



MELBOURNE
SEWERAGE
STRATEGY

Melbourne Sewerage Strategy

Discussion Paper, April 2018



City West Water™



The purpose of this discussion paper is to provide informed stakeholders with an overview of what we have done so far and where we are going with the Melbourne Sewerage Strategy. It outlines the purpose of the strategy, the approach, the reasons for change, the future we are striving for and how we plan to get there

What Is The Purpose Of The Strategy?

Melbourne has a world class sewerage system that historically has protected public health and the environment - what about the future?

The purpose of the Sewerage Strategy is to highlight and explain the important role of sewage in the water cycle and provide industry direction for the next 50 years.

The strategy aims to ensure the sewerage system continues to provide valued services to the community in the future as it does today. To ensure Melbourne continues to be one of the world's most liveable cities, we need the sewerage system to go beyond just continuing to protect public health and the environment, and to include using our resources wisely, enhancing liveability and supporting the economy, all while ensuring the system remains equitable and affordable to the broader community.

The Melbourne Sewerage Strategy explains:

- The role the sewerage system can play in making Melbourne a more water sensitive city
- The role of the sewerage system in managing waste
- How policy and regulation can enable change
- How the sewerage system needs to adapt over the next 50 years to achieve the vision, along with how we will make decisions to do this.

Reasons for change

Melbourne faces many challenges over the next 50 years which include:

Population growth. Our population is growing and is expected to reach around eight million people by 2050, with the possibility that it could reach 10 million by 2070.

Technology. Rapid developments in technology change the way that we interact with the world, and open up a range of new possibilities from materials that don't corrode, to smart systems that enable real-time feedback and adaptation.

A new approach

Sewerage strategies have been developed periodically over the years. The most recent strategies were:

- 1985- focusing on future asset development as the city continued to grow
- 1999- focusing on asset and operational optimisation, particularly the optimisation of flows sent to Western and Eastern Treatment Plants
- 2009- focusing on maximising the value of resources while considering different climate and population scenarios. This strategy acknowledged that sewage was not a waste, but a valuable resource containing inputs such as water, nutrients and energy that could be extracted to derive value for the community.

There has been some progress towards unlocking the value of resources from sewage since 2009. The 2018 strategy builds on the 2009 strategy, and aims to move the Sewerage system from a waste disposal paradigm, to one of resource recovery to prepare us for the challenges in our uncertain future.

Changing customer and community expectations. We need to ensure services such as water supply and sewage management remain affordable and equitable for the whole community, while striving to meet changing customer expectations.

Changing urban form. Increasing densification has led to smaller backyards and a greater need for public, green, open space as part of a liveable Melbourne.

Environmental sustainability. The way we manage wastewater needs to protect our ecological systems and ensure healthy waterways, bays and oceans.

More resources being used and more waste being generated. This makes it even more important to maximise the recovery and reuse of finite resources.

Climate change. A drying climate means an increasing number of hot days and increasing storm intensity.

Low carbon future. Renewable energy and a move towards a low carbon future is driving a change in the mix of our energy sources.

The sewerage system interacts with all of these issues. Our communities need the sewerage system to not only continue to protect public health and the environment, but to provide even greater value through supporting liveability in the face of the next generation of challenges.

Foundational Work Summary

The key challenges facing our sewerage system have been addressed by working groups that were each tasked with producing a report on a specific topic.

Work Package 1: Flow and Load. The key finding was that most flow and load growth is likely to occur in the Western Treatment Plant catchment and will be driven primarily by residential growth.

Work Package 2: Current Sewerage System Status. Aging assets are mainly located in the CBD, where renewals are impacted by major infrastructure projects and residential growth. Each water business has different approaches to risk, creating an opportunity to explore better, more synchronised risk management across the industry.

Work Package 3: Future Influences. Many factors will push us to do things differently. These include climate change, the internet of things and changing community expectations. No one thing is novel or new, but the interactions between the different factors will create challenges. For example, a circular economy could mean communities may want to be paid for providing their waste in future.

Work Package 4: Policy and Regulatory Influences. Significant gaps exist in the regulatory framework with regard to small 'building scale' treatment systems, the ability to for water utilities to provide other utility services (such as energy), and having a framework that appropriately attributes risk and benefits with regard to the potential for third party involvement. There has been good advancement in policy around integrated water management and it will be important to ensure that supportive regulation follows, including the appropriate incentives to support the use of 'fit for purpose' water resources that reflect the multiple benefits generated.

Work Package 5: Stakeholder and Community Engagement. The non-water industry is not thinking

long term, but is concerned instead with topical issues. They want the water industry to take on more risk and lead in delivering services. There is a need for agility, the ability to offer complete service solutions and industry education to raise build understanding of the sewerage system, to facilitate uptake of new resource recovery services. The complexity of the regulatory environment limits the appetite for doing new things. Further engagement is underway with findings expected to be delivered during May 2018.

Work Package 6: Maximising the value of resources. Water, energy and biosolids are currently being recovered and reused, however there is plenty of opportunity to make greater use of these resources. There are other resources within the sewerage system that could be optimised, which are at various stages of

What is the Vision for the Strategy?

“Creating a resilient and adaptable system that supports thriving, healthy communities and a liveable, flourishing environment”

The Melbourne Sewerage Strategy will set the direction for Melbourne’s sewerage system for future generations. It will not provide a ‘Masterplan’ or ‘Blueprint’ outlining detailed infrastructure plans for the next 50 years. Instead the Strategy will provide the overarching direction and enable key decisions to be made that will ensure the system adapts and changes to best meet the challenges of the future.

readiness.

Work Package 7: Scenario planning. We can use plausible futures to support strategy development, test assumptions, keep an eye to an uncertain future and help shape our strategic goals and strategy. Cohesive leadership and community realisation of the value of resources are the key drivers which will enable a successful sewerage strategy. Fragmented leadership, and a low value placed on resources is likely to impact negatively on the sewerage strategy.

What have we learnt so far?

Our work so far has identified that the sewerage system has provided Melburnians with a world class sanitation system for over 100 years. It provides Melburnians with a high level of public health and environmental protection, while being equitable across the community.

The emergent themes from the foundational work suggest that to unlock the value of the resources from the sewerage system, the water industry needs to show greater leadership when engaging with the community, be willing to embrace change, look for alternative ways and means of delivering services and work with regulators to ensure that policy and regulation enable an agile response to a changing world.

The key themes include:

Resource recovery. The water industry has recognised there are opportunities for greater use of resources, such as recycled water and biosolids. To date, we have not been able to fully realise the potential of these for many reasons including ability or willingness to pay for infrastructure, geographical location and policy and regulation challenges.

Policy and regulation. The current policy and regulatory environment has supported protection of public health and the environment when considering each source of water in isolation. For example, the provision and supply of safe drinking water has a different regulatory framework to the provision and supply of a high quality recycled water supply. Aligning regulatory management of risk around different sources of water would help to facilitate integrated water outcomes. Current regulations work well for water industry services such as the provision of water supply, sewerage and drainage services, but can lack flexibility to accommodate integrated water management concepts and support the provision of new services.

What are our goals?

By 2070 the water industry sees the key features of our sewerage system in our preferred future being one that achieves the following goals:

Goal 1: Human Health and Wellbeing

The evolution of Melbourne's wastewater system enhances human health and wellbeing now and for the future.

Goal 2: Enhancing the Environment

Melbourne's wastewater system protects and enhances natural assets including waterways, green spaces, biodiversity and marine environments better than any other major city in the world.

Goal 3: Leveraging resources

Melbourne is recognised as a world leader in advancing the circular economy through our commitment to beneficially using 100% of our water and all resources.

Goal 4: Community stewardship

Our communities share stewardship of our wastewater system and have the knowledge, understanding and care for the role wastewater plays in a liveable, city.

Goal 5: An enabling policy and regulatory environment

Our collaborative policy, pricing, and regulatory environment foster an adaptive, scalable, agile and innovative system that enables us to equitably meet Melbourne's needs for the next 50 years and beyond.

Understanding. Engagement with broader industry showed there is limited understanding of the value of resources in the sewerage system once we step outside the water industry. Broader industry is not thinking long term, rather topical issues are at the front of their mind.

Leadership. There is an opportunity for the water industry to demonstrate greater leadership about the importance and value of resources contained within the sewerage system.

Adaptive Planning for the Future

We can no longer plan like we used to. We need a resilient, adaptable strategy for Melbourne's sewerage system.

Adaptive Pathways

Adaptive pathways' planning provides the water industry with the flexibility to deliver our vision in a deeply uncertain future.

The concept of adaptive pathways is to:

- Allow the industry to maintain the widest range of possible futures and keep options open for as long as possible. This gives the greatest flexibility to respond appropriately when the time to make a decision arises.
- Identify key decisions that need to be made and work needed to support the decisions.

The adaptive pathways approach identified a series of key decisions that need to be made by the industry over the next 10-20 years. The resulting choices made as part of each decision sets us on a pathway toward future decisions, which ultimately drive us toward a series of outcomes or future states.

The Sewerage Strategy identified four major strategic decisions related to key system limits that need to be made sometime in the next 10-20 years:

- Augmenting and renewing infrastructure due to reaching of key limits on infrastructure systems such as treatment plants and sewers because of population growth, aging assets etc.
- Managing environmental discharge limits through infrastructure or resource use due to reaching limits such as the Total Nitrogen limit for Port Phillip Bay from WTP, or similar environmental limits for receiving waterways from local treatment plants.
- Whether to accept additional organic and other wastes into the sewerage system as it has many trade-offs and interacts with the other key limits.
- How the sewerage system supports Melbourne's water needs as the city reaches the point of requiring another water supply augmentation.

While each decision may appear to stand alone, there is significant complexity and overlap. For example, the addition of other wastes to the system 'brings forward' augmentation timing for major infrastructure decisions. Providing additional water supply through sources such as a desalination plant augmentation rather than recycling more will increase the volume of water that is not beneficially used, increasing the likelihood of reaching the environmental discharge limit for our waterways and bays sooner.

Adaptive pathway planning acknowledges that to make informed decisions, we need to have technical know-how (knowledge), community sentiment (values) and the policy and regulatory (rules) aligned in order to increase the available decision making opportunities for as long as possible. To achieve, this we need to determine the strategic, tactical and operational activities to prepare for making a decision when the time comes. Being prepared with knowledge to inform decisions ensures each alternative can be considered on its merits and we can better understand the implications of each decision's larger system interactions.

Implementation plan

The implementation plan will set out the actions that need to be undertaken over the next 5-10 years and beyond to ensure the adaptive plan can be implemented and we work toward achieving our vision and goals for the future.

The implementation plan will include actions identified as part of the foundational work packages along with the adaptive plan. The plan is currently still in development.

Engagement and opportunity to shape the strategy

Engagement has occurred with industry and regulatory stakeholders through the development and collection of foundational material to develop the strategy.

A whole of Government forum is scheduled for April 18th to ensure alignment of the strategic direction between Government stakeholders and the water industry.

Community engagement to understand the level of knowledge about the current sewerage system, the views on the goals of the strategy and to find out how the community would like to be involved in the implementation of the strategy is planned for completion in May 2018.

Further engagement will occur as part of the strategy implementation from late 2018.

Where to from here?

The Sewerage Strategy continues to work to a tight timeframe to enable delivery of the strategy by 30 September 2018.

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