Sydney WATER

Integrated stormwater planning for a new city – the Western Sydney Aerotropolis

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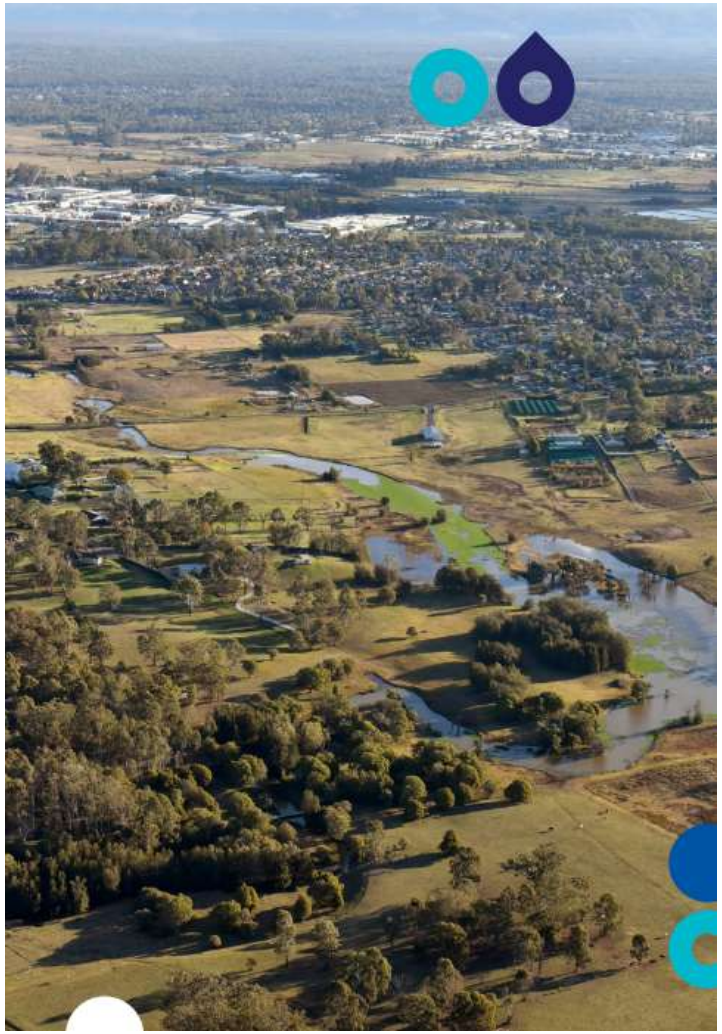
Presentation outline

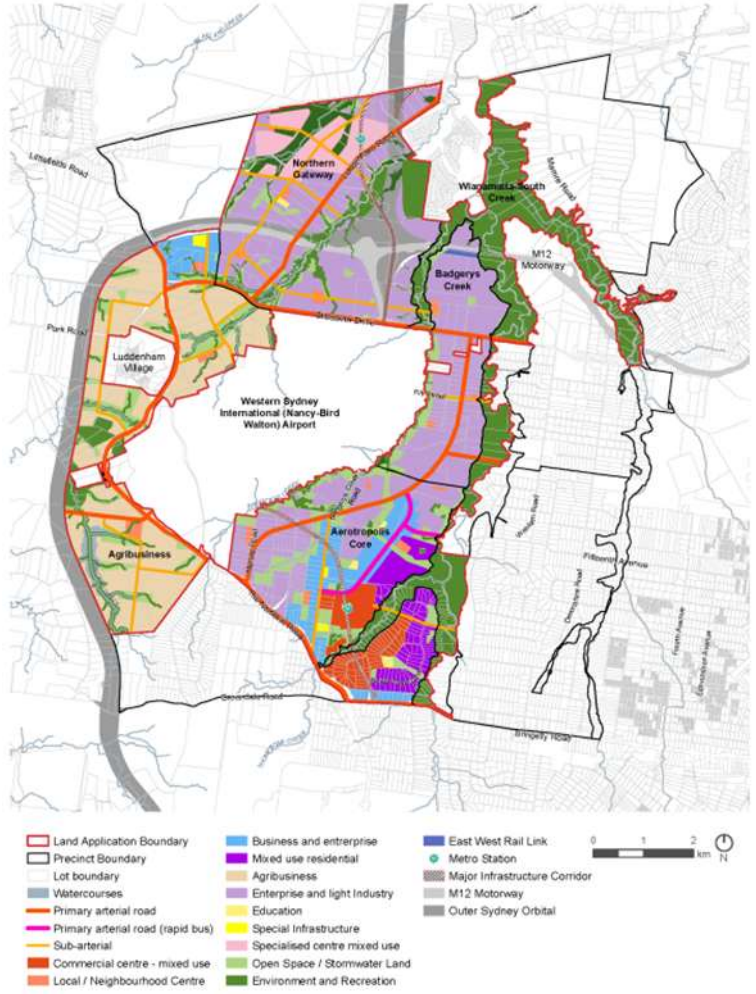
- Introduce the Aerotropolis
- New waterway health targets
- The development that is coming
- Integrated stormwater servicing approach
- Scheme planning
- Challenges
- questions



Welcome to the Aerotropolis

- Initial precincts rezoned in 2020
- Precinct plan published 2022
- Sydney water installed as regional stormwater authority 2022
- Airport opens late 2026

Figure 3: Land Use and Structure Plan



Aerotropolis Initial Precincts	Total Land (Hectares)	Net Developable Land (Hectares)
Mamre Road	1020	755
Aerotropolis Core (Bradfield)	1981	1163
Badgerys Creek	1082	525
Northern Gateway	1860	790
Agri-business	2344	973
Total	**8287**	**4216**

Equivalent to

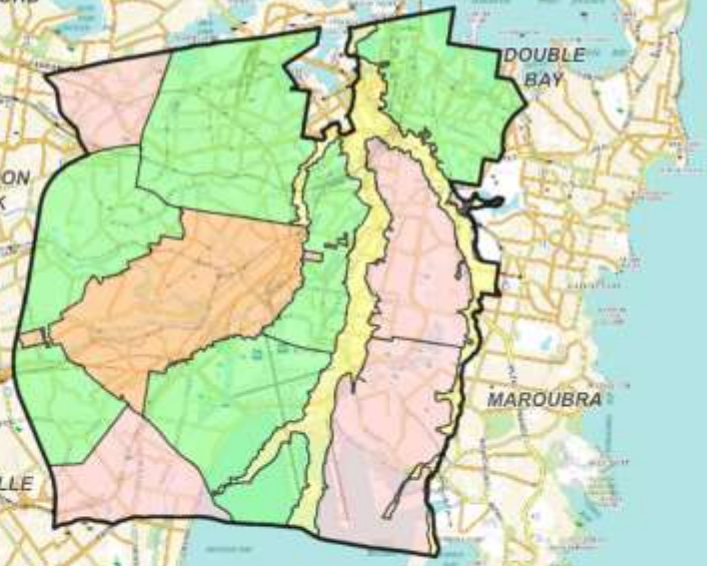



Photo: Michelle Ryan - UWS

Waterway Health Objectives – Water Quality and Quantity (Flow) Targets

Targets outlined in the Aerotropolis Precinct Plan and DCP.

Wianamatta-South Creek stormwater management targets

Table 16 Operational Phase Stormwater Quality Targets Option 1 – annual load reduction

Parameter	Target - reduction in mean annual load from unmitigated development
Gross Pollutants (anthropogenic litter >5mm and coarse sediment >1mm)	90%
Total Suspended Solids (TSS)	90%
Text Total Phosphorus (TP)	80%
Total Nitrogen (TN)	65%

Table 17 Operational Phase Stormwater Quality Targets Option 2 – allowable loads

Parameter	Target - allowable mean annual load from development
Gross Pollutants (anthropogenic litter >5mm and coarse sediment >1mm)	< 16 kg/ha/y
Total Suspended Solids (TSS)	< 80 kg/ha/y
Text Total Phosphorus (TP)	< 0.3 kg/ha/y
Total Nitrogen (TN)	< 3.5 kg/ha/y

Table 18 Operational Phase Stormwater Quantity (Flow) Targets Option 1 - MARV

Parameter	Target
Mean Annual Runoff Volume (MARV)	≤ 2 ML/ha/y at the point of discharge to the local waterway
90%ile flow	1000 to 5000 L/ha/day at the point of discharge to the local waterway
50%ile flow	5 to 100 L/ha/day at the point of discharge to the local waterway
10%ile flow	0 L/ha/day at the point of discharge to the local waterway

Table 19 Operational Phase Stormwater Quantity (Flow) Targets Option 2 – flow percentiles

Parameter	Target
95%ile flow	3000 to 15000 L/ha/day at the point of discharge to the local waterway
90%ile flow	1000 to 5000 L/ha/day at the point of discharge to the local waterway
75%ile flow	100 to 1000 L/ha/day at the point of discharge to the local waterway
50%ile flow	5 to 100 L/ha/day at the point of discharge to the local waterway
Cease to flow	Cease to flow to be between 10% to 30% of the time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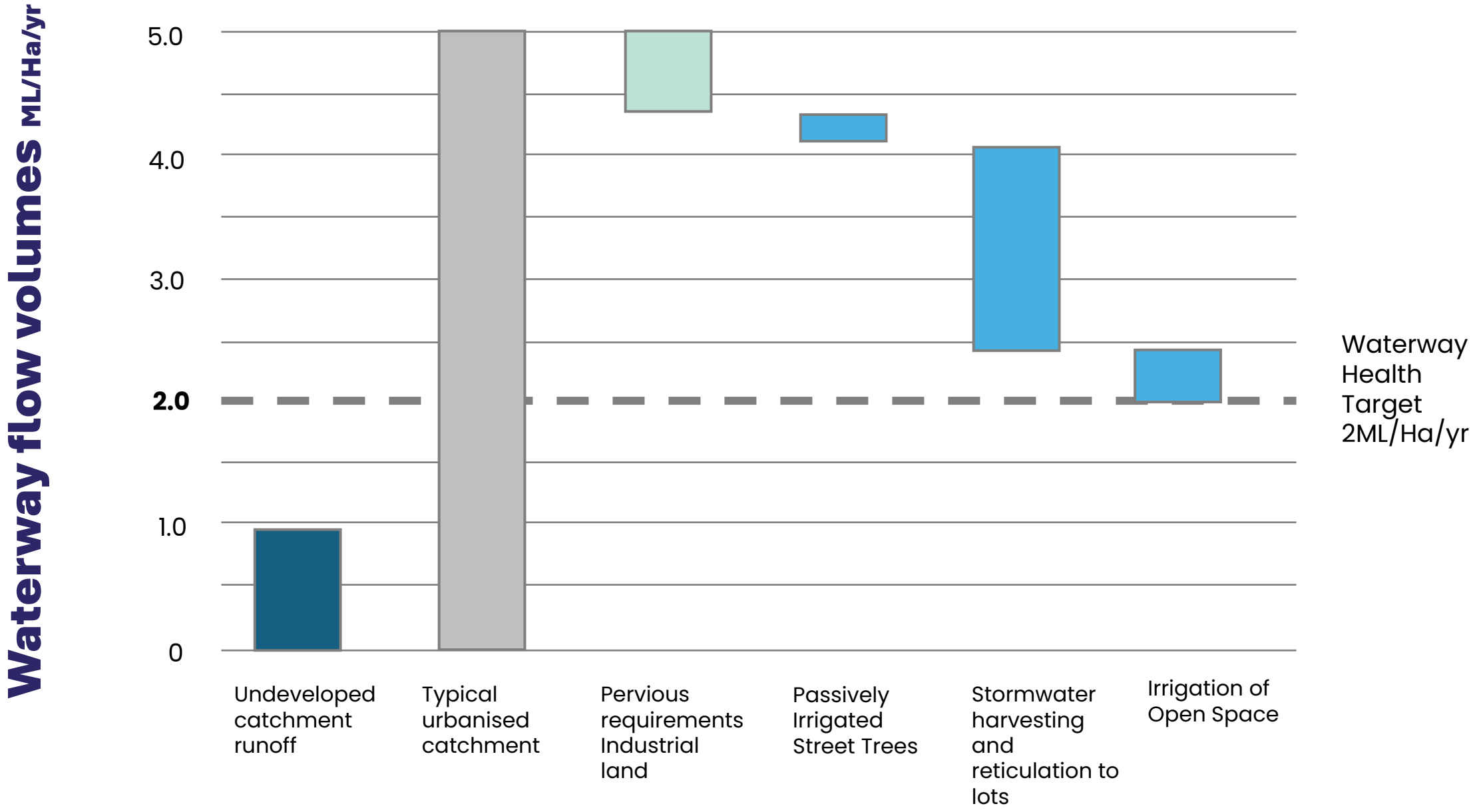
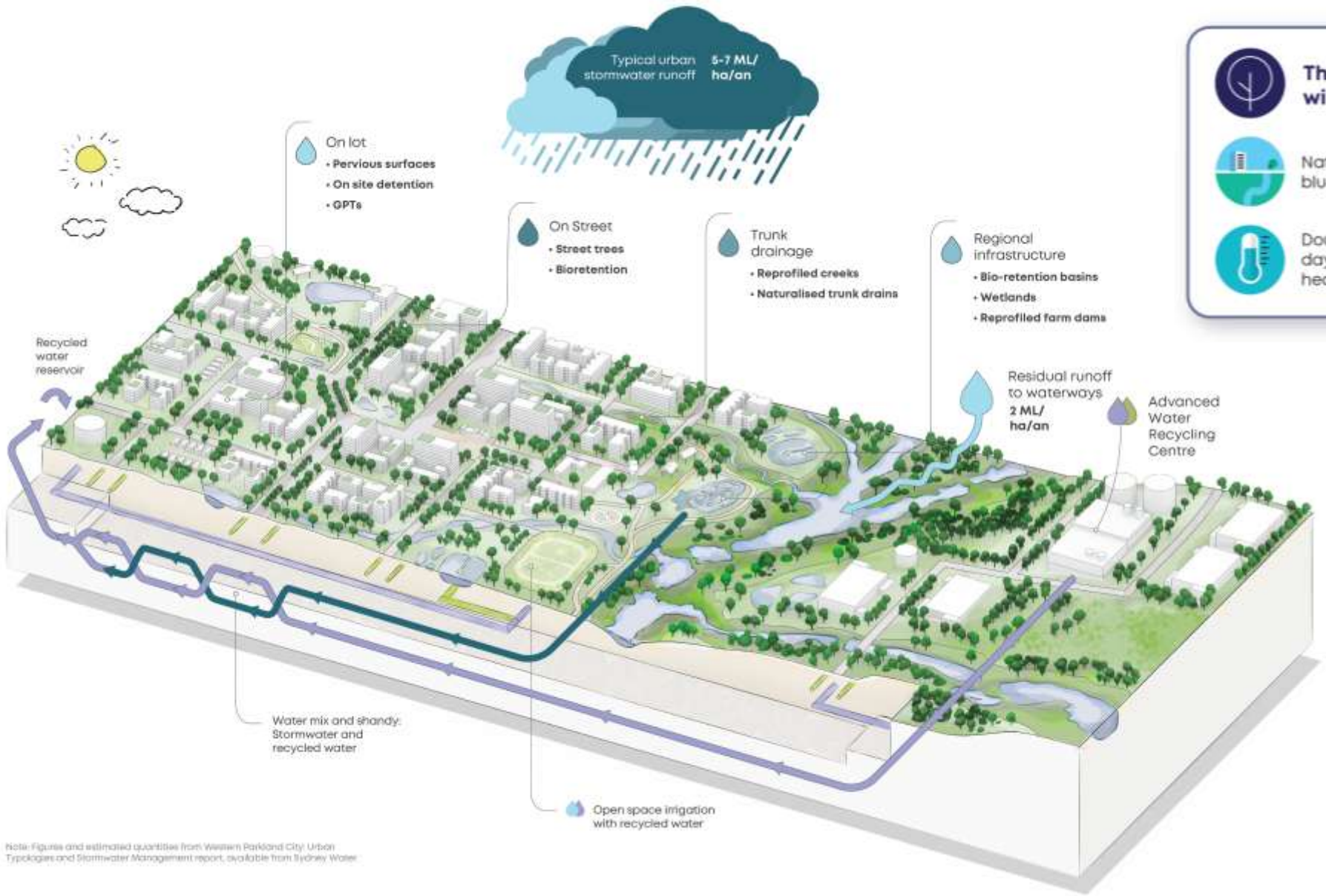

Waterway flow volumes ML/Ha/yr
5.0
4.0
3.0
2.0
1.0
0
Undeveloped catchment runoff
Typical urbanised catchment
Pervious requirements Industrial land
Passively Irrigated Street Trees
Stormwater harvesting and reticulation to lots
Irrigation of Open Space
Waterway Health Target 2ML/Ha/yr

Integrated stormwater servicing approach

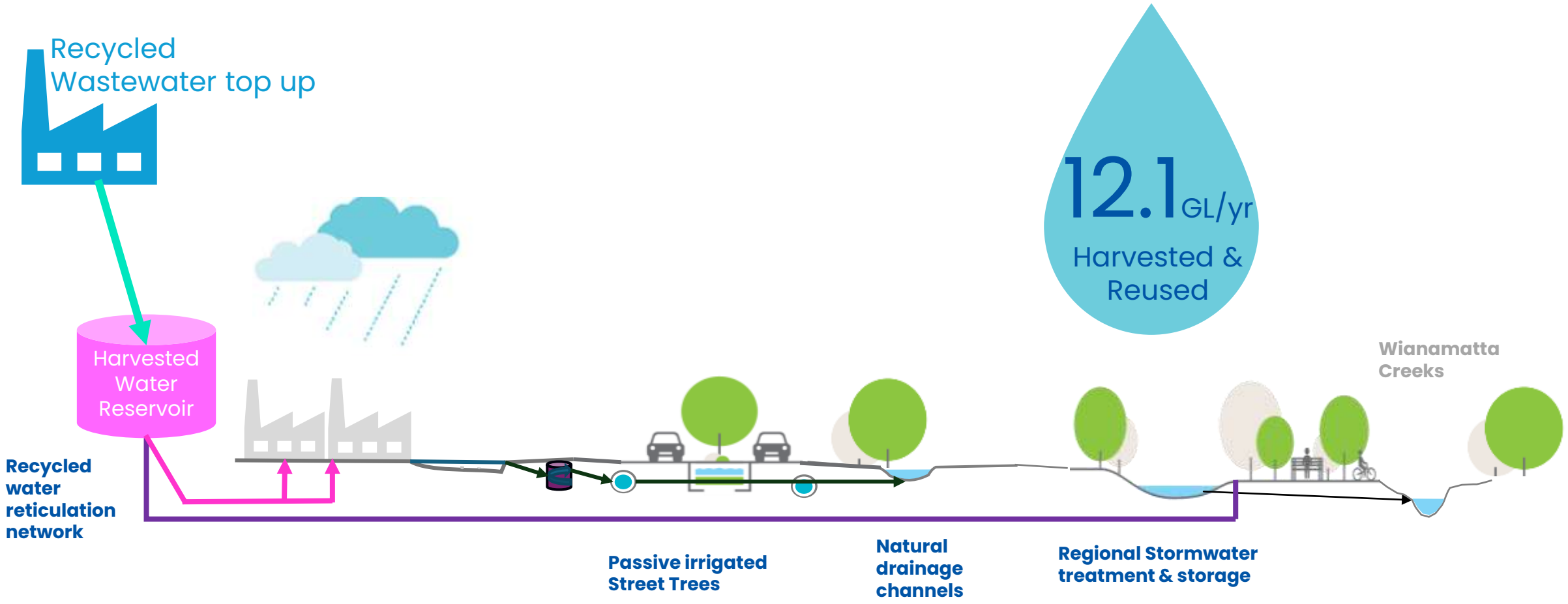


Note: Figures and estimated quantities from Western Parkland City: Urban Typologies and Stormwater Management report, available from Sydney Water

The Strategy will deliver:

- Year round, greener open space.
- Naturalised blue-green grid.
- 3x more canopy cover.
- Double the number of days with no thermal heat stress.
- Reduction in max daily temp of up to 5 degrees at 2055.

Integrated stormwater servicing approach



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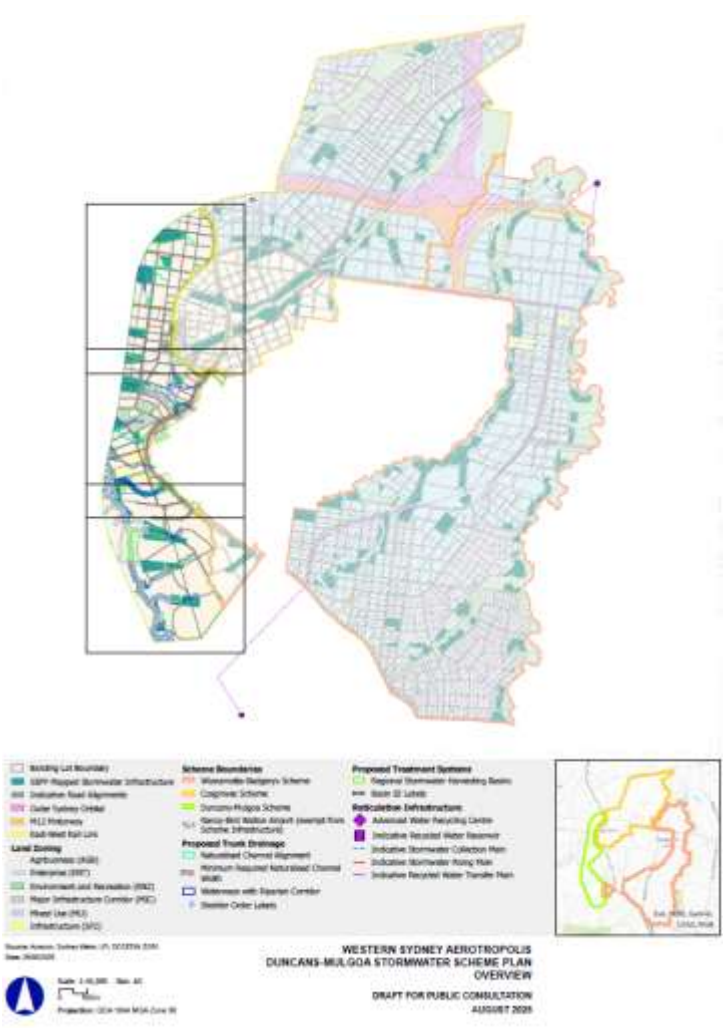
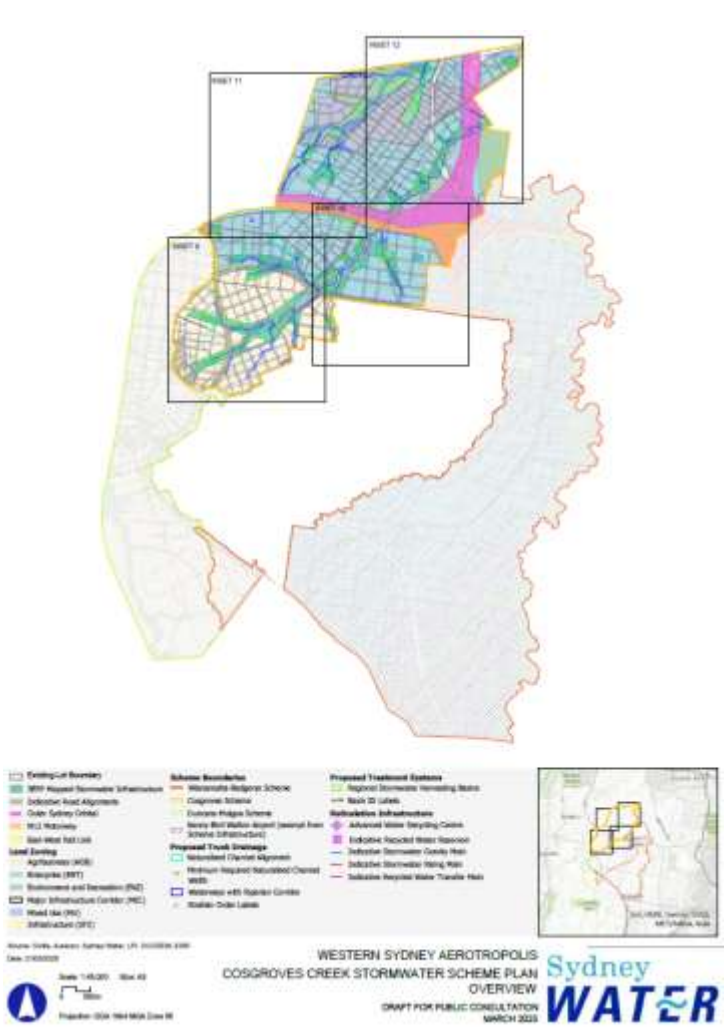
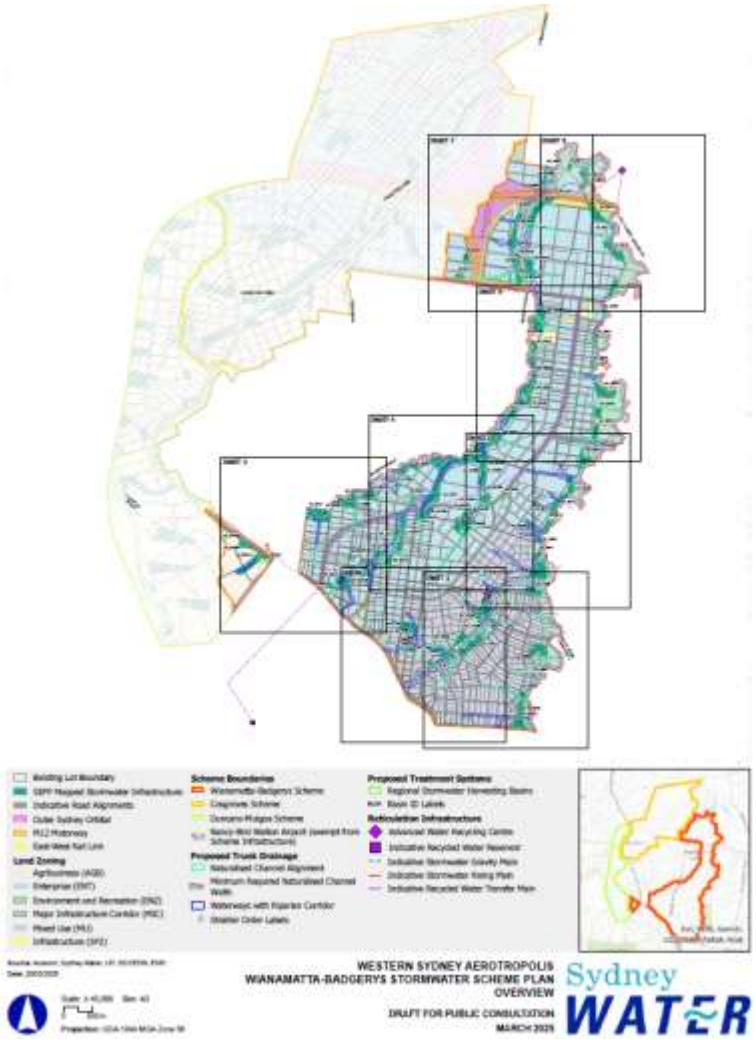
Scheme planning

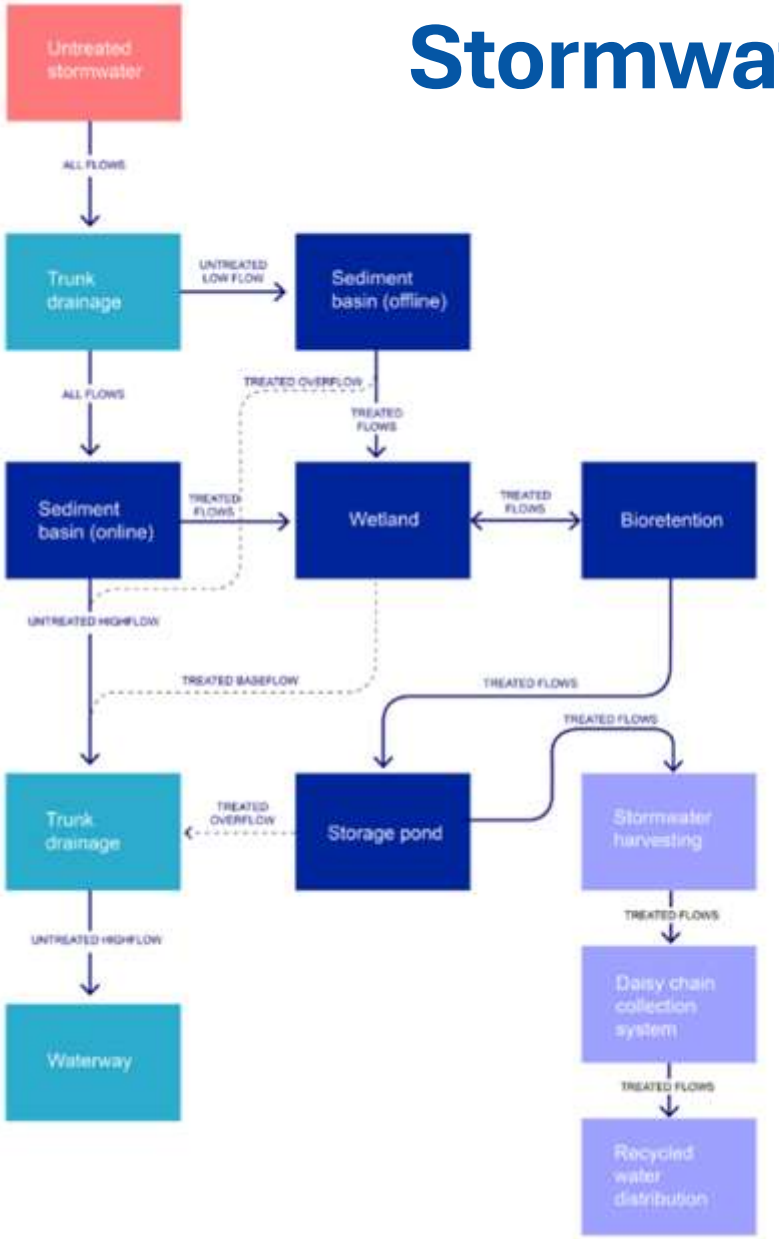


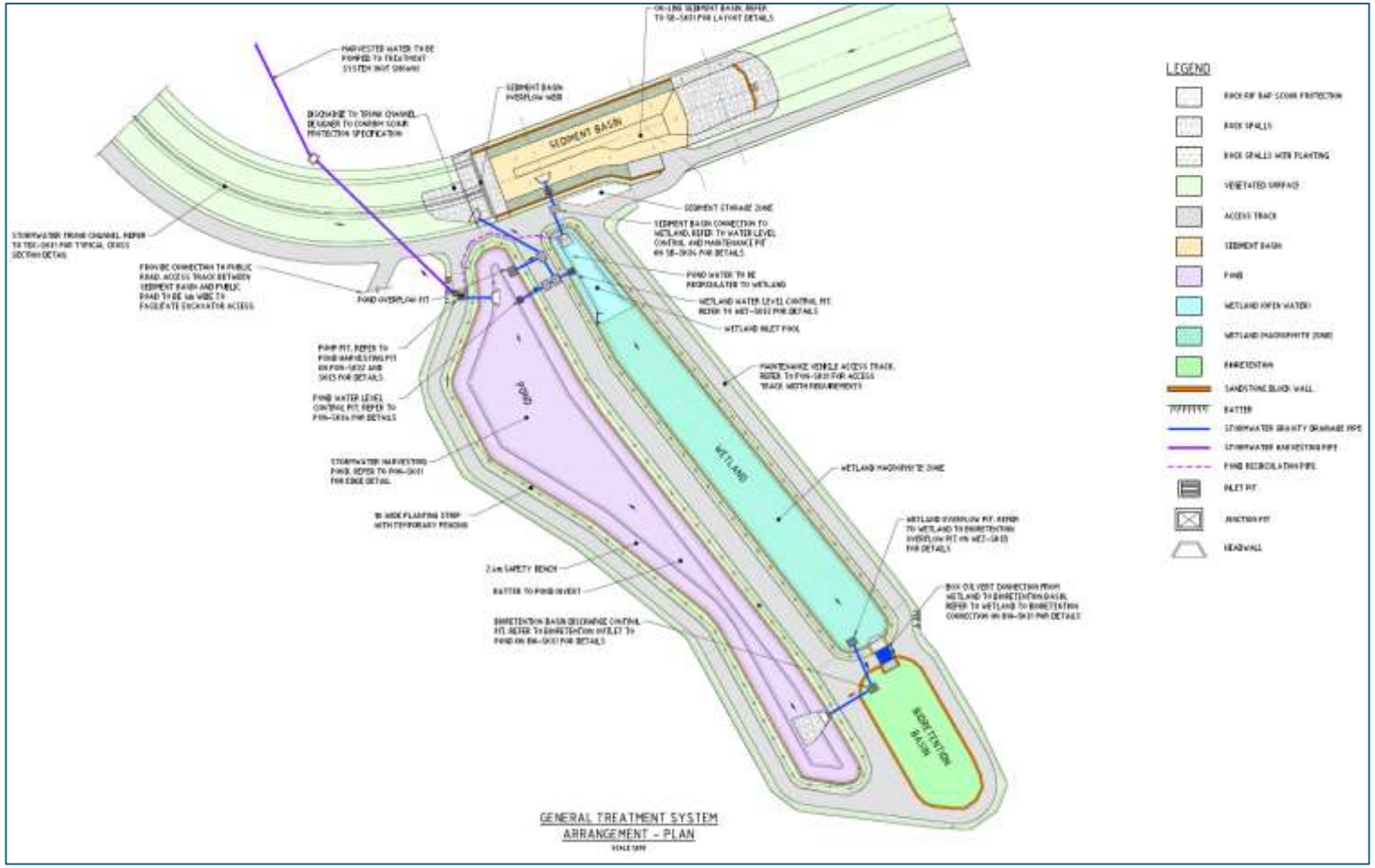




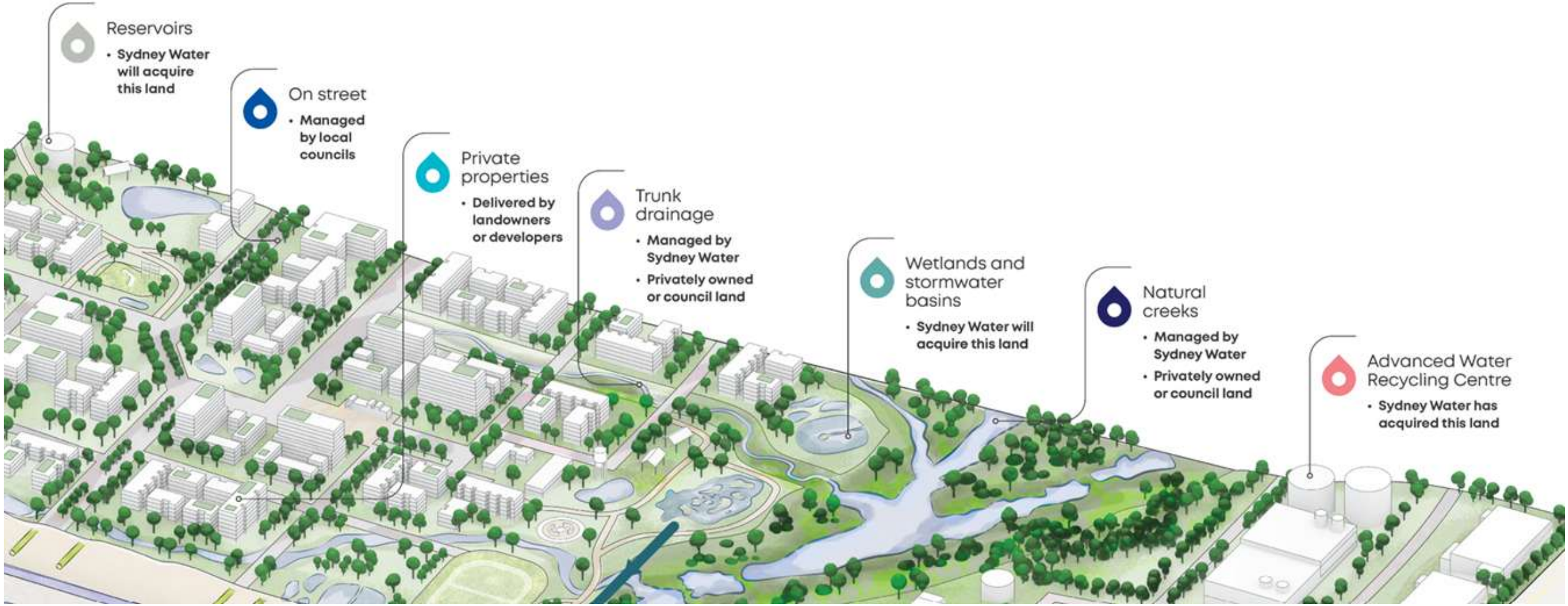
Scheme planning

Stormwater treatment and storage basins





Ownership and maintenance



Challenges

- Its new and different
- Cost (scheme cost, developer charges)
- Land zoning, cost and availability
- Wildlife strike
- Time (lack thereof)
- Development is underway
- Resourcing

Timing


Questions