to increase urban green cover by 20 per cent by 2045, in an effort to maintain community liveability, enhance biodiversity and secure the future of our State in the face of a changing climate and increasing urban density.

Urban heat mapping has identified 'heat islands' in the Adelaide metropolitan area. These areas generally have fewer green spaces, and are considerably hotter on sunny days, making them unpleasant for pedestrians, cyclists and public transport patrons, more energy intensive (in terms of energy demand for cooling buildings), and less resilient to the impacts of climate change.

It is vital that green infrastructure (including trees, parks and water sensitive urban design elements) is increased in these areas – for urban cooling, biodiversity and our physical and mental health. In recognition of this, the Government has committed to accelerate strategic urban greening.

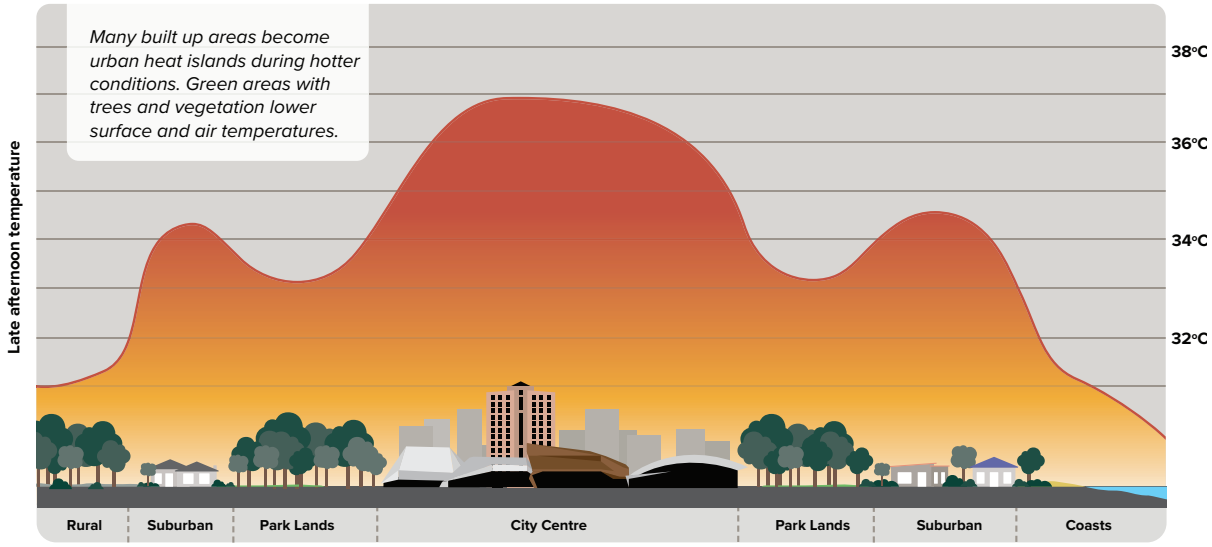


Figure 1.1 The Urban Heat Island Effect: Trees and other vegetation have been shown to reduce land surface temperatures by between 5 and 6 degrees Celsius during heatwaves
(source: SA Government Climate Change Action Plan 2021-25)

The Department for Infrastructure and Transport has a significant role to play in achieving the canopy cover target for Metropolitan Adelaide, due to its significant property portfolio and its role in planning and delivering public infrastructure. As a lead agency, the Department has committed to identify and pursue feasible opportunities to expand green infrastructure (including water sensitive urban design) on public land, focusing on priority areas identified by Green Adelaide, corridors which provide for active travel, and new infrastructure projects[1].

The Department's key focus areas and commitments for green infrastructure are shown in Figure 1.2, and are described in more detail in section 3.

Realising these commitments requires a change in mindset, to acknowledge green infrastructure as an important asset category that the department must deliver and maintain to provide the desired benefits to the community.

"Climate change will impact all areas of our society. Our future prosperity, the liveability of our cities and towns, the health and wellbeing of our communities and the resilience of our built and natural environment all depend on how well we adapt to and mitigate the impacts of climate change. The way in which we manage our built environment will have a direct and long-term impact on our ability to adapt to climate change."

- State Planning Policy 5: Climate Change

'Accelerate urban greening' is one of the key objectives in the SA Government Climate Change Action Plan 2021-25.

DIT has committed to 'identify and pursue feasible opportunities to expand GI (including water sensitive urban design) on public land, focusing on priority areas identified by Green Adelaide, corridors which provide for active travel, and new infrastructure projects'.

- Climate Change Action Plan 2021-25
DIT Implementation schedule

1 SA Government Climate Change Action Plan 2021-25 – DIT implementation schedule

Increase urban canopy cover

1. By 2045 the Department will deliver a 20% increase in canopy cover on departmental managed land (measured from the 2018/19 baseline).

Liveability (including amenity, health and wellbeing)

2. Provide shade trees to improve amenity for pedestrians, cyclists and public transport customers, targeting ≥50% canopy cover over footpaths and bikeways.

Water sensitive urban design (WSUD)

3. Implement WSUD on infrastructure projects to achieve the state WSUD policy performance targets for water quality, peak flow and flood risk.

Biodiversity sensitive urban design

4. Minimise impacts to existing natural ecosystems to maintain ecological value and preferentially retain mature trees including Regulated and Significant trees.
5. Identify and pursue opportunities to improve biodiversity, fauna habitat and connectivity through landscape design and species selection.
6. Minimum 50% of new landscape plantings need to be local native species suited to local conditions.

Figure 1.2 Green infrastructure focus areas and commitments

2. Purpose of this Document

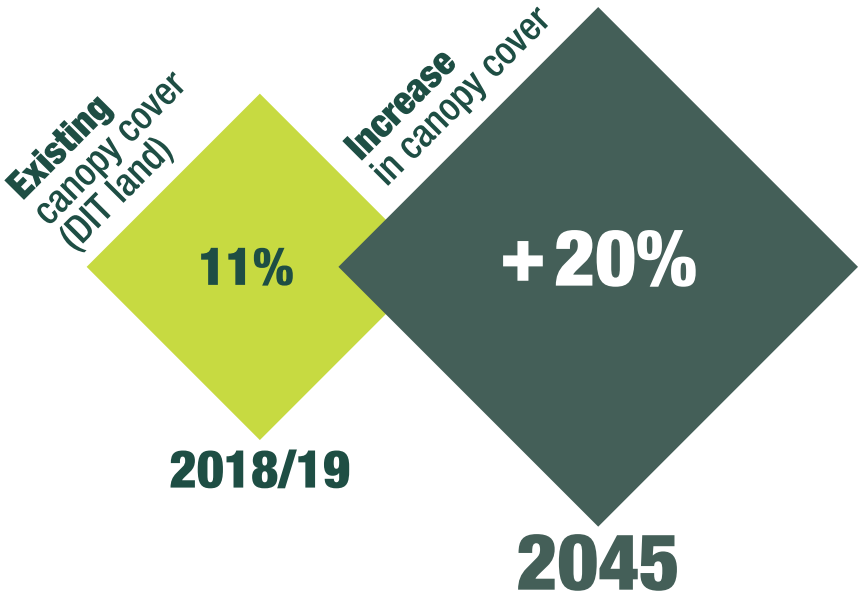
To achieve its objectives for a liveable, resilient and sustainable city, the government has established state-wide and city-wide targets for canopy cover and stormwater runoff. These are summarised in Table 2.1.

This Green Infrastructure Commitment explains the Department's role in achieving these objectives and targets, and the actions it will take to deliver increased green infrastructure on land under the Department's control[2].

This Green Infrastructure Commitment focuses on the urban environment, including the Metropolitan Adelaide region and townships[3] outside of this region, where the social, environmental and economic benefits from provision of increased green infrastructure can be maximised. These areas are most vulnerable to the urban heat island effect, and have greater numbers of residents, pedestrians and cyclists who will directly benefit from increased greening.

This Green Infrastructure Commitment is supplemented by a number of delivery tools, which provide frameworks to ensure compliance with legislative requirements relating to native vegetation and regulated trees, and assessment and decision-making processes to assist staff and contractors to implement this Commitment. These delivery tools are shown in Figure 2.1.

Management of vegetation for bushfire risk mitigation is addressed separately through the Department's Safety Risk and Assurance standards and guidelines.



2 The Green Infrastructure Commitment does not apply to land or assets under the control of other government agencies, except to the extent that it provides a basis for sustainability requirements applying to new government buildings and refurbishments delivered by the Department on other agencies' behalf

3 A Township Zone is defined in the Planning and Design Code as 'a township supporting a range of residential, community, retail, business, commercial and light industry uses and facilities to serve the local community, businesses and visitors.

Table 2.1 Key Government Commitments/Targets for Green Infrastructure

Strategy document	Commitment/target
30 Year Plan for Greater Adelaide (2017 Update)	Urban green cover is increased by 20% in metropolitan Adelaide by 2045 (from a 2014 baseline). Note: increasing canopy cover by 20% applies in council areas which currently have less than 30% canopy cover and maintaining canopy cover in council areas which currently have more than 30% canopy cover.
SA Government Climate Change Action Plan 2021-2025	Accelerate strategic urban greening. Green Adelaide, state government agencies and local councils will work together to identify and map strategic opportunities for green infrastructure to address the urban heat island effect and optimise benefits.
DIT Climate Change Action Plan: Implementation Schedule (2021)	Identify and pursue feasible opportunities to expand green infrastructure (including water sensitive urban design) on public land, focusing on priority areas identified by Green Adelaide, corridors which provide for active travel, and new infrastructure projects.
Water Sensitive Urban Design – Creating more liveable and water sensitive cities in South Australia	Positively manage the quality and minimise the hydrological impacts of urban runoff by implementing water sensitive urban design to achieve the state-wide performance targets: ■ Manage the rate of runoff discharged from the site so that: – it does not exceed the pre-urban development 1 year average recurrence interval (ARI) peak flow (where runoff from these land uses drains to an un-lined watercourse) – the capacity of the existing drainage system is not exceeded and there is no increase in the 5 year ARI peak flow and no increase in flood risk for the 100 year ARI peak flow, compared to existing conditions (for development/ infrastructure that will drain runoff to an existing publicly managed drainage system or to a drainage system such as a creek or watercourse on privately-owned land) ■ Achieve the following minimum reductions in total pollutant load, compared with that in untreated stormwater runoff, from the developed part of the site: – Total suspended solids by 80 per cent; – Total phosphorus by 60 per cent; – Total nitrogen by 45 per cent; – Litter/gross pollutants by 90 per cent.
Green Adelaide Regional Landscape Plan 2021-2026 (Draft)	Drive coordinated, accelerated greening of streetscapes and public spaces to increase the extent and quality of urban green cover.

Refer Appendix 1 for a detailed summary of key government commitments and how they have informed the development of departmental commitments and this Green Infrastructure Commitment.

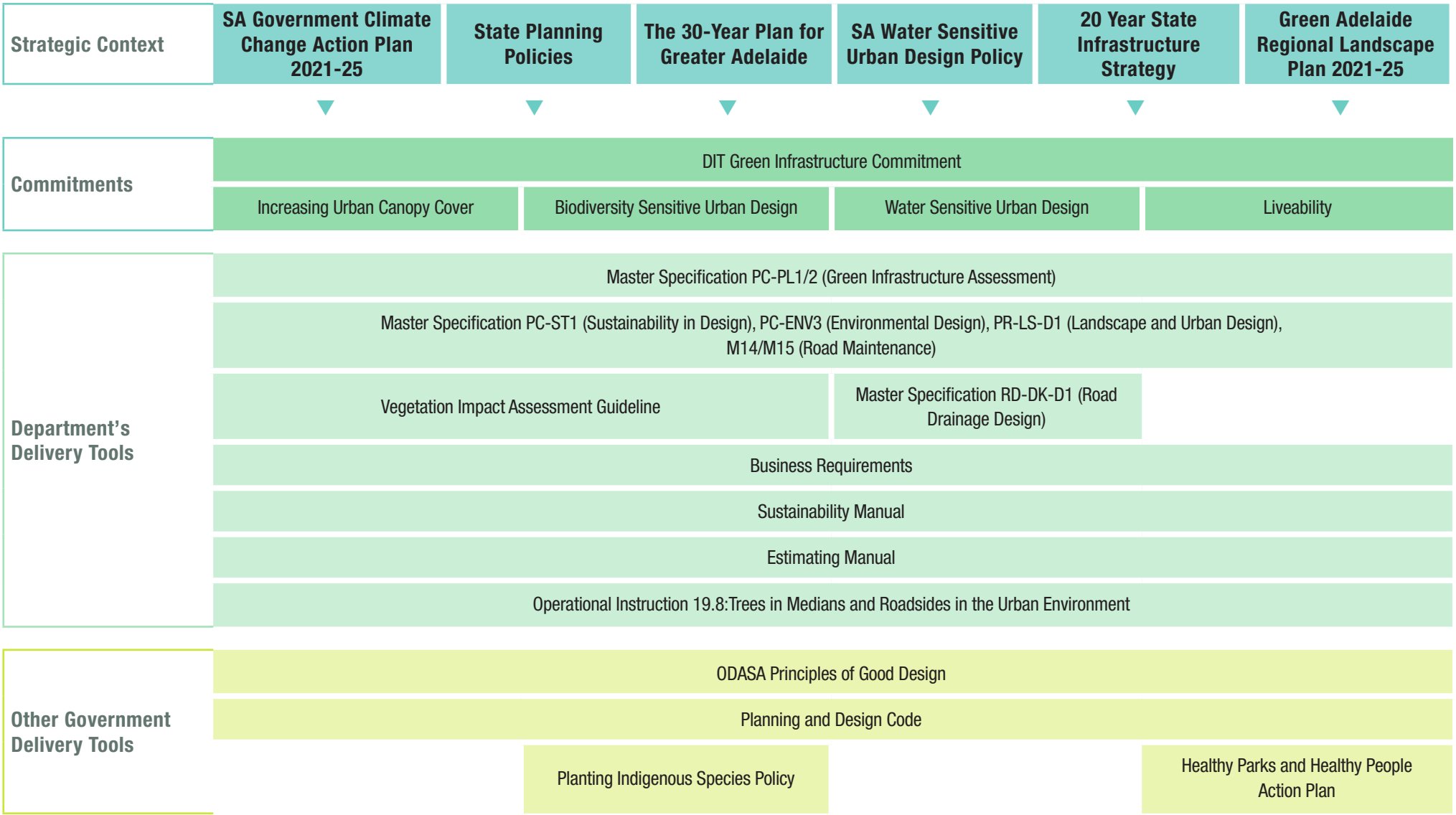
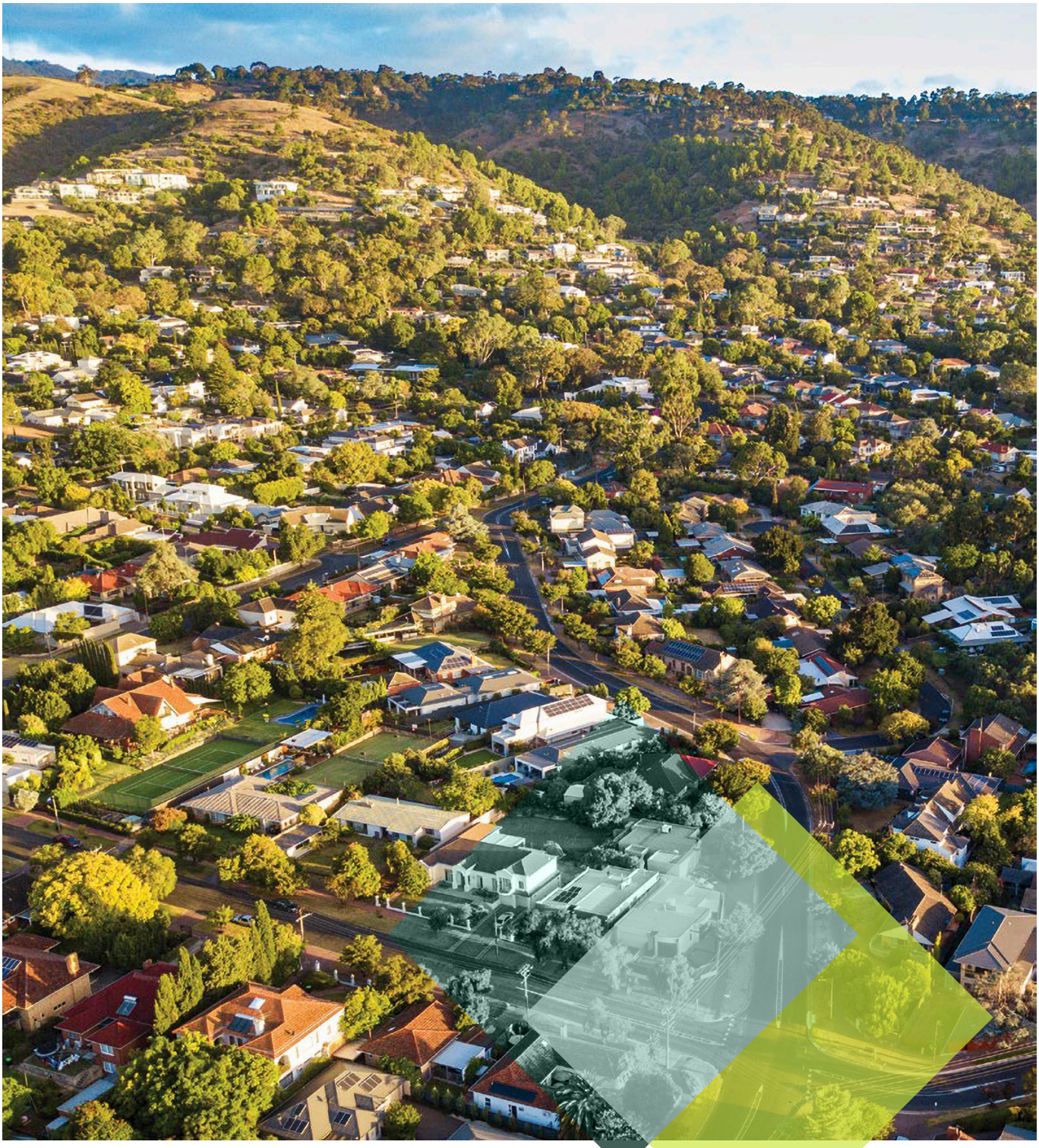


Figure 2.1 **Strategic Context for DIT Green Infrastructure Commitment and Delivery Tools for Implementation**

3. Focus Areas and Commitments



The department's Green Infrastructure commitments focus on:

1. Increasing urban canopy cover
2. Liveability (including amenity, health and wellbeing)
3. Water sensitive urban design
4. Biodiversity sensitive urban design

The commitments are intended to apply to all departmental projects and land. There will however, be some instances where there are no reasonable or practicable options available to achieve the targets. In these cases, the Department will do what is reasonable and practical to maximise achievement of the targets. This may include partnering with other Government agencies, local Government or Landscape Boards to deliver green infrastructure priorities under their jurisdiction.

The rationale and desired outcomes of the Department's commitments in each of these focus areas are described below, along with an overview of how the Department will achieve them. Further details on implementation are provided in the relevant delivery tools.

3.1 Increasing urban canopy cover

Increase urban canopy cover

1. By 2045 the Department will deliver a 20% increase in canopy cover on departmental managed land (measured from the 2018/19 baseline).

Why?

Metropolitan Adelaide has comparatively low levels of tree canopy cover compared to other Australian capitals (refer to Appendix 2), and infill development is leading to further loss. Declining canopy cover, combined with an increase in impermeable surfaces, results in an accumulation of heat in urban areas. It has negative impacts on the health and wellbeing of the community, the environment, and the economy[4]. It can also make cycling, walking and waiting a public transport stops less appealing, thwarting efforts to increase rates of active travel and public transport patronage.

Increasing tree canopy cover is a critically important strategy to reduce the urban heat island effect, increase amenity for our customers and improve liveability and resilience to climate change.

North South Corridor (Regency to Pym project)
Open space on the eastern side of South Road with pedestrian bridge in the background

4 Reference: BDO Econsearch, 2020, 'Options Analysis: Costs and Benefits of Urban Tree Canopy Options for Minor Infill Development in the Planning and Design Code - A Report to the Attorney-General's Department'

How?

The government has committed to increasing urban green cover by 20% across metropolitan Adelaide by 2045. Greening of both private and public land – including transport corridors – will be required to achieve the government's canopy cover target. Changes to the Planning Code will go some way to increasing canopy cover on private residential land. State and local governments also need to identify and pursue opportunities to deliver increased canopy cover on public land.

The Department has control over the arterial road network, certain greenways, the Adelaide Metropolitan Passenger Rail Network (AMPRN) and associated facilities (park and rides, stations etc). It also delivers building projects and manages substantial landholdings on behalf of government. All of these collectively provide opportunities to deliver increased green infrastructure:

Increasing canopy cover through transport infrastructure projects

Infrastructure projects, particularly those which involve land acquisition and disposal can present opportunities to deliver green infrastructure and associated benefits to the community. The Department will seek to capitalise on these opportunities and maximise the benefits to the community by:

1. Assessing opportunities to deliver green infrastructure as part of project planning.

2. Where opportunities exist to deliver green infrastructure, ensuring these opportunities are realised by:

- applying the mitigation hierarchy when undertaking work that has the potential to impact native or amenity vegetation, as well as taking opportunities to deliver increased/enhanced green infrastructure through our work;
- adopting principle of "Size Matters" when choosing tree species, and aim to plant the largest size (at maturity) trees for the space available, having regard for site constraints;
- defining required green infrastructure outcomes (including canopy cover targets where applicable) in projects' business requirements and functional & operational requirements;
- including and tracking delivery of green infrastructure (with the associated social and environmental benefits) in projects' benefit plans;
- ensuring project design and civil construction estimates and land acquisition decisions regarding residual/surplus land allow sufficient budget and space in the corridor to achieve desired green infrastructure outcomes and benefits; and
- reviewing asset management processes to address barriers that currently prevent asset managers accepting maintenance responsibility for new green infrastructure and improve road maintenance specifications to ensure existing landscaping is maintained.

Increasing canopy cover on other land managed by the Department

The Department will seek opportunities to pro-actively deliver green infrastructure on land managed by the Department by:

- establishing existing canopy cover levels for the department's portfolio;
- identifying options to achieve a 20% increase in canopy cover by 2045, with a focus on corridors that provide for active travel;
- shortlisting options having regard to Green Adelaide's greening prioritisation work, land management/access conditions, potential for future development, safety impacts, cost, opportunity to deliver co-benefits (e.g. improving conditions for active travel);
- developing business cases for funding.

James Congdon Drive – Median planting

Increasing canopy cover through building projects

The Department will assist agencies achieve increased greening and liveability by making available its green infrastructure assessment framework and supporting client agencies to embed greening outcomes in project briefs and estimates.

Refer to Figure 2.1 for the delivery tools used to implement this commitment.

James Congdon Drive – Median planting

3.2 Liveability (including amenity, health and wellbeing)

Liveability (including amenity, health and wellbeing)

2. Provide shade trees to improve amenity for pedestrians, cyclists and public transport customers, targeting ≥50% canopy cover over footpaths and bikeways.

Why?

Climate projections for South Australia indicate warmer and drier conditions, with more frequent severe weather events including heatwaves and storms/flooding. These changes will affect our individual health and wellbeing and put additional strain on physical and social infrastructure.

Vegetation in urban areas provides shade and reduces ambient air temperatures, helping to keep us cooler, healthier and happier. Urban greening has been shown to improve physical and mental wellbeing, by improving air quality, reducing stress and promoting more active travel[5],[6].

Provision of shade over footpaths and bikeways plays a significant role in increasing the longevity of pavements, thereby decreasing operational and maintenance costs.

Urban greening also improves visual amenity. Areas with high levels of canopy cover are generally more attractive places to live, work and visit, contributing to community prosperity.

North South Corridor (Regency to Pym project)
Open space on the western side of South Road with pedestrian bridge in the background

How?

The Department will seek to improve liveability by delivering more green infrastructure on transport infrastructure projects and other land managed by the Department (see 3.1 – **Increasing Urban Canopy Cover**). It will seek to maximise the liveability benefits (including climate resilience) by planting shade trees adjacent active travel corridors and footpaths.

Refer to Figure 2.1 for the delivery tools used to implement this commitment.

5 Sugiyama, T, E Leslie, B Giles-Corti, and N Owne, 2008, Associations of neighbourhood greenness with physical and mental health: do walking, social coherence and local social interaction explain the relationships? Journal of Epidemiology and Community Health 69: e9.

6 Astell-Burt, T. & Feng, X., 2019, Association of Urban Green Space With Mental Health and General Health Among Adults in Australia, JAMA Network Open, accessed on 12/08/2019, <https://doi.org/10.1001/jamanetworkopen.2019.8209>

3.3 Water sensitive urban design

Water sensitive urban design (WSUD)

3. Implement WSUD on infrastructure projects to achieve the state WSUD policy performance targets for water quality, peak flow and flood risk.

Why?

WSUD seeks to replace the traditional 'hard' engineering solutions to stormwater management with more sustainable design solutions (such as swales, detention basins, raingardens etc). Using green infrastructure to implement sustainable stormwater design solutions not only assists in the improvement of water quality and the management of flood risks and impacts, but also reduces the flow of pollutants to the coast. Implementing WSUD successfully minimises the need for expensive drainage infrastructure upgrades[7],[8] resulting from increased infill development.

Klemzig Interchange Western carpark – rock lined biofiltration swale.

How?

In planning for transport infrastructure projects, the Department will estimate the space required to achieve WSUD performance targets, and factor this into project estimates and land acquisition decisions. It will include WSUD performance targets in stormwater design specifications, and track the delivery of green infrastructure (including WSUD) in projects' benefit plans.

The Department will improve asset management processes to ensure WSUD assets are appropriately maintained to continue delivering the intended benefits.

North South Corridor (Torrens to Torrens project). Forster Street basin (rail overpass in background)

Refer to Figure 2.1 for the delivery tools used to implement this commitment.

7 Department of Planning, Transport and Infrastructure (DPTI) 2020, Planning Reform Implementation Program. Stage 1 Evidence Gathering (Small-scale residential infill, stormwater management, rainwater tanks and tree planting)

8 Department of Planning, Transport and Infrastructure (DPTI) 2020, Options analysis: The costs and benefits of different stormwater management options and ways of increasing urban tree canopy cover: Part A – stormwater management and rainwater tanks.

3.4 Biodiversity sensitive urban design

Biodiversity sensitive urban design

4. Minimise impacts to existing natural ecosystems to maintain ecological value and preferentially retain mature trees including Regulated and Significant trees.
5. Identify and pursue opportunities to improve biodiversity, fauna habitat and connectivity through landscape design and species selection.
6. Minimum 50% of new landscape plantings need to be local native species suited to local conditions.

Why?

Urbanisation has resulted in decline and fragmentation of native vegetation in South Australia, leading to loss of habitat, biodiversity and ecosystem services. To support a healthy environment and community, the State Planning Policies call for development that provides a connected and diverse network of green infrastructure systems along streetscapes, watercourses, and open spaces[9].

How?

Biodiversity sensitive urban design (BSUD) seeks to create diverse habitats, promote wildlife corridors, ecological processes and encourage positive human-nature interactions. Increasing tree canopy cover alone does not always achieve these objectives.

The Department will ensure new green infrastructure contributes to improved biodiversity by identifying opportunities to improve habitat connectivity, defining the desired characteristics for green infrastructure in projects' functional & operational requirements (for example, particular types of planting, including understory planting, may be specified where habitat connectivity is a priority objective), and prioritising local native species in landscape design. It will minimise impacts to existing natural ecosystems by applying the mitigation hierarchy when planning and delivering infrastructure.

North South Corridor (Regency to Pym project)
Diverse understorey planting at Regency Road-South Road intersection

Refer to Figure 2.1 for the delivery tools used to implement this commitment.

9 State Planning Commission (2019), State Planning Policies for South Australia, <https://plan.sa.gov.au/__data/assets/pdf_file/0005/552884/State_Planning_Policies_for_South_Australia_-_23_May_2019.pdf>

Figure 3.1 Mitigation Hierarchy

North South Corridor (Torrens to Torrens project)
Cedar Ave, Croydon, Gross pollutant and sediment basin

4. How will the Department measure success?

The Department will use the following Key Performance Indicators to measure progress against its green infrastructure commitments:

Table 4.1 Key Performance Indicators

Key Focus Area	Commitment	Key Performance Indicator
Increase urban canopy cover	1. By 2045 the Department will deliver a 20% increase in canopy cover on departmental managed land (measured from the 2018/19 baseline).	% canopy cover on departmental managed land; road network, rail network and other departmental properties[10] % projects meeting/exceeding 20% increase in canopy cover[10]
Liveability (including amenity, health and wellbeing)	2. Provide shade trees to improve amenity for pedestrians, cyclists and public transport customers, targeting ≥50% tree shade cover on footpaths and bikeways.	% tree shade cover provided for new footpaths and bikeways[10]
Water sensitive urban design	3. Implement WSUD on infrastructure projects to achieve the state WSUD policy performance targets for water quality, peak flow and flood risk.	Achievement of WSUD targets
Biodiversity sensitive urban design	4. Minimise impacts to existing natural ecosystems to maintain ecological value and retain mature trees including Regulated and Significant trees. 5. Identify and pursue opportunities to improve biodiversity, fauna habitat and wildlife corridors through civil and landscape design and species selection. 6. Minimum 50% of new landscape plantings need to be local native species suited to local conditions.	% of local native species planted in new landscaping

10 This KPI will be measured following implementation of new tracking system

5. References

DSM GeoData Limited, 2024, Urban tree canopy, green spaces and built environment data analysis and reporting
https://data.environment.sa.gov.au/Climate/Data-Systems/Urban-Heat-Mapping/Pages/default.aspx

BDO Econsearch, 2020, 'Options Analysis: Costs and Benefits of Urban Tree Canopy Options for Minor Infill Development in the Planning and Design Code - A Report to the Attorney-General's Department'
https://plan.sa.gov.au/__data/assets/pdf_file/0008/730745/Options_Analysis_-_Costs_and_Benefits_of_Urban_Tree_Canopy_Options_for_Minor_Infill_Development.pdf

Green Adelaide, Regional Landscape Plan 2021-26 (Draft)
https://yoursay.sa.gov.au/green-adelaide-regional-landscape-plan

South Australian Government, 20-Year State Infrastructure Strategy
https://www.infrastructure.sa.gov.au/our-work/20-year-strategy

South Australian Government, Climate Change Action Plan 2021-2025
https://www.environment.sa.gov.au/topics/climate-change/climate-change-action-plan-2021-2025

South Australian Government, Creating Greener Places for Healthy and Sustainable Communities
https://www.sahealth.sa.gov.au/wps/wcm/connect/61d3348e-4737-4167-970a-77a54dd21bbb/95496+BSA+HPHP+Quality+Green+Public+Spaces+Principles+V8.pdf?MOD=AJPERES

South Australian Government, The 30-Year Plan for Greater Adelaide, 2017 Update
http://livingadelaide.sa.gov.au/

South Australian Government, Water Sensitive Urban Design – Creating more liveable and water sensitive cities in South Australia
http://www.environment.sa.gov.au/files/516f3ac2-16ff-43fd-b078-a26900b99a81/water-sensitive-urban-design-policy-gen.pdf

State Planning Commission, State Planning Policies for South Australia
https://plan.sa.gov.au/__data/assets/pdf_file/0005/552884/State_Planning_Policies_for_South_Australia_-_23_May_2019.pdf

Appendix 1 – Key Government Commitments for Green Infrastructure

Strategic Commitment Documents	Target/Action/Goal	Description	Focus Areas for Green Infrastructure: Increasing Urban Canopy Cover	Biodiversity Sensitive Urban Design	Liveability	Water Sensitive Urban Design
30-Year Plan for Greater Adelaide	Target 5 – A Green Liveable City	**Urban green cover** is increased by 20% in metropolitan Adelaide by 2045.	✓			
	Health, Wellbeing and Inclusion – Policy 49	**Encourage more trees** (including productive trees) and **water sensitive** urban landscaping in the private and public realm, reinforcing neighbourhood character and creating cooler, shady and walkable **neighbourhoods** and access to nature.	✓		✓	✓
	Open Space, Sport and Recreation – Policy 103	Ensure that public open space is **adequately greened** and irrigated (where appropriate) to act as a natural cooling system to reduce heat island effects in urban areas.	✓		✓	✓
	Climate Change – Policy 111	Create a more liveable urban environment through establishing a **network of greenways**, bicycle boulevards, **tree-lined streets** and open spaces, which will have a cooling effect on nearby **neighbourhoods** and buildings.	✓		✓	
	Policy Theme – Climate Change, Action 63	Pursue opportunities to plant **urban green cover** along arterial roads, rail corridors and medians where safe to do so.	✓			
	Emergency Management and Hazard Avoidance – Policy 122	Mitigate the impact of extreme heat events by designing development to create **cooler communities** through the use of **green infrastructure**.	✓		✓	
	Biodiversity – Policy 92	Support the **enhancement** of the **urban biodiversity** of metropolitan Adelaide through the development of greenways in transit corridors, along major watercourses, linear parks and the coast and in other strategic locations.		✓		
	Biodiversity – Policy 94	**Protect** the natural and rural landscape character of the Hills Face Zone and ensure that land uses in this zone contribute to this landscape backdrop and area of significant **biodiversity**.		✓		

Strategic Commitment Documents	Target/Action/Goal	Description	Focus Areas for Green Infrastructure: Increasing Urban Canopy Cover	Biodiversity Sensitive Urban Design	Liveability	Water Sensitive Urban Design
30-Year Plan for Greater Adelaide	Biodiversity – Policy 95	Support the **enhancement** of the **urban biodiversity** of metropolitan Adelaide through a connected and diverse network of green infrastructure.		✓		
	Biodiversity – Policy 97	**Minimise** or offset the **loss of biodiversity** where this is possible and avoid such impacts where these cannot be mitigated (for areas not covered by the Native Vegetation Act 1991).		✓		
20-Year Infrastructure Strategy	Strategic Context – Maintaining Liveability	Open and **green spaces** are important for the liveability of a community and as the world becomes more urbanised, **green infrastructure** will play an increasingly important role to maintain that **liveability**, particularly as it helps mitigate some of the impacts of a hotter climate.	✓		✓	
	Strategic Context – Ensuring Sustainability and Resilience	The following are examples of how climate change impacts can be addressed during infrastructure planning: Consider the application of **green infrastructure** such as green walls and facades, green roofs, onsite rainwater harvest and use, trees, gardens and plantings to maximise shade.	✓			✓
	Strategic Context – Urban Areas	Appropriate infill development should be encouraged. This should comprise diversity in the housing stock to meet different household profiles, as well as provide sufficient open space that is **green and shaded** to maintain **liveability** and support activity and wellbeing.	✓		✓	
	Future Priorities: Develop a South Australian Sustainable Water Resources Framework – Priority 34	An **urban water** direction statement for Adelaide and South Australian towns that optimises the use of all water sources to support growth and **greening** in a changing climate.	✓			✓

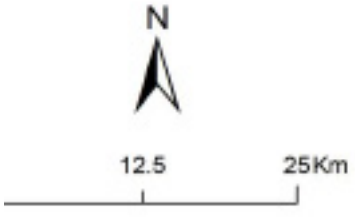
Strategic Commitment Documents	Target/Action/Goal	Description	Focus Areas for Green Infrastructure: Increasing Urban Canopy Cover	Biodiversity Sensitive Urban Design	Liveability	Water Sensitive Urban Design
Climate Change Action Plan 2021-2025	Adaption to the changing climate	**Urban greening** and **water sensitive urban design** to create greener, cooler and more **liveable** neighbourhoods.	✓		✓	✓
	Action 5.8	Identify strategic opportunities for **urban greening** in metropolitan Adelaide - Green Adelaide, state government agencies and local councils will work together to identify and map strategic opportunities for **green infrastructure** to address the urban heat island effect and optimise benefits.	✓			
	Action 5.10	Increase implementation of **green infrastructure** through capacity building and incentives - Green Adelaide and state government agencies will collaborate on an integrated program of measures to **increase greening** in public and private spaces, including funding grants, capacity building, and greening of suitable infrastructure projects.	✓		✓	
Green Adelaide Regional Landscape Plan 2021-26	Biodiversity Sensitive and Water Sensitive Urban Design - Goal	Build industry and community capacity to design **cooler and greener infrastructure**: - WB1 Facilitate and incentivise best practice BSUD and WSUD in new developments, major transport corridors, public open spaces and local streetscapes.		✓		✓
	Green Streets and Flourishing Parklands - Goal	Increase the extent and quality of **urban green cover**: - G1 Drive coordinated, accelerated greening of streetscapes and public spaces - G2 Encourage the protection of trees and incentivise greater greening of private land through the new planning system and other levers - G3 Identify priority locations for improved urban greening and define what success looks like in different contexts.	✓	✓		

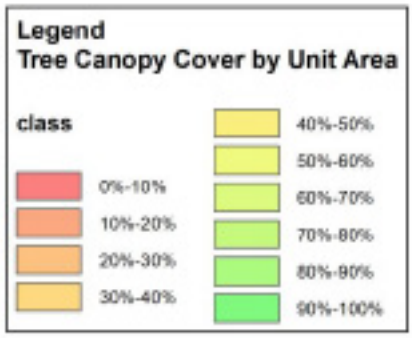
Strategic Commitment Documents	Target/Action/Goal	Description	Focus Areas for Green Infrastructure: Increasing Urban Canopy Cover	Biodiversity Sensitive Urban Design	Liveability	Water Sensitive Urban Design
Water Sensitive Urban Design – Creating more liveable and water sensitive cities in South Australia	Water Conservation – State-wide Performance Target	Irrigated open spaces: evidence demonstrating reasonable effort in promoting best practice irrigation management in outdoor irrigated open spaces.				✓
	Runoff Quality – State-wide Performance Target	Achieve the following minimum reductions in total pollutant load, compared with that in untreated stormwater runoff, from the developed part of the site: - Total suspended solids by 80%; - Total phosphorous by 60%; - Total nitrogen by 45%; - Litter/gross pollutants by 90 %.				✓
	Integrated Design – State-wide Performance Target	Evidence that relevant stakeholders are engaged at appropriate stages of planning, designing, constructing, and managing **WSUD measures** so as to maximise the potential for WSUD to contribute to **green infrastructure** and other relevant State, regional, and local objectives.	✓			✓
State Planning Policies for South Australia	Objective 2: To elevate the design quality of South Australia's built environment and public realm	Provide a diverse range of high quality green public open spaces and streetscapes, particularly in areas of growth and renewal.	✓		✓	
	Objective 4: To maintain and improve our state's biodiversity and its life supporting functions.	Enhance the biodiversity of urban areas and townships through a connected and diverse network of green infrastructure systems along streetscapes, major watercourses, linear parks, open space, the coast and other strategic locations.		✓		

Strategic Commitment Documents	Target/Action/Goal	Description	Focus Areas for Green Infrastructure: Increasing Urban Canopy Cover	Biodiversity Sensitive Urban Design	Liveability	Water Sensitive Urban Design
State Planning Policies for South Australia	Objective 5: Provide for development that is climate ready so that our economy, communities and environment will be resilient to climate change impacts.	Mitigate the impacts of rising temperatures by encouraging water sensitive urban design, green infrastructure and other design responses.	✓		✓	✓
	Objective 15: To build the resilience of communities, development and infrastructure from the adverse impacts of natural hazards.	Mitigate the impact of extreme heat events by designing public spaces and developments to create cooler microclimates through the use of green infrastructure and water sensitive urban design.	✓		✓	✓
Creating Greener Places for Healthy and Sustainable Communities	Objective – Connect with Nature	**Promote green open space** that maximises seasonal opportunities for shade and access to sunlight, cooling breezes, protection from cold winds and shelter from the rain.	✓			
	Objective – Deliver connectivity and access for all	**Promote greener, shadier streetscape networks** that better accommodate pedestrians and cyclists.	✓		✓	
	Objective – Support Resilient Neighbourhoods	**Encourage green open spaces** that reduce and mitigate the effect of Urban Heat Islands.	✓			
	Objective – Connect with nature	**Create biodiversity** sites and habitats for native flora and fauna.		✓		
	Objective – Connect with nature	Extend natural system networks and ensure the **enhancement of biodiversity** and habitat value.		✓		

Strategic Commitment Documents	Target/Action/Goal	Description	Focus Areas for Green Infrastructure			
			Increasing Urban Canopy Cover	Biodiversity Sensitive Urban Design	Liveability	Water Sensitive Urban Design
Creating Greener Places for Healthy and Sustainable Communities	Design Responses – Connect with nature	**Retain** and protect **existing natural features** within open spaces to **increase ecological value**, especially mature trees including Regulated and Significant trees.	✓	✓		
	Design Responses – Connect with nature	Deliver ongoing management to maintain the resilience, health and **biodiversity** of **green open space** and natural landscapes.	✓	✓		
	Objective – Contribute to neighbourhood character	**Promote planting designs** that respond to the **ecology**, soil type, micro-climate, local landscape character and cultural values.		✓		
	Objective – Support resilient neighbourhoods	Design Responses: Design and plan **green open space** to manage stormwater to improve water quality and facilitate **Water Sensitive Urban Design**.	✓			✓

Appendix 2 – 2018/19 canopy cover for Metropolitan Adelaide





Source: DSM GeoData Limited, 2024, 'Urban tree canopy, green spaces and built environment data analysis and reporting'

Appendix 3 – Delivery Tools for Green Infrastructure

Listed in Table 1 are delivery tools available to provide green infrastructure commitments.

Table 1 Available delivery tools for Green Infrastructure

Delivery Tool	Description	Owner
Master Specification Planning Part PC-PL1	This Part describes the key tasks and outputs of Planning Studies, including the Preliminary Business Requirements report, Business Case and Concept Design. It establishes requirements for ranking and assessment methodologies to ensure selection of project options considers the outcomes of the planning investigations (e.g., environment, heritage, greenhouse impacts and opportunities to deliver green infrastructure).	DIT
Master Specification Planning Part PC-PL2	This Part defines Planning Investigations undertaken during a Planning Study to provide the Department with information on project constraints, risks and opportunities, including green infrastructure opportunities. This information is used by decision makers to select project option(s) that maximise benefits and minimise negative impacts. It establishes the requirements for a green infrastructure assessment.	DIT
Road Drainage Design - Master Specification	The Design Standard specifies the requirements for undertaking the design and documentation of stormwater systems associated with Department road infrastructure, including the requirement to meet the SA WSUD Policy targets for water quality and peak flow.	DIT
Landscape and Urban Design - Master Specification	Specifies the requirements for the urban and landscape design. It provides design criteria which serve to encourage design excellence for infrastructure in the build environment and public realm. It includes the design of elements such as hard and soft landscaping treatments, the architecture of structures (e.g. bridges, buildings, noise barriers, retaining walls, road furniture and fences), the design of public spaces and cultural and creative elements.	DIT & ODASA
Master Specification Planning Part PC-ENV3 – Environmental Design	This Standard Specification sets out the minimum environmental requirements for the design of the works under the Contract.	DIT
Master Specification Planning Part PC-ENV1 – Environmental Management	This Part specifies the requirements for the Contractor's Environmental Management and Environmental Management Systems (EMS) Requirements.	DIT
Master Specification Part PC ENV 2 – Environmental Protection Requirements	This Part specifies the minimum environmental protection requirements that the Contractor shall comply with. The requirements specified in this part apply unless stated otherwise by the Principal. It shall apply in conjunction with PC-EN1 "Environmental Management".	DIT

Delivery Tool	Description	Owner
Rail Electrification – Vegetation Planting Guidelines.	The Electrification of the rail network forms part of the State Government's unprecedented ongoing investment in public transport. Together with the delivery of new trains, an electrified rail network will result in a modern, environmentally friendly and efficient train service. The Vegetation Planting Guidelines below have been prepared to assist in adapting and maintaining the landscapes adjacent to the rail corridor.	DIT
Road Maintenance Specification – M7 Environmental Management	This Part specifies the requirements for the Contractor's Environment Management System (EMS). The requirements specified in this Part apply unless stated otherwise in the Contract Specific Requirements.	DIT
Road Maintenance Specification – M8 Environmental Protection	This Part sets out the minimum Environmental Protection requirements.	DIT
Road Maintenance Specification – M9 Sustainability	This Part specifies the requirements for understanding impacts and investigating and implementing initiatives to improve the sustainability of the Works.	DIT
Road Maintenance Specification – M14 Maintenance - Vegetation	This Part specifies the requirements for vegetation maintenance activities.	DIT
Road Maintenance Specification – M15 Vegetation Maintenance Controls	This Part specifies: a) the requirements for tree pruning, tree removal and stump removal, including the pruning and removal of vegetation for maintenance purposes; and b) the requirements for herbaceous and woody weed control and the herbicide control of roadside vegetation for maintenance purposes.	DIT
Benefits Framework	The Department's benefits framework sets out the key outcomes and benefits that it wants to achieve through investment in infrastructure, services and planning. Project/ program owners must identify the benefits that will be delivered through their project in the proving phase, and undertake regular reviews throughout the delivery phase to ensure the project is on track to delivering the agreed benefits.	DIT
Business Requirements	The Business Requirements documents the agreed outcomes and objectives for a project.	DIT
Green Infrastructure Assessment	The assessment forms part of the Planning Investigations for projects where there is a need/ opportunity to deliver green infrastructure. It: ■ investigates and maps opportunities and constraints for delivery of green infrastructure on an infrastructure project ■ identifies the anticipated benefits of the green infrastructure to adjacent landowners/ occupants, the broader community and the environment (for inclusion in the project's benefits register) ■ recommends actions to ensure green infrastructure outcomes and benefits are realised on the project.	DIT

Delivery Tool	Description	Owner
Vegetation Impact Assessment Guideline	The Vegetation Impact Assessment Guideline (formerly referred to as the DIT Vegetation Removal Policy) outlines the responsibilities of DIT in relation to activities affecting vegetation. The Policy details the procedures for obtaining approvals associated with vegetation removal and outlines the requirements for remediation measures.	DIT
Protecting Waterways Manual	The Protecting Waterways Manual provides guidance on assessing the impacts on water quality and aquatic environments from the construction, operation and maintenance of transport infrastructure. It provides a guide to planners, designers, construction managers and asset managers on addressing the issues, undertaking risk assessment and selecting suitable management practices for transport infrastructure projects.	DIT
Sustainability Manual	This Manual outlines the framework and tools for sustainable decision making and describes specific requirements for investigating and implementing initiatives to improve the sustainability of assets during the planning, design, construction and maintenance phases. It establishes the circumstances where an green infrastructure assessment is required in transport project planning, and what that should entail.	DIT
Trees in Medians and Roadsides in the Urban Environment, Operational Instruction 19.8	Provides direction to traffic engineering practitioners, landscape architects and planners when considering tree planting in raised medians and roadsides within Departmental road corridors. These guidelines aim to balance the safety risk to road users with the community expectations of enhancement of the public realm through planting of trees and other vegetation.	DIT
South Australian Government Healthy Parks Healthy People, Action Plan 2: Quality Green Public Space	The initiative recognises the fundamentals connections between human health and environmental health and aims to ensure all South Australians experience the health and wellbeing benefits of nature. The goal of the Healthy Parks Healthy People SA approach is conserving, protecting and promoting the benefits of nature, especially in parks, which relies on strong partnership with different groups – Aboriginal, education, environment, health, primary industries, social inclusion and urban planning.	DEW & Department for Health and Wellbeing
Planting Indigenous Species Policy	The policy states the Government of South Australia's commitment to the planting of indigenous native vegetation on government managed land and projects.	DEW
Planning and Design Code	The Planning and Design Code consolidates the planning rules contained in South Australia's 72 Development Plans into one rulebook.	Attorney-General's Department
Principles of Good Design	The Principles of Good Design focus on how buildings and places can meet the needs of the people who use them. Best-practice principles demonstrate the government's commitment to achieving design excellence in South Australia's built environment.	ODASA