

Western Parkland City Authority

Circular solutions:

The construction sector in focus.

Lucy Sharman Director, Sustainability Western Parkland City Authority



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ULURU STATEMENT FROM THE HEART

We, gathered at the 2017 National Constitutional Convention, coming from all points of the southern sky, make this statement from the heart:

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AARON AROKA NORA

MUREAWER NATION

David Ross Yowike

Ulthat

Our Aboriginal and Torres Strait Islander tribes were the first sovereign Nations of the Australian continent and its adjacent islands, and possessed it under our own laws and customs. This our ancestors did, according to the reckoning of our culture, from the Creation, according to the common law from Time immemorial, and according to science more than 60,000 vears ado.

This sovereignty is a spiritual notion: the ancestral tie between the land, or 'mother nature', and the Aboriginal and Torres Strait Islander peoples who were born therefrom, remain attached thereto, and must one day return thither to be united with our ancestors. This link is the basis of the ownership of the soil, or better, of sovereignty. It has never been ceded or extinguished, and co-exists with the sovereignty of the Crown.

How could it be otherwise? That peoples possessed a land for sixty millennia and this sacred link disappears from world history in merely the last two hundred years?

With substantive constitutional change and structural reform, we believe this ancient sovereignty can shine through as a fuller expression of Australia's nationhood.

THMIDIA

APYLANds

Kirsten Gray

Mumwan

Proportionally, we are the most incarcerated people on the planet. We are not an innately criminal people. Our children are aliened from their families at unprecedented rates. This

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cannot be because we have no love for them. And our youth languish in detention in obscene numbers. They should be our hope for the future.

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These dimensions of our crisis tell plainly the structural nature of our problem. This is the torment of our powerlessness.

We seek constitutional reforms to empower our people and take a rightful place in our own country. When we have power over our destiny our children will flourish. They will walk in two worlds and their culture will be a gift to their country. We call for the establishment of a First Nations Voice enshrined

in the Constitution.

Makarrata is the culmination of our agenda: the coming together after a struggle. It captures our aspirations for a fair and truthful relationship with the people of Australia and a better future for our children based on justice and self-determination.

We seek a Makarrata Commission to supervise a process of agreement-making between governments and First Nations and truth-telling about our history.

In 1967 we were counted, in 2017 we seek to be heard. We leave base camp and start our trek across this vast country. We invite you to walk with us in a movement of the Australian people for a better future

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Western Parkland City Authority: Driving economic growth across the region





The Western Parkland City is a rapidly growing area of Sydney, encompassing the eight local government areas of:

Blue Mountains, Camden, Campbelltown, Fairfield, Hawkesbury, Liverpool, Penrith and Wollondilly.

Western Parkland City Authority (WPCA) has a number of roles including:

- Designing the new city of Bradfield in the Western Sydney Aerotropolis
- Attracting new businesses to the region
- Supporting existing businesses to grow, innovate and adopt sustainable practices





Growth underway in the Western Parkland City

The Western Parkland City: One of the fastest-growing regions in Australia





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The Western Parkland City will account for 20% of NSW's population growth by 2036, with a forecast **population of 1.4 million people**.



Major residential development is occurring across the region, with 52,681 new residential dwellings built between 2016 to 2021 (the majority being separate houses).



Infrastructure is being constructed across the region to enable connectivity and liveability, including the **airport**, **roads**, **metro**, intermodals, hospitals, town centres and more.

Western Sydney Aerotropolis: Building the new city of Bradfield





Bradfield City Centre, 115-hectare development

First Building – Advanced Manufacturing Research Centre

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https://www.wpca.sydney/about/the-western-parkland-city/#the-vision-forthe-bradfield-city-centre 6

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Factors driving the need to procure locally, use less materials, and re-use precious resources.

External factors driving local procurement and circularity: Supply chain disruptions and cost increases





Manufacturing input and material prices

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Forestry and Logging

Source: IBISWorld

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Localised supply chains: Access to a strong existing industrial base

DFCO

Western Parkland City is home to a **strong industrial base**, with major corporations and innovative companies headquartered in the region.

Manufacturing is the largest industry, generating an estimated \$30.4 billion total gross revenue in 2021 (23.3% of the region's total).

In 2021, the **construction industry** accounted for 17.3% of total gross revenue, and **transport**, **postal and warehousing** accounted for 7%.



Major industries by gross revenue generated (output), 2021

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Other factors driving local procurement and circularity: Government mandates and preferences





The Sustainable Buildings State Environmental Planning Policy (SEPP) encourages the design and delivery of more sustainable buildings across NSW.

New provisions for non-residential development include **embodied emission measurement and reporting for all developments from October 2023**.

https://www.planning.nsw.gov.au/policy-and-legislation/buildings/sustainable-buildings-sepp

Government agencies preferring recycled content



NSW Waste and Sustainable Materials Strategy 2041



Key reform: Having government agencies prefer recycled content.

NSW Government will publish:

- A directory of recycled material suppliers
- A register of upcoming government infrastructure and construction projects that will procure recycled material.

https://www.dpie.nsw.gov.au/our-work/environment-energy-and-science/waste-and-sustainablematerials-strategy

How can businesses move to more circular solutions? Circular economy in the built environment





Design out waste and pollution

- Design for longevity
- Design buildings to be adaptable for multiple uses
- Minimise harm to human health and the environment







- Select products with re-used or recycled components
- Repurpose existing assets and materials on site
- Use tools to promote end-of-life repurposing



Regenerate natural systems

 Reduce the need to extract virgin materials to preserve natural areas

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Keeping products and materials in use within the Western Parkland City

The Why: Data has the potential to both catalyse and support Circular Economy initiatives



Solution users:

Solution user	Goal	Pain points	
NSW Government (DPE, WPCA, RGDC)*	I want to quantify the benefits of circular economy investments to support planning, decision making and benefit realisation	 Attracting the right industrial tenants Promoting synergy between business-suitability assessments Understanding the economic benefits Managing and measuring circularity performance 	
Businesses	I want to access, track and share waste and consumption data to understand and plan circular economy activities for my business	 Understanding business opportunities in CE Understanding the economic benefits of more efficient resource use and designing out waste Managing and measuring circularity performance Lack of data on available resource streams 	
Utitilities	I want to access information on waste availability to inform waste-to-energy initiatives, including waste water recycling and bioenergy	 Understanding innovation opportunities through waste requires data on waste and resource availability Managing and measuring circularity performance through technology/data Incentive costs and benefits to participating in CE initiatives 	
Local Councils	I want to adopt smart asset and waste management principles informed by meaningful and up to date data sources	 Recognising opportunities to improve the asset management and disposal lifecycle Lack of data on consistency of supply and timing of available resource streams Lack of clarity on role in waste management (collect, transport, store) 	
* DPE – Department of Planning and environment WPCA – Western Parkland City Authority RGDC – Regional Growth Development Corporation			

With NSW Government policy experts, we identified goals and pain points for key players in the circular economy.

These identified a common theme: stakeholders need **data** mapping waste volumes, material flows, and gaps or dead-ends in the material lifecycle at precinct level.

Circular Economy Platform: Policymakers and planners will be able to visualise, manipulate an export

Platform functions:

- Filter waste / residual material producers by material type and sub-type
- Overlay potential Takers
- Slice and dice data based on location (e.g. suburb), industry class, material type
- Analyse information using map view and dashboard view (map+charts)
- Export selected data
- Overlay relevant planning layers (e.g zoning, land parcels, roads, utilities networks, satellite view etc.)
- Segregate data for different user profiles (e.g. Government users vs. External)
- See key material categories mapped to the BinTrim classification (35 material types)



Circular Economy data portal for the Western Parkland City: Materials generated by construction industry

Material type	Tonnes p/a
Inert soil and stones (non-hazardous)	933,786
Concrete waste	106,259
Non-hazardous mixed bituminous waste	55,428
Wood	14,766
Mixed wood waste	14,678
Gypsum-based non-hazardous building materials (plaster)	12,058
Mixed metal waste	11,642
PS and EPS materials from demolition	11,455
Brick waste	10,032
Roof tile, ceramic and slate waste	10,032
Non-hazardous waste insulation materials	1,146
Mixed wood production waste	645
Glass waste from construction	524





Looking at where residual material is generated: **Gypsum-based materials**



Gypsum-based nonhazardous building materials (plaster) from construction:

Sydney

12,058 tonnes per annum



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Wood

 \checkmark

Show Less >

Industry

Circular Economy data portal for the Western Parkland City: Plastic material residue produced





Plastics:

2,797 producers / 3,714 tonnes p/a

Types:

- Polyethylene (PE) (1,718t)
- Mixed plastics (974t)
- Polyethylene terephthalate (PET) (488t)
- Polypropylene (PP) (366t)
- Polystyrene (PS) (226t)

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foam, health boxes, ...)





Examples of industrial symbiosis and material re-use

Keeping materials in use at their highest value: e-waste into landscaping product

Resource recovery business Shred-X decommissioned a major data centre and securely disposed of **600 racks of electronic** equipment.

Computers, cables and server systems were transported to Warragamba (Wollondilly LGA) where they were sorted to be re-used or recycled.

The plastic component (ABS thermoplastic polymer) was extracted and used to manufacture eWood. This product, manufactured from electronic waste, is being used for garden edging and privacy barriers across Western Sydney.





Keeping materials in use at their highest value: Timber pallets into particleboard

reDirect Recycling **repurpose and process untreated wood products** (such as timber pallets) in their Ingleburn and St Marys facilities.

Processed wood is transported to the Borg site in Oberon to be **manufactured into particleboard**.

A large number of joinery businesses in the Western Parkland City use the recycled particleboard in **kitchen cabinet making**.





Keeping materials in use at their highest value: Businesses that support repair and re-use





Circonomy have a number of mobile repair teams who go into warehouses to repair and clean goods. They also repair office furniture for re-use or resale.



Egans Asset Management refurbish, sell, donate and recycle Furniture, Fittings and Equipment. The Wise Office Furniture Program sells second hand office furniture and workstations (Marrickville).



Green Furniture Hub redistributes and recycles surplus furniture such as office chairs, pedestals and fridges (Glendenning). Western Parkland City Authority



Circular solutions in building and construction.

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