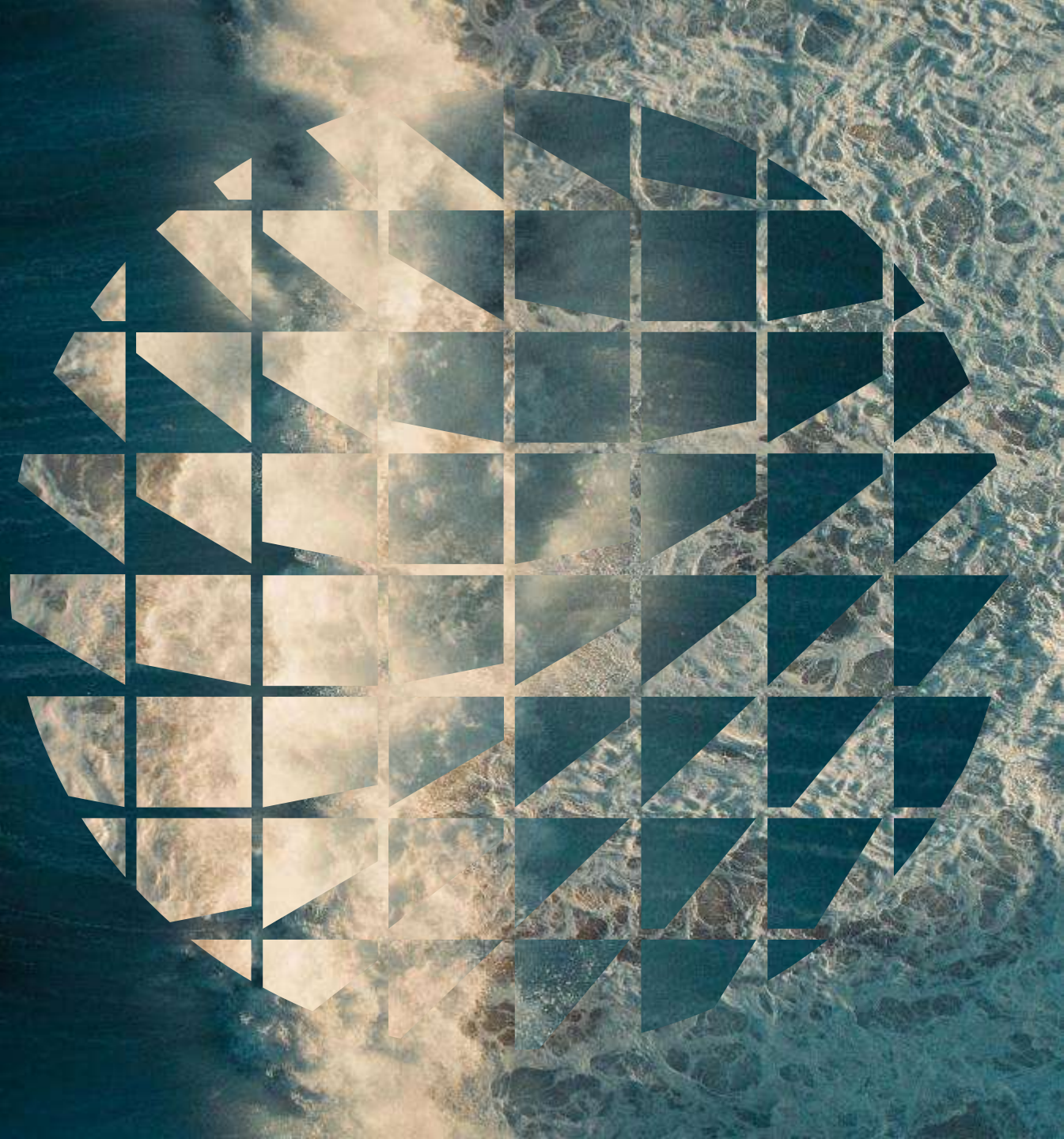


Reasonably practicable contributions to stormwater flow reduction

Stormwater NSW
franc.2025





Acknowledgement of Country

The Alluvium Group recognises and acknowledges the unique relationship and deep connection to Country shared by Aboriginal and Torres Strait Islander people, as First Peoples and Traditional Owners of Australia. We pay our respects to their Cultures, Country and Elders past and present.

Artwork by Melissa Barton. This piece was commissioned by Alluvium and tells our story of caring for Country, through different forms of waterbodies, from creek lines to coastlines. The artwork depicts people linked by journey lines, sharing stories, understanding and learning to care for country and the waterways within.

Importance of flow reduction

- "Stormwater runoff.....is the main reason for altered flow regimes and poor water quality" (Melbourne Water, 2018)
- Traditional stormwater pollution reduction targets protect environments (e.g., Port Phillip Bay) and don't reduce volume or improve baseflows for waterways:
 - erosion of the waterway's physical form,
 - diminished habitat values and biodiversity, and
 - increased pollutant levels.
- The NSW Risk-based framework (Dela-Cruz et al, 2017) guided the definition of flow reduction targets in Wianamatta-South Creek.
- In Victoria:
 - EPA guidance defines harvesting and infiltration targets for Victoria at 100 mm rainfall band intervals.
 - EPA Act (2017) defines a General Environmental Duty (GED) that all Victorians must do what is "**reasonably practicable**" to mitigate environmental impacts, including stormwater impacts on waterways.

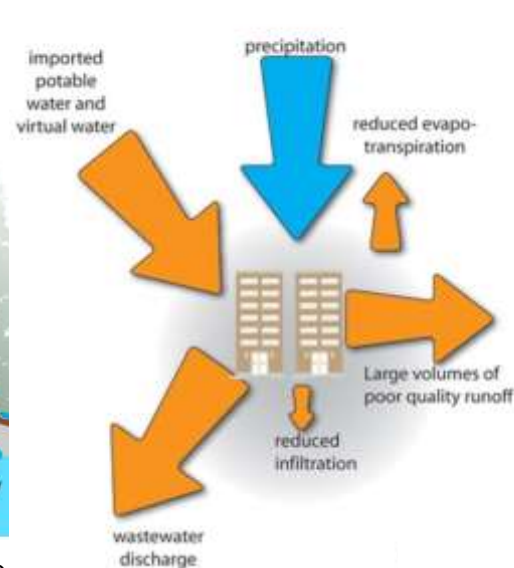
natural water balance



Foreste



Urban water balance



ban



WSUD water balance

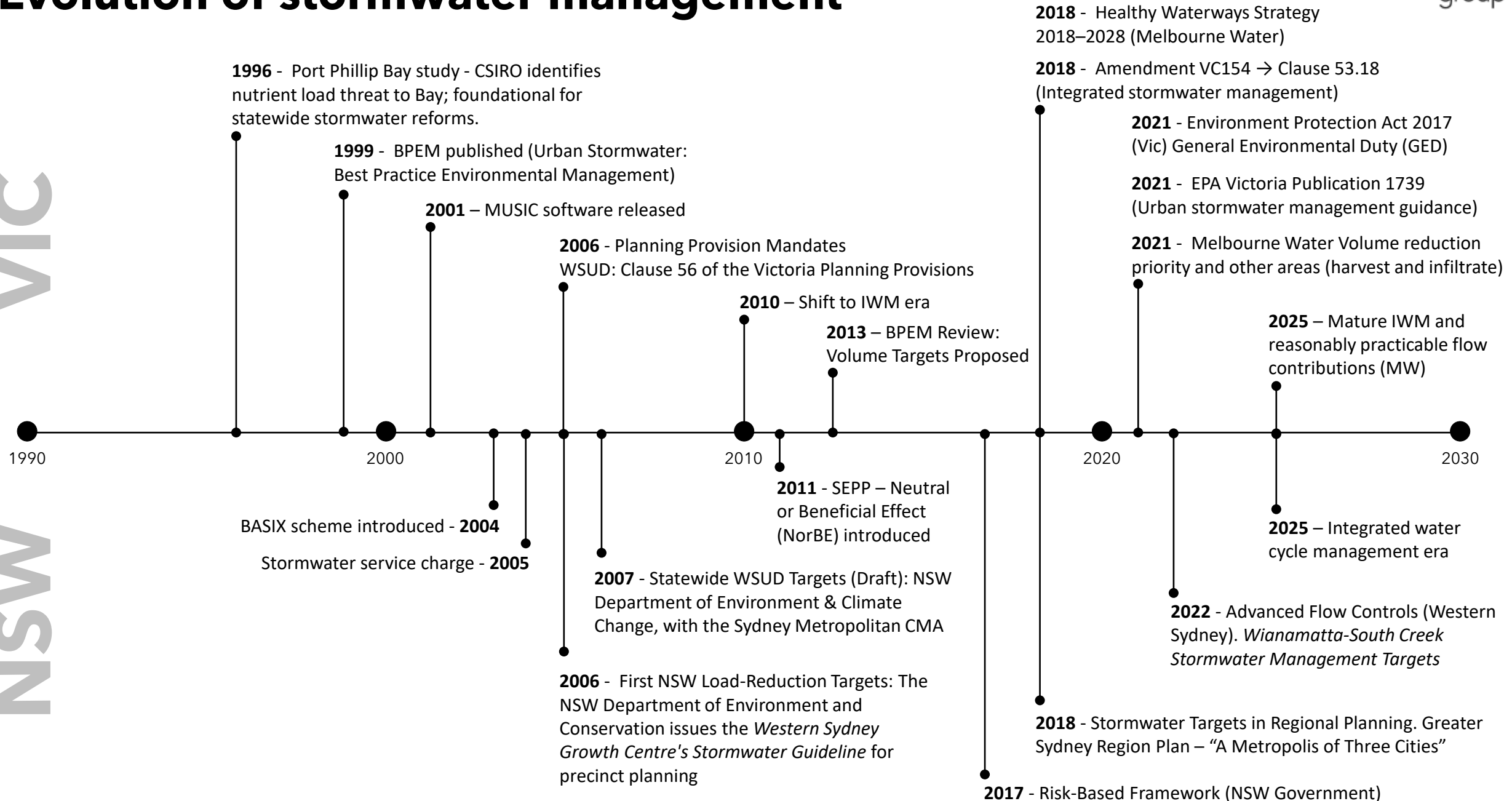


Credit: Melbourne Water, 2018; Dela-Cruz et al, 2017

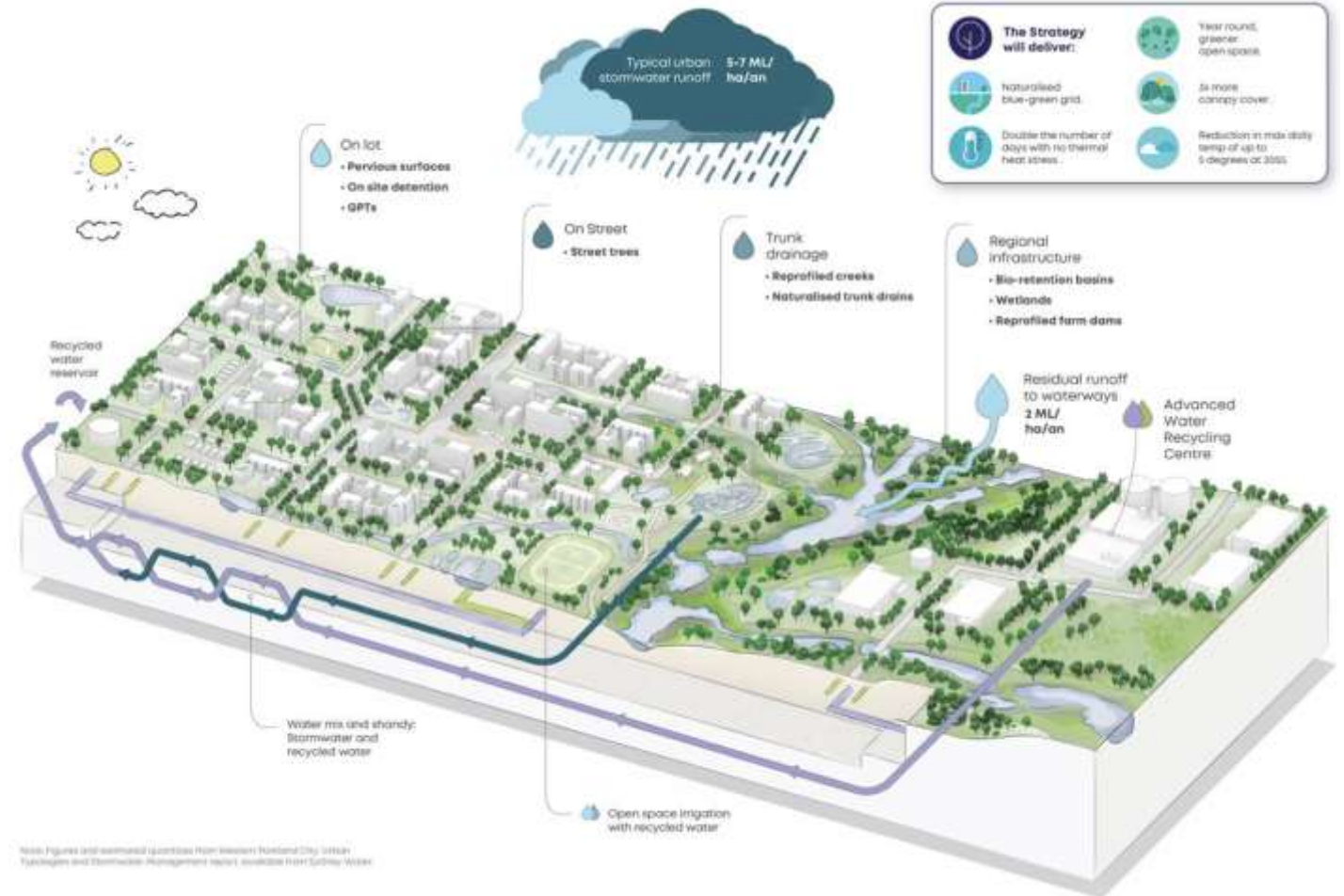
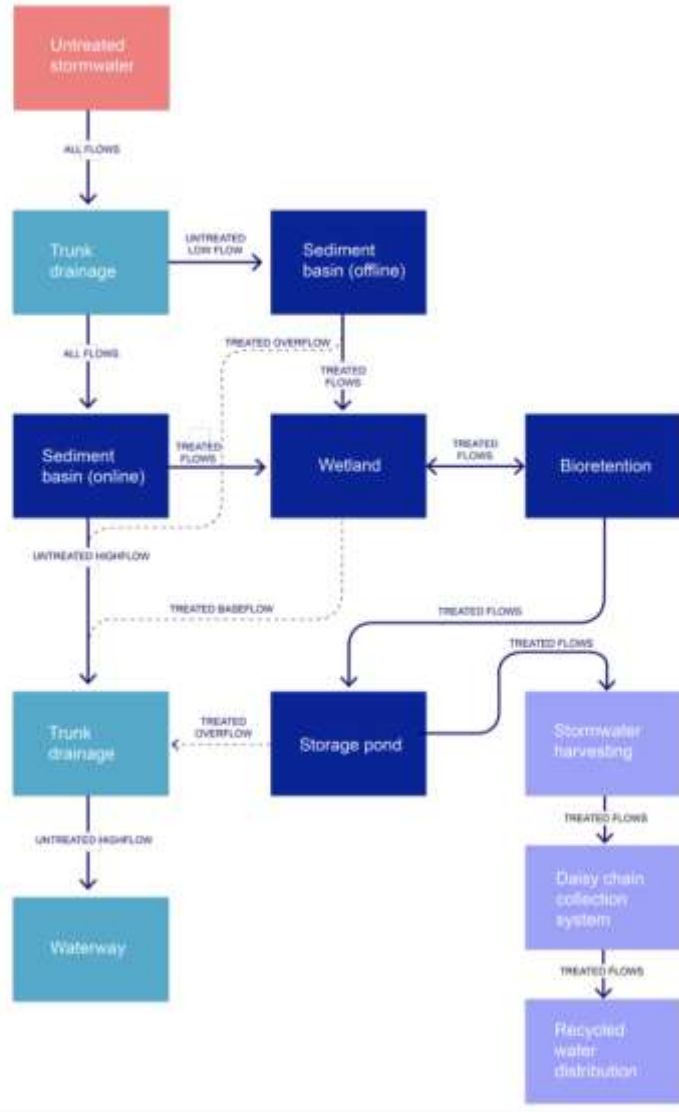
Evolution of stormwater management

VIC

NSW

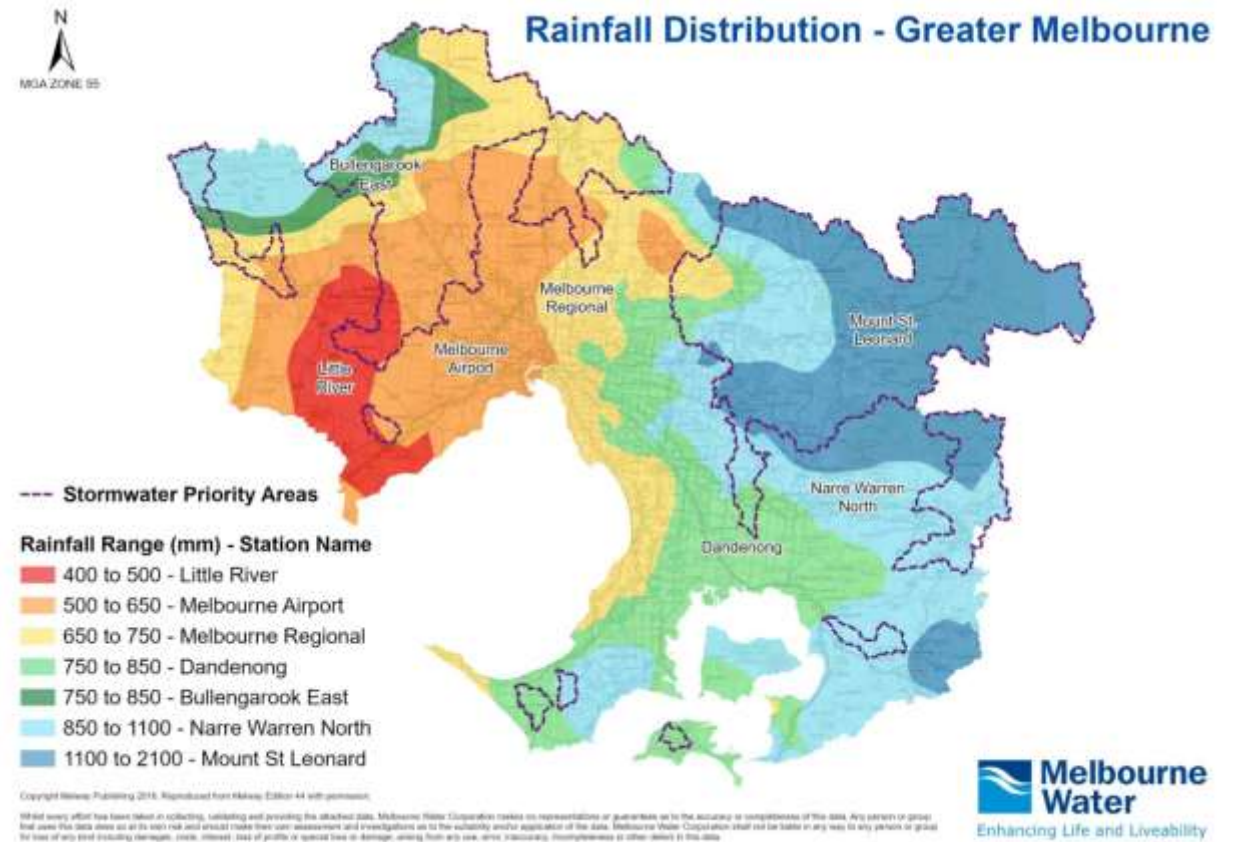
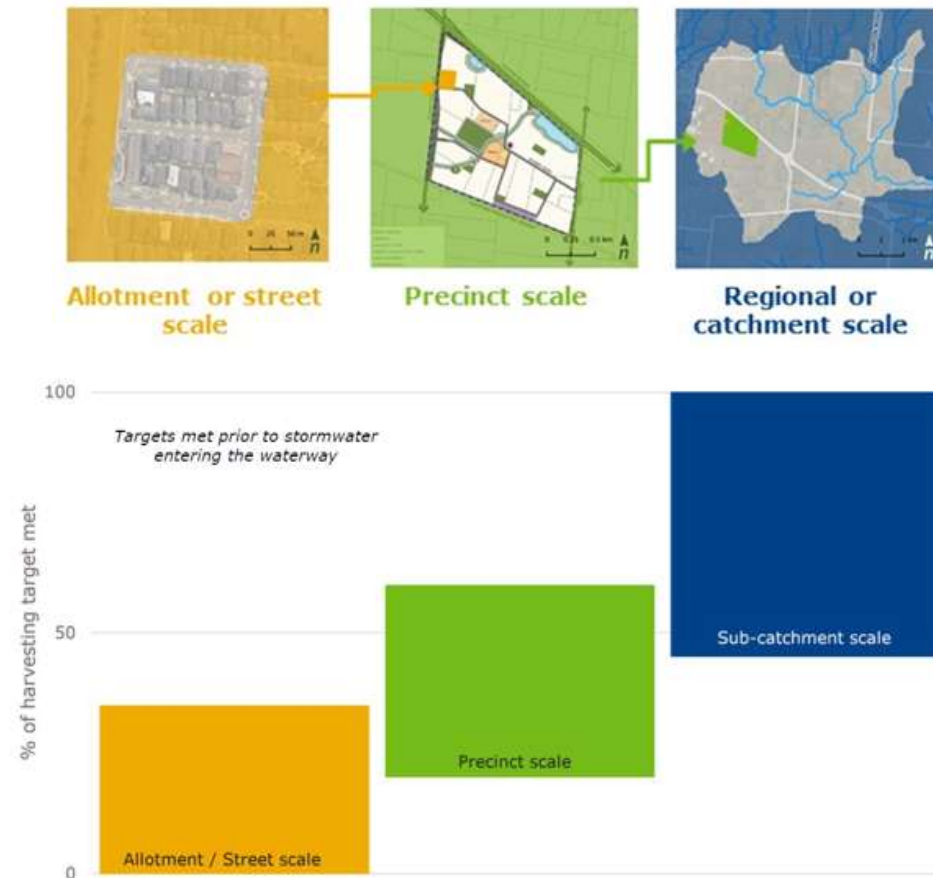


Regional stormwater management schemes



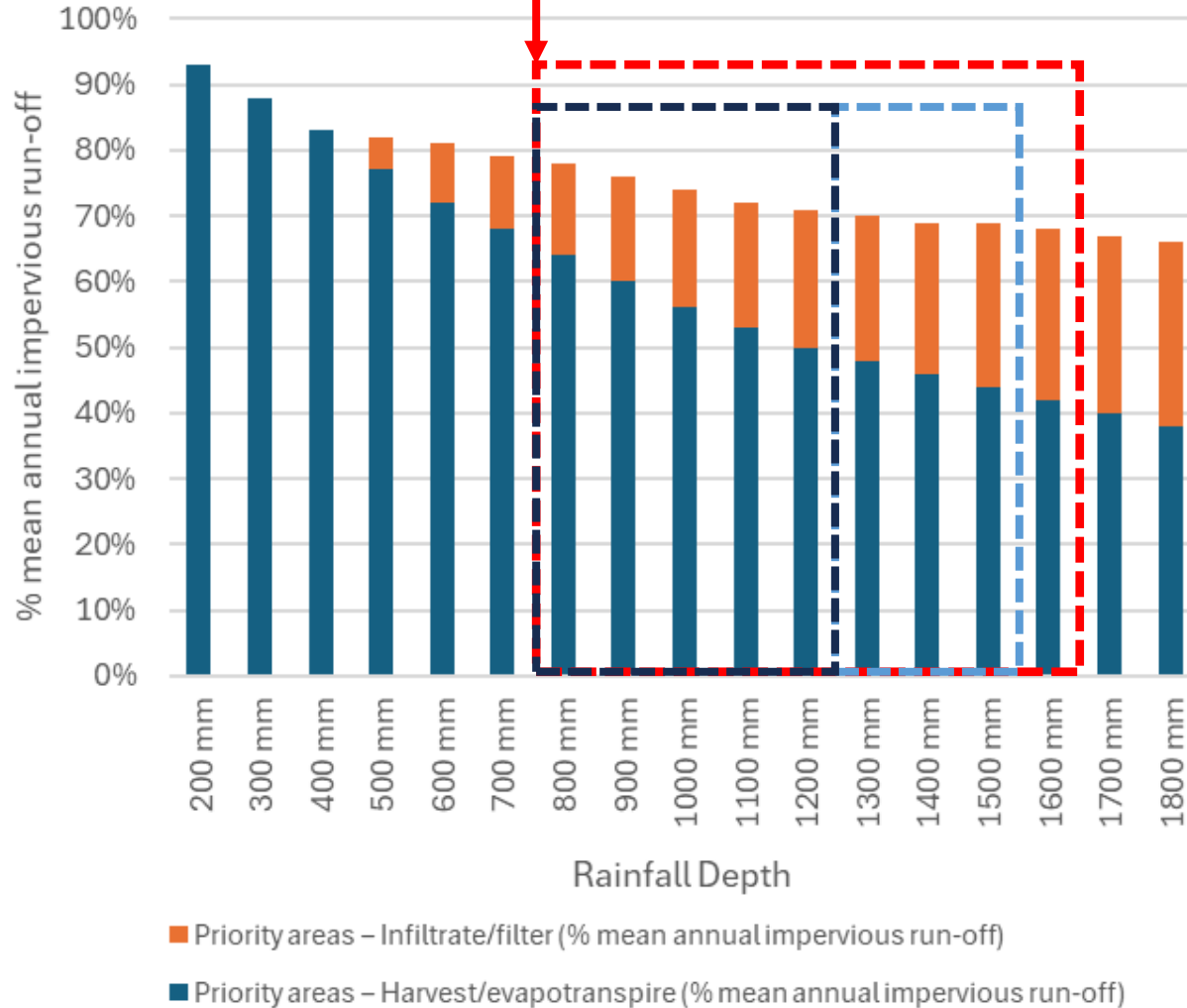
'Reasonably Practicable': project context and drivers

- Meeting flow reduction targets is challenging and requires equitable, multi-scale contributions.
- Targets respond to rainfall
- What is a reasonably practicable contribution at each scale of urban development - lot, street, precinct?

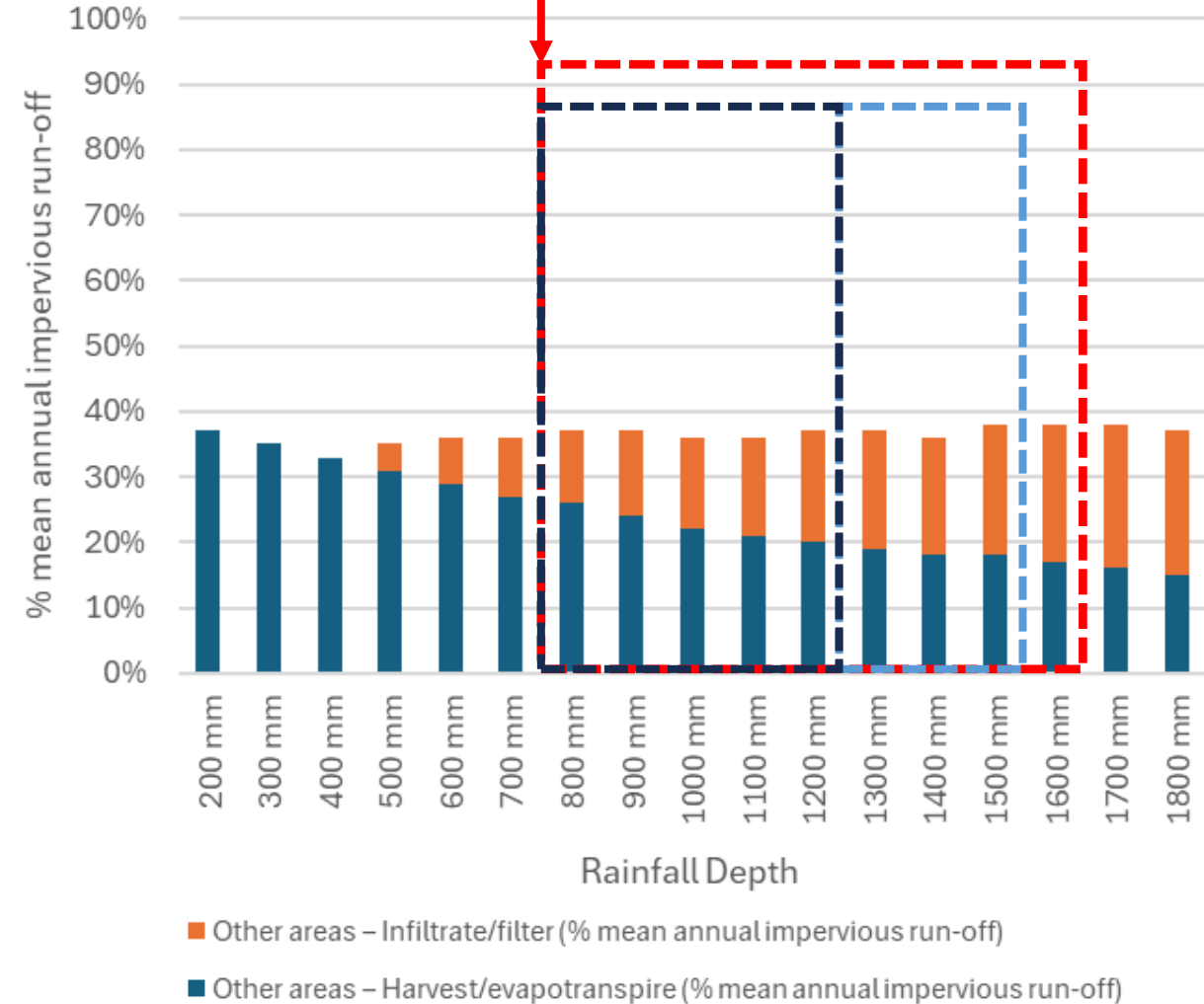


Priority and other area flow reduction

Western Sydney / EPA Vic

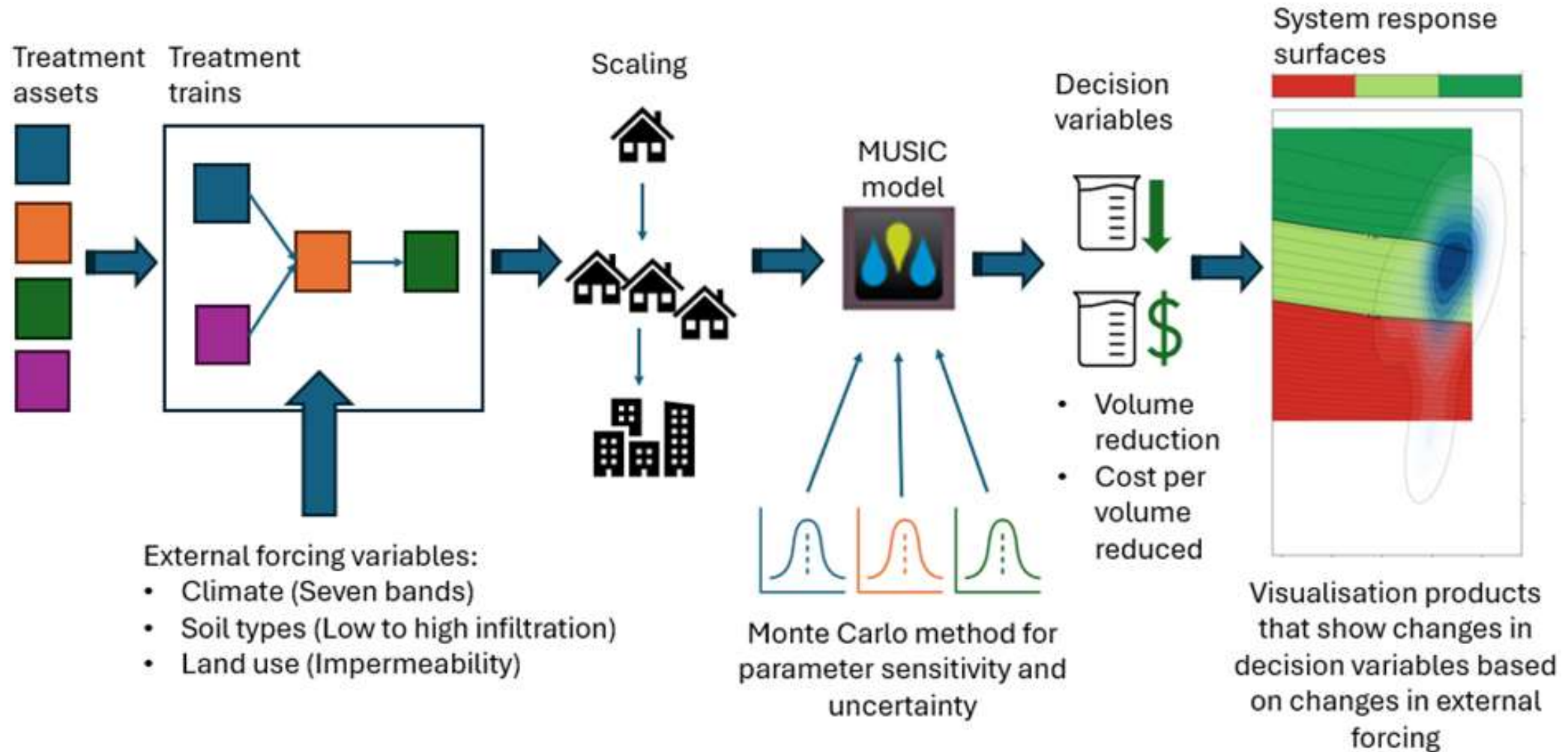


Western Sydney / EPA Vic

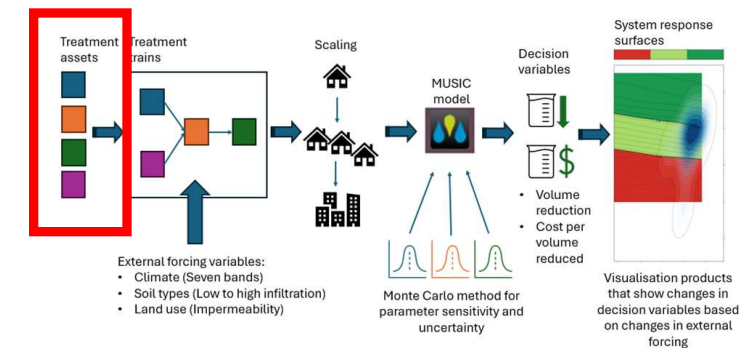
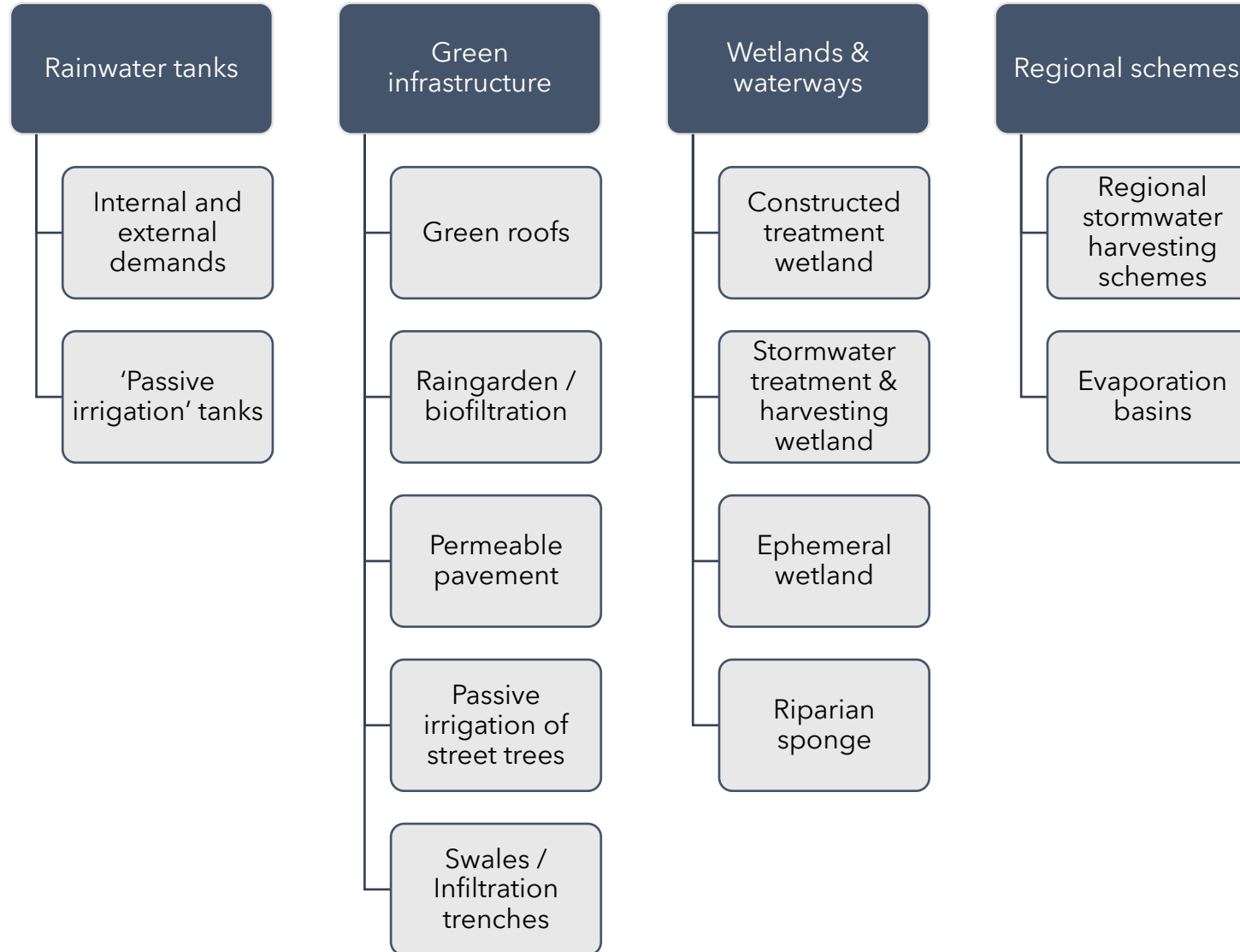


Sydney MAR Range
 Source from EPA Victoria Northern Rivers Water Management guide (2021)
 Northern Beaches MAR Range

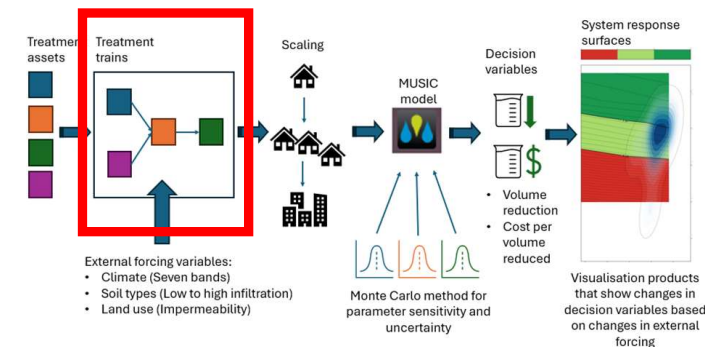
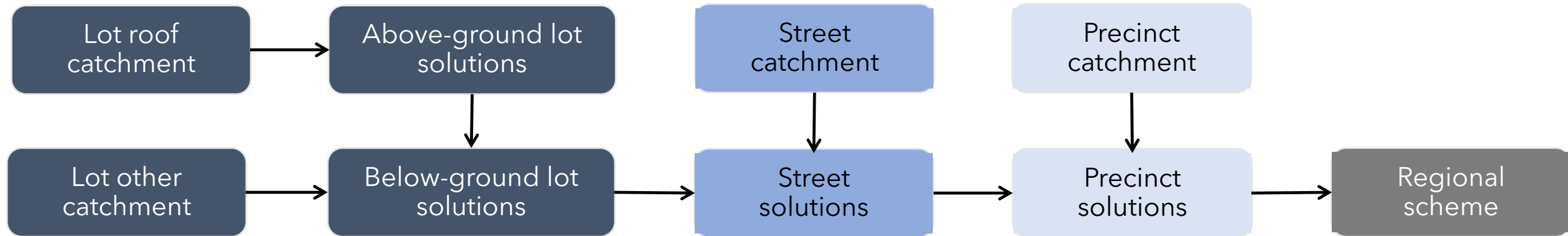
Technical nitty-gritty



Treatment assets

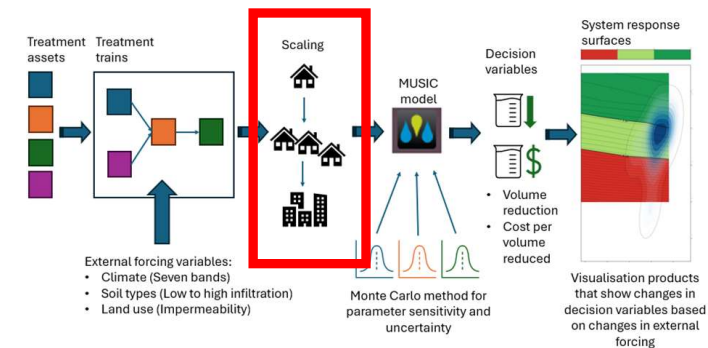


Treatment trains



- Reside
- Indust
- Infill re
- Infill re
- Non-R

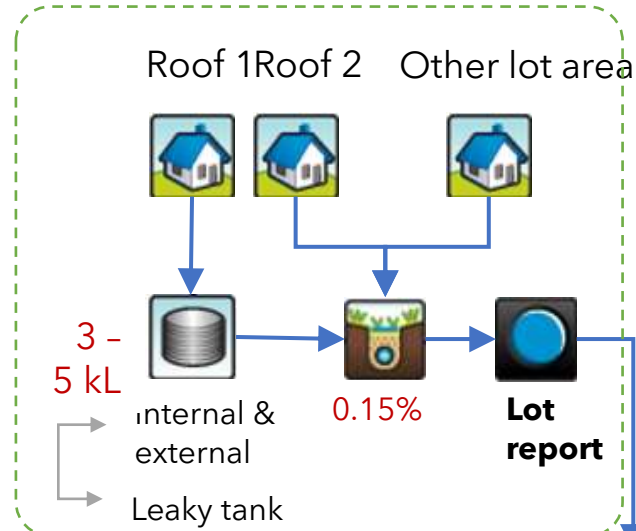
- Residential greenfield development
- Industrial Development, greenfield subdivision
- Infill residential development (sub-division)
- Infill residential (apartments)
- Non-Residential / Mixed Use / Commercial



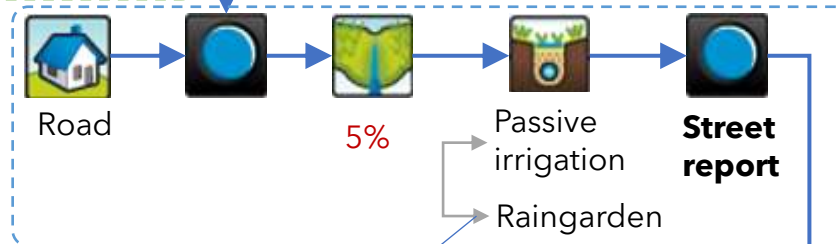
Sourced from CRC for Water Sensitive Cities

MUSIC modelling - Residential Greenfield

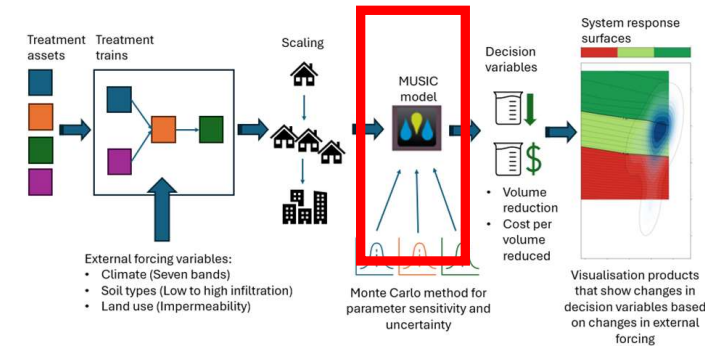
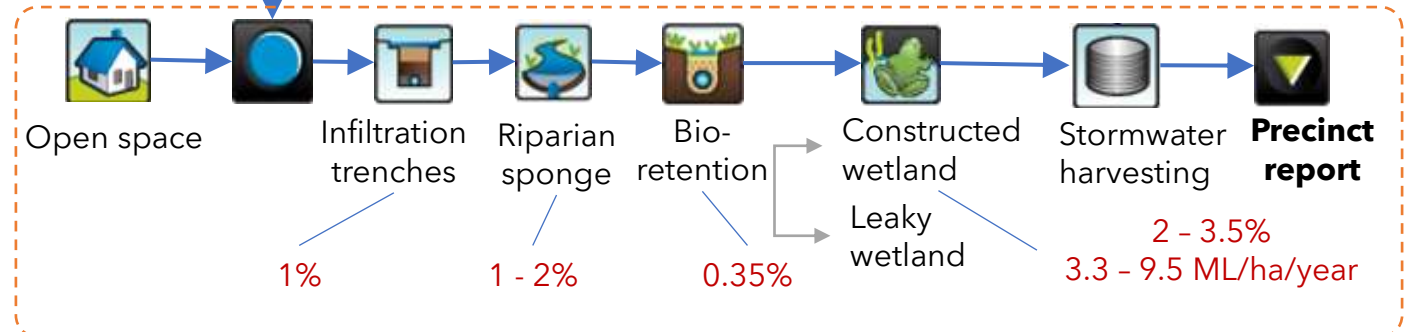
Lot scale



Street scale

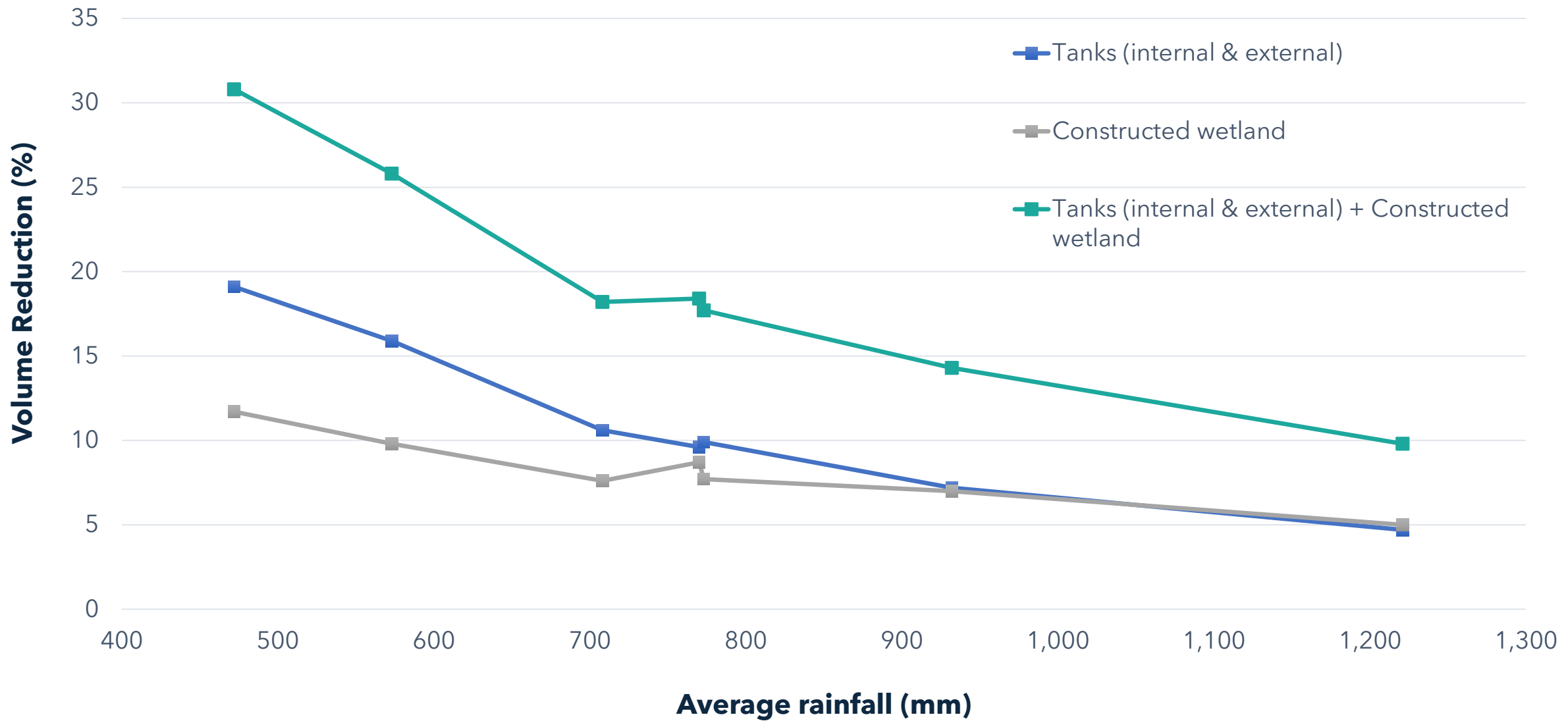


Precinct scale



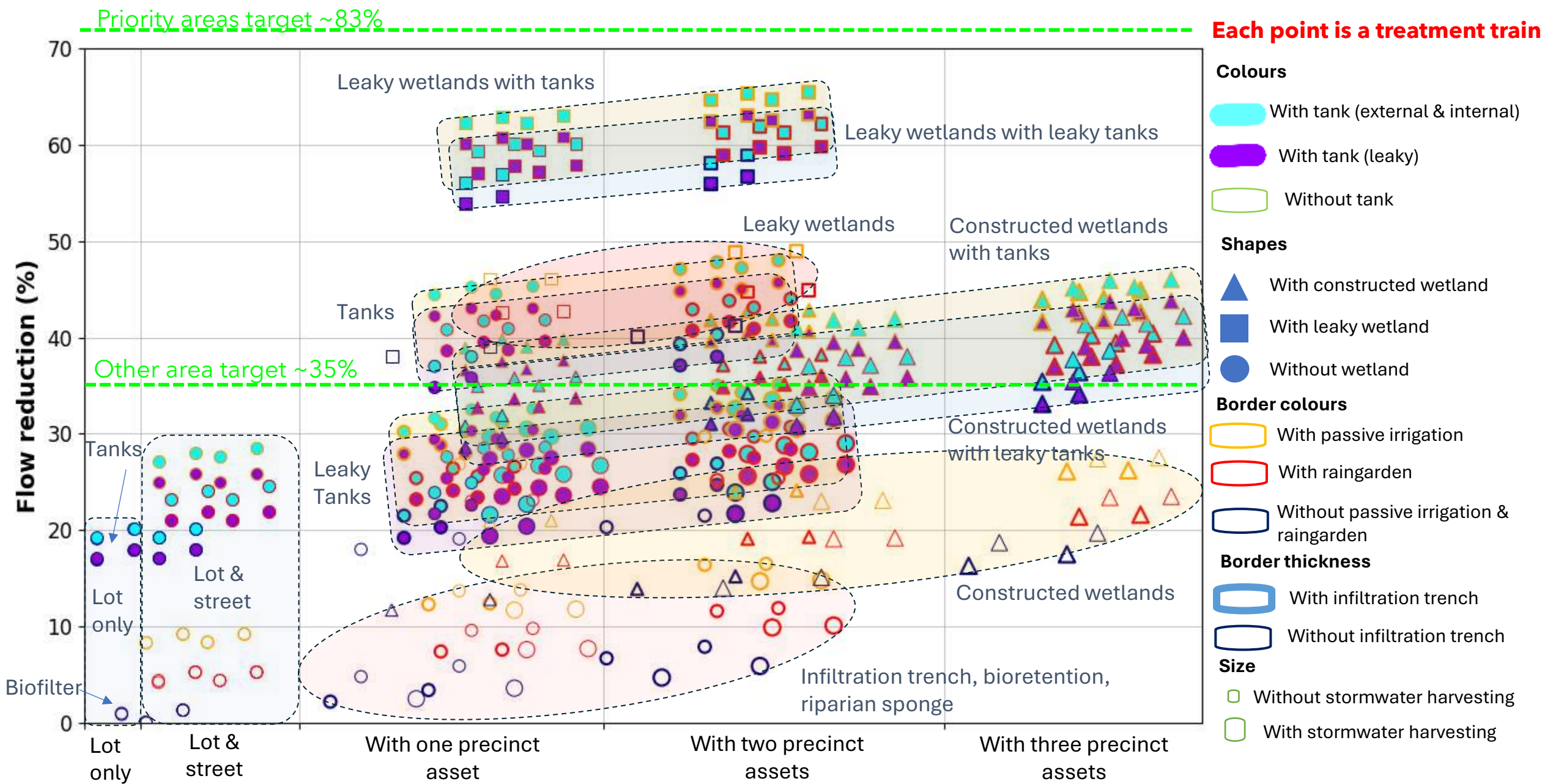
Residential Greenfield - Base case

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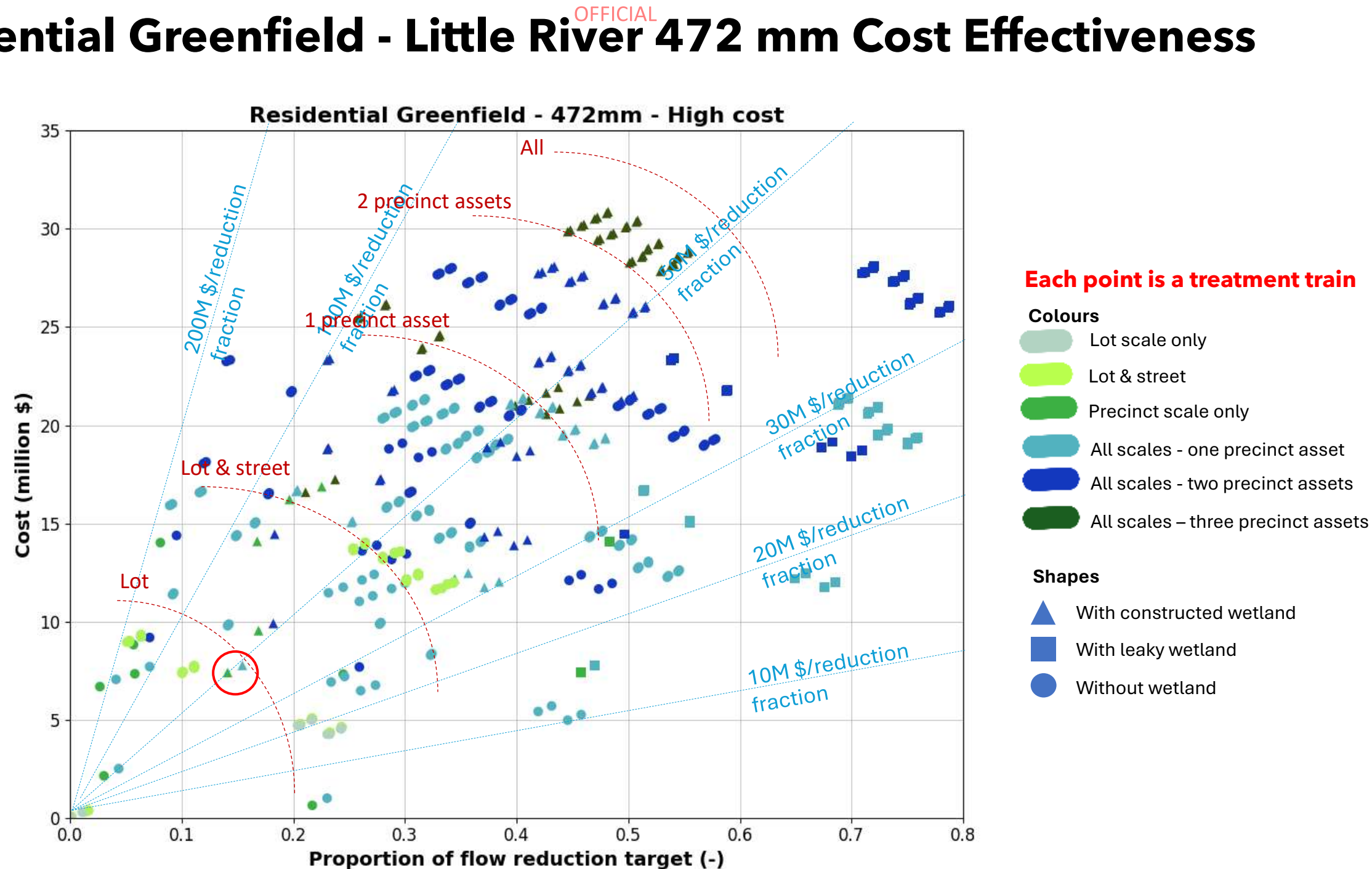


Residential Greenfield - Little River 472 mm

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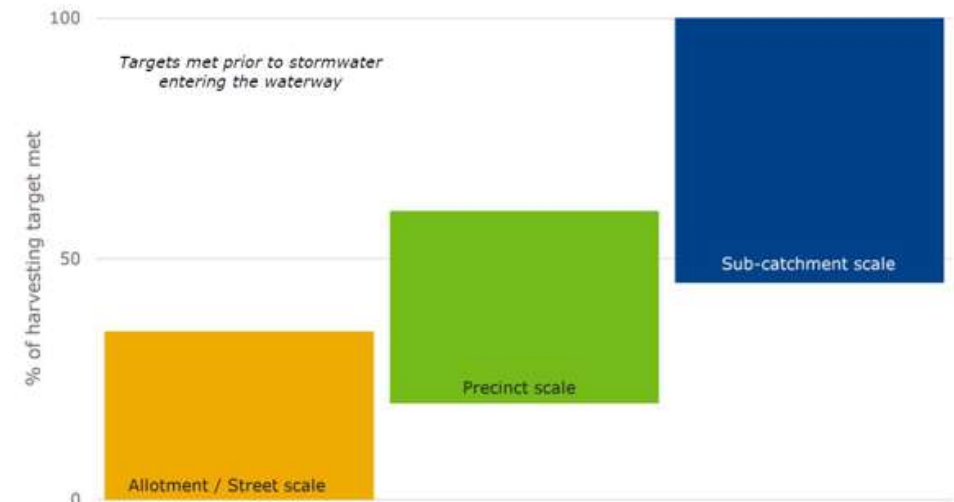
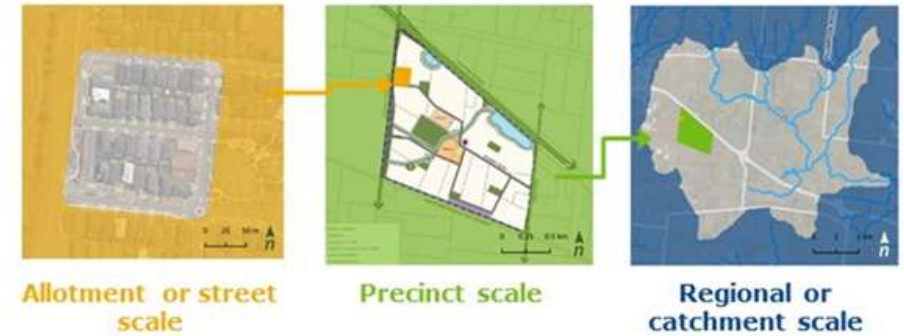


Residential Greenfield - Little River 472 mm Cost Effectiveness



Conclusions

- Stormwater volume reduction is critical to preserving waterway ecological health
- Volume reduction targets are often significant and challenging.
- Contributions at each scale of development are critical to
 - Reduce the scale and cost of larger regional schemes
 - Distribute economic contributions equitably across water authorities, local government and the development industry
 - Distribute benefits to local communities (e.g. rainwater harvesting, stormwater harvesting, streetscape greening and cooling).
- This project will provide an evidence base for interim guidance on what is a “reasonably practicable” contribution to stormwater volume reduction and improved waterway health.





Thank you

