# **Business Case**

# **Community involvement in waterways**

|  |  |
| --- | --- |
| Program Intent | Increased engagement and education about waterways. |
| Program Manager/Lead | Greg Bain, Manager - Community Engagement |
| Program Owner Group/Team/Section | Customer and Strategy  Community Engagement |

**Business case summary**

Community involvement in waterways 2021-26 (OPEX) program includes a range of initiatives that involve the community in waterways through education, volunteering opportunities, and utilising natural resources as valued open spaces, for an estimated cost of $2.7M from 2021-2026. Over the 2021 Regulatory Period, an increase from base expenditure of $2M is proposed to accommodate the program.

Drivers for this program include legislative obligations, strategic commitments at State Government and organisational level, and community driven desire for increased engagement and education about waterways.

**Table 1:** Community involvement in waterways program costs and benefits

|  |  |  |
| --- | --- | --- |
| **Program** | **Costs** | **Benefits** |
| Community engagement through citizen science programs and educational events.  **$140K per year** | Continue delivery of citizen science programs and community events including:   * Waterwatch, EstuaryWatch **($70K**), * Frog Census **($40K)** * Platypus Census **($12K)** * Waterbug Census **($10K)** * River Detectives school program **($8K)**. | Involvement of community and schools with citizen science projects, contributing data collection to inform management actions and increasing community understanding, stewardship and value of waterways. |
| New community engagement and education programs and activities  **$400K per year** | Waterway informational signage and infographics (including on-site interactive digital elements e.g., augmented reality) **$230K**  Web-based interactive digital media (e.g. virtual tours) **$100K**  Community events (e.g. waterway litter blitz) **$40K**  Targeted social media **$30K** | Involving the community in waterways through education, citizen science, events and interactive technologies engages the community as key contributors to their management, offsetting future maintenance and renewal costs as well as supporting increased community enjoyment of these spaces. |

**Program Objectives**

Involving the community in waterways through education, citizen science, events and interactive technologies engages the community as key contributors to the management of waterways, offsetting future maintenance and monitoring costs as well as supporting increased community enjoyment of these spaces.

**Program Drivers**

This program has been developed as an uplift from previous programs in response to the changing strategic and legislative context. The program also reflects additional demands on public open space resulting from urbanisation, increased community expectations and desire for Melbourne Water to improve our community engagement and education programs, as well as a new State Government emphasis on co-delivering regional strategies that requires increased participation and support from partner organisations and the broader community.

**Obligations**

There are a number of clear customer engagement and educational legislative obligations that Melbourne Water must comply with. These are outlined in the Water Act (1989) and the Water Industry Act (1994).

*Water Act 1989*

**S92:** **Functions, powers and duties of water corporations**

(2) In addition to any other functions conferred on a water corporation by or under this or any other Act, a water corporation has the functions of—

(b) educating the community about its functions.

(2A) In performing functions conferred on it by or under this Act, a water corporation must consider opportunities to provide for the following, consistently with its objectives and the requirements conferred on it by or under this Act or any other Act—

(a) Aboriginal cultural values and uses of waterways.

(b) the social and recreational uses and values of waterways.

**S93: Sustainable management principles for water corporations**

Each water corporation, in performing its functions, exercising its powers and carrying out its duties must have regard to the following principles—

(a) the need to ensure that water resources are conserved and properly managed for sustainable use and for the benefit of present and future generations;

(b) the need to encourage and facilitate community involvement in the making and implementation of arrangements relating to the use, conservation and management of water resources; and

(d) the need for the conservation of biological diversity and ecological integrity to be a fundamental consideration

*Water Industry Act 1994: Statement of Obligations*

**Part 4 Customer and Community Engagement**

**4-1: Customer Engagement**

* The Corporation must develop and make available to the public:

(b) open and transparent processes under which the Corporation will engage customers and the community in its planning processes to ensure that the services it provides reflect the needs and expectations of customers. This includes having regard to any guidelines issued by the Minister for that purpose.

**4-3: Information for Schools**

1. The Corporation must make available to schools in the area educational material about sustainable water resource management including information on:

(a) water supply;

(b) sewage and recycled water;

(c) water conservation and the efficient and responsible use of water; and

(d) whole of water cycle management.

(applicable urban only)

1. The Corporation must make available to schools in the area educational material about sustainable water resource management including information on:

(a) bulk sewage;

(b) headworks; and

(c) waterway management, flood management, drainage. (applicable Melbourne Water only)

**Strategic Drivers**

These obligations are articulated and actioned through Melbourne Water’s Healthy Waterways Strategy (HWS). The strategy has been developed through engagement with the broader community (see figure 1) and includes a commitment to increase levels of community participation and involvement in waterways. This commitment is articulated in 4 Regional Performance Objectives and 66 sub-catchment Performance Objectives. This commits Melbourne Water to creating a more engaged and knowledgeable community and stakeholders.

The 2018 Healthy Waterways Strategy is the first to include specific performance objectives relating to social values of waterways, including community connection and involvement (see HWS pp. 40; 54).

The process of developing the Healthy Waterways Strategy was shaped by the threats and opportunities of population growth and rapid urbanisation, climate change, appreciation of cultural values, changing social values, desire to collaborate more closely, co-design to align and leverage efforts and a changing regulatory and policy environment. 

The Strategy collaboratively designed and determined: a vision, goals, waterway values, key values, waterway conditions, targets, performance objectives, an implementation framework and five tailored catchment programs for the Werribee, Maribyrnong, Yarra, Dandenong and Westernport catchments. These components and the Strategy were developed from Collaborative Design (co-design) using waterway labs, catchment collaboration workshops, volunteer groups, pop-up listening stations, stakeholder meetings, cups of tea and a project leadership team. Co-design was shaped by lessons from the past, scientific data, expertise and modelling, and stakeholders collective knowledge.

The process was informed by lessons from the Healthy Waterways Strategy 2013, Stormwater Strategy 2013 and state and federal policies. Scientific data, expertise and modelling consisted of a science panel, Habitat Suitability Modelling (HSM), conceptual models, a literature and data review, expert opinions (specialists), statistical analyses, Aquatic Value Identification and Risk Assessment (AVIRA) and the community perceptions of waterways survey. Stakeholders’ collective knowledge was gathered from community members, policy makers, Traditional Owners, on-ground practitioners, land managers, regulators, waterway managers, infrastructure authorities, service providers, planners and designers.**Figure 1:** Showing the range of stakeholders inputting into HWS performance objectives (including those relating to community involvement)

Other strategic government policy drivers for the program are outlined in table 2.

**Table 2:** Strategic government policy drivers

|  |  |
| --- | --- |
| **Policy** | **Direction** |
| **Water for Victoria** (administered by DELWP) | * Action 3.8: Support community partnerships and citizen science * Action 10.1: Improve engagement with customers and the broader community. |
| **Victorian Waterway Health Strategy**  (administered by DELWP) | * The Victorian Government will continue to support community participation in planning, implementation and monitoring activities for waterway management programs * The Victorian Government will continue to promote local action by supporting the work of individuals, community groups and other volunteer groups to maintain or improve the environmental condition of waterways. |
| **Victorians Volunteering for Nature** (Environmental Volunteering Plan,  administered by DELWP) | * Support delivery of the Plan and its focus areas of Sustain, Expand, Value and Understand. * Specific actions that our program delivers upon include;   + Offer a suite of ecological, technical and practical seminars, events, workshops and training activities   + Develop and extend citizen science projects to connect scientists with volunteers   + Continue to review, adapt and encourage modern technologies to improve the volunteer experience to make it more accessible and easier to participate. |
| **Victoria’s Biodiversity Plan 2037** (administered by DELWP) | * All Victorians connecting with nature; 5 million Victorians acting to protect the natural environment by 2037: * Raise the awareness of all Victorians about the importance of the state’s natural environment * Increase opportunities for all Victorians to have daily connections with nature * Increase opportunities for all Victorians to act to protect biodiversity * No vulnerable or near-threatened species will have become endangered. * Help to create more liveable and climate-adapted communities. |
| **Other relevant policies** | * Victorian Flood Management Strategy * Yarra Strategic Plan * Waterways of the West (draft) * Port Phillip Bay Environmental Management Plan * United Nations Sustainable Development Goals * The Plan for WaterWatch Victoria. |

**Customer Priority**

*Waterways and Drainage Investment Plan research and engagement*

Qualitative research as part of the Waterways and Drainage Investment Plan engagement process explored community perceptions, expectations, values and preferences in relation to the Waterways and Drainage Charge. Through 8 x 2-hour **focus groups** conducted by Newgate Research, customers noted:

* The proposal to increase support for education programs and community awareness campaigns about the value of healthy waterways was considered by all focus groups to be very important and likely to have flow-on benefits to Melbourne Water in the long-term.
* Some focus group participants spontaneously discussed the value in Melbourne Water focussing on prevention over cure, thus seeing the importance in research and planning to inform action, and further supporting increased community understanding of the impacts of their own behaviours on waterway health.

*Note: These focus groups included both metro and rural customers and were as far as possible representative of the demographics of Melbourne Water’s customer base.*

Support for increased investment in community involvement programs was also a key recommendation of the Waterways and Drainage **Customer Council** – a group of customers and partners (such as councils) convened over 18 months and deeply interrogating proposed expenditure and investment programs.

Outcomes of the quantitative **customer preference and** **willingness-to-pay** research as part of the Waterways and Drainage Investment Plan engagement process confirmed the qualitative information that the broader customer base supports increased investment in community involvement programs. All three cohorts of metro customers, rural customers and business customers indicated a willingness to pay for a higher level of investment in these programs.

*Healthy Waterways Strategy engagement*

Supporting these research findings, the 2018 Healthy Waterways Strategywas co-designed with key stakeholders and the broader community, including 630 individual participants representing 220 organisations and the broader public. The Strategy was developed through an engagement process that ran over two years and includes a commitment to increase levels of community participation and involvement in waterways. This commitment is articulated in 4 Regional Performance Objectives and 66 sub-catchment Performance Objectives.

Examples of sub-catchment Performance Objectives co-created by community members and sector partners include:

* Increase participation rates from low to high; support community groups / connect with growth area communities and **build capacity of business/industry through waterway health education**;
* Increase participation rates from low to high; support community groups and build capacity of landowners through rural programs. **Increase participation in citizen science though promotion of high value species in the region** (e.g. southern brown bandicoot).

Both these examples reflect a desire and expectation from engaged community that agencies further involve the community (and industry) in waterway management activities, and their belief that community have an important part to play as everyday custodians and active managers of waterways.

*State-wide citizen science program research*

The State-wide EstuaryWatch and Waterwatch Survey Report (First Person Consulting) conducted in 2020 with 185 citizen science volunteers in these programs indicated:

* There was a strong perception that Waterwatch and EstuaryWatch programs should contribute data across a range of environmental management issues
* Volunteers reported an increased environmental awareness, connection and stewardship as well as skill development and would like more:
  + interaction with the scientists using the data, and information about the results and impacts of the data collected
  + greater promotion of the program and calls for new volunteers to participate as citizen scientists
  + more training and increased number of workshops
  + Increased funding for the programs in general
  + Potential to expand the scope of projects and do further research and data collection

*Melbourne Water’s bi-annual Perceptions of Waterways survey*

Melbourne Water’s 2020 Perceptions of Waterways survey, using a sample of 1650 residents aged 18 and above in the Greater Melbourne region randomly recruited from an online research panel and conducted in between Stage 2 and Stage 3 COVID-19 lockdowns, showed a **significant increase** in the amount of people who said they **visit waterways for mental/emotional wellbeing** reasons. From this 2020 survey, satisfaction with waterways across the Greater Melbourne region is also the highest it has been since the inception of the Perception of Waterways study in 1993. While the desire for improved opportunities for community involvement in waterways beyond visitation was not measured in this survey, these results clearly indicate positive personal wellbeing effects from visiting waterways, and suggests an opportunity following COVID to leverage off strong satisfaction to engage more people in contributing to management outcomes.

**Program Background**

Through education and citizen science programs, Melbourne Water provides opportunities for the community to connect with their local environment and learn about the importance of these environments and associated values. This connection is integral in Melbourne Water’s management of community volunteers that are central to the collection of data to assist in waterway management and the protection of species like platypus, fish and frogs.

As is well supported by academic research, well-timed and relevant education and engagement programs helps increase participation in water management decisions (through improved water literacy) and motivates behaviour change to protect these natural resources (see Program Benefits section below for more detail). Spending time in nature also provides many public health benefits, including individual mental health benefits and collective reduction in public health system costs from reduced incidences of disease attributable to increased recreation activities (see Chapters 4 and 5 of 2019 Frontier Economics report *Health benefits from water centric liveable communities*).

Experience has also shown that involving the community in waterways through engagement and education is an effective and efficient approach for achieving waterway outcomes (managing litter; water quality, habitat and threatened species monitoring, revegetation and a range of other waterway management activities). An example of this is the role of citizen science monitoring which provides a cost-effective approach for the collection of occurrence records of common and widespread species across broad scales.

Community volunteering also provides many hours of unpaid work supporting on-ground waterway management and significantly improving the outcomes that would be possible if delivered by agencies alone. At a broad level, Victoria’s 1.5 million volunteers contribute millions of hours of unpaid work each year to their communities (projected to be worth around $42 billion by 2021) (Victorians Volunteering for Nature – DELWP’s Environmental Volunteering Plan 2019).

A comparison of program costs and outputs for the Frog Census, Platypus Census and eDNA collection and the Litter Action Project is provided in three case studies below. The benefit to Melbourne Water is quantified to show the cost efficiency of community-based data collection, compared to consultant effort. In addition to these cost savings, the community has contributed an estimated 19,900 hours in volunteer time by participating in these three programs.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Case study 1: Frog Census**  Citizen science monitoring can provide a cost-effective approach for the collection of occurrence records of common and widespread species across broad scales. Through the Frog Census app, participants can monitor frogs, which play an important role in waterway health, and collect data to help Melbourne Water manage frog populations and raise awareness of waterway health issues.  Frog Census volunteers, supported with expert call validations and educational resourcing and events, can cost significantly less than the use of commercial consultants per hour. This has represented a significant organisational benefit where widespread regional scale data collection for the Healthy Waterways Strategy is needed but consultant monitoring costs at that scale are prohibitive.   |  |  |  | | --- | --- | --- | | **Frog Census program 2016-21** | **Program costs and output** | **Projected consultant cost to MW for same effort (minimum estimate)** | | Program costs (5 years)\* | $170,000 |  | | Volunteer app reports (5 years) | 11,789 |  | | Average cost per report | $14 | $100/hour\*\* | | **Overall program cost comparison** | **$170,000** | **$1,178,900** |   \* Including engagement events, expert call validation and app hosting costs. *Excludes labour.*  \*\* Consultant acoustic frog monitoring using a similar approach ranges from $100 - $150 per hour (depending on seniority). *That does not include travel costs, data upload etc. Estimate based on one hour per record.* |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Case study 2: Platypus Census and Waterway CSI environmental DNA monitoring**  Platypus are now officially a threatened species and listed as vulnerable in Victoria. It is a species that Melbourne Water is obligated to protect. The Platypus Census includes a participatory citizen science program where volunteers collect water samples that are analysed for platypus environmental DNA (eDNA). This program provides presence/absence data to Melbourne Water. Volunteers are also supported with training, education resources and events are run for the wider community targeting awareness and behaviour change.  In addition to the Platypus Census, eDNA techniques were used for the Waterway CSI initiative, which upskilled citizen scientists and enabled them to collect eDNA samples for a one-off event in November 2020.  412 eDNA samples have been collected and analysed through these two programs and all data complements and adds to Melbourne Water’s existing data sets. The cost of engaging a consultant for the collection of samples alone is estimated to be a minimum of $206,400.   |  |  |  | | --- | --- | --- | | **Platypus Census eDNA and Waterway CSI 2017-21** | **Program costs and output** | **Projected consultant cost to MW (minimum estimate)** | | Program costs (4 years)\* | $42,000 |  | | eDNA samples collected | 412 |  | | Average cost per sample | $102 | $200/hour\*\* | | **Overall program cost comparison** | **$42,000** | **$206,400** |   \* Including engagement events, training and equipment for volunteers. *Excludes labour and eDNA analysis costs.*  \*\* Estimated one hour per sample collection. *Does not include travel costs, or eDNA analysis costs.* |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Case study 3: Litter Action Project**  For over three years, Melbourne Water ran a Litter Action Project supported by funding from DELWP’s Port Phillip Bay Fund. The project involved working with the general community, schools and environmental groups to conduct clean-ups and litter audits at litter hotspots in their local area. Data from litter audits was used to identify the most common litter items in the hotspot, which then informed the local action taken to reduce this key item.  This program engaged over 1,960 people and established 15 Litter Action Groups across Melbourne. It prevented more than 39,000 pieces of litter from entering waterways and Port Phillip Bay and implemented 15 initiatives to help prevent further litter entering waterways. Over 7,900 volunteers hours were contributed to this project. Our assessment shows that volunteers, supported with expert resourcing and events, can cost significantly less than the use of commercial consultants per hour.   |  |  |  | | --- | --- | --- | | **Litter Action Project 2017-20** | **Program costs and output** | **Projected consultant cost to MW (minimum estimate)** | | Program costs (3 years)\* | $27,600 |  | | Litter audits completed | 85 | $150/hour\*\* 4 hours; 2 consultants | | Litter action plans | 15 | $150/hour\*\* 30 hours; 1 consultant | | **Overall program cost comparison** | **$27,600** | $102,000 + $67,500 **$169,500** |   \*Includes engagement events, equipment and meeting costs to enable litter audits and source reduction plan development. *Excludes labour, project management costs, site interventions and development of a catchment model.*  \*\*Based on litter audit consultant fees (can range from $100-200 per hour). |

Qualitative researchas part of preparing the Waterways and Drainage Investment Plan demonstrated strong community and business preference for an increase in the current amount of funding dedicated to community involvement.

An uplift investment of approximately $400,000 per year (see details in table 3) through this allocation will deliver:

* Waterway informational signage and infographics (including on-site interactive digital elements e.g. QR codes & augmented reality) $230K
* Web-based interactive digital media (e.g. virtual tours) $100K
* Community events (e.g. waterway litter blitz) $40K
* Targeted social media programs $30K.

That uplift will complement and enhance the existing allocation of $140,000 per year delivering Waterwatch programs, school education programs, and Melbourne Water representation at community events.

**Table 3:** Objectives of new program components

|  |  |  |
| --- | --- | --- |
| **Uplift element** | **Community targets** | **Objectives** |
| **Waterway informational signage and infographics (including on-site interactive digital elements e.g. Use of QR codes and augmented reality)** | General community  Engaged community (environmental groups such as ‘Friends of Groups’) | Enhanced understanding and knowledge of waterways and values, underpinning positive behaviour change such as reduced littering and household pollution and participation in conservation actions.  Provided where people are, engaging with locally relevant and targeted information. |
| **Web-based interactive digital media (e.g., virtual tours)** | General community, Engaged community (environmental groups such as ‘Friends of Groups’), teachers and students. | Enhanced understanding and knowledge of waterways and values, presenting key opportunity for active contribution to management outcomes and advocacy for waterways through “in the moment” direction to programs and data.  Accessible for community members from other locations such as home or classrooms. |
| **Community events (e.g., waterway litter blitz)** | General community | Enhanced knowledge of waterways and values, active contribution to improvements in on-ground waterway conditions and longer-term advocacy for waterways.  Locally targeted projects enabling participation by a diversity of community groups and individuals. |
| **Targeted social media programs** | General community, Engaged community (environmental groups such as ‘Friends of Groups’), | Enhanced understanding and knowledge of waterways and values, underpinning positive behaviour change such as reduced littering and household pollution and participation in conservation actions.  Also presenting key opportunity for active contribution to management outcomes and advocacy for waterways through “in the moment” direction to programs and data.  Creates easy access to shareable content and engagement from anywhere people are. Also enables targeting of harder-to-reach groups. |

**Options identification and assessment**

Four different levels of overall investment (detailed in Table 4) were considered in the development of this program:

* 1. reducing the current program expenditure
  2. maintaining the level of current investment
  3. a moderate uplift in existing investment
  4. a major uplift in existing investment

The base level reflected a slight reduction in education investment, to meet minimum obligations regarding school's education and maintain our community engagement programs but resulting in a negative impact on waterway health outcomes from citizen data collection and negative impact on Melbourne Water’s reputation in the community.

Option 3 (moderate increase) is the level of investment proposed for this allocation. That proposal considers:

* Preference from the community to increase investment in community involvement, consistent across qualitative feedback from focus groups and Customer Council and quantitative research through the willingness-to-pay study;
* Academic literature supporting the individual and public health benefits of greater interactions with natural and blue-green spaces (see Program Benefits section below for detail);
* Internal MW analysis of the cost-benefit of supporting citizen science and community volunteering over direct investment (see Page 8 in this document for more detail); and
* Practitioner experience, somewhat supported by emerging academic literature, that greater community involvement with nature results in lower future management and maintenance costs because these spaces are better cared for (again, see Program Benefits section below).

We recognise that there is little data or academic research to clearly evidence long-term reductions in maintenance costs or avoidance of future renewal costs as a direct result of greater community involvement in waterways, thus have not sought the highest level of investment considered for this allocation. A focus of the next price period will be working with partners to develop clearer return-on-investment data for community involvement activities that are less direct than citizen science or volunteering activities.

**Table 4:** Community Involvement in Waterways Investment Options

|  |  |  |  |
| --- | --- | --- | --- |
| **Highest investment** | **Moderate increase** | **Current investment** | **Minimum investment to meet obligations** |
| Melbourne Water provides information about local and major waterways across the region, interactive informational signage and storytelling information around major waterways, delivers extensive community events and multi-platform campaigns around waterway health, and supports more than 7,500 people to participate in protecting waterway health by extending citizen science, volunteer activities and school programs. | Melbourne Water provides information about major waterways in the form of informational signage, interactive and digital content, provides targeted community involvement events and integrated social media, and supports more than 6,500 people to participate in protecting waterway health by extending citizen science, volunteer activities and school programs. | Melbourne Water provides basic information for major waterways across Melbourne, supports select community events and campaigns around waterway health, and supports 5,500 people to participate in protecting waterway health by maintaining existing citizen science, volunteer activities and school programs. | Melbourne Water provides basic information for major waterways across Melbourne, educational resources, event attendance and citizen science programs reduce and support less than 5,000 people to participate in programs protecting waterway health per year. |
| $710K/year | $545K/year | $175K/year | $140K/year |

This increase in funding is required as part of the 2021 Price Determination period because:

* Significant increase in people visiting waterways for emotional and mental wellbeing through COVID period; associated opportunity to capitalise on this increased connection, and need to meet increased community expectations of the social values waterways offer (see Community Perceptions of Waterways Survey 2020, Melbourne Water).
* Rapidly evolving and increased uptake of digital engagement and education technology, and associated community expectation to be able to engage with public resources through these platforms (see MELD research (2021) within MW’s Digital Education & Engagement Roadmap).
* Investing in community involvement now also helps ensure waterways remain valued and healthy for future generations (inter-generational equity).
* Threats of climate change and urbanisation are putting increasing pressure on Melbourne’s threatened species, which the community play a key role in monitoring and protecting.

**Program costs**

|  |  |
| --- | --- |
| **Program** | **Uplift** |
| New community engagement programs and activities **(uplift only)**  **$400K per year** | Waterway informational signage and infographics (including on-site interactive digital elements e.g. augmented reality) **$230K**  Web-based interactive digital media (e.g. virtual tours) **$100K**  Community events (e.g. waterway litter blitz) **$40K**  Targeted social media program **$30K** |

**Program benefits**

**Primary benefit**

The primary benefit expected to be delivered through this allocation is the reduction of environmental management costs including data collection and maintenance activities such as revegetation and litter collection.

That reduction in costs is achieved through direct community involvement in waterway management activities such as citizen science and volunteering activities, saving Melbourne Water paying contractors or conducting these activities directly (see Frog Census, Platypus Census and Litter case study examples).

The Community Involvement allocation contributes to these management cost savings by supporting citizen science and volunteer groups, and by engaging people in their natural environment to recruit more active participants.

A reduction in future management costs is also achieved through more experiential community involvement activities like virtual tours, interpretive signage and other elements that involve the community in experiencing – directly or digitally – greater Melbourne’s waterways. Greater community connection to their environment leads to improved behaviours, which results in less vandalism, people respecting and ‘adopting’ local natural environments, and reduced stormwater pollution.

Positive behaviour change resulting from experience of the environment or participation in events in or relating to nature is supported by a significant body of research (Duerden & Witt 2010; Boyes & Stanisstreet 2012; Gould et. al. 2019).

However, *quantifying* a specific reduction of future environmental management costs because of improved community behaviour is only an emerging field of research, represented in only a few studies from other parts of the world. One of those studies was a longitudinal study of costs and benefits of volunteering programs in the public sector across the United States (Ivonchyk 2019). This study provides evidence that supporting volunteer programs (rather than short-term projects), backed up by broader education programs, is an efficient and effective method for producing public sector value and reducing the direct costs of ongoing management (pp. 699-700).

**Additional benefits**

There are further economic benefits of community involvement in waterways through realised public health benefits of people increasingly utilising and interacting with green/blue open space. A 2019 economic study by Frontier Economics quantified in financial terms the range of benefits from water sector investments including improved amenity of spaces along waterways. Focusing just on the mental health benefits of ‘passive’ interaction with or exposure to blue-green spaces reveals notable financial benefits to people engaging more regularly with these spaces, even if that ‘engagement’ was only on the level of digital interaction. The study considered both direct costs deferred because of interaction with open space reducing public health costs of treating depression and stress, and indirect costs deferred by saving productivity. The uplift in this allocation would contribute to these reduced direct and indirect public health costs by connecting more Melburnians with the open space of waterways more regularly.

Additionally, there are significant non-economic benefits to community involvement in waterways that include:

* Improved individual wellbeing through connection to nature (Perceptions of Waterways survey, 2020).
* Improved understanding of and belief in the value of waterways as environmental assets, solidifying support for agencies to invest in their ongoing management, i.e., securing social license for future direct investments.
* Participation in waterway management decision-making – as reflected in the ESC’s own PREMO model – which requires a degree of literacy with water issues that will be supported by this program.

This allocation also delivers on Melbourne Water’s stated goal of improving water literacy. Water literacy is knowledge of water sources, water management and water-related issues. Higher water literacy is linked to higher acceptance of alternative water sources and higher uptake of water saving behaviours (research for South East Queensland Water; KANTAR, 2020). We need to equip communities with this knowledge to enable them to participate in decision-making about our desired future services. Research by the CRC for Water Sensitive Cities indicates Victorian’s have low levels of water literacy, compared to other states.

**Risks**

* There is a limit to the amount of data and monitoring that can be done by agencies alone.
* Without continuing to support data collection by community, monitoring on waterway species will diminish increasing the risk of local extinctions of threatened species.
* Without increasing understanding of the water cycle and the importance of healthy waterways for habitat and human wellbeing, the community is ill-equipped to participate in management decision making.
* Without an uplift in investment, it is difficult to target engagement and education, which risks leaving CALD and other diverse communities behind.
* Failing to deliver on community expectations as demonstrated in HWS targets is a risk to Melbourne Water’s reputation.
* Without increased investment in education, which is a key complement and support for infrastructure and enforcement approaches, it is expected that the volume of litter and pollution in our waterways will continue to increase because of population growth and urbanisation.

**Program implementation**

Program implementation will be delivered through existing teams within Melbourne Water with a strong history of working together on projects and utilising the Healthy Waterways Strategy as a framework for prioritizing delivery of the program across the region. Audience / social research to inform targeting of activities will be a key element of new activities to be delivered as part of this allocation.

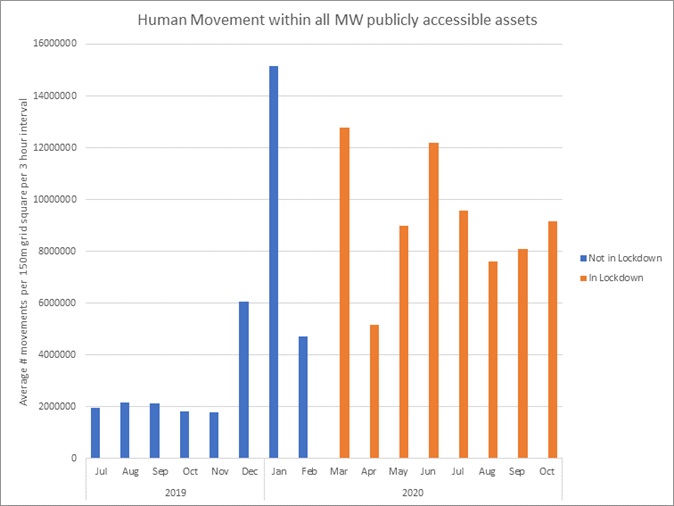
In relation to monitoring and evaluation of the program’s success, the Community Perceptions of Waterways bi-annual survey provides some existing baseline metrics (in particular questions on ‘Incidence of waterway visitation’, ‘Overall satisfaction’, and ‘Experience attributes – community connection, amenity, recreation’), which will underpin measurement of improvement through the Community Involvement allocation. Historical participation rates in citizen science and community events can also be used as indicators in monitoring and evaluation. As discussed above, we will actively seek out ways to better quantify the cost-benefits of community involvement in relation to management expenditure over the delivery of this program.

Delivery of the program will be coordinated by Community Engagement team, but also include Customer Experience, Marketing & Corporate Communications, and Regional Services teams, who have already collaborated on HWS engagement and Waterway Blitz events.

**COVID considerations**

**Impacts to program**

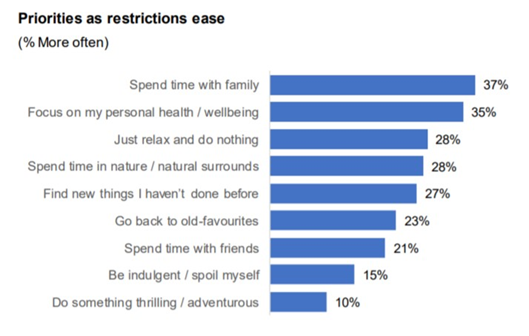
The need for this program is uniquely influenced by the COVID-19 pandemic as community use and access to waterways and other open space was directly impacted by the pandemic. Experience through 2020 and early 2021 have shown that community use of and connection to waterway environments increased through lockdown periods. For example, internal Melbourne Water analysis has shown that during the 2020 lockdown periods, public use of Melbourne Water land tripled compared to the same period in the year prior, whilst in October 2020, public use of Melbourne Water land almost quadrupled compared to October 2019.



This data highlights Melbourne Water’s role in providing open space as a multiple benefit alongside our role in water, sewerage, drainage and waterway health.

*(Note: Human Movement data is based on anonymised mobile phone pings, aggregated from telco’s and provided by third party vendor Map Data Services - raw data and mapping available on request)*

Melbourne Water’s Community Perceptions of Waterways survey has also shown that 2020 saw a marked increase in the number of Melburnians seeking to ‘escape to a relaxing place’, whilst our COVID-tracker survey showed that the number of people visiting waterways less frequently fell during late 2020 driven by more favourable weather and the removal of COVID-19 restrictions. Of those who are visiting waterways more frequently, two-thirds indicate that they have visited a new waterway which they had previously not been to. Importantly, the AustraliaNOW (2020) survey has shown that as hope and optimism returned post-lockdowns, Australians looked to the future, with family and health the main areas of focus. Of relevance is the focus on the intent to engage with nature & natural surrounds (28% more often). This priority presents an opportunity to engage with Melburnians looking to spend time more outside.



The other COVID-19 impact of relevance to this program was the change in activity that allowed community involvement with waterways. While there was a significant reduction in face-to-face group activity (citizen science, seminars, and school tours), there was an associated uplift and uptake of virtual and digital offerings throughout the pandemic, with high levels of community satisfaction with this approach. Satisfaction surveys completed after webinars and virtual excursions indicated 95% of respondents were very satisfied (71%) or satisfied (24%) with the experience. Webinars were accessed by 14% identifying as speaking a language other than English at home and 26% identifying as over 65 years of age.

The move in 2020 to community webinars, virtual excursions and tours, and access to on-line Melbourne Water education and engagement resources, resulted in the following participation rates:

* 20% increase in unique visitors and participation in the MW digital engagement hub (Your Say)
* 3,894 unique visits to the MW digital education hub landing page
* 895 attendees at 11 MW citizen science webinars and 300 participants in volunteer workshops
* Access and use of WTP virtual tour by over 7,000 users and 21 webinars delivered to 629 participants
* Increase in Frog Census participation with 1,893 reports submitted and an increase in users by over 1,900.

**Opportunities**

The experience of COVID-19 has resulted in Melbourne Water taking a broader view of programs and activities to enhance community involvement in waterways to meet the obligations and strategic drivers for this allocation. Of relevance from the COVID-19 experience is the need to take a blended approach to the range of activities, from “traditional” face to face group events through to fully digital and virtual experiences. Customer research (MELD 2021) and feedback has clearly demonstrated a need to get the balance right for these types of activities.

The digital needs of community and customers in terms of education and engagement has been mapped out though Melbourne Water’s Digital Education and Engagement Roadmap (in final development) which will set clear direction on customer-preferences to meet the following goals;

* Continuously improve the digital education and engagement toolkit to meet customer and community needs
* Expand audience reach and participation in education and engagement programs
* Increase partnerships and industry collaborations that drives customer and business benefits
* Improve integration of online and offline education experiences and engagement methods
* Mature digital engagement capability and practice

Many of the digital products and services identified in this allocation require OPEX funding for scoping and development, and ultimately maintenance of services, with Melbourne Water CAPEX funding larger, new asset development or renewal.

This program will improve the community experience of waterway environments by developing new ways of educating and engaging community in waterway care and management.

**Appendix 1: references**

Australia Now Quantum Research (2020). Australia wide survey conducted weekly with n=1000 Australians representative of the population. Study date: August 2020 (Q. As the lockdown measures begin to be relaxed, and compared to what you did prior to COVID-19, to what extent will you?)

Boyes, E. & Stanisstreet, M. (2012), ‘Environmental Education for Behaviour Change: Which actions should be targeted?’, *International Journal of Science Education,* Volume 34, pp. 1591-1614, DOI: 10.1080/09500693.2011.584079

Duerden, M. & Witt, P. (2010), ‘The impact of direct and indirect experiences on the development of environmental knowledge, attitudes, and behavior’, *Journal of Environmental Psychology*, Volume 30, Issue 4, pp. 379-392, <https://doi.org/10.1016/j.jenvp.2010.03.007>

Frontier Economics (2019), ‘Health benefits from water centric liveable communities: A report prepared for the water services association of Australia (WSSA)’

Gould, R., Ardoin, N., Thomsen, J. & Wyman Roth, N. (2019), ‘Exploring connections between environmental learning and behavior through four everyday-life case studies’, *Environmental Education Research*, Volume 25, Issue 3, pp. 314-340, DOI: 10.1080/13504622.2018.1510903

Gralton, A., Sinclair, M., & Purnell, K. (2004), ‘Changes in Attitudes, Beliefs and Behaviour: A Critical Review of Research into the Impacts of Environmental Education Initiatives’, *Australian Journal of Environmental Education*, Volume 20, Issue 2, pp. 41-52

Ironmonger, Duncan (2012), ‘The Economic Value of Volunteering in Victoria’, The Department of Planning and Community Development, Victorian Government

Ivonchyk M. (2019), ‘The Costs and Benefits of Volunteering Programs in the Public Sector: A Longitudinal Study of Municipal Governments’, *The American Review of Public Administration,* Volume 49, Issue 6, pp. 689-703. DOI:10.1177/0275074019849125   
  
KANTAR (2020), ‘Seqwater: Water Attitudes & Insights Study 2020’.

MELD (2021), ‘Melbourne Water Digital customer and market research analysis and recommendations’.