



GREEN SPACE ALLIANCE

IMPROVING URBAN LIVEABILITY

A DISCUSSION PAPER ADDRESSING HOW
URBAN PLANNING AND WATER MANAGEMENT
POLICY IN PERTH IMPACTS LIVEABILITY



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This document has been prepared by Josh Byrne & Associates on behalf of the Green Space Alliance.

Green Space Alliance Member Organisations



Australian Institute
of Landscape Architects



Australian
Institute of
Horticulture
Inc.



BELMONT • CITY OF OPPORTUNITY



LANDSCAPE
INDUSTRIES
ASSOCIATION
WESTERN AUSTRALIA



Nursery & Garden Industry
Western Australia



PARKS & LEISURE
AUSTRALIA
(WA)



Sports Turf Association
STA
WA Incorporated



Tree Guild of Western
Australia



TGA
Turf Growers Association
of Western Australia Inc.

EXECUTIVE SUMMARY

This Discussion Paper (and accompanying Position Statement) have been prepared on behalf of the Green Space Alliance to impress upon government the urgent need for policy reform to ensure the provision of sufficient, quality green space for Perth. The Green Space Alliance (GSA) is a group of Western Australian amenity horticulture industry groups and aligned organisations working together to promote the benefits of green space in all its forms, including parks and recreational reserves, civic spaces, residential gardens and the urban forest more broadly.

This Discussion Paper provides an overview to the green space challenges Perth faces and addresses key areas of concern including Planning and Development, Community Wellbeing and Water Security in turn. Recommendations have been developed by the GSA with the aim of supporting the provision of sufficient, quality green space for Perth now and into the future.

CURRENT SITUATION

- The growth of Perth places great pressure on land space and water resources, and as a result the provision of green space has become a major challenge.
- The value of green space is not adequately understood or acknowledged, resulting in constrained funding opportunities.
- Perth has now reached a critical point in time at which action must be taken to protect existing and future green space in all its forms.

CURRENT IMPACT

- Planning and water management policies do not sufficiently support the protection of existing green space, nor the creation of adequate new green space.
- Due to a lack of guidance, the form, location and quality of new public green space is often inappropriate or insufficient.
- The quality of existing public open space is significantly compromised by water supply and allocation constraints.

FUTURE IMPACTS

- Without action, the supply of future public and private green space will be further limited by land availability and water supply constraints.
- Without sufficient green space the quality of life and wellbeing of Perth residents will be significantly compromised. Key wellbeing issues include:
 - Increased health risks and deaths as a result of the urban heat island effect.
 - Reduced opportunities for physical activity and improved mental health outcomes.
 - Increased bushfire risk.
- The cost of managing community wellbeing concerns will increase as public health levels are impacted by reduced access to green space.

CURRENT ACTIVITIES

- The WA Government has been undergoing a period of planning reform to address development concerns, including green space.
- The Australian Government is taking steps to address green space through participation in an industry led national Living Cities Workshop and the development of a national Cities Policy.
- The 2020 Vision initiative is leading national activities to encourage the creation of more green space.
- At a local level, the Green Space Alliance has been formed and developed this Discussion Paper and accompanying Position Statement to encourage policy reform and greater industry participation in this process.

GREEN SPACE ALLIANCE RECOMMENDATIONS

- The Western Australian Planning Commission's current Planning Review for Better Design process should respond to green space concerns by improving planning policy to provide greater protection for existing vegetation, and establish minimum green space needs within new development at lot and precinct scales.
- The WA Government's proposed Water Resources Management Bill should protect potable water resources by developing non-potable water use targets for irrigation to facilitate the uptake of fit-for-purpose water sources to meet green space requirements.
- The WA Government and Local Governments should develop Green Space Strategies which plan for the management of green space and identify green space targets. Management policies, such as bushfire mitigation and roadside vegetation legislation should reflect growing awareness of the value of vegetation and better address linkages to water sensitive urban design.
- In partnership with industry, the WA Government should undertake research that quantifies the value of green space in Perth. Consideration should also be given to allocating sufficient funds towards State and Local Government green space enhancement activities.
- The WA Government should undertake transparent consultation with industry and the community to ensure the value of urban green space is embedded in legislation and relevant policy instruments, including prioritising the passage of the Public Health Bill 2014 through Parliament, supported by a Public Health Outcomes Framework, which considers how green space contributes to health and wellbeing.



1 INTRODUCTION

The Green Space Alliance (GSA) has developed this Discussion Paper and accompanying Position Statement to impress upon government the urgent need for policy reform to ensure the provision of sufficient, quality green space for Perth.

The GSA believes Perth has reached a critical point in time at which action must be taken to protect existing and future green space in all its forms, including parks and recreational reserves, civic spaces, residential gardens and the urban forest more broadly. Without this, the quality of life and wellbeing of Perth residents will be significantly compromised. Key wellbeing issues include:

- Increased health risks and deaths as a result of the urban heat island effect.
- Reduced opportunities for physical activity and improved mental health outcomes.
- Increased bushfire risk.

Perth has historically been well served with diverse, high quality green space and the outdoor lifestyle that this affords has been an identifying feature of Perth's culture. As the metropolitan area continues to densify to accommodate population growth and to limit urban sprawl, competition for developable land is an ever present issue.

GREEN SPACE ALLIANCE VISION

To live in a community that values green spaces at its core, which deliver benefits to everyone through improved health, wellbeing and liveability by using innovative water and urban planning solutions.



In addition, Perth faces significant water security challenges with the likelihood of further water restrictions being placed on outdoor uses.

Perth's green space challenges primarily relate to planning and development and water security, with the impacts having major consequences for community wellbeing and public health. While in recent years there has been much discussion around these issues, the WA Government is yet to progress major policy change to address these concerns. The GSA recognises that there are no easy solutions to these challenges, and acknowledges that it does not have all the answers, however there are a range of opportunities available to address the persistent inequality in green space provision.

There is overwhelming evidence demonstrating the benefits of green space, including improved community health, provision of ecosystems services and increased property values to name a few (Ely and Pitman, 2012; Kardan *et al*, 2015; Burden, 2006).

The GSA believes that Perth's green spaces are a major tourism drawcard. Tourism generated nearly \$9 billion for WA in 2014/15 (Hames, 2016) with Perth, the gateway and most popular destination, contributing around half of that value (Tourism WA, 2015). During the same period there were 9 million intrastate, interstate and overseas visitors (Tourism WA, 2015) to WA, with around 1.23 million of those tourists visiting Kings Park and the Botanic Gardens alone (BGPA, 2015).

Despite knowledge of the value of green space, a major barrier to the provision of sufficient quality green space is the identification of revenue sources. Current approaches which recognise economic gain are not suitable for determining the value of green space (thereby providing supporting evidence for the allocation of funds towards green space), therefore new financial models are required. Against the backdrop of a constrained economic climate and expectations that government achieve more with less, this is particularly pertinent.

With the Australian Government taking steps to address green space through participation in an industry led national Living Cities Workshop and the development of a national Cities Policy (Fletcher, 2016), it is timely that the WA Government takes action. Aligned with these efforts, the 2020 Vision, a collaboration of organisations from around Australia working together to create 20% more green space in our urban areas by 2020, is gaining significant traction and support from government. The GSA wishes to assist government and has identified a range of principles and recommendations to support better outcomes for green space in Perth.



1.1 THE GREEN SPACE ALLIANCE

In 2014 a group of WA amenity horticulture industry groups and aligned organisations formed the Green Space Alliance (GSA). Prior to the formation of the GSA, WA Government Ministers and their Departments would interact with a number of individual groups on industry matters. The GSA recognised that a coordinated voice would provide the means for efficient and clear communication and so came together to develop a shared position on issues impacting industry and the community more broadly.

The GSA will lead and coordinate industry communications and advocacy efforts to promote better policy outcomes for Perth and will provide the following services on behalf of Perth's green space industry:

- Act as an advocacy and consultative body for policy makers.
- Provide a conduit through which research, data collection and technical expertise can support efforts of the wider industry.
- Provide a co-ordinated voice for the delivery of consistent messages to industry and the community.
- Be a single point of contact for government and the media.

The GSA is a keen supporter of the 2020 Vision initiative and the GSA's supporting organisations include members of the 2020 Vision network.



GSA Member Organisations

Parks and Leisure Australia (WA)
Nursery & Garden Industry Association WA
Landscape Industries Association WA
Tree Guild WA
Turf Growers Association WA
Sports Turf Association (WA)
City of Belmont
Australian Institute of Horticulture
Australian Institute of Landscape Architects WA

GSA Observing Organisations

Urban Development Institute of Australia WA
Horticulture Media Association Australia WA
Water Corporation of Western Australia
The Department of Water
The Department of Sport and Recreation

Green Space Terminology

Terminology and language in this field can be unclear and wording is often used interchangeably. In addition to 'green space' common terms employed are the 'urban forest', 'public open space' and 'green assets'. The use of these terms often differs depending upon context, jurisdiction and intent.

The focus of this Discussion Paper is amenity green space provided in the urban built environment. The GSA defines green space as all vegetated areas (inclusive of trees, shrubs, flowers and turf) on public and private land, including:

- Parks and sports grounds.
- Schools and Universities.
- Private, commercial and industrial parks and gardens.
- Community gardens and urban orchards/farms.
- Street trees and green roadside verges.
- Green roofs and walls.
- Natural and constructed areas of bushland, parkland and wetlands.

The GSA wishes to emphasise that quality green space is well located, designed, constructed and maintained.

In Western Australia, green space is supported by a strong, dynamic amenity horticulture industry which provides jobs for an estimated 12,000 people and an annual turn-over of \$1.7 billion (WA Turf Industry, 2012).

The Green Space Alliance has identified a set of priority principles to support the creation and management of green space in Perth. The Green Space Alliance believes WA Government policy should:

1. Improve liveability by placing greater prominence on green space in the planning process and prioritise the creation of sufficient, quality designed public open space.
2. Prioritise water resources, improve water management practices and support ongoing research and demonstration of innovative urban water management solutions to sustain quality green space.
3. Recognise Perth's unique green space and enhance biodiversity protection and management practices.
4. Recognise the value of the health and economic benefits green space generates for WA and ensure appropriate resourcing and funding.
5. Promote ground-up engagement and communication across the community, industry and government to increase end-user involvement, and support social equity outcomes.

The interlinked nature of these principles provides opportunities for coordinated policy responses which break-down the existing policy silo's and promote integrated action by government. Engaging key stakeholders across government, industry and the community will be essential for successful policy outcomes.

1.2 OBJECTIVES OF THIS DISCUSSION PAPER

The formation of the united industry position described in this Discussion Paper has been an 18 month process, enabled by a grant from the Department of Sport and Recreation (DSR), wide ranging consultation and much industry goodwill.

This document and the accompanying Position Statement have been primarily developed for the use of government decision-makers working in this field. The GSA also intends this document to provide a point of reference for advocating Perth's unique environment and, additionally:

- Provide guidance for those working in the green space industry, specifically:
 - Develop an understanding of the policy and planning structures in WA.
 - To illustrate where the green space industry fits within the WA greenspace planning framework.
 - Identify potential opportunities for industry involvement and contribution.
- Document the current position industry holds, preferred future positions and how industry can support those outlooks.

The GSA believes these resources will also be of interest to industry and the broader public as an awareness raising tool and communicate the key issues facing green space development in Perth.

The GSA has provided a range of recommendations in this Discussion Paper to help guide the development of sufficient quality green space in Perth. Whilst developed for Perth and its surrounds, the GSA believes these recommendations are also relevant for urban areas in regional WA.



Key Points

- The growth of Perth places enormous pressure on land and water resources, and as a result the provision of green space has become a major challenge.
- The value of green space is well documented, but not adequately understood or acknowledged.
- Perth has reached a critical point in time at which action must be taken to protect existing and future green space in all its forms.
- Research shows that tree canopy coverage and active open space are both under threat and will be negatively impacted upon in the future.
- The Australian Government is taking action on green space, and the WA Government should also take action as a matter of urgency.

As the growth of Perth continues to place greater pressure on land and water resources, the provision of sufficient high quality, accessible green space has become a major challenge in planning a healthy, liveable city.

The value of green space is well documented, but not adequately understood or acknowledged. Research shows the 'triple bottom line' benefits of urban greening, including:

- Environmental, water and air quality improvements.
- Social improvements such as improved aesthetics, mental wellbeing and physical health.
- Improved business and economic outcomes including increased workplace and community productivity, increased attractiveness of business centres and increased urban property values (Ely and Pitman 2012; Townsend and Weerasuriya, 2010; Kardan *et al*, 2015; Burden, 2006; Moore, 2013).

The GSA believes Perth has reached a critical point in time at which action must be taken to protect existing and future green space in all its forms, including parks and recreational reserves, civic spaces, residential gardens and the urban forest more broadly. Without this, the quality of life and wellbeing of Perth residents will be significantly compromised. Key wellbeing issues include:

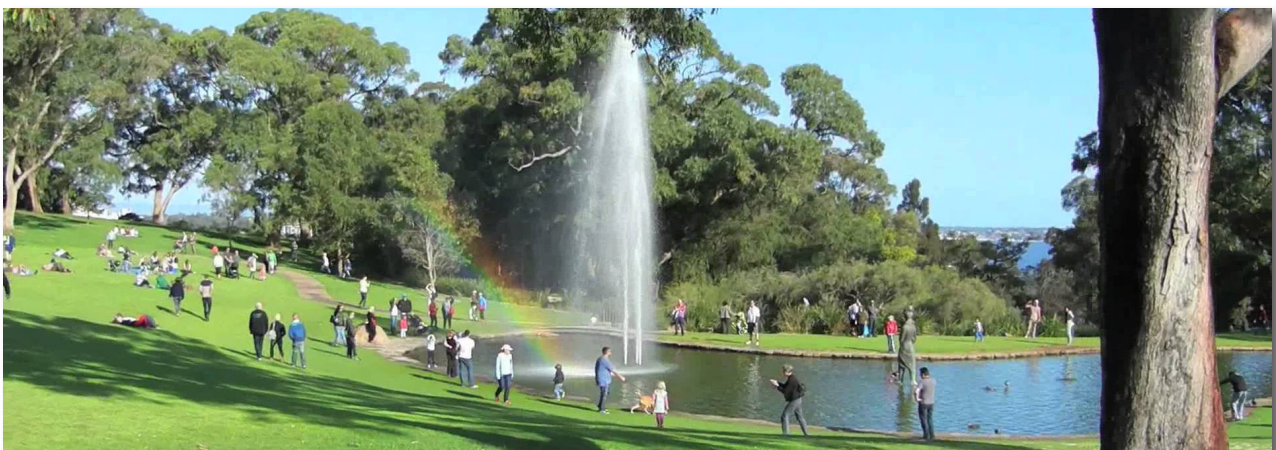
- Increased health risks and deaths as a result of the urban heat island effect.
- Reduced opportunities for physical activity and improved mental health outcomes.
- Increased bushfire risk.

The cost of managing community wellbeing concerns will increase as public health levels are impacted by reduced access to green space.

Perth shares a number of challenges with other Australian cities in protecting and providing green space, however Perth also faces some unique concerns:

- The provision of adequate water for current and future green space.
- Balancing urban infill goals with current and future green space.
- Addressing unique cultural values and minimising community impacts.

Tree canopy cover research has found that Local Government Areas (LGAs) in Perth's hills and foothills have high levels of tree cover (which include state forest and national parks), however moving towards the coast LGAs increasingly exhibit significant areas of hard surfaces, in some cases encompassing more than 50% of council land area. The Cities of Belmont and Fremantle have the least tree canopy cover, both approximately 10% (Jacobs *et al*, 2014), which has prompted the development of strategic responses from both LGA's.



Case Study: Fremantle's Green Plan 2020

The City of Fremantle has developed a comprehensive plan (Green Plan 2020) to enhance the natural landscapes of WA's historic port city. The core of the plan is for the City to work together with its local community to collectively deliver a 20% increase in urban green space by 2020.

Targets of the City's urban greening plan include:

- Tree planting to progressively increase tree canopy coverage across the city (targeting 20% coverage by 2020).
- Aiming for every resident and worker to be within walkable distance (400m) to public green space.
- Planning for future water security.
- Developing links that increase the amount of flora/vegetation and habitats for native fauna, enhancing overall biodiversity.

Through this plan, the City of Fremantle is working to maintain and enhance green spaces for the benefit of current and future generations. The plan has ambitious yet achievable targets in relation to the quality and distribution of green spaces, improving biodiversity and increasing water efficiency. It also encourages and incentivises the greening of private property (Source: 2020 Vision industry communications, 2016).

Tree canopy coverage is not the sole concern, with active green space such as sports grounds and parkland likewise facing shortages now and in the future. The DSR's *Active Open Space (playing fields) in a growing Perth-Peel* report stated "It can be concluded with a high degree of certainty that the new suburbs in each of the fringe growth sub-regions of Perth already have a shortage of active playing fields." The report further established that by 2031, the total shortfall of open space required for sport (and supporting infrastructure) will be approximately 495ha (Middle *et al*, 2013).

The Australian Government has recently made moves to support green space initiatives and address liveability policy gaps via undertaking long-term planning for cities. Initial steps have included the creation of a Ministry for Cities and Built Environment, the formation of a government taskforce to explore current and future policy opportunities for cities planning and the intended development of a national Cities Policy (Fletcher, 2016; Hunt, 2016).

The WA Government and LGAs in turn need to urgently develop progressive policies which address water and planning challenges and additionally promote an environment of innovation which supports the development of green space in Perth.

2.1 PLANNING AND DEVELOPMENT

Key Points

- Perth's population growth will require a significant urban infill and greenfields development response, threatening current and future green space.
- The WA Government has been undertaking planning policy reform to address development concerns, including green space provision.
- The WA Government needs to further address green space provision concerns including the consideration of urban form and function, the creation of multi-purpose open space and ensuring green space design considers climate impacts.

With a population of just over two million at present, Perth and the wider metropolitan area is projected to grow to near 3.5 million people over the next 30 years (WAPC, 2015). The Western Australian Planning Commission (WAPC) asserts that there is currently sufficient undeveloped land to meet future residential needs, providing infill and density targets are met (WAPC, 2015). *Directions 2031 and Beyond* called for 328,000 new dwellings to be provided by urban infill, which is 47% of the total 800,000 new dwellings required to house the additional 1.5 million Perth residents by 2050 (WAPC, 2010). By comparison, Perth's rate of urban infill reached 28% in 2014 (WAPC, 2015).

The WA Government with the WAPC has undertaken reviews of key planning policies (including Liveable Neighbourhoods and the Residential Design Codes), and has released the *Draft Perth & Peel@3.5million* and the *Perth and Peel Green Growth Plan for 3.5 million (draft)* strategies, in an effort to manage land pressures, address liveability concerns and review the provision of public open space requirements (WAPC, 2015; DPC 2015).



Whilst the GSA supports the development of new policy instruments, it wishes to see further consideration of policies which govern green space inclusion. Specific issues include:

- The focus of current planning guidelines on the amount of public parkland, with little attention to form and function.
- The need to support the delivery of multifunction open space, whilst considering site context.
- The need for public open space to be climate responsive.

Although DSR's *Public Parkland Planning and Design Guide* address these issues in part, the above requirements need to be embedded in wider development and planning policy.

WA's public open space planning within residential developments is guided by the dated allocation of 10% of subdivisible land for public use (WAPC, 2002; Carter, 2011). The *Draft Perth & Peel@3.5million* strategy re-iterates this 10% contribution (WAPC, 2015) which the GSA believes requires revision with the establishment of an evidence based figure suitable for future population needs. The definition of 'public open space' should also be strengthened to provide guidance on the provision of quality green space.

The potential loss of vegetation through built form expansion into greenfield areas is a well-documented concern, however the forfeiture of existing private garden space and public open space through the process of sub-division and infill is equally a challenge (Grose, 2009; Middle *et al*, 2015). Whilst urban densification supports important sustainability objectives, such as limiting urban sprawl and reducing car dependency, it is critical that the impact that this process has on the erosion of green space is adequately addressed in planning policy.



2.2 COMMUNITY WELLBEING

Key Points

- Without sufficient quality green space, heat related deaths in Perth are likely to increase.
- Urban green space is well recognised as mitigating the urban heat island effect.
- Green space additionally provides a range of beneficial outcomes for mental, physical and social wellbeing, yet these are not adequately addressed in public health care policy.
- The *Public Health Bill 2014* will require the development of public health plans by the WA Government and LGAs, which will improve linkages between public health and green space provision.
- The Bill is yet to be passed through Parliament and this should be a priority.

Australian research in the broader field of urban health and liveability has recognised the urban heat island effect, and the likelihood that heat-related deaths in Australian cities may increase. The *State of Australian Cities 2013* report acknowledges the value of increasing, and better managing, urban vegetation as an instrument in reducing the impact of the urban heat island effect, which is an increase in temperatures in urban areas due to high concentrations of hard surfaces and buildings (DIT, 2013).

Australia experienced its fifth warmest year on record (since national observations commenced in 1910) in 2015,

Heat-wave related deaths in Perth are predicted to more than double by 2050. Furthermore, reducing the adverse health effects of air pollution on a growing population is important...We have to do better in the future if we are to manage the impacts of an extra 1.5 million people (EPA, 2015).

with eight of Australia's ten warmest years on record occurring since 2002 (BoM, 2015). Possible impacts of this were addressed by the Environmental Protection Agency (EPA) Chairman Paul Vogel in his release statement for the EPA's response to the *Perth & Peel@3.5million strategy*:

To date there has been a limited response from government to address these concerns. The Department of Health has developed the *WESTPLAN – Heatwave* response plan, which acknowledges the impact of extreme heat on the public, and considers prevention needs, yet does not identify the value of urban green spaces in mitigating the public health impact of heat waves (DoH, 2012).

In addition to heat related health concerns, a wealth of research has identified linkages between access to green space and beneficial outcomes for mental, physical and social wellbeing. Studies have demonstrated that people with access to green space (both visual and/or physical contact) have reduced levels of stress, are more productive in the

Extreme temperatures contribute to the deaths of more than 1,000 people aged over 65 in Australia every year, which is almost as many as the Australian road fatalities.

(McMichael *et al*, 2003; BITRE, 2014).

workplace and have reduced levels of disease and longer lives (Ely and Pitman, 2012). At present WA Government health policies do not adequately address these beneficial outcomes.

The WA Government has developed the *Public Health Bill 2014* to replace the *Health Act 1911* however it is yet to receive assent (DoH, 2014). The Bill includes provisions which require the development of public health plans by the WA Government and LGAs.

It is anticipated that the public health plan development process will enable LGAs to improve linkages between public health and green space provision. In turn this is expected to encourage LGAs to implement improved green space management policies and practices. The lag in proclamation of the new Act and the implementation of its health planning requirements by the WA Government and LGAs is a lost opportunity in addressing public health and the benefits green space can provide.

The GSA believes the legislation would be further supported by the development of a Public Health Outcomes Framework, part of which considers how green space contributes to health and wellbeing. Public health indicators should additionally be developed, against which government regularly reports on the status of community wellbeing.

The WA Government's *State Planning Policy 3.7* and the accompanying *Guidelines for Planning in Bushfire Prone Areas* were released in December 2015. These Guidelines require that any new buildings and development in a designated bushfire prone area must address additional bushfire planning and building requirements and comply with *AS3959 Construction of Buildings in Bushfire-Prone Areas*, this includes the requirement of a Hazard Protection Zone (HPZ) to minimise exposure to bushfire hazard, and may entail vegetation clearance.

Balancing community safety with environmental considerations is a challenge, however remnant native vegetation must be considered as an environmental asset rather than a threat to community safety. It is critical that all levels of the planning process views vegetation retention as a priority whilst working within the performance principles of the *State Planning Policy 3.7 Planning in Bushfire Prone Areas* to address the four critical elements of bushfire protection; location, siting and design, vehicular access and water. Creative and innovative thinking will not compromise environmental assets and vegetation, but deliver acceptable solutions.



2.3 WATER SECURITY

Key Points

- Perth's long term decline in rainfall coupled with constrained water supplies has serious implications for the development and management of Perth's green space.
- The management of water in Perth requires improved communication, management structures and funding.
- The extension of watering restrictions without a sound evidence base will arguably have a significant impact on the amenity horticulture industry, garden performance and the wellbeing of residents.
- Public open space should be given greater priority through the water entitlement and allocation process as it provides high end community benefit.
- Progressive policy which enable the application of a range of fit-for-purpose water options for green space irrigation at varying scales needs to be developed.

Perth's long term decline in rainfall coupled with constrained water supplies has serious implications for the development and management of Perth's green space.

The GSA supports the efforts of the WA Government in managing Perth's water, and encourages its agencies managing water to:

- Improve communication within Government, and breakdown 'silo' structures which inhibit policy development and service delivery.
- Increase communication with industry, and promote transparency in decision making.
- Improve community messaging regarding Perth's water security.
- Deliver an appropriate level of funding to ensure water (an essential life requirement) is provided for community wellbeing.

At present, Perth's potable water supply and wastewater services are provided by Water Corporation. Whilst the WA Government simplified legislation via the Water Services Act 2012 to enable new water provision licensees to enter the water industry, there are few additional water service providers and little competition in the sector. Promoting the entrance of new water providers will establish greater separation of roles in policy development, regulation and operation.

The Department of Water and Water Corporation have implemented a range water efficiency and communications programs such as the Waterwise Council and the recent Drop-2 campaign. Whilst water conservation messaging is essential, green space can be placed at risk due to confusing messaging, the application of poor watering regimes and the removal of vegetated landscapes due to a perceived lack of water. Outcomes of these practices include poor quality vegetation, a decline in current green space, reduced creation of new green space and in extreme cases, may create unwarranted fire risk.

Approximately 70% of all water supplied in Perth via the Integrated Water Supply Scheme is consumed by residential customers. Despite a high penetration of residential bore ownership and watering restrictions limiting garden irrigation to two days per week since 2001 around 40% of residential water is used for domestic irrigation (Water Corporation, 2010).

The use of water restrictions to limit household water despite significant capital expenditure is a highly visible sign of the system's inability to cope with demand. Since 2010 restrictions have been extended to include a complete ban on irrigating with mains water during winter months (June to August) and are now considered permanent water saving measures (DoW, 2015).



Comments made to the WA Parliament suggest the Water Corporation is considering extending watering restrictions (WA Parliament, 2016). Whilst effective water conservation measures are essential, the extension of watering restrictions without a sound evidence base will arguably have a significant impact on garden performance and subsequently have detrimental impact on the liveability of Perth suburbs and wellbeing of residents.

The GSA believes such moves are also prohibitive to industry, with increased water restrictions projected to have a significant negative impact on amenity horticulture industry revenue, particularly in the Turf, Nursery and Irrigation sectors (Pickering and Shardlow, 2011).

In 2010 during a period when further water restriction measures were being considered the Garden Industry Alliance communicated its concerns and recommendations to the WA Government (GIA, 2010). The appeal was well received by Government with the resultant water restrictions limited to domestic water use and not extended to amenity horticulture industry activities.

Green space is well recognised as playing a major beneficial role in the control and improvement of urban water impacts and quality, via the improvement of stormwater runoff reduction, flood mitigation, minimisation of soil erosion and contaminant removal. Water and vegetation are both also recognised to positively impact on the urban heat island effect. Green space should not therefore be seen as a water consumer but as a critical part of the urban water cycle.

The Department of Water and Water Corporation promote the use of domestic bores for garden irrigation as a means of reducing pressure on constrained mains water supplies (DoW, 2011; Water Corporation, 2013). However over extraction in the face of a drying climate is increasingly recognized as a threat to ground water dependent ecosystems (Bates *et al*, 2008; Barron *et al*, 2014; DoW, 2011).

In Perth, domestic bores drawing from the superficial aquifer are not required to be licenced, although their usage is restricted to three days per week, with a complete sprinkler ban during the three winter months (DoW, 2011).

Public green spaces irrigated by bore, require a groundwater allocation, which is only permissible if there is sufficient capacity in the local aquifer to meet the requested demand. With many groundwater aquifers on the Swan Coastal Plain now reaching, and occasionally exceeding, their maximum sustainable yield, allocations have in some Perth locations been capped. Whilst allocations can be traded, the ability to ensure the provision of water for public open space via bore water is severely curtailed, resulting in significant concern for LGAs and Developers when seeking to provide green space for new urban development. Public open space should therefore be given greater priority through the water entitlement and allocation process as it provides high end community benefit.

Historically in Perth the business case for alternate water sources has been undermined by the comparatively low cost of scheme water and the perception of abundant groundwater. With the supply of scheme water now heavily constrained, and groundwater sources under pressure, the case for the use of alternate water sources, such as recycled water, to support green space becomes significantly more compelling.

Whilst LGAs are increasingly applying the principles of Water Sensitive Urban Design (WSUD) such as the use of vegetation to better manage stormwater, the application of innovative fit-for-purpose water use practices, such as irrigation with recycled water, is still an underutilised practice in the Perth metropolitan region. This is despite significant advances in technology, and the wide range of innovative and proven systems currently available.

The release of the Cooperative Research Centre for Water Sensitive Cities' *Shaping Perth as a Water Sensitive City* report addresses the necessity of fit-for-purpose water infrastructure to provide for Perth's needs. The report also identifies the value of innovative water management practices via the use of alternative water sources, such as recycled wastewater (Rogers *et al*, 2015).

The GSA believes all efforts should be made to move from high quality drinking water to fit-for-purpose alternative water supplies to meet green space irrigation requirements at all scales. The announcement of a *Water Resources Management Bill* which will replace six disparate water Acts provides the opportunity for the WA Government to develop progressive policy which address these challenges (DoW, 2015). Whilst lot-scale alternate water sources such as domestic bores and greywater reuse systems are well established (although the latter is poorly utilised), there exists great opportunity to further deploy alternate water supplies at the precinct and district scale for meeting both residential and public open space irrigation demands.



The following list provides current and proposed district and precinct-scale examples of industry leading initiatives:

- Community bores providing ‘third pipe’ reticulation to residential lots in addition to public open space (WGV residential development, White Gum Valley).
- Managed aquifer stormwater recharge and recovery for public open space (Hartfield Park Reserve, Kalamunda).
- Municipal wastewater treatment and reuse for public open space (McGillvray Oval, Mt Claremont).
- Municipal wastewater treatment and reuse for public open space and ‘third pipe’ reticulation to residential lots (there are no current examples in Perth, however Mawson Lakes in Adelaide is a successful example).
- Sewer mining for public open space (as proposed for the future Wungong Regional Recreational Reserve).

Case Study: White Gum Valley Residential Infill Development



Clear synergies exist between urban greening and sustainable urban water management, as demonstrated at WGV by LandCorp. The two hectare residential infill project in White Gum Valley near Fremantle is recognised as a Waterwise Development Exemplar as the result of its integrated approach to urban water management and urban greening.

The principle outcomes delivered for the project are:

- An urban tree canopy target of 30% to match predevelopment levels.
- The transformation of a large unsightly drainage sump into a landscaped winter wet depression with greatly enhanced environmental and amenity values for public open space.
- A range of onsite stormwater infiltration initiatives to ensure all stormwater is infiltrated locally.
- Achieving a score of 100% for the water element of the One Planet Living framework
- A waterwise development exemplar program to showcase the achievements to industry via knowledge sharing.

As is key with any successful projects, the development involved support from a range of key stakeholders including the City of Fremantle, Water Corporation, the Department of Water and the local community.



GSA Principle 1

Improve liveability by placing greater prominence on green space in the planning process and prioritise the creation of sufficient, quality designed public open space.

Issues

- Whilst public open space and the provision of green space is addressed in planning policy it is not prioritised, with public open space therefore not considered early enough in the development process to ensure good outcomes.
- Current planning policies insufficiently address green space needs within residential block envelopes, nor at the precinct scale.
- Developers are not provided with sufficient guidance regarding the provision of sufficient quality green space.

GSA Positions

The GSA believes government should ensure green space provision is better valued and addressed early in the planning process. Quality design of green spaces needs to be guided by application of the DSR's *Public Parkland Planning and Design Guide*.

GSA Recommendations

The WAPC's current *Planning Review for Better Design* process provides an opportunity to respond to green space concerns. WA Government and LGAs should seek to:

- Provide greater protection for existing vegetation within development areas through the development of tree retention policies.
- Establish State and Local green space and tree canopy targets.
- Review the dated minimum public open space requirements in developments.
- Establish minimum green space needs within the road reserve.
- Support the provision of increased private garden space by preventing the construction of buildings with excessive footprints within their land envelope through updated design standards for:
 - Minimum block size and building footprints.
 - Minimum building boundary set-backs.
 - Minimum landscape and infiltration requirements.
 - Maximum height restrictions.

Relevant Initiatives/Activities

- DSR's *Public Parkland Planning and Design Guide*.
- DSR's *Classification Framework for Public Open Space*.
- Office of the Government Architect's *Policy for the Built Environment in Western Australia*.
- Parks and Leisure WA's *Public open space planning in Western Australia: New residential developments Position Paper*.
- Parks and Leisure WA's *Guidelines for Community Infrastructure*.
- Parks and Leisure WA's *Community Health & Wellbeing Position Paper*.
- UWA POS Tool – An interactive database on Public Open Space for Perth and Peel Region.
- Infrastructure Sustainability Council of Australia's Infrastructure Sustainability Rating Scheme.
- Green Building Council of Australia's Green Communities rating tool.
- Creating Places for People.





GSA Principle 2

Prioritise water resources, improve water management practices and support ongoing research and demonstration of innovative urban water management solutions to sustain quality green space.

Issues

- The value of water, including both potable and non-potable water resources is not acknowledged resulting in wasteful practices consuming Perth's high quality groundwater.
- Water management supply and disposal practices in Perth are unsuitable in light of the current climate.
- The application of tried and tested water saving technologies and practices is presently severely underutilized in Perth, particularly within domestic and public green space irrigation.

GSA Positions

Whilst the WA Government has taken great efforts to secure Perth's water future, there remain numerous opportunities to better use current resources and encourage the uptake of alternative water resources.

GSA Recommendations

The *Water Resources Management Bill* should reflect the following opportunities and actions:

- 'Protect' potable water for use at the most valuable levels, applying fit-for-purpose principles to guide the use of water resources for other appropriate, non-potable applications elsewhere.
- Require the development of non-potable water use targets for open space irrigation to promote the use of water efficient practices and alternative water sources for irrigation.
- Require the application of water sensitive design principles in urban development and infrastructure creation, encouraging the use of industry leading water management practices in green space design and irrigation practices.
- Require the development and monitoring of targets for the use of alternative water resources, including recycled water, within Perth's water management strategies.
- Support the provision of unambiguous community information regarding water management and irrigation practices.

Relevant Initiatives/Activities

- Department of Water's *State Water Recycling Strategy*.
- Department of Water's *Securing Western Australia's Water Future*.
- Water Corporation's Groundwater Replenishment Scheme.
- Cooperative Research Centre for Water Sensitive Cities' *Shaping Perth as a Water Sensitive City*.
- Green Building Council of Australia's Green Communities rating tool.
- Infrastructure Sustainability Council of Australia's Infrastructure Sustainability Rating Scheme.
- Greywater & Wastewater Industry Group's *Greywater Pack*.
- Exemplar water management projects including WGV residential development White Gum Valley, and the Wungong regional recreational reserve.





GSA Principle 3

Recognise Perth's unique green space and enhance biodiversity protection and management practices.

Issues

- WA lacks State level policy which establish a plan for the provision and management of green space now and into the future.
- Whilst some LGAs have taken the initiative and developed urban green space policies and strategies, this should be a mandatory practice for all LGA's.

GSA Positions

The WA Government should develop a State Green Space Strategy (building upon efforts of the State Sustainability Strategy) to address the value and role of green space in Perth and WA more widely. Likewise the WA Government should work with LGAs to implement a state planning policy which requires LGAs to develop urban green space policies and strategies. These policies should then guide future urban development by establishing minimum green space targets and guide the creation and management of green space networks across Perth.

GSA Recommendations

The WA Government and LGAs should:

- Mandate the development of WA Government and LGA Green Space Strategies which plan for the management of green space and identify green space targets.
- Review fire management practices and information, particularly *State Planning Policy 3.7, the Guidelines for Planning in Bushfire Prone Areas* and the *Plant Guide within the Building Protection Zone*.
- Update Main Roads WA's Vegetation within the road reserve guidelines to reflect growing awareness of the value of vegetation and better address linkages to water sensitive urban design.
- Seek to protect and enhance our areas of indigenous significance, with greater recognition through state heritage policies.
- Build upon the DSR's *Public Parkland Planning and Design Guide* to develop a best practice guide for the design, construction and management of green space, including specifications for size, location, arrangement, uses, connectivity, accessibility and water sources and efficiency.

Relevant Initiatives/Activities

- DSR's *Public Parkland Planning and Design Guide*.
- WAPC's *Capital City Planning Framework: Central Perth Regional Parklands Concept, Vegetation Connectivity Analysis*.
- New South Wales's Office of Environment and Heritage's *Technical Guidelines for Urban Green Cover in NSW*.
- Standards Australia's *Protection of Trees on Development Sites*.
- South Australia's Department of Water, Land and Biodiversity Conservation's, *Managing Vegetation - Reduce the Impact of Bushfire guideline*.
- City of Belmont's *Urban Forest Strategy*.
- City of Fremantle's *Green Plan*.





GSA Principle 4

Recognise the value of the health and economic benefits green space generates for WA and ensure appropriate resourcing and funding.

Issues

- Research has been undertaken in Australia and internationally which measure these benefits, however a comprehensive study based in Perth has not been undertaken.
- The provision and maintenance of public green space is recognised as a costly role which usually falls to LGAs.
- Opportunities to fund green space in Perth, beyond developer contributions and LGA rates are minimal.

GSA Positions

The WA Government, through the development of a comprehensive State Green Space Strategy will need to develop an improved understanding of the current value (social, environmental, economic) of Perth's green space. Promoting this information, potentially in co-ordination with the GSA will raise awareness amongst the community but also with Developers and LGAs. This information could be shared with the real estate industry, tourism bodies (government and industry) and various investment bodies to realise the value of green space.

GSA Recommendations

In partnership with the green space industry the WA Government should:

- Undertake research that quantifies the value of green space in Perth by placing a monetary value on green infrastructure to illustrate the value of investing in green infrastructure to the public and other stakeholders.
- Explore the ability of the WA Government to allocate revenue from tourism activities (parks entry costs, adventure activities, accommodation etc) towards WA Government and LGA green space enhancement activities.
- Undertake research which considers the development of royalty collection from private tourism operators, from which funds are distributed via a public grants style program.

Relevant Initiatives/Activities

- Victoria Institute of Strategic Economic Studies, *Assessing the Economic Value of Green Infrastructure*.
- Corroboree Asia 2016 and the Tourism Ministers' Meeting.
- The Green Space Alliance's submission to the Horticulture Innovation Australia Green Cities Fund, *The Value of Green Infrastructure in Australia*.



The value of green space; healthy places.



GSA Principle 5

Promote ground-up engagement and communication across the community, industry and government to increase end-user involvement, and support social equity outcomes.

Issues

- Management of green space is often conducted at arm's length from the community, which promotes poor outcomes due to a lack of awareness of local issues.
- There is a lack of clear messaging to the community and industry regarding both the benefits of green space and the risks present.
- The health and wellbeing benefits of green space are not acknowledged in public policy.
- A structure that provides a link between green space and public health is not provided in WA.

GSA Positions

The WA Government and LGAs should seek to engage with industry and the local community in the creation of new green space, or the management of existing green space which would generate greater ownership and interest in local green space issues. The WA Government has developed a *Public Health Bill 2014* however the lag in proclamation of the new Act is a lost opportunity in addressing public health and the benefits green space can provide.

GSA Recommendations

The WA Government should undertake transparent consultation with industry and the community to ensure the value of urban green space is embedded in legislation and relevant policy instruments via:

- Creating a Green Space Stakeholders Group, consisting of each relevant authority as well as representatives from LGAs and industry to provide a level of policy guidance and transparency.
- Promoting innovation in green space management by supporting community based research and demonstration projects.
- Prioritising the passage of the *Public Health Bill 2014* through Parliament, supported by a Public Health Outcomes Framework, which considers how green space contributes to health and wellbeing.
- Developing public health indicators within the Public Health Outcomes Framework under which government reports upon the following matters:
 - Holistic Wellbeing.
 - Mental Health.
 - Physical Health and Activity.
 - The Urban Heat Island Effect and Health Impacts.
 - Urban Density and its Health Impacts.
 - Equitable access to Green Space.

Relevant Initiatives/Activities

- The Water Corporation's Garden Industry Reference Group.
- Parkland WA website.
- Healthy Active by Design.
- Healthy Spaces & Places.
- Creating Places for People.
- Department of Health's *Western Australian Health Promotion Strategic Framework 2012–2016*.
- DSR's *Public Parkland Planning and Design Guide*.
- DSR's *Active Open Space (Playing Fields) in a growing Perth Peel*.
- Department of Local Government and Communities *Integrated Planning and Reporting Framework and Guidelines*.
- Parks and Leisure WA's *Community Health & Wellbeing Position Paper*.
- Victorian Centre for Climate Change Adaptation's *Planning For a Cooler Future: Green Infrastructure to Reduce Urban Heat*.
- Green Building Council of Australia's Green Communities rating tool.
- The 2020 Vision initiative.





The Green Space Alliance has developed this Discussion Paper and accompanying Position Statement to generate discussion around the concerns facing Perth's green space, and encourage government to respond to these challenges.

This Discussion Paper will be issued to the WA Government, including relevant Ministers and key Departments. The Green Space Alliance will also distribute the Discussion Paper to aligned industry bodies and release it to the community through the media.

The Green Space Alliance recognises that its supporting organisations, and other industry initiatives, are conducting aligned messaging to support green space, however it does not wish to compete with, replace or dilute any of these activities.

If you wish to provide feedback, ask questions or contribute to the Green Space Alliance please contact us at: greenspacealliance@parklandwa.org.au

To learn more about the Green Space Alliance and download the Discussion Paper please visit this link: <http://www.parklandwa.org.au/1034/green-space-alliance>

This is a living document, and will be reviewed and revised by the GSA on an ongoing basis to address the evolving policy environment.



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