



## ENVIRONMENT PANEL ADVISORY PAPER FOR THE GREATER SYDNEY COMMISSION

NOVEMBER 2016



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# 1

## Introduction and Summary Environmental Vision for Sydney

### 1.1 Aim

This independent Advisory Paper reflects the position of the Environment Panel established by the Greater Sydney Commission (GSC) and Total Environment Centre. The Panel is comprised of peak community, professional and academic organisations from a wide range of fields with an interest in a sustainable and liveable city.

**Attachment 1** provides the Terms of Reference of the Environment Panel.

**Attachment 2** lists the Environment Panel members.

These organisations appreciate the opportunity to be involved in helping articulate the community's voice on the importance of the environment in metro and district planning and utilised science and planning research and practice to inform its considerations.

Panel members believe that the natural, heritage and local character environments of Sydney have not been given an adequate level of consideration in previous planning processes. In particular the lack of recognition of the multiple economic and social benefits provided by ecological services. Panel members are also of the view that the creation of the GSC, with its unique structure of three Environment, Social and Economic Commissioners, underpinned by meaningful community consultation, and research offers an opportunity to remedy this situation.

The Paper aims to provide a key document to assist in benchmarking the draft District Plans, which will guide the future sustainable development and environmental management of Sydney. It provides strategic information and advice about the key environmental issues which Sydney faces, recognising the diversity of social and economic values associated with these issues, and provides suggested metrics by which to assess and review their outcomes over time.

These issues need to be considered at building, district and regional levels, when the planning policies and instruments, that will regulate new development, infrastructure projects and the retrofitting of the existing urban fabric are developed. The cumulative impacts of individual actions in relation to these issues must also be accounted for.

We understand this Paper is not the only input to the development of Sydney's future planning and the direction towards ecologically sustainable development over a 20 year timeframe. However given the GSC's principal objectives, of enabling environmental and social sustainability, we envisage the complementary involvement of other participants and contributions.

We look forward to an effective and forward looking result that achieves liveability and sustainability, as well as productivity. The Panel is available to continue to assist.

### Consulting Partners

Sydney Peri-Urban Network (SPUN)  
100 Resilient Cities  
The National Trust of Australia (NSW)  
CRC Low Carbon Living Ltd,  
University of NSW  
Committee for Sydney  
Sydney Coastal Councils Group Inc  
202020  
National Parks Association of NSW  
Nature Conservation Council

Youth Action  
Australian Institute of Landscape Architects  
(AILA NSW)  
Sydney Institute Marine Science, (SIMS)  
Environmental Defenders Office NSW  
Better Planning Network  
Stormwater NSW  
Green Building Council of Australia (GBCA)  
Institute of Sustainable Futures  
Total Environment Centre

## 1.2 An Environmental Statement and Vision for Sydney

Sydney aspires to be a global city for the 21<sup>st</sup> century. This means more than meeting conventional economic indices, but also environmental, equity, resilience and liveability outcomes.

Fundamental environmental themes that government should commit to, include:

- A city that values its unique environmental landscape and biodiversity; and which all citizens can enjoy and protect
- A healthy city with clean air and water and sufficient green open space and tree cover providing widespread opportunities for relaxation and exercise
- A resource efficient city where the environmental impacts of water and energy supply and disposal of solid, liquid and gaseous waste are minimised
- A resilient city, able to cope with extreme events
- A city that knows and values its history

The Panel identified 15 key environmental issues (that reflect cumulative impacts and often intersect across the landscape) that should be addressed in the District Plans for the Greater Sydney area. They include:

- |                                     |  |
|-------------------------------------|--|
| ● Waterways                         | ● Biodiversity                             |
| ● Open space                        | ● Urban trees                              |
| ● Local character                   | ● Heritage*                                |
| ● Scenic protection                 | ● Air quality                              |
| ● Noise                             | ● Waste management                         |
| ● Climate Change                    | ● Electricity supply and energy efficiency |
| ● Water supply and water efficiency | ● Natural hazards                          |
| ● Peri urban areas                  |  |

[\*Aboriginal heritage is to be covered through a separate process between the GSC and Indigenous groups]

Our report recommends a range of metrics that can be used to inform planning and development decisions; monitor performance; and encourage integrated infrastructure and land use policy (see Section 4). The lack of such metrics or where they have been proposed in previous city and local plans and not adhered to – has been a significant barrier to improving environmental outcomes.

During our consultations the issue of population growth arose. Clearly this is an important dynamic and while the state government does not have primary influence on this policy area – it does have the key role in managing and directing settlement and infrastructure. It should do this so that unsustainable outcomes that reduce resilience and cause unacceptable impacts on the environment and liveability – do not occur. Nor should it allow population projections to diminish these crucial city elements in planning and development decisions.

High quality governance in decision making is an important part of good planning. This includes transparent and objective information and processes; effective community opportunities to review proposals and canvass transition of local areas rather than rapid change; and a strong commitment to enforcement of laws and development conditions. Taken together this helps create community confidence in and credibility of, decision making.

Finally, it is apparent that if Sydney is to achieve high quality outcomes across these areas, local and state planning, environmental management and development agencies will need sufficient resources and skills.

### Waterways

The network of waterways that extends across Greater Sydney includes creeks, rivers, bays, harbour and ocean edge. They form the 'Blue Grid' containing vital environmental resources and include features that define the internationally recognised character of the city.

They should not be regarded as places to discharge polluted water or dangerous materials such as plastic.

Much has been done to improve water quality in Sydney, particularly with regards to sewage treatment, however, multiple point discharge, untreated terrestrial runoff, unsewered properties and aging water infrastructure are an ongoing challenge for our waterways, the biota and recreational activity they support.

Urban stormwater discharged into inland creeks carries litter and debris, nutrients, sediments and a range of contaminants to the estuaries and subsequent waterways. This builds upon a legacy of contaminants being put directly into parts of Sydney's waterways from former industrial sites, that has left many areas severely degraded. Sand mining is also a threat with the Hawkesbury-Nepean system in the frame.

The network of waterways in Sydney needs to be managed in an integrated way from coast to catchment boundaries. There is a need to ensure that multiple planning processes undertaken by the government authorities in the freshwater, marine and estuarine environments are done in an integrated way. A 'neutral or beneficial' test should be applied to potentially polluting developments.

There is also an urgent need to move from just monitoring and describing the condition of our waterways and coasts, to a program of restoration, rehabilitation and environmental management that fix the problems in a sustainable manner. Recent improvements in this field are the Cooks River and Clear Paddock Creek with riparian restoration. Communities are also pressing to make some urban streams swimmable.

### **Biodiversity**

Greater Sydney has a complex and valuable diversity of species and, includes some of the most critically endangered wildlife, plants and ecological communities in NSW, nationally and globally. The unique biodiversity inside the urban boundary is severely depleted and bushland continues to be removed. Nevertheless, the ability of some wildlife to persist in small pockets and expand into restored habitat makes Sydney globally, a very special landscape.

Key threats to vulnerable species within protected areas include weeds, feral animals, disease, inappropriate recreational use, climate change and pollution from surrounding developed areas. Outside protected areas wildlife is also threatened by land clearing for major infrastructure projects (such as Badgery's Creek Airport and West Connex) and residential development, mining, under scrubbing, removal of old and dead trees, firewood collection, herbicide and fertiliser use, noise, light and air pollution, urban heat effect and stormwater pollution. A growing concern is the use of offsets far removed from the 'like for like' principle. In the urban setting it is very difficult to find offsets that 'maintain or improve' a threatened ecological community in the affected District – the result being an absolute loss of important native vegetation and wildlife.

It is important to understand and retain what is remaining and improve wildlife habitats and corridors. Future planning should use benchmarking studies and a restorative approach. There must be a recognition of priority biodiversity sites and species which are protected and where development or offsets should not occur.

A new approach is required to the conservation and management of biodiversity values. The Panel considers there needs to be more integrated and focused management and government priority for the Green Grid (also see Open Space below).

### **Open space**

The people of Sydney highly value the green spaces near their homes, access to major regional parklands and the outdoor lifestyle this brings. This is borne out in previous public surveys and the strong community reaction when open space is sold-off or alienated for development. These spaces provide for both passive and active recreation as well as a home for biodiversity.

With population growth and increased urban density new open space with good accessibility will need to be provided and the capacity of existing open space increased by investment in new, multiple-use facilities. When recreational uses such as golf courses and bowling greens are no longer viable the land should be reallocated to new open space purposes.

The provision of good quality open space containing recreation and cultural facilities will be essential to facilitate healthy lifestyles for adults and children in particular to combat obesity and stress, thus

assisting the health budget. This is especially so in the inner rings of the city where open space provision is poor and the western suburbs where the open space provision is inadequate and the forecast population growth is high.

'A Plan for Growing Sydney' contains Direction 3.2 *'To create a network of interlinked, multi-purpose open and green spaces across Sydney'* also known as The Green Grid. The Green Grid is considered a key measure to provide the foundation for a comprehensive city wide open space network and must be seen both in its capacity to provide for public amenity as well as its ability of sustaining and building in biodiversity over time.

### Urban trees

The argument to keep and expand urban tree cover is overwhelming with its environmental, social as well as high economic value clearly demonstrated by research carried out in many countries including Australia.

Urban trees provide multiple benefits. These include the provision of shade - reducing the risk of people suffering heat stress, mitigating of the urban heat island effect, assisting in climate change adaptation, and reducing the costs of energy for cooling. Trees improve air quality through carbon sequestration and the interception of pollution, as well as reducing stormwater runoff and providing habitats for wildlife. They also regulate and filter inflows into waterways.

However the extent of urban tree cover is being reduced by combination of activities, including clearing for urban, industrial and infrastructure development. This is most pronounced in peri-urban areas undergoing rapid development, urban and suburban infill areas where gardens are being cleared and house to land ratios are increasing; and as a result of recent major infrastructure projects. Urban trees are also impacted by overhead and underground services that result in heavy pruning of existing street trees and prevent new trees being planted along streets and highways. It is important to acknowledge that the planting of trees including native species (some now subject to removal) has been a significant community and local council effort encouraged by government and desired by the community, over many decades.

Increasing the urban tree canopy of Sydney will require more involvement and commitment of communities as well as better coordination between the multiple authorities and organisations whose activities impact urban trees. This needs to include a review of current legislation under which the activities of various organisations are carried out that impact urban trees. The real value of urban trees needs to be determined by using valuation methods that fully capture and quantify all of their benefits. Accurate valuation of urban trees will allow more informed decision making about investing in new tree planting as well as proposals to remove existing trees.

The NSW Government has announced development of a new Urban Tree State Environmental Planning Policy (SEPP). This will replace Standard Instrument LEP provisions relating to tree removal permits in urban Local Government Areas as well as the current SEPP 19 Bushland in Urban Areas. It will determine, clearing that can be done without consent, clearing that can be done with consent and clearing that requires offsets.

There is danger that the new Urban Tree SEPP will adopt a 'one size fits all' approach and weaken protection for urban vegetation. The new SEPP should incorporate the strongest provisions currently available in LEPs and other instruments. This should include identifying and recording the location of areas of native vegetation and significant trees.

### Local character

The local character of an area - its buildings, vegetation and public spaces gives people a sense of place or identity where they engage in family life, connect with other residents as well as to the history of their suburb.

Not surprisingly dramatic changes to local character are resisted and resented by residents - this is especially so with developments such as high rise or major infrastructure projects.

There is a need to recognise and protect existing local character as valued by its residents. Suburbs and precincts should resist 'sameness' where one size fits all. They must retain access to sunlight for parks, streets, homes and backyards. In recent years there have been attempts to give density 'character', but this has largely not been successful.

The recent roll-out of code-assessable development, priority precincts, urban renewal projects and

transport corridors, which have eroded environmental, heritage and local character protections, has adversely effected the retention of local character.

### Heritage

'Heritage' means those things that give a sense of history, distinctiveness and identity to a place. It's the places, items and objects, views and sight-lines from our past that we value today and want to keep for future generations to identify with, learn from, appreciate and enjoy. It is what we think of when we think of 'home' and often is what we show to guests when they visit. The can also contribute important open spaces and gardens.

Heritage items and heritage conservation areas listed on the State Heritage Register are permanently protected from demolition and their development is regulated to protect their significance. However, in NSW, the vast majority are not listed on the State Heritage Register and their future is managed by the same local authorities that pursue, encourage and regulate local land development. Currently 99.94% of Heritage Conservation Areas and 93.7% of individual heritage items (houses, churches, town halls, bridges, trees, gardens etc.) are not protected from inappropriate development or demolition.

Heritage items in a suburb or precinct can be the basis for heritage trails and historic house exhibits, forming tourist assets.

### Scenic protection

The beauty of Sydney's beaches, valleys, waterways, wetlands, forests, parks and farmland are socially and economically important. Scenic assets consist of public viewing locations, seen landscape areas, or view corridors. They are important to the quality of life for local communities' and to visitors' experience, with many also having high environmental, cultural, heritage and/or spiritual value.

It is important that items or areas with high scenic amenity are properly identified and protected from the impacts of development.

### Air quality

Air quality in Sydney has, on multiple days each year, surpassed harmful levels under both national and international standards. This is especially true in relation to ozone and fine particles, which can lead to some citizens suffering serious health impacts or death. The main sources of these pollutants are road transport, as well as pollution from fossil fuel based energy production, industry, commercial and domestic sources.

A key factor in improving air quality is reducing vehicle dependence by providing high quality, and accessible public transport, as well as reducing pollution across all other sectors and through strategic urban tree planting.

Acknowledgment and planning for regional air flow dynamics around the Sydney basin should also be integrated into future planning controls.

### Noise

Environmental noise, is one of the most common pollutants. Its primary sources are road, rail and air traffic, industry, construction and public works and neighbourhood noise.

Over about the last four decades there have been efforts to reduce noise impacts from transportation sources, however many of the benefits have been lost due to increases in traffic volumes and urban population growth which has resulted in a larger percentage of the population being exposed to unhealthy noise levels.

There is sufficient evidence internationally that environmental noise is a general public health risk. The main negative health outcomes include annoyance, sleep disturbance, cardiovascular disease, performance and learning, school performance, mental health and stress.

Groups most exposed to this noise are those located nearest to noise sources by virtue of where they live, work and recreate. Children, people with existing physical and mental illness, and the elderly, who are most sensitive to its impact, may face significant additional health risks.

Environmental noise must be recognised as an important health issue and requires effective land use planning, as well as suitable project assessment and design controls.



## Waste management

A successful waste strategy begins with waste minimisation and avoidance in the first instance, followed by management of how waste is handled once generated. Although there has been some success by diverting waste from landfill through recycling, landfill remains a predominant disposal point. Dumping sites are being located further outside Sydney as landfill space is exhausted – this expands the city's environmental footprint and makes the pursuit of recycling and waste minimisation more urgent.

Sydneysiders support recycling with a high level of participation in kerbside collection, although contamination of recyclables in the comingled bin is still an issue. Construction and demolition waste recycling is also at a high level. Nevertheless there are still major opportunities to grow recycling in the commercial and public space areas. There is also some dispute about what is and how much recycling as expressed in official figures focussed on 'diversion from landfill', as it appears to include controversial items such as waste to energy, above ground soil disposal and ignores dumping of mining waste.

The recirculation of 'waste' resources into the economy is a vital sustainability practice. In addition to saving raw materials, removing and re-using waste streams will reduce pressure on dwindling landfill space, and prevent toxic chemicals (found in e-waste, batteries and fluorescent globes for example) from entering the waste stream. There is a need for best practice infrastructure and programs at individual building and regional planning levels to cater for the reduction, re-using, recycling or proper safe disposal of waste. The recent move to implement a container deposit system is an example of an effective policy; and strategic targeting of the significant 'Waste Less, Recycle More' funding will assist in building new recycling infrastructure.

## Climate change

The Panel recognises that cities are a major driver of climate change and will suffer dangerous temperature rises, sea-level rise and increasingly severe weather events – endangering life and property and disrupting commercial activities - unless CO<sub>2</sub>e emissions are curtailed. The major sources are fossil fuelled electricity and vehicle emissions.

In 2016 the Paris Agreement will come into force to keep warming well below 2°C above pre-industrial levels, and to pursue keeping warming below to 1.5°C. It was recognised that to achieve these greenhouse gas emissions in 2050 will have to become equivalent to net-zero.

Amongst other actions the Panel advocates for the setting a target of zero emissions by 2050 (or better) and implementing effective policies and commitment to the investment required to achieve this. Many cities and States including South Australia have set targets of reaching 100 per cent renewable energy by 2050.

Consideration of an increased tree canopy; major public transport and infrastructure upgrades are essential, as well as catering for low emission private transport. Adaptation policies will also be required.

## Energy supply and energy efficiency

Sydney's households and businesses place significant pressure on the environment through their use of energy. Emission reduction is possible by considering how energy is generated, supplied and used.

Much of the existing infrastructure is reaching the end of its asset life and becoming more expensive to run. At the same time changes to the way energy is generated and supplied have already begun. There has been a rapid growth in the uptake of rooftop solar with the prospect of battery storage and community energy precincts solutions emerging. However to date overall investment in new infrastructure has been slow to respond to new technology and the urgency of climate change.

A strategy must be implemented that leads to further investment in low emission generation and supply/storage options at a regional, district and building level. These are large long-life infrastructure investment decisions and must be made objectively and carefully as they will directly affect emissions levels for decades to come.

In addition encouraging investment in energy efficiency in new and existing buildings, street lighting and industry is critical, and is recognised as one of the easiest, cheapest and fastest ways to reduce energy use, related greenhouse gas emissions as well as 'energy poverty'. The state's energy efficiency credits scheme and BASIX have been important drivers and should be subject to continual improvement.



### Water supply and water efficiency

While some improvements to water efficiency have been made in recent years, water supply and its disposal has remained unchanged for several decades. There is very little recycling and re-use of wastewater or stormwater in Sydney compared to a number of other cities.

It is estimated that a city like Sydney could recover recycled wastewater equivalent to a volume that is 1.5 times in excess of present water use. Many other cities around the world are transitioning to becoming much more water sensitive. Singapore for example currently uses recycled water to provide 30% of the nation's water needs. While Sydney has made significant strides in the last decade with more efficient toilets, showers, leakage control and rainwater tanks and under Sydney Water's Operating Licence (Sydney consumes the same amount of water as in the 1970s despite almost doubling population) - it appears that the push for more recycling and efficiency from the utility in conjunction with IPART, is slackening.

There is an urgent need to invest in storm/waste water capture, treatment and re-use systems. The adoption of Water Sensitive Urban Design (WSUD) measures at a building, district and regional scale is also recommended, as well as improving standards for existing and new buildings in relation to water capture, recycling, re-use and efficiency.

### Natural hazards

Greater Sydney faces a number of natural hazards such as heatwaves, bushfires, storms, flooding and drought. Most are predicted to become more severe and frequent as a result of global warming. It is important that the city, its new and existing buildings and infrastructure consider the importance of climate change adaption to 'accommodate' for natural hazards by designing-in resilience.

### Peri-urban areas

Peripheral (peri-) urban areas are the interface between our cities and rural areas, comprising urban, residential, semi-rural agricultural and biodiversity areas. They are highly contested with a growing population as Sydney expands and are vulnerable to being subsumed for housing and infrastructure. These areas contain natural assets and significant landscapes that are important for recreation and tourism, as well as being a source of productive agricultural land with economic and employment value. There is potential to expand the diversity of agricultural products and environmental services.

Environmentally the eco-systems in these areas assist with water and waste management, reduce the city's urban heat island effect, improve Sydney's air quality, reduce carbon emissions, improve nutrient recycling, and can be used to support and expand the conservation of biodiversity.

There is a need to strategically consider much of this land for its own value - not just land in waiting for urban development.

## 1.3 Multiple Benefits

In addition to examining these 15 key environmental parameters separately, they were categorised under the three essential features of a modern city – efficiency, resilience and landscape (natural and cultural).

The terms are intended in their broadest sense, for example efficiency does not simply entail travel times, but is also very relevant to how a city conserves, consumes and recycles resources or its health budget. See **TABLE 1: 15 Parameters and multiple benefits** below.

It is also important to recognise that individual environmental parameters can deliver multiple benefits across social and economic activity and the environment. The Panel paid attention to expressing environmental parameters in terms of economic outcomes, as well as acknowledging it is not always possible to give them a quantified value. In other words environmental values can engage in an economic discourse that should be considered just as important as more conventional commercial numbers – a view likely to be held by many members of the community.

Citizens live in a city and expect to derive many social, environmental and economic benefits, not just a limited range. When major and ongoing controversy erupts about the future of a city like Sydney, it is inevitably the result of decisions creating a significant imbalance between environment/social and economic outcomes.

**TABLE 1: 15 Parameters and multiple benefits**

City in Landscape	Efficient City	Resilient City
Health of waterways: blue grid, stormwater and sewerage pollution control, riparian and coastal restoration and offshore habitat protection, sustainable coastal development	<ul style="list-style-type: none"> <li>• Catchment to coast based water management</li> <li>• Tourism and recreation</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce waterborne disease</li> <li>• Mitigate the effects of climate change, especially sea level rise and flooding</li> </ul>
Biodiversity: natural heritage and threatened species, in touch with nature, city identity, walking paths, not all concrete	<ul style="list-style-type: none"> <li>• Tourism</li> <li>• Education</li> </ul>	<ul style="list-style-type: none"> <li>• Contribution of natural systems</li> </ul>
Open space – Green Grid: outdoors climate, clean air, healthy lifestyle	<ul style="list-style-type: none"> <li>• Reduce health costs associated with sedentary behaviour, obesity and mental illness</li> <li>• Opportunity to capture stormwater for re-use</li> <li>• Green city image attracts tourism</li> </ul>	<ul style="list-style-type: none"> <li>• Public space for community connectivity and public health and well being</li> <li>• Alleviate heat island effect</li> <li>• Reduce storm water run-off to prevent flooding</li> </ul>
Urban trees: cooling, shade and soften city streets, wildlife habitat and corridors, walking, cycling paths, local identity	<ul style="list-style-type: none"> <li>• Reduce energy usage and CO<sub>2</sub> emissions through the provision of shade and reduction of heat island effect</li> <li>• Improve air quality through carbon sequestration and pollution capture</li> <li>• Reduce health costs associated with sedentary behaviour, obesity, mental illness and skin cancer</li> <li>• Trees and soft surfaces slow the rate at which water flows into waterways and stormwater systems</li> <li>• Green city image attracts tourism</li> </ul>	<ul style="list-style-type: none"> <li>• Adapt to climate change</li> <li>• Alleviate heat island effect</li> <li>• Reduce public heat stress</li> </ul>
Local character: maintain differences rather than conformity, social links to a location	<ul style="list-style-type: none"> <li>• Helps create social/community capital to contribute to area planning and protection</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain long standing knowledge of local area</li> </ul>
Heritage	<ul style="list-style-type: none"> <li>• Tourism via heritage trails, historic houses and exhibitions</li> <li>• Education assets</li> </ul>	
Scenic protection: backdrops, view lines and corridors	<ul style="list-style-type: none"> <li>• Tourism and recreation</li> <li>• Reduce health costs associated with sedentary behaviour, obesity and mental illness</li> </ul>	
Air quality: health and visual impacts	<ul style="list-style-type: none"> <li>• Reduce health impacts, and transport costs via public transport</li> </ul>	<ul style="list-style-type: none"> <li>• Increase transport choices</li> </ul>

City in Landscape	Efficient City	Resilient City
Noise	<ul style="list-style-type: none"> <li>• Green city image</li> <li>• Reduce health impacts and loss of productivity</li> </ul>	
Waste management contained within the Sydney basin	<ul style="list-style-type: none"> <li>• Putting disposed resources back into the economy places less pressure on limited landfill and reduces disposal costs</li> <li>• Economic value of reprocessing sector</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce reliance on raw materials/mining through recycling</li> </ul>
Climate Change Zero carbon 2050: reduced environmental footprint	<ul style="list-style-type: none"> <li>• Zero carbon 2050: less costly pollution</li> <li>• Enhance utilisation of natural / sustainable energy sources (wind, wave, solar) with economic and employment opportunities</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce number and severity of future damaging weather events (bushfires, floods, storms and heat waves)</li> </ul>
Energy supply and energy efficiency, distributed power/storage supply	<ul style="list-style-type: none"> <li>• Reduce household and business costs power and interruptions</li> <li>• Reduce energy poverty</li> <li>• Reduce costs related to health and fatalities associated with hot/cold buildings</li> </ul>	<ul style="list-style-type: none"> <li>• Distributed energy power/storage sources: less reliance on central or large 'at risk' generators</li> <li>• Energy efficiency reduces demand and pressure on energy generation</li> <li>• Improve occupant health and comfort</li> </ul>
Water Supply and water efficiency, distributed and recycled water sources	<ul style="list-style-type: none"> <li>• Increase potential water supply and reduce costs</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce reliance on central supply and potential interruptions</li> <li>• Resilience in times of drought</li> </ul>
Natural hazards are acknowledged, understood, planned for and incorporated into city planning and environmental management	<ul style="list-style-type: none"> <li>• Reduce costs of damage and clean-up</li> <li>• Reduce risk to financial and insurance sectors</li> </ul>	<ul style="list-style-type: none"> <li>• Improve natural hazards emergency management</li> <li>• City centres and buildings adapted and more resilient</li> </ul>
Peri-urban agricultural lands	<ul style="list-style-type: none"> <li>• Maintains tourism and agri-tourism opportunities</li> <li>• Reduce health costs associated with sedentary behaviour, obesity and mental illness through recreation opportunities</li> <li>• Maintain economic value of agricultural sector</li> <li>• Provide "low mileage" food</li> </ul>	<ul style="list-style-type: none"> <li>• Improve air quality</li> <li>• Alleviate heat island effect</li> <li>• Reduce flooding potential</li> <li>• Benefit to urban biodiversity</li> <li>• Community diversity</li> <li>• Food security</li> </ul>



## 1.4 Priority Issues at a District Level - Community Feedback

In order to collect community views about the importance of the 15 key environmental parameters and the state of the environment in their district, the Environment Panel carried out an online survey and held two face-to-face group meetings.

**Attachment 3** - Summary of Survey Results

**Attachment 4** - Notes from Environment Panel Community Forums

District Plans need to take account of this information and consider it an important input when planning for future development. Review of the draft District Plans provides the opportunity to further elucidate these issues with a combined community view. Social and environmental inequity will arise and become a significant issue if not treated in a serious, fair and transparent manner planning and management decisions.

Undoubtedly these and other issues will be articulated in the forthcoming consultation on the draft District Plans.

## 2

## Background

### 2.1 About the Greater Sydney Commission

The Greater Sydney Commission is a body, independent of Government, constituted under the [Greater Sydney Commission Bill 2015 \(NSW\)](#).

The principal Objectives of the Commission are to:

- Lead metropolitan planning for the Greater Sydney Region;
- Promote orderly development in the Greater Sydney Region, integrating social, economic and environmental considerations with regard to the principles of ecologically sustainable development contained in section 6 (2) of the *Protection of the Environment Administration Act 1991*;
- Promote the alignment of Government infrastructure decision-making with land use planning;
- Promote the supply of housing, including affordable housing;
- Encourage development that is resilient and takes into account natural hazards;
- Support ongoing improvement in productivity, liveability and environmental quality.

As determined in the Greater Sydney Commission Bill, [the Commission comprises of](#):

- A Chief Commissioner
- A Commissioner with the principal responsibility for the activities of the Commission related to environmental matters;
- A Commissioner with the principal responsibility for the activities of the Commission relate to social matters;
- A Commissioner with the principal responsibility for the activities of the Commission related to economic matters;
- 6 District Commissioners, one for each of the [six districts](#) of the Greater Sydney Region;
- Ex-officio representatives of the Department of Planning and Environment, the Department of Transport, and the Treasury; and
- One Sydney Planning Panel for each of the six districts. These Panels will determine regionally significant development applications (generally development over \$20 million) and consider rezoning reviews. The Sydney Planning Panels will replace Joint Regional Planning Panels.

Relevant to Environment Panel the Greater Sydney Commission has the following [Priorities](#) in its inaugural period from January 2016 to October 2018:

- To provide advice and make recommendations to the Minister on matters relating to planning and development in the Greater Sydney Region;
- To prepare a Strategic Plan for the Greater Sydney Region that combines a review of 'A Plan for Growing Sydney', the 'Long term Transport Masterplan 2012' and 'Rebuilding NSW - State Infrastructure Strategy, 2014'
- To prepare develop and exhibit a District Plan for each of the six districts of the Greater Sydney Region;
- To prepare, through the District Planning process, an Annual Infrastructure Priority List
- To establish the six Sydney Planning Panels; and
- To assist local councils in the Greater Sydney Region and other government agencies on the implementation of any plan or proposal relating to development in the Greater Sydney Region.

### 2.2 About District Plans

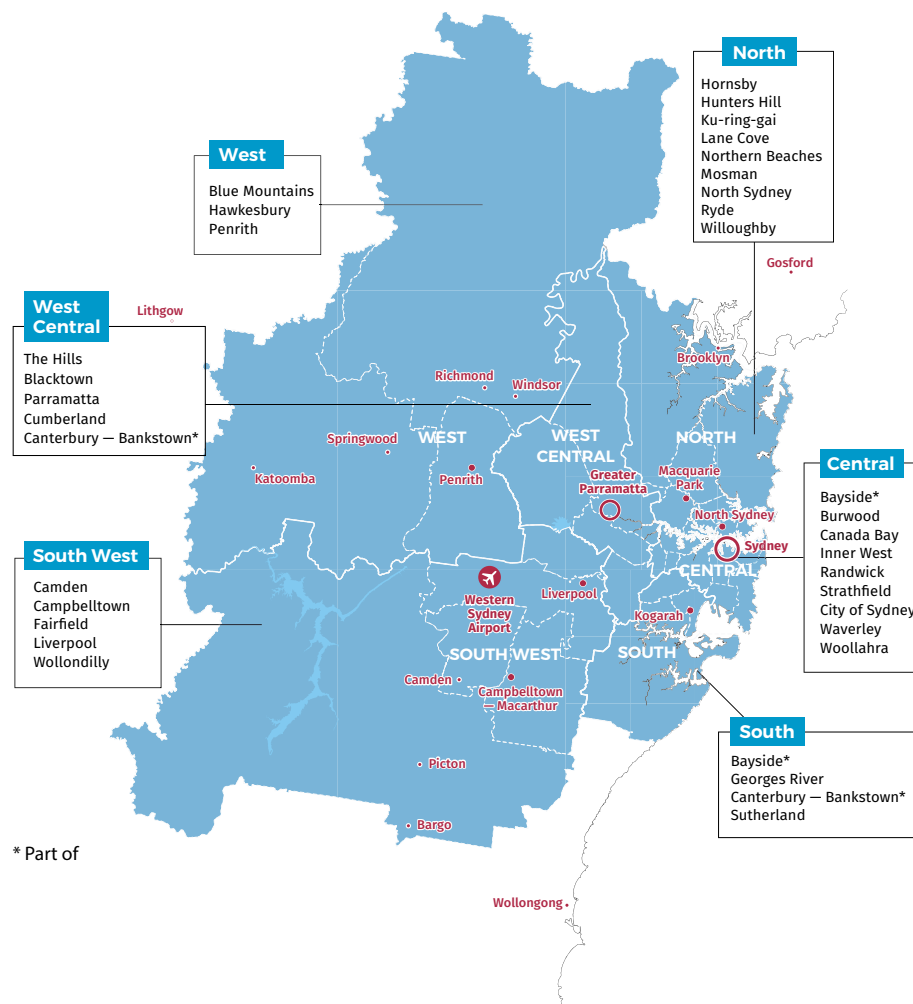
District Plans will outline key long-term strategies and priorities for each of the [six districts](#) across the Greater Sydney Region, connecting local planning with longer term metropolitan planning. These Plans will be used to guide the preparation of Local Environment Plans (LEPs), as well as

ENVIRONMENT PANEL ADVISORY PAPER FOR THE GREATER SYDNEY COMMISSION

drive decision making and inform the co-ordination and prioritisation of service and infrastructure delivery by government.

The District Plans are to be consistent with the government's *Metropolitan Plan* which has the four goals of:

- **Goal 1:** A competitive economy with world-class services and transport
- **Goal 2:** A city of housing choice
- **Goal 3:** A great place to live
- **Goal 4:** A sustainable and resilient city



Map courtesy of Greater Sydney Commission



## 2.3 About the Environment Panel

An integral part of the Greater Sydney Commission is the commitment to “engage thoroughly, consistently and transparently with the community, local government and state agencies”.

In line with this the Greater Sydney Commission (GSC) developed a mechanism for ongoing and high-level policy input into the draft District Plans through the establishment of two independent Panels - the Social Panel and the Environment Panel.

The Environment Panel was co-convened by the Environment Commissioner Rod Simpson and Jeff Angel, Executive Director of the [Total Environment Centre](#). This Panel comprised of representatives from peak professional bodies, community groups and academic organisations:

Sydney Peri-Urban Network (SPUN)	Youth Action
100 Resilient Cities	Australian Institute of Landscape Architects (AILA NSW)
The National Trust of Australia (NSW)	Sydney Institute Marine Science, (SIMS)
CRC Low Carbon Living Ltd, University of NSW	Environmental Defenders Office NSW
Committee for Sydney	Better Planning Network
Sydney Coastal Councils Group Inc	Stormwater NSW
202020	Green Building Council of Australia (GBCA)
National Parks Association of NSW	Institute of Sustainable Futures
Nature Conservation Council	

**Attachment 1** provides the Terms of Reference of the Environment Panel.

**Attachment 2** lists the Environmental Panel members.

The role of the Environment Panel was to:

- Provide advice to the Greater Sydney Commission on high level strategic environmental priorities related to the preparation of the six draft District Plans;
- Develop an Advisory Paper (this paper); and
- Provide an effective conduit for communication between the Greater Sydney Commission and the community in relation to environmental issues relevant to the drafting of the six draft District Plans.

## 2.4 About the process that led to this Paper

This Paper was developed using information derived from:

- 3 Workshops attended by members of the Environment Panel
- Written submissions provided by members of the Environment Panel
- Information collected from community groups and individuals via an online survey (sent to 265 groups and individuals across Sydney) as well individual correspondence.
- Information collected from community face-to-face meetings held in the Sydney CBD and Granville in October 2016.

**Attachment 3** - Summary of Survey Results

**Attachment 4** - Notes from Environment Panel Community Forums

### 3

## Key Environmental Issues for the Greater Sydney Area

The Panel identified 15 key environmental parameters that should be addressed in the Greater Sydney area. They are:

- Waterways
- Biodiversity
- Open space
- Urban trees
- Local character
- Heritage
- Scenic protection
- Air quality
- Noise
- Waste management
- Climate Change
- Electricity supply and energy efficiency
- Water supply and water efficiency
- Natural hazards
- Peri urban areas

For each environmental parameter this Section of the Paper provides:

- A description of the issue;
- Relevant evidence detailing why the issue is important for the environmental, social and economic well-being of Sydney;
- Barriers which have prevented these issues being addressed adequately to date;
- Suggested metrics by which to benchmark and review change in each parameter over time; and
- Possible solutions that should be considered in the drafting of the District Plans.

The Environment Panel strongly supports the use of metrics (specific statements or measurements) by which to inform the draft District Plans and assess their performance over time. The metrics which may be further developed by the Panel are intended to move beyond broad general statements which are difficult to monitor and importantly help to operationalise environmental sustainability. Both quantitative and qualitative metrics are proposed. Priority has been given to metrics that are specific, measurable and able to be monitored over time.

When environmental or social metrics are applied to a specific development or precinct, they ensure that sustainability and liveability are considered equally as economic concerns. Metrics have been provided for the retrofitting of the existing urban fabric as well as more challenging metrics for new development taking advantage of new technology and environmental planning. They should not be regarded as optional and should adopt the approach taken by the BASIX legislation.

It is recommended that metrics should be measured annually, and evaluated for ongoing relevance every four years in line with District plans reviews. These metrics should link to Local Government Integrated Planning and Reporting data.

**Section 4** of this report provides a full tabulated list of all of the proposed metrics for the 15 environmental parameters.

### 3.1 Waterways

The network of waterways that extends across Greater Sydney includes creeks, rivers, bays, harbour and ocean edge. They form the 'Blue Grid' containing vital environmental resources and include features that define the internationally recognised character of the city.

They should not be regarded as places to discharge polluted water or dangerous materials such as plastic

Much has been done to improve water quality in Sydney, particularly with regards to sewage treatment, however, multiple point discharge, untreated terrestrial runoff, unsewered properties and aging water infrastructure are an ongoing challenge for our waterways, the biota and recreational activity they support.

Urban stormwater discharged into inland creeks carries litter and debris, nutrients, sediments and a range of contaminants to the estuaries and subsequent waterways. This builds upon a legacy of contaminants being put directly into parts of Sydney's waterways from former industrial sites, that has left many areas severely degraded. Sand mining is also a threat with the Hawkesbury-Nepean system in the frame.

The network of waterways in Sydney needs to be managed in an integrated way from coast to catchment boundaries. There is a need to ensure that multiple planning processes undertaken by the government authorities in the freshwater, marine and estuarine environments are done in an integrated way. A 'neutral or beneficial' test should be applied to potentially polluting developments.

There is also an urgent need to move from just monitoring and describing the condition of our waterways and coasts, to a program of restoration, rehabilitation and environmental management that fix the problems in a sustainable manner. Recent improvements in this field are the Cooks River and Clear Paddock Creek with riparian restoration. Communities are also pressing to make some urban streams swimmable.

#### Evidence

- Many streams have been subject to heavy engineering intervention such as wholesale concreting and hard edged bank construction to facilitate stormwater escape. This has removed crucial riparian vegetation.
- Stormwater discharge and sewage overflow are responsible for high concentrations of heavy-metals in sediment up to 50 times above background levels (PRCG 2016). Over 50 % of the sediment in Sydney Harbour exceeds Interim Sediment Guideline-High concentrations for lead (NSW DPI 2014). Microplastic pollution is also prevalent.
- There has been a decline or loss of marine and estuarine species including seagrasses, mudflats and saltmarshes (CSIRO 2015).
- Several marine and estuarine species from the Greater Sydney area are listed in the IUCN red list of Threatened Species, including a number of fish species, turtles and mangrove species (IUCN 2016).
- The most up to date summary and complete evidence for various threats to Sydney's marine and estuarine environments can be found in the [MEMA Hawkesbury Shelf Marine Bioregion Assessment Discussion Paper](#) (MEMA 2015).

The resulting report identified 15 priority Threats and provided recommendations for their management including shipping, estuary opening/modified freshwater flows, urban stormwater discharge, recreation & tourism, boating & boating infrastructure, foreshore development, agriculture diffuse source runoff, point source discharges, commercial and recreational fishing, climate change, clearing, dredging & excavation activities, commercial fishing, aquaculture.

#### Barriers to Improvement

- Ineffective catchment-wide water management
- Lack of integration across multiple relevant planning processes
- Fragmented water management (system and asset)
- Lack of adequate (size, zoning) of Marine Protected Areas



- Need for enhanced monitoring to assess the effectiveness of land use and management interventions (no learning by doing)
- Aging stormwater infrastructure and the cost of its upgrade or replacement
- Lack of regulation for stormwater management
- Lack of a “green” approach to building of waterway infrastructure
- A long term decline of key habitat forming species in rivers, estuaries and coasts

## Metrics

### Quantitative:

- Water quality
  - National Standards
  - WHO standards
  - NHMRC Standards
  - New and emerging contaminants
- Ecosystem health (structure and function)
- Swimming closure days vs. swimmable days
- Percent armoured vs. natural shoreline
- Coastal erosion or enhancement
- Health of fisheries stocks
- Invasive species
- Percentage reduction of sediment, phosphorus, nitrogen, and litter runoff when compared to untreated runoff

### Qualitative:

- Survey of community perception of waterway health and range of recreational activities

## Solutions

- Coast to catchment management
- Integrated government planning processes (through Coastal Reform legislation, MEMA, and GSC processes)
- Improved management of stormwater and terrestrial run-off including a reduction of discharge volume by increasing permeability on land and retention of rain water and reuse, a reduction in pollution content by filtering and cleaning stormwater before reaching the waterways, and a reduction of sewage overflow into stormwater drains □
- Comprehensive approaches to monitoring ecosystem health
- On ground works for healthy coasts and waterways including habitat restoration and building marine infrastructure.
- Where natural habitats are in healthy condition the establishment of a system of marine protected areas/spatial closures is recommended. This will be the land use planning framework for marine and estuarine spaces in Sydney. Areas should include sites within Sydney Harbour, Botany Bay and along the metropolitan coast. Potential sites are identified in the MEMA Discussion Paper and should be considered in the drafting of the District Plans.
- When ecosystems are already degraded, where pollution and human disturbances are low, managed retreat and restoration of natural habitats is possible. In polluted and stressed environments where return to historical conditions cannot be done, rehabilitation and remediation strategies are appropriate, such as soft engineering and green infrastructure solutions.
- Land use planning for coasts and waterways including the reviewing of relevant SEPPs and the Harbour specific Environmental Plan.

- Improving water quality and reducing marine litter through a wide range of initiatives such as implementing works and programs to address catchment runoff and water pollution source reduction, setting targets and monitoring; extended producer responsibility schemes to establish packaging collection systems; as well as community education and research.

### 3.2 Biodiversity

Greater Sydney has a complex and valuable diversity of species and includes some of the most critically endangered wildlife, plants and ecological communities in NSW, nationally and globally. The unique biodiversity inside the urban boundary is severely depleted and bushland continues to be removed. Nevertheless the ability of some wildlife to persist in small pockets and expand into restored habitat makes Sydney globally, a very special landscape.

Key threats to vulnerable species within protected areas include weeds, feral animals, disease, inappropriate recreational use, climate change and pollution from surrounding developed areas. Outside protected areas wildlife is also threatened by land clearing for major infrastructure projects (such as Badgery's Creek Airport and West Connex) and residential development, mining, under scrubbing, removal of old and dead trees, firewood collection, herbicide and fertiliser use, noise, light and air pollution, urban heat effect and stormwater pollution. A growing concern is the use of offsets far removed from the 'like for like' principle. In the urban setting it is very difficult to find offsets that 'maintain or improve' a threatened ecological community in the affected District – the result being an absolute loss of important native vegetation and wildlife.

It is important to understand and retain what is remaining and improve wildlife habitats and corridors. Future planning should use benchmarking studies and a restorative approach. There must be a recognition of priority biodiversity sites and species which are protected and where development or offsets should not occur.

A new approach is required to the conservation and management of biodiversity values. The Panel considers there needs to be more integrated and focused management and government priority for the Green Grid (also see Open Space below).

#### Evidence

Vegetation clearing associated with urbanisation, intensive agriculture and abandoned land awaiting development has been extensive leading to a range of threatened plant and animal species.

- The Sydney Basin Bioregion contains 2 endangered and 4 vulnerable frog species, 54 vulnerable and 14 endangered bird species, 25 vulnerable and 3 endangered mammal species and 11 vulnerable and 2 endangered reptile species (OEH 2016)
- The forests of the sandstone plateau to the north and south include at least seven threatened ecological communities, 32 threatened resident animals and 100 threatened plant species. (Resilient Sydney City Context Report, 2016)
- The Cumberland Plain woodlands and estuaries include a disproportionately large 25 threatened ecological communities, 30 threatened plant species, 38 resident terrestrial threatened animals, 15 threatened aquatic animals and 27 threatened seabirds. The region also boasts hundreds of species of threatened and protected migratory bird species. (Greater Sydney Local Land Services 2016)

#### Barriers to Improvement

- Lack of effective commitment and resources to protect, manage and maintain biodiversity assets
- Ad hoc investment in survey, assessment and mapping of biodiversity
- Agency powers overriding environment protection legislation
- Review of current land clearing legislation
- Potential changes to Urban Bushland SEPP and new proposed Urban Tree SEPP
- Lack of consideration of cumulative loss and edge effects
- Insufficient focus on and effective implementation of mechanisms to enhance biodiversity on private land

- Impact of weeds, vertebrate pests (including domestic and feral animals), and wildfire on biodiversity
- Weak offset rules and a lack of prohibition of clearing for threatened remnant vegetation

### Proposed Metrics

- Area of habitat
- Percentage of habitat restored annually
- Enhancement of biodiversity corridors (and links to Green Grid)
- Success of feral and weeds management
- Area of tree canopy in the district (decline, increase – note tree planting is not an equivalent to existing mature canopy)
- Number of threatened species and ecological communities in district
- Number of threatened species and ecological communities in district recovering, declining or lost.

### Solutions

- Establish a Green Grid Open Space Trust with statutory authority to acquire and manage land within the Green Grid that has significant biodiversity values or an interagency strategic planning group inside the GSC
- Obtain adequate baseline measure of biodiversity and ensure development assessment carries out rigorous surveys
- Identify and map priority biodiversity sites and species where development or offsets should not occur
- Identify supporting habitat, 'stepping stones', potential corridors, degraded sites suitable for rehabilitation
- Retain remaining biodiversity areas, improve and extend wildlife habitats and corridors.
- Require consistent and rigorous independent environmental assessment for new development
- Impose 'like for like' where offsets are used and avoid diluting offsets
- Prioritise native species for open spaces and urban tree planting
- Prioritise invasive species management and bush regeneration programs

## 3.3 Open space

The people of Sydney highly value the green spaces near their homes, access to major regional parklands and the outdoor lifestyle this brings. This is borne out in previous public surveys and the strong community reaction when open space is sold-off or alienated for development. These spaces provide for both passive and active recreation as well as a home for biodiversity.

With population growth and increased urban density new open space with good accessibility will need to be provided and the capacity of existing open space increased by investment in new, multiple-use facilities. When recreational uses such as golf courses and bowling greens are no longer viable the land should be reallocated to new open space purposes.

The provision of good quality open space containing recreation and cultural facilities will be essential to facilitate healthy lifestyles for adults and children in particular to combat obesity and stress, thus assisting the health budget. This is especially so in the inner rings of the city where open space provision is poor and the western suburbs where the open space provision is inadequate and the forecast population growth is high.

'A Plan for Growing Sydney' contains Direction 3.2 '*To create a network of interlinked, multi-purpose open and green spaces across Sydney*' also known as The Green Grid. The Green Grid is a key measure providing the foundation for a comprehensive city wide open space network and must be considered both in its capacity to provide for public amenity as well as its ability of sustaining and building in biodiversity over time.



## Evidence

The Greater London Authority (GLA) acknowledges [the benefits of having access to high-quality green spaces](#) as the population grows and the city increases in density. The Authority also notes the need to create many more innovative and non-traditional green spaces, such as green roofs and roof gardens.

The Green Infrastructure Task Force set up by the Greater London Authority in their report '[Investing in Green Infrastructure for a Future London](#)' (GLA 2015) discusses why investment is increasingly necessary, and sets out the changes to policy, governance, valuation and funding that are needed to ensure long-term investment in London's green infrastructure. Recommendations include the need to appoint a Green Infrastructure Commissioner; further refinement of the All London Green Grid; new approaches to reveal the economic value of green infrastructure; and working with others, such as the National Park City initiative to find better ways of engaging the public.

The American based Trust for Public Land has published a series of reports that present the case for open space in US cities. They include:

[Economic & Health Benefits of Parks & Open Space](#) (2010)

[Measuring the Economic Value of a City Park System](#) (2009)

[Report-From-Fitness-Zones-to-the-Medical-Mile](#) (2011)

The Trust also determined an economic value for the San Francisco parks system at \$959 million a year in its [Value Report](#) (2014)

## Barriers to Improvement

- Existing green spaces assets are not sufficiently protected development and infrastructure projects
- Lack of commitment and agreed policies, process and criteria for provision of open space to meet current shortfalls and requirements for additional population resulting from increased urban density
- Lack of commitment, co-ordination and resources to manage and maintain open space by councils, government agencies and trusts
- Cost of acquiring land for new open space and rehabilitation 'brown field' sites Limited funding to provide facilities within open spaces to make them attractive, safe and enjoyable
- Lack of Sydney specific quantification of the benefits of open space and appropriate standards of allocation, quality, capacity and spatial distribution
- Impact of utility companies maintaining their infrastructure in public open space
- Increasing densities as compared to block sizes has led to reduced green and open spaces in and around new residential developments.
- Public open space required by development contribution schemes is often determined by dated, unscientific legislation
- Lack of effective governance structure with funding and skills required to ensure sustainable management of open spaces with high biodiversity values but limited recreation potential
- The [2020 Plan](#) documents 20 barriers to achieving further urban tree cover and green spaces. They summarise five key themes including: funding and Investment, knowledge and skills, planning and policy, culture and community, climate and environment

## Proposed Metrics

### Quantitative:

- Area of open space in square meters per person (local, district, regional)
- Area of open space provided by new developments relative to the number of new residents
- Accessibility – local open space within 200m / 10 min walk
- Economic value (environmental services, increased value of adjoining properties)

- Capacity of available open space to provide a range of facilities & recreation opportunities
- Quality and accessibility of open space as determined by level of usage and results of user surveys
- Frequency and level of usage by sports and other recreation groups

**Qualitative:**

- Survey of community perception of values and adequacy of multiple formal and informal uses

**Solutions**

- Establish legislation and development assessment practices that protect open space from alienation
- The following draft Open Space Planning process is proposed to be carried out at Precinct level:
  - Determine the precinct boundary
  - Review the 'Green Grid' mapping in relation to accuracy at the more detailed precinct level
  - Identify additional relevant data sets (e.g. Council assets, tree inventories, vegetation mapping etc.) and review accuracy at appropriate scale
  - Carry out more detailed mapping as necessary to fill gaps
  - Define analysis criteria and weightings for GIS analysis
    - Open space type
    - Ownership (state, council, private)
    - Existing facilities and capacity
    - Potential increase in capacity
    - Tree cover
    - Services
    - Accessibility
    - Drainage and water bodies
  - Analyse demographic census data to determine spatial distribution of;
    - Population numbers
    - Age classes
    - Income categories
    - Household size
  - Determine open space requirements of the existing residents against agreed criteria
  - Analyse spatial distribution of open space requirement against existing open space capacity and identify any shortfalls that may exist
  - Assess the potential to increase the current capacity of existing open space resources
  - Determine any shortfall that would exist after increasing capacity
  - Analyse projected increase in number of residents in the Precinct to determine open space requirements
  - Assess the additional requirement against existing open space and identify shortfall in terms of area required and spatial distribution in relation to users
  - Analyse demographics of existing and future users to determine the range of recreation facilities and open space opportunities required to meet their needs
  - Prepare a program of facilities and opportunities to be provided in the open spaces across the Precinct

- Establish a Green Grid Open Space Trust that would provide an effective governance structure to deliver and manage open space that contains significant biodiversity values. The Trust would have statutory authority to acquire and manage open space using revenue generated through a range of sources including sale of bio-banking credits. Land acquired and managed by the Trust would ensure protection of their significant ecological values while providing controlled public access for recreation that would generally consist of pedestrian / cycle paths providing connectivity between recreation open spaces and adjoining residential and employment lands; or
- An alternative to the Green Grid Open Space Trust could be the establishment of an interagency Open Space Strategic Planning Group within the Greater Sydney Commission structure, which would operate within the framework of the District Plans. The Group would be responsible for coordination and facilitation of ownership and management arrangements for open spaces within the Green Grid, particularly areas that have been assessed as being of high ecological value
- Adequate resourcing of organisations and authorities responsible for local parks and reserves
- Identify opportunities to create new non-traditional open space such as using air space above sections of railway and highway corridors to meet the open space needs of new residents in high density developments around railway stations and commercial centres.

### 3.4 Urban trees

The argument to keep and expand urban tree cover is overwhelming with its environmental, social as well as high economic value clearly demonstrated by research carried out in many countries including Australia.

Urban trees provide multiple benefits. These include the provision of shade - reducing the risk of people suffering heat stress, mitigating of the urban heat island effect, assisting in climate change adaptation, and reducing the costs of energy for cooling. Trees improve air quality through carbon sequestration and the interception of pollution, as well as reducing stormwater runoff and providing habitats for wildlife. They also regulate and filter inflows into waterways.

However the extent of urban tree cover is being reduced by combination of activities, including clearing for urban, industrial and infrastructure development. This is most pronounced in peri-urban areas undergoing rapid development, urban and suburban infill areas where gardens are being cleared and house to land ratios are increasing; and as a result of recent major infrastructure projects. Urban trees are also impacted by overhead and underground services that result in heavy pruning of existing street trees and prevent new trees being planted along streets and highways. It is important to acknowledge that the planting of trees including native species (some now subject to removal) has been a significant community and local council effort encouraged by government and desired by the community, over many decades.

Increasing the urban tree canopy of Sydney will require more involvement and commitment of communities as well as better coordination between the multiple authorities and organisations whose activities impact urban trees. This needs to include a review of current legislation under which the activities of various organisations are carried out that impact urban trees. The real value of urban trees needs to be determined by using valuation methods that fully capture and quantify all of their benefits. Accurate valuation of urban trees will allow more informed decision making about investing in new tree planting as well as proposals to remove existing trees.

The NSW Government has announced development of a new Urban Tree State Environmental Planning Policy (SEPP). This will replace Standard Instrument LEP provisions relating to tree removal permits in urban Local Government Areas as well as the current SEPP 19 Bushland in Urban Areas. It will determine, clearing that can be done without consent, clearing that can be done with consent and clearing that requires offsets.

There is danger that the new Urban Tree SEPP will adopt a 'one size fits all' approach and weaken protection for urban vegetation. The new SEPP should incorporate the strongest provisions currently available in LEPs and other instruments. This should include identifying and recording the location of areas of native vegetation and significant trees.

## Evidence

Trees form the key building block of green infrastructure in the urban environments. The multiple benefits of urban trees have been identified and quantified in many cities.

As part of its Urban Forest Strategy 2012-2032, (<https://www.melbourne.vic.gov.au/SiteCollection/Documents/urban-forest-strategy.pdf>) the City of Melbourne has estimated the amenity value of its urban forest at \$700 million. The Strategy recognises that large mature trees provide 75% more environmental benefits than smaller trees.

Targets for urban forest cover range from a 50% increase over 20 years for Sydney City and a 44% increase over 20 years for Melbourne to planting 3 million trees across greater Adelaide by 2014 and 2 million in Brisbane by 2026. The City of Sydney Urban Forest Strategy follows the American Forest (2002) recommendations of 15% canopy cover for the CBD, 25% cover for residential and light commercial areas and 50% for suburban residential. Only 5 northern suburbs currently have 50% or more tree cover (The Hills Shire, Hornsby, Pittwater, Warringah and Ku-Ring-Gai).

The [London iTree eco project](#) (2015) estimated that London's trees provide at least £133M of benefits every year in terms of air pollution removal, carbon sequestration and reducing the amount of water going into drains.

Californian street trees have been valued at \$1billion ([USDA Forest Service study, 2016](#)), and provide a return of \$5.82 in benefits for every \$1 spent on planting or maintaining a street tree.

The [City of Melbourne Urban Forest Strategy 2012-2032](#), which estimated the value of its urban forest at \$700 million, identifies multiple benefits that include:

## Environmental Benefits

- Provision of shade and mitigation of the urban heat island effect
- Reduction of stormwater flows and nutrient loads
- Reduction of air pollution, air-borne particulates and greenhouse gas emissions
- Provide habitat and enhance levels of biodiversity

## Community

- Creation of local identity
- Improve community cohesion by providing places for events, festivals and celebrations throughout the city
- Encourage outdoor activity and exercise to improve health
- Reconnect children with nature
- Reduce sun exposure and the prevalence of skin cancer
- Reduce heat related illnesses
- Improve mental wellbeing by providing physical and visual access to open spaces with trees

## Economic

- Reduce energy consumption and costs through shading buildings in summer and cutting energy costs for air conditioning
- Increase property values resulting from street trees and nearby parks with trees
- Extend the life of bitumen pavements by shading them with tree canopies
- Decrease health costs associated with sedentary behaviour, obesity, mental illness and skin cancer
- Reduce the time spent in hospital by providing patients with views of tree and other 'green'
- Marketing the green image of the city to make it more competitive in attracting tourists, entrepreneurs and creative people, thereby expanding its political and economic influence

The City of Melbourne has set a target to increase public realm canopy cover to 40% by 2040.

The [City of Sydney Urban Forest Strategy](#) also notes the environmental, aesthetic enhancements,



psychological, social and economic benefits of urban trees. The City plans to enhance those benefits by increasing the average total canopy cover to 23.25% by 2030 and 27.13% by 2050.

Other councils and state government agencies have assessed the extent and value of urban trees in the Sydney region to varying levels of detail; and all areas should have an equivalent level of investigation, recording and monitoring.

The '[Green Grid](#)' developed by the NSW Government Architects provides a comprehensive picture of Sydney's tree canopy cover at a city-wide scale. It provides a framework for more detailed assessment at the level of District Plans and more detailed Precinct planning.

### Barriers to Improvement

- Previous historical increase in tree planting involving significant government and community investment has been eroded and repudiated due to changed priorities in decision making
- State Government legislation is often a disincentive for increased canopy and priorities with densification and development ambitions taking priority over protecting existing canopy cover
- Review of land clearing legislation
- Potential changes to Urban Bushland SEPP and new proposed Urban Tree SEPP; and failure to enforce deep rooted tree plantings for increased density developments
- The *NSW Rural Fires Act 1997 10/50 Rule* governing clearing of trees and vegetation on private land is leading to the removal of urban trees
- Multiple layers of responsibilities and powers to carry out activities that impact on urban tree cover
- Lack of consideration of the business case for increased tree canopy
- The inability for local government to present the benefits of trees as assets in capital expenditure budgets
- Lack of commitment and resources to manage and maintain urban trees by councils, government agencies and private land owners
- Lack of access to measurement tools like GIS/ Heat Mapping, LIDAR and i-tree data, as well as an inconsistent approach to how this data is presented and used
- Impact of utility companies maintaining their infrastructure by mutilation of street trees
- Inadequate space and soil volume to allow healthy urban tree growth without damage to paving and kerbs/gutters
- Poor species selection for site growing conditions, soils, drainage, climate, air quality, pollutants, wind exposure
- Poor soil preparation, planting techniques, establishment and maintenance
- Impact of insects and disease
- Inadequate community involvement in establishing, maintaining and protecting urban trees
- Inadequate planning for older tree succession

### Proposed Metrics

#### Quantitative:

- Economic value measured in dollars (environmental services, increased value of adjoining properties)
- Climate change mitigation of heat island effect measured in degrees
- Reduced energy consumption through shading measured in dollars
- Reduced sickness and death from extreme heat measured in number of occurrences
- Reduced stormwater runoff volume and rate
- Improved water quality of run off assessed against benchmark
- Economic measured by property price indicators
- Canopy coverage against 2014 i-Tree, Lidar and GIS mapping benchmarks

**Qualitative:**

- Survey of community perceptions of values

**Solutions**

- Amend state and federal legislation to remove barriers to allow establishment and long term healthy growth of urban trees
- Take an integrated Metropolitan Approach to Urban Forestry so that measurement is consistent and more cost effective
- Ensure allocation of adequate resources, including funding and technical expertise, to allow establishment, management, and long term planning for Sydney's urban trees
- Set targets for urban tree cover on a Planning District basis and implement urban tree strategies at the Precinct level; identifying responsibilities for implementation based on land ownership/management arrangements
- Establish Advisory Services to assist in ensuring that appropriate species are planted, correct planting techniques are used and an effective maintenance regime is implemented
- Encourage and support the community to plant and maintain trees on both public and private land
- Use cost effective technology (e.g. satellite imagery, drones) to monitor tree canopy cover and health with data managed through the Green Grid GIS system
- Coordinate and monitor research by CSIRO, universities, TAFE etc. and distribute to organisations involved in establishing and managing urban trees
- Promote and coordinate with [The 2020 Vision Plan](#), which provides more than 3000 solutions (aggregated into 28 key solutions), provided by more than 500 participants in 7 states, to achieve extensive urban tree cover and green spaces.

### 3.5 Local character

The local character of an area - its buildings, vegetation and public spaces gives people a sense of place or identity where they engage in family life, connect with other residents as well as to the history of their suburb.

Not surprisingly dramatic changes to local character are resisted and resented by residents - this is especially so with developments such as high rise or major infrastructure projects.

There is a need to recognise and protect existing local character as valued by its residents. Suburbs and precincts should resist 'sameness' where one size fits all. They must retain access to sunlight for parks, streets, homes and backyards. In recent years there have been attempts to give density 'character', but this has largely not been successful.

The recent roll-out of code-assessable development, priority precincts, urban renewal projects and transport corridors, which have eroded environmental, heritage and local character protections, has adversely effected the retention of local character.

**Evidence**

It is clear from recent experiences of development in Sydney suburbs that residents and communities care very much about the local character of their suburbs.

In Victoria, the assessment of neighbourhood character is the mandatory starting point to assessing all permit applications for residential development in established urban areas. It refers to the qualities that make one neighbourhood distinct from another and encompasses a range of physical components of the built environment, architectural styles, street width and layout, vegetation, fence height and style. It specifically excludes heritage that is defined by other local, state and national criteria.

The residential development provisions in Victorian planning schemes and the Victorian Building Regulations are underpinned by key measures to ensure development respects neighbourhood character (see <http://www.dtpi.vic.gov.au/planning/planning-applications/more-information-on-permits/residential-development/neighbourhood-character>).

## Barriers to Improvement

- The introduction of Exempt and Complying Development SEPP and the push to assess an increasing number of dwellings as code-complying does not take into account existing heritage, environmental values or local character
- The introduction of Exempt and Complying Development Codes increase the likelihood that new houses will not fit in with the local character and moreover will eventually result in whole neighbourhoods of 'characterless' houses
- State development policies to promote and facilitate rapid development in existing urban areas run the risk of overriding both state and local government heritage policies, to the detriment of those areas (impacts streetscapes, skylines, heritage, urban trees)
- Existing green space assets are not sufficiently protected from removal by development and infrastructure projects (impacts liveability, amenity)
- Impact of utility companies maintaining their infrastructure in public open space (impacts streetscapes)
- The *NSW Rural Fires Act 1997 10/50 Rule* governing clearing of trees and vegetation on private land is leading to the removal of urban trees (impacts garden suburbs)
- 99.94% of Heritage Conservation Areas and 93.7% of individual heritage items are not protected from inappropriate development or demolition (impacts heritage, history, sense of identity).
- State-wide residential zones do not take into account local character
- Planning "language" in regards to zoning provisions can be confusing

## Proposed Metrics

### Quantitative:

- Register of values important to community and heritage items, significant trees and public spaces (informed by local council LEPs and DCPs)

### Qualitative:

- Identifiable character linking past and present
- Change in community satisfaction and sense of belonging with locality

## Solutions

- District Plans should require Local Environmental Plans and Development Control Plans to identify, in consultation with local communities, the key features that make up key local areas, and how to preserve these,
- District Plans should actively seek to identify, recognise and protect heritage items and Heritage Conservation Areas from demolition and/or inappropriate development
- District Plans objectives should strive to protect and enhance the individual heritage values of localities within the overall area and aim to create and maintain locally distinctive urban characters in new development zones
- Planning legislation should ensure local character is assessed including for heritage and environment as part of urban renewal and priority precinct projects and for state significant development and infrastructure
- Implementation of town centre character preservation principles in LEPs

## 3.6 Heritage

'Heritage' means those things that give a sense of history, distinctiveness and identity to a place. It's the places, items and objects, views and sight-lines from our past that we value today and want to keep for future generations to identify with, learn from, appreciate and enjoy. It is what we think of when we think of 'home' and often is what we show to guests when they visit. The can also contribute important open spaces and gardens.

Heritage items and heritage conservation areas listed on the State Heritage Register are

permanently protected from demolition and their development is regulated to protect their significance. However, in NSW, the vast majority are not listed on the State Heritage Register and their future is managed by the same local authorities that pursue, encourage and regulate local land development. Currently 99.94% of Heritage Conservation Areas and 93.7% of individual heritage items (houses, churches, town halls, bridges, trees, gardens etc.) are not protected from inappropriate development or demolition.

Heritage items in a suburb or precinct can be the basis for heritage trails and historic house exhibits, forming tourist assets.

### Evidence

In the local government areas within the boundary of the Greater Sydney Commission there are 16,193 heritage items individually listed on those councils' Local Environmental Plans. There are also 479 individually listed Heritage Conservation Areas on those same Local Environmental Plans (National Trust of Australia 2016).

However only 1,021 are listed on the State Heritage Register and only three of these are Heritage Conservation Areas (Millers Point Conservation Area, Millers Point & Dawes Point Village Precinct and Thompson Square Conservation Area). (National Trust of Australia 2016).

As a result, 99.94% of Heritage Conservation Areas and 93.7% of individual heritage items (houses, churches, town halls, bridges, trees, gardens etc) are not protected from inappropriate development or demolition.

### Barriers to Improvement

- Lack of an independent merits-based public appeal process to local and state government decisions affecting heritage
- No requirement for heritage advice, analysis and conclusions to be peer-supported, resulting in tokenistic and, at times, mendacious assessments of heritage values and impacts
- State development policies to promote and facilitate rapid development in existing urban areas override both state and local government heritage policies, to the detriment of those areas
- Insufficient authority, funding and staff in the Heritage Division of the OEH, hampering the effective execution of the Heritage Council's statutory responsibilities
- Lack of respect for Heritage Council decisions, resulting in considered recommendations being overruled, avoided or disputed
- Lack of respect for statutory heritage obligations within government departments and agencies, resulting in avoidance of identification and tokenistic conservation of heritage by government departments and agencies
- Lack of independence (from government) in appointed statutory planning bodies
- Lack of investment in survey, assessment and documentation of heritage places, leaving many places unrecognised until impending development initiates interest
- Statutory inflexibility, suggesting certainty in the planning context, when no such certainty actually exists
- Reliance upon existing statutory Schedules and Registers as complete and comprehensive inventories of identified heritage
- Lack of heritage impact analysis in private certification procedures
- Lack of statutory recognition of regional significance (i.e. greater than local but less than State) and no legislative pathway for regional significance to be taken into account
- Lack of funding available in terms of loans and grants for owners of heritage properties to manage their property in the public interest

### Proposed Metrics

- Number of Heritage items and heritage conservation areas listed on the State Heritage Register



- Timely processing of heritage listing nominations, including ministerial endorsements of Heritage Council recommendations (14 Days); and for addition or subtraction, as appropriate, from LEP heritage schedules.
- Number of historic/cultural preservation projects completed and programs operated annually

### Solutions

- Across Greater Sydney, heritage listed items and Heritage Conservation Areas should be protected from demolition and inappropriate development
- District Plans should actively seek to identify, recognize and protect heritage items and Heritage Conservation Areas from demolition and/or inappropriate development
- Greater Sydney development objectives should strive to protect and enhance the individual heritage values of localities within the overall area and aim to create and maintain locally distinctive urban characters in new development zones
- Ministerial oversight should be focused upon ensuring the efficient and comprehensive operation of the Heritage Council and its supporting staff.
- Recognition that the Heritage Council decisions are based upon the same heads of consideration as the Minister's and that Ministerial overrule constitutes a statement of no confidence in the Heritage Council
- Heritage Division empowered to undertake peer-review of heritage advice, analysis and conclusions provided as part of any Development Application process
- Private Certification procedures to include requirements for heritage impact analysis as part of all development proposals

## 3.7 Scenic protection

The beauty of Sydney's beaches, valleys, waterways, wetlands, forests, parks and farmland are socially and economically important. Scenic assets consist of public viewing locations, seen landscape areas, or view corridors. They are important to the quality of life for local communities' and to visitors' experience, with many also having high environmental, cultural, heritage and/or spiritual value.

It is important that items or areas with high scenic amenity are properly identified and protected from the impacts of development.

### Evidence

- Surveys undertaken in Queensland suggest the public considers scenic values, in some circumstances, to be of equal or higher importance to other values such as outdoor recreation and nature conservation. ([SEQ 2007](#))
- An International Visitor Survey conducted by the Australian Tourist Commission suggests that international tourists rank issues such as beautiful scenery, vastness, cleanliness, natural wonders and wildlife, and good beaches as major attributes influencing their choice of Australia as a travel destination ([ATC 1995](#))

### Barriers to Improvement

- A limited and inconsistent procedure for assessing and mapping scenic beauty within strategic land use policies
- Lack of commitment and resources to manage and maintain scenic beauty assets

### Proposed Metrics

- Number of items of scenic value nominated for protection / management
- Number of plans of management / maintenance for items of nominated scenic value.

### Solutions

- Identify items / areas with high scenic amenity through the application of a robust technical procedure for measuring and mapping, informing regional and local planning and decision

making, including how and where prominent developments and infrastructure are permitted. South East Queensland's (SEQ) has developed a robust assessment methodology that has received national and State awards from the Planning Institute of Australia.

- Maintain public access to significant and popular viewpoints and protect important views and view-lines from intrusive development
- Develop strategies to retain and enhance the areas with identified scenic amenity

Statutory recognition and protection for 'nominated' items of scenic value

- Incorporation of scenic value impact analyses in all relevant planning decisions at all levels

### 3.8 Air quality

Air quality in Sydney has, on multiple days each year, surpassed harmful levels under both national and international standards. This is especially true in relation to ozone and fine particles, which can lead to some citizens suffering serious health impacts or death. The main sources of these pollutants are road transport, as well as pollution from fossil fuel based energy production, industry, commercial and domestic sources.

A key factor in improving air quality is reducing vehicle dependence by providing high quality, and accessible public transport, as well as reducing pollution across all other sectors and through strategic urban tree planting.

Acknowledgment and planning for regional air flow dynamics around the Sydney basin should also be integrated into future planning controls.

#### Evidence

The NSW goal for ground level ozone concentration is currently set at the National Environment Protection Measure (NEPM) standards of 0.10 ppm (averaged over one hour) and 0.08 ppm (averaged over 4 hours). World Health Organization (WHO) standards are 0.08 ppm and 0.06 ppm (averaged over 1 and 4 hours respectively).

The 2016 NSW State of the Environment Report reveals that the Greater Sydney region continues to suffer from major air quality problems, particularly in relation to ground level ozone and fine particles.

Between 1994 and 2014 the one-hour standard for ozone was exceeded up to 19 times a year while the four-hour standard was exceeded up to 21 times a year. Standards for fine particles were exceeded up to 19 times per year in the period 2012 – 2014.

#### Barriers to Improvement

- Lack of coordination between land use and transport planning
- Inadequate commitment and resources to manage and maintain air quality
- Lack of understanding, acknowledgment of Sydney basin air flow dynamics in land use planning

#### Proposed Metrics

- Annual air quality index score
- Number of days each year on which NEPM and WHO air quality standards are exceeded
- Vehicle Kilometres Travelled (VKT) in the Greater Sydney Region and in each district v public transport use
- Number of electric and hydrogen fuel cell electric vehicle registrations and/or sales
- Kilometres of cycleway developed and usage
- Number of air quality monitoring stations and their geographic spread
- Health impacts related to air quality

#### Solutions

- Integrate land use and transport planning to provide access to high quality reliable public transport and reduce vehicle dependency. District plans should include requirements for

public transport infrastructure or support to accompany new development. This should include rigorous standards for accessibility, frequency and reliability.

- District plans should be designed to reduce private vehicle use, reduce kilometres travelled,
- Develop an integrated EV and hydrogen refuelling infrastructure plan and guidelines, for private and public development.
- Ensure that new development maximises walkability and opportunities for cycling
- Provide incentives to replace wood heaters with cleaner alternatives. Prohibit wood heaters in new developments
- Expand air quality monitoring to allow better understanding of air shed dynamics and population exposure in each district

### 3.9 Noise

Environmental noise, is one of the most common pollutants. Its primary sources are road, rail and air traffic, industry, construction and public works and neighbourhood noise.

Over about the last four decades there have been efforts to reduce noise impacts from transportation sources, however many of the benefits have been lost due to increases in traffic volumes and urban population growth which has resulted in a larger percentage of the population being exposed to unhealthy noise levels.

There is sufficient evidence internationally that environmental noise is a general public health risk. The main negative health outcomes include annoyance, sleep disturbance, cardiovascular disease, performance and learning, school performance, mental health and stress.

Groups most exposed to this noise are those located nearest to noise sources by virtue of where they live, work and recreate. Children, people with existing physical and mental illness, and the elderly, who are most sensitive to its impact, may face significant additional health risks.

Environmental noise must be recognised as an important health issue and requires effective land use planning, as well as suitable project assessment and design controls.

#### Evidence

- The sources in NSW that contribute the most to environmental noise are road traffic and aircraft noise. Road traffic contributed an estimated 73 per cent of noise followed by aircraft at an estimated 17 per cent. (EPANSW 1993)
- 8 to 20 per cent of dwellings in Australian capital cities (excluding Canberra and Darwin) are exposed to levels above 63 dB, and 5 per cent to 11 per cent of dwellings above 68 dB.
- Sydney had a higher percentage of the population exposed to traffic noise at levels between 55 dB(A) and 65 dB(A). At levels above 65 dB(A), all surveyed cities shared similar results.
- These levels of noise are considerably higher than those recommended by a WHO expert task force as necessary to protect against annoyance and sleep disturbance. (Berglund et al., 1999)

#### Barriers to Improvement

- Increased urban consolidation is increasing both the number and proximity of people to noise sources that pose a health risk.
- Policies that regulate the main sources of noise (road, rail and air traffic) are inadequate.
- Land use planning, development controls, design standards are insufficient and do not adequately reflect the public health risk of noise.

#### Proposed Metrics

Best practice:

- LAeq or Ldn levels over a suitable time period
- Maximum level of a noise event
- Number of noise events over time

- Day Night Level
- Time of day ambient background noise level

### Solutions

- Recognise environmental noise as a potential health concern as an important environmental health issue for strategic and local planning
- Adopt the WHO Guidelines for Community Noise 1999 as a primary reference for environmental noise levels below which no health effects are expected
- Review current noise control practices and how to further integrate noise control into planning processes, with consideration given to more sensitive groups such as children, the elderly and those with an existing physical or mental illness
- It is recommended using controls which 'cap' noise levels adjusted to the amenity of a locality, rather than the permitting +1, 2, or 5 dB(A) above background noise levels
- Give consideration to the siting and proximity of residential development, schools, and public facilities in relation to road and rail corridors, airports and industry uses
- Promote noise mitigation measures to buffer or exclude environmental noise from homes and places of work or recreation

### 3.10 Waste management

A successful waste strategy begins with waste minimisation and avoidance in the first instance, followed by management of how waste is handled once generated. Although there has been some success by diverting waste from landfill through recycling, landfill remains a predominant disposal point. Dumping sites are being located further outside Sydney as landfill space is exhausted – this expands the city's environmental footprint and makes the pursuit of recycling and waste minimisation more urgent.

Sydneysiders support recycling with a high level of participation in kerbside collection, although contamination of recyclables in the comingled bin is still an issue. Construction and demolition waste recycling is also at a high level. Nevertheless there are still major opportunities to grow recycling in the commercial and public space areas. There is also some dispute about what is and how much recycling as expressed in official figures focussed on 'diversion from landfill', as it appears to include controversial items such as waste to energy, above ground soil disposal and ignores dumping of mining waste.

The recirculation of 'waste' resources into the economy is a vital sustainability practice. In addition to saving raw materials, removing and re-using waste streams will reduce pressure on dwindling landfill space, and prevent toxic chemicals (found in e-waste, batteries and fluorescent globes for example) from entering the waste stream. There is a need for best practice infrastructure and programs at individual building and regional planning levels to cater for the reduction, re-using, recycling or proper safe disposal of waste. The recent move to implement a container deposit system is an example of an effective policy; and strategic targeting of the significant 'Waste Less, Recycle More' funding will assist in building new recycling infrastructure.

### Evidence

- Australia generates more waste per capita than the US, Canada and New Zealand (DSEWPac 2013).
- In NSW out of the 2,230 kg/capita/yr of waste generated, about 50% is reported as recycled (ABS, 2015)
- It is estimated that around 70% of household waste can be recovered for a variety of uses but as population grows the volume of waste to be disposed also increases.

### Barriers to Improvement

- Accurate measurement of recycling via estimates of consumption and landfill diversion routes to inform policy Limitations of adequate and accessible facilities/infrastructure
- Cost of recycling



### Proposed Metrics

- Volumes and weights of waste classes (landfill, municipal and commercial recycling, green waste)
- Methane emissions from District's landfilled waste
- Percentage of nonhazardous waste diverted from landfills annually
- Percentage of organic waste diverted for energy recovery or composting annually
- Percentage of construction and demolition waste associated with all projects that is recycled or reused
- Percentage reduction in operational waste through public place recycling, residential recycling schemes, pay as you throw schemes, and/or other operational waste reduction strategies

### Solutions

- Continual improvement in the state's recycling targets and regulatory backing
- Develop transitional actions to avoid new major landfill
- Develop a coordinated plan and procurement strategy to provide advanced waste treatment solutions for each local government in the greater Sydney region
- Develop more strategic and coordinated approach across government agencies to facilitate waste reduction and resource efficiency
- Provide a clearer role for governing bodies to impact the Commercial, Industrial, Construction and Demolition sectors, and or provide mechanisms for making these sectors accountable for waste diversion outcomes.
- Support the establishment of markets for recovered materials. This should include the use of best practice infrastructure and programs to cater for the recycling of waste including specialised facilities for e-waste, batteries, containers under the NSW Container Deposit Scheme, compostables and construction waste. They should be accessible and affordable.
- Public education

### 3.11 Climate change

The Panel recognises that cities are a major driver of climate change and will suffer dangerous temperature rises, sea-level rise and increasingly severe weather events – endangering life and property and disrupting commercial activities - unless CO<sub>2</sub>e emissions are curtailed. The major sources are fossil fuelled electricity and vehicle emissions.

In 2016 the Paris Agreement will come into force to keep warming well below 2°C above pre-industrial levels, and to pursue keeping warming below to 1.5°C. It was recognised that to achieve these greenhouse gas emissions in 2050 will have to become equivalent to net-zero.

Amongst other actions the Panel advocates for the setting a target of zero emissions by 2050 (or better) and implementing effective policies and commitment to the investment required to achieve this. Many cities and States including South Australia have set targets of reaching 100 per cent renewable energy by 2050.

Consideration of an increased tree canopy and major public transport and infrastructure upgrades are essential, as well as catering for low emission private transport. Adaptation policies will also be required.

### Evidence

- Eight years during the past decade were in the top 10 of the warmest years on record since 1880 ([IPCC](#))
- Average temperatures in Australia rose 0.9°C from 1910 to 2004, and there have been more heatwaves ([IPCC](#))
- The future climate of the Sydney Metropolitan Catchments is likely to be warmer and drier. The impacts of climate change are most likely to be felt through extreme weather events. Projections suggest there will be more hot days, bushfires, droughts and intense storms. ([CSIRO](#))

- Number of extreme heat days in Sydney of over 35 degrees Celsius is likely to increase from 3.5 days per year currently experienced to up to 12 days by 2070 without global action to reduce emissions. ([Department of Energy and Environment](#))
- With more extreme heat days more people are likely to suffer heat-related illnesses and death, with the elderly particularly vulnerable. An estimated 176 people aged 65 and over die each year in Sydney from heat-related deaths (1997-1999 average). This could potentially rise to 417 people a year by 2020 and up to 1312 by 2050 ([Department of Environment and Energy](#)).
- Changes in rainfall and higher evaporation rates are likely, with significant potential impacts to Sydney's water supply ([WaterNSW](#))
- It is predicted that by 2100, sea levels could rise up to 0.74m ([CSIRO](#)). Modelling indicate that a number of Sydney suburbs may be at risk to inundation including Caringbah, Kurnell, Cromer, Manly Vale, Homebush Bay, Newington, Silverwater, Cooks River, Arncliffe, Marrickville, and Sydney Airport.

### Barriers to Improvement

- Lack of political support and enabling policy initiatives at Commonwealth and state levels
- Market structure and inconsistency in evaluation of renewable energy costs including lack of internalization of environmental externalities
- Incumbent emission intensive power generators retain support both politically and financially through the National Electricity Market, energy pricing and subsidies which disadvantage renewable electricity generators
- Ingrained patterns of consumer behavior (energy consumption and transport use)

### Proposed Metrics

- Annual tonnes of greenhouse gas emissions per capita/sector from transportation, waste, and building energy use – using the Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC)
- Carbon intensity of grid electricity supply
- Number of EV and hydrogen vehicle sales and/or registrations; and electric vehicle and hydrogen charging stations and their grid greenhouse intensity

### Solutions

- Investment in the decarbonisation of the energy sector with a target of zero emissions by 2050 or better
- Introduce low-emission technology, when previously locked-in technology begins to age
- Economic, regulatory, and social incentives including government investment, tax breaks or low interest loans to support investment in/uptake of renewable energy
- Economic, regulatory, and social disincentives for GHG emissions including environmental regulations and taxes
- Changes to the energy supply regulation and pricing regime including removing subsidies
- Implementing planning measures that encourage more sustainable transport patterns
- Financial incentive programmes leading to large impacts on energy efficiency and investment in low emission private vehicles
- Public information programmes

## 3.12 Energy supply and energy efficiency

Sydney's households and businesses place significant pressure on the environment through their use of energy. Emission reduction is possible by considering how energy is generated, supplied and used.

Much of the existing infrastructure is reaching the end of its asset life and becoming more expensive to run. At the same time changes to the way energy is generated and supplied have already begun.

There has been a rapid growth in the uptake of rooftop solar with the prospect of battery storage and community energy precincts solutions emerging. However to date overall investment in new infrastructure has been slow to respond to new technology and the urgency of climate change.

A strategy must be implemented that leads to further investment in low emission generation and supply/storage options at a regional, district and building level. These are large long-life infrastructure investment decisions and must be made objectively and carefully as they will directly affect emissions levels for decades to come.

In addition encouraging investment in energy efficiency in new and existing buildings, street lighting and industry is critical, and is recognised as one of the easiest, cheapest and fastest ways to reduce energy use, related greenhouse gas emissions as well as 'energy poverty'. The state's energy efficiency credits scheme and BASIX have been important drivers and should be subject to continual improvement.

### Evidence

In relation to energy:

- Buildings represent about 20% of Australia's total energy consumption and contribute about 26% of Australia's (anthropogenic) greenhouse emissions. ([Zero Carbon Australia 2013](#))
- Around 97% of the energy used in Australia in 2007–08 was sourced from non-renewable sources, including coal, petroleum products and natural gas (ABS 2010).
- A combination of building retrofit and appliance upgrade measures were modelled to be able to achieve a 60-80% saving on eleven building types, including residential, office, education and retail types. ([Zero Carbon Australia 2013](#))
- 24 per cent of all households find it difficult to pay their gas and electricity bills, with half of these households being on low incomes, and the rest middle or higher income households. (AEMC 2016)

### Barriers to Improvement

- Issues of multiple governing bodies (Federal, State, Local government and privatised entities) have resulted in inconsistent implementation of energy supply and energy efficiency policies and programs
- There is a lack of commitment, resources, and in some cases capability to implement changes to energy supply technology and the rollout of programs or standards to significantly raise levels of energy efficiency
- Perceived upfront costs and short term thinking
- Uncertainty over potential risks in changing to new technology/systems
- Low energy prices do not drive individual behaviour change and investment in energy efficient technology
- Building regulations, including BASIX and the National Construction Code (NCC), do not set sufficiently high requirements to meet emissions targets and require urgent reviewing and updating.
- State Heritage and some local government development controls are disincentivising or preventing the installation of solar panels.

### Proposed Metrics

Energy Supply:

- Percentage of annual energy supply generated from district-based renewable sources
- Percentage of buildings connected to a district thermal energy or co-generation system
- Percent of annual electricity energy needs met through on-site generation at a project level
- Percent of peak electricity demand shifted to non-peak times through energy storage
- Percentage reduction in projected greenhouse gas emissions from the development

- Percentage of all buildings connected to an existing or future site/precinct-wide district heating and cooling network
- Production capacity of on-site renewable energy (as a percentage) of the project's predicted annual electrical and thermal energy demand
- Energy efficiency:
  - Percentage of buildings benchmarked and measuring energy performance as per NABERS
  - Proportion of commercial office buildings over size 5000 m<sup>2</sup> that are NABERS rated
  - Average BASIX Energy score for different housing types at Occupation Certificate issue stage
  - Proportion of apartment blocks over 100 units that have a NABERS apartment common area rating
  - KWh of energy used daily per capita of all persons living and working in Sydney and percent reduction in energy use including Percent reduction in peak electricity demand
- Percentage of all infrastructure lighting (traffic lights, street lights etc.) using LEDs

### Solutions

- All future investment in energy infrastructure must be planned towards a rapid decarbonisation of the electricity grid. There should not a switch to fossil gas as an interim measure - the use of gas is entirely inconsistent with the goal of achieving zero carbon emissions. During this period electricity demand should be reduced and infrastructure investment diverted to renewable supplies.
- Continue to encourage consumer installed photovoltaics post the feed-in tariff regime.
- Upgrade BASIX NCC and the energy savings scheme
- Actively manage, track, and communicate energy performance.
- Support advanced energy retrofits for existing buildings
- Support the installation of high efficiency LED street and other public lighting.
- State Heritage controls and Local Government planning controls should be redrafted to encourage the installation of solar panels which meet appropriate minimum criteria.

### 3.13 Water supply and water efficiency

While some improvements to water efficiency have been made in recent years, water supply and its disposal has remained unchanged for several decades. There is very little recycling and re-use of wastewater or stormwater in Sydney compared to a number of other cities.

It is estimated that a city like Sydney could recover recycled wastewater equivalent to a volume that is 1.5 times in excess of present water use. Many other cities around the world are transitioning to becoming much more water sensitive. Singapore for example currently uses recycled water to provide 30% of the nation's water needs. While Sydney has made significant strides in the last decade with more efficient toilets, showers, leakage control and rainwater tanks under Sydney Water's Operating Licence (Sydney consumes the same amount of water as in the 1970s despite almost doubling population) - it appears that the push for more recycling and efficiency from the utility in conjunction with IPART is slackening.

There is an urgent need to invest in storm/waste water capture, treatment and re-use systems. The adoption of Water Sensitive Urban Design (WSUD) measures at a building, district and regional scale is also recommended, as well as improving standards for existing and new buildings in relation to water capture, recycling, re-use and efficiency.

### Evidence

(see: [Marsden Jacob Associates, 2012](#))

- Mains water accounts for about 90% per cent of water provided to Sydney
- After irrigated agriculture, households constitute the second largest water-using sector in the economy



- The Water Services Association of Australia suggests that water consumption in all capitals, will have exceeded their sustainable yield by 2030.
- For Australia's major capitals, stormwater and wastewater represent a 'resource' to be tapped and are estimated to be able to generate a volume that is 1.5 times in excess of present water use.
- Singapore has been developing recycled water plants since the late 1990s, and has five recycling water plants which can meet 30% of the nation's water needs. Orange County, California has recycled water for drinking since early 1976, which supply up to 50% of Orange County's water to its 3.1 million citizens. ([MEF Vic](#))
- Modelling of pollutant loads from stormwater and sewer overflows into Sydney Harbour shows stormwater is responsible for the vast majority of the total suspended solid, nitrogen and phosphorus loads (Sydney Water 2014). The same research showed that it is 2-4 times more cost effective to reduce the pollutant loads via stormwater treatment as compared to sewer overflows, and more than 20 times more cost effective to treat stormwater for suspended solid removal.

### Barriers to Improvement

- Issues of multiple governing bodies (Federal, State, Local government and privatised entities) have resulted in poor or inconsistent implementation water efficiency and WSUD policies and programs
- Infrastructure development is slow to respond to new technology and urgency of new conditions.
- Lack of commitment by Sydney Water and IPART and resources to implement changes to alternative water supply/re-use technology and the rollout of programs to achieve significantly higher levels of water management and efficiency
- Perceived upfront costs and short term thinking
- Uncertainty over potential risks in changing to new technology/systems
- Low water prices do not drive individual behaviour change and investment
- Building regulations, including BASIX and the National Construction Code, do not set sufficiently stringent targets to meet future needs and requires urgent reviewing and updating.

### Proposed Metrics

Water supply:

- Percentage of annual water supply generated from district-based recycled sources
- Percentage of buildings connected to non-potable water sources
- Percentage of irrigation for public open spaces and public realm areas sourced from non-potable water sources

Water efficiency:

- Litres of water used daily per capita, indoors and outdoors; and Percent reduction in water use
- Change in average BASIX water scores at Occupation Certificate Stage for different housing types
- Number of commercial offices over 5000 m<sup>2</sup> that have undertaken NABERS water rating within past three years

### Solutions

- Direct Sydney Water and IPART to prioritise improved recycling and efficiency
- Invest in storm/waste water capture, treatment and reuse systems including adoption of water-sensitive design measures at a building, district and regional scale.
- Increase standards for existing and new buildings in relation to water capture, recycling/reuse and efficiency under the BASIX law

### 3.14 Natural hazards

Greater Sydney faces a number of natural hazards such as heatwaves, bushfires, storms, flooding and drought. Most are predicted to become more severe and frequent as a result of global warming. It is important that the city, its new and existing buildings and infrastructure consider the importance of climate change adaption to 'accommodate' for natural hazards by designing-in resilience.

#### Evidence

- Sydney has experienced a number of significant events over the past 30 years. These include the storms associated with the east coast low in April 2015 (see case study below), the tornado at Kurnell in December 2015, hailstorm in 1997, Hawkesbury River floods in 1986 and bushfires in 1991, 1994 and 2001. (Resilient Sydney)
- In 2013 the Blue Mountains bushfires destroyed 196 homes and significantly damaged an additional 132. The total cost of damages to homes was over \$180 million. (Resilient Sydney)
- Extreme heat is having significant impacts on Sydney. Sydney's highest recorded temperature was 46°C in January 2013. During the event 133 people were treated after falling unconscious and an additional 220 for other heat-related illnesses. The heatwave also caused major widespread train delays from network and signalling equipment failure. (Resilient Sydney)
- In June 2016 a severe weather system struck the Wollondilly Peri urban area causing significant damage to the central business district of Picton and adjoining residential properties. Floods were recorded with levels as high as 1.8m. Approximately 144 businesses were affected with many closed indefinitely. 128 Residential properties were also inundated with many residents losing all their possessions including household items and personal effects. (SPUD)

#### Barriers to Improvement

- Lack of commitment and resources to provide adequate policies, programs and infrastructure that will ensure adequate preparedness for and mitigation of the impacts of natural hazards

#### Proposed Metrics

- Local government recovery costs
- Insurance costs
- Uninsured costs
- Infrastructure replacement costs
- Combat agency and
- [Local government capability assessments](#)
- Local recovery plans in place
- Local education and awareness programs for residents in high risk areas

#### Solutions

- Investment in policies, programs and infrastructure that will ensure adequate preparedness for, and mitigation of, the impacts of natural hazards recognising their potential to become more severe and frequent with the advance of climate change
- The mapping high risk zones with consideration for limiting development in these areas
- Implementation of "best practice" recovery strategies when responding to the impacts of natural hazards (such as through the use of a localised toolkit, mobile phone applications, or early warning sirens).

### 3.15 Peri-urban areas

Peripheral (peri-) urban areas are the interface between our cities and rural areas, comprising urban, residential, semi-rural agricultural and biodiversity areas. They are highly contested with a growing population as Sydney expands and are vulnerable to being subsumed for housing and infrastructure. These areas contain natural assets and significant landscapes that are important for

recreation and tourism, as well as being a source of productive agricultural land with economic and employment value. There is potential to expand the diversity of agricultural products and environmental services.

Environmentally the eco-systems in these areas assist with water and waste management, reduce the city's urban heat island effect, improve Sydney's air quality, reduce carbon emissions, improve nutrient recycling, and can be used to support and expand the conservation of biodiversity.

There is a need to strategically consider much of this land for its own value - not just land in waiting for urban development.

Peri-urban land provides a range of important functions including:

### Environmental

- Being a biodiversity resource of a diverse range of plant and animal communities
- Providing a water catchment for Sydney
- Acting as a carbon sink
- Replenishing Sydney's air quality
- Helping to minimise Sydney's urban heat island effect
- Providing "low mileage" food
- Housing peri-urban wetlands which protect against natural hazards by slowing floodwaters, protecting against erosion of river banks and coastlines, as well as reducing the risk of fire.

### Community

- Providing large green spaces with aesthetic appeal, landscape diversity and recreational opportunities which contribute to the well-being of many people in Sydney.
- Providing local community well-being. The rural landscape is considered by the community to be a key part of the districts character and economy
- Retaining culturally significant heritage items and areas including early European rural landscapes, settlements as well as significant Aboriginal heritage.
- Providing an important source of employment including for culturally and linguistically diverse background
- Providing easily accessible educational opportunities to learn about the environment and farming.

### Economic

- Providing highly productive agricultural land with economic value. The vegetables produced in the Sydney region account for 22% of total NSW vegetable production valued at \$167 million per annum (Malcolm and Fahd, 2009). This farming also supports employment of secondary industries including food processing, packaging and transportation
- Providing fresher (and more nutritious) produce, with reduced levels of spoilage due to its proximity to Sydney markets
- Providing tourism and agri-tourism opportunities (including farmers' markets, farm gate trails, cellar doors and pick-your-own-fruit).

### Evidence

#### [Sydney Peri-Urban Network Issues Paper \(2015\)](#)

- The peri-urban area is a significant part of the Sydney and NSW economies. The Gross Regional Product (GRP) of the peri-urban area is \$70.95 billion, which has shown good growth from 2006 when it was \$52.82 billion. This represents 20.1% of Sydney's GRP, 14.9% of NSW's GRP and is growing at a steady rate of 2.6% per year.
- This agricultural land being close to market and having fertile soils and water is productive. Agriculture has an annual value of \$1 billion at the farm gate with a multiplier of 4 – 5 means it contributes between \$4 - \$5 billion to the local economy as well as to the food security of the city.

- Whilst it covers only 1.5% of the land area of NSW, the greater Sydney region accounts for 7% of the State's agricultural production (Greater Sydney Local Land Services 2016)
- Food production includes high value intensive industries such as market gardens, poultry and mushrooms. 20% of Metropolitan Sydney's food is produced within the Sydney basin (Institute for Sustainable Futures).
- The population of the Sydney peri-urban area in 2014 was estimated by the Australian Bureau of Statistics as being 1,774,162, which equates to 39.7% of the Sydney region.
- By 2031 it is projected to grow to 2,325,400 (NSW DP&E, 2014), with the population in the rest of Sydney remaining steady.
- Much of this growth is planned for Sydney's northwest and southwest – areas that are primarily used for agriculture at present. The pressure to convert land to 'higher value' uses in peri-urban areas has led to an exodus from farming in peri urban areas (Butt, 2013).
- Sydney stands to lose over 90% of its current fresh vegetable production. Total food production could shrink by 60%, and the Sydney food bowl's capacity to feed its' residents could drop from meeting 20% of food demand down to 6%. (SPUN food futures project 2015).

### Barriers to Improvement

- Lack of comprehensive data on Sydney's agricultural lands
- Lack of informed decisions to balance competing land uses while considering population growth, transport, and other needs in the long term.
- Despite the current zoning and policy, demand for rural land for lifestyle purposes has elevated land prices to such a level that vacant farm land is largely unaffordable for tourism activities or for existing or potential farmers to buy
- Often Peri Urban areas miss out on funding opportunities due to confusion of fitting into either metropolitan or rural funding guidelines.
- Agriculture has historically been seen as primarily a rural issue and not an issue for the future resilience of the Greater Sydney Area.
- Little development of incentives/schemes to encourage share farming or leasing arrangements to encourage rural and agricultural enterprises
- Impending closure of mine sites in South West Sydney has elevated the risk that mines may represent the largest category of contamination liability for the state if not managed appropriately

### Proposed Metrics

#### Quantitative:

- Food travel miles
- Number of land productivity assessments
- Number of Bio banking and restoration agreements
- Rating mechanisms to support agriculture initiatives
- Meeting established standards and regulations about soil management
- Number of intensive agricultural production activities
- Farm viability and profitability

#### Qualitative:

- Peri urban wetlands are maintained
- Cooling effect of peri-urban areas

## Solutions

- Implement a Peri Urban lands strategy for the district and at the local level to protect the functions and values of critical areas incorporating appropriate land-use planning
- Map fertile soil areas and designate and protect natural resource land. Maintain land with good soils in lots of a size with a productive potential
- Define the edge of the city by defining the urban growth boundary
- Preserve non-urban breaks between towns, ensuring dwelling development and subdivision will not remove the land from agricultural use and managing the location
- Maintain green belts and green wedges
- Identify lands that have strategic values e.g. buffer zones between Agricultural, biodiversity and urban interfaces where there are conflicting land uses; as well as water catchment protection (adjacent to the blue & green grid), mining and CSG interfaces
- Development a Greater Sydney Agriculture Lands Protection Act or an equivalent SEPP
- Research, policy development and program funding to help address the lack of data and unique issues facing Peri Urban areas possibly through the development of a centre of excellence
- Promote inward urban growth programmes designed to restore and reclaim degraded urban areas where appropriate to prevent the loss of Peri Urban land.
- Protect natural areas which contribute to biodiversity and the environmental health of the city
- Connect eco-tourism with peri urban open space, biodiversity areas and agriculture
- Coordinate an approach between state and local government in developing strategies on the transformation of former and ending mine sites to enhance open space and rural landscapes
- Develop Good Neighbour policies and strategies at the local level
- Require the inclusion of rural land uses on 149 certificates by Local Government
- Define agriculture as an industry that is of value to the city
- Develop a Peri-urban Agriculture Charter for the conservation, planning, development and management of peri urban agricultural spaces
- Encourage private/public partnerships that have temporal lease arrangements of vacant municipal land and private landowners to give vacant land in longer term leases for agriculture
- Encourage Cooperatives in peri-urban areas to assist in the development of agribusinesses and the protection of sensitive biodiversity areas
- Establish credit schemes for peri-urban farmers.
- Provide tax relief to land owners that do lease out their land to urban producers
- Promote multifunctional land use where farming can be combined with other compatible land uses such as providing recreational and educational services to urban citizens. Land may also be used as water storage areas, fire break zones, and flood zones.
- Support the development of peri-urban agro-tourism both in the form of larger agro-recreational parks as well as family-based agro-tourism



## 4

# Environmental Metrics to Measure Progress

The Panel supports a number of metrics (specific statements or measurements) by which to assess draft District Plans and their performance over time. They are intended to move beyond broad general statements which are difficult to monitor; and importantly to help operationalise environmental sustainability. Both quantitative and qualitative metrics are proposed. There may be different metrics for the existing urban building and infrastructure fabric focussing on retrofitting; but more challenging metrics for new development. The metrics may be further developed by the Panel over the coming year.

When applied to a specific a development or precinct, metrics can push the economic sector to innovate and better harmonise with sustainability and liveability. They should not be regarded as optional and should adopt the approach taken by the BASIX law. The lack of such metrics or where they have been proposed in previous city and local plans and not adhered to – has been a significant barrier to improving environmental outcomes.

It is recommended that metrics should be measured annually, and evaluated for ongoing relevance every four years in line with District plans reviews. These metrics should link to Local Government Integrated Planning and Reporting data.

The following metrics are recommended:

**TABLE 3: Environmental metrics to protect and restore**

Environmental value	Quantitative Metric	Qualitative Metric
Health of waterways: blue grid, stormwater and sewerage pollution control, riparian and coastal restoration, offshore habitat protection, sustainable coastal development	<ul style="list-style-type: none"> <li>Water quality                             <ul style="list-style-type: none"> <li>National Standards</li> <li>WHO standards</li> <li>NHMRC Standards</li> <li>New and emerging contaminants</li> </ul> </li> <li>Ecosystem health (structure and function)</li> <li>Swimming closure days vs. swimmable days</li> <li>Percent armoured vs. natural shoreline</li> <li>Coastal erosion or enhancement</li> <li>Health of fisheries stocks</li> <li>Invasive species</li> <li>Percentage reduction of sediment, phosphorus, nitrogen, and litter runoff when compared to untreated runoff</li> </ul>	<ul style="list-style-type: none"> <li>Survey of community perception of waterway health and range of recreational activities</li> </ul>
Biodiversity: natural heritage and threatened species (land and marine based), in touch with nature, city identity, not all concrete	<ul style="list-style-type: none"> <li>Area of habitat</li> <li>Percentage of habitat restored annually</li> <li>Enhancement of biodiversity corridors (and links to Green Grid)</li> <li>Success of feral and weeds management</li> <li>Area of tree canopy in the district (decline, increase – note tree planting is not an equivalent to existing mature canopy)</li> <li>Number of threatened species and ecological communities in district</li> <li>Number of threatened species and ecological communities in district recovering, declining or lost.</li> </ul>	

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Environmental value	Quantitative Metric	Qualitative Metric
Open space & Green Grid: outdoors climate, clean air, healthy lifestyle	<ul style="list-style-type: none"> <li>Area of open space in square meters per person (local, district, regional)</li> <li>Area of open space provided by new developments relative to the number of new residents</li> <li>Accessibility – local open space within 200m / 10 min walk</li> <li>Economic value (environmental services, increased value of adjoining properties)</li> <li>Capacity of available open space to provide a range of facilities &amp; recreation opportunities</li> <li>Quality and accessibility of open space as determined by level of usage and results of user surveys</li> <li>Frequency and level of usage by sports and other recreation groups</li> </ul>	<ul style="list-style-type: none"> <li>Survey of community perception of values and adequacy of multiple formal and informal uses</li> </ul>
Urban trees: cooling & shade for heat island, and soften city streets, wildlife habitat and corridors, local identity	<ul style="list-style-type: none"> <li>Economic value measured in dollars (environmental services, increased value of adjoining properties)</li> <li>Climate change mitigation of heat island effect measured in degrees</li> <li>Reduced energy consumption through shading measured in dollars</li> <li>Reduced sickness and death from extreme heat measured in number of occurrences</li> <li>Reduced stormwater runoff volume and rate</li> <li>Improved water quality of run off assessed against benchmark</li> <li>Economic measured by property price indicators</li> <li>Canopy coverage against 2014 i-Tree, Lidar and GIS mapping benchmarks</li> </ul>	<ul style="list-style-type: none"> <li>Aesthetic values</li> <li>Community sense of well being</li> <li>Human comfort resulting from shade</li> <li>Survey of community perceptions of values</li> </ul>
Local character: maintain differences rather than conformity, social links to a location	<ul style="list-style-type: none"> <li>Register of values important to community and heritage items, significant trees and public spaces (informed by local council LEPs and DCPs)</li> </ul>	<ul style="list-style-type: none"> <li>Identifiable character linking past and present</li> <li>Change in community satisfaction and sense of belonging with locality</li> </ul>
Heritage	<ul style="list-style-type: none"> <li>Number of Heritage items and heritage conservation areas listed on the State Heritage Register</li> <li>Timely processing of heritage listing nominations, including ministerial endorsements of Heritage Council recommendations (14 Days); and for addition or subtraction, as appropriate, from LEP heritage schedules.</li> <li>Number of historic/cultural preservation projects completed and programs operated annually</li> </ul>	
Scenic protection: backdrops	<ul style="list-style-type: none"> <li>Number of items of scenic value nominated for protection / management</li> <li>Number of plans of management / maintenance for items of nominated scenic value.</li> </ul>	

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Environmental value	Quantitative Metric
Air quality: health and visual impacts, transport emissions	<ul style="list-style-type: none"> <li>• Annual air quality index score</li> <li>• Number of days each year on which NEPM and WHO air quality standards are exceeded</li> <li>• Vehicle Kilometres Travelled (VKT) in the Greater Sydney Region and in each district v public transport use</li> <li>• Number of electric and hydrogen fuel cell electric vehicle registrations and/or sales</li> <li>• Kilometres of cycleway developed and usage</li> <li>• Number of air quality monitoring stations and their geographic spread</li> <li>• Health impacts related to air quality</li> </ul>
Noise	<ul style="list-style-type: none"> <li>• LAeq or Ldn levels over a suitable time period</li> <li>• Maximum level of a noise event</li> <li>• Number of noise events over time</li> <li>• Day Night Level</li> </ul>
Waste management and recycling	<ul style="list-style-type: none"> <li>• Time of day ambient background noise level</li> <li>• Volumes and weights of waste classes (landfill, municipal and commercial recycling, green waste)</li> <li>• Methane emissions from District's landfilled waste</li> <li>• Percentage of nonhazardous waste diverted from landfills annually</li> <li>• Percentage of organic waste diverted for energy recovery or composting annually</li> <li>• Percentage of construction and demolition waste associated with all projects that is recycled or reused</li> <li>• Percentage reduction in operational waste through public place recycling, residential recycling schemes, pay as you throw schemes, and/or other operational waste reduction strategies</li> </ul>
Climate Change: Zero carbon 2050: reduced environmental footprint	<ul style="list-style-type: none"> <li>• Annual tonnes of greenhouse gas emissions per capita/sector from transportation, waste, and building energy use – using the Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC)</li> <li>• Carbon intensity of grid electricity supply</li> <li>• Number of EV and hydrogen vehicle sales and/or registrations; and electric vehicle and hydrogen charging stations and their grid greenhouse intensity</li> </ul>
Energy supply and energy efficiency	<p><b>ENERGY SUPPLY:</b></p> <ul style="list-style-type: none"> <li>• Percentage of annual energy supply generated from district-based renewable sources</li> <li>• Percentage of buildings connected to a district thermal energy or co-generation system</li> <li>• Percent of annual electricity energy needs met through on-site generation at a project level</li> <li>• Percent of peak electricity demand shifted to non-peak times through energy storage</li> <li>• Percentage reduction in projected greenhouse gas emissions from the development</li> <li>• Percentage of all buildings connected to an existing or future site/precinct-wide district heating and cooling network</li> <li>• Production capacity of on-site renewable energy (as a percentage) of the project's predicted annual electrical and thermal energy demand</li> </ul> <p><b>ENERGY EFFICIENCY:</b></p> <ul style="list-style-type: none"> <li>• Percentage of buildings benchmarked and measuring energy performance as per NABERS</li> <li>• Proportion of commercial office buildings over size 5000 m2 that are NABERS rated</li> <li>• Average BASIX Energy score for different housing types at Occupation Certificate issue stage</li> <li>• Proportion of apartment blocks over 100 units that have a NABERS apartment common area rating</li> <li>• KWh of energy used daily per capita of all persons living and working in Sydney and percent reduction in energy use including Percent reduction in peak electricity demand</li> <li>• Percentage of all infrastructure lighting (traffic lights, street lights etc.) using LEDs</li> </ul>

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Environmental value	Quantitative Metric	Qualitative Metric
Water supply and water efficiency	<p><b>WATER SUPPLY:</b></p> <ul style="list-style-type: none"> <li>Percentage of annual water supply generated from district-based recycled sources</li> <li>Percentage of buildings connected to non-potable water sources</li> <li>Percentage of irrigation for public open spaces and public realm areas sourced from non-potable water sources</li> </ul> <p><b>WATER EFFICIENCY:</b></p> <ul style="list-style-type: none"> <li>Litres of water used daily per capita, indoors and outdoors; and Percent reduction in water use</li> <li>Change in average BASIX water scores at Occupation Certificate Stage for different housing types</li> <li>Number of commercial offices over 5000 m<sup>2</sup> that have undertaken NABERS water rating within past three years</li> </ul>	
Natural hazards emergency management	<ul style="list-style-type: none"> <li>Local Government Recovery costs</li> <li>Insurance costs</li> <li>Uninsured costs</li> <li>Infrastructure replacement costs</li> <li>Combat agency and <a href="#">Local government capability assessments</a></li> </ul>	
peri-urban areas scenic	<ul style="list-style-type: none"> <li>Food travel miles</li> <li>Number of land productivity assessments</li> </ul>	<ul style="list-style-type: none"> <li>cooling effect of peri-urban areas</li> <li>peri urban wetlands are maintained</li> </ul>
Food security	<ul style="list-style-type: none"> <li>Number of Bio banking and restoration agreements</li> <li>Rating mechanisms to support agriculture initiatives</li> <li>Meeting established standards and regulations about soil management</li> <li>number of intensive agricultural production activities</li> <li>Farm viability and profitability</li> </ul>	

## ATTACHMENT 1 — GSC Environment Panel Terms of Reference



# Terms of Reference: Environment Panel

## About the Environment Panel

The Greater Sydney Commission is pleased to welcome your participation in the Greater Sydney Commission Environment Panel. The Panel presents a genuine opportunity for peak bodies to articulate priorities and actions for consideration in developing District Plans for Greater Sydney. These District Plans will integrate metropolitan and local planning with infrastructure and propose positive economic, environmental and social solutions for the future of Greater Sydney.

The Environment Panel will consider topics across a range of environmental and urban planning topics such as our mosaic of urban places, urban amenity, the blue and green grids of our waterways, parks, open and recreation spaces, biodiversity, water and energy conservation, air and water quality and waste management.

We look forward to you being an active member on behalf of both your organisation and the wider sector. We welcome your expertise in research, policy development and sector-based advocacy and look forward to working collaboratively with you.

## Introduction

- Peak bodies have expressed interest in being involved in the development of district and metropolitan level plans since the Greater Sydney Commission's inception in January 2016.
- In the first half of 2016, over 150 representatives of peak groups have been invited to a series of stakeholder briefings hosted by the Chief Commissioner and attended by the CEO, Commissioners and senior Greater Sydney Commission staff.
- The Greater Sydney Commission has now developed a mechanism for ongoing dialogue and high-level policy input into the draft District Plans with environment, social and economic peak bodies.
- The Greater Sydney Commission is forming two independent Panels that will work with the Social and Environment Commissioners to produce Advisory Papers that will:
  - help inform government policy at the strategic level
  - help integrate and guide planning at the district level.
- The Social Panel will be co-convened by Commissioner Heather Nesbitt in partnership with the NSW Council of Social Service.
- The Environment Panel will be co-convened by Commissioner Rod Simpson in partnership with the Total Environment Centre.



- NSW Council of Social Service and Total Environment Centre have been chosen as Panel Co-Convenors for their:
  - affinity with our values (refer page 6)
  - recognised leadership role within their respective sectors
  - capacity to collaboratively develop an Advisory Paper to inform the Greater Sydney Commission's District Plans.
- Economic Commissioner Geoff Roberts is leading a concurrent engagement program with business and industry representative groups to ensure the work of the Greater Sydney Commission helps to secure Sydney's economic future.
- The Greater Sydney Commission is committed to open engagement. To ensure the Panels are focussed and accomplish their important strategic task in the short time available, membership is by invitation. It should be noted that the Panels are just one of many ways the Greater Sydney Commission is engaging with organisations and communities across Sydney. Further information is available at [www.greater.sydney](http://www.greater.sydney)
- At the exhibition of the draft District Plans in November 2016 the Greater Sydney Commission will review the broader communications and engagement program including an evaluation of the effectiveness and operation of the Panel. The Commission may seek to conclude, reorient or continue the Panel after the review period.

## Objectives

The Panel will have an advisory role and will not have a decision-making capacity. The discussion and outputs of the panel will be framed to inform the district planning process for Greater Sydney. Core objectives of the panel are to:

- provide advice to the Greater Sydney Commission on high level strategic directions related to the preparation of six District Plans for exhibition in November 2016
- provide advice to the Greater Sydney Commission on issues referred to the Panel by the Panel Co-Convenor and Commissioner of relevance to the district planning process
- contribute to the development and review of a Social Advisory Paper to be drafted by the Panel Co-Convenor
- provide an effective conduit for communication between the Greater Sydney Commission and diverse communities of interest on the priorities and actions identified by the Panel.

## Membership

- The Environment Panel will be co-convened by The Total Environment Centre.
- Membership of the panel is voluntary and expected to comprise the Commissioner, Panel Co-Convenor and around 15 core members. The Panel will be independently facilitated.
- Membership may change including the appointment of additional representatives based on skills or experience (including relevant government agencies and other interest groups).

- As well as nominated Panel members, meetings may be attended by senior representatives of the Greater Sydney Commission and at times other government agencies, as presenters and observers.
- Specialist advisors or consultants may be invited to attend meetings as required, at the request of the Commissioner and Panel Co-Convenor, as presenters.
- From time to time, individual members of the panel may be called upon to provide advice and comment on particular issues as they arise between scheduled meetings.

### **Appointment of members**

- Prospective members will be invited to participate by the Commissioner and Panel Co-Convenor. The organisation invited retains the right to delegate to the most appropriate representative.
- In view of the timeframes for this project it is desirable that the nominee be able to participate in all the meetings to occur between now and November. If unavoidable alternate delegates from the same organisation are permissible, but attendance should be notified in advance to the Chair.
- Members will be appointed for an initial period leading up to the exhibition of the District Plans in late November 2016, with the potential for extension beyond this time as determined by the Greater Sydney Commission, in agreement with the Panel.

### **Experience required**

All members should be familiar with the environment and urban policy landscape in New South Wales (e.g. trends, interests and overarching issues), able to understand the tensions and complexities that may surround environmental and urban projects and be motivated to explore options and scenarios to find solutions in this context.

Members will be expected to contribute their own perspectives while being willing to engage in solutions-oriented dialogue and must:

- be an active participant in a community/ environment/ academic group with an interest in long-term sustainable planning for our city
- occupy a senior position within their organisation or be recognised by peers as an authority on a particular area of expertise (if not a nominated member of one of the interest groups)
- demonstrate a capacity to act as a conduit to and from the organisations they represent and its membership base
- be able to participate in the majority of Panel workshops
- be willing to collaborate on the preparation and review of a draft Advisory Paper and collaborate with the Panel Co-Convenor on the development of the draft Advisory Paper outside of workshops if required
- contribute an informed perspective to the evolution of urban strategy and the resolution of complex planning issues
- constructively participate in a collaborative and solutions-focused process, and
- engage with the Greater Sydney Commission to provide an effective conduit for communication between the Commission and diverse communities of interest within their sector and within the districts.

## Operation

- The Panel will meet approximately five times in the period from July up to and including the public exhibition of the draft District Plans in late November 2016.
- Meetings will be independently facilitated and attended by representatives of the Greater Sydney Commission, as well as relevant government agencies, specialist advisors or consultants who may be invited to attend.
- Meetings will not be open to the general public or the media however a summary of discussion points will be made available on the Greater Sydney Commission website.
- The Greater Sydney Commission may issue media releases or statements to communicate about particular panel issues or outcomes. Other members of the panels are not authorised to make any public statements on the deliberations of the group.
- Members are not permitted to record the Panel meetings using electronic or photographic devices.

## Duties

*The Greater Sydney Commission will:*

- appoint a facilitator to enable the Commissioner, Panel Co-Convenor and all Panel members to actively participate in the Panel discussions
- provide specialist advisors or consultants where appropriate
- refer matters for discussion and deliberation to the group
- provide open, accurate and timely information about discussion items
- ensure all members are provided with sufficient information to allow constructive and informed participation and discussion
- adhere to confidentiality agreed to in meetings
- provide secretariat services to support the meetings
- publish brief summaries of meetings
- notify members of meeting dates in advance
- provide a forward work program at each meeting, following the inaugural meeting
- duly consider the outputs of the panel's deliberations.

*The Co-Convenor will undertake the duties of a member and will:*

- assist in preparation of workshops
- duly consider the outputs of the panel's deliberations
- provide written meeting summaries for circulation
- lead the drafting and finalisation of an Advisory Paper
- co-present on occasion with the Commissioner at Greater Sydney Commission events and functions.

*The facilitator will:*

- work with the Commissioner and Panel Co-Convenor to formulate meeting agendas
- run meetings in a fair manner
- facilitate discussion to ensure all members are provided with equal opportunity to speak and share their views
- identify any items of a confidential nature so that panel members understand how this information may or may not be used
- contribute to constructive, solutions-focused dialogue
- resolve disagreement or differences in opinion in a fair, transparent and mutually-supportive manner
- work with the Panel Co-Convenor to ensure the Advisory Paper reflects the deliberations of the group, and
- at the review point of the Panel, work with the Commissioner and Panel Co-Convenor to assess the effectiveness of the panel and make recommendations to the Commission on the contribution of the Panels to the broader engagement program.

*Members will:*

- regularly attend and actively participate in meetings
- advise in advance if they are unable to attend meetings
- review meeting summaries, technical information and other documentation as required in order to fully contribute to each meeting
- contribute to an atmosphere of open and constructive participation and respect the opinions of others
- represent their organisation or sector by bringing to meetings of the Panel ideas and input from their respective networks - while also remaining committed to open dialogue and seeking consensus-based solutions to matters referred to the Panel by the Commissioner and Panel Co-Convenor
- communicate interests, concerns and ideas openly and make reasons for any disagreement clear in a constructive and thoughtful manner
- respect and maintain confidentiality of discussions and material presented at meetings, as identified by the Commissioner and Panel Co-Convenor, and make no media commentary either on or off the record about matters discussed at meetings
- assist in two-way communication between the Greater Sydney Commission, members and local groups, when appropriate, and
- immediately advise the facilitator of any potential or actual conflict of interest relating to matters for discussion.



## About the Greater Sydney Commission

### Our Vision

To create a Greater Sydney that works better for all of us.

### Our mission is to create:

- A Greater Sydney for us now and for future generations.
- A Greater Sydney making it easy for us to live and thrive as we grow and prosper.
- A Greater Sydney that is diverse and energetic, rich in culture and community.
- A Greater Sydney making it easy to travel from home to work and everywhere in between.
- A Greater Sydney that is more productive and successful, providing opportunities for all.
- A Greater Sydney that is competitive with the best in the world.
- A Greater Sydney that protects and enhances its natural and built environment.

### Our Values

- **Inclusive** - We believe Greater Sydney is a city for everyone, providing opportunity for all. A city that is balanced and equitable. We believe in being fair.
- **Bold and Open Minded** - Greater Sydney is a city of ambition and we need to match this ambition by boldness. Innovative thinking for new solutions. Speaking up with courage when required.
- **Transparent** - We believe planning should be visible and transparent. We are open to engagement, open to evidence and open to ideas for doing things better.
- **Collaborative** - We believe connecting and collaborating will create a stronger city. We exist to remove silos.
- **Active** - We will be judged by the meaningful difference we make to Greater Sydney. Our ideas and plans need to be made real for us to succeed.
- **Informed** - We believe in the importance of evidence and testing in making decisions about Greater Sydney's future. Goals will be set and progress tracked.



## ATTACHMENT 2 — List of GSC Environment Panel Members

<b>Ally Dench</b>	Coordinating Chair Sydney Peri-Urban Network (SPUN)
<b>Beck Dawson</b>	Chief Resilience Officer 100 Resilient Cities
<b>Brian Scarsbrick</b>	Chief Executive Officer The National Trust of Australia (NSW)
<b>Deo Prasad AO</b>	Chief Executive Officer CRC Low Carbon Living Ltd, University of NSW
<b>Eamon Waterford</b>	Head of Strategy & Advocacy Committee for Sydney
<b>Geoff Withycombe</b>	Executive Officer Sydney Coastal Councils Group Inc
<b>Graham Quint</b>	Director, Advocacy The National Trust of Australia (NSW)
<b>Jess Miller</b>	Partnerships & Projects Lead 202020
<b>Kevin Evans</b>	Chief Executive Officer National Parks Association of NSW
<b>Mora Main</b>	Planning Committee Member Nature Conservation Council
<b>Natasha Lay</b>	Western Sydney Coordinator Youth Action
<b>Noel Corkery</b>	Fellow Australian Institute of Landscape Architects (AILA NSW)
<b>Peter Steinberg</b>	Director and CEO Sydney Institute Marine Science, University of Sydney (SIMS)
<b>Rachel Walmsley</b>	Director Policy & Reform Environmental Defenders Office NSW
	Better Planning Network
<b>Richard McManus</b>	President Stormwater NSW
<b>Romilly Madew</b>	Chief Executive Officer Green Building Council of Australia (GBCA)
<b>Stuart White</b>	Director Institute of Sustainable Futures
<b>Co-Convenors:</b>	
<b>Jeff Angel</b>	Executive Director Total Environment Centre
<b>Roderick Simpson</b>	Environment Commissioner Greater Sydney Commission

## ATTACHMENT 3 – Summary of Survey Results

# CENTRAL DISTRICT

BOTANY BAY

BURWOOD

CANADA BAY

INNER WEST

RANDWICK

STRATHFIELD

SYDNEY (CITY OF)

WAVERLEY

WOOLLAHRA

### TOP 8 ENVIRONMENTAL ISSUES:

Urban tree cover	18.0%
Loss of open space	16.7%
Loss of biodiversity	10.9%
Loss of local character	10.0%
Heritage protection	10.0%
Air Quality	8.4%
Climate change	7.9%
Energy and water efficiency	5.4%

### Q: Are there any open spaces currently under threat from development in your area?

**YES:** 14 of 16 responses **NO:** 2 of 16 responses

#### What spaces:

Wentworth Park, Banks Street, Bicentennial Park, Victoria Park, Wolli Creek, Malabar Headland rifle range, Reg Coady Reserve, Petersham Park, potential for Moore Park golf course reduced to 9 holes, and potential impacts of WestConnex and Sydney East and CBD light Rail on reserves such as Moore Park, Centennial Parkland, Sydney Park, Jubilee Park and waterfront parks in Annandale and Glebe for construction of the Sydney East and CBD light Rail.

### Q: Are there any rare or endangered species / communities in your area?

**YES:** 13 of 16 responses **NO:** 3 of 16 responses

#### What species:

Blue Wrens, Eastern Suburbs Banksia Scrub, century old trees including the Anzac Memorial Trees, salt marsh species that have become re-established along Johnstons Creek.

### Q: Is your local area subject to natural hazards?

**YES:** 11 of 16 responses **NO:** 5 of 16 responses

#### What Natural hazards:

Local flooding after heavy rain in low lying areas, coastal damage from storm surge, potential issues with issues with sea level rise on waterfront areas.

### Q: What is the level of renewable energy used in your local area?

**LOW:** 11 of 16 **MEDIUM:** 5 of 16 **HIGH:** 0 of 16



### WHAT:

This is a summary of answers provided by community members from the Central district gathered through an online survey.

It presents what respondents feel are the important environmental issues in their district, and how they might be addressed in the Draft GSC District Plans.

### WHO:

The online survey was carried out by the Total Environment Centre.

It was sent to over 250 community groups across Sydney.

This information is based on 5 community groups and 11 individuals from the district who responded to the survey invitation.

### WHY:

This document is to report back to the community the results of the online survey and to promote discussion.



**Q: Can you provide a few examples of how and where your priority issues are occurring in your area, or why they are a priority.**

**Some comments made by survey participants:**

- "With the proposed closing of Greyhound Racing at Wentworth Park residents are most concerned that the area will be used for high rise residential with a loss of the potential for more open space."
- "Open space has been lost in Haberfield by the removal of parkland in Reg Coady Reserve for the WestConnex."
- "WestConnex could impact on Victoria Park, as well as Bicentennial Park."
- "With increases in high density dwellings it is important to keep open space and a healthy connection with nature."
- "Proposed urban densification is happening without thought of open space or supporting social infrastructure like schools or hospitals."
- "Glebe is a very green village. Care should be taken to see that this character is protected."
- "Urgent need to replant and build green infrastructure to support biodiversity. Especially native animals"
- "Glebe is a Conservation Area with a number of heritage listed dwellings. There is much overdevelopment of terraces with the resultant loss of private green space and privacy."
- "WestConnex and the Metro rail extension will remove period and heritage housing precincts."
- "Air Quality is being impacted with the increasing population and traffic. WestConnex will impact on air quality with tunnel ventilation and construction vehicles."
- "Rozelle Bay and Blackwattle Bay waterways are significantly contaminated by the previous industrial use of adjacent foreshores and storm water quality. Any further development in the Bays should be carefully assessed for impacts on the waterways"
- "There are many opportunities for energy and water efficiency which are being ignored in building planning."
- "Scenic protection is very important for a beautiful coastal zone"

**Q: What are the most important things specific to your local area that should be included in your District Plan?**

**Some comments made by survey participants:**

- "Environmental sustainability could be quantified by open space, parks, air quality, the greening of the village and the health of waterways."
- "Achieve an equitable balance between the need for open space playing fields and providing bushland for biodiversity."
- "Infrastructure must keep pace with increasing density. Lots of open space, nature, trees, fresh air, room to walk. Light filled dwellings, energy efficient, permeable rather than paved surfaces in order to manage the storm water runoff. Planning so as to minimize need for car trips."
- "Acknowledgement and Protection of heritage buildings and precincts."
- "Integration of green infrastructure into the local district can help to address a range of issues around climate change and urban heat island, health and wellbeing, biodiversity protection, energy and water consumption, air quality"
- "Ensure all future development is net zero, passive design, efficiency, on site renewables, offset by offsite renewables. Protect all park space. Well-designed transport oriented density."

# NORTH DISTRICT

HORNSBY HUNTERS HILL KU-RING-GAI  
LANE COVE NORTHERN BEACHES MOSMAN  
NORTH SYDNEY RYDE WILLOUGHBY

## TOP 8 ENVIRONMENTAL ISSUES:

Loss of biodiversity	24.7%
Urban tree cover	19.1%
Waterway health	9.4%
Loss of open space	8.4%
Other	7.0%
Loss of local character	5.7%
Climate change	5.0%
Heritage protection	5.0%

## Q: Are there any open spaces currently under threat from development in your area?

**YES:** 18 of 20 responses **NO:** 2 of 20 responses

### What spaces:

Batten Reserve, Stringybark Ridge, Dural agricultural land, development in South Dural and north of Castle Hill, Glade Oval, Manly Dam, Sheldon Forest, Browns Forest, Hillview Historic estate, Village Park Turramurra, Crown Lands in Hornsby including: Arcadia: Arcadia Park, Calabash Road Bushland, Calabash Point Bushland, Halls Creek Bushland; Asquith: Michigan Avenue Bushland, Mills Avenue Bushland; Beecroft: Beecroft Reserve, Byles Creek, Chilworth Reserve, Castle Howard Bushland, Edwards and Lamorna Bushland, Fearley Park, Orchard Road Park; Berowra: Berowra Community Centre Bushland, Combora Circuit Bushland, Evanda Street Bushland; Berowra Creek: Bar Island, Neverfail Bay Bushland; Berowra Heights: Berowra Park, Cunio Point Bushland, Turner Road Bushland; Berowra Waters: Furber Park; Berrilee: Bay Road Bushland, Woolwash; Brooklyn: Brooklyn Park, Brooklyn Railway Bushland, McKell Park, Seymours; Creek Bushland: Canolands: Pumpkin Point Creek Bushland; Carlingford: Ray Park; Castle Hill: Upper Pyes Creek Bushland; Cheltenham: Cheltenham Bushland; Cherrybrook: Kanangra Crescent Bushland, Lakes of Cherrybrook, Pyes Creek Bushland; Dangar Island: Kiparra Park; Dural: Muraban Road Bushland, Pyes Creek Bushland; Epping: Dence Park, Midson & Plympton Road Bushland, Terrys Creek Bushland, Vimiera Park; Fiddletown: Bloodwood Road Aboriginal Area, Calabash Point Bushland, Collingridge Bushland, Sunnyridge Road Bushland; Galston: Fagan Park (including Carrs Bush), Galston Park, Galston Recreation Reserve and Hayes Park, Knights Road Bushland; Glenorie: Campbell Crescent Bushland, Glenorie Park; Hornsby: Florence Cotton Reserve, Hornsby Park, Manor Road Bushland, Reddy Park, Rosemead Road Bushland, Waitara Creek Bushland; Hornsby Heights: Crosslands, Ginger Meggs Park, Rofe Park Bushland, Somerville Road Bushland; Laughtondale: One Tree Reach Wetland; Maroota: Molesworth Reserve, Wisemans Ferry Lookout Bushland, Wisemans Ferry Tip; Middle Dural: Forsters Reserve; Mount Colah: Berry Park Bushland, Bimbil Avenue, Excelsior Bushland, Judith Ave Bushland, Murralong Road Bushland, Oxley Drive Park, Sue Place; Mount Ku-ring-gai: Mount Ku-ring-gai Park; Pennant Hills: Azalea Grove Bushland, Britannia Street Bushland, Observatory Park, Tristania Way Bushland; Normanhurst: Begonia Road South Bushland, Kenley Park, Normanhurst Park, Pine Street Bushland, Waitara Creek Bushland; North Epping: North Epping Oval, Woods Street Oval; Thornleigh: Dog Pound Creek Bushland, Larool Crescent Childrens Centre, Larool Creek Bushland; Westleigh: Dog Pound Creek Bushland, Quarter Sessions Road Bushland, Western Crescent Playground West; Pennant Hills: New Farm Road Bushland; Wisemans Ferry: Singleton Mill Road Bushland and Wisemans Ferry Cemetery.



## WHAT:

This is a summary of answers provided by community members from the North district gathered through an online survey.

It presents what respondents feel are the important environmental issues in their district, and how they might be addressed in the Draft GSC District Plans.

## WHO:

The online survey was carried out by the Total Environment Centre.

It was sent to over 250 community groups across Sydney.

This information is based on 10 community groups and 11 individuals from the district who responded to the survey invitation.

## WHY:

This document is to report back to the community the results of the online survey and to promote discussion.



**Q: Are there any rare or endangered species / communities in your area?**

**YES:** 17 of 20 responses    **NO:** 3 of 20 responses

**What species:**

Blue Gum High Forest, Salt water wetlands, estuarine casuarina areas and turpentine/ironbark colony, Hygrocybe fungi community, koalas, marsupial mice and native cats, shale plains woodland, shale hills woodland, agnes banks woodland, birds (gang-gang cockatoo, powerful owl, square-tailed kite, speckled warbler, jacky winter, regent honeyeater, swift parrot, several migratory shorebirds esp. Australasian bittern, Australian painted snipe), eastern pygmy possum, eastern bentwing bat, grey headed flying fox, red crowned toadlet, syzygium paniculatum, bandicoots, penguins, yellow tailed black cockatoos, orchids.

**Q: Is your local area subject to natural hazards?**

**YES:** 19 of 20 responses    **NO:** 1 of 20 responses

**What Natural hazards:**

Bushfire, some flooding and storm water overflow, sea level rise due to climate change, urban heat island effect.

**Q: What is the level of renewable energy used in your local area?**

**LOW:** 11 of 20    **MEDIUM:** 9 of 20    **HIGH:** 0 of 20

**Q: Can you provide a few examples of how and where your priority issues are occurring in your area, or why they are a priority.**

### Some comments made by survey participants:

"Sydney's bushland is unique and must be looked after as Sydney develops so it is not lost forever. Population growth is not valid if this means that the asset of our biodiversity is lost to all Sydney-siders."

"Little by little encroachment on to our bushland corridors, for roads, housing or infrastructure such as hospitals and schools, is reducing our biodiversity and making it more susceptible to climate change."

"There have been large acreage clearing of trees in Terry Hills, including protected species, and adjoining bushland for development."

"The rezoning of South Dural (converting 600 acres of 135 rural lots to 3000 lots, and to increase building height to allow for multi storey and multi unit dwellings) will compromise the biodiversity of the area, and effect the headwaters and 8 tributaries of the Georges Creek, the main feeder for Berowra Waters. There are endangered ecological communities; there are over 70 threatened local species in this area. Wildlife corridors will be destroyed; the water catchment will be negatively impacted; potential agricultural land and its proximity to markets will be lost forever."

"The rezoning of the rural lands of Galston and Glenorie which will extend into Dural and into Arcadia to residential will effectively wipe the rural lands in the Shire as we know it. Thousands and thousands of people all over Sydney and the Central Coast visit for recreation, rest, tourism because it is rural zoned."

"Degradation of bushland through development is causing excess storm water runoff leading to waterlogging, erosion of gullies and weed infestation."



### Some comments made by survey participants:

"Degradation of bushland through development is causing excess storm water runoff leading to waterlogging, erosion of gullies and weed infestation."

"Development of numerous small developments should be coordinated within precincts to create community spaces."

"Areas like Waitara and Hornsby, with big unit development have almost NO open park and playground areas for young families; lots of them just go to Westfield shops to try to find play areas for the children."

"Many heritage properties have been lost to unit developments, particularly along the Pacific Hwy; the original settlement road of the north shore"

"Heritage doesn't stand for anything, because you just rename it an urban activation precinct (i.e. Epping)."

"Bushfire danger in North Turramurra is always a threat being surrounded by Ku-ring-gai National Park. Any increase in population and in particular "Vulnerable Groups" adds to an already challenging evacuation and protection issue".

**Q: What are the most important things specific to your local area that should be included in your District Plan?**

### Some comments made by survey participants:

"Maintain street character, vegetation corridors and allow for cumulative impacts. Establish environmentally sensitive areas off limits from development with an E1 type zoning."

"Maintain as much of the remaining natural and semi-natural wildlife habitat as possible. It is particularly important that all currently protected lands/water continue to remain well protected and managed to the benefit of wildlife."

"Protection of existing urban tree canopy. Protection of peri-urban space & Crown Lands bushlands. Limitation of unit construction spread to maintain local character."

"The District Plan must recognise the lower Hawkesbury (including its adjacent National Parks and Nature Reserves) as a distinct place of high value to the people of Sydney."

"Open space and tree cover."

"Zoning to preserve the natural and built heritage."

"Open space via households being encouraged to build smaller houses with more soft landscape for wild life and catch rain water run off."

"Neighborhood scale energy, water, wastewater solutions (reduce reliance on a sewage system). Protection of natural areas, and open space. Better bike and pathways."

# SOUTH DISTRICT

GEORGES RIVER  
CANTEBURY-BANKSTOWN\*

ROCKDALE  
SUTHERLAND

## TOP 8 ENVIRONMENTAL ISSUES:

Loss of biodiversity	20.7%
Climate change	17.2%
Loss of local character	17.2%
Loss of Peri-urban land	13.8%
Loss of open space	10.3%
Other	10.3%
Waterway health	6.9%
Waste management and recycling	3.4%

## Q: Are there any open spaces currently under threat from development in your area?

**YES:** 2 of 2 responses **NO:** 0 of 2 responses

What spaces:

Ironbark bushland adjacent to M5, Riverlands golf course, field of dreams softball parks and multiple suburban green spaces, much of the bushland in western Sydney forms part of a listed endangered ecological community.

## Q: Are there any rare or endangered species / communities in your area?

**YES:** 2 of 2 responses **NO:** 0 of 2 responses

What species:

Ironbark bushland, aboriginal scar trees and other trees of age and environmental significance.

## Q: Is your local area subject to natural hazards?

**YES:** 2 of 2 responses **NO:** 0 of 2 responses

What Natural hazards:

Intense storm events, bushfires, flooding, the effects of climate change with particular focus on riparian habitats which are among the ecosystems.

## Q: What is the level of renewable energy used in your local area?

**WOM:** 2 of 2 **DEIWD:** 0 of 2 **GUG:** 0 of 2



## WHAT:

This is a summary of answers provided by community members from the South district gathered through an online survey.

It presents what respondents feel are the important environmental issues in their district, and how they might be addressed in the Draft GSC District Plans.

## WHO:

The online survey was carried out by the Total Environment Centre.

It was sent to over 250 community groups across Sydney.

This information is based on 2 individuals from the district who responded to the survey invitation.

## WHY:

This document is to report back to the community the results of the online survey and to promote discussion.



**Q: Can you provide a few examples of how and where your priority issues are occurring in your area, or why they are a priority.**

**Some comments made by survey participants:**

"Loss of biodiversity."

"Loss of agricultural land."

"The rezoning and selling off of green spaces for housing will remove significant trees in the Riverlands development and also lead to a loss of local character."

**Q: What are the most important things specific to your local area that should be included in your District Plan?**

**Some comments made by survey participants:**

"The Georges River from picnic point to East Hills has been badly neglected. It needs running and bike tracks and improved facilities to encourage people to take pride in and use their parks. "

"Lack of State Government Climate Change Action Plan. Need to build knowledge and capacity in the community about collaborative models for installation of renewable energy using community spaces such as schools, community centres etc."

"Need a funding model which permits environmental rectification following natural disasters, with particular focus on riparian habitats which are among the ecosystems most highly threatened by climate change"

"The government needs to buy back Riverlands and do a proper community consultation"

# SOUTH WEST DISTRICT

CAMDEN  
LIVERPOOL

CAMPBELLTOWN  
WOLLONDILLY

FAIRFIELD

## TOP 8 ENVIRONMENTAL ISSUES:

Climate change	33.3%
Energy and water efficiency	26.7%
Waterway health	20.0%
Heritage protection	13.3%
Loss of local character	6.7%
Loss of biodiversity	0.0%
Urban tree cover	0.0%
Loss of open space	0.0%

## Q: Are there any open spaces currently under threat from development in your area?

**YES:** 1 of 1 response **NO:** 0 of 1 response

What spaces:

Thirlmere Lakes have lost 70% of their water due to underground mining. This has affected flora and fauna and caused weed growth in the lakes. Redbank Creek in Picton has been severely eroded by underground mining and the Cataract River has cracked rocks and methane gas. New developments planned for the Bargo River are of concern due to their perceived threats to the quality of the river and to the platypus and other native animals.

## Q: Are there any rare or endangered species / communities in your area?

**YES:** 1 of 1 response **NO:** 0 of 1 response

What species:

All river-dwelling animals such as platypus, water rats are affected by the damage to our rivers. Koala have been observed in several areas around Appin and are under severe threat from road traffic and dogs.

## Q: Is your local area subject to natural hazards?

**YES:** 1 of 1 response **NO:** 0 of 1 response

What Natural hazards:

Fire is predominant in our local bushland. Floods have been significant in Picton this year due to the Stonequarry Creek.

## Q: What is the level of renewable energy used in your local area?

**WOM:** 1 of 1 **DEIWD:** 0 of 1 **GU G:** 0 of 1



## WHAT:

This is a summary of answers provided by community members from the South West district gathered through an online survey.

It presents what respondents feel are the important environmental issues in their district, and how they might be addressed in the Draft GSC District Plans.

## WHO:

The online survey was carried out by the Total Environment Centre.

It was sent to over 250 community groups across Sydney.

This information is based on 1 individual from the district who responded to the survey invitation.

## WHY:

This document is to report back to the community the results of the online survey and to promote discussion.



**Q:** Can you provide a few examples of how and where your priority issues are occurring in your area, or why they are a priority.

**Some comments made by survey participants:**

“Wollondilly is the next urban development area. We want to see this managed in terms of when, where and how this occurs. At the moment development is occurring with no regard to loss of local character, bio-diversity or local heritage.”

“We are in a coal-producing area and are constantly addressing issues in relation to how the coal industry has affected our rivers, lakes and upland swamps. Now CSG and fracking are issues too.”

“We are also concerned at the loss of good agricultural land which could be used for food production if prioritised and supported.”

**Q:** What are the most important things specific to your local area that should be included in your District Plan?

**Some comments made by survey participants:**

“There is so much scope to work with the local character and produce unique villages, developing heritage themes and more livability, yet all the developments are the same.”

“Local planning should actively promote buildings standards which are environmentally sound; such as including solar panels, planned to take advantage of the site, colors of rooves, building materials for low energy.”



# WEST CENTRAL DISTRICT

BLACKTOWN CANTERBURY-BANKSTOWN\*  
CUMBERLAND PARRAMATTA THE HILLS

## TOP 8 ENVIRONMENTAL ISSUES:

Climate change	25.6%
Loss of biodiversity	22.2%
Loss of open space	12.2%
Urban tree cover	7.8%
Waterway health	6.7%
Heritage protection	5.6%
Loss of local character	4.4%
Energy and water efficiency	4.4%

## Q: Are there any open spaces currently under threat from development in your area?

**YES:** 6 of 6 responses **NO:** 0 of 6 responses

What spaces:

Western Sydney Parklands, Cumberland Plain Woodland, Caddies Creek, behind Northmead Bowling Club, Parramatta Golf Club, Parramatta Park, Parramatta Pool, 579-593 Halcrows Road (threatening Little Catai Creek and the Broadwater wetland), South Dural rezoning (240 hectares), the incinerator at Eastern Creek, loss of Showground for football stadium, Blue Gum estate fire trail.

## Q: Are there any rare or endangered species / communities in your area?

**YES:** 6 of 6 responses **NO:** 0 of 6 responses

What species:

Cumberland Plain Woodland, Sydney Turpentine Ironbark forest along Quarry Branch creek and Shale Sandstone Shale Sandstone Transition Forest, Acacia ulicifolia, Epacris purpurascens and Pimelia curviflora.

## Q: Is your local area subject to natural hazards?

**YES:** 5 of 6 responses **NO:** 1 of 6 responses

What Natural hazards:

Storm water runoff leading to flooding. Bushfire danger.

## Q: What is the level of renewable energy used in your local area?

**SOLAR:** 4 of 6 **WIND:** 2 of 6 **GEOTHERMAL:** 0 of 6



## WHAT:

This is a summary of answers provided by community members from the West Central district gathered through an online survey.

It presents what respondents feel are the important environmental issues in their district, and how they might be addressed in the Draft GSC District Plans.

## WHO:

The online survey was carried out by the Total Environment Centre.

It was sent to over 250 community groups across Sydney.

This information is based on 3 community groups and 3 individuals from the district who responded to the survey invitation.

## WHY:

This document is to report back to the community the results of the online survey and to promote discussion.



**Q: Can you provide a few examples of how and where your priority issues are occurring in your area, or why they are a priority.**

**Some comments made by survey participants:**

"Reduced clearing will prevent localised heat island effects and increased appropriate planting will lead to cooler local temperatures"

"More public transport required."

"Over-development a big problem. Offsetting bushland that is already meant to be preserved a big problem."

"Often if an old house is sold, all the trees on the block will be chopped down to make way for duplex or villas."

"The biodiversity has reduced considerably over 20 years - Blue tongue lizards used to be fairly common but are now rarely seen. This is the same for water dragons, turtles on the edge of the water, antichinus, rikali, pardalote and tawny frogmouths."

"People and especially children need open space to be healthy so the more native vegetation that is cleared and dwellings that are built the worse off we are."

"From the presence of the airport and from Blacktown City Council's plans for "urban renewal" we face possible loss of local character, of open space, of low-density housing with its ground-level back yards and gardens. One doesn't choose to live in Mt Druitt just to see it transformed into another zone of high-rises and concrete-and-glass business towers."

"Pollution and rubbish in waterways, including chemical runoff from roads, driveways and sometimes factories."

"The Western Sydney Airport will lead to air pollution, noise pollution and pollution from fuel-dumping"

"Air Quality: With the coastal winds only reaching Strathfield and temperature inversion issues, both heat and smog dispersion do not occur quickly. It is time for major industries to be relocated to regional growth hubs and dissipate the pressures of population growth."

**Q: What are the most important things specific to your local area that should be included in your District Plan?**

**Some comments made by survey participants:**

"Protecting existing open spaces, and improving the care of bushland."

"Preserving low-density housing where it already exists. They create a pleasant environment with plenty of space for gardens. These areas should be protected from re-zoning for new housing developments."

"Protecting of our natural and heritage sites from the overdevelopment of high rise apartment blocks. A mix of low rise to medium density housing would be more sustainable and cause less strain on local services and amenities."

"Cleaning up the many waterways in the area."

"Leaving the Great Western Highway as it is. We don't need another motorway."

# WEST DISTRICT

BLUE MOUNTAINS HAWKESBURY PENRITH

## TOP 8 ENVIRONMENTAL ISSUES:

Loss of biodiversity	26.7%
Waterway health	14.3%
Urban tree cover	11.4%
Loss of Peri-urban land	11.4%
Loss of open space	10.5%
Climate change	7.6%
Heritage protection	3.8%
Energy and water efficiency	3.8%

## Q: Are there any open spaces currently under threat from development in your area?

**YES:** 5 of 7 responses **NO:** 2 of 7 responses

What spaces:

Floodplain wetlands of Richmond-Windsor (sand-mining), Shanes Park (major roadway), Kurrajong-Kurmond foothills (medium density subdivision), farming areas around Tennyson and Box Hill a waiting permission to subdivide. Broadwater wetland, Little Cattai Creek, Hawkesbury River (bushland and waterways). Western Sydney Parklands, Riverstone Meat Works Wetlands, land release in Springwood.

## Q: Are there any rare or endangered species / communities in your area?

**YES:** 7 of 7 responses **NO:** 0 of 7 responses

What species:

Western Sydney Dry Rainforest, moist Shale Woodlands, Sydney Turpentine-Ironbark Forest, Freshwater Wetlands, Eucalypt Riparian forests, koala, Australian Bittern, Greater Glider, pygmy possum, broad-headed snake, grevillea juniper, Dural land snail, Cumberland Plain Woodland (critically endangered status), platypus and rakali, spotted quoll.

## Q: Is your local area subject to natural hazards?

**YES:** 6 of 7 responses **NO:** 1 of 7 responses

What Natural hazards:

Bushfire risk. Flooding. High winds and tree damage.

## Q: What is the level of renewable energy used in your local area?

**SOLAR:** 3 of 7 **WIND:** 4 of 7 **HYDRO:** 0 of 7



## WHAT:

This is a summary of answers provided by community members from the West district gathered through an online survey.

It presents what respondents feel are the important environmental issues in their district, and how they might be addressed in the Draft GSC District Plans.

## WHO:

The online survey was carried out by the Total Environment Centre.

It was sent to over 250 community groups across Sydney.

This information is based on 2 community groups and 5 individuals from the district who responded to the survey invitation.

## WHY:

This document is to report back to the community the results of the online survey and to promote discussion.



**Q: Can you provide a few examples of how and where your priority issues are occurring in your area, or why they are a priority.**

**Some comments made by survey participants:**

"CAMBA and JAMBA listed migratory bird habitat in Marsden Park North (Riverstone Wetlands) are zoned for development".

"Large parcels of land in Londonderry, Cranebrook, Agnes Banks have EPBC and TSC listed ecological communities and species but are zoned RU (4) which allows 2ha subdivision"

"Large and relatively intact areas of bushland such as Shanes Park and Castlereagh State Forests will inevitably be decimated by motorways"

"Huge losses of the Cumberland Plain woodlands as well as the various shale-based Endangered Ecological Communities in the Grose Vale, Kurrajong, Wollondilly and Penrith have already accelerated in the last 10 years."

"Hills Shire rezoning has led to huge tree and biodiversity loss, pollution of pristine waterways. Development in Hawkesbury has had similar impacts. Waterways and wetlands are affected - Cattai Creek, Little Cattai Creek, Hawkesbury River."

"Lack of controls on use and access to the Hawkesbury-Nepean River catchment, the impact of mining and bores on groundwater, poor management of rural activities encroaching on water ecosystems effect water quality."

"The loss of the peri-urban land, which includes bushland to protect the watersheds, and arable land to support the food bowl of Sydney."

"Farms have been wiped out by economic prioritising for infrastructure, airport, and more business hubs."

"Open space is actually declining in real terms. I am only in my 30s but per-capita open space in our region today is almost \*half\* what I enjoyed as a child."

"The west will be most highly affected by effects such as high temperatures, increased risk of bushfire, loss of water supply, damage to crops and animal production, and human health, especially as the urbanisation increases urban heat effects and reduces tree canopy. Water and energy efficiency management to reduce fossil fuel use, and make use of WSUD measures must be built into new centers."

**Q: What are the most important things specific to your local area that should be included in your District Plan?**

**Some comments made by survey participants:**

"Maintain bushland and biodiversity. Restrict new housing development."

"Maintain a connected corridor to sustain viable populations of flora and fauna of Western Sydney."

"Encouraging people to build smaller houses and retain native plants when rebuilding."

"Place priority on preserving the natural character and heritage values as it is one of the earliest places of settlement."

"Encouraging the replanting of local habitat including trees."

"There is so much scope to work with the local character and produce unique villages, developing heritage themes and more livability, yet all the developments are the same."

"Improve waste management, in particular for electronic and other special waste types."

"Require coal mine to divert saline mine water to Mt Piper power station."

"Develop a plan which outlines not what we will permit but also what we will not permit: and stick to stick to it to protect our future bushland and agriculture."

## ATTACHMENT 4 — Notes from Environment Panel Community Forums

### Waterway Health (Issue No. 1)

	Central	Central 2	North 1	North 2	South
<b>How does this issue look in your district?</b>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Cooks River</li> <li>Filthy stormwater</li> </ul>	<ul style="list-style-type: none"> <li>Current and potential ownership of public land on foreshore area which leads to truncation and breaking up access for the public</li> <li>Unmade roads similar issue</li> <li>Foreshore building lines</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Kogarah Bay suffering from siltation</li> <li>Creeks in poor condition</li> <li>Insufficient public access to waterways</li> </ul>
<b>Why is this happening?</b>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>RMS example – selling foreshore to people that own land adjacent</li> </ul>	<ul style="list-style-type: none"> <li>Larger scale development</li> </ul>	<ul style="list-style-type: none"> <li>Sediment and runoff from recent development</li> <li>Erosion from boat wash</li> <li>Ad hoc planning</li> <li>No treatment of stormwater to improve quality</li> <li>Wet weather sewer overflows</li> </ul>
<b>What are some possible solutions?</b>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Stormwater conservation</li> <li>Regulating of greywater</li> <li>Government incentives</li> <li>GPTs – mandatory gross pollutant traps</li> <li>Underground stormwater recycling systems</li> <li>Container deposit scheme – implemented properly to relieve litter</li> <li>Take note from South Australia</li> <li>Ban plastic bags</li> </ul>	<ul style="list-style-type: none"> <li>Protection of public access to foreshore and harbour areas</li> <li>RMS not sell land</li> <li>District lands specify all foreshore land available/preserved for public access</li> <li>Not allowed to be sold off to adjoining owners</li> <li>Should be retained as a development prohibition</li> <li>Restore foreshore scenic protection areas and harbour foreshore preservation area</li> </ul>	<ul style="list-style-type: none"> <li>More marine reserves and protection of coastal and harbour foreshore areas</li> <li>Control of marinas</li> <li>Increase protections of foreshore from private development</li> <li>Increase foreshore connectivity</li> <li>Strengthen catchment protection from inappropriate development</li> <li>Water sensitive design should take into account local conditions/topography. BASIX is not specific to area characteristics and should be amended</li> <li>Climate change has altered rainfall – stats for Australian Rainfall Event Interval need to be reused/renewed and standards amended</li> </ul>	<ul style="list-style-type: none"> <li>Improve compliance with requirements on development sites.</li> <li>Green corridors to reduce runoff etc – water sensitive urban design</li> <li>Remediation, rehabilitation and restoration of urban waterways</li> <li>Increase use of no wash zones to protect vulnerable areas</li> <li>Process stormwater to improve quality</li> <li>Reduce wet weather overflows</li> <li>Improve public access to waterways</li> </ul>



ENVIRONMENT PANEL ADVISORY PAPER FOR THE GREATER SYDNEY COMMISSION

Waterway Health (Issue No. 1)

	West Central 1	West	West Central 2	South West
<b>How does this issue look in your district?</b>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Water quality – erosion and sedimentation</li> </ul>	<ul style="list-style-type: none"> <li>Duck River – terrible</li> <li>No controls for stormwater, industry, plastic bags, no filtering</li> <li>Lack of monitoring</li> <li>Lack of publicly available information</li> <li>Homebush Bay - Do not fish/do not swim. Try and make it swimmable</li> <li>Campbell Hill Reserve - Littering</li> <li>Cultural barriers / perceptions</li> <li>Parramatta River Ferry causes erosion</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>
<b>Why is this happening?</b>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Pollution</li> <li>Poor investigation/communication</li> <li>Lack of education</li> <li>No appreciation for areas</li> <li>Parramatta River ferries too - bank stabilisation at risk</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>
<b>What are some possible solutions?</b>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Strong enforceable development controls to control soil loss during construction/development – current controls are not working</li> <li>There must be fines if controls are not respected by development – current controls are not working!!</li> <li>Private certifiers are problematic</li> <li>We need strong metrics to measure water quality and this measurement needs to be conducted independently</li> <li>Copy stormwater clause in Blue Mountains LEP to protect waterways.</li> </ul>	<ul style="list-style-type: none"> <li>Better community communication on water quality issues and action</li> <li>Barrages</li> <li>WSUD</li> <li>More local engagement about water way protection issues protect and create cultural shift</li> <li>Address various cultural differences in the level of understanding by using community education</li> <li>Better ferry design</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>

ENVIRONMENT PANEL ADVISORY PAPER FOR THE GREATER SYDNEY COMMISSION

Biodiversity (Issue No. 2)

	Central	Central 2	North 1	North 2	South
<b>How does this issue look in your district?</b>	<ul style="list-style-type: none"> <li>• Offsets don't work (a failed concept like carbon trading)</li> <li>• Anzac Parade figs being lost</li> <li>• Loss of trees – offset systems have other issues – never getting back canopy cover that is lost</li> <li>• You can't offset the loss of old trees</li> <li>• Problem with biodiversity where a loss in one area is offset far away</li> <li>• Replacement species are problematic</li> </ul>	<ul style="list-style-type: none"> <li>• Malabar Headland</li> <li>• Overdevelopment to death</li> <li>• Strong heritage values “going the longest”</li> <li>• Environmental issues should be prioritised over social issues</li> <li>• “Spaces for people”</li> <li>• Neglected bushland areas</li> <li>• Feral animals issue</li> <li>• Tree corridor (Kingsford to Marbaross)</li> <li>• Like for like is deceptive</li> <li>• Offsets is a fraud</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of bushland and backyard trees and associated impacts to flora and fauna</li> <li>• Wildlife corridors have been affected</li> <li>• Stormwater runoff spreads weeds and pollution into bushland areas and waterways</li> </ul>	<ul style="list-style-type: none"> <li>• Terrible – disappearing.</li> <li>• Issues with 10/50</li> <li>• Loss of topography, irreversible changes to the landscape, loss of sandstone and natural seepage.</li> <li>• Building too close to reserves and not considering topography</li> <li>• Development overloading</li> <li>• Water impacts on local biodiversity</li> </ul>	<ul style="list-style-type: none"> <li>• Marine biodiversity is very important but there are problems with loss of biodiversity of seagrass habitat. Marine biodiversity is declining in the south</li> <li>• Decades of work on terrestrial biodiversity not being reflected in decision making</li> </ul>
<b>Why is this happening?</b>	<ul style="list-style-type: none"> <li>• Local people and local kids should be able to engage with their local environment and learn about it in place</li> </ul>	<ul style="list-style-type: none"> <li>• Chopping down of trees for light rail (99% of Sydneysiders unhappy about it)</li> <li>• Wildlife in trees – cutting habitat</li> <li>• Bats, Fig Trees</li> <li>• Tree destruction</li> <li>• Category 2 – emergency</li> <li>• Howard Park</li> <li>• Threat to Callan Park (environmental asset – 39 species of birds)</li> <li>• Council is restoring at a small scale</li> <li>• Losing portions of open space</li> <li>• Weed infestations/ pests and invasive species</li> <li>• Foxes don't belong in a biodiverse area</li> </ul>	<ul style="list-style-type: none"> <li>• Population/ development growth</li> <li>• Override LEP</li> <li>• Inappropriate location</li> <li>• 10/50 clearing laws</li> <li>• More hard surfaces, higher intensity storms and ageing infrastructure</li> <li>• Lack of requirement for deep soil planting zones in all development</li> </ul>	<ul style="list-style-type: none"> <li>• Standards are being too easily overridden</li> <li>• Pressure for high-rise and underground car parks, concrete enviro!</li> <li>• Weakening of controls and oversight – especially with private certifiers</li> <li>• Not enough consideration of water impacts – competition for use of reducing resources – eg. bushland taken for recreation</li> </ul>	<ul style="list-style-type: none"> <li>• Pollution, habitat loss due to development, pollution including noise and light</li> <li>• Historic overharvesting/ exploitation</li> <li>• Extensive development in Kogarah and Hurstville causing services impacts ie. Runoff and sedimentation ie. Stormwater impacts</li> <li>• Zoning decisions create an expectation of consent</li> <li>• Perverse incentives to increase development</li> </ul>

ENVIRONMENT PANEL ADVISORY PAPER FOR THE GREATER SYDNEY COMMISSION

Biodiversity (Issue No. 2)

	Central	Central 2	North 1	North 2	South
<b>What are some possible solutions?</b>	<ul style="list-style-type: none"> <li>• “Protect and conserve” (add to bullet point 3 on page 7)</li> <li>• Address the equity divide</li> <li>• Corresponding increase for new population, ie don't decrease the ratio of space per person through growth</li> <li>• No canopy cover can be lost</li> <li>• Survey of the heritage significance of trees</li> <li>• Have a tree register for significant trees</li> <li>• Have metrics</li> <li>• Evaluate items such as urban canopy and open space</li> </ul>	<ul style="list-style-type: none"> <li>• Extremely strong protection</li> <li>• Create a national parks entity as a legal personality – recognised aspects to have individual presence, needs and wellbeing too</li> <li>• Stop chopping down trees</li> <li>• Urgent – people are going to die</li> <li>• No more loss of green spaces</li> <li>• Improve and extend wildlife corridors</li> <li>• Include/incorporate native species into Heffron Park and other spaces in the corridors</li> <li>• No offsets</li> </ul>	<ul style="list-style-type: none"> <li>• Adhere to the LEP which identifies wildlife corridors</li> <li>• Small rural/bush areas should not be managed by Rural Fire Service and controlled by fire brigade (metro)</li> <li>• Stronger stormwater management fund, eg. fund under stormwater trust</li> <li>• Reduce footprint of buildings including above and below ground, particularly basements               <ul style="list-style-type: none"> <li>— Extent of underground car parks</li> <li>— Stormwater detention systems inadequate</li> </ul> </li> <li>• Implementation of a requirement for SEPP65 deep soil planting provision</li> <li>• Community awareness</li> <li>• Type of vegetation planted in private backyards near bushland areas should be complementary/compatible</li> <li>• SEPP19 should cover all land near bushland areas</li> <li>• Dog controls should apply to cats as well to preserve biodiversity, particularly near bushland areas</li> <li>• Horticultural and nursery industry should be encouraged / regulated regarding sales of weed species</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce/exclude recreation in highest conservation value areas – plan elsewhere</li> <li>• SEPP65 enforcements for deep soil zones need to be strengthened and increased – 7% too low</li> <li>• No net loss of biodiversity from here forward</li> <li>• Increased declaration of critical habitat</li> <li>• Environmentally sustainable development in existing high value reserve areas</li> <li>• Enforce boundaries of reserves – improve boundary conditions of reserves – eg. Browns Forest</li> <li>• Plan for Wildlife Connectivity and corridors</li> <li>• Unmade roads are transferred to council for environmental protection</li> <li>• Agree with recs SEPP19 should be strengthened, not weakened</li> <li>• Need buffer zones</li> </ul>	<ul style="list-style-type: none"> <li>• Marine reserves</li> <li>• Reduction in pollutions</li> <li>• Restoration and rehabilitation of marine habitat</li> <li>• Approval processes for development on land should include aquatic and marine habitats</li> <li>• Measurement in trends in runoff quantity and quality</li> <li>• District plans should operationalise water sensitive urban design – consider landscape wide implications</li> <li>• Consider cumulative impacts</li> <li>• Green engineering of projects affecting marine habitats</li> <li>• Ecosystem processes and services need to be prioritised in planning</li> <li>• Zonings should reflect environmental values that need to be preserved</li> <li>• Urban trees and plantings should address Australian biology and local provenance</li> <li>• Green engineering of urban infrastructure</li> </ul>

ENVIRONMENT PANEL ADVISORY PAPER FOR THE GREATER SYDNEY COMMISSION

Biodiversity (Issue No. 2)

	West Central 1	West	West Central 2	South West
<b>How does this issue look in your district?</b>	<ul style="list-style-type: none"> <li>Biodiversity under pressure because of rapid development leading to loss of vegetation, loss of habitat, street trees and backyard vegetation</li> <li>For example along Parramatta River North, there is an endangered colony of flying foxes – East Coast Grey Headed Flying-Fox</li> </ul>	<ul style="list-style-type: none"> <li>Impact of development and growth on the world heritage of the Blue Mountains and other urban bushland</li> <li>Impact on Badgery's Creek Airport on vegetation and wildlife (noise, transport) – this needs to be recognised</li> <li>In Hawkesbury, the re-development is very intensive and Cumberland plain woodland is disappearing</li> <li>Wildlife corridors are disappearing</li> <li>North Richmond sub-division is without any infrastructure (e.g. transport)</li> </ul>	<ul style="list-style-type: none"> <li>Parramatta has good biodiversity along creeks</li> <li>Fauna at risk through weed infestation, spraying, removal of “old trees” that are homes to animals, and by feral animals (foxes and cats)</li> </ul>	<ul style="list-style-type: none"> <li>Threats of mining and development</li> <li>Loss of Cumberland Plain woodland</li> <li>Impacts of temperature increase</li> <li>Offsets</li> <li>Bio-banking</li> <li>Georges River – loss of scenic protection, koalas, platypus</li> <li>Bargo River Gorge</li> </ul>
<b>Why is this happening?</b>	<ul style="list-style-type: none"> <li>Not discussed by group</li> </ul>	<ul style="list-style-type: none"> <li>Airport is a land hungry model that will eat into land of high environmental value – it is not sustainable</li> </ul>	<ul style="list-style-type: none"> <li>The waterways – water risks</li> <li>Council owns land; floodplains</li> <li>Current weed control methods has diverse effects on biodiversity</li> <li>Substitution of old trees for new; this is not “like for like”</li> <li>Infrastructure projects “state significance” over-riding biodiversity protection</li> </ul>	<ul style="list-style-type: none"> <li>Poor management mechanisms. Proper management and responsibility for land missing.</li> </ul>

ENVIRONMENT PANEL ADVISORY PAPER FOR THE GREATER SYDNEY COMMISSION

Biodiversity (Issue No. 2)

	West Central 1	West	West Central 2	South West
<b>What are some possible solutions?</b>	<ul style="list-style-type: none"> <li>• Be more proactive about protection</li> <li>• Identify areas that need protection before jumping into development</li> <li>• Zoning is the key instrument. EPA Act classifies species as endangered but, even when everyone knows, when the time comes you can 'bend the rules'</li> <li>• District plans must identify a "halo" around the areas that need protecting based on good information and data</li> <li>• We should move away from triage to proactive and from emergency triage</li> <li>• Consider all forms of biodiversity. Biodiversity is not just wilderness, it is a large series of smaller blocks as well. Often it is only pristine wilderness that is considered of worthy of protection. If we only focus on pristine, we couldn't protect much. Not just individual species and not just threatened species, consider connections between organisms, flora and fauna</li> <li>• Focus on retaining biodiversity as well as restoration. Give animals somewhere to live, within a built environment e.g. Duck Creek, a river don't concrete it, fix it.</li> <li>• Within infrastructure build an environment eg. Hawthorn Canal softening edges of the canal - provides a habitat for animals</li> </ul>	<ul style="list-style-type: none"> <li>• Need to have district-level environment panels that provide ongoing input into distinct and local planning</li> <li>• Need for buffer zones to protect world heritage (intensive development needs to be located away from National Parks). Avoid urban sprawl against National Parks</li> <li>• Stormwater clause in Blue Mountains LEP to protect waterways</li> <li>• Build wildlife corridors along waterways</li> <li>• Metrics and development controls, conservation management plans need to be specific and enforceable</li> <li>• District Plans need to identify upfront areas of high conservation value, especially regarding Cumberland plan woodland and other threatened vegetation</li> <li>• No net loss of vegetation cover</li> <li>• No offsets except those that on like-for-like; within the local area and on protected in perpetuity</li> <li>• We need short short-term and long term cumulative impact metrics – these metrics need to be local and regional</li> <li>• We need understory for our wildlife, not just trees</li> <li>• District plans should have a goal of increasing/enhancing biodiversity and should support communities to do</li> </ul>	<ul style="list-style-type: none"> <li>• Better identification of Flood Plains to deter inappropriate development</li> <li>• Better commitment</li> <li>• Map and retain existing biodiversity</li> <li>• More funding to bush regeneration</li> <li>• Better management of weed control</li> <li>• Tree preservation orders</li> <li>• Influence bio-diversity sensitive design</li> <li>• Government support commitment to manage and assist communities</li> <li>• Need a better exchange between community and government to monitor biodiversity</li> <li>• Capacity building among community groups</li> <li>• Protect corridors and buffer zones between land uses</li> </ul>	<ul style="list-style-type: none"> <li>• Green grid</li> <li>• DCP and LCPs provide greater guidance on green issues</li> <li>• Get rid of dark roofing</li> <li>• Encourage canopy cover</li> <li>• Urban ecology rural initiative</li> <li>• Connectivity to allow for migration</li> <li>• Offsets are Offsets – do not let them be diluted</li> <li>• National Parks</li> </ul>



ENVIRONMENT PANEL ADVISORY PAPER FOR THE GREATER SYDNEY COMMISSION

Open Space (Issue No. 3)

	Central	Central 2	North 1	North 2	South
<b>How does this issue look in your district?</b>	<ul style="list-style-type: none"> <li>It is more broadly about green space</li> <li>Experiencing loss – eg Powerhouse, public housing at Millers Point, Bays Precinct</li> <li>Appropriation of public land</li> <li>Changes to LEP to sell public land</li> <li>Threat of Wentworth Park</li> <li>Do density well</li> <li>Threat to Blackmore Oval, King George and Easton Park</li> <li>Alienation of open space in Leichardt – we have the least open space of all</li> <li>Crown Land is under threat (eg Centennial Park, Rushcutters Bay, Malabar Headland, Botany Bay)</li> <li>Conversion of land to operational</li> <li>Inconsistency of land use planning by state government</li> <li>Lack of transparency – very opaque about whose decision</li> </ul>	<ul style="list-style-type: none"> <li>Reasonable amount of open space in Randwick area; (from Moore Park and Anzac Pde) but light rail and changes to LEPs = increased residential development</li> <li>Huge developments in Green Square</li> <li>20 x ANZAC memorial trees being cut down</li> <li>44 may die as a result of overground railway created</li> <li>60 x trees killed in Devonshire St this week</li> <li>Circular Quay and George St being clear-felled</li> <li>691 x trees killed from overground rail project</li> <li>5 x trees in War Memorial in Hyde Park Oct 25th (water feature)</li> <li>1,500 sq metres of road space (for business, road, public transport)</li> <li>Lowest provision of open space – population</li> <li>Losing open space</li> <li>Insufficient open space</li> <li>Diverting public transport</li> </ul>	<ul style="list-style-type: none"> <li>Loss of pocket parks</li> <li>Lots of schools have bushland</li> <li>Urban bushland is mostly community land</li> </ul>	<ul style="list-style-type: none"> <li>Under increasing pressure</li> <li>Requiring protection to retain/increase where possible with greater population pressures</li> </ul>	<ul style="list-style-type: none"> <li>Open space under huge pressure in the southern district but varies from council to council</li> <li>Not all open space is quality open space and useable or accessible</li> </ul>
<b>Why is this happening?</b>		<ul style="list-style-type: none"> <li>Residential development and light rail.</li> <li>Increased population and development</li> <li>Decrease in open space</li> <li>As a result of overground railway created</li> <li>To justify the rezoning of the local government area</li> <li>Perception of overground railway is increased in public transport but in fact decrease of 60% reduction in public transport use</li> <li>Conflict between users of public open space</li> </ul>	<ul style="list-style-type: none"> <li>Can be traded as voluntary planning agreements</li> <li>Seen as easy pickings</li> <li>Seen as insignificant</li> <li>Potential for schools to sell bushland</li> </ul>	<ul style="list-style-type: none"> <li>Increasing pressure / competition for limited resources</li> <li>Bushland under threat</li> </ul>	<ul style="list-style-type: none"> <li>Focus on green space being grass and playing fields, other than habitat</li> <li>No consistent process in determining open space needs</li> <li>Open space being treated as developable land</li> </ul>

ENVIRONMENT PANEL ADVISORY PAPER FOR THE GREATER SYDNEY COMMISSION

Open Space (Issue No. 3)

	Central	Central 2	North 1	North 2	South
<b>What are some possible solutions?</b>	<ul style="list-style-type: none"> <li>• There should be a new minimum provision of 8sqm of open space per person in the inner city for each additional person</li> <li>• Green space with grass and sunlight</li> <li>• Government needs to identify new land for parks</li> <li>• Introduce new spaces from small local parks to major regional parks</li> <li>• We do not accept that we're going to grow – the inner city is “built-out”</li> <li>• Don't appropriate open space for high density development</li> <li>• Hands off Kings Park, Blackmore Oval</li> <li>• “The East is closed”</li> </ul>	<ul style="list-style-type: none"> <li>• No development on golf courses – change to public open space</li> <li>• All associated amenities / public open spaces</li> <li>• Stop; think; take into account public, what people are telling the government</li> <li>• Needs to happen now!</li> <li>• Stop killing the tress now!</li> <li>• Call John Bellamy on Tuesday 0414 755 621 – re underground railway and taking open space (public)</li> <li>• Don't take the crown lands out</li> <li>• No private open space (no corporation)</li> <li>• No trade-offs</li> <li>• Remediation into open space (of industrial land/redundant land)</li> <li>• Create more/new open space</li> <li>• Kids playgrounds</li> <li>• Rooftop gardens</li> <li>• Sports facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Retain urban bushland as community land and not convertible operational land</li> <li>• Pocket parks should be retained</li> <li>• Protect them through appropriate planning controls</li> <li>• Planning to recognise active open space as compared to bushland areas and the different values for recreation</li> <li>• Urban bushland should be a distinct category classified and defined as different from national park with a different role to play and specific legislation to protect it</li> <li>- definition from SEPP19 for urban bushland</li> <li>• Bushland in schools should be managed by different govt department, transferred to other areas</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure increase in open space in relation to population increase where possible</li> <li>• Green grid – has strong community support to connect areas – recreation, health, biodiversity</li> <li>• Transfer unmade roads that are no longer required to green space / connectivity</li> <li>• Bushland should be classified separately from open space and ensure separate mapping and protections</li> <li>• Definitions</li> </ul>	<ul style="list-style-type: none"> <li>• District plans need to identify open space needs and establish targets for useable open space</li> <li>• Need to define categories of open space and targets for each category</li> <li>• Consider human and biodiversity uses of open space</li> <li>• Community garden movement could be recognised as an element of open space that improves lives</li> <li>• District plans should allow for creative community involvement in open space</li> </ul>

ENVIRONMENT PANEL ADVISORY PAPER FOR THE GREATER SYDNEY COMMISSION

Open Space (Issue No. 3)

	West Central 1	West	West Central 2	South West
<b>How does this issue look in your district?</b>	<ul style="list-style-type: none"> <li>• Development is taking a short term view</li> <li>• What will it be like in 50,000 years</li> <li>• Development too tight in high density areas.</li> <li>• Building covering 100% of lot</li> <li>• Open space needs to be provided within the development</li> <li>• Include walkways, pathways, cycleways</li> <li>• Won't be able to buy back parkland if lost</li> <li>• Public spaces – trees, more commercial community facilities – used well</li> </ul>	<ul style="list-style-type: none"> <li>• Not discussed by group</li> </ul>	<ul style="list-style-type: none"> <li>• Tension between recreational and conservation intents of open space</li> <li>• Selling-off open space for development</li> <li>• Encroachment of recreation on bushland</li> <li>• Duck River/Auburn</li> </ul>	<ul style="list-style-type: none"> <li>• Crown Land important and under threat</li> <li>• Open space network – under threat - links to Blue Mountains</li> <li>• Lack of access to these spaces from dwelling areas</li> </ul>
<b>Why is this happening?</b>	<ul style="list-style-type: none"> <li>• Not discussed by group</li> </ul>	<ul style="list-style-type: none"> <li>• Not discussed by group</li> </ul>	<ul style="list-style-type: none"> <li>• Council amalgamations</li> <li>• Unsuitably of recreational open space</li> <li>• Difficult for the community to engage with local and state government processes</li> <li>• Population increases</li> <li>• Competition for space</li> </ul>	<ul style="list-style-type: none"> <li>• Development</li> <li>• Sale</li> </ul>
<b>What are some possible solutions?</b>	<ul style="list-style-type: none"> <li>• Extend area of open space and improve existing</li> <li>• Benchmark of sqm per capita as minimum, and maintain this as population increases</li> <li>• Ensure open space is safe and accessible. Solutions are different in different areas eg. lighting</li> <li>• Open space needs to be welcoming so people can enjoy it</li> <li>• Must be maintained</li> <li>• Better planned</li> <li>• Dedicated open space (green space), not just bits of left over Council land and called open space (eg by railway lines)</li> <li>• Options to create open space within developments</li> <li>• We need not just big parks but also little parks, which are a walkable distance from development</li> <li>• Measure distance from home to greenspace/playground and requirement integrated within developments.</li> <li>• Derelict land next to roadway, don't divest, invest like in the North Shore and in West.</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure open space is available in every community</li> <li>• Ensure parks have mix of urban bushland and open space and playground</li> <li>• We need a range of open spaces in every community</li> <li>• Trees and urban bushland must not be sacrificed for sports fields and playgrounds</li> <li>• Old golf courses and bowling clubs for open spaces not necessarily development!</li> </ul>	<ul style="list-style-type: none"> <li>• Review to clarify the purpose of open space</li> <li>• Public "open" use of existing spaces i.e. schools, universities</li> <li>• Improved community consultation</li> <li>• Clear statement of process</li> <li>• Set minimum thresholds and standards for people to access open space</li> <li>• Creating more access/amenity to facilitate community connection to open space</li> <li>• Increased protection of existing open space</li> <li>• Protection of urban river foreshores</li> <li>• Duck River/Auburn Bush regeneration and remediation of industrial sites</li> </ul>	<ul style="list-style-type: none"> <li>• Nature Reserves</li> <li>• Keep corridors in development</li> <li>• Value this as environmental and recreational land</li> <li>• Good pathways and linkage</li> <li>• Don't squander land with terraces, units, houses</li> <li>• Make good use of developable land for open space</li> </ul>

ENVIRONMENT PANEL ADVISORY PAPER FOR THE GREATER SYDNEY COMMISSION

Urban Tree Cover (Issue No. 4)

	Central	Central 2	North 1	North 2	South
<b>How does this issue look in your district?</b>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Trees are being killed all over Sydney</li> </ul>	<ul style="list-style-type: none"> <li>Loss of street trees</li> </ul>	<ul style="list-style-type: none"> <li>10/50 impacts</li> <li>Losing tree cover</li> <li>Good examples – Helen Street Precinct in North Lane Cove is an example of good setback</li> <li>North Ryde industrial area is a good example of inclusion of trees/gardens and setbacks</li> </ul>	<ul style="list-style-type: none"> <li>Declining tree cover in district</li> </ul>
<b>Why is this happening?</b>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Governments cannot find any other way of making money other than killing trees and putting up high-rise buildings</li> </ul>	<ul style="list-style-type: none"> <li>Powerlines</li> <li>Street widening due to increased development</li> <li>Inappropriate species selection which can lead to impact on infrastructure (eg. to sewer systems)</li> <li>Trees removed without permission and increasing risk due to proposed SEPP changes</li> </ul>	<ul style="list-style-type: none"> <li>Losing trees to development and smaller lots, bigger houses</li> <li>Not enough education as to the value of trees for health / environment / heat</li> <li>Setbacks for tree and garden areas are being overridden – these need stronger protection</li> </ul>	<ul style="list-style-type: none"> <li>Paranoia about risks posed by trees</li> <li>Code 10/50</li> <li>More intense storm events</li> </ul>

ENVIRONMENT PANEL ADVISORY PAPER FOR THE GREATER SYDNEY COMMISSION

Urban Tree Cover (Issue No. 4)

	Central	Central 2	North 1	North 2	South
<b>What are some possible solutions?</b>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Stop killing trees immediately</li> <li>Find other way of making money other than killing trees</li> </ul>	<ul style="list-style-type: none"> <li>Principle to underpin entire planning process: preserve existing trees rather than replace</li> <li>Maintain council TPOs</li> <li>Register significant trees for public and private land</li> <li>Table agrees with set targets for urban tree cover on a district basis and implement at precinct level</li> <li>Underground powerlines in high density and all new development areas</li> <li>Place powerlines on other side of street</li> <li>Sydney Water has excellent information about species selection</li> <li>Management of street trees by Council rather than Ausgrid</li> <li>Street trees and plantings should be planned – planting and management policy</li> <li>- A local street tree planting and management plan or policy at the local level and focusses on connectivity with bushland areas</li> <li>Managed at local council level</li> </ul>	<ul style="list-style-type: none"> <li>Green Grid – linkages are important</li> <li>Stronger controls on development and economic value of trees – adequate building setbacks to allow for trees and gardens</li> <li>Trees are central to transpiration – health of waterways and air quality and this should be mapped/enforced in some way</li> <li>Enforceable plans where developers cannot override controls/link with biodiversity corridors</li> <li>Road reserve allowances</li> <li>Trees need to be planned for at a precinct / district level</li> <li>Urban forest strategy with a minimum tree density</li> <li>Street tree policies appropriate to areas</li> <li>Underground powerlines</li> <li>Stronger protection for riparian areas</li> </ul>	<ul style="list-style-type: none"> <li>Instead of considering how close to develop to trees, consider how much space trees need</li> <li>Rigid adherence to best practice planning. BASIX should incorporate minimising bushfire risk in housing design</li> <li>Link with 20:20:20 targets for tree cover</li> <li>Improve funding and resources for urban bushcare</li> <li>Review tree cover in districts on a regular basis. Increase compliance and monitoring</li> <li>Plantings should reflect Australian biology and local provenance</li> <li>District plans should link approvals with an urban tree strategy</li> </ul>



ENVIRONMENT PANEL ADVISORY PAPER FOR THE GREATER SYDNEY COMMISSION

Urban Tree Cover (Issue No. 4)

	West Central 1	West	West Central 2	South West
<b>How does this issue look in your district?</b>	<ul style="list-style-type: none"> <li>• Areas becoming dead without trees</li> <li>• Rape of trees by electric companies</li> <li>• Native flora gives us native fauna</li> <li>• A builder can fell trees within building envelope. Need more consideration to replace vegetation removed elsewhere on block.</li> </ul>	<ul style="list-style-type: none"> <li>• Heat impact is a real issue in the west - it is only going to get worse and it gets trapped in Nepean Valley</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of enforcement, awareness and appreciation of trees</li> <li>• Tree loss due to densification</li> <li>• Falling behind leading cities in terms of striking a balance</li> <li>• Not enough native trees</li> </ul>	<ul style="list-style-type: none"> <li>• LERP</li> <li>• Loss of PLEE</li> <li>• Heat Island Effect</li> <li>• Loss of amenity</li> </ul>
<b>Why is this happening?</b>	<ul style="list-style-type: none"> <li>• Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>• Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>• Prioritisation of houses over space</li> <li>• Poor regulation of lot sizes</li> <li>• Poor DA approvals</li> <li>• Poor design of urban infill</li> <li>• Population growth</li> <li>• Lack of research- best practice urban design</li> <li>• Non-native trees perceived as risky because of falling branches</li> </ul>	<ul style="list-style-type: none"> <li>• LERP</li> <li>• Insurance issues</li> <li>• Minimal requirements for tree</li> </ul>
<b>What are some possible solutions?</b>	<ul style="list-style-type: none"> <li>• Benchmark canopy cover</li> <li>• We can measure amount of existing tree cover. It must not reduce but expand by some degree and with climate change, this is important</li> <li>• Better design requirements</li> <li>• Limit how much they can cut back</li> <li>• Cut the right trees (e.g. gum trees don't work near powerlines)</li> <li>• Contractors get paid by the tree limb</li> <li>• Encourage people to plant within own yards – produce a guide for each area</li> <li>• In District Plans, develop a guideline for local authorities, if X trees removed, require a contribution where LGA can apply to revegetate in another part of LGA.</li> </ul>	<ul style="list-style-type: none"> <li>• More trees and canopy over</li> <li>• When big trees are taken down, they need to be replaced</li> <li>• Subdivisions should aim to protect as many existing trees as possible</li> <li>• Existing trees and other vegetation protection MUST be prioritised, especially in the context of new housing and subdivisions.</li> <li>• For new developments, powerlines should go underground (good for trees and bushfires)</li> </ul>	<ul style="list-style-type: none"> <li>• Review local government development controls for urban infill</li> <li>• Require more deep soil area in developments</li> <li>• Reduce permissible area of house to plot ratio</li> <li>• Incentives to developer where more land for tree planting is provided</li> <li>• Preference for native vegetation</li> </ul>	<ul style="list-style-type: none"> <li>• 400 sqm block including houses</li> <li>• Planting in streets</li> <li>• Long term planning and maintenance</li> <li>• Education around trees</li> <li>• No more clear felling – states or filling greens</li> <li>• Plant roads</li> <li>• Fines for land clearing and development costs</li> <li>• Green Roofs</li> <li>• Permeable surfaces</li> </ul>

ENVIRONMENT PANEL ADVISORY PAPER FOR THE GREATER SYDNEY COMMISSION

Local Character (Issue No.5)

	Central	Central 2	North 1	North 2	South
<b>How does this issue look in your district?</b>	<ul style="list-style-type: none"> <li>Loss of character buildings through redevelopment</li> <li>Bulk/scale/size – existing versus new buildings (conflict)</li> <li>Parramatta Road redevelopment has no trees or setbacks</li> <li>Licensed venues cause problems for local residents – eg noise etc from music</li> </ul>	<ul style="list-style-type: none"> <li>Ethnic diversity</li> <li>Economic diversity</li> <li>Dynamism and interest</li> <li>Maroubra Bay <ul style="list-style-type: none"> <li>family friendly</li> <li>quiet</li> <li>comparable to South Coast</li> <li>village vibe atmosphere</li> <li>tourist destination</li> </ul> </li> <li>Rozelle – Callan Park <ul style="list-style-type: none"> <li>changing (yuppies); gated</li> <li>working class</li> <li>community; personable; trusting</li> <li>safe</li> <li>retail increased</li> </ul> </li> <li>Coogee – backpackers/ tourist <ul style="list-style-type: none"> <li>Bronte; style</li> <li>diverse</li> <li>multi-cultural diverse</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Higher densities and heights being driven by developers and economic/profit overriding LEP DCP and local community expectations</li> <li>Gladesville Shopping Village – developer is attempting to change zoning and inappropriately increase height against community / LEP</li> <li>Mowbray Precinct – Lane Cove North – impacts on bushland and removal of sandstone.</li> </ul>	<ul style="list-style-type: none"> <li>Degradation of character due to loss of gardens and nature strips to create parking</li> <li>F6 would threaten local character by removing open space and wetlands</li> </ul>
<b>Why is this happening?</b>	<ul style="list-style-type: none"> <li>Government is only interested in making money and not protecting heritage or character</li> <li>Government is imposing higher density</li> <li>Floor Space Ratio FSR rules are too flexible and allow site development to be transferrable – they were initially designed to deal with infrastructure measurement and impact on site</li> </ul>	<ul style="list-style-type: none"> <li>Population growth</li> <li>Development</li> <li>Character is going to change</li> <li>Destroying the community fabric – vital building blocks for resilience and being able to adapt to change</li> <li>SIGNIFICANT change in community culture, especially Anzac Pde</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Present planning arrangements are being overridden and this is impacting on local character adversely</li> <li>VPA Voluntary Planning Agreements are also impacting places and character and community expectation</li> <li>Department of Planning has overridden Council – so locals not respected</li> </ul>	<ul style="list-style-type: none"> <li>Assumption that parking is part of planning</li> </ul>

ENVIRONMENT PANEL ADVISORY PAPER FOR THE GREATER SYDNEY COMMISSION

Local Character (Issue No.5)

	Central	Central 2	North 1	North 2	South
<b>What are some possible solutions?</b>	<ul style="list-style-type: none"> <li>• Need saturation point studies about noise and licenced venues</li> <li>• Enforce stricter FSR rules</li> <li>• Central zone has Victorian housing – it is a resource, part of character – it should have blanket protection</li> <li>• Protect existing and ensure new development is sympathetic</li> <li>• Buffers around character and heritage</li> <li>• Integration with major sites is very important</li> <li>• Crucial to preserve local character to preserve the integrity of the local landscape</li> <li>• Retain local areas LEPs</li> <li>• Delete recognition of economic priorities</li> <li>• Use land for parks for growth</li> </ul>	<ul style="list-style-type: none"> <li>• All options to densification: <ul style="list-style-type: none"> <li>– subdivision</li> <li>– duplexes</li> <li>– granny flats</li> </ul> </li> <li>• No private certifiers</li> <li>• Slow and careful development</li> <li>• Involving community in planning for the future <ul style="list-style-type: none"> <li>– bringing the community along with you</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental and Social Impact Assessments need to have greater weight</li> <li>• Independent assessment</li> <li>• Ensure identification of local character and what the community values so that developers cannot override</li> <li>• Greater protections for local values including heritage, streetscape, green space, biodiversity</li> <li>• Good civic design and enforceable principles regarding topography, setbacks, BASIX</li> </ul>	<ul style="list-style-type: none"> <li>• Redevelopments should consider how to reduce dependency and parking requirements</li> <li>• Increase walkability and cycle ability</li> <li>• Links to heritage – strengthen adaptive reuse</li> <li>• Recognise character of areas in local planning</li> </ul>

ENVIRONMENT PANEL ADVISORY PAPER FOR THE GREATER SYDNEY COMMISSION

Local Character (Issue No.5)

	West Central 1	West	West Central 2	South West
<b>How does this issue look in your district?</b>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>See "Heritage Protection"</li> <li>Rural character is a major component of the West District – it needs to be protected</li> </ul>	<ul style="list-style-type: none"> <li>Tall buildings imposing. Big boxes encroaching on open space = fear and perception.</li> <li>Afraid of wind canyons created by large buildings</li> <li>Homogeneity of farmland</li> <li>Lots of density along transport nodes</li> <li>Rhodes=Union Carbide Peninsula – considered good density development.</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>
<b>Why is this happening?</b>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Lack of prioritisation of location of densification</li> <li>Substantial loss of character = Las Vegas in Rose Hill/Entertainment</li> <li>Transport and shopping</li> <li>Lack of inclusion of open space.</li> <li>Opening up waters edge and the walking bridge at Rhodes a good way to keep local character.</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>
<b>What are some possible solutions?</b>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>There should be minimum lot sizes in rural areas that protect the local character</li> <li>District plans need to identify areas that are rural and should remain rural</li> <li>Place density in existing forums and along railways +transport</li> </ul>	<ul style="list-style-type: none"> <li>Think about wind and cross ventilation. Consider wind canyons</li> <li>Independent Design Assessment and panels for DAs</li> <li>Community consultation - retention of values</li> <li>Connection, permeability of suburbs</li> <li>Emphasis on plan-making</li> <li>Introduce transitions gradually</li> <li>Give community their values in the change</li> <li>Organic development</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>

ENVIRONMENT PANEL ADVISORY PAPER FOR THE GREATER SYDNEY COMMISSION

Heritage Protection (Issue No.6)

	Central	Central 2	North 1	North 2	South
<b>How does this issue look in your district?</b>	<ul style="list-style-type: none"> <li>• It seems very ad-hoc – especially what is considered a conservation area or not</li> <li>• Loss of heritage items</li> <li>• Loss of views and view-lines</li> </ul>	<ul style="list-style-type: none"> <li>• State heritage buildings being demolished by neglect</li> <li>• Callan Park</li> <li>• Darlinghurst Jail (not heritage listed)</li> <li>• Culture/heritage/environment are all interrelated</li> <li>• Redfern</li> </ul>	<ul style="list-style-type: none"> <li>• Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>• Built and natural heritage is disappearing at a rapid rate</li> <li>• Windsor – Thompson Square our most significant heritage precinct has an inappropriate SSI road being pushed through</li> <li>• Hill View Turramurra – need for protection – Blue Gum forest and built environment</li> </ul>	<ul style="list-style-type: none"> <li>• Not well articulated in planning</li> <li>• Loss of local character with internationalised style of development</li> <li>• Primrose House proposed for sale</li> <li>• Focus of heritage protection is too narrow</li> </ul>
<b>Why is this happening?</b>	<ul style="list-style-type: none"> <li>• Critical infrastructure currently overrides heritage protections resulting in a loss of heritage</li> </ul>	<ul style="list-style-type: none"> <li>• Neglect</li> <li>• Places not being heritage listed</li> <li>• Developers</li> <li>• Corruption</li> <li>• Population and growth encouraging destruction</li> <li>• Identification and management in accordance with Burra Charter</li> </ul>	<ul style="list-style-type: none"> <li>• Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>• Councils are not able to extend local conservation areas</li> <li>• Heritage is currently not well protected</li> <li>• There are not sufficient economic incentives for maintaining heritage or deterrents for destroying</li> <li>• Stronger role for Heritage Council and more resources for Heritage Office. Support for heritage mapping and controls</li> </ul>	<ul style="list-style-type: none"> <li>• Economic opportunities of heritage not recognised</li> </ul>

ENVIRONMENT PANEL ADVISORY PAPER FOR THE GREATER SYDNEY COMMISSION

Heritage Protection (Issue No.6)

	Central	Central 2	North 1	North 2	South
<b>What are some possible solutions?</b>	<ul style="list-style-type: none"> <li>• Conservation area in Leichardt is worthy of protection</li> <li>• Lift strength of heritage protections eg so critical infrastructure projects don't switch off heritage protections</li> <li>• Heritage curtilage should be enforceable</li> <li>• The community needs to be able to contest things in court – we need new legislation</li> <li>• Must include indigenous heritage</li> </ul>	<ul style="list-style-type: none"> <li>• Investment to maintain and sustain heritage buildings!</li> <li>• Protection and extension of heritage buildings</li> <li>• Darlinghurst Jail must be heritage listed!</li> <li>• Provision of local heritage areas MUST be maintained at the local environment level</li> <li>• No developers on councils</li> <li>• No conflicts of interests</li> <li>• No donations</li> <li>• No real estate agents</li> <li>• Development of other centres <ul style="list-style-type: none"> <li>— Newcastle</li> <li>— Nowra</li> <li>— Wollongong</li> </ul> </li> <li>• Protect Aboriginal heritage areas</li> </ul>	<ul style="list-style-type: none"> <li>• Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>• 'Heritage' mapped within local character including bush, green recreation, schools, built heritage and ensure stronger protections that have sufficient economic incentives and deterrents</li> <li>• State significant infrastructure needs to be properly assessed for heritage, environment and community values</li> <li>• Stronger protections are needed for heritage</li> <li>• Examine and record</li> <li>• Review and strengthening of the original 1977 heritage legislation</li> <li>• Need a stronger/broader accepted definition of heritage that is enforceable</li> </ul>	<ul style="list-style-type: none"> <li>• Heritage should be walkable i.e. heritage walks</li> <li>• Heritage should be recognised as more than a few houses</li> <li>• Opportunities for community use of heritage should be recognised</li> <li>• Recognise social and environmental values of heritage</li> </ul>



ENVIRONMENT PANEL ADVISORY PAPER FOR THE GREATER SYDNEY COMMISSION

Heritage Protection (Issue No.6)

	West Central 1	West	West Central 2	South West
<b>How does this issue look in your district?</b>	<ul style="list-style-type: none"> <li>Consider heritage as an economic asset (Heritage Tourism)</li> <li>A lot of heritage in Parramatta</li> <li>For example Cumberland Hospital state heritage site + North Parramatta Heritage Area. Threatened by unsure property and urban growth. Must retain as a destination and keep its uniqueness</li> <li>Must retain Rouse Hill, Cemeteries and "oldest farm" - Elizabeth farm</li> <li>Bond Factory – good industrial historical site - a good spot for Powerhouse Museum</li> </ul>	<ul style="list-style-type: none"> <li>Current heritage protections in the Blue Mountains are quite adequate (the council is sympathetic). But there are huge issues with heritage in Windsor (e.g. Windsor Bridge proposed destruction)</li> <li>Windsor has a lot of heritage that is not being looked after properly</li> </ul>	<ul style="list-style-type: none"> <li>Being knocked down for inappropriate use - for example Girls Home, Female Factory etc. It could be used as an event/office space it risks losing the history of the place.</li> <li>UWS has a good example which has preserved the Orphan School within its ground</li> <li>Cumberland Hospital 32 ha. Hospital to be knocked down and used for light rail and urban growth development.</li> <li>Parramatta Park and Old Government House must be protected due to its history</li> </ul>	<ul style="list-style-type: none"> <li>Agriculture land and sense of place being lost</li> <li>Loss of character, rural lifestyle</li> <li>Land use conflicts</li> <li>Urban sources and street users</li> <li>Recognition of prior use - farming, noise policy</li> <li>Conditions of consent</li> <li>Blanket</li> <li>Energy supply</li> <li>Encourage on site decentralised energy and storage waste to energy</li> </ul>
<b>Why is this happening?</b>	<ul style="list-style-type: none"> <li>Not discussed by group</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group</li> </ul>	<ul style="list-style-type: none"> <li>Lack of appreciation for history and heritage buildings</li> <li>Lack of vision for a business model that can support a better way to use heritage assets</li> <li>Pre selling-off parts of buildings by allowing incremental deterioration to occur</li> <li>Stage government \$</li> <li>Community pressure</li> <li>Lack of funding heritage</li> <li>Have not measured the co-benefits of heritage</li> <li>Urban growth trying to cash in</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group</li> </ul>

ENVIRONMENT PANEL ADVISORY PAPER FOR THE GREATER SYDNEY COMMISSION

Heritage Protection (Issue No.6)

	West Central 1	West	West Central 2	South West
<b>What are some possible solutions?</b>	<ul style="list-style-type: none"> <li>• See heritage sites as opportunity for tourism + jobs + cultural pride</li> <li>• Zone heritage properly for protection</li> <li>• Urge a look at colonial Williamsburg for open space built heritage biodiversity</li> <li>• Link heritage and open space. Long term planning - in 50 years how much open space will remain - why not protect it now - whether its natural heritage or built heritage</li> <li>• Consider social and cultural value</li> </ul>	<ul style="list-style-type: none"> <li>• Don't allow state government to destroy heritage for infrastructure</li> <li>• District plans should mandate a bypass to Windsor Bridge</li> <li>• District plans should identify and protect heritage conservation areas and heritage precincts and direct Council to protect these and act as guardians of this heritage</li> <li>• Exempt and complying development must respect heritage and heritage conservation areas</li> <li>• District plans must mandate for Continuous Heritage Identification and Assessment – heritage is dynamic.</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of appreciation for history and heritage buildings</li> <li>• Lack of vision for a business model that can support a better way to use heritage assets</li> <li>• Pre selling-off parts of buildings by allowing incremental deterioration to occur</li> <li>• Stage government \$</li> <li>• Community pressure</li> <li>• Lack of funding heritage</li> <li>• Have not measured the co-benefits of heritage</li> <li>• Urban growth trying to cash in</li> <li>• Listen to local schemes – open up ideas for more innovative use of space</li> <li>• Looking at building on the national register for heritage listing</li> <li>• Retain precincts not just individual buildings</li> <li>• Enable national listings for guide listing</li> <li>• Cascades is a good example of using an existing heritage asset - “Hobart tourism destination generating \$10 million annually and provides for local job and income opportunities”</li> <li>• Develop case study promotion of best practice</li> <li>• Highlight better options</li> <li>• State significance listings</li> </ul>	<ul style="list-style-type: none"> <li>• System that overseas planning – precedents</li> <li>• Boxes ticking overall plan needed</li> </ul>

ENVIRONMENT PANEL ADVISORY PAPER FOR THE GREATER SYDNEY COMMISSION

Air Quality (Issue No. 7)

	Central	North	South
<b>How does this issue look in your district?</b>	<ul style="list-style-type: none"> <li>• There is noise and sleep disturbance and air quality issues</li> <li>• Entertainment precincts have impacts on residents</li> <li>• Intermittent noise is an issue eg people talking etc</li> </ul>	<ul style="list-style-type: none"> <li>• Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>• Not discussed by group.</li> </ul>
<b>Why is this happening?</b>	<ul style="list-style-type: none"> <li>• Growth is being put in the wrong places</li> </ul>	<ul style="list-style-type: none"> <li>• Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>• Not discussed by group.</li> </ul>
<b>What are some possible solutions?</b>	<ul style="list-style-type: none"> <li>• Setbacks for development on major road corridors</li> <li>• Tree plantings along corridors</li> <li>• Improve development standards including noise attenuation</li> <li>• Exhaust stacks and tunnel portals must be filtered and monitored</li> <li>• Noise and air pollution monitoring needs to occur on all corridors and needs to take account of small particulates under 2.5microns from diesel emissions</li> <li>• Need better standards for particulates</li> </ul>	<ul style="list-style-type: none"> <li>• Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce car dependency – increase opportunities for walking and cycling</li> <li>• Encourage electric vehicles</li> </ul>

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Scenic Protection (Issue No.8)

	West Central 1	West	West Central 2	South West
<b>How does this issue look in your district?</b>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>District plans must recognise the visual/scenic importance of the eastern escarpment of the Blue Mountains (at the moment, development is creeping up the escarpment, particularly around Emu Heights, Hawkesbury side – this is not acceptable)</li> <li>Impacts of development on World Heritage</li> <li>About governance – GSC District Plans could act as guardianship/stewardship of enduring values, such as natural and built heritage</li> <li>Governance and culture, transparency and accountability as essential elements of change</li> <li>EISs are not independently conducted</li> <li>There is very little integrity in the environmental impact and assessment process about population</li> <li>District plans should not dictate unreasonable housing targets</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>
<b>Why is this happening?</b>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>
<b>What are some possible solutions?</b>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>

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Waste Management (Issue No. 9)

	West Central 1	West	West Central 2	South West
<b>How does this issue look in your district?</b>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	Not discussed by group.	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Running out and recycling centres, drop off centres</li> <li>Plastic in waterways</li> </ul>
<b>Why is this happening?</b>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>
<b>What are some possible solutions?</b>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>All city waste dealt with within the city</li> <li>Better resourcing for programs</li> <li>Waste drop off centres</li> <li>Education – responsibility</li> <li>Social enterprise</li> <li>VP cycling</li> </ul>

Peri-Urban Land (Issue No. 10)

	West Central 1	West	West Central 2	South West
<b>How does this issue look in your district?</b>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	Not discussed by group.	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Loss of productive rural lan. Impacts on health, liveability, mitigation of heat island effect, food miles, food security, biodiversity</li> </ul>
<b>Why is this happening?</b>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Housing development</li> </ul>
<b>What are some possible solutions?</b>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Agricultural lands must be evaluated for their soil potential – good agricultural land should not be built on</li> </ul>	<ul style="list-style-type: none"> <li>Not discussed by group.</li> </ul>	<ul style="list-style-type: none"> <li>Agricultural enterprise credits</li> <li>TDR – like heritage floor space for food production</li> <li>Take speculation out of agricultural land for development</li> <li>Keep diversity of activity different economic base</li> </ul>





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