

**Yarra's Intergated Water Management Plan  
Implementation Cost Projections - Year 1 to Year 5**

			Year 1 - 20/21	Year 2 - 21/22	Year 3 - 22/23	Year 4- 23/24	Year 5 - 24/25	Total Cost	Comments	
<b>Objective 1: Efficient and fit for purpose use of all water supplies</b>										
<b>Outcome: Reduction in potable water use within council operated facilities and parks</b>										
<b>1. Open space irrigation</b>										
1.1	Irrigation system efficiency	Identify and prioritise irrigation systems requiring upgrade based on age, condition and projected water saving								
		Through smart systems, adopt watering regimes that respond to environmental conditions (e.g. during low evapotranspiration and not before rain)								
		Establish leak detection and repair process								
		Undertake scheduled maintenance of irrigation systems								
		Engage external irrigation consultant to define works priority and ultimate irrigation processes								
1.2	Soil and playing surfaces	Implement measures that aim to increase the soil moisture content, and improve soil condition	\$ 40,000	\$ 40,000	\$ 40,000	\$ 40,000	\$ 40,000	\$ 200,000	Additional budget request every year	
		Implement based upon the highest priority spaces								
<b>2. Council buildings</b>										
2.1	Building efficiency and education	Retrofit council buildings with water efficient water appliances during building refurbishment and upgrades based on Water Efficiency Labelling and Standards (WELS) ratings								
		All new council buildings to meet industry best practice in water and energy consumption equivalent to 5 Star NABERS ratings								
		Educate staff on water use within buildings through information bulletins, posters and displays to inform user group								
		Investigate feasibility of green roofs on Council buildings for urban greening and heat reduction		\$ 25,000	\$ 25,000				\$ 50,000	
2.2	Alternative water resources	Investigate rainwater harvesting opportunities in existing Council buildings. Install where possible for non-potable purposes including toilet and irrigation								
		Continue to adopt Council's Environmentally Sustainable Development (ESD) policy such that all new Council buildings include rainwater harvesting for non-potable purposes such as including toilet and irrigation								
		Maintain information register on rainwater storage capacity within Council buildings								
<b>3. Leisure centres</b>										
3.1	Water efficiency measures	Install shower timers with limit in all recreation centre shower								
		Audit existing sand filters and replace where suitable to reduce water consumption		\$ 750,000	\$ 750,000	\$ 500,000		\$ 2,000,000	Budget has been requested for \$750,000 subject to approval	
		Installation of smart water meters to improve water use data, understanding of end uses to identify efficiency measures		\$ 30,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 36,000	Subject to budget funding	
3.2	Education and awareness	Compare water use to the benchmarking program for pools around Victoria being undertaken by the Centre for Economics								
		Continue education / collaboration on water use and behaviour change in conjunction with CWW								
		Educate staff through information, workshops and regular updates on water consumption data								
		Inform visitors of water use through posters and displays at centres								
3.3	Water re-use	Investigate the reuse possibility of pool backwash water at all swimming pools within Yarra's leisure centres								
<b>Outcome: Fit-for-purpose water reuse and alternative water opportunities identified</b>										
<b>4. Stormwater harvesting</b>										
4.1	Stormwater harvesting projects	Investigate the feasibility of stormwater harvesting opportunities across the municipality	\$ 20,000					\$ 20,000	Internal funding available. 1:1 match funding grant application successfully secured	
		Develop concept designs for the three highest priority locations	\$ 30,000					\$ 30,000	Internal funding available. 1:1 match funding grant application successfully secured	
		Implement one stormwater harvesting project per year upon the completion of that investigation		\$ 1,250,000	\$ 1,250,000	\$ 1,250,000	\$ 1,250,000	\$ 5,000,000	High level estimates, accurate figures will be provided post concept design. There are multiple promising avenues for external funding	
		Upgrade storage at the stormwater harvesting facility at Edinburgh Gardens	\$ 800,000					\$ 800,000	Total project cost is \$1,520,000 with 50% contribution from City West Water. Internal funding has been secured	
		Initiate discussion relating to reusing stormwater from the Alphington Wetlands for irrigation of Alphington Parks and surrounds.								
		Employ an IWM Officer an officer to deliver the stormwater harvesting program as well as the management of stormwater and drainage actions	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 600,000	Year 1 budget cut due to COVID-19. Can be resourced internally for half of year one and reconsidered during the mid-year budget review	
4.2	Partnerships, advocacy and collaboration	Collaborate with external stakeholders, including water authorities, to investigate funding opportunities for stormwater harvesting								
		Continuously investigate opportunities to embed Integrated Water Management principles and goals across all Council operations								
		Advocate to Development Victoria for alternative water opportunities for irrigation of open spaces within the Fitzroy Gas Work Redevelopment site								
		Advocate to Parks Victoria to investigate the feasibility of stormwater harvesting in Yarra Bend Park								
		Work with Melbourne Water to identify collaboration opportunities to improve the condition of City of Yarra waterways identified in the Healthy Waterways Strategy								
		Seek opportunities for funding from the Living Rivers Program for WSUD and stormwater harvesting projects								
		Advocate for Yarra's interests in the Melbourne Urban Stormwater Institutional Arrangements (MUSIA) review								
Develop guidelines for stormwater, drainage and groundwater management		\$ 50,000	\$ 50,000	\$ 50,000		\$ 150,000				

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**Objective 2: A resilient and effective drainage network that flows into healthy and valued waterways**

**Outcome: Improved function and effectiveness of drainage and stormwater assets**

5. Drainage assets									
5.1	Drainage asset assessment and data collection	<ul style="list-style-type: none"> <li>Survey, inspect and assess drainage infrastructure</li> <li>Collate the gathered information in suitable GIS layers</li> </ul>	\$ 165,000	\$ 165,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 630,000	Internal funding secured
5.2	Drainage upgrade and maintenance	<ul style="list-style-type: none"> <li>Develop a Drainage Asset Management Plan (DAMP), incorporating data gathered under Step 5.1</li> <li>Commence a brick drains inspection and renewal program</li> <li>Utilise flood modelling data and condition assessment to prioritise drainage asset upgrades</li> </ul>	\$ 1,100,000	\$ 1,100,000	\$ 1,100,000	\$ 1,100,000	\$ 1,100,000	\$ 5,500,000	\$100,000 for inspection and condition assessment and \$1,000,000 annually for maintenance and relining of brick drains

**Outcome: Quality of stormwater runoff into waterways is improved**

6. WSUD assets within the urban landscape									
6.1	Stormwater quality monitoring	<ul style="list-style-type: none"> <li>Undertake an assessment of stormwater quality runoff to identify water quality improvement locations and requirements.</li> <li>Identify possible and strategic locations and install pollutant capturing devices</li> </ul>		\$ 60,000				\$ 60,000	
6.2	Maintenance of existing WSUD	<ul style="list-style-type: none"> <li>Develop and implement a WSUD maintenance process and program according to best practice</li> </ul>			\$ 20,000			\$ 20,000	
6.3	Research and innovation	<ul style="list-style-type: none"> <li>Update the 2016 WSUD policy incorporating latest practices and technology</li> <li>Consider and incorporate new WSUD designs such as proposed by developers, research bodies, academic institutions into those guidelines as appropriate</li> </ul>		\$ 50,000				\$ 50,000	
6.4	WSUD in new developments	<ul style="list-style-type: none"> <li>Work collaboratively with developers on WSUD for new developments and Precinct Structure Plans to ensure new impervious surfaces are not directly connected to waterways</li> <li>Comply with Yarra Planning Scheme clause 12.03 &amp; 22.16 to ensure development does not increase the rate or quantity of stormwater, sediment or other pollutant entering the river</li> <li>Promote alternative resources in the construction and operation consumption of new building spaces as per planning clause 15.02</li> </ul>							

**Outcome: Impacts of flood are understood and mitigated**

7. Flooding									
7.1	Flooding	<ul style="list-style-type: none"> <li>Undertake municipality wide flood modelling and utilise the findings to develop a list of priority projects</li> <li>Partner with Melbourne Water to update:               <ul style="list-style-type: none"> <li>Land Subject to Inundation Overlay (LSIO) to reflect latest flood modelling</li> <li>Special Building Overlay (SBO) in accordance with results of updated flood modelling</li> </ul> </li> <li>Investigate the need for an online flood level warning system. Potentially collaborate with other Councils who have similar systems in place.</li> <li>Review of Flood Emergency Plan according to revised flood model as per flood management plan 2017</li> <li>Collaborate with State Emergency Services in responding to flooding</li> </ul>	\$ 60,000					\$ 60,000	Internal funding secured
								TBC	Subject to budgeting / funding
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Objective 3: An informed and responsible community benefitting from/enjoying a vibrant and sustainable landscape										
Outcome: The community is provided with healthy waterways and open space										
8. Open spaces and connectivity										
8.1	Open space provision	<ul style="list-style-type: none"> <li>Continue to provide a high level of service for open spaces of high value and in close proximity to residents</li> </ul>								
		<ul style="list-style-type: none"> <li>Create new local parks where possible in densely urbanised environments to achieve more green space</li> </ul>						TBC	Subject to budgeting / funding	
		<ul style="list-style-type: none"> <li>Identify irrigation opportunities for those spaces, particularly including rainwater from surrounding large roofs (if they exist)</li> </ul>								
		<ul style="list-style-type: none"> <li>Increased permeability in the design of open spaces to support infiltration. Consider also the inclusion of infiltration trenches as part of design to create 'no runoff' open spaces</li> </ul>								
8.2	Connectivity and linkages	<ul style="list-style-type: none"> <li>Create explicit community link to green open spaces by shading walking paths and well defined cycling tracks and paths to improve community access to open space</li> </ul>							TBC	Subject to budgeting / funding
		<ul style="list-style-type: none"> <li>Continual maintenance and condition improvement of existing paths and walkways along rivers and creeks</li> </ul>								
Outcome: Urban greening reduces the impact of urban heat										
9. Trees, canopy cover and urban heat										
9.1	Passively irrigated trees	<ul style="list-style-type: none"> <li>Maintain existing and established trees that provide habitat and shade promoting biodiversity and cooling within city (Planning Clause 15.01)</li> </ul>								
		<ul style="list-style-type: none"> <li>Investigate the inclusion of passive irrigation infrastructure for all newly planted Council trees (including investigating increased pervious surfaces around trees to capture more water)</li> </ul>		\$ 20,000				\$ 20,000	partnership with research institution - Melb Uni and ARC	
		<ul style="list-style-type: none"> <li>Use passive irrigation to support tree health and canopy density on city streets to increase cooling and encourage biodiversity</li> </ul>								
9.2	Retain water in the environment	<ul style="list-style-type: none"> <li>Investigate opportunities for WSUD in urban streets – particularly as part of road surface and drainage renewals - for stormwater treatment and passive irrigation of street trees</li> </ul>								
		<ul style="list-style-type: none"> <li>Investigate opportunities for green roofs on new Council buildings to contribute to reduced runoff and urban cooling</li> </ul>								
		<ul style="list-style-type: none"> <li>Trial new cooling methods in identified hotspots including green ground cover, canopy cover and increased permeability</li> </ul>		\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 200,000		
		<ul style="list-style-type: none"> <li>Work with the City of Melbourne to share urban heat island effect research outcomes</li> </ul>								
Outcome: Collaboration and knowledge sharing is enhanced										
10. Collaboration and knowledge sharing										
10.1	Knowledge and innovation	<ul style="list-style-type: none"> <li>Collaborate with inner-city councils to share IWM knowledge and how their work has been incorporated into policy and future planning requirements. Focus on involvement in the IWM Forum for Yarra</li> </ul>								
		<ul style="list-style-type: none"> <li>Work with DELWP by contributing data that will support target setting within the Yarra catchment as part of the IWM Forum process.</li> </ul>								
		<ul style="list-style-type: none"> <li>Improve interdepartmental communication at the project inception stage to incorporate IWM opportunities within building and infrastructure works</li> </ul>								
		<ul style="list-style-type: none"> <li>Continued collaboration with academic institutions on WSUD research and emerging technologies</li> </ul>								
		<ul style="list-style-type: none"> <li>Major project developments to meet City of Yarra's sustainability targets and planning requirements</li> </ul>								
10.2	Community	<ul style="list-style-type: none"> <li>Collaborate with Melbourne Water to support the development of the Yarra Strategic Plan</li> </ul>								
		<ul style="list-style-type: none"> <li>Share IWM objectives, actions and targets through awareness programs, community working groups, forums and meetings</li> </ul>								
		<ul style="list-style-type: none"> <li>Ongoing community consultation on specific IWM projects (e.g. Edinburgh Gardens), providing signage, fact sheets and case studies on sustainable water management on websites and onsite</li> </ul>		\$ 25,000				\$ 25,000		

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