

# **Five Year Action Plan: 2020/21 – 2024/25 for the Integrated Water Management Strategy 2040**

**Adopted August 2020**

## **Relevant Documents**

**D20/289595; Integrated Water Management Strategy 2040 – Towards a Water Sensitive City**

# Moreland's 5 Year Integrated Water Management Action Plan 2020/21-2024/25

The five-year Action Plan identifies the individual actions necessary to set us on the path to achieving the IWM outcomes identified in the Integrated Water Management Strategy 2040 -Towards a Water Sensitive City. The actions presented in the Action Plan below are tailored to address each outcome area and ensuring that a balanced and comprehensive approach is taken. Some actions are ongoing, and some are one off activities. The combined efforts across many areas of Council is required.

The intent of the action plan is to ensure Moreland maintains a transition toward a Water Sensitive City. This is a journey that began with the inception of Watermap 2020 and is a journey that will continue to 2040 and beyond. The identified outcomes are long term outcomes for 2040 and actions will need to be revised and prioritised in order to maintain their relevance to the outcomes over time.

Projects and costs are defined including the action's contribution towards delivering the outcomes and vision for the IWM Strategy 2040.

The implementation plan will be reviewed annually to ensure the actions remain relevant.

## Action Plan Prioritisation

Actions have been designated as either High, Medium or Low. This assessment is based on the action's:

1. Contribution to the outcome
2. Benefit to the community
3. Capital outlay
4. Ability to attract external funding
5. Alignment with other council strategies and priorities
6. Co-benefits provided by the action (such as mitigation of the Urban Heat Island Effect, increased community amenity)

Several of our advocacy, partnership and delivery actions apply to the whole of the municipality and are listed below.

## Financial Implications

To give our stakeholders an indication of the level of indicative funding that Council is committing, but also the level of support required from our partners we have outlined the indicative costs below. Estimated costings of each action are outlined in the Action Plan.

The total estimated cost of the five-year Action plan is \$5,478,000. Council has, as per the previous Strategy, pre-committed approximately half of this funding. In transitioning to a Water Sensitive City, additional funding will be required in future years. This will be sought by the standard Council budget process and/or external funding. Council has previously enjoyed successful partnerships with both Melbourne Water and DELWP, who have contributed significant funding to specific projects to aid their delivery. Council will continue to actively seek external grant funding for operational or capital projects, partnering with external agencies for the mutual benefit the health of our waterways and actively reducing water consumption.

Financial Year	Pre-committed Fund \$ for IWM in Sustainable Built Environment Unit		Subject to Business Case across council * and/or external funding\$		Estimated Additional Maintenance cost per year (subject to business case)	Comments
	Opex	Capex	Opex	Capex		
2020-2021	60,000	150,000	0	0	NA**	100% Funded
2021-2022	60,000	550,000	325,000	295,000	NA**	Partnership opportunities with Melbourne Water and DELWP for grant funding
2022-2023	60,000	550,000	110,000	905,000	NA**	
2023-2024	60,000	300,000	45,000	745,000	39,000	
2024-2025	60,000	550,000	20,000	555,000	39,000	
<b>Sum</b>	<b>300,000</b>	<b>2,100,000</b>	<b>500,000</b>	<b>2,500,000</b>	<b>78,000</b>	<b>5,478,000</b>

\*Additional Funding is required to achieve the targets.

\*\* The maintenance cost will apply once the assets are constructed

## Outcome 1: Collaborating in a Water Sensitive City

No.	Most Relevant Indicator	Action Summary	Timing	Lead Unit	Support Unit	Priority	Estimate \$ (000's)	Resources
<b>LEADERSHIP AND GOVERNANCE</b>								
1.1	The overarching Outcomes of Leadership and Governance apply to all other Outcome areas and success in all other indicators will be enhanced through implementation of Leadership and Governance related actions	Continue the IWM Steering Group supported by an IWM delivery Working Group	2020-2025	Sustainable Built Environment	IWM delivery Working Group <sup>1</sup>	High	Existing Base	Existing Base
1.2		Develop an IWM project governance framework including sign off and hold points, handover, maintenance budgeting and documentation requirements.	2020-2022	Sustainable Built Environment	IWM delivery Working Group	High	Existing Base	Existing Base
1.3		Actively seek alternative funding sources that leverage existing council funding and align and support the delivery of this plan	2020-2025	Sustainable Built Environment	IWM delivery Working Group	High	Existing Base	Existing Base
1.4		Building on the Melbourne Water Living Rivers Project "Embedding Successful WSUD Asset Management - Gap Analysis", develop and embed a WSUD Project Management and Asset Management process across council	2020-2021	Sustainable Built Environment	IWM delivery Working Group	High	15	Existing Opex- Partnership with Melbourne Water and Monash City Council
1.5		Undertake WSUD asset condition audit for small and large assets	2021-2022	Asset Management Unit and Sustainable Built Environment	Open Space Maintenance	Med	70	Subject to Opex Business Case
1.6		Develop a business case for dedicated WSUD maintenance funding tied to asset delivery and capitalisation of individual assets	2021-2022	SBE	Asset Management	Med	Existing Base	Existing Base
1.7		Develop a business case for dedicated WSUD renewal funding tied to asset delivery and capitalisation of individual assets	2021-2022	Asset Management and Sustainable Built Environment	Sustainable Built Environment /Asset Management Unit	Med	Existing Base	Existing Base
1.10		Develop rolling IWM implementation and delivery plan (detailed, costed and prioritised) with consideration to flood mitigation	2020-2025	Sustainable Built Environment	IWM delivery Working Group	High	50	Subject to Opex Business Case
1.11		Develop internal IWM policy or Environmental Sustainable Infrastructure for all capital works	2022-2023	Sustainable Built Environment	IWM delivery Working Group	High	Existing Base	Existing Base
1.12		Develop a system (or review process) to undertake quarterly review and reporting of water consumption using utility billing data.	2020-2021	Sustainable Built Environment	Procurement (Utility Management Officer)	High	Existing Base	Existing Base
1.13		Develop a plan for utilising and target water quality monitoring, such as Merri Creek Management Committee (MCMC) Waterwatch <sup>2</sup> , to give us a better understanding of changes and impacts	2021-2022	Sustainable Built Environment	Open Space Design and Development	Med	50	Subject to Opex Business Case
1.14		Develop staff training program for all relevant aspects of IWM planning, design, operation and maintenance including site tours and other relevant knowledge sharing	2020-2021	Sustainable Built Environment	IWM delivery Working Group	Med	Existing Base	Existing Base

<sup>1</sup> Sustainable Built Environment, Open Space Design and Development, Open Space Maintenance, Transport, Engineering, Sustainable Communities, Urban Design, Street Cleansing, Aquatic and Leisure Services, Urban Design, Asset Management, Capital Works Design and Delivery, Strategic Planning

<sup>2</sup> <https://www.mcmc.org.au/get-involved/community-citizen-science-water-monitoring>

1.15		Provide specialist WSUD support to design, delivery and maintenance teams	2020-2025	Sustainable Built Environment		High	Existing Base	Existing Base
1.16		Collaborate with inner city councils to share knowledge and drive local actions identified in the Yarra and Maribyrnong IWM Forum activities	2020-2025	Sustainable Built Environment /Open Space Design and Development	IWM delivery Working Group	High	Existing Base	Existing Base
1.17		Preparing 10 year action plan for Integrated Water Management Strategy	2020-2021	Sustainable Built Environment	IWM delivery Working Group	High	Existing Base	Existing Base
1.18	Indicator 1: Working with others improves IWM outcomes	Participate in the Moonee Ponds Collaboration to drive beneficial outcomes for Moonee Ponds Creek	2020-2025	Open Space Design and Development	Sustainable Built Environment	High	Existing Base	Existing Base
1.19		Work with CASBE to better integrate the uptake of integrated water management in Planning	2020-2025	Sustainable Built Environment	Strategic Planning and Amendments	Med	Existing Base	Existing Base
1.20		Continue Collaboration with academic institutions on WSUD research and emerging technologies	2020-2025	Sustainable Built Environment	Urban Design/Open Space Design and Development	Med	Existing Base	Existing Base
1.21		Collaborate with Melbourne Water to support the development of the Yarra Strategic Plan and Maribyrnong Strategic Plan	2020-2025	Sustainable Built Environment /Open Space Design and Development	IWM delivery Working Group	high	Existing Base	Existing Base
1.22		Work with CASBE, DELWP, MAV and others to advocate for the STORM water sensitive urban design planning assessment tool upgrade	2020-2025	Sustainable Built Environment	Strategic Planning	Med	Existing Base	Existing Base
1.23		Work with the EPA and Melbourne Water to identify and control illegal discharge events and ensure appropriate compliance	2020-2025	Sustainable Built Environment and Open Space Design and Development	Street Cleansing	High	Existing Base	Existing Base
1.24		Advocate for better management of upstream development sites to reduce sediments/pollution in Merri Creek	2020-2025	Open Space Design and Development	Sustainable Built Environment	High	Existing Base	Existing Base
1.25		<u>Engage and consult with Traditional Owners in the development phase of future projects and catchment scale planning.</u>	2020*2025	Sustainable Built Environment	Open Space Design and Development	High	Existing Base	Existing Base
1.26		Implement recommendations from Moreland's Nature Plan.	2020*2025	Open Space Design and Development	Sustainable Built Environment	High	Existing Base	Existing Base

## Outcome 2: Resilient and Liveable Landscapes

No.	Most Relevant Indicator	Action Summary	Timing	Lead Unit	Support Unit	Priority	Estimate \$ (000's)	Resources
2.1	Indicator 2.1 Increase urban tree resilience supported by water	Investigate the inclusion of passive irrigation systems for all newly planted council trees as part of capital works (e.g. tree planting program) to support tree health and canopy density to increase cooling.	2020-2025	Open Space Maintenance and Sustainable Built Environment	Open Space Design and Development	High	30	Existing Capex- Partnership with Melbourne University and Melbourne Water
2.2		Develop standard design detail and technical note for passive irrigation systems	2020-2021	Open Space Design and Development	Sustainable Built Environment /Urban Design	Med	Existing Base	Existing Base
2.3	Indicator 2.3 Reduce extent of flooding	Continue to upgrade Council's stormwater drainage network to meet 20% average exceedance probability levels of service	2020-2025	Engineering Services	NA	High	Existing Capex	Existing Capex
2.4		Consider flood management opportunities when planning WSUD and IWM (e.g. integrating stormwater harvesting with smart tank technology or water for biodiversity with flood mitigation)	2020-2025	Sustainable Built Environment /Engineering Services	Capital Works Delivery	High	Existing Base	Existing Base
2.5	Indicator 2.2 Increase permeability Indicator 2.4 Reduce urban heat load	Finalise and promote the Green Infrastructure Guidelines for new development	2020-2021	Sustainable Built Environment /Urban Design	Urban Planning	High	Existing Base	Existing Base
2.6		Develop a Green Streets Guideline to include WSUD, Passive irrigation, permeability and Urban heat considerations	2021-2022	Urban Design	Sustainable Built Environment /Open Space Maintenance/Open Space Design and Development	Med	50	Subject to Opex Business Case
2.7		Piloting and trialling - Undertaking a pilot project on using pervious asphalt on one of the MCC carparks and implementing a small-scale green roof project	2021-2025	Urban Design/ Open space Design and Development	Sustainable Built Environment	Med	50	Subject to Capex Business Case
2.8		Investigate the inclusion of WSUD/Passive irrigation in urban streets - particularly as part of road surface, drainage renewal and carpark renewal	2020-2025	Engineering Services	Asset Management	High	50	Subject to Opex Business Case

## Outcome 3: Wise Water Use

No.	Most Relevant Indicator	Action Summary	Timing	Lead Unit	Support Unit	Priority	Estimate \$ ('000's)	Resources
3.1	Indicator 3.1 Reduce Council's mains water use	Undertake review of the efficiency of irrigation systems, including operation and maintenance identify needs, gaps and opportunities for improvement	2021-2022	Open Space Maintenance	Sustainable Built Environment	High	Existing Base	Existing Base
3.2		Upgrade Centralised Irrigation Control System	2021-23	Open Space Maintenance	Sustainable Built Environment	Med	400	Subject to Capex Business Case
3.3		Investigate sustainable water options for sportsfield (e.g. turf types and irrigation volume, turf and soil health and soil moisture monitoring))	2022-2023	Open Space Maintenance and Sustainable Built Environment	Sustainable Built Environment	Med	80	Subject to Opex Business Case
3.4		Continue to deliver water efficiency retrofits and rainwater tanks on Council buildings as part of planned refurbishment/extension works	2020-2025	Building Projects	Sustainable Built Environment	High	Existing Capex	Existing Capex
3.5		Continue to deliver water efficiency upgrades across Moreland's aquatic centres and identify opportunities to reduce leakage from ageing infrastructure	2020-2025	Sustainable Built Environment	Aquatic & Leisure Services	Med	Existing Capex	Existing Capex
3.6		Renovating aquatic centres and utilising water efficient systems such as Ultra Fine Filtration in Coburg Leisure Centre (2020/21) and Fawkner 2024/25	2020-2025	Aquatic & Leisure Services	Sustainable Built Environment	Med	Existing Capex	Existing Capex
3.7		Embed water efficiency into facility upgrades ensuring early consideration of water efficient systems and operations (e.g. Fawkner Leisure Centre)	2020-2025	Aquatic & Leisure Services	Sustainable Built Environment	Med	Existing Capex	Existing Capex
3.8	Indicator 3.2 Increase council alternative water use	Review opportunities for current stormwater harvesting schemes to provide water for water trucks	2020-2025	Sustainable Built Environment	Open Space Maintenance	Med	Existing Base	Existing Base
3.9		Deliver functional design and construction of two new stormwater harvesting projects from prioritised schemes (DeChene & McDonald Reserve, Dunstan Reserve) and complete functional concept design and business case of a further one (e.g Jones/Allard Park)	2021-2025	Sustainable Built Environment	Open Space Design & Development/ Open Space Maintenance/ Sportsfield Maintenance	High	2,400	Partially funded. Needs additional budget subject to capex business case and/or external funding- Business case will include identification of ongoing maintenance costs – expected to be in the order of \$12,000/year for two systems
3.10	Indicator 3.3 Reduce community water use	Work with water corporations and other partners to support the community to achieve T155 <sup>3</sup> (155L person/day)	2020-2025	Sustainable Built Environment	Community Engagement	Med	Existing Base	Existing Base
3.11		Advocating for using rainwater tanks in households and continue to support implementation of rainwater tanks in new developments through the planning permit process (including enforcement cement as needed)	2020-2025	Sustainable Built Environment	Urban Planning	High	Existing Opex	Existing Opex

<sup>3</sup> <https://www.water.vic.gov.au/liveable/using-water-wisely/target-155-target-your-water-use>

## Outcome 4: Healthy Waterways

No.	Most Relevant Indicator	Action Summary	Timing	Lead Unit	Support Unit	Priority	Estimate \$ (000's)	Resources
4.1	Indicator 4.1 Reduce stormwater pollutant loads and flow volumes discharged to receiving waters Indicator 4.2 Increase provision of water for biodiversity	Undertake functional design and costing of identified large scale WSUD projects e.g. Somerlayton, AG Gillon Reserve Precinct (AG Gillon Reserve, Gilpin Park, Clifton Park, Raeburn Reserve, Brunswick Park), Fran Street wetland or Box Forest retarding basin	2020-2024	Sustainable Built Environment	Open Space Maintenance	High	240	Partially funded. Needs additional budget / Capex and/or external funding
4.2		Deliver three large scale WSUD Projects to benefit water quality and biodiversity e.g. Westbreen Creek Masterplan (Gavin Park), Somerlayton, Fran Street wetland or Box Forest retarding basin	2020-2025	Open Space Design and Development/Sustainable Built Environment	Sustainable Built Environment /Open Space Maintenance/Open Space Design and Development	High	1900	Subject to Capex Business Case and/or external funding- Business case will include identification of ongoing maintenance costs – expected to be in the order of \$15,000/year for three wetlands.
4.3		Plan and deliver street scale WSUD through all relevant capital projects	2020-2025	Urban Design	Sustainable Built Environment /Open Space Maintenance/Open Space Design and Development	High	Existing Capex + Business Case	Business case will include identification of ongoing maintenance costs
4.4		Develop a framework guideline for WSUD treatment opportunities and integrate into technotes	2021-22	Urban Design	Sustainable Built Environment /Open Space Maintenance/Open Space Design and Development	High	30	Subject to Opex Business Case
4.5		Implement the Litter and Gross Pollutant Action Plan including the delivery of at source litter prevention programs and new litter prevention devices <sup>4</sup>	2021-25	Street Cleansing/Sustainable Built Environment	Capital Works Delivery/ / Open Space Design and Development /Sustainable Communities	High	100	Subject to Business Case Opex/Capex and/or external funding
4.6		Continue to undertake proactive maintenance of all litter prevention devices	2020-2025	Street Cleansing	N/A	High	Existing Base	Existing Base

<sup>4</sup> The plan is being prepared at this stage and it will be finalised by March 2021

## Outcome 5: Community Embracing Water Sensitive Urban Design

No.	Most Relevant Indicator	Action Summary	Timing	Lead Unit	Support Unit	Priority	Estimate \$ (000's)	Resources
5.1	Indicator 5.1 Increase uptake of water sensitive urban design in new development, 5.2 Reduced flow volume conveyed from new development and, 5.3 Increased uptake of rainwater tanks in existing development	Support increased community and school involvement in water management and waterway health through expanded support for schools and early learning centres (i.e. ResourceSmart and the MCMC Waterwatch program incursions/excursions etc), and community initiatives (e.g. facilitated by Merri Creek Management Committee) to reduce plastic pollution in the environment	2020-2025	Sustainable Communities	Sustainable Built Environment	Med	Existing Opex	Existing Opex
		Continue to support a community engagement program for water (Support through MCMC Waterwatch)	2020-2025	Sustainable Built Environment	Sustainable Communities	Med	Existing Base	Existing Base
5.2		Continue to undertake IWM in SDAPP to align with C22.08 and VC154	2020-2025	Sustainable Built Environment	Sustainable Built Environment /Engineering Services	High	Existing Base	Existing Base
5.3		Review approach to stormwater management in new private developments and reviewing OSD Policy (C22.08, VC154)	2020-2025	Sustainable Built Environment/ Engineering Services	Urban Planning/Engineering Services	High	Existing Base	Existing Base
5.4		Refine planning and building compliance processes to ensure effective implementation of WSUD tools and stormwater runoff is appropriately managed in new developments	2020-2025	Planning and Enforcement/Sustainable Built Environment	Urban Planning/ Sustainable Built Environment	High	Existing Base	Existing Base
5.5		Undertake a permeability study to identify levels of permeability across the city and develop public realm permeability target (implement through streetscape WSUD)	2022-2023	Sustainable Built Environment	Open Space Design and Development	High	60	Subject to Opex Business Case
5.6		Investigate the potential to develop a stormwater offsets policy in line with current State Government policy directions	2020-2022	Sustainable Built Environment	Strategic Planning and Amendments	Med	Existing Base	Existing Base
5.7		Investigate the implications of permeability in reviewing the ESO and preparation of an SBO surrounding Council drains	2020-2022	Strategic Planning and Amendments	Sustainable Built Environment	Med	Existing Base	Existing Base

# Key Stormwater Harvesting and WSUD Projects

The five-year Action Plan includes a range of initiatives, programs and projects under the five key outcomes, with clear focus on making meaningful and demonstrable progress to transitioning to a water sensitive city. They have all been developed in close collaboration with the teams listed in the Policy Context/Strategic Alignment section.

The opportunities in Moreland vary in scale, likely cost and complexity. While a range of preliminary desktop investigations have been undertaken by Alluvium 2014, Alluvium 2017, DesignFlow 2017, and E2Designlab 2019, detailed studies are yet to be undertaken for identified opportunities.

Prioritised projects, presented below are based on initial screening investigations, coupled with discussions across Council. A detailed cost benefit assessment needs to be undertaken together with detailed feasibility studies. project planning where feasibility is identified, functional design, refined costs and benefits will be undertaken during the course of the next 5 years to enable a greater level of detail to inform future funding bids (business cases for Council funding or external grants). All schemes are considered as viable opportunities for this stage in the concept development process and further optimisation is likely to unlock greater benefit potential for some schemes.

The margin for error with cost estimates is of particular note given the significant increase in capital costs experienced across Council civil works programs in recent times. This has primarily occurred as a result of the major infrastructure projects being delivered by the State Government (LXRP, Metro, Westgate Tunnel, etc).

Some of the key highlights are outlined below, noting that we have followed a similar approach to the previous Watermap Strategy of prioritising delivery of 2 stormwater harvesting projects and 3 water quality/WSUD projects. Council has previously been very successful in securing funding from external parties and will continue to actively seek external grant funding for operational or capital projects, partnering with external agencies for the mutual benefit the health of our waterways and actively reducing water consumption.

## *Stormwater Harvesting Projects*

Moreland is well positioned to take advantage of the broad range of stormwater harvesting opportunities across the city. Moreland has many sites with preliminary indications showing promise for successful stormwater harvesting schemes.

There are three key interrelated necessary for stormwater harvesting schemes:

- an appropriately sized stormwater catchment (water available for harvesting)
- an appropriate location for water treatment and storage
- a suitable demand.

Over the next five years, Council will deliver two new stormwater harvesting and/or upgrade existing ones and complete design and business case for two further projects.

Recommended priority projects include:

1. Dunstan Reserve Stormwater Harvesting (design and construction)
2. DeChene and McDonald Stormwater Harvesting Scheme (design, business case development; delivery subject to business case and/or external funding)

Combined, delivery of these two projects can provide a further 18.1ML of stormwater for reuse. This can help reduce Council's drinking water consumption by approximately 4%.

There are other projects that will be investigated in the next 5 years, including those that ensure we are maximising the efficiency of and upgrading existing SWH projects:

1. Scoping of upgrade works - Mutton Reserve
2. Scoping of upgrade works - Sewell and Hosken Reserves
3. Scoping of CB Smith Upgrade (300kL tank at CB Smith and capture the drainage off the 2 grounds)

## *Water Quality/WSUD*

Over the next five years, we will deliver/investigate the following Stormwater Quality/WSUD priority projects

1. Gavin Park Wetland Construction (Westbreen Creek) (funded by Open Space Design and Development and with a Melbourne Water Living Rivers Grant)
2. Passive Street Tree Trial, with Melbourne University
3. Embedding WSUD Asset Management Cross Council Capability Project
4. Somerlayton/Moomba Park - design and business case development
5. AG Gillon Reserve Precinct (AG Gillon Reserve, Gilpin Park, Clifton Park, Raeburn Reserve, Brunswick Park) – Investigation, design and business case development
6. Upgrading of the Jones Park wetland to supply water for irrigation at Jones / Allard Park – Investigation, design and business case development

Of the design and business case development identified above, Council will seek additional funding through the business case process and/or external funding applications to support implementation of two of these projects (in addition to Gavin Park Wetland) over the course of the five-year Action Plan.

## DeChene and McDonald Park

A combined scheme supplying DeChene and McDonald reserves provides an excellent opportunity. The 116ha catchment is large and there is also a relatively significant demand of 14ML per year. Integrating a treatment wetland in the Merri Creek corridor would further enhance the potential of this scheme by adding a biodiversity aspect. The current concept requires relatively long pipe runs between various infrastructure components. While this may represent the best option, and is considered viable, rationalising the distances between these elements would be beneficial if possible.

Recommendation: Pending favourable business case outcomes this project is a priority for construction. It is highly recommended that this opportunity is developed to functional and detailed design and business case development. With clarification of key functional elements this project has high potential. Understanding the biodiversity potential can further articulate the benefits of this project.

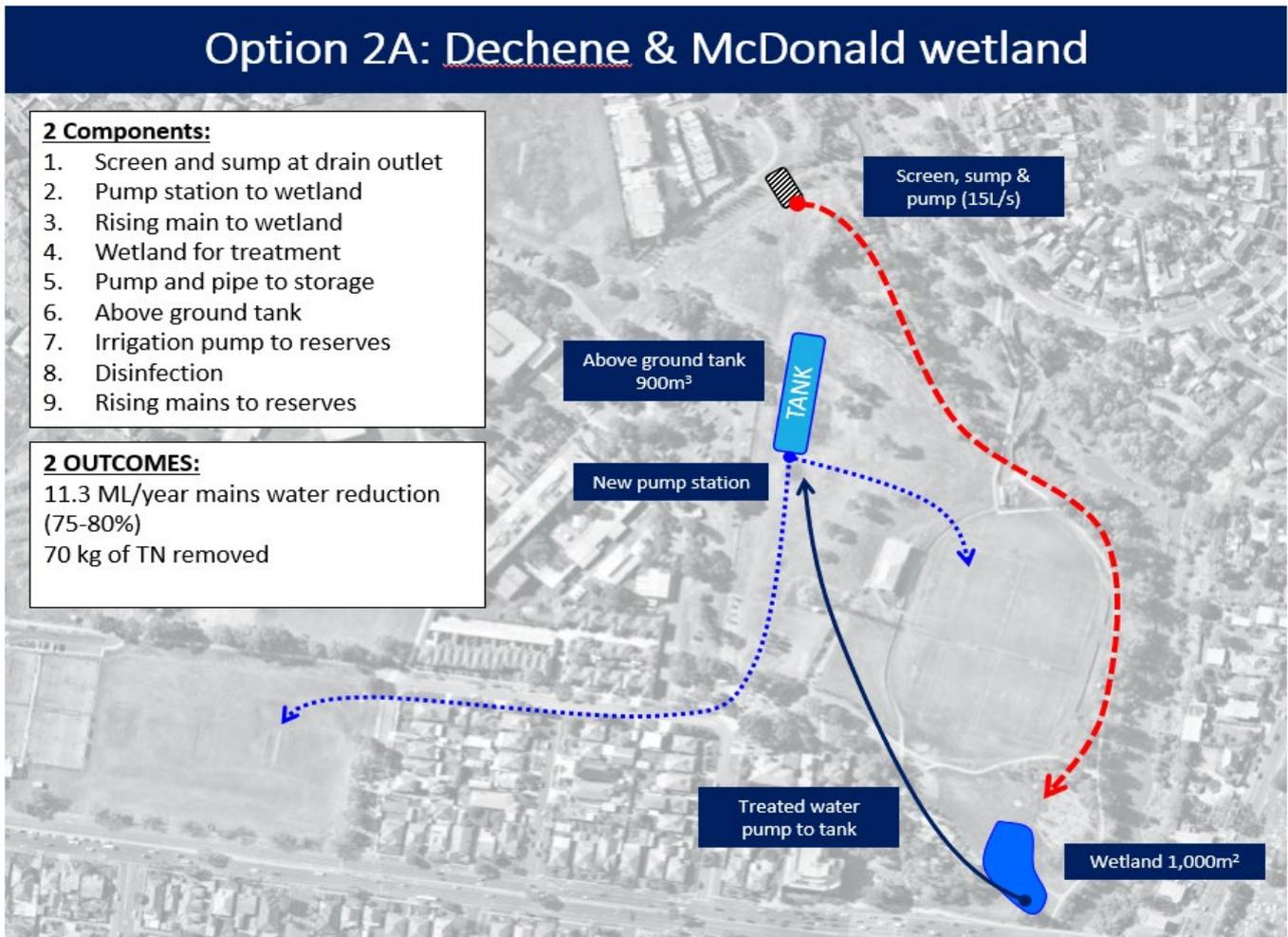


Figure 11. Dechene and McDonald Stormwater Harvesting Opportunity (Designflow 2017)

## Dunstan Reserve

Dunstan Reserve is located near a large stormwater catchment. The reserve has a demand of approximately 10ML and has available space to locate treatment and storage infrastructure. This site has relatively few constraints and as a mid-sized project is likely to be affordable while also delivering a high reliability alternative supply to the identified locations. It can also provide meaningful contribution to targets.

Recommendation: Pending favourable outcomes during functional design and business case development, this project is a priority for construction.

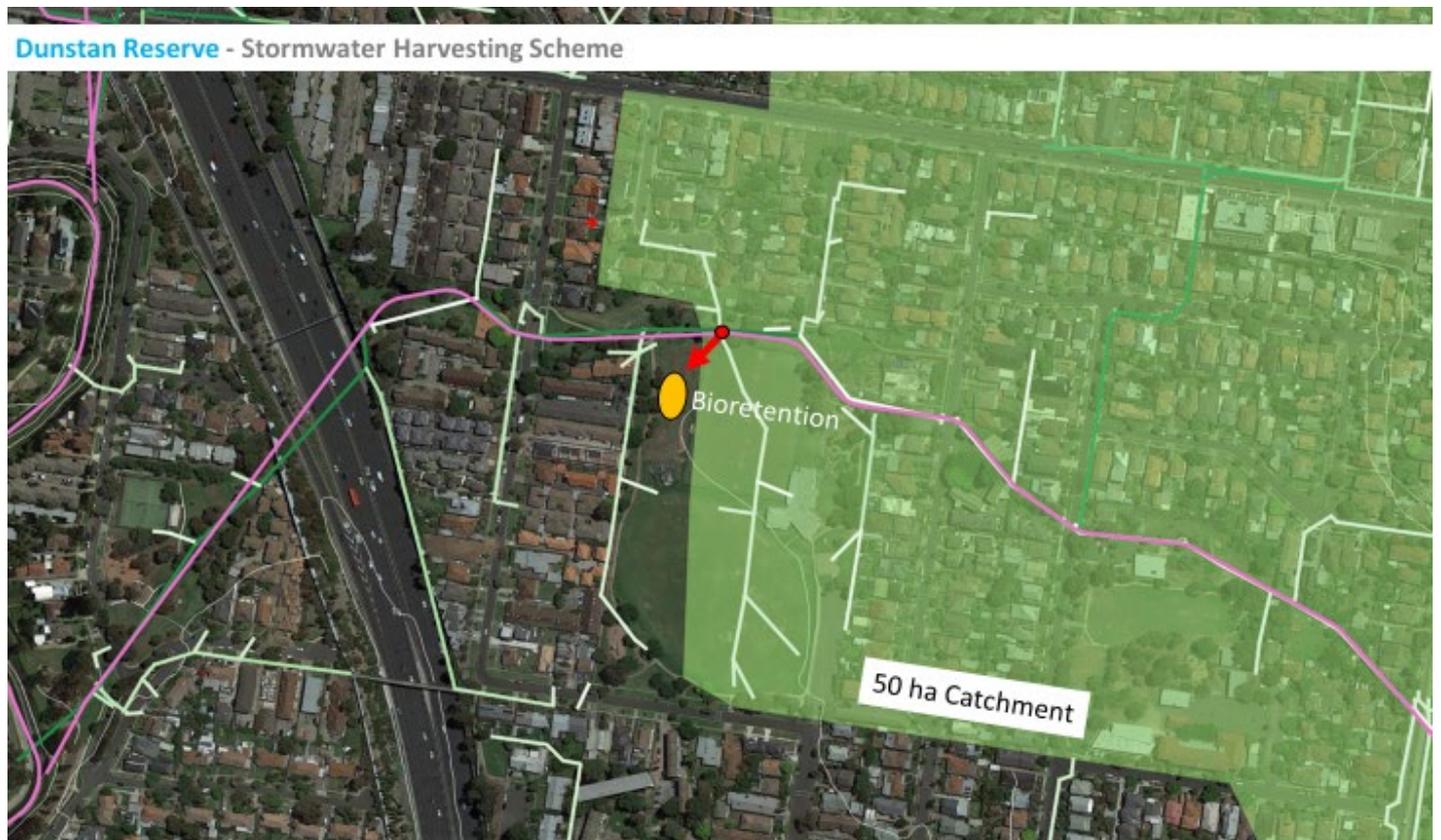


Figure 8. Dunstan Reserve Stormwater Harvesting Opportunity (investigation 2014)

## Jones and Allard Park

A recent wetland upgrade at Jones Park has also included conceptual design and allowances for a future stormwater harvesting scheme. The proposed scheme would deliver 2.5ML of harvested stormwater to Jones Park for irrigation purposes. This is a relatively small volume given what may be possible at this location. The available catchment is around 63 ha and there is a demand of approximately 9ML across Jones and Allard Parks. A bigger scheme providing a larger volume of alternative water could therefore be viable at this location. Working within existing infrastructure opportunities would need to be balanced against developing a larger scheme with greater investment. Further analysis is needed to determine the greatest return on investment for this site especially considering potential soil contamination issues. There is sufficient information to confirm that this location has good potential as a minimum to deliver a 2.5ML scheme.

Recommendation: It is highly recommended that this opportunity is reviewed and re-evaluated as a larger opportunity. Functional design and business case should be developed followed by detailed design.



Figure 9. Jones and Allard Park Stormwater Harvesting Opportunity with potential to include Allard Park (Investigated 2017)

## AG Gillon Reserve and the Brunswick Precinct

Concept investigations were undertaken for AG Gillon Reserve in 2014. The original concept preferred a small-scale stormwater harvesting scheme. Subsequent review has identified that the scheme could be made considerably more viable through the developed of a new concept. The original concept would include a range of sunk costs with a relatively small yield potential. The concept as it stands does not recognise the broader potential of the area which is situated within a highly valued sporting and recreation precinct that has significant irrigation needs. By taking a precinct view of this location economies of scale and greater benefits could be realised. The fundamental elements of sufficiently sized catchment, available space for treatment and storage infrastructure and a large demand are all present within the precinct. These elements make it likely that a large-scale stormwater harvesting scheme is viable and cost effective in this location. The estimated demand for the Brunswick Precinct is 36 Megalitres per year and the site would provide a very significant contribution toward alternative water source targets and building resilience to climate impacts and improving the level of service into the future.

Recommendation: It is highly recommended that this opportunity is reviewed and re-evaluated from the context of a precinct opportunity. Development of functional design and business case could raise the profile and priority of this project.

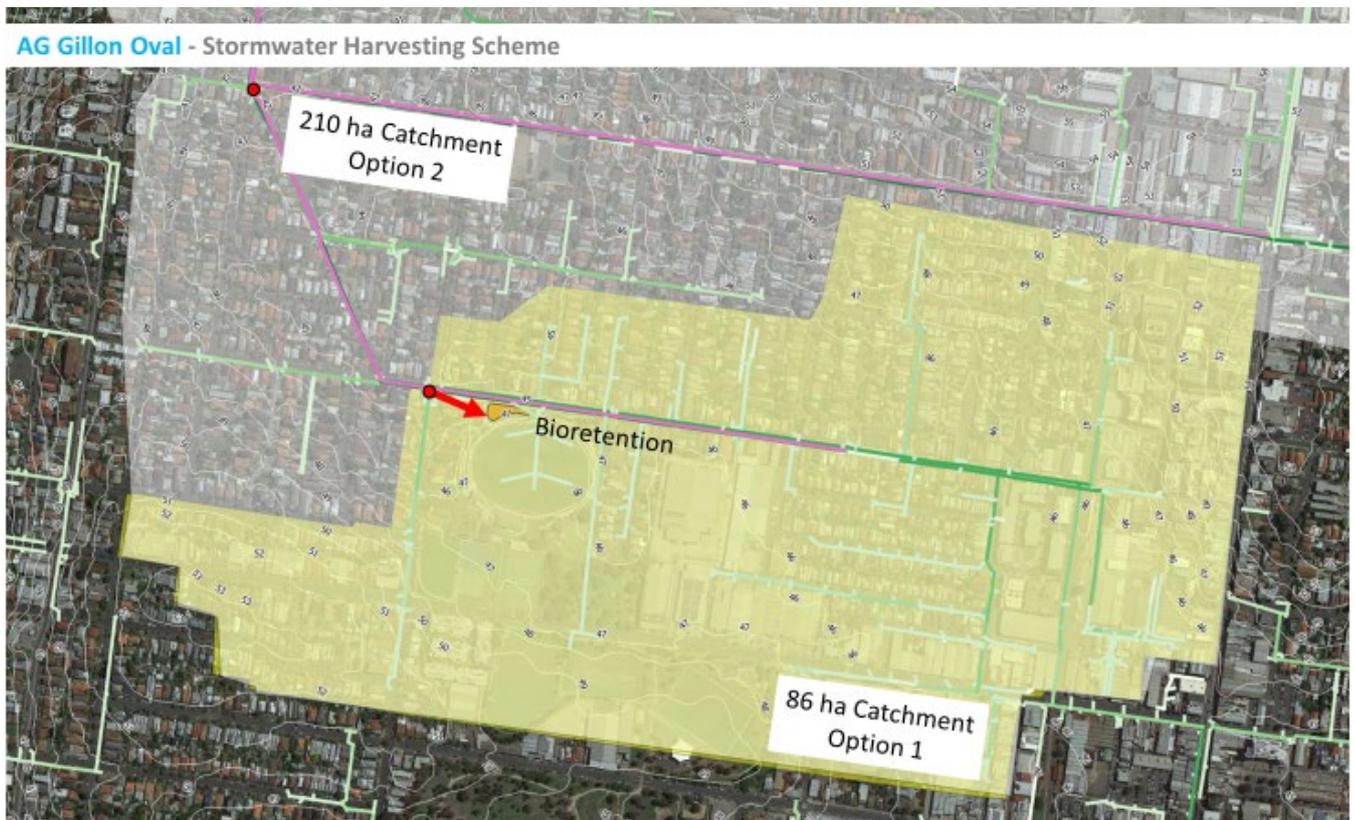


Figure 6. AG Gillon Stormwater Harvesting Opportunity with potential to upscale for greater benefit (investigation 2014)

## Westbreen Creek Conservation and Development Plan Opportunities

The Westbreen Creek Conservation and Development Plan<sup>5</sup> identifies a range of opportunities to rehabilitate the creek corridor. This involves opportunities to install raingardens and wetlands along the creek which have the potential to support biodiversity, mimic more natural characteristics along an urban waterway and improve water quality.

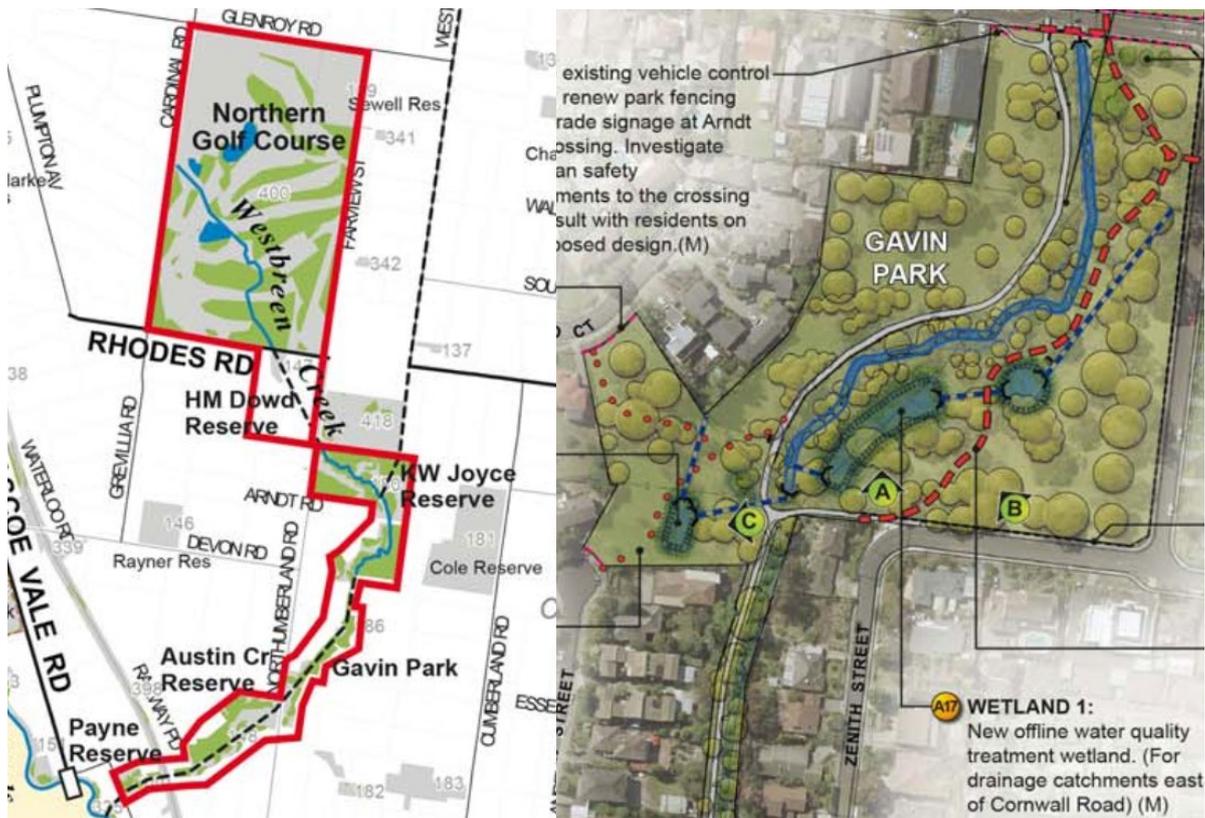


Figure 12. Westbreen Creek Conservation and Development Plan Opportunities

<sup>5</sup> <https://www.moreland.vic.gov.au/about-us/projects/park-playground-and-creek-projects/westbreen-creek-conservation-and-development-plan/>

## Cole Reserve

Cole Reserve is located relatively close to a large stormwater catchment. The irrigation needs of the park are approximately 16ML and available space for treatment and storage infrastructure appears to be available. The main constraint with this potential scheme is the distance between the stormwater harvesting location and the park however, while this will increase pipe infrastructure costs, it is not considered to result in an unviable scheme. Accessing the Melbourne Water Main Drain to harvest stormwater may also include some challenges. There is a strong likelihood that this scheme could provide a cost-effective alternative water source with respectable yield and high reliability. This site would provide a significant contribution toward alternative water source targets and improve resilience.

Recommendation: It is recommended that this opportunity is developed to functional design and business case development. With clarification of key functional elements this project has high potential.



Figure 7. Cole Reserve Stormwater Harvesting Opportunity (Investigation 2019)

## Moomba Park

Two options were identified for harvesting stormwater for Moomba Park. Both options could supply the park with an alternative water supply and would also provide added biodiversity benefits including providing potential habitat for the endangered Growling Grass Frog. Moomba Park has a demand of approximately 7ML and both identified options would provide a similar yield of 5.4ML per year. In evaluation of this project it is important that consideration is given to the ecological benefits that can be delivered alongside the water saving and water quality improvement benefits.

Recommendation: It is recommended that this opportunity is developed to functional design and business case development. With clarification of key functional elements this project has high potential. Understanding the ecological potential of this project could increase priority ranking.

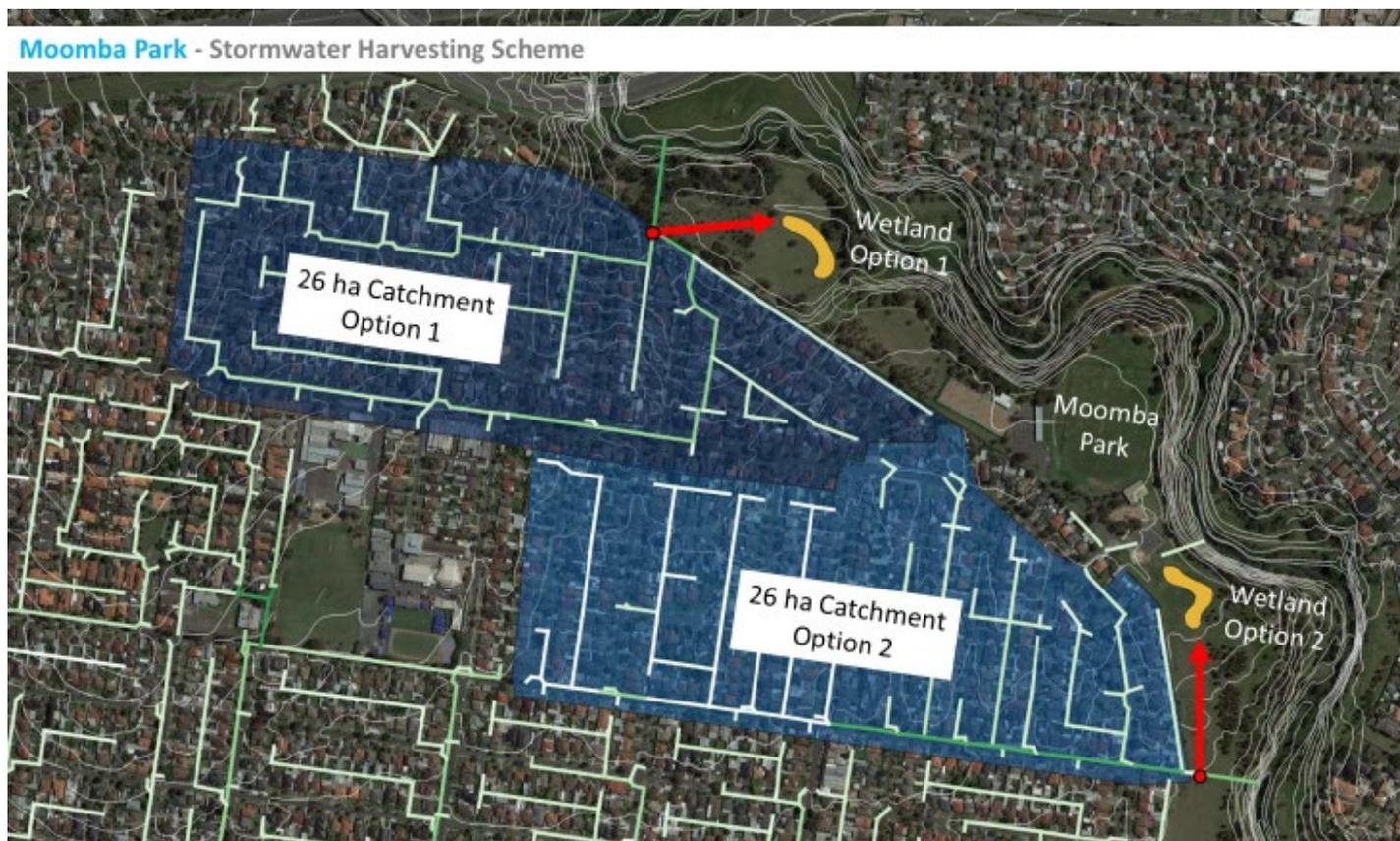


Figure 10. Moomba Park Stormwater Harvesting Opportunity (investigated 2019)

Table 1. Stormwater Harvesting Concept Options Comparison

Project Name	AG Gillon Reserve	Cole Reserve	DeChene & McDonald	Dunstan Reserve	Jones and Allard Park	Moomba Park
Prioritisation	5	4	1	2	3	6
Description	Stormwater harvesting opportunity for AG Gillon Reserve. Significant potential to upscale to serve key reserves in the Brunswick Precinct (36 ML demand) exists. Revisiting this concept is highly recommended with potential to be an iconic stormwater harvesting opportunity	Stormwater Harvesting opportunity to supply 12ML/yr with high reliability	Stormwater Harvesting opportunity to supply a 11.3ML/yr with high reliability and biodiversity benefits	Stormwater Harvesting opportunity to supply a 6.8ML/yr with high reliability	Stormwater Harvesting opportunity with potential to expand to adjacent oval. Includes opportunity to leverage off the newly upgraded wetland.	Stormwater Harvesting opportunity to supply a 5.4ML/yr demand with high reliability and significant biodiversity benefits
Location	AG Gillon Oval, Pearson St, Brunswick VIC	2 Valerie St, Pascoe Vale VIC 3044	193 Urquhart St, Coburg VIC 3058	20 Peacock St, Brunswick West VIC 3055	14 Albion St, Brunswick East VIC 3057	26 Somerlayton Cres, Fawkner VIC 3060
Concept Author	Alluvium 2014	E2Designlab 2019	DesignFlow 2017	Alluvium 2014	Alluvium 2017	E2Designlab 2019
Treatment type	Bioretention	Bioretention	Wetland	Bioretention	Wetland	Wetland
Total area	4 m <sup>2</sup>	350 m <sup>2</sup>	1000 m <sup>2</sup>	18 m <sup>2</sup>	1000 m <sup>2</sup>	1800 m <sup>2</sup>
Harvesting	Yes	Yes	Yes	Yes	Yes	Yes
Stormwater drain location	450mm drain, 0.9m deep, corner of Pearson and Whitby St)	57 Cornwall Rd, Pascoe Vale VIC 3044	1 Manna Gum Ct, Coburg VIC 3058	900mm drain, 1.9m below the surface, Bakers Parade and Wales St.	14 Albion St, Brunswick East VIC 3057	52 Somerlayton Cres, Fawkner VIC 3060
Landowner	Council	Council	Council	Council	Council	Council
Diversion drain	Council	Melbourne Water	Melbourne Water	Melbourne Water	Council	Council
Catchment	Moonee Ponds Creek	Moonee Ponds Creek	Merri Creek	Moonee Ponds Creek	Merri Creek	Merri Creek
Area	4.7 Ha (can upscale)	190 ha	140 ha	50ha	48.5 ha	26 ha
Treatment performance						
TSS <sup>6</sup>	83%	91%	-	91%	40%	85%
TP <sup>7</sup>	64%	68%	-	50%	29%	72%
TN <sup>8</sup>	73%	57%	70 kg/yr	47%	12%	48%

<sup>6</sup> Total Suspended Solid (TSS)

<sup>7</sup> Total Phosphorus

<sup>8</sup> Total Nitrogen

## Harvesting performance

Irrigation Demand	A G Gillion Oval	Cole Reserve	McDonald Reserve, DeChene Reserve	Dunstan Reserve (soccer pitch and oval)	Allard Park	Moomba Park
Total demand	7	16	14	10	3	7
Total reuse vol	4.7 ML/yr	12 ML/yr	11.3 ML/yr	6.8 ML/yr	2.5 ML/yr	5.4 ML/yr
Storage tank	350 kL	1100 kL	900 kL	500 kL	100 kL	400 kL
Diversion pump	2 L/s	40 L/s	15 L/s	2 L/s	400 L/s	30 L/s
Equipment shed	10 m <sup>2</sup>	10 m <sup>2</sup>	10 m <sup>2</sup>	10 m <sup>2</sup>	10 m <sup>2</sup>	10 m <sup>2</sup>

## Financial<sup>9</sup>

CAPEX (\$)	\$2m-3m (estimate for precinct scheme)	\$1m-2m	\$1m-2m	\$1-1.5m	\$0.5m-1m	\$1m-1.5m
OPEX (\$/yr)	\$25,000	\$15,000	\$13,000	\$10,000	\$7,500	\$15,000
Summary	<p>The feasibility of creating a large-scale harvesting scheme for the numerous green spaces within this precinct should be explored.</p> <p>Some design challenges are expected with the stormwater diversion point and pumping to the precinct. Given the potential of this scheme it is recommended detailed investigation is undertaken for this opportunity.</p>	<p>This opportunity is a strong option for Council to significantly reduce its main water use (up to 12 ML/yr) through a new stormwater harvesting scheme. Some design challenges may need to be overcome with the diversion point in KW Joyce Reserve.</p>	<p>High value opportunity for the local community. This project can deliver a respectable yield and has added biodiversity opportunity.</p>	<p>This opportunity is a strong option for Council to reduce its mains water use (6.8 ML/yr) through a new stormwater harvesting scheme without many identified complexities. It is likely that the sizing of infrastructure (pumps and treatment area) will need to be refined upwards during functional design phase</p>	<p>The treatment wetland has just been finished. To limit disruption to the community and the wetland, it is suggested the harvesting element of this design is proceeded with shortly.</p>	<p>This opportunity is a good option for Council to reduce its main water use (5.4 ML/yr) through a new stormwater harvesting scheme without many identified complexities.</p>

<sup>9</sup> note: financial certainty for these projects requires revised concepts and development to function concept level. Costs have been expressed as a likely range based on the current level of certainty