Institute for Sustainable Futures

UTS UNIVERSITY OF TECHNOLOGY, SYDNEY

Australian Water Recycling Centre of Excellence

GREENFIELD

Aurora's water recycling scheme is located in a greenfield residential development in Melbourne's northern urban fringe. The plant commenced operation in 2009.

CAPACITY
3.5 ML/d

CLASS OF WATER
A

TYPE
Prefiltration, ultrafiltration membrane treatment, UV disinfection, chlorination

USAGE
Toilet flushing, laundry, garden watering and car washing, irrigation of public open space

Aurora Case Study

Pioneering sewage recycling in a greenfield residential development provides many lessons

This case study illustrates that whilst being a pioneer comes with costs, it also brings substantial long-term benefit. Making the commitment to using recycled water at a new large residential subdivision was, at the time, a high-stakes decision. Assessing the risks in the unfamiliar territory revealed surprising insights about the familiar but less-well examined business-as-usual approaches. The business value Aurora provided for Yarra Valley Water to learn-by-doing is deemed to have outweighed the financial costs.

This study is funded by the Australian Water Recycling Centre of Excellence under the Commonwealth's Water for the Future Initiative

ABOUT THE PROJECT

This national collaborative research project entitled "Building industry capability to make recycled water investment decisions" sought to fill significant gaps in the Australian water sector's knowledge by investigating and reporting on actual costs, benefits and risks of water recycling **as they are experienced in practice.**

This project was undertaken with the support of the Australian Water Recycling Centre of Excellence by the Institute for Sustainable Futures (ISF) at the University of Technology Sydney (UTS), in collaboration with 12 partner organisations representing diverse interests, roles and responsibilities in water recycling. ISF is grateful for the generous cash and in-kind support from these partners: UTS, Sydney Water Corporation, Yarra Valley Water, Ku-ring-gai Council, NSW Office of Water, Lend Lease, Independent Pricing and Regulatory Tribunal (IPART), QLD Department Environment & Resource Management, Siemens, WJP Solutions, Sydney Coastal Councils Group, and Water Services Association of Australia (WSAA).

ISF also wishes to acknowledge the generous contributions of the project's research participants – approximately 80 key informants from our 12 project partners and 30 other participating organisations.

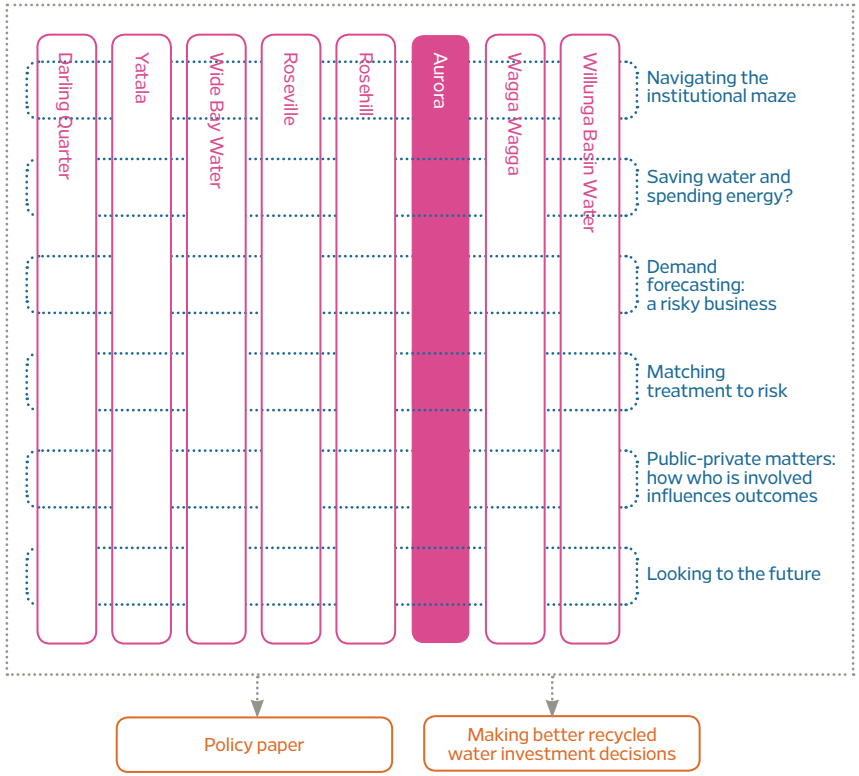
Eight diverse water recycling schemes from across Australia were selected for detailed investigation via a participatory process with project partners. The depth of the case studies is complemented by six papers exploring cross-cutting themes that emerged from the detailed case studies, complemented by insights from outside the water sector.

For each case study and theme, data collection included semi-structured interviews with representatives of all key parties (e.g., regulators, owners/investors, operators, customers, etc) and document review. These inputs were analysed and documented in a case study narrative. In accordance with UTS ethics processes, research participants agreed to participate, and provided feedback on drafts and permission to release outputs. The specific details of the case studies and themes were then integrated into two synthesis documents targeting two distinct groups: policy makers and investors/planners.

The outcomes of the project include this paper and are documented in a suite of practical, accessible resources:

- 8 Case Studies
- 6 Cross-cutting Themes
- Policy Paper, and
- Investment Guide.

For more information about the project, and to access the other resources visit www.waterrecyclinginvestment.com



ABOUT THE AUTHORS

The Institute for Sustainable Futures (ISF) is a flagship research institute at the University of Technology, Sydney. ISF's mission is to create change toward sustainable futures through independent, project-based research with government, industry and community. For further information visit www.isf.uts.edu.au

Research team: Professor Cynthia Mitchell, Joanne Chong, Andrea Turner, Monique Retamal, Naomi Carrard, and Janina Murta, assisted by Dr Pierre Mukheibir and Candice Moy.

Contact details: Cynthia.Mitchell@uts.edu.au, +61 (0)2 9514 4950

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Summary

The Aurora case study illustrates that whilst being a pioneer comes with costs, it also brings substantial long-term benefit. Aurora, a large scale residential third pipe system, was one of the first of its kind in Victoria, so making the commitment to recycled water was, at the time, a high-stakes decision, surrounded by a great deal of uncertainty and serious consequences. Going ahead with the water reuse scheme meant exploring new ground. Assessing the risks in this unfamiliar territory revealed surprising insights about the familiar but less-examined business-as-usual approaches to sewer and water provision for Yarra Valley Water.

This case study highlights the value of a proactive evidence-based approach to risk assessment, whilst noting that other unexpected shifts will occur. For Aurora, it was Yarra Valley Water that bore the brunt of the increased costs associated with changes in the policy and organisational landscape. As Yarra Valley Water was required by the Victorian Government to contribute to a water recycling target, the financial costs of Aurora could be spread across Yarra Valley Water's customer base. At the end of the day, the value Aurora provided as an innovation space for 'learning by doing' is deemed to have outweighed the financial costs.

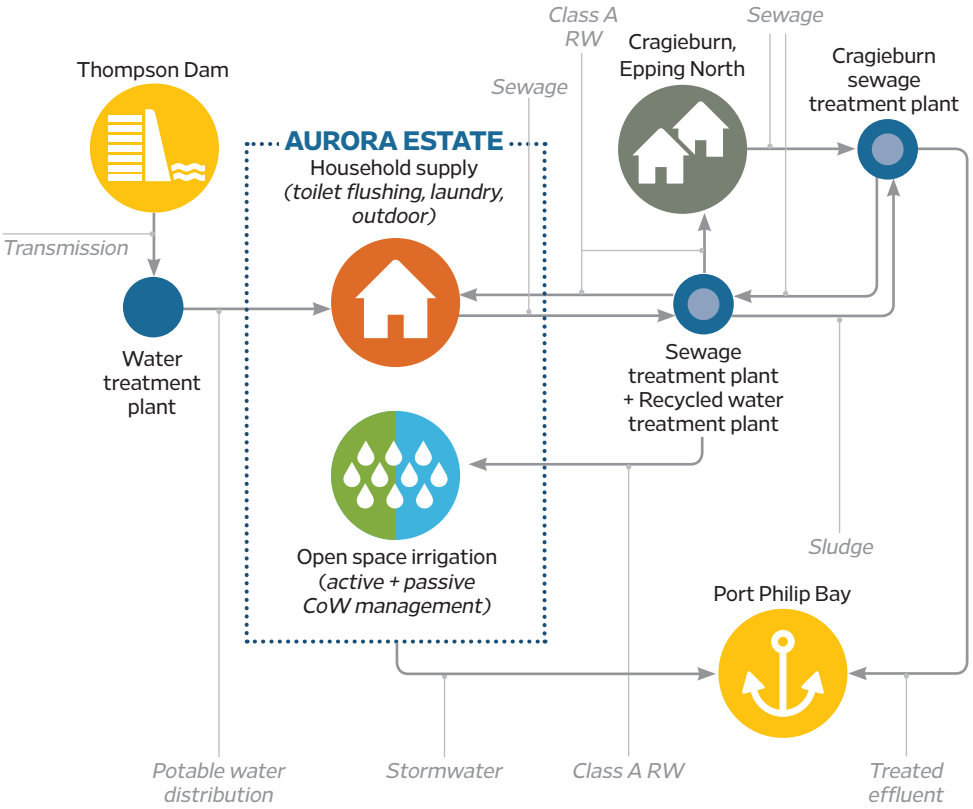
The scheme

Aurora's water reuse scheme is part of a large-scale greenfield residential development in Melbourne's northern urban fringe, in Epping North, City of Whittlesea. The development was launched in 2006 and is due for completion around 2025-2030. The scheme was designed to serve 8,500 homes and currently serves 2,500 with recycled water for toilet flushing, laundry and garden watering as well as public open space irrigation. It took around 8 years to progress from the earliest feasibility discussions to commissioning the recycled water treatment plant in 2009. Continuing operational difficulties have constrained the actual volume of recycled water provided.

The key stakeholders include:

- Urban and Regional Land Corporation (URLC) (1979-2003), VicUrban (2003-present)
  The developer
- Yarra Valley Water (YVW)
  Water retailer
- Coomes Consulting
  Consultant appointed by developer
- City of Whittlesea (CoW)
  Local council
- Melbourne Water (MW)
  Melbourne wholesale water company
- Environmental Protection Agency (EPA)
  Regulator
- Department of Health (DoH)
  Regulator

Operation & maintenance of scheme



Like all innovations, the early days were unsettling

The low cost of raw land and remoteness from sewerage services provided the opportunity to demonstrate the role of water recycling in sustainable residential development. The idea of the water reuse scheme was developer-led. The Urban and Regional Land Corporation (URLC), the Victorian Government's development agency, had a mandate for implementing a strong sustainable development agenda. URLC was looking for a site to demonstrate the viability of this agenda to the commercial development sector. Viability was dependent on two key factors: implementing a large-scale project in order to distribute expenditure over a larger number of households, and low raw land costs so that the final price to market was acceptable, so that the government received adequate returns.

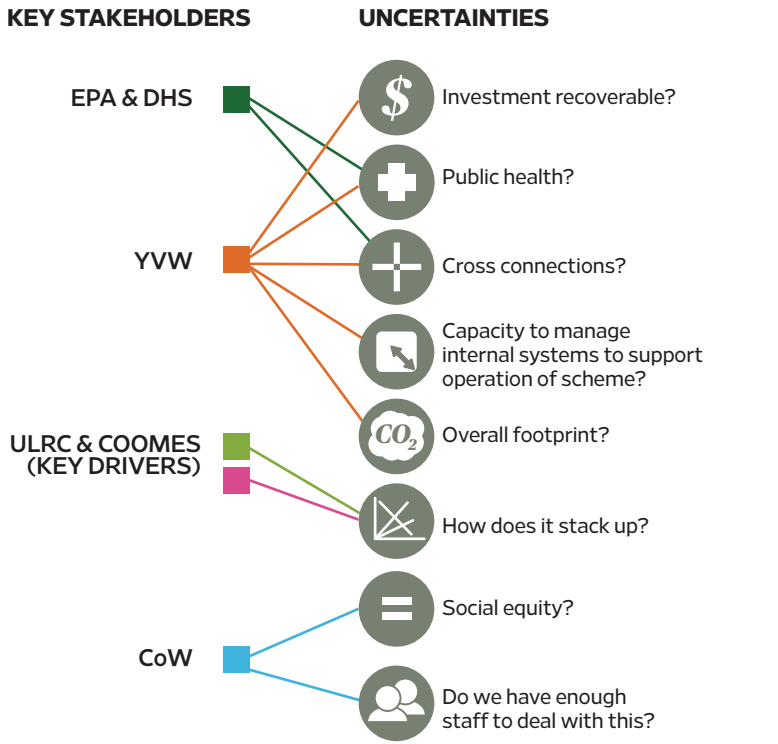
Aurora delivered on both these criteria so it was chosen as the site for the sustainability experiment. That experiment extended to the provision of recycled water because the area lacked a trunk sewer, and its provision was at least a decade away. URLC saw this constraint as an opportunity to develop a third pipe scheme and demonstrate the role water reuse could play in sustainable residential development. These decisions were all taken before Melbourne's driest decade on record.

> "We just decided as a government agency that this next project [...] was going to demonstrate the sustainability initiatives. We led it, we pushed for it, we wanted all this, we looked for all these opportunities."

Most stakeholders were initially very cautious

In the early days, only the developer and their consulting engineers were enthusiastic about the recycled water scheme. In 2001, three years after purchasing the land for the development, URLC approached Yarra Valley Water. The idea of a third-pipe scheme was deeply challenging to the long-held industry values at the time, of providing low-risk services at the lowest cost, so it was received with some anxiety and resistance. There was no residential recycling elsewhere in Victoria, and the only other example nationally, at Rouse Hill in NSW, was yet to start production. There were no regulations to direct the implementation of residential third-pipe systems. The only available guidelines focused on agricultural uses and did not offer any advice on acceptable levels of treatment for residential scenarios. There were grave concerns about cross-connections and the lack of experience in such schemes. There was also uncertainty about the

Early concerns



validity of the claim to sustainability - would the water saving benefits really offset the environmental impacts associated with the additional materials and energy required?

Finally, there was the recognition that this addition to the types of services provided would have massive ramifications for the business as a whole. Every division of the utility would need to add to its repertoire of knowledge, skills, and materials. Breakdown maintenance vehicles would need to add recycled water componentry, the communications team would need to acquire recycled water knowledge and briefings and educational materials. New billing and separate metering services were required, the call centre would need training, asset planners would need new tools, etc.

The City of Whittlesea Council was cautiously optimistic. The Epping North area had been identified by the City of Whittlesea as a growth corridor in the 1980s, but the lack of sewer access meant nothing had progressed. The leading edge nature of what was being proposed enabled URLC to invest heavily in supporting studies - the calibre of the submissions prepared for City of Whittlesea was 'impressive', and well above what they were used to seeing, so even though it did not have the staff capacity to service URLC's needs, the City was not overly concerned.

"So, [they were] challenging ideas for us out here in the sticks to come to terms with. But [...] it was the sort of risk you'd like to have.

Quantifying the actual risks revealed surprises, challenged industry misperceptions and provided the confidence to adopt a "learning by doing" approach.

In the face of persistence from the developer and its consultants, Yarra Valley Water's response to these uncertainties was to seek help from experts to investigate the unknowns, and to generate for themselves an evidence base to support their decisions. Two surprising insights emerged: firstly, a life cycle assessment, and some years later a risk assessment revealed that some risks for Melbourne's existing system were more significant than those posed by the recycled water scheme. For example, this work identified the massive risk associated with bushfires in primary catchments many years before the terrible events in 2009. Secondly, a life cycle assessment revealed that the environmental costs of the third-pipe scheme were at least comparable to business-as-usual in that location. An outcome of this process was that YVW realised the benefit that taking ownership over the development of the scheme would have for organisational collective experiential learning, a benefit which was perceived to offset the costs. Despite this realisation, there were, understandably, times when their strength of conviction wavered, because the scale of the undertaking was significant, and both the stakes and the uncertainties were high.

"... the turning point was that realisation that we didn't actually have to work out whether it was the right appropriate solution or not, but it was a willingness to try a different solution and that's the collective learning that was the value for us and not to get hung up on whether the recycled solution was the most sustainable solution at that location at that time, but to say let's work together and wherever it ends up, that will give us the skills to be where the future is."

"...it was part of the background sense that was making other people nervous...I remember [senior officer at CoW] coming into tell me that he'd just got off the phone with [senior officer at YVW] and he asked me, can you prove that this stacks up? Which kind of implied that Yarra Valley Water was struggling to prove that it stacked up too."

As Yarra Valley Water commited, the tables began to turn

> "...it was all about meeting our government requirements [for contributing to] recycling targets so we saw this as a big player in that"

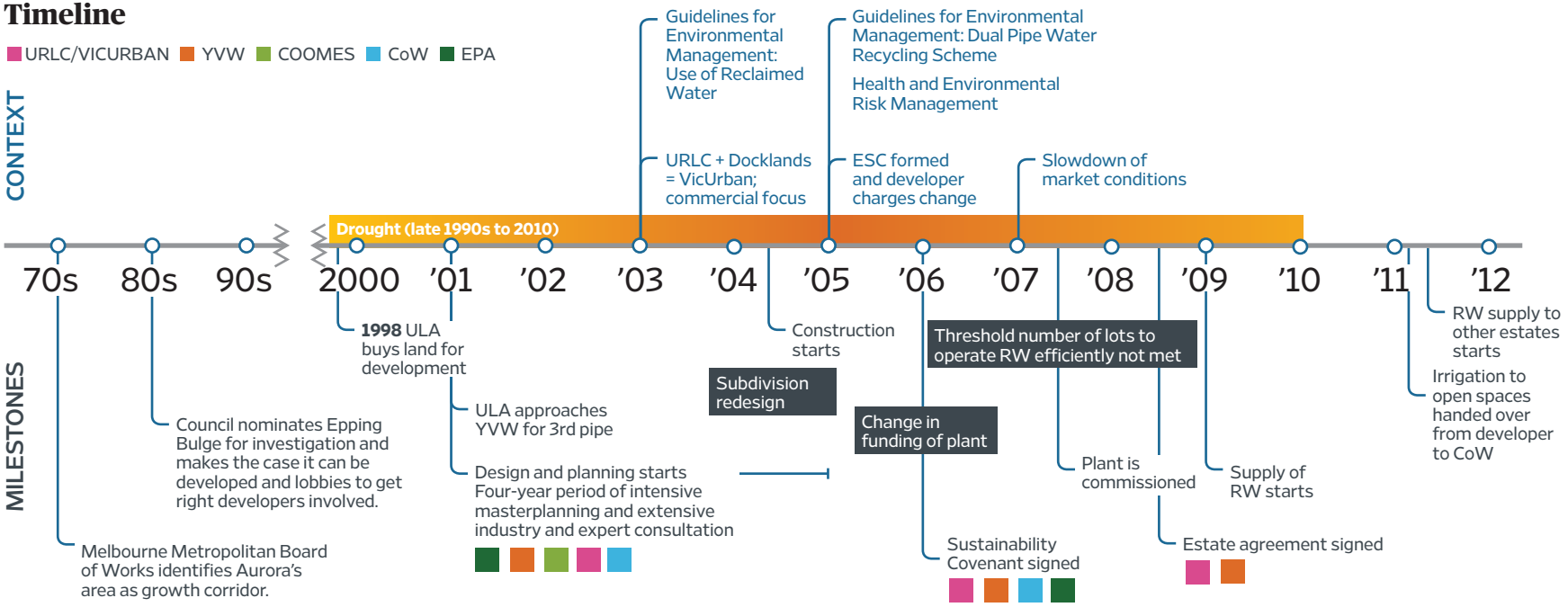
Contextual changes result in increased costs and reduced revenues

In 2002, just a couple of years in to what became Victoria's longest drought on record, a target to achieve 20% water recycling of Melbourne's sewage by 2010 was mandated by the Victorian Government for metropolitan Melbourne water businesses. As such, water utilities were being encouraged to invest in water recycling, which reinforced YVW's commitment to the scheme, and encouraged Yarra Valley Water in its decision to take on responsibility for scheme design and construction. Yarra Valley Water's consultants believed it was cheaper to build the whole plant in one go, whereas URLC's consultants believed it would be cheaper to stage construction. URLC had an aggressive timeline for the development, so Yarra Valley Water decided on a single stage.

Soon after YVW made this decision, the context began to shift significantly, mostly to Yarra Valley Water's detriment.

In 2003, URLC merged with Docklands Authority to become VicUrban. The merger led to a shift in the organisation's philosophy, and the impact on Aurora was a strengthening of the commercial imperative, and a weakening of the sustainability imperative. VicUrban put

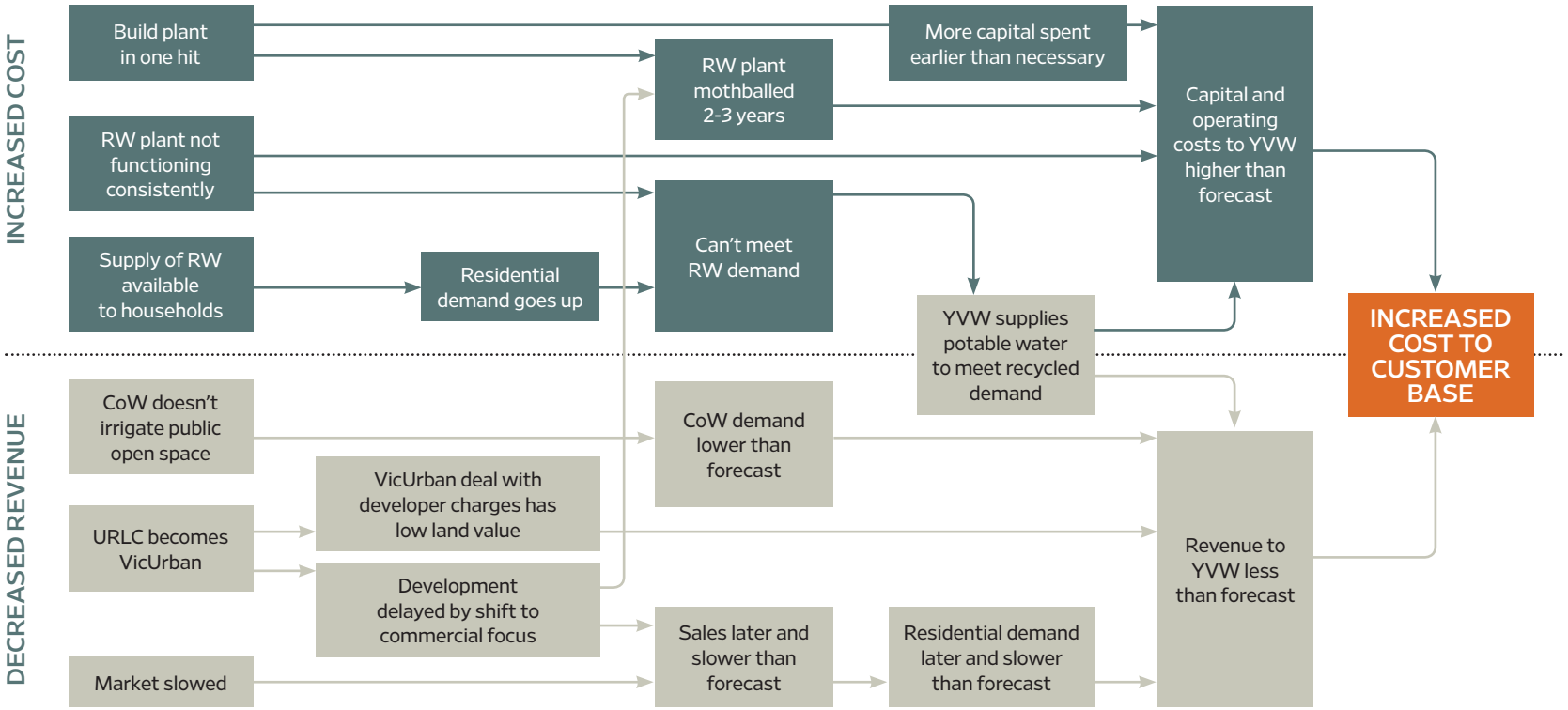
Timeline



a hold on Aurora for 12 months while the lot density was reduced and the layout of the development was redesigned with the objective of higher returns. This reduced number of lots resulted in reduced recycled water demand and reduced revenue for Yarra Valley Water. By the time the development was ready to proceed, the broader economic circumstances had changed and there was a slowdown in market conditions, so the uptake of lots was significantly slower than anticipated. The combination of lower and slower growing demand meant that the recycling plant was mothballed for 2-3 years after construction because of inadequate flows. As a first generation scheme, the plant has continued to have operational difficulties. Whenever the recycled water plant is inoperable, recycled water demand has had to be met with potable water supply that Yarra Valley Water purchases from Melbourne Water, increasing costs and decreasing revenue for Yarra Valley Water. At the same time, costs increased for the developer. Because there was no sewage outlet for Aurora, sewage waste had to be trucked to nearby Craigieburn – a significant cost to developers over 3 years.

Recycled water use at Aurora changes seasonally because of the outdoor component, but supply is constant, so a key question was how to balance storage and discharge, in a manner that improved the environmental quality of the creek. The EPA decided that complete winter storage was required for recycled water, even though the quality of the

How one thing led to another...



discharge was better than the background quality in Merri Creek. Because the EPA would not grant a discharge licence, Yarra Valley Water needed to include significant winter storage (280ML) in its design, increasing the size of land parcel required.

> "We were told, we're going to have people there on such and such a day and, therefore, you needed to have the treatment plant ready. So we push and push but, when the time came, we never got the lots that the developer said we were going to get. So what we then had was an infrastructure that couldn't be commissioned properly because you need a threshold number of households before you can work a treatment plant efficiently."

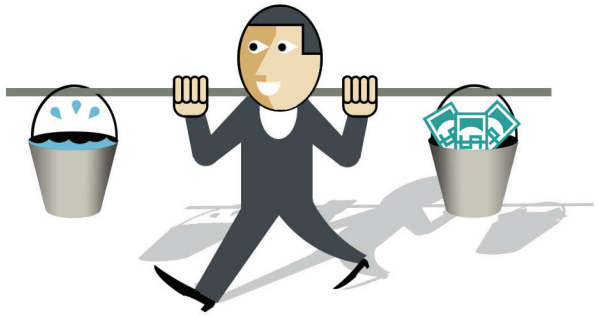
Around this time, VicUrban negotiated with Yarra Valley Water to do a land swap in lieu of developer charges. Yarra Valley Water needed a significant parcel of land for the sewage treatment and recycling plant, including appropriate buffers because of the proximity of future residential land, and a large storage as noted above. The value of this land was to act as a deposit in advance - as lots were developed, the value of developer charges was subtracted from the value of the land, with VicUrban not required to contribute cash until the 'deposit' was exhausted. Two factors conspired against YVW in this process. Firstly, when the Essential Services Commission was formed in 2005, it set developer charges at a fixed rate of $500 per service per lot (sewer $500; recycled water $500; water $500), significantly lower than the cost recovery rates (sewer: $4,607; RW: $4,107; water: $3,817 per lot) previously agreed between YVW and the developer. This reduced the rate of drawdown on the land deposit. In addition, at the time of the exchange, the land was categorised as 'develop-able' and therefore of high value. What has emerged since is that environmental restrictions mean it is not developable, so it is of lower real value. This means Yarra Valley Water was unable to recover the full capital costs of the scheme from the developer, and instead recouped outstanding costs from the customer base as a whole.

In 2005, the Victorian Gov't reduced developer chargers from around $12,000/lot at Aurora to a flat fee of ***$1,000/lot.***

Yarra Valley Water's internal assessments of water use at Aurora over a two-year period have revealed two key points: first, that recycled water use at Aurora makes up slightly less than 30% of total demand (around 105L/hh.d), consistent with toilet flushing and outdoor use. Secondly, provision of recycled water has led to an overall increase in demand i.e., Aurora residents use about 10% more water on average than similar households without recycled water. This exacerbates the financial issues associated with the operational difficulties outlined above.

10% more
water used by Aurora residents on average than similar households without recycled water

The financial burden is manageable for Yarra Valley Water and their customers



There are different ways to view the costs associated with Aurora. From the perspective of direct costs on a per household basis, the marginal (additional) costs are high – around $4000 to $5000 (2004$) for capital expenditure and $1000 to $2000 (2010$) per annum for operation and maintenance.

However, Aurora customers currently represent less than half of one per cent of Yarra Valley Water's customer base, so when these costs are spread across that base, they become negligible. Ultimately, Yarra Valley Water had a requirement to contribute to a state government target for recycling Melbourne's sewage, so it is reasonable for the additional direct capital and operating expenditure associated with the provision of recycled water

beyond that recovered from the developer to be recouped through pricing submissions to the Essential Services Commission. When spread across the entire customer base, the marginal additional costs of Aurora are about $10 per household per year, or less than one extra cup of coffee per customer per year.

The indirect costs associated with managing the project and upskilling every division of the business were substantial, but harder to track. Estimates are in the order of $10 million. These costs have not been recouped directly, but rather are part of the investment in learning by doing.

New audit program adds further costs

The Victorian Department of Health and Services remains concerned about the ongoing risk of cross-connections, and therefore has rolled out a new management program, wherein all households connected to recycled water undergo an inspection audit every 5 years. The main elements of the cost of this program are records management and the inspections themselves. A ballpark estimate is around $250/inspection, or $50/household/year (2012$). Under current arrangements, that cost will be borne by Yarra Valley Water, so it too will be spread across the customer base.

The Aurora reuse scheme opened pathways for the sector and served as an important learning vehicle for stakeholders.

The experience with Aurora exposed the regulatory uncertainty around water recycling at the time, prompting EPA to address this, whilst providing room for learning on how to undertake water reuse projects. This led to the development of the Guidelines for Environmental Management: Use of Reclaimed Water (EPA, 2003) and the Guidelines for Environmental Management: Dual Pipe Water Recycling Schemes - Health and Environmental Risk Management (EPA, 2005). The contribution of key stakeholders involved in the Aurora Estate development was instrumental to these guidelines.

In 2006, the Environmental Protection Authority, VicUrban, Yarra Valley Water and the City of Whittlesea signed a sustainability covenant in which they agreed to work in partnership to increase the resource use efficiency and reduce the ecological impact of Aurora. This covenant also provided the signatories recognition of their leadership role in the sector and legitimacy to add value beyond Aurora, by sharing knowledge gained through their experience.

> "I think one critical factor for us is that, we kept in very close touch with the regulators. So there was no surprises for them. We took them through everything, worked closely with those guys"

> "I think the biggest success of the introduction of that system was to provide a case study at scale that enabled the agencies to understand how it could be done, to understand the risks and how to mitigate those risks and to also understand the community benefit of introducing a recycled water system."

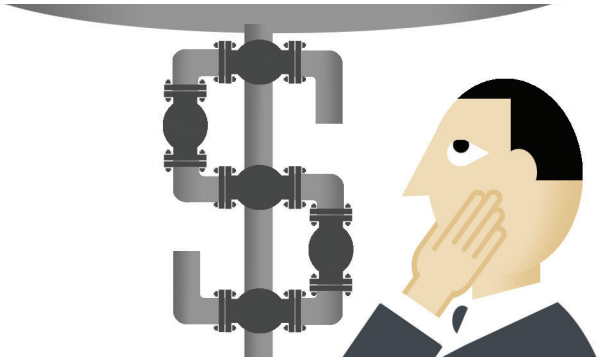
Aurora residents come out ahead in the long run

In contrast to many of the sustainability services promised to new residents, recycled water was available from Aurora's earliest days. New home buyers at Aurora have additional costs associated with the recycled water scheme. These include direct costs, such as site audits and inspections, an additional meter, different threads for the recycled water line, and an additional hook-up fee. They amount to around $2000-$2500 (2012$). Some suggest buyers will be willing to pay more for land supplied with recycled water, but this is questionable since others have shown Aurora purchasers' and residents' focus is on other sustainability features, not water.

In terms of ongoing bills, Aurora residents on average use slightly more water in total than others, but recycled water accounts for 25-30% of use, and the recycled water tariff is lower (currently 85% of Block 1 for potable water), so under

$10
or less is the marginal additional costs of Aurora per household per year, or about one cup of coffee for each of Yarra Valley water's customers each year.

current arrangements, bills are about the same as similar households without recycled water. Aurora residents have the significant advantage of a non-restricted water supply for outdoor use in periods of drought. What is most intriguing, given all this, is that Aurora's residents have little interest in their recycled water relative to other in-house sustainability measures, such as energy consumption.



The outcomes for Council are mixed

The scheme has brought both benefits and costs for the City of Whittlesea. Whittlesea is the 3rd-most ethnically diverse LGA in Victoria, and soccer sporting fields are a core community asset, so local access to recycled water for key sporting fields became a valuable benefit during what became a significant drought in the 2000s. Whilst City of Whittlesea keenly supported a local public awareness-raising program about the safety of recycled water, it was also very concerned about the lack of social equity associated with the opportunity to irrigate passive public open space within Aurora, but not elsewhere. VicUrban had different drivers, so they installed the underground infrastructure for irrigation of passive public open space, and operated it for the first two years in each sub-release, in order to improve the look and feel of the areas for sale, especially during drought. Council did not want this investment to be made because in the longer term it is a drain on resources. When VicUrban hands over responsibility for the passive public open space irrigation infrastructure to Council, the City of Whittlesea has to choose between managing it at a cost or ignoring it at a risk i.e., between meeting the costs of maintenance and water bills to provide a socially inequitable outcome, or bearing the risk of the system becoming a hazard for machinery and the public over time, as ground movement gradually pushes the unused and eventually unusable infrastructure up to the surface. Either way, the City of Whittlesea loses.

Summary

The value of Aurora is not in its scale, but rather in its pioneering position, and the lessons it revealed.

Aurora represents a very small fraction (around 0.2%) of Yarra Valley Water's customer base, and around 2% of City of Whittlesea's population. As such, its contribution to the recycling landscape in metropolitan Melbourne is small: in 2010/11, Yarra Valley Water contributed about 3% of the recycling target (just under 2 GLpa), and Aurora represented about 5% (about 100MLpa) of Yarra Valley Water's contribution. The experience with Aurora's reuse scheme challenged traditional views on water management held within the stakeholder organisations, and provided an opportunity for organisational learning and change towards sustainability. YVW was challenged in the way it operated and considered water supply alternatives. This triggered an organisational shift which laid the foundation for becoming a learning organisation, cementing Yarra Valley Water's position as a sectoral leader nationally and globally in sustainability and innovation.

Costs, risks and benefits

UTILITY (COSTS AND RISKS)

CAPEX

- **Administrative costs (estimate $2M)**
  - Extra staff employed (approximately 6 person years)
  - Extra internal meetings
  - Implementing extra processes (e.g. training of call centre staff; training of maintenance crews; training and auditing plumbers)
- **Planning and consultation, asset creation, and restructuring customer interface and billing system (estimate $2M)**
- **Assets cost and construction: $37M (2004/5$)**
  - Pipes ($13.7M)
  - Pump station ($2M)
  - STP and RWTP ($16.7M)
  - Storage ($4M)
  - Irrigation system ($700,000)
- **Costs of other public health risk management mechanisms**
  - Three checks during construction
  - Development of welcome kit for new homeowners
- **Costs of re-servicing plant due to not being able to commission plant in time**

OPEX

- **RW meter reading**
- **Management of interface with centralised network**
- **Management of licences**
- **1 in 5 EPA audit: $50/hh/yr (EPA requirement that all households connected to RW undergo an inspection audit every 5 years)**
- **Ongoing education of users**
- **Plant operation and maintenance**
- **RW redistribution system maintenance**

RISKS/EXPOSURE (QUALITATIVE)

- **Actual cost recovery was significantly slower than planned**
- **Cost recovery as planned**
- **Public perceptions/ trust on RW investment**

Total cost (estimates)

$50M
Total CAPEX estimate ($2004)

$25M
Marginal CAPEX estimate associated with recycled water provision, over and above sewerage services ($2004)

$2-2.5M p.a
OPEX (2004$)

UTILITY (BENEFITS/REVENUE)

Monetised

- **Land: $2.7M**
- **Developer charges**
  - Initial:
    RW ($4,107/ lot)
    Water (3,817/lot)
    Sewer ($4,607/lot)
  - Current developer charges (after 1 July 2005):
    RW ($500/lot)
    Water ($500/lot)
    Sewer ($500/lot)
- **Residential RW water charges**
  85% of potable water
- **Avoided costs**
  - Delayed cost of building sewer trunk main to Werribee for another 10 years
  - Avoided costs of water and wastewater bulk charges payed to Melbourne Water
    - Used in modelling:
      Sewer ($632/ML)
      Water ($325/ML)
    - For 2013/14 charges likely to be:
      Sewer ($1,910/ML)
      Water ($2,430/ML)
  - Avoided nitrogen costs

Non-monetised

- **Sustainability credentials**
- **Organisational learning, restructuring and shift**
  - Repositioned YVW as a leader in sustainability innovation

Costs, risks and benefits

DEVELOPER (COSTS AND RISKS)

CAPEX

- **Planning and consultation process**
  - Significant consultant costs because of pioneering nature of work
- **Design of reticulation system and protocols**
- **Developer charges**
  - Initial:
    RW ($4,107/lot)
    Water (3,817/lot)
    Sewer ($4,607/lot)
  - Current developer charges (after 1 July 2005):
    RW ($500/lot)
    Water ($500/lot)
    Sewer ($500/lot)
- **Cost of trucking sewage due to not meeting threshold number of households needed to operate RW treatment plant**

OPEX

- **O&M of Aurora's passive open space irrigation system during first two summers after plant being commissioned**

RISKS/EXPOSURE (QUAL.)

- **Risk of not meeting market expectations in price**

DEVELOPER (BENEFITS)

Monetised

- **Land (for RWTP) gifted to YVW was inexpensive up front and of low value for development**
- **Potential additional value of land for having RW ($500-$2000/block)**
- **Reduced developer charges post 2005**

Non-monetised

- **Market edge differentiation**
  - Green market credentials
  - Aesthetically attractive development for potential new buyers (non-restricted irrigation of passive POS during first two summers after plant being commissioned)

COUNCIL (COSTS AND RISKS)

CAPEX

- **Planning and consultation process**
  - Meetings and liaison with stakeholders regarding RW
- **Administrative costs**
  - Extra internal meetings

RISKS/EXPOSURE (QUALITATIVE)

- **O&M risk of Aurora's passive open space irrigation system becoming a hazard for machinery and public over time**
- **Local community perceptions – social equity issues and potential political backlash**

COUNCIL (BENEFITS)

Monetised

- **RW water charges**

Non-monetised

- **Public open space can be irrigated during drought so important community sporting fixtures can continue**
- **Sustainability credentials**
- **Benchmark for sustainable water use policy**
- **Organisational learning**

Costs, risks and benefits

USER (COSTS AND RISKS)

CAPEX

- Plumbing ($1500)
- RW meter installation ($261/hh)
- PIC inspection ($367/hh)
- Marginal cost of land for having RW ($500-$2000/block)

Total cost (estimate)

$2000 – $4000/hh

CAPEX

Nil

OPEX

USER (BENEFITS)

Monetised

- RW water charges less than potable

Non-monetised

- Unrestricted supply for outdoor and other use during drought
- Potential higher value of property at the time of resale because of access to a RW unit
- Sense of pride