Supporting Appendices

Melbourne Water Price Submission 2021 – Response to ESC Draft Decision

4 May 2021

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APPENDIX A – Engagement stages

Purpose of stage	Summary of engagement approach (IAP2 spectrum)	Key engagement statistics
Stage 1 – Values and focus areas (February 2019–May 2019)		
• Understand customer and community values and identify key issues to be addressed through the engagement program. • Refine the scope of the engagement program and customer involvement. • Inform preliminary drafting of Price Submission customer outcome statements.	• Review existing knowledge and insights about customer and community values to understand perceptions of services, and identify focus areas to inform the development of a tailored engagement program and early drafting of customer outcomes. • *Collaborated* with Customer Councils to refine our engagement approach, agree on ways of working, understand values and define issues/ matters to focus on through the engagement program. • *Collaborated* with broader community (via co-design workshop) to identify a vision and set of values to guide the development of the Price Submission. • *Informed* broader community of Price Submission and opportunities for involvement – established YourSay webpage and used social media and presence at community festivals to direct people to YourSay.	**Water and sewerage customers** • 5 meetings with WSCC • 3 meetings with EAP • 1 Customer Value Research Workshop (attended by the seven retail water companies) **Waterways and drainage customers** • 4 meetings with WDCC **Broader community** • 10 qualitative research focus groups with 79 people • 1,200 participants in online quantitative research survey • 1 community co-design workshop with 31 people (vision and values) • 2 community festivals • 2,447 visits and 164 subscribers to YourSay • 1,905 click-throughs from social media
Stage 2 – Preferences and performance (June 2019–February 2020)		
• Understand customer preferences and willingness to pay for difference service levels to help inform investment priorities and price/service trade-offs. • Develop and refine customer outcomes and performance measures.	• *Information sharing and collaborative* exploration of issues (identified in Stage 1) with Customer Councils. • *Collaboration* with Customer Councils to develop customer outcomes and performance measures. • *Informed* and *consulted* with local government and Traditional Owners on waterways and drainage services and approach to developing our Price Submission. • *Involved* and *collaborated* with broader community to understand service level preferences and seek feedback on potential increases in pricing via willingness-to-pay research (focus groups and online surveys) and community deliberative panel. • *Informed* broader community of progress via YourSay and invited feedback *(consulted)* on vision and values. • Continued to *inform* the broader community of Price Submission progress and opportunities for involvement via presence at community festivals (distribution of postcards to direct people to YourSay webpage) and gamification pilot project.	**Water and sewerage customers** • 6 meetings with WSCC • 1 meeting with EAP • 4 meetings with RMF **Waterways and drainage customers** • 5 meetings with WDCC • 1 information session with local government, 26 submissions received • 6 meetings with 3 Traditional Owner groups **Broader community** • 20 qualitative research focus groups • 4,288 participants in online quantitative research surveys • 2 sessions with Waterways & Drainage Community Deliberative Panel with 40 participants • 3 community festivals • 2,148 visits and 49 new subscribers to YourSay • 2,317 people played Drip Trip gamification pilot

Purpose of stage	Summary of engagement approach (IAP2 spectrum)	Key engagement statistics
Stage 3 – Validation (March–September 2020)		
• Review, validate and prioritise proposed customer outcomes and performance measures. • Review proposed investment program and other key aspects of Price Submission. • Additional COVID-related consultation	• *Informed* and *consulted* with Customer Councils to review key aspects of draft Price Submission, including investment program, customer outcomes and performance measures. • *Collaborated* with broader community (representative community deliberative panel) to review and prioritise customer outcomes and provide feedback on measures and performance reporting. • *Informed* and *consulted* broader community and local government to invite final feedback on draft proposals prior to submission to ESC (via emails and YourSay webpage). • *Informed* and *consulted* with DELWP, Minister's Office, EWOV and consumer advocacy groups on progress with finalising the Price Submission via tailored briefing sessions. • *Informed* and *consulted* with broader community on COVID-related proposals to ease bill impacts.	**Water and sewerage customers** • 6 meetings with WSCC • 4 Capex Roadshow sessions • 1 Opex information session • 3 meetings with EAP **Waterways and drainage customers** • 4 meetings with WDCC **Broader community** • 2 sessions with Waterways & Drainage Community Deliberative Panel with 40 participants • 1 Customer Outcomes Community Deliberative Forum with 43 participants • 1 COVID-related Community Deliberative Forum with 39 participants • 1,756 visits and 16 new subscribers to YourSay • 12 submissions received on draft proposals **Other key stakeholders** • 3 briefings with EWOV and consumer advocates • 1 briefings with DELWP and 1 with Ministers office

APPENDIX B - Customer Outcomes alignment

A key priority for the Water and Sewerage Customer Council was the alignment of Melbourne Water's Customer Outcomes with their own. The table below illustrates how closely our Outcomes are aligned.

TABLE 1 Alignment between Melbourne Water's and retail water companies' customer outcomes

Customer Council themes	Melbourne Water outcomes	City West Water outcomes	South East Water outcomes	Yarra Valley Water outcomes	Western Water outcomes	Barwon Water outcomes	South Gippsland Water outcomes	Westernport Water outcomes	Gippsland Water outcomes
Safe, reliable, secure water and wastewater for existing and future customers	Access to safe and reliable water and sewerage services	Services to homes and businesses are safe, reliable and efficiently delivered	Get the basics right, always Warn me, inform me	Reliable water and sewerage services Safe drinking water Timely response and restoration	Reliable, safe services to existing and new customers	A reliable, secure water future for our region	Provide safe, clean drinking water for the benefit of our customers and communities We will be reliable, minimise unplanned interruptions to services and commit to communicating well with our customers	Better tasting water Reliable water and wastewater services	Do your job well
Long-term water availability and caring for the environment and community	Melbourne's environment, rivers, creeks and bays are protected and Melbourne Water's greenhouse gas emissions are minimised Melbourne remains liveable as it deals with the impacts of climate change and population growth Melburnians are empowered to support the design and delivery of service outcomes	The whole of the water cycle is managed in an environmentally sustainable way	Support my community, protect our environment	Water availability and conservation Care for and protect the environment	Sustainable contribution to the community and regional liveability Care of the environment	Deeper knowledge and partnerships with our community A healthier environment for all	Be environmentally responsible, sustainable and adapt to a future impacted by climate variability Provide a safe wastewater service that contributes to the health and liveability of our communities and environment We will partner with community, local government and business to plan for future years	A more sustainable community	Prepare and protect Be involved
Modern and innovative services	Easy, respectful, responsive and transparent customer service	City West Water is a valued partner in servicing a growing Melbourne Billing and payment options are efficient and convenient Customer service is accessible and enquiries are promptly resolved	Make my experience better	Modern flexible service	Innovative approaches to addressing customer needs	Timely, innovative services for our customers		Affordable and responsive services	Be easy to deal with
Affordable, fair access and assistance for all	Bills kept as low as possible	Customers in hardship are supported	Fair and affordable for all	Fair access and assistance for all	Fair and affordable charges for all customers	Affordability for all our customers	Treat all customers and community with honesty, respect and strive to balance affordability, value for money and fairness	Affordable and responsive services	Be affordable and fair

APPENDIX C – Water and Sewerage Customer Council expectations

At the conclusion of Stage 2 of our engagement program (December 2019), the Water and Sewerage Customer Council (WSCC) submitted fifteen expectations they had of Melbourne Water's Price Submission. The table below documents how Melbourne Water responded to each expectation.

WSCC Expectations	Melbourne Water Response
1. Support the achievement of the WSCC members' price submission outcomes.	Melbourne Water's customer outcomes were co-designed with both the WSCC and WDCC and align closely with the retailers own outcomes, as demonstrated in the table in Appendix A (this table was included in the retailer summary discussed in expectation 2 below). Our Price Submission detailed our customer outcomes, following a structure that outlines the challenges we face in achieving the outcome, what we heard from our customers, and what we intend to do to deliver against the outcome (refer S3 of Price Submission). The WSCC was also concerned that long term water security be clearly addressed. This was covered under our proposed investments under the outcomes: 'Safe and reliable water and sewerage services' and 'Melbourne's environment is protected'.
2. Be supported by a tailored customer report for each retailer summarising how MW's key outcomes, services and prices support the achievement of retailer price submissions.	A draft retailer summary report was provided to the WSCC members on 29 June 2020 for feedback on structure and content and a final report provided at the conclusion of the process.
3. Demonstrate a focus on affordability and price stability – linked to feedback from customers through WSCC members' price submissions.	Melbourne Water's Price Submission prioritised affordability and balanced this outcome with our other five outcomes our customers and community told us they valued. Our proposed prices are flat and we included smoothing of our capital program to further reduce the price impact overall and on individual businesses. We thoroughly explored all options available within the current tariff and cost allocation framework (e.g. including capital smoothing and corporate allocation, accepting some revenue risk and thorough review of expenditure efficiency). Our price submission provided a longer term view of pricing (out to the end of 2030-31) and specific tariff forecasts. This information was also provided for each retailer in the tailored report mentioned above.

WSCC Expectations	Melbourne Water Response
4. Demonstrate how Melbourne Water's customer engagement program with end-use customers has informed their Price Submission proposals.	Melbourne Water's Price Submission detailed our engagement program and presents an holistic view of how we brought together the engagement insights from our diverse customers to inform our proposals (refer sections 3, S2, S3 and Attachment 1 of Price Submission). The supporting PS21 Engagement Report set out the engagement program and insights in more detail.
5. Include the appropriate investment to prepare for water security augmentations, including confirmation of Melbourne Water's approach to supply/demand forecasting.	The various ways we are planning for long term water security supply were outlined under the Outcome in section S3.1.1 of our Price Submission - 'Safe and reliable water and sewerage services'. It highlights that we are proposing: to add additional yield to the system via the Cement Creek Diversion; to continue to work with DELWP on the timing and nature of the next major augmentation; and to invest prudently in 'preserving the opportunity' for stormwater harvesting and continuing existing arrangements to support further use of recycled water. Section S5 of our submission included a detailed overview of our demand forecasting methodology. In terms of investment for augmentation costs related to a potential new desalinated water supply, these are inherently uncertain and Melbourne Water is not currently the proponent of this project. As a result we are not fully aware of the expected size, location, cost or financing approach for this asset. We are actively connected with DELWP and have conducted some modelling in relation to possible price impacts using high level assumptions relating to capital cost and financing pathways.
6. Include a forecast desalination order with mechanisms to vary prices should the water order differ from the forecast.	Covered in section S4.2 of our Price Submission. The proposed approach of cost pass-throughs, including Cardinia pumping costs were explicitly supported by the WSCC.
7. Include a performance incentive mechanism such as Guaranteed Service Levels and associated metrics/targets.	Our Price Submission committed to Guaranteed Service Levels and this response to the ESC Draft Decision provides our finalised GSLs, developed in consultation with the retailers.
8. Provide transparency of the forecast price path beyond 5 years (10-15 years) including underlying assumptions.	Our Price Submission provided a longer term view of pricing (out to the end of 2030-31) in two ways: • In the form of year by year revenue requirement by retail water company AND revenue requirement per ML supplied (water) and

WSCC Expectations	Melbourne Water Response
	per ML treated (sewerage) AND revenue requirement per connection. This view was provided in the tailored retail water company report (refer expectation 2 above) . It was also repeated in section 3.6 of the submission. • Specific tariff forecasts were provided in sections S7 and S8 of our Price Submission in the form required by the ESC.
9. The revenue requirement should not include expenditure (capital and operational) where there is a high level of uncertainty in relation to timing cost and prudency. However, the submission should identify where this expenditure may be required.	Our revenue requirement did not include expenditure (capital and operational) where there is a high level of uncertainty in relation to timing, cost and prudency. We excluded projects on the basis of accepting some risk and to ensure the expenditure program is efficient and affordable (e.g. Sewerage: odour control at WTP, sludge drying at ETP, sewerage processing at WTP, increasing biosolids reuse. Water: one recreational access project rather than two, medium scale solar – one project not six, deferred Bunyip River water harvesting and only doing Cement Creek).
10. Include prudent investments to 'preserve the opportunity' in relation to the planning currently underway for integrated water management initiatives and water supply augmentation.	Planning for long term water security was covered under our proposed investments under the outcomes: 'Safe and reliable water and sewerage services' and 'Melbourne's environment is protected'. Investments included large scale stormwater harvesting projects (Sunbury, Upper Merri and selected regional areas) and continuation of existing arrangements to support further use of recycled water. Section S3.1.1 of our price submission addresses the specific issue of what the broader community told us in relation to urban recycled water and stormwater harvesting and what we intend to do (and not do) to deliver safe and reliable water services over the next five years. It addresses our approach to 'preserving the opportunity' for future investment in cost effective integrated water management initiatives to support long term water security, highlighting that we will invest prudently in 'preserving the opportunity' for stormwater harvesting and continue existing arrangements to support further use of recycled water. While not outlined in our submission we will continue to support cross industry forums such as MIEG and the Water Resource Management Group to consider matters of water security and opportunities to collaborate on decentralised supplies. We are also working collaboratively with the retailers to develop a joint Greater Melbourne Urban Water System Strategy (GMUWSS).

WSCC Expectations	Melbourne Water Response
11. Make a commitment to fully investigate tariff structures that better meet Water Industry Regulatory Order (WIRO) tariff principles, within two years.	Our Price Submission commits to a tariff review. Section S3.2.1 of the submission sets out the scope of the tariff review.
12. Provide opportunities to further water and sewerage customer outcomes.	Refer to response to expectation 1 above.
13. Provide transparency on growth-related expenditure and associated charges (including water and wastewater) that 'preserves the opportunity' for future developer related charging.	Section S6.7 of our Price Submission addresses this matter. Extract taken from Section 6.7 of the submission: *Melbourne Water acknowledges the questions of equity raised by the WSCC in relation to the manner in which population growth driven infrastructure is funded by existing customers. At this time Melbourne Water is not planning for the design or introduction of a new customer contribution in this space.* *We have, however, sought to meet the council's request via Table 78, which shows growth capex by bulk water and bulk sewerage service as well as the related revenue requirement and impact on end customer bills (measured on a dollar per connection basis). We also show the impact growth expenditure has on total customer bills in percentage terms. It shows that growth capex drives between 0.4 and 3.4 per cent of the average customer bill in dollar per connection terms across the regulatory period.*
14. Ensure that a higher PREMO rating and the associated increased return delivers greater value to water and sewerage customers in a transparent way.	We addressed the question of value (and a possible higher PREMO rating) in the following manner: Included a narrative within the document about what we have done differently under the PREMO model (Section 1 of the submission). Provided a detailed summary of how our customers shaped our final proposal (Sections 3, S2, S3 and Attachment 1 of the submission) Outlined the value for both water and sewerage and waterways and drainage customers, built around: • prudent and efficient expenditure programs supporting the delivery of our customer outcomes • a commitment to delivering on our customer outcomes supported by appropriate performance measures

WSCC Expectations	Melbourne Water Response
	• neutral impact on customer bills for water and sewerage customers, despite significant uplift in prudent levels of capital expenditure • introduction of GSLs for bulk water and sewerage services (refer above) • more equitable customer payment profile for Victorian Desalination Plant security repayments.
15. Support existing agreed strategies that are being delivered (such as the Melbourne Sewerage Strategy).	Our Price Submission was structured in a way that introduces the strategic context of our price submission, including delivering against our key service strategies and the key thematic challenges we are facing to deliver high quality customer outcomes throughout the regulatory period (refer sections 2 and S1). Service strategies are then referenced as relevant throughout section S3 of the submission where we outline the challenges we face in delivering each customer outcome, and what we intend to do to deliver against each outcome.

APPENDIX D – Summary of waterways and drainage engagement insights

The below summary provides a collation of the insights we heard across our numerous engagement activities, for those programs we are seeking approval of proposed expenditure.

Flood preparedness

Beyond the collaboration undertaken with stakeholders and partners during the development of the Flood Strategy Refresh, customers and the broader community were engaged during the development of the Waterways and Drainage Investment Plan. Engagement findings indicated that customers generally expect improvements in flood management with more work in flood preparedness and flood mitigation:

- The Waterways and drainage customer council:
    - Was presented to by
        - Ian Shears, Practice Lead, Urban Forest and Green Infrastructure from the City of Melbourne
        - Melbourne Water subject matter experts
    - used the Department of Treasury and Finance (DTF) Investment Logic Mapping (ILM) framework to define customer value, and identified potential responses to the problem of community awareness, understanding and information on flood risk. This valuable stand-alone information also supported development of the customer preference and willingness to pay survey.
    - provided strategic advice which supported a more than 5% increase in total waterway and drainage spending and fully supported the customer survey.
- Customer preference and willingness to pay survey results indicated metropolitan and rural customers strongly preferred an increase in all flood services including flood risk awareness campaigns, information and warnings for high risk properties to reduce potential damages. However, in follow up questioning, some felt that flood preparedness was important to develop more resilient communities and manage the impacts, while some felt that the service was only relevant for people living in flood-prone areas who would already be prepared, and so money would be better spent elsewhere. This tension was a key reason for further exploration with the deliberative panel.
- The Community deliberative panel deliberated Melbourne Water's proposed changes to flood programs with an operational expenditure increase for investment in flood planning and flood information and a decrease in capital expenditure on upgrading retarding basins and other flood mitigation capital projects:
    - This proposal was strongly supported by 69% and mostly supported by 21% of the panel.
    - The panel's vision *"The climate crisis and the urban expansion rate are threatening our water systems. We recommend aggressive investment and innovation in a needs-driven strategy based on scientific evidence with/& future-proof solutions"* supports doing more for flood preparedness, a comparatively cheaper management approach for flood risk.
    - A draft capital and operational expenditure proposal was presented on Day 4, including the flood preparedness program. Following this, the Waterways and drainage investment plan was anonymously rated at 23% 'Outstanding', 77% 'Good'; -0% 'Not sure', 0% 'Not so good' and 0% 'Dreadful'.
- Studies indicate that business-as-usual-approach costs are likely to rise significantly (Halcrow Pacific, 2009) and the use of non-structural flood risk interventions in statewide strategy has an estimated benefit-cost ratio of 1.4. This alternative approach may reduce Victoria's flood risk in real terms over a 50 year period (Somek). In order to take a cautious and prudent approach, we carefully took our customers and community through the flood preparedness service, and undertook more thorough testing and exploration.

Flood mitigation

Beyond the collaboration undertaken with stakeholders and partners for the Flood Strategy Refresh, broader customers and community were engaged to inform the Waterways and Drainage Investment Plan. Engagement findings indicated that customers generally expect improvements in flood management with more work in flood mitigation:

- The Waterways and drainage customer council:
    - was presented to by:
        - Ian Shears Practice Lead, Urban Forest and Green Infrastructure from the City of Melbourne
        - Melbourne Water subject matter experts
    - used the DTF ILM framework to define customer value, and identified potential responses to the problem of flood mitigation. This valuable stand-alone information also supported development of the customer preference and willingness to pay survey.
    - The council's strategic advice supported a more than 5% increase in total waterway and drainage spending and fully supported the customer survey.
- Early focus groups were held with community members (rural, metro and representing diverse groups) to understand priorities, the community's understanding of waterways and drainage services and to help inform the development of the survey. Insights revealed a demand in many areas for more flood mitigation.
- Results of the representative customer preference and willingness to pay survey indicated metropolitan and rural customers strongly preferred an increase in all flood services but particularly for flood mitigation. Flood mitigation was the 3rd and 4th strongest customer preferences for rural and metropolitan customers respectively. The majority of metropolitan and rural residential customers desired an increase in service level.
- The Community deliberative panel deliberated on flooding:
    - The panel discussed flooding with, and questioned Melbourne Water subject matter experts.
    - The panel supported greater effort into mitigating flood through better infrastructure, with 26% strongly supporting and 68% mostly supporting our programs.
    - The panel's vision *"The climate crisis and the urban expansion rate are threatening our water systems. We recommend aggressive investment and innovation in a needs-driven strategy based on scientific evidence with/& future-proof solutions"* supports doing greater activity in flood mitigation.
    - Following the presentation on the draft capital and operational expenditure on Day 4, which included the flood mitigation program. the Waterways and drainage investment plan was rated anonymously as 23% 'Outstanding', 77% 'Good'; 0% 'Not sure', 0% 'Not so good' and 0% 'Dreadful'.
- Local government survey responses included:
    - Managing, collecting and conveying stormwater, along with data such as mapping, modelling and planning information were the priority outcomes for flood management.
    - Providing flood management infrastructure was essential to equipping councils with the tools to manage floods.
    - Areas of collaboration with Melbourne Water identified by participants included maintaining and upgrading flood infrastructure, and gathering and sharing flood, rainfall and mapping data.

Natural wetlands

Beyond the collaboration undertaken with engaged community and our stakeholders and partners for the Healthy Waterways Strategy, customers and the broader community were engaged during the development of the Waterways and Drainage Investment Plan. Engagement findings indicated that customers generally expect natural wetlands to be protected as part of all waterways, and the majority would pay more than currently, for this service:

- The Waterways and drainage customer council:
    - used the DTF ILM framework to help define customer value, and identified the need for a response to decline of wetlands by protecting them from stormwater, protecting their

vegetation, creating habitat, protecting them from development, conserving them, mapping them and better understanding them, and by using citizen science to assist. Ultimately this information also supported the customer preference and willingness to pay survey, with the final developed question regarding wetlands supported by the customer council.
    - provided strategic advice which supported a greater than 5% increase in total waterway and drainage spending, and expressed concern for ensuring the Healthy Waterways Strategy stays on track.
- Results of the customer preference and willingness to pay survey indicated that metropolitan, rural and business customers had a strong preference for an increased service level for natural wetlands and a corresponding increase in willingness to pay.
    - Prior to the main survey, a simple survey of the representative customer base asked participants if they would support an increase or decrease in spending in broader services, which included water and sewerage items, and these were ranked. Services to keep creeks, rivers and wetlands healthy closely followed security of supply (water) as an area in which the large majority of the community wanted to see an increase. This was above providing a reliable, uninterrupted supply of water, and above providing safe, pleasant tasting water (both at the mid-point of the services listed).
    - After the main survey, a number of participants were interviewed about why they answered the way they did, and it was due to managing wetlands and estuaries being seen as highly important for ensuring healthy ecosystems and habitats for wildlife, signalling healthy environments. This also reflected conversation in the focus group discussions (held months prior to survey), where waterway condition was often one of the most valued services, especially in metro areas and the west.
- The waterways and drainage community deliberative panel deliberated on natural wetlands:
    - The panel was presented to by:
        - Dr. Paul Boon on waterways with a focus on estuaries and wetlands,
        - Melbourne Water subject matter experts, and
        - John Forrester, Chair of the customer council, who presenting on the council's views on waterways.
    - Draft capital and operational expenditure were presented on Day 4 April 18th 2021, including for the natural wetlands program. Overall, the panel anonymously rated the waterways and drainage investment plan with 23% 'Outstanding', 77% 'Good', and none falling into either of 'Not sure', 'Not so good' or 'Dreadful'.
    - The panel's vision *"The climate crisis and the urban expansion rate are threatening our water systems. We recommend aggressive investment and innovation in a needs-driven strategy based on scientific evidence with/& future-proof solutions"* as well as feedback from the panel supports Melbourne Water's proposal for wetlands.
- The initial, diverse, community vision and values deliberative panel for the whole price submission, ranked environment and sustainability top amongst 12 items describing values they had for our services.

A prudent level of increase in natural wetlands protection and management is a clear expectation of our customers, following transparent and significant engagement at different depths and types.

Stormwater harvesting and infiltration, and quality (Upper Merri Creek, Sunbury and Regional stormwater harvesting, noting Sunbury also has independent engagement)

Community concern regarding the impact of stormwater on waterway levels of service is clear, and strong customer feedback is supportive of the proposed expenditure.

During the collaborative development of the Healthy Waterways Strategy (HWS), community knowledge and understanding of the scale and impact of stormwater runoff increased. As a result of this increased understanding, stakeholders set a clear expectation for a vast uplift in stormwater harvesting and infiltration and set strong stormwater targets that maintain the natural flow regimes and ensure that the waterways are protected from the impacts of growth and development.

In 2020 Melbourne Water reached over 120,000 people during the engagement on the draft Yarra Strategic Plan. Based on the formal submissions received, approximately 10% of all submissions reinforced the need for stronger action to manage the impact of stormwater waterway health.

Waterways and Drainage Investment Plan engagement and social research was conclusive:

- Qualitative research via eight diverse, regional focus groups indicated the impacts and benefits from managing stormwater was not easily understood by the general customer. With this in mind, customer value was explored more deeply.
- The waterways and drainage customer council, using Department of Treasury and Finance Investment Logic Mapping framework to derive customer value:
    - As a stand-alone piece this helped inform interventions for stormwater harvesting and treatment for example:
        - After independent presentation and questioning of Dr Tim Fletcher of Melbourne University, and internal subject matter experts, this group saw the stormwater problem as stormwater flows increasing due to urbanisation and climate change and decreased infiltration affecting stream base flows due to urbanisation and climate change. They identified numerous benefits from a stormwater service, and suggested intervention responses that included means of harvesting, infiltration, reducing impervious areas and community education.
    - This also fed into the customer preference survey development.
- A customer preference and willingness to pay survey. For metro, rural and business customers the survey revealed that a step change increase in stormwater harvesting and quality above current service delivery had the greatest impact on customer preference shares – a resounding indication of customer preference amongst the service mix and an indication of willingness to pay for them.
- A Waterways and drainage community deliberative panel. Given the potential for a relatively short quantitative survey to limit the ability of the customer to understand the complexity around stormwater services community preferences on stormwater interventions were deliberated on by this panel.
    - The panel was presented to by:
        - Dr Chris Walsh from Melbourne University, independent expert on stormwater
        - Melbourne Water subject matter experts
        - The waterways and drainage customer council Chair John Forrester (Werribee River Keeper). This Chair presented generally and on stormwater, presenting the council's workings on the Investment Logic Mapping framework for stormwater.
    - When polled, stormwater harvesting at a local level and in new developments was strongly supported, and top ranked amongst the items deliberated with 74% strongly supporting, 23% supporting and 3% not sure. When asked how far and how hard to push services in the next five years, the panel voted 'rapidly go for it' 64%, and 'gradually increase' 33%. Draft capital and operational expenditure were presented on April 2021 (during COVID pandemic). Overall, the panel anonymously rated the waterways and drainage investment plan with 23% 'Outstanding', 77% 'Good', and none falling into either of 'Not sure', 'Not so good' or 'Dreadful'.
    - The panel's vision: "*The climate crisis and the urban expansion rate are threatening our water systems. We recommend aggressive investment and innovation in a needs-driven strategy based on scientific evidence with/& future-proof solutions*." further supporting the drive to act on stormwater.
    - Draft capital and operational expenditure were presented on Day 4 April 18th 2021, including for the natural wetlands program. Overall, the panel anonymously rated the waterways and drainage investment plan as 23% 'Outstanding', 77% 'Good', 0% 'Not sure', 0% 'Not so good' and 0% 'Dreadful'.

In completing the customer preference and willingness to pay survey, this panel broadly selected a $125 median charge (versus $102 currently).

- Local government submissions. The view was clear that stormwater is a significant factor impacting the environmental values of the waterways and it is a priority to keep the stormwater out of the waterways. Prioritising the capture, treatment and reuse of stormwater was expressed as a strong priority. Harvesting stormwater was discussed as having many benefits far beyond protecting the health of the waterways.

Community education and involvement

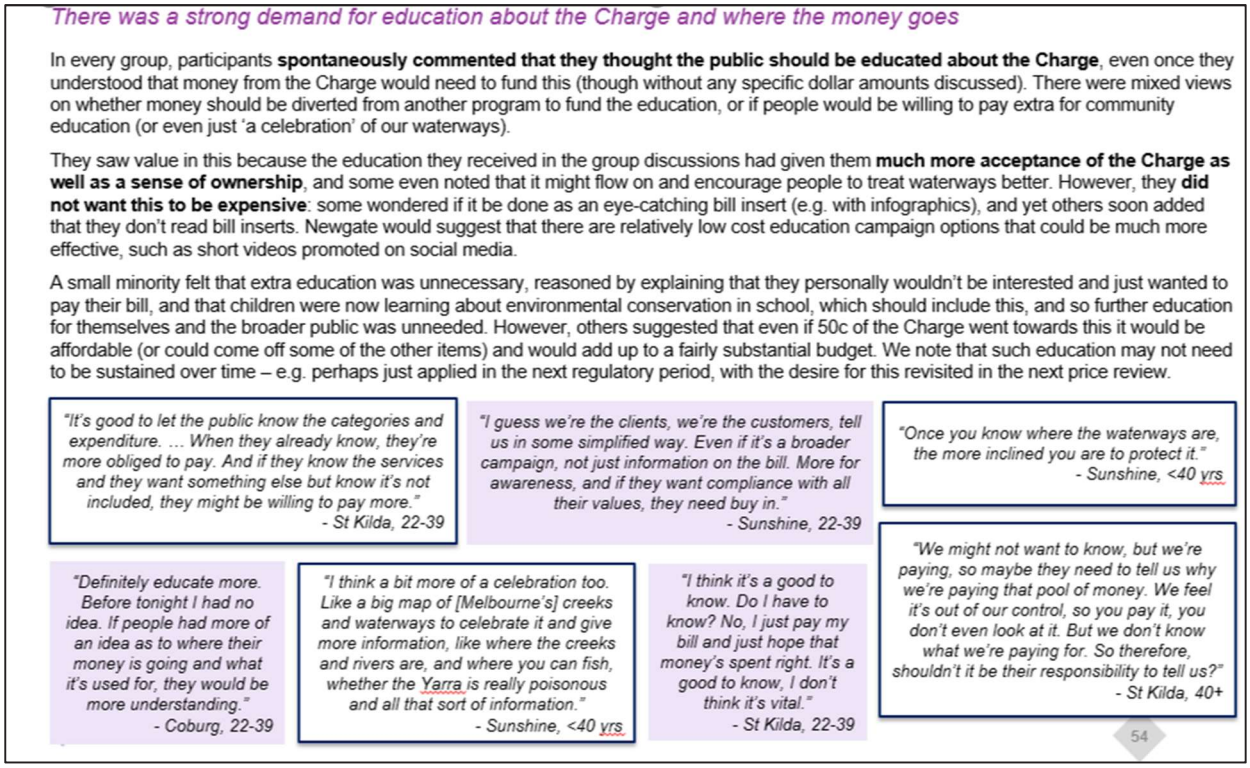
There is a low level of understanding of our waterways and drainage services and the associated charge by our customers and community, as made clearly explicit in focus group research. The research suggested that customers and community would better understand and support services with increased education and involvement. A strong community desire for more and better education of waterways and drainage services, and the waterways and drainage charge, was expressed across the engagement program, which included:

- Waterways and drainage customer council:
  - derived customer value using the DTF ILM framework, with elements of community education and involvement frequently mentioned across all services. Whilst community education and involvement was not explicitly singled out in this work, there was significant concern with the risk of broader, uneducated community and customers being consulted without having an understanding of the services. Significant effort was made to ensure the customer preference and willingness to pay survey was well articulated, gave a reasonable level of education and was accessible and able to be understood, in order for answers to be reasonably elicited.
  - There was a broad sentiment that customers should be generally better educated and that by doing so, including through the charge, they would be likely to value services more, and be willing to pay more. This concurred with focus group research findings.
  - endorsed stage one of its consultation which included influencing engagement and customer research.

- Qualitative research via eight diverse, regional focus groups indicated few were aware of Melbourne Water beyond its name, and its services were confused with those of other organisations. Few were aware of the waterways and drainage charge, and some had a vague awareness but thought it was for other organisations. Many terms were confusing or were not consistently understanding, including 'waterways', 'drainage', and 'stormwater'.
  - Participating in the research led many to spontaneously call for public education after reflecting on how much they had learnt in the research process and how it had enhanced their appreciation of the services, and on the Charge – what it is and where the money goes. The researchers suggested this for inclusion in the SIMALTO.
  - Although starting from a low knowledge base, participants said that the education process in the groups gave them not only more understanding but also a greater sense of ownership and acceptance of the Charge.
  - There was some (indicatively very limited) awareness of the connection between waterway condition and stormwater management, and between waterway condition and education. As such, some participants advocated for more preventative measures to stop litter from reaching rivers (be this education, stormwater management systems or both).
  - However, there was very limited (often no) understanding of the damage that stormwater flows can do to waterways, due to its velocity.
  - With regard to Involving community in waterways (e.g. via activities that engage the community with waterways e.g. Waterwatch and Frog Census), participants overall were unaware of these programs. Some felt since they paid for it they should be aware of it. A minority expressed interest in learning how to become more involved and assist their local waterways. Others possibly saw the value in these programs more for children or people other than themselves. Some did not understand the point of a Frog Census.

- However as a potential new option, increasing support for education programs and community awareness campaigns about the value of healthy waterways was considered very important and likely to have flow-on benefits to Melbourne Water in the long-term.
- In terms of expanding events and participants for training, education and volunteer programs, there was particular confusion with volunteering. It was encouraged but there was concern as to why volunteering should cost Melbourne Water.
- Overall, participants responded positively to the idea of a stormwater education campaign.

Ultimately participants generally felt there was value in educating customers about the charge, with a small minority not interested, believing it was for kids in schools, as documented in the box below.



There was a strong demand for education about the Charge and where the money goes

In every group, participants **spontaneously commented that they thought the public should be educated about the Charge**, even once they understood that money from the Charge would need to fund this (though without any specific dollar amounts discussed). There were mixed views on whether money should be diverted from another program to fund the education, or if people would be willing to pay extra for community education (or even just 'a celebration' of our waterways).

They saw value in this because the education they received in the group discussions had given them **much more acceptance of the Charge as well as a sense of ownership**, and some even noted that it might flow on and encourage people to treat waterways better. However, they **did not want this to be expensive**: some wondered if it be done as an eye-catching bill insert (e.g. with infographics), and yet others soon added that they don't read bill inserts. Newgate would suggest that there are relatively low cost education campaign options that could be much more effective, such as short videos promoted on social media.

A small minority felt that extra education was unnecessary, reasoned by explaining that they personally wouldn't be interested and just wanted to pay their bill, and that children were now learning about environmental conservation in school, which should include this, and so further education for themselves and the broader public was unneeded. However, others suggested that even if 50c of the Charge went towards this it would be affordable (or could come off some of the other items) and would add up to a fairly substantial budget. We note that such education may not need to be sustained over time – e.g. perhaps just applied in the next regulatory period, with the desire for this revisited in the next price review.

"It's good to let the public know the categories and expenditure. … When they already know, they're more obliged to pay. And if they know the services and they want something else but know it's not included, they might be willing to pay more."
- St Kilda, 22-39

"I guess we're the clients, we're the customers, tell us in some simplified way. Even if it's a broader campaign, not just information on the bill. More for awareness, and if they want compliance with all their values, they need buy in."
- Sunshine, 22-39

"Once you know where the waterways are, the more inclined you are to protect it."
- Sunshine, <40 yrs

"Definitely educate more. Before tonight I had no idea. If people had more of an idea as to where their money is going and what it's used for, they would be more understanding."
- Coburg, 22-39

"I think a bit more of a celebration too. Like a big map of [Melbourne's] creeks and waterways to celebrate it and give more information, like where the creeks and rivers are, and where you can fish, whether the Yarra is really poisonous and all that sort of information."
- Sunshine, <40 yrs

"I think it's a good to know. Do I have to know? No, I just pay my bill and just hope that money's spent right. It's a good to know, I don't think it's vital."
- St Kilda, 22-39

"We might not want to know, but we're paying, so maybe they need to tell us why we're paying that pool of money. We feel it's out of our control, so you pay it, you don't even look at it. But we don't know what we're paying for. So therefore, shouldn't it be their responsibility to tell us?"
- St Kilda, 40+

54

- Results of the customer preference and willingness to pay survey on community education indicated:
  - Customers wanted an increase in service for community education to support activities to manage litter in our rivers, wetlands and estuaries.
  - Customers wanted an increase in service for community education programs about major rivers and creeks across the region (e.g. Yarra, Maribyrnong, Werribee and Dandenong) with information about major creeks and rivers e.g. signage, storytelling, community events and campaigns, and citizen science and education for over 6000 people. This was beyond the basic level of community education. Rural customers particularly wanted a further increase beyond business and metropolitan customers, with citizen science for 8000 people, increased community events and campaigns, interactive signage and virtual tours.
  - Education on the charge itself was not tested in the survey due to its relatively small cost however, open ended questions post survey indicated appreciation of the extra information received, concurring with focus group feedback. Customer segmentation pointed to a significant cohort by whom support for Melbourne Water's waterways and drainage services could be garnered with additional education and engagement. As such, the researchers suggested increasing the charge should be countered with a prominent communication program around who Melbourne water is, what the charge is and how services will benefit both people and the environment.

- The Waterways and drainage community deliberative panel deliberated on education and communication programs during two sessions. Communication programs were identified by panel participants to be a critical opportunity with:
  - Key recommendations and how far and fast to go being deliberated on for public education on Day 2.
  - Support for education around risk of flooding (39% strongly supported, 48% supported and 13% not sure.
  - Increased public awareness of Melbourne Water and its responsibilities, with a very high level of urgency, was recommended. However, at this stage the concern was around all services, and water conservation, with a concern that 'we could end up like Dubbo'. However, comments from the 'world café' exercise on each of the subjects of stormwater, flooding and waterways included elements of public or community education to support the service.

  Relevant to community education, flood risk management participant notes included:

  - People need to know the 'why' to want to pay
  - Targeted around the problem and what you could pay for- what is the issue?
  - Different approaches for different sites
  - Customer funding- can there be other means? E.g. voluntary scheme, factories and business, how to pay more.
  - How do we monitor how MW is performing- transparency?
  - Bill-online statement- no information
  - Reaching people/ channels/ creating storytelling in schools, so when they do pay, they already know. In 10 years, everyone from school age can tell the story
  - Keep the story going.
  - Link to accountability (key statement) … use Chadstone as an example: case study types, how do we get change, cultural change, learning from others
  - Education that works- measured.
  - Award good behaviours- community actions
  - By managing the planning how stormwater is done, how vegetation is done we can manage them.
  - Problem solving - Collaboration increased, smarter about budgets (not too focussed), community involvement in problem solving, showcase to government.

  Relevant to protecting waterways by supporting volunteers and using technology, participant notes included the following comments:
  - Reduce apathy
  - Drive encouragement & optimism
  - Showcase to the community- set the example
  - Social media is pummelled with negatives

Education was presented disparately across different services, with varying responses on what the education was for, and some confusion on water conservation. Hence this topic was revisited during session 4 for increased clarity about how the panel would like education and engagement to continue. Subject matter experts presented on community education and citizen science. A wealth of ideas came from the panel on how to communicate and educate, and which groups to educate and which ones might be a waste of money. The panel were asked what waterways and drainage areas they thought Melbourne Water should focus education on. , Thirty-three ideas were noted for what was important and approaches to take. The enthusiasm of the group demonstrated how hot the topic was. Lastly, ideas were given on how to continue to communicate the Waterways and drainage investment plan itself, and its progress and performance.

Draft capital and operational expenditure were presented on Day 4 April 18th 2021, including for the natural wetlands program. Overall, the panel anonymously rated the waterways and drainage investment plan with 23% 'Outstanding', 77% 'Good', 0% 'Not sure', 0% 'Not so good' and 0% 'Dreadful'.

References:

1. Waterways and drainage customer council meetings agendas, presentations and output reports, and the Waterways and drainage Customer Council Stage 1 Report (Ivana Gillard, facilitator)
2. Community Deliberative Panel Report (Max Hardy and Beverley de Kretser, facilitator)
3. Waterways and drainage charge willingness to pay qualitative report August 2019 Newgate Research (Focus groups)
4. Waterways and drainage charge willingness to pay final report February 2020 Newgate Research
5. Local government submissions final summary final report 16th March 2020
6. Reference articles:
    - Flood Risk Reduction - Assessment of Costs and Benefits, Department of Sustainability and Environment Final Report 2009
    - Flood risk Reduction – An Assessment of Costs and Benefits, D.M. Somek

APPENDIX E – Newgate response to ESC questions regarding SIMALTO study (Feb 2021)

The below answers were provided to the ESC in February 2021, in response to a series of questions from the ESC about the SIMALTO study.

Relevant section	Question
General	Firstly, the Newgate team would like to thank the ESC for your comprehensive questions. We hope that we have fully addressed them in this response information from our partner The Clever Stuff, who conducted the SIMALTO modelling and created the points allocation for the service levels shown in the survey). We would just like to note that we wanted our report to be accessible to the general reader, but we fully appreciate that SIMALTO is a complex methodology and are very keen to ensure that the survey and broader process stand up to all levels of scrutiny. As such, we would be happy to provide additional clarification or address further questions to assist with your review and deliberations as needed. There are two overarching (and related) points we would like to make upfront, as you will see these themes running through some of the responses below: 1. While the ESC's questions refer to the survey specifically, we want to emphasise that the survey was developed and analysed using a wide range of inputs. This included: • using comprehensive qualitative consultation with different types of customers across Melbourne Water's service area; the survey results were also then cross-referenced and "sense-checked" against those qualitative findings; • the survey methodology and design/content were run past the Customer Council prior to launch; meanwhile, all Community Deliberative Panel members participated in the survey, and were able to ask questions about the survey during two different Deliberative Panel meetings;

- cognitive testing of the survey with 6 customers in-person prior to launch (with these interviews ranging from 1 – 1.5 hours to thoroughly capture how participants were interpreting, comprehending and reacting to each question and piece of information provided; we specifically included people who might have more difficulty understanding or otherwise completing the survey e.g. customers with low literacy, CALD background, and/or low income); and
- a follow-up qualitative survey was conducted with n=77 participants (who had completed the SIMALTO) to further explore the reasoning behind responses.

2. In any customer research conducted for Melbourne Water, there is always the need to spend time on an education process: most customers know very little about Melbourne Water's role, the Waterways and Drainage Charge (WWDC), or the services delivered under it, and so we need to give them enough information to enable them to make informed choices about their future wants and needs re services, service levels and costs. In a quantitative survey, our goal is to canvass the views of a large and representative sample of customers – and to do so in a reasonably short timeframe (to ensure we maintain engagement, avoid "satisficing" and minimise dropout) – while also providing them with enough education that they can make these informed choices. The steps listed in point 1 above are key factors in this process.

Below are our responses to your questions.

1. What is the underlying theoretical basis for how or why the questions have been developed or framed in a SIMALTO experiment, as opposed to other techniques that are more established in academic literature (such as choice based conjoint analysis or contingent valuation survey)? In answering this, please provide an overview of any analysis of the SIMALTO technique that you are aware of in academic literature or other authoritative sources or use of the technique by Australian or other regulators in making regulatory decisions.

The SIMALTO method is a widely established research approach for evaluating complex willingness to pay decisions. Invented in 1977, it is offered extensively

throughout the world by various research institutions for choice studies that possess complex, multiple attribute designs (such as those involved in the Melbourne Water study).

The theoretical basis behind SIMALTO lies in its ability to test preferences across numerous attributes, as well as numerous variations within each attribute (e.g. service levels). Traditional choice modelling approaches (such as conjoint or contingent valuation) were designed for far simpler organisational decisions or challenges common to those experienced by FMCG brands, such as the best packaging design for a product, most desirable colour schemes for clothing items, etc. Such studies are able to easily present a discrete range of choice combinations to survey participants without overwhelming their cognitive load. As such, they can accurately measure choice decisions in this context.

However, for organisations such as Melbourne Water, that are looking to understand their customers' willingness to pay for a large range of non-discretionary services which they (customers) are rarely familiar with, each with numerous possible service levels associated with them, these more "traditional" approaches have significant limitations and even flaws. These issues become particularly pronounced when the number of attributes being tested rises above 5 (noting that we tested 13 different attributes for the current price submission), with model reliability and output accuracy quickly becoming highly questionable if choice-based conjoint type approaches are used in such instances.

For examples of academic literature explaining SIMALTO, and challenges associated with the more traditional methods, these links should be useful:

https://academic.oup.com/jcr/article/5/2/103/1805825

https://www.jstor.org/stable/1251756?seq=1

https://eujem.cz/wp-content/uploads/2020/eujem_2020_6_2/20.pdf

https://journals.sagepub.com/doi/pdf/10.1177/147078530704900110

And for an example of a thorough explanation of SIMALTO's applications and benefits, please see links within this research organisation's website:

http://www.researchfortoday.co.uk/index.htm

In Australia, SIMALTO was used in Melbourne Water's previous Price Submission, and in City West Water's. That said, we did not assume that

SIMALTO would be the ideal approach this time around: we gave our recommended approach a great deal of thought, weighing up the pros and cons of a wide range of methods and consulting with independent statisticians, also carefully considering the needs of Melbourne Water and the ESC. We concluded that SIMALTO would be the optimum approach in this instance, for the reasons outlined above; however, we worked hard to build on learnings from Melbourne Water's previous SIMALTO, with the aim of significantly enhancing the design and participant experience to ensure the results were as meaningful and valid as possible.

There are numerous examples of this method being used to evaluate complex willingness to pay challenges. In Australia, as well as the two noted above, we are aware that the technique has been used by many local councils to help prioritise their residents' service preferences in annual budgeting. This includes Perth (Gosnells, Joondalup, Stirling, Wanneroo), Sydney (Hurstville, Warringah, Cockburn), Adelaide (Tea Tree Gully) and Brisbane. The technique has also been used overseas in a range of service sectors, such as finance and banking (Amex, Barclay's Bank), insurance (Royal Insurance, Norwich Union Insurance), IT and telecommunications (AT&T, Hewlett Packard, Xerox), aviation and tourism (British Airways, Hilton Hotels), many local councils, and utilities (e.g. Scottish Power).

For some detailed explanations around SIMALTO and further examples of organisations and research providers that have used this approach for choice-based studies, please see the following links:

https://www.b2bframeworks.com/simalto

https://www.b2binternational.com/research/methods/pricing-research/simalto/

https://www.djsresearch.co.uk/glossary/item/SIMALTO

https://www.liebermanresearch.com/dimensions-simalto/

http://www.jlastrategicresearch.com/simalto.html

http://www.researchfortoday.co.uk/clients.html

2. Were respondents informed at any point that making choices made had the potential to lead to a real-world impact, e.g. that they might result in them and others paying more for the improved services?

Yes, the survey participants were informed that the choices they made would lead to a real-world impact on the WWDC they paid (be it reduced services at a lower cost, a different service mix at the same cost as now, or improved services at a higher cost), and were further reminded of this at several additional points in the survey. We considered this to be of critical importance, and feel confident that it was achieved.

In particular, please see Q11 of the questionnaire, as the first point where this is explicitly mentioned: *"To address any changes you'd like made to the activities, the Waterways and Drainage Charge may need to be changed (increased or decreased)."*

At Q11, participants were informed/reminded of the current Charge amount (with the information tailored depending on whether they were a rural residential, metro residential or non-residential customer) and directly asked what they would be prepared to pay for the service mix they had selected at Q10. Similar lines of questioning took place at Q13 and Q15, partly acting as additional validation points within the survey.

Then at Q16, participants were:

- reminded again of the current Charge amount (tailored to their situation i.e. metro, rural, non-residential)
- shown the grid with their selections highlighted from each round of the SIMALTO
- told the exact amount that the Charge would need to change to, in order to deliver the different service mixes they selected in each of the SIMALTO rounds 1, 2 and 3. *("We have now calculated what the Charge would need to be in the upcoming 2021-2026 regulatory period, to deliver the mix and extent of services you chose at each Round")*
- asked to indicate which of those calculated options they would prefer to pay for in light of this information
- then (at Q16b) in an open-response numerical question they were also given the opportunity to say how much they would prefer to pay for the services they would like to see delivered.

In summary, referring back to the ESC's original question: participants were not only informed that the choices they made would lead to a real-world impact for them – and they were also informed specifically (in dollar figures) what that impact was likely to be.

3. Please explain the reason why respondents were only asked to provide an indication of their willingness to pay after the first task was completed. Were any steps taken to inform respondents prior to undertaking the first task that the points values might correspond to real world monetary amounts?

We should note that participants were asked to provide their willingness to pay after **each** of the three SIMALTO rounds, not only after the first round as implied in this question.

The question wasn't also asked **before** the first round because the sum of the point allocations given to each participant in that round equated very closely to the price of the current Charge. As a result, this initial question was determining their desired service mix at the current Charge amount, and they didn't at that point need to worry about paying more/less.

Hence for the purposes of simplicity, participant fatigue and survey length, we did not include an additional willingness to pay question prior to the first task.

However, steps were taken prior to undertaking the first round task to inform participants that their point allocations might correspond to real monetary decisions by Melbourne Water.

"As part of the Waterways and Drainage Investment Plan, Melbourne Water is currently in the process of reviewing how it allocates the funds it receives from the Waterways and Drainage Charge. To help them make these decisions, they are asking a wide cross-section of people from across the community how they would like these funds to be spent. We'll work through an exercise where you'll be asked to allocate 'points' across a range of possible activities, to indicate what you'd like Melbourne Water to do."

This was accompanied by a video description of the WWDC.

And at the beginning of the first round question (Q10), they were also shown this information:

"Please allocate your points budget to most closely represent how you would want the money from the Waterways and Drainage Charge to be allocated."

4. Were respondents instructed to only take their own preferences into account and not consider the preferences of other customers?

The survey questions were deliberately phrased to encourage participants to consider **what they themselves wanted** e.g. *"How much would you be prepared to pay per year for these services?".* We have found that when participants try to take into account the preferences of other customers, this tends to be guesswork on their part and can result in unclear and unreliable feedback overall.

We came to this conclusion in part through evidence from the qualitative research. Here we found that participants sometimes made spontaneous comments about what other people's preferences might be, but these yielded limited additional insight. Response themes were generally along the lines of "I might not benefit from this because I don't visit waterways, but other people would" or "It's important to ensure this is available for future generations / the whole community" or "It's important to protect waterways for the health of the environment in and of itself".

Instead, in order to ensure the views of the whole community were canvassed in the survey stage, we deliberately recruited a representative sample of participants of different ages, genders and locations (as well as looking at numerous other demographics and attitudes including renting/owning, income, environmental interest, CALD background, etc.). We also note that the final sample was closely representative of the general population of Melbourne in terms of income levels, with the data also weighted to reflect the target population's characteristics and provide a greater level of precision. Early on in the survey, we made sure participants knew we would be surveying a wide range of people: we introduced the screening questions by stating that we wanted to *"make sure we are hearing from a good mix of people"*.

However, we note that there were additional stakeholders invited to complete the survey through the open links (including those who naturally had other people's views in mind in addition to their own when responding), and our analysis of the results also took their views into consideration (though they were deliberately

excluded from the SIMALTO modelling, as we needed that to be representative of the customer base).

5. Were any steps taken to address the fact that some respondents might not pay all of the specified charges but were required to indicate preference for and willingness to pay for each service? (i.e. residential and non-residential tenants)

NB if we have misinterpreted the question here, please advise and we will address. We note that there are three main variations in the Charge people pay, and the steps we took to accommodate this within the survey were as follows:

- **Only home owners are directly charged for the Waterways and Drainage services through their water bills, and this was explained to survey participants.** However, it is reasonable to assume that tenants help fund the services under the Charge indirectly through their rent, and therefore their willingness to pay is still important to understand; they may also become home owners during this pricing period. In addition, their views on the service mix and Charge amount are still considered highly relevant to Melbourne Water because many of the services are provided for all in the community, whether they are paying directly or not – and one of the objectives of the study was also to understand the relative value of different services and service levels.
  The charging mechanism was explained to participants at Q6, with the language tailored depending on their response to screening question S8[1].
- **Metro residential home owners pay a different amount from rural residential home owners.** To address this within the survey we (a) identified who was metro-based and who was rural-based (via postcode lists, and the use of screening question S3 where someone lived in a shared postcode – we did this rather than asking them

[1] By home ownership status, it is interesting to note the preferred median Charge amounts were very similar for residential tenants and home owners with a mortgage ($112 and $110 per annum respectively; see p81 of the quantitative research report), suggesting they place almost the same level of value in the services they would like to see funded by the Charge.

directly which Charge amount they paid, as experience has taught us that many people do not know) and then (b) piped either the metro **or** rural charge into the survey at various points accordingly. See Q11 for an example.

    - Secondly, we also note that rural customers do not receive some of the Charge services that metro customers receive; or rather, they do not receive these in their local area, though they may benefit from them when visiting metro areas. This was something we considered during the survey design phase, but ultimately it was noted that the Charge funds are not split in this way in reality (i.e. metro customers' Charge funds do not go only to metro-based services, or vice versa) and as such it was not possible or appropriate to design separate metro and rural SIMALTOs. However their views and preferences, where different, have been clearly noted throughout the survey report, supported by findings from the qualitative group discussions with rural customers held in Emerald and Sunbury.

- **Non-residential customers within the Urban Growth Boundary (UGB) pay a different charge amount to residential customers.** A separate questionnaire was drafted for non-residential customers (with any outside the UGB screened out of the survey). This enabled us to tailor questions more specifically to this audience. However, non-residential customers' Charge payments are not allocated to deliver specific WW&D services to non-residential customers, so the service grid they were shown was the same as in the residential survey, to give them a fair say in how the money should be spent.
    - We also appreciate that non-residential charging is more varied and complex than residential customer charging: they pay a minimum rate for occupancy and in some cases a higher Charge based on a historical property value estimate above a certain amount. Within this survey though, we were only able to take the minimum rate into account and not the higher Charge for those with a higher property value: even if individual non-residential participants were able to tell us what exact Charge they received, we could not have tailored the

SIMALTO for each individual person. However, before the first round of trade-offs in the SIMALTO, it was explained to participants that some non-residential customers pay more than the minimum charge based on their property value.

The use of points rather than dollar amounts within the SIMALTO grids helped to address this issue of different customers being charged different amounts (or not being directly charged), as this was about understanding the relative differences in people's values between the various services and service levels.

6. How was the number of points allocated to each service level determined?

Melbourne Water created a final price estimate for the service levels associated with each attribute.

The Clever Stuff then allocated specific point values ranging from 0 to 78 points, with point values calculated to be broadly proportionate to their impact on the overall WWDC represented by the 13 overall attributes. The Newgate team sense-checked these, including with customers in the cognitive testing.

In all instances, whole number values were used to allow for ease of calculation by the survey participants when balancing their budget of points each round, and to minimise the overall cognitive load.

7. What actions were taken to ensure participants have clear understanding of WW&D tariff and services?

As noted in the introduction above, within the survey Newgate and Melbourne Water were highly conscious of ensuring that participants had a clear understanding of the tariff and the services, so that participants could make truly informed decisions for the future. This is of course challenging, since we know many are unfamiliar with Melbourne Water or the Charge, and that the services delivered under it are complex and require explanation (e.g. what is stormwater?).

The steps we took were:

- We clearly **explained the amount of the Charge**, and how it was paid, at Q6, Q9 and Q11 in the survey (with a reminder at Q16). As noted in the response to Q5 above, this amount we showed was

tailored to each specific audience (metro residential, rural residential, non-residential).

- In terms of **explaining the services and service levels**, a great deal of thought was put into this. The steps taken to maximise participant understanding were:
    - **Initial qualitative group discussions**, in which we introduced and explained different services and service levels and were able to get a good sense of the content and language needed to facilitate customer understanding – information which was then utilised in the survey drafting.
    - **Multiple workshops** held with Newgate and individual Melbourne Water service delivery teams to develop every question, in order to ensure these were drafted in the simplest possible way (with Newgate bringing the "customer lens" learned from the qualitative groups described above, as well as from other research for Melbourne Water).
    - **Use of videos within the survey:** Melbourne Water developed three short videos to illustrate key points related to the WWDC services. Newgate was consulted to ensure that the videos covered all the key points customers needed to know and were in customer-friendly language (again via our learnings from the qualitative groups). Each video was shown in the survey just before questions about the topic it dealt with: Introducing Melbourne Water; Stormwater; and Litter. We considered video to be easier to assimilate and more engaging than only showing text and static images throughout the survey. During the creation of the videos, we were very conscious to ensure the information was presented in an informative way and not in a way that appeared to push, promote or sell a particular agenda. Videos were subtitled (e.g. for those who did not want to watch with sound on), and it was a survey requirement that they were played all the way through prior to the next questions being answered – they could not be skipped or fast-forwarded, though they could be re-watched if participants wished.

- **Images** were also used at certain points in the SIMALTO to help explain and further bring the services to life.
- **Cognitive testing** of the survey was conducted with a range of customers – as noted earlier, specifically including those who may have more difficulty in understanding the survey e.g. lower literacy. This testing was conducted once the survey was programmed, so that participants had the full experience.

An additional step we took was a follow-up survey (with n=77 SIMALTO participants) to delve deeper into some responses in an open-ended way. This in part acted as an additional check that people had understood the services presented in the survey; their responses indicated that this was indeed the case.

8. Why were points used by NEWGATE instead of the actual cost of providing services?

The decision to use points instead of specific dollar values is a common approach used in SIMALTO studies to ensure the highest level of understanding and realistic decision making from survey participants.

The theory underpinning a points-based approach is that it provides participants with an easy, proportional understanding of how each of the attributes and their associated service levels differ. Ultimately, we want to understand what services people would value more or less, balanced against minimising the overall cognitive load involved in the exercise. The use of points instead of dollars has been found to lead to quicker comprehension and response times in allocating their budget, while also limiting the effects of any social biases that can be involved in using dollar differences as a response measure.

For examples from academic literature around the use of points for SIMALTO designs, please see:

https://academic.oup.com/jcr/article/5/2/103/1805825

https://www.sciencedirect.com/science/article/pii/S0313592600500022

http://www.accessecon.com/Pubs/EB/2015/Volume35/EB-15-V35-I2-P88.pdf

In addition, it's worth noting that the dollar figures for some of the services we were testing, when looked at per-person per-year, were so negligible that using these would not have been meaningful for customers.

	Ultimately in Q16 we did show people what their selections would equate to in dollar terms as a total Charge (this is more reflective of reality – i.e. the Charge has only ever been shown to customers as a total amount and not split out by service).
Sample	9. Which online panel was used to conduct this study? Newgate used third-party provider i-Link to host the survey and source the sample for this study. For residential customers, i-Link used a combination of three panels: • i-Link's own panel • Research Profile • Octopus The reason for the use of multiple panels is feasibility: we needed n=1000 metro and n=200 rural customers within the Melbourne Water service area to complete the survey, and this was not feasible using one panel alone. Using multiple panels is common practice in the social and market research industry for studies within targeted geographic locations and for non-residential audiences; duplicate participants are checked for in and across panels, and removed. But the aim is to use as few as possible per project. So the greater the number of completed surveys a panel is feasible for, the better (as opposed to using 5-6 smaller panels). This is why these specific additional panel providers were selected. For non-residential customers, i-Link used Research Profile's business-to-business panel. This was selected because it is the largest B2B panel, and with restrictions on postcode (i.e. we only wanted to survey postcodes within Melbourne's UGB) it was deemed our best option for guaranteed feasibility. Further notes on the panels used: i-Link is ISO27001 and ISO20252 accredited. Research Profile and Octopus are managed in line with i-Link's 3rd party management ISO policies.

10. Were tenants (who don't directly pay WW&D charge) included in this study? What percentage of participant were tenants?

Yes, tenants were included: 26% of the residential customer sample were tenants, and 27% of the non-residential sample were tenants.

Please also see Q5 – first bullet – for a note on how and why this group was included in the sample.

11. The NEWGATE report states that the sample size is 1,354 with an error +/-2.7 percent at the ninety five confidence level. Please provide further information about this, including a description of what is meant by the sample size having an error margin, how the margin of error was determined and what the confidence level means in this context.

The margin of error (MoE) is a standard statistical calculation which tells you by how many percentage points your results may differ from the real population value). For example, a 95% confidence interval on a result with a 2 percent margin of error means that if we were to repeat the survey, the result would be within 2 percentage points of that value 95% of the time.

The MoE is calculated using the formula below and assuming a 50% response result (the response level at which the error is highest, noting that the error takes a bell curve, declining to zero for a result of both 0% and 100%):

$$\text{Margin of error} = z \times \frac{\sigma}{\sqrt{n}}$$

n = sample size • σ = population standard deviation • z = z-score

Of course it is not feasible to survey the entire population, so a *sample* of the target audience is surveyed, with steps involved to make the sample as representative of the target population as possible. The larger the sample size,

	the smaller the MoE (up to a point[2]), and therefore with larger samples we can be more confident that a poll result would reflect the result of a survey of the entire population. However, considerations of sample size need to be balanced against the client's available budget. As a rule of thumb, the best practice *maximum* error margin on surveys is +/-5% at the 95% confidence level, which is usually achieved with a total sample of n=384. However, in this instance we needed to be able to analyse the results in more granular detail and by different demographic groups, and we wanted to provide a greater level of accuracy given the importance of Melbourne Water's decisions, so we surveyed a larger sample of n=1,354 customers. 12. Are separate models estimated on each sample? Are the sample sizes for each segment sufficient for the statistical methods applied? The models are calculated at a respondent level, which means separate models are not estimated on each sample. The model is akin to a self-explicative conjoint where utilities are computed from stated individual data. A statistical model is not estimated like we would do in a traditional choice model (i.e. multinomial logit). As such, the sample sizes for each segment are sufficient for the methods applied, appreciating our response to Question 11 about sample size and accuracy levels.
Survey design	13. What was used to determine the order of alternatives presented to participants? Did the survey design take any steps to address order effects that can potentially influence the choice respondents are observed to make? Was there any theoretical or statistical basis underlying the presentation of the order of the alternatives? Yes, the survey took steps to address order effects. The order in which participants were shown each of the five 'service groups' (i.e. Stormwater,

[2] There are, however, diminishing returns in the level of accuracy that can be gained by surveying more people. For example, a survey of n=5,000 generally has an error margin of +/-1.41%, and for n=10,000 it is +/-1.00%. It is extremely rare for client organisations to have the budget available for such large sample sizes, if they are even feasible, and often the added level of accuracy is not considered to be worth the extra cost.

Waterway Condition, Land, Flood and Other Services) was randomised for each survey participant.

Furthermore, the order in which each of the specific activities **within** each of those five service groups was shown was also randomised.

This randomisation approach is a scientific and industry standard to mitigate any effects of ordering on survey participant response behaviour and final data quality.

This randomisation was done in Round 1 only. In Rounds 2 and 3, each person saw the activities and services in the same order as they did in Round 1, to avoid confusion and minimise the cognitive load.

14. What actions, if any, were taken to ensure participants made a deterministic decision in each trade-off question (i.e. they don't randomly select one option) or to identify circumstances where they were not making such a decision?

There are several steps we took to ensure that people were not randomly selecting options, but rather making deterministic decisions.

Firstly, we should note that this is an issue in **any** quantitative survey and/or choice study. As such, we ensure that we have a large enough sample to minimise the impact of any "incorrect" data of this sort. In addition, we utilise reputable and accredited panels, and the survey host/panel provider conducts a series of checks during and after fieldwork to ensure sample quality and provide confidence in the results (e.g. removal of "speeders"; IP address detection and unique link survey mailouts to prevent individuals completing the survey more than once, etc.)

Referring now to this particular survey, we should note that one *potential* action to ensure deterministic decision-making *could* have been to ask a series of open-ended questions throughout the SIMALTO rounds (i.e. asking people to explain the decisions they'd made about each service). However, this is not really feasible: given that there were 13 services under discussion, and several rounds of SIMALTO, multiple open-ended questions would have added significantly to the survey length (which was already necessarily on the long side due to the amount of customer education required, and the

SIMALTO process itself) and the burden placed on participants. This would have risked reducing their overall engagement, exacerbating satisficing behaviour and potentially encouraging dropout of all but the most highly engaged. We did ask a couple of open-ended questions though, and we did review these responses to check that they were taking it seriously, had understood the process, etc., after the survey's soft launch (n=78 completed responses), and again after the survey was closed.

As such, there are a range of other steps we took to ensure our findings were accurate:

- Within the choice component of the survey we used a timer mechanism that prevented individuals from skipping through the questions too quickly. This "locked" them onto each screen to maximise the chances of them fully reading the information. Informational videos were unable to be skipped or fast forwarded.
- Cognitive testing prior to survey launch, to understand (and improve, if needed) the participant experience, including their understanding of what was being asked of them during the survey and the ease with which they responded. This testing proved very valuable and some adjustments were made.
- A follow-up survey, completed by n=77 participants, to further explore and understand some responses. This was sent to a cross-section of survey respondents who answered Q16 of the survey in different ways. All questions were open-ended, enabling us to gauge how well people had engaged with and understood the survey.
- Cross-checking the outcomes of the survey: Did they make intuitive sense? In particular, did they align with what we heard in the qualitative fieldwork – and if not, could the differences be explained through further analysis? This type of analysis can be seen at various points within our full report.

Modelling

15. Please provide the network typology used in the neural network (NN), including the full path diagram showing the number of layers, nodes etc.
16. Was the NN trained, or was it applied to the full data?
17. How was the fit of the NN determined (e.g. SSE)? Please provide the relevant fit statistics.

Please consider this as one answer to cover Q15-17. We did not use a neural networks approach. We are unsure how this impression has been given, but perhaps it is a misreading of this sentence from p34 of the report? *"The model itself is a bespoke mathematical model derived from approaches **similar to** neural network designs, and is calculated specifically to the data collected."*

As such, we are not able to answer these questions, but if the answer to Q18 proves insufficient, please let us know and we will of course be very happy to provide any further information required.

18. Please provide details as to precisely what occurred during the simulation exercise, and how the simulation was performed? Please provide NEWGATE modelling documents.

We generated a sample of random combinations of different service levels and simulated the preference level for each new service level vs the current service level for each combination using the preference shares and utilities generated from the model.

There are several options in calculating preference shares, with two of the most commonly used being either the Bradley-Terry-Luce (BTL) share calculation rule or first choice rule (where the alternative with the highest utility is predicted to be chosen). We used the BTL share calculation rule in this instance due to the paired comparison nature of the study design. The BTL rule states that if utility of alternative A=2 and utility of alternative B=1 then share of preference is A = 2/(1+2)=0.67, which means share of preference for B=1/(1+2)=0.33. This process allowed us to determine the final preference share for each attribute.

This process was done across all participant segments considered. The output of the simulations was then averaged by price band so that for each price point we can tell the average, the minimum and maximum preference that can be achieved for each price point. We understand that Melbourne Water has provided all of the modelling outputs to the ESC as part of its submission.

19. Given three rounds have been collected using SIMALTO, and there is only one discrete choice, are there sufficient observations to simulate each sample?

The model is not a discrete choice model. The model is akin to a self-explicative conjoint where utilities are computed from stated individual data. As such the approach doesn't rely on multiple choice or preference observations like a conjoint analysis or choice model would do, and sufficient observations were therefore achieved for this type of approach.

Result interpretation

20. How did this study deal with the issue of hypothetical bias[3] that academic analysis suggests can frequently be displayed in any stated preferences techniques? What mitigation techniques, if any, were adopted to minimise potential bias? What actions, if any, were taken to assess whether the willingness to pay estimated in the hypothetical scenario presented to survey respondents was likely to be reflective of actual behavior or preferences outside of the hypothetical scenario?

The Newgate team was conscious of the potential impact of hypothetical bias in participant responses to the SIMALTO exercise. This bias is a risk in any consumer research survey where people are asked (for example) about their future behaviour or use of services, or willingness to pay for these – and as such it was central to our thinking when designing the survey and broader research program.

Within this survey, it is worth noting that we did not ask people to tell us about their current use or expected future use of particular services (which we know can be unreliable and result in over-reporting), but rather about their *comparative* preferences and willingness to pay for these.

The steps we took to mitigate/prevent hypothetical bias in the survey were:

- **Making sure participants understood that their responses could have binding, real-world consequences:** Please note our response to Q2 above. The SIMALTO exercise was not presented to

[3] Hypothetical biases refers to the bias in the value estimates that can occur when data are collected in a hypothetical setting instead of a real world setting

participants as hypothetical – strong efforts were taken in the survey to explain that responses in the trade-off exercise would have a bearing on Melbourne Water's decisions about the Charge and how the funds would be allocated across the associated services asked about. Survey participants were clearly informed that the choices they made could contribute to a real-world impact on the WWDC at multiple points in the survey, using language such as "How much would you/your business be prepared to pay for the Charge in total per year so that Melbourne Water could provide the services you've chosen?"

- **Explaining the impact of their choices as clearly as possible** i.e. for every service and possible level to choose from, we explained that this choice would (e.g.) likely result in an *increase* to litter in rivers; or would mean the situation stays as it currently is; or would result in improvements to x number of additional areas.
- **Bringing the "real world" into the survey**: using still images and video to help "bring to life" the services and choices they were making, so it was not so removed from the context (e.g. at home, on a computer) in which they were completing the survey.
- **Giving them opportunities to confirm or change their choices:** Cycling through the SIMALTO trade-off three times provides people with more opportunity to consider and reconsider their choices. This has the effect of deepening their engagement with the experience and subject matter (as we see in qualitative group discussions and other consultation elements), while also helping them to further understand and appreciate the complexities involved in the decisions Melbourne Water needed to make in putting the service together. People were asked to confirm their choices towards the end of the survey, by choosing from a set of options reflecting their choices in the three SIMALTO rounds, as well as a subsequent unprompted numeric question asking them to state whatever price they would prefer to pay, considering the services they would like to see delivered under the Waterways and Drainage Charge.

While there may be a concern that people would overestimate their willingness to pay in the survey, it could also be argued that people might be inclined to nominate *lower* amounts in the survey if they thought this could bring their bills

down (even if they might value improvements to waterways and drainage services, rather than higher amounts when this could push bills up). These possibilities were considered in our design.

The comprehensive initial qualitative research (group discussions) and the cognitive survey testing were invaluable platforms to observe people's more natural responses to topics and questions, and identify areas of confusion where clarification or more information would be needed to aid people's participation in the subsequent survey. This included identifying ways to maximise comprehension and understanding that this research would genuinely inform decisions that Melbourne Water would be taking, and that this could in turn affect people's waterways and drainage services and water bills.

Furthermore, the group discussions, alongside the extensive wider internal and external consultation elements conducted by Melbourne Water, played a critical role in assisting with our analysis and interpretation – helping us to understand whether everything aligned and made sense as a whole. In turn, the qualitative follow-up survey with n=77 SIMALTO survey participants gave us further confidence in the process. We could see from the responses in the follow-up that participants had essentially understood the questions, valued the opportunity to be involved, and had responded as meaningfully as they could, appreciating that Melbourne Water would need to make real world decisions that could affect the Charge in future.

21. The report describes a key output of the model as a set of "'utilities' (explanatory, predictive variables)". Is there any theoretical basis for describing the explanatory, predictive variables from the SIMALTO model as "utilities" in the sense that the term is used in economics (i.e. the satisfaction that is gained from consuming a service)?

The questions asked survey participants to select the service levels they would like to see Melbourne Water deliver and then the cost they would be willing to pay for these service improvements. Hence the preference scores we have computed are akin to utilities, which is a standard term used in choice modelling studies.

In closing, we thank the Commission again for the opportunity to respond to these questions, and do hope that we have suitably addressed everything, but please do reach out if you would like any further clarification.

APPENDIX F – Quiet Lakes bore flushing

Quiet Lakes Bore Flushing Tariff Costs

Lake Legana / Lake Illawong - 12mth option (700ML)	**Costs**	
Electricity costs	$16,724	COMMITTED COSTS ex GST based on 2021 rates (twelve months, subtracting 2 week flushing allowance)
Bore Water charges	$3,165	Estimated cost to SRW for bore water based 700M (700ML x $4 + $365 Ground Licence Fixed Charge)
Operational inspection of bore	$511	1 hr per month x 12 months
Preventative maintenance of bore	$2,025	Cost of attending site during the bore trial for breakdown and faults
Pump capital depreciation	$4,514	Depreciation costs for the new 10K spare bore pump and existing 5yr average depreciation costs from 2016 Price submission.
BGA Monitoring - additional inspections (1Nov-30Apr)	$2,592	Visual monitoring of algae for 12 months for Lake Legana/Lake Illawong.
Consultant work required for Bore Water licence investigation	$2,500	MW to contribute 50% of $25K estimate towards the recovery of consultants costs (spread over the regulatory period) for additional groundwater.
Total Resident Bore Flushing Costs	**$32,031**	**Total Bore Flushing Costs for Lake Legana & Lake Illawong.**
Quiet Lakes Properties	251	
Charge per property	**$127.00**	