Rockbank North is a 786 ha parcel of land to the west of Melbourne. Working for both the Office of Living Victoria and the Developer, Alluvium was commissioned to investigate options to deliver smarter and more efficient water systems in a greenfield development. The scope of the project was to investigate how the Joint Venture could go 'beyond best practice'.

This Office of Living Victoria sponsored project aims to investigate options to deliver smarter and more efficient water systems in a greenfield development, with the support of public authorities, to achieve better social, environmental and economic outcomes for all parties.

For this study, the term beyond best practice refers to standards or objectives related to going beyond the % reduction targets for stormwater pollutant load reductions, and going beyond the potable reduction targets. In addition the project aimed to achieve a 50% reduction from the 1990s average potable consumption of 270 litres per person per day. The project scope extended to increased use of recycled water, improved amenity, protection groundwater dependent ecosystems, geomorphic (i.e. physical form) and ecological values of waterways and reduction in microclimate issues associated with the urban built form.

Specifically, the driver for the project was to explore how to achieve more benefit for the same or less financial investment. All options and outcomes were assessed from both an economic perspective and through the lens of what is commercially viable

ID number	Theme	Supply of traditional potable water to precinct (ML/year)	Recycled water from WW to precinct (Ml / yr)	Rainwater to precinct (Ml / yr)	Stormwater to precinct (Ml / yr)	Stormwater volume from precinct (Ml / yr)	Impact on reducing nusiance flooding (1 is low, 3 is high)	Nutrients from precinct (TSS tonnes / yr)	Green factor (1 = low impact, 3 = high impact)	Ecological habitat (1 = low support, 3 = high support)	GDE (1 = low support, 3 = high support)
-	Conventional	290.0	0.0	0.0	0.0	250.0	1	54.0	1	1	1
-	BAU	69.7	220.3	0.0	0.0	250.0	1	54.0	1	1	1
A-1	Rainwater substitution (2000 L)	262.1	0.0	27.9	0.0	222.1	2	47.0	2	1	1
A-2	Rainwater substitution (5000 L)	237.3	0.0	52.7	0.0	197.4	3	46.0	2	1	2
A-3	Rainwater substitution and leaking (2000 L)	266.1	0.0	23.9	0.0	226.1	2	47.0	2	1	1
A-4	Rainwater substitution (2000 L w RW)	166.5	96.9	26.6	0.0	223.4	2	47.0	2	1	1
A-8	Intelligent network of tanks	264.1	0.0	25.9	0.0	224.1	3	48.0	2	1	1
B-1	Rainwater to potable	242.2	0.0	47.8	0.0	202.2	3	46.0	3	1	2
B-2	Permeable paving	270.0	0.0	0.0	20.0	230.0	2	51.0	2	1	2
B-3	Rain gardens	270.0	0.0	0.0	20.0	230.0	2	13.0	2	1	2
B-4	Pocket parks WSUD	290.0	0.0	0.0	0.0	240.0	2	13.0	2	1	2
B-5	Passive WSUD (altering the back of kerb	257.2	0.0	0.0	32.8	210.0	2	47.7	2	1	1
C-1	Pocket parks – underground storage	247.8	0.0	0.0	42.2	207.8	2	45.0	2	1	2
C-2	Precinct harvesting	247.8	0.0	0.0	42.2	207.8	2	45.0	3	2	2
C-3	Precinct harvesting w third pipe	69.7	178.1	0.0	42.2	207.8	2	41.0	3	2	2
C-4	Precinct harvesting for potable reuse	62.0	0.0	0.0	228.0	22.0	2	5.0	3	2	3
C-5	Precinct harvesting for low risk and Open Space	69.7	44.3	0.0	176.0	74.0	2	16.0	3	2	3
C-6	Aquifer Storage and Recovery	69.7	195.3	0.0	25.0	225.0	2	41.0	2	2	2
C-7	SW to sewer	69.7	140.3	0.0	80.0	171.0	2	37.0	2	1	2
C-8	Frog pond	290.0	0.0	0.0	0.0	249.0	1	54.0	1	3	2
C-9	Urban sponge	290.0	0.0	0.0	0.0	141.0	1	10.0	1	3	3
C-11	Precinct harvesting with Boulevard watering	222.6	0.0	0.0	67.4	182.6	2	41.0	3	2	1

Figure 1. Overview of scenario's and assessment outcomes

As presented above, we modelled a number of IWM options including wetlands, street scale WSUD interventions, infiltration systems, precinct scale stormwater harvesting and lot scale rainwater tanks, testing their performance against a range of innovative objectives to provide evidence in support of a showcase IWM development in the west.

The options were assessed against criteria objectives including potable water consumption, nutrient removal, pre and post development flow regimes including containment of low rainfall events, compliance with Growling Grass Frog habitat requirements and the maintenance of green and watered open space.

The project used stakeholder workshops to understand the integrated water management drivers, objectives and outcomes across different stakeholders. The objectives were categorised into tangible and intangible outcomes and a set of metrics established to evaluate the options.

This project was the first time metrics from both a commercial and economic assessment have been developed to compare and which explicitly highlight the distribution of benefits and costs to various stakeholders

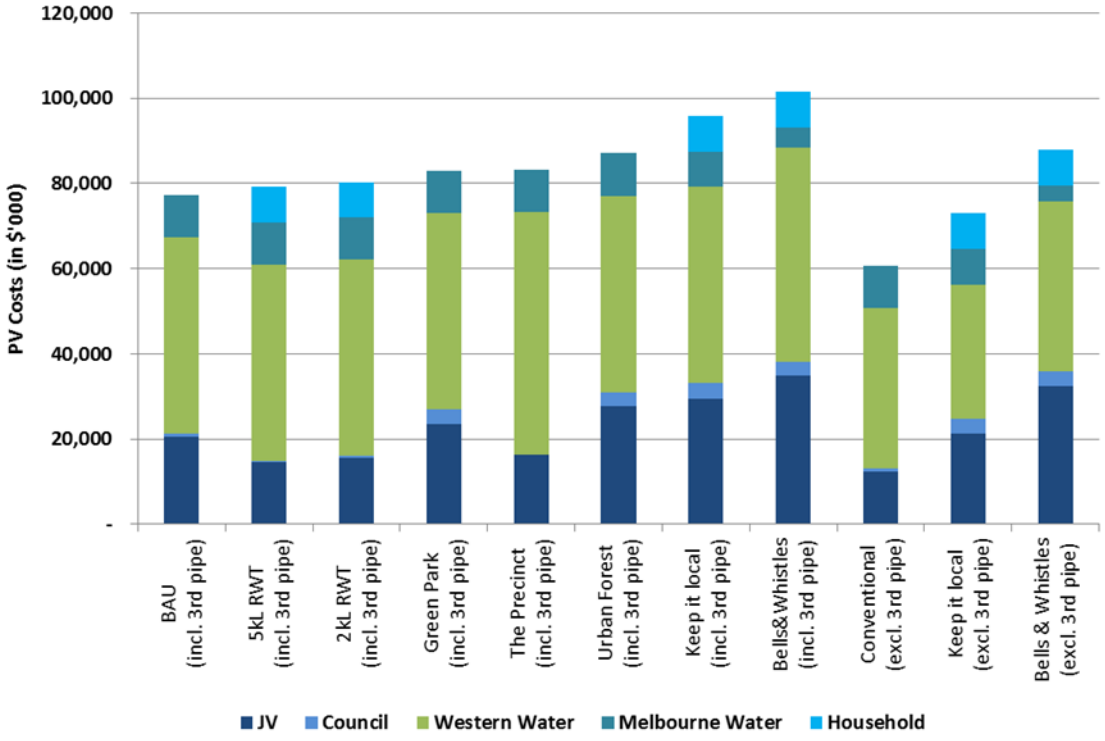

Figure 2 Distribution analysis

The project summarised the outcomes from a whole of water cycle and liveability investigation and presented the results on the range of infrastructure, regulatory hurdles, and costs and benefits in going beyond the current minimum standards.