

Transcending Regulatory Drivers

Through Enhanced Stormwater Management in Geelong's Growth Areas

● ● Presented by: **Jacob Meehan** | Date: **06/06/2023**

Acknowledgement of Country

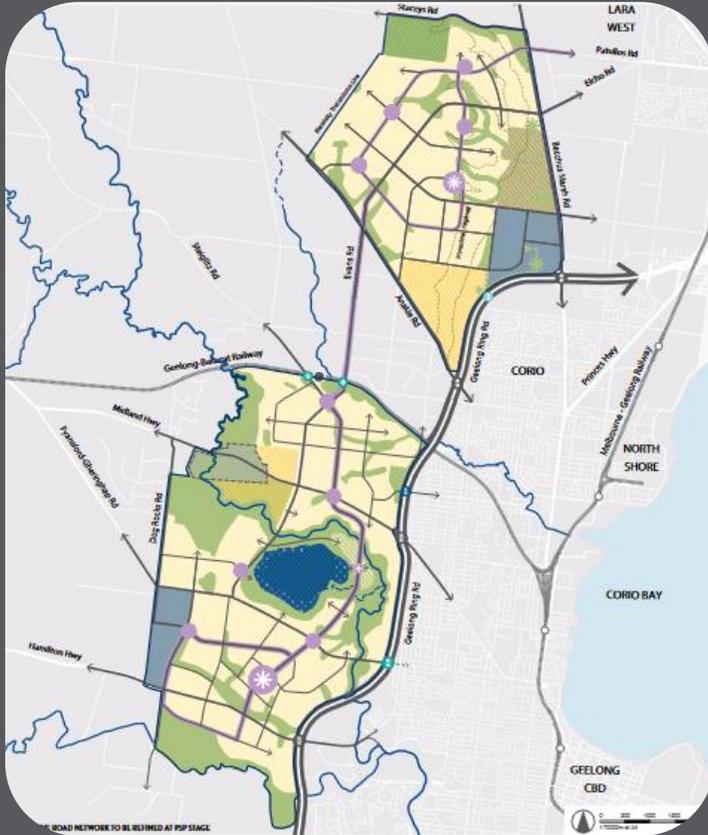
Spiire recognises the Traditional Owners of the lands on which we conduct our business. We pay our respects to elders past, present and emerging.

We value their knowledge and connection to Country as the First Peoples of this land.



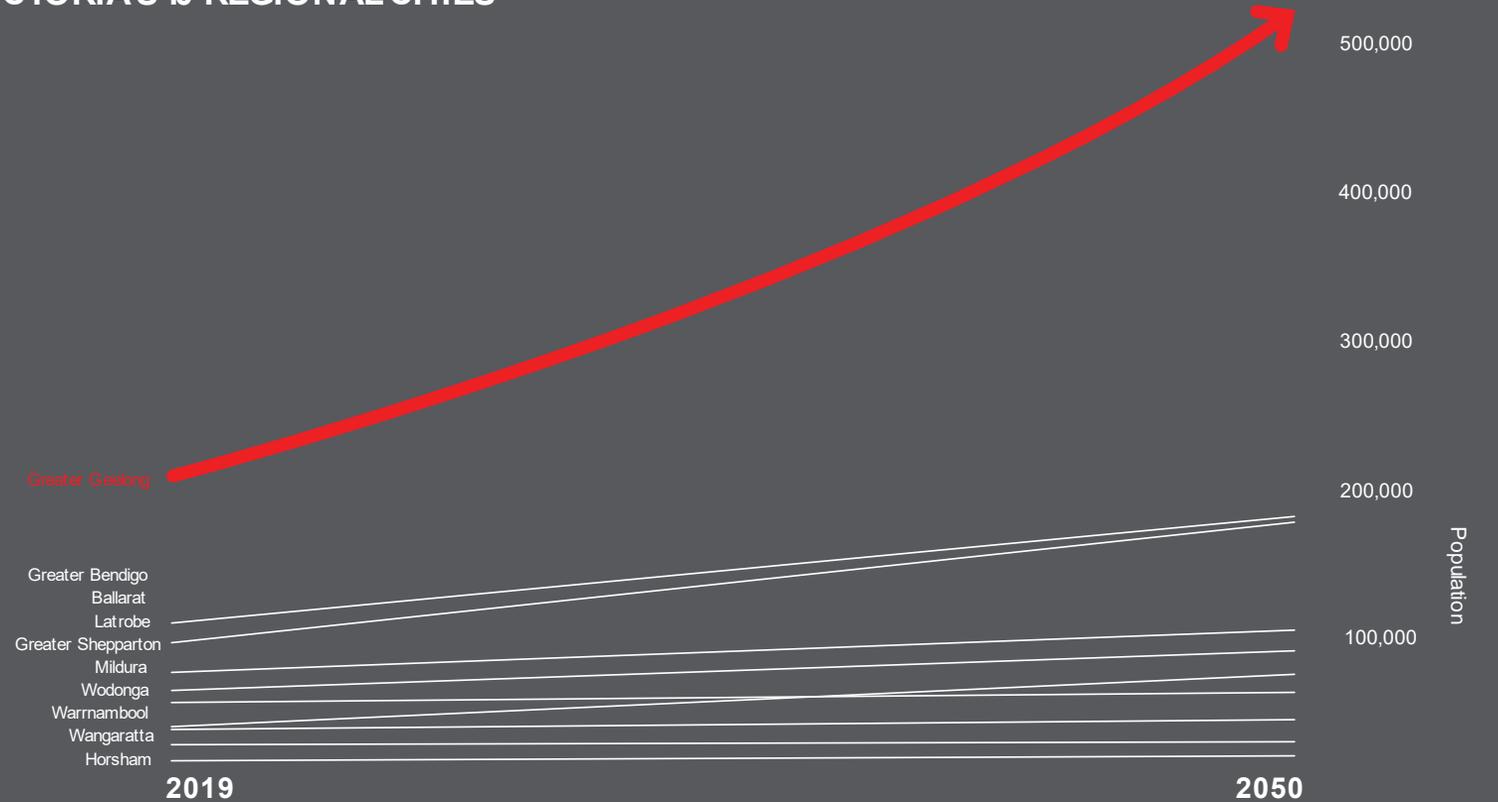
Metropolitan Scale Growth

Growth rate in the Greater Geelong region is anticipated to sustain at 2.5% until 2050



Northern And Western Geelong Growth Areas Framework Plan, 2020

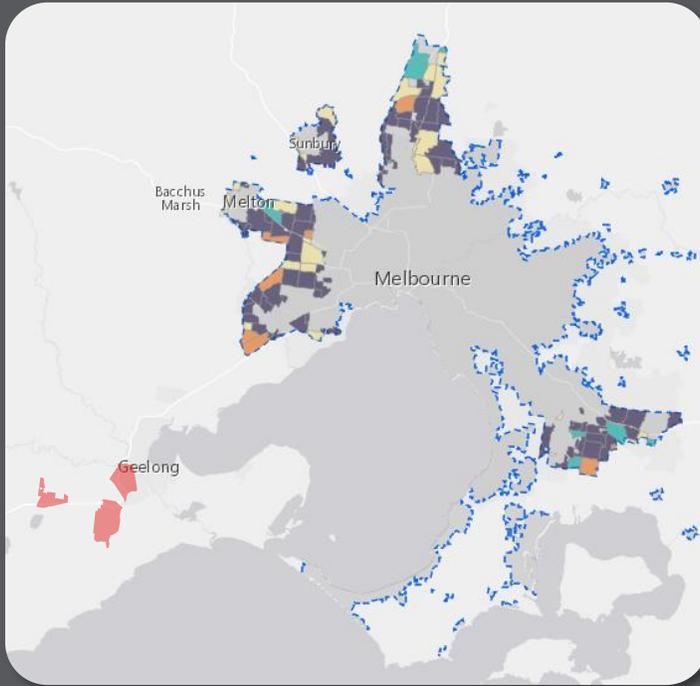
VICTORIA'S 10 REGIONAL CITIES



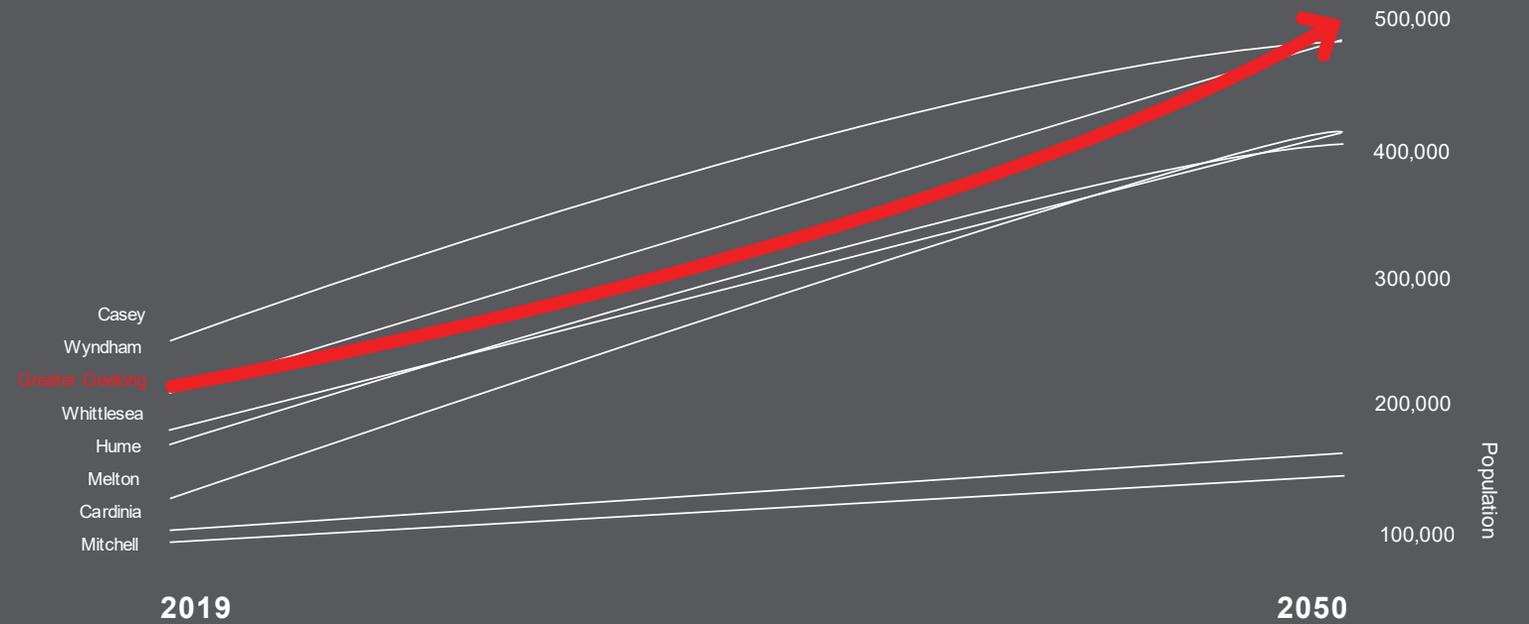
Metropolitan Scale Growth

Securing water resources for the region will be a key part of ongoing development

MELBOURNE'S GROWTH AREA COUNCILS



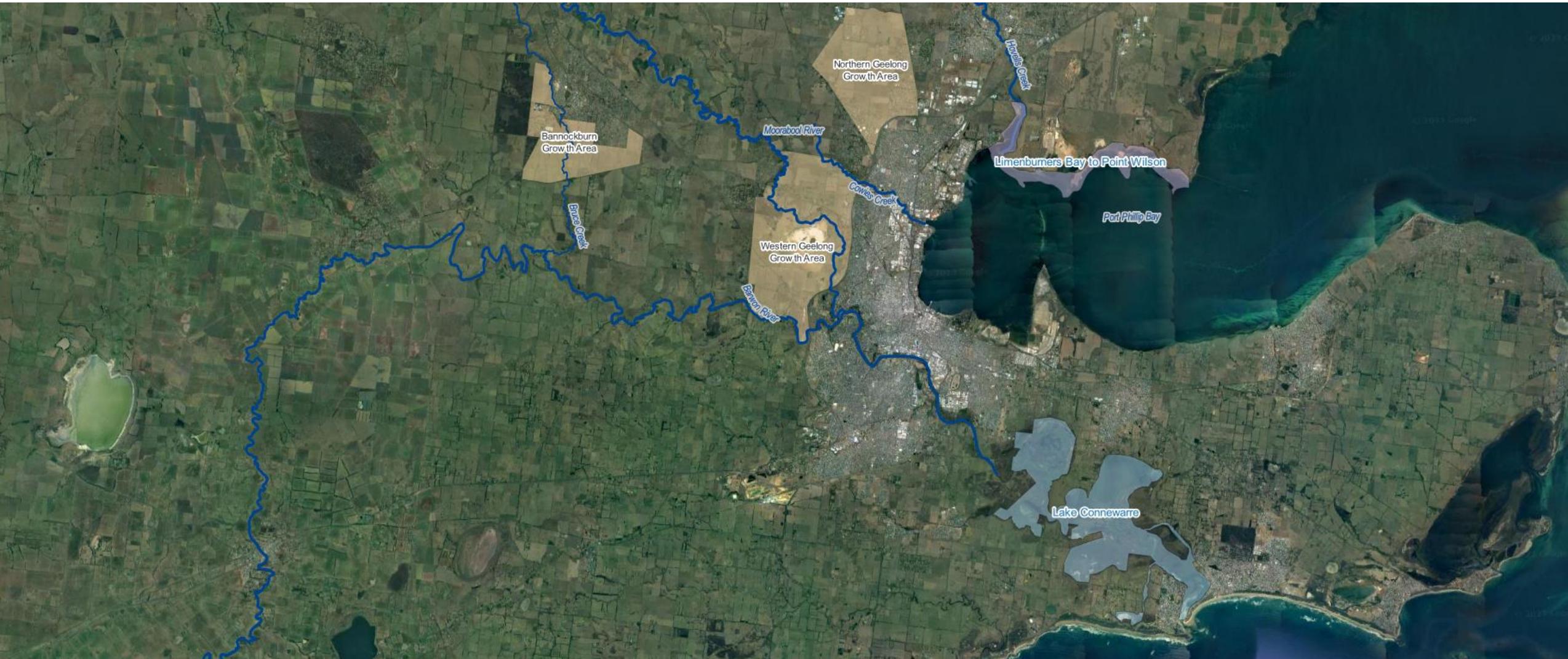
VPA Planning Map, 2023



Northern And Western Geelong Growth Areas Framework Plan, 2020

Geelong is surrounded by priority waterways

Both Lake Connewarre and Limeburners Bay are RAMSAR listed sites



Relevant Strategies

Enhanced Stormwater Management can address the Strategic Directives of multiple strategies across the region

- Integrated Water Management Framework For Victoria - DEECA
- Central and Gippsland Region Sustainable Water Strategy
- Barwon Region Strategic Directions Statement – DEECA
- Water For Our Future Strategy – Barwon Water
- Healthy Country Plan – Wadawurrung Traditional Owners Corporation
- Corangamite Regional Catchment Strategy 2021 - 2027 – Corangamite Catchment Management Strategy
- Environment Strategy 2019-2027 – Golden Plains Shire Council



Key Project Driver

Recent EPA Guidance has shifted us BPEM to new flow reduction targets

Primary Strategic Driver - EPA Publication 1739.1:
Urban Stormwater Management Guidance

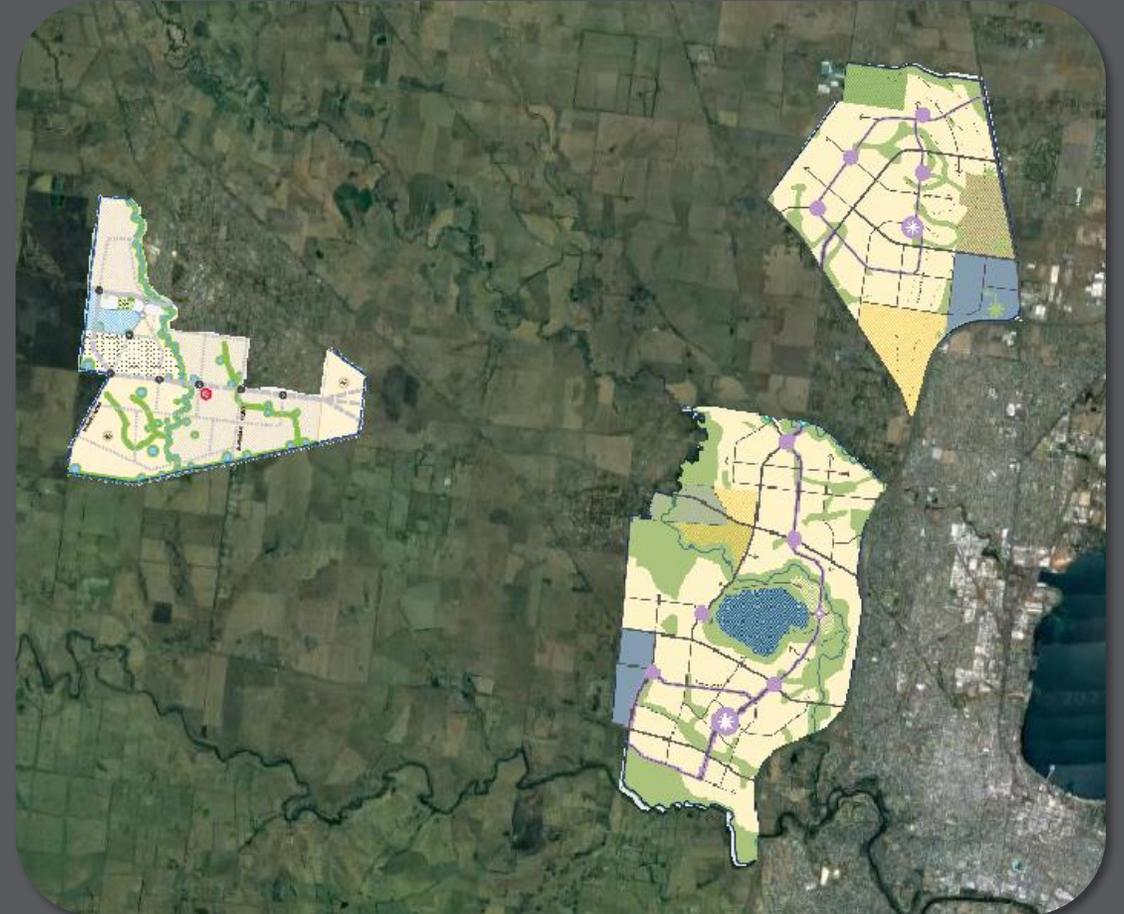
- EPA established reduction of **volume** of stormwater runoff as the simplest and method for ensuring waterway health
- Creates targets for volume reduction based on rainfall band for **priority** and **other** areas
- Geelong and Bannockburn are in the 500mm per year rainfall band, therefore reduction targets for **priority waterways** apply at;
 - 77% for harvesting and evaporation
 - 5% for infiltration



Our end goal is “Enhanced Stormwater Management”

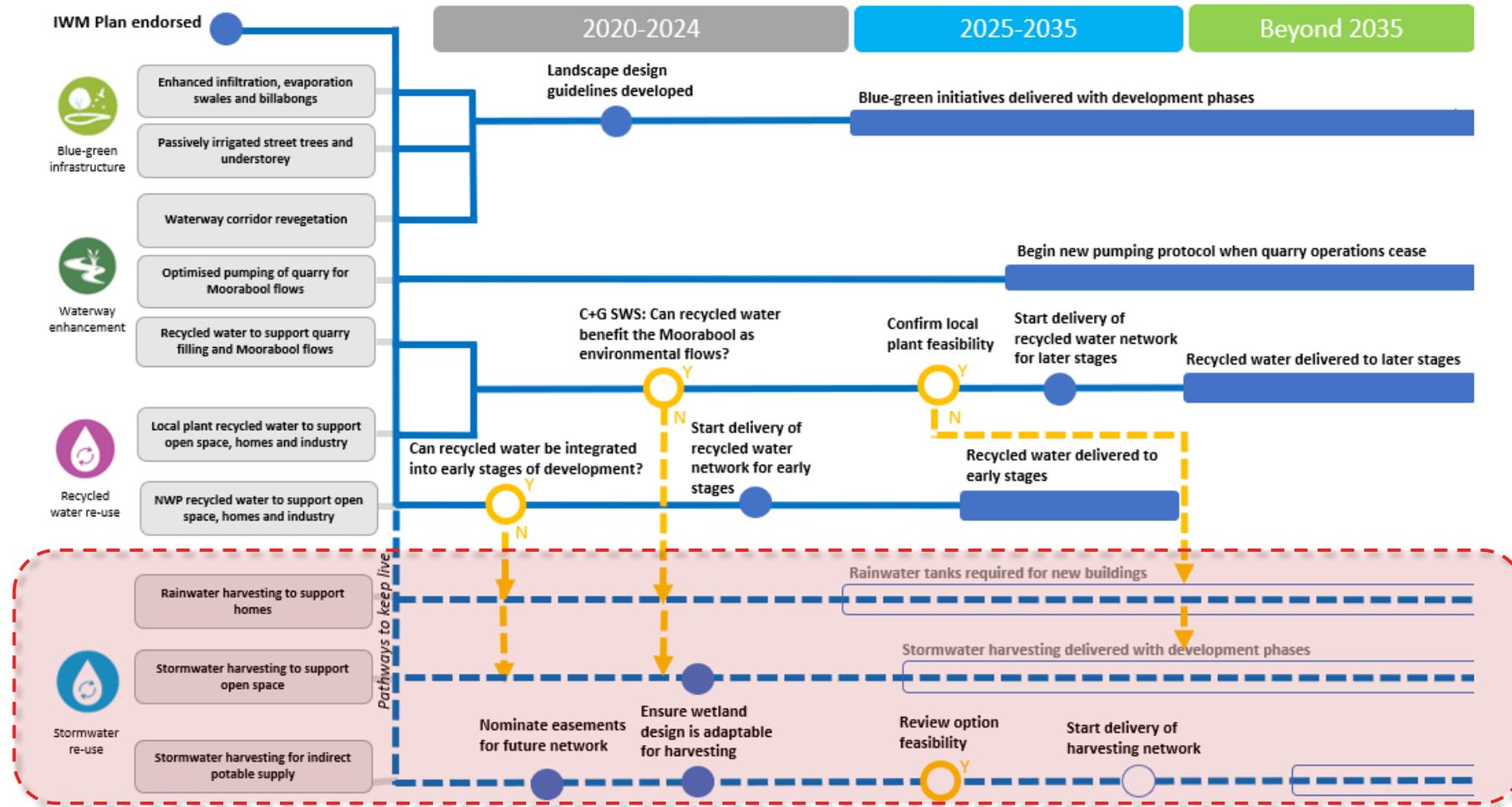
The Bannockburn and Northern and Western Geelong Growth Areas present an opportunity to derive regional benefit from volume reduction targets

- Barwon Water has engaged Spiire to explore and assess the options available to meet the volume reduction targets throughout NWGGA & Bannockburn.
- Identified an opportunity to meet the objectives from the EPA flow reduction targets while progressing regional economic and environmental benefits



Northern Geelong, Western Geelong and Bannockburn Growth Areas with FUS

An IWM Adaptive Pathway was identified and endorsed for NWGGA prior to EPA Guidance



Credit: Planning a Clever and Creative Water Future: Northern and Western Geelong Growth Areas Integrated Water Management Plan, Aaron Dowling – E2Designlab

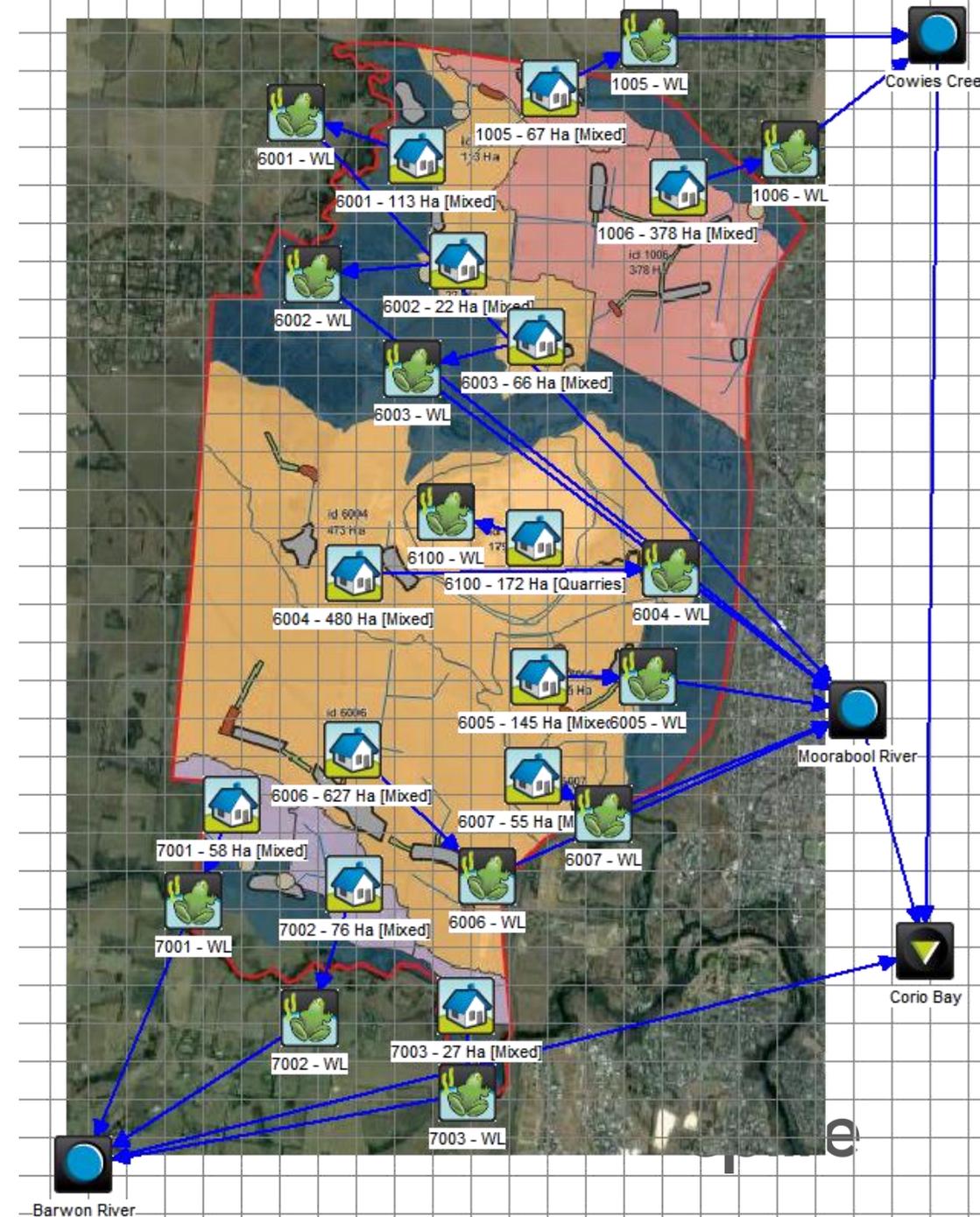
Establishing Volumes

MUSIC modelling was used to understand volumes and establish concept designs

Region	Pre-Dev. Runoff (ML/Yr)	Post-Dev. Runoff (ML/Yr)	Pump Rate (l/s)	Harvesting Yield (ML/Yr)	Evap. (ML/Yr)
Northern Geelong Growth Area	1,673	6,089	235	3,480	552
Western Geelong Growth Area	1,762	5,910	370	4,003	580
Bannockburn Growth Area	694	2,265	100	1,549	228
Total	4,129	14,264	705	9,032	1,360



Nearly 10 GL of Harvested Stormwater will need a home by full development!



Exploring Options Across Different Scales

Building on the findings of the previously established IWM Plan



DISTRICT

Lot & Neighbourhood Scale

Rain Water Tanks

Smart Tanks

Swale Drains and Blue Green
Infrastructure

Passively irrigated street trees

On-lot raingardens



PRECINCT

Suburb & City Scale

Infiltration Basins

Leaky Wetlands

Storage at Wetlands

Storage outside Development Area



REGION

Catchment Scale

Class A Dual Supply

Agricultural Irrigation

Environmental Flows

Cultural Flows

Potable Replacement

Stormwater to Potable

Potential Regional End Uses

Potential to provide state wide water resource benefits while providing an adaptive pathway

- Irrigation in the Western Irrigation Network
- Environmental / Cultural Flows in the Moorabool River
- Potable Supply to Wurdiboluc Reservoir
- Support the NWGGA Class A network
- Disposal through Marine outlets



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