



Identifying Opportunities to Irrigate Open Spaces with Alternative Water Sources

Greater Western Water
Western Metropolitan Partnership
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Contents

Executive Summary	2
Introduction	3
Project objectives	3
Project outputs	3
Project Delivery	7
Approach	7
Governance and collaboration	7
Challenges and response	8
Outcomes and Recommendations	9
Outcomes	9
Lessons learned	9

Executive Summary

GWW has delivered the *Identifying Opportunities to Irrigate Open Spaces with Alternative Water Sources Project* through the *Metropolitan Partnerships Development Fund* granted by the Department of Jobs, Skills, Industry and Regions.

In partnership with local government and water corporations, this project aimed to identify and prioritise place-based opportunities to:

- adapt to the regional impacts of climate change causing water insecurity, as well as heat vulnerability across the Western Metropolitan Region.
- improve health and wellbeing outcomes for western communities through irrigation of public open space with alternative water and greener open spaces.
- contribute to urban cooling, healthier urban waterways, and healthier Country by mitigating the impact of discharges to waterways.
- enhance cultural values in priority open spaces.

Stakeholder engagement formed the foundation of this project, as well as a flexible and adaptable approach to project delivery. This helped to build and maintain project buy-in and stakeholder alignment across diverse priorities.

The final project outputs comprised of:

- a spatial database of 347 alternative water open space irrigation opportunities across the GWW service region.
- an online web dashboard that provides a visual presentation of opportunities (the spatial register), allowing users to interact with the data, and obtain attribute information by clicking on specific opportunities (Figure 1).
- assessment criteria to prioritise opportunities informed by the Catchment Scale IWM targets, as well as social, environmental, cultural, and economic factors.
- a shortlist of prioritised opportunities with a description of each opportunity, summary of considerations and assessment criteria scores (Figure 2).
- a documented prioritisation methodology that can be replicated and applied in other areas and into the future that can support the broader industry (Figure 3).
- concept designs for four priority projects (example in Figure 4).
- a spatial database and process to embed Traditional Owner cultural values into GWW's Portfolio and Project Management Framework (PPMF) (Figure 5).

This project sets the stage for future planning and implementation through:

- establishing a platform for engagement and collaboration between agency stakeholders and local governments.
- providing a central repository of information to aid planning as well as a process for identifying potential future opportunities.
- feeding directly into GWW's proposed Stormwater Harvesting Partnership Fund, which aims to co-fund and co-deliver priority stormwater harvesting projects across the GWW service region.
- informing the consideration of Traditional Owner cultural values in GWW's framework for planning and delivering infrastructure capital projects.

Introduction

Melbourne's growing population comes with an increasing demand for potable water, greater areas of urbanised land and the need for high quality community assets such as green open space. While historically Melbourne has enjoyed relatively consistent rainfall over the year and in winter-spring months, this has and will increasingly be influenced by climate cycles and climate change. The Millennium Drought (1997-2009) highlighted this vulnerability and the need for Melbourne to diversify its water supply options to create resilience and meet community expectations.

To sustainably manage water resources, there is a need to understand opportunities to increase the use of fit-for-purpose alternatives to potable water such as using rainwater, stormwater, and recycled wastewater to irrigate green open spaces. Green open spaces are critical public assets that provide numerous benefits to the liveability, health and wellbeing of the communities which they serve. Identifying alternative sources of water to meet this irrigation demand reduces reliance on potable supply and improves the resilience of the entire water supply system.

Project objectives

This project investigated opportunities to deliver alternative water (recycled water, stormwater or rainwater) for irrigation across the GWW service area, identified through spatial analysis and targeted engagement with a Project Working Group (PWG).

This project aimed to identify and prioritise place-based opportunities to:

- adapt to the regional impacts of climate change causing water insecurity, as well as heat vulnerability across the Western Metropolitan Region.
- improve health and wellbeing outcomes for western communities through irrigation of public open space with alternative water and greener open spaces.
- contribute to urban cooling, healthier urban waterways, and healthier Country by mitigating the impact of discharges to waterways.
- enhance cultural values in priority open spaces.

Project outputs

The final project outputs comprised of:

- a spatial database of 347 alternative water open space irrigation opportunities across the GWW service region.
- an online web dashboard that provides a visual presentation of opportunities (the spatial register), allowing users to interact with the data, and obtain attribute information by clicking on specific opportunities (Figure 1).
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- concept designs for four priority projects (example in Figure 4).
- a spatial database and process to embed Traditional Owner cultural values into GWW's Portfolio and Project Management Framework (PPMF) (Figure 5).

Images of project outputs are documented in the figures below.

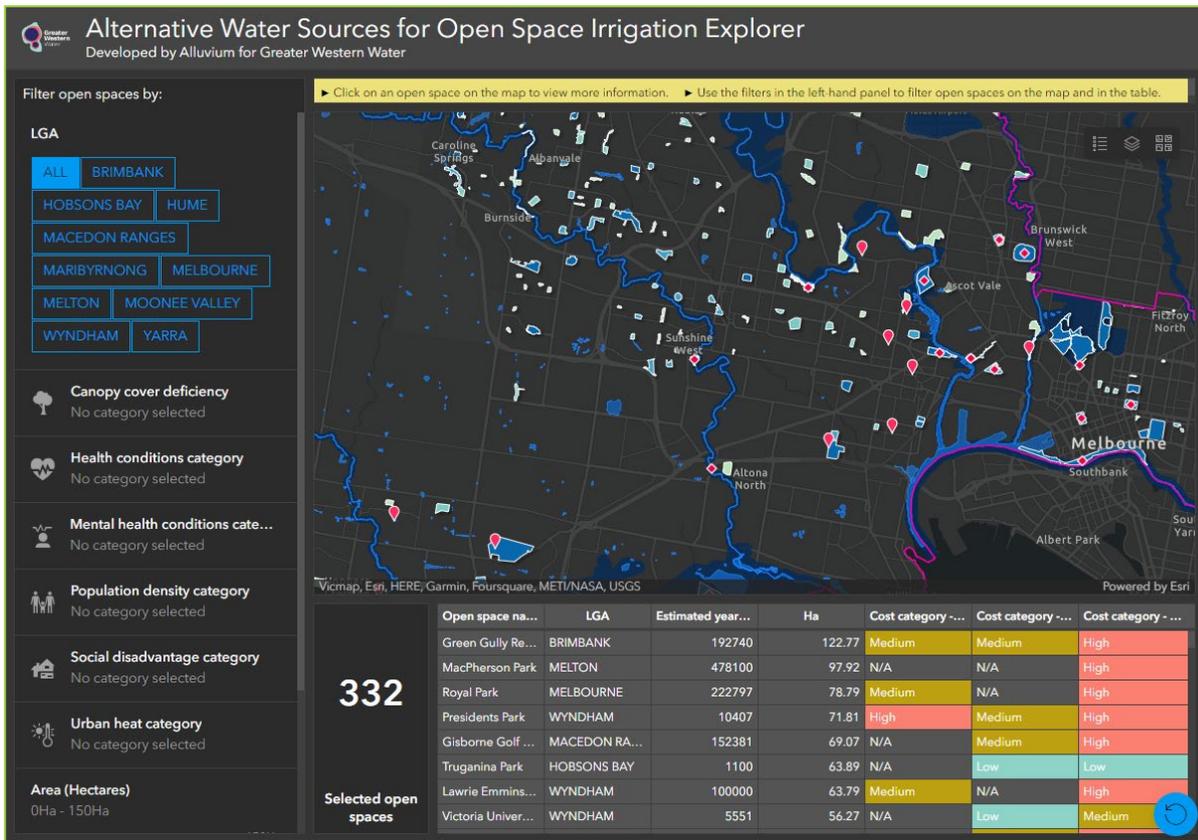
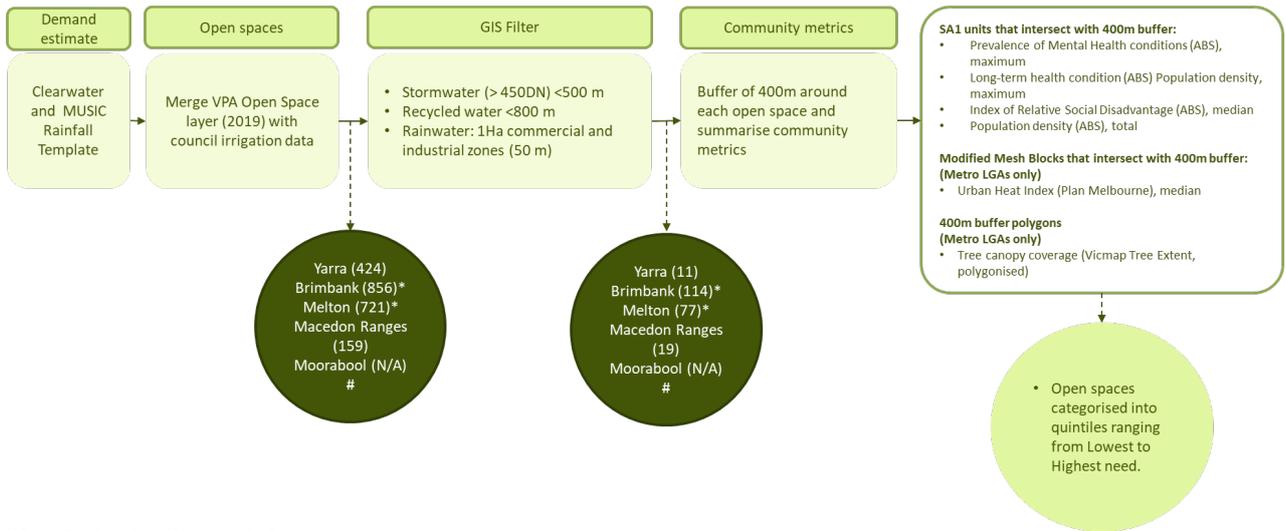


Figure 1. Screenshot of the online web dashboard of opportunities.

Open space name	LGA	Ha	Open space type	Understanding	Priority	Proposed water source	Estimated yearly irrigation volume (KL)	Irrigation estimation method	Total social/ community need score
Footscray Park	MARIBYRNONG	14.31	Active	idea	high	stormwater	32,420	Supplied data	16
Koroit Creek (Learmonth to Wright)	BRIMBANK	3.23	Passive	concept	medium	stormwater	5,164	Clearwater	17
Butterfly Boulevard Drainage Reserve	WYNDHAM	5.55	Passive	concept	medium	stormwater	8,700	Clearwater	13
Lincoln Heath Reserve	WYNDHAM	3.30	Passive	idea	medium	stormwater	5,180	Clearwater	18
Melton Botanic Garden	MELTON	15.85	Passive	idea	low	stormwater	54,990	Clearwater	21
Fairbairn Park	MOONEE VALLEY	24.29	Active	concept	high	stormwater	38,150	Supplied data	11

Figure 2. Assessment and prioritisation of opportunities



*Melton City Council and Brimbank City Council were filtered to remove semi natural reserves, schools and open spaces with less than 1ML/year water demand.
#Due to insufficient data, long list analysis for Moorabool Shire Council was not feasible.

9

Figure 3. Process flow diagram of approach to identify and assess opportunities

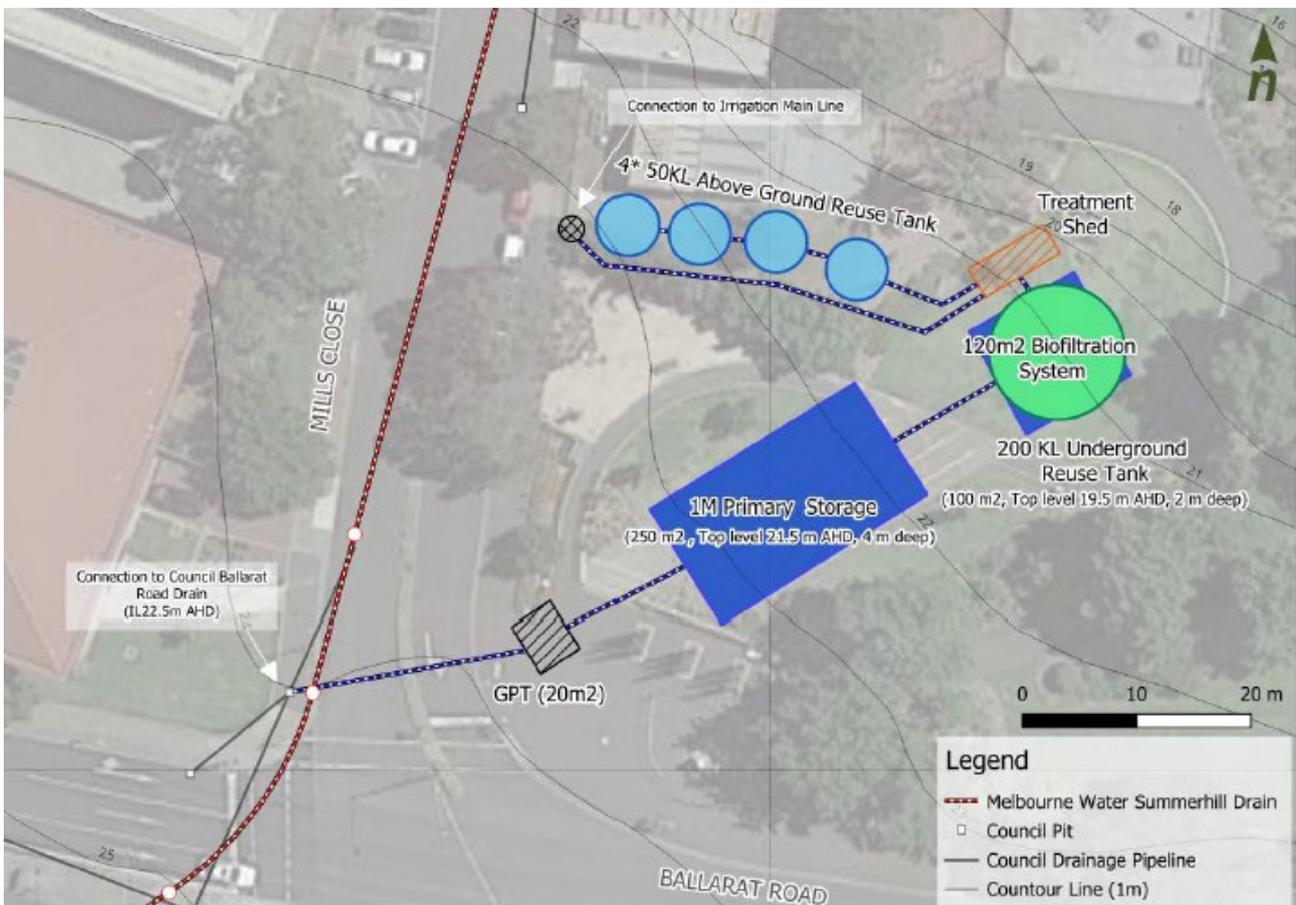


Figure 4. Concept design for a stormwater harvesting scheme at Footscray Park

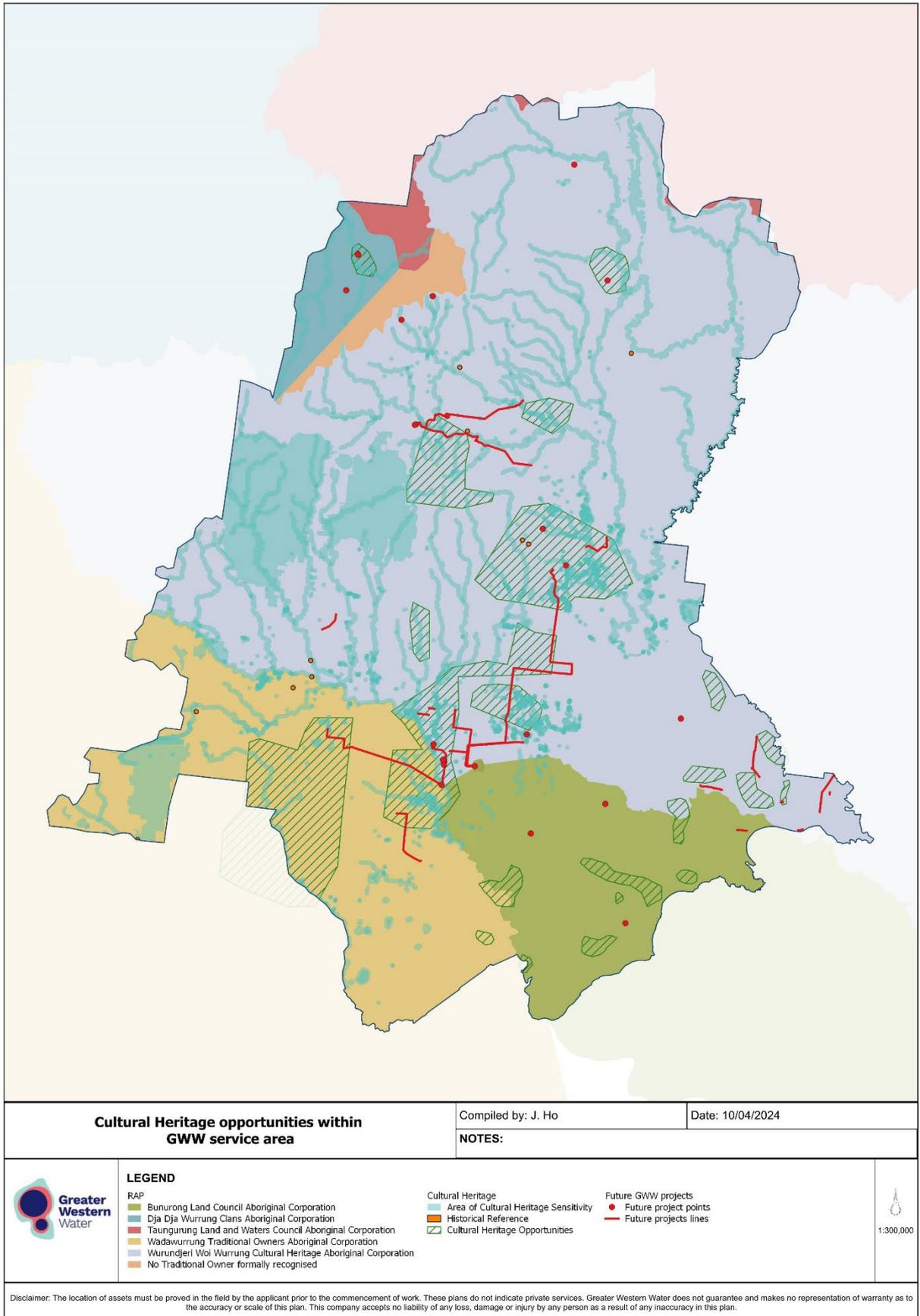


Figure 5. Traditional Owner cultural values spatial dataset

Project Delivery

Approach

The project was undertaken over four stages. These are set out in Figure 6. The important elements that shaped and contributed to the project approach included:

- An emphasis on stakeholder engagement commencing with the preparation of an engagement plan that identified the PWG, other stakeholders, their roles and planned engagement activities such as:
 - Workshop #1 that established the project’s data and information requirements.
 - Workshop #2 where Council stakeholders contributed their non-potable irrigation opportunities directly to the draft webpage.
- The development of a spatial register that included publicly available information, Council data and suitable data to evaluate the social impact of identified opportunities.
- A preliminary assessment of opportunities based on water saved, feasibility and social impact.
- Presentation of a draft dashboard (including the preliminary assessment) to stakeholders and a webpage update based on PWG feedback.

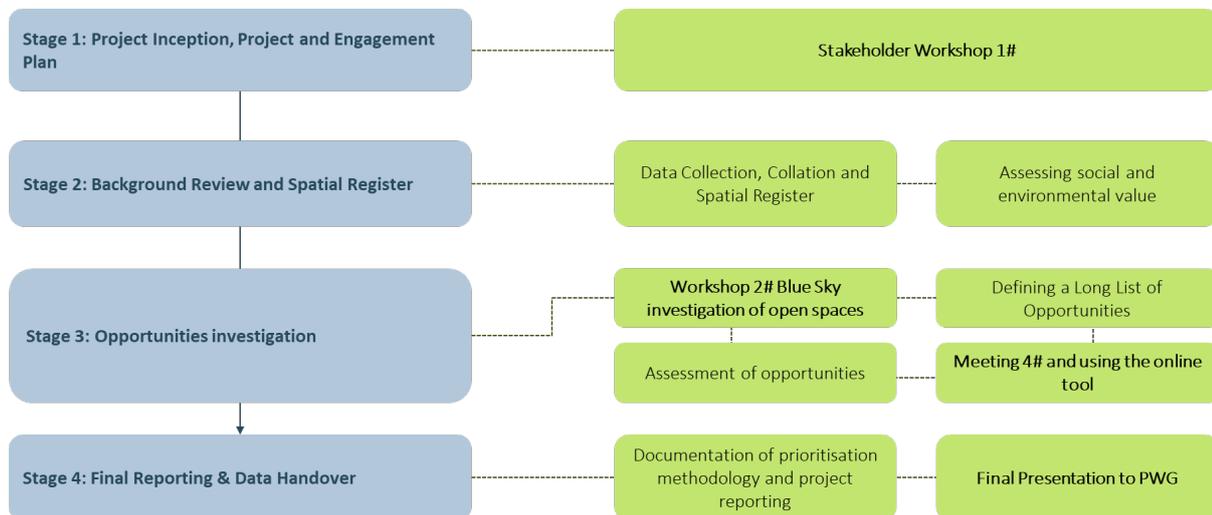


Figure 6. Project approach and key milestones

Governance and collaboration

This project is a collaboration between GWW, State and Local Governments that share a common interest in realising the outcomes and targets within the Catchment Scale IWM Plans. These stakeholders were invited to join a Project Working Group (Table 1) that were involved from the project’s inception through to the delivery of the project outputs.

Through the process of engagement, stakeholders sought to be involved at the ‘Collaborate’ level, according to the IAP2 Public Participation spectrum. The reason for this is that stakeholders provided meaningful input over the course of the project that shifted the scope of the work to better suit the needs of stakeholders. They also contributed directly to the content on the webpage and the type of information that the webpage would present. While the community were not directly engaged through this project, community values were provided by PWG members (particularly council) to inform the prioritisation of opportunities.

Table 1. Project governance and key stakeholders engaged through the Project Working Group

Name and title	Organisation/Department	Purpose / Role and phase of Project
Project Lead (Delivery Partner)	GWW	Chair of Project Working Group Project manager Responsible for project initiation, planning, delivery, and closing.
Representative from Local Councils in the GWW area.	Melton City Council Moorabool Shire Council Hume City Council Wyndham City Council Hobsons Bay City Council Maribyrnong City Council Brimbank City Council Moonee Valley City Council City of Melbourne Yarra City Council Macedon Ranges Shire Council	Project Working Group member (through self-nomination). Support delivery of all aspects of the project
Integrated Planning (or other) representative	Melbourne Water	Project Working Group member
IWM Representative	Southern Rural Water	Key stakeholder – engaged at key workshops
Metropolitan IWM Team representative		Key stakeholder - Contribute to the Initiation, planning and closing (recommendations to Catchment Scale IWM Action Plans) of the project
Project manager, Open Space for Everyone	DEECA	Optional Project Working Group member
Registered Aboriginal Parties	Dja Dja Wurrung Clans Aboriginal Corporation Wadawurrung Traditional Owners Aboriginal Corporation Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation	Key stakeholder – engaged through individual meetings

Challenges and response

One of the key challenges in delivering this project was aligning the project outcomes with the priorities of a diverse and wide-reaching range of stakeholders engaged in this project. Objectives and priorities vary greatly across this region and as such, the approach taken for this project was not to identify the 'best' opportunity but rather to focus on providing a central source of information that can support place-based decision-making and collaboration now and into the future.

Additionally, in engaging with Traditional Owners, there were challenges with ensuring that the project was informed and guided by the aspirations of the Registered Aboriginal Parties (RAP) groups, while working within the constraints of their resourcing capacity as well as the bounds of the scope and budget of this project. Considered and targeted engagement was critical as was adopting a flexible approach to project scoping and delivery.

Outcomes and Recommendations

Outcomes

The outcomes of this project can be considered in terms of both process and output. Beyond the project outputs outlined above, the outcomes of the project can be considered as benefits to process and planning. The project:

- established a platform for engagement and collaboration between agency stakeholders and local governments.
- provided a central repository of information to aid planning as well as a process for identifying potential future opportunities.
- assessed opportunities and the value of open spaces by their potential contribution to the socio-economic factors of the surrounding community such as urban heat, canopy cover, social disadvantage, prevalence of physical and mental health conditions.
- feeds directly into GWW's proposed Stormwater Harvesting Partnership Fund, which aims to co-fund and co-deliver priority stormwater harvesting projects across the GWW service region.
- will inform the consideration of Traditional Owner cultural values in GWW's framework for planning and delivering infrastructure capital projects.

COVID-19 and the corresponding lockdowns highlighted the importance of high-value open spaces, particularly in densely populated, urbanised areas of Melbourne and the inequality of access particularly in lower socio-economic suburbs such as those in the west. Green open spaces that provide recreation, meeting places and contribute to urban cooling are essential for a vibrant and thriving community. Water is an essential enabler in supporting the health and function of open spaces and identifying opportunities to meet this demand through alternative water sources will help to ensure the resilience of these open spaces into the future.

Lessons learned

Some key lessons learned throughout the process of this project, include:

- Meaningful and considered stakeholder engagement throughout the project's lifecycle was critical to its success. Key elements of this include:
 - understanding how external operating conditions may affect stakeholders' ability to collaborate.
 - establishing clear expectations and a shared vision around the scope and process of the collaboration.
 - ensuring all stakeholder groups are appropriately represented to provide a diverse range of perspectives and experiences.
 - providing collaborative platforms that enable honest and meaningful discussions, and facilitate relationship building.
 - a flexible and adaptable approach to project scoping to ensure alignment with stakeholder priorities and buy-in across the board.
- A strategic and considered approach to engaging with Traditional Owner groups is required to ensure that the financial and temporal constraints of a funding grant such as this one can align with the availability and capacity for Traditional Owner groups to participate in a meaningful way.

