



## The Kingston Masterplan

The Next Generation in Stormwater Strategies

Kingston City Council, Victoria



### Key Messages

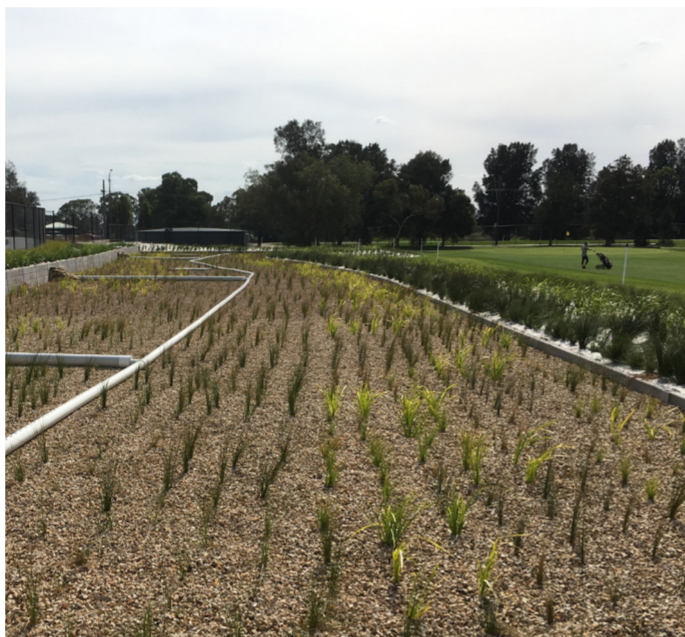
- The Kingston Masterplan provides a clear methodology for prioritising and seeking funding for stormwater treatment projects.
- The Masterplan identified cost effective stormwater harvesting project opportunities within Council reserves.
- The in-lieu contributions scheme will improve Council's position to seek private sector development contributions to help fund cost-effective regional opportunities (where they exist) in preference to the comparatively less cost effective approach that requires developers to treat their own stormwater on-site.
- The project provides valuable leadership to the stormwater industry and other Councils who can also adopt Kingston's Master Plan approach.

### Project Overview

The City of Kingston, with support and funding from Melbourne Water's Living Rivers Program, has developed a Masterplan to guide future capital works and private sector planning decisions that relate to stormwater treatment and reuse across the municipality.

The Masterplan aims to translate the Council's aspirational stormwater quality targets into practical projects that can be prioritised based on 'value for money' and affordability. The Masterplan also aims to address concerns over the performance and longevity of privately built stormwater quality assets in Kingston. Using the Masterplan the City of Kingston can:

- I. Prioritise the Council's capital works program.
- II. Take advantage of funding application opportunities by having concept plans, feasibility studies and cost estimates already completed.
- III. Negotiate with developers to identify locations where contributions (in lieu of on-site works) can achieve significantly improved water quality outcomes.
- IV. Allocate public space and plan for the future installation of stormwater treatment & reuse assets



Edithvale Recreation Reserve Stormwater Treatment System

### Methodology

The Masterplan adopted a 'catchment based approach' to identify the most cost effective way to implement stormwater infrastructure that would achieve 'Water Sensitive Living' across the municipality. The key steps in the process involved:

- Reviewing existing land use to categorise pollutant runoff.
- Modeling the performance of existing assets to calculate what percentage of the municipality is already treated.
- Developing catchment maps to highlight treatment assets and identify gaps and opportunities.
- Modeling a range of small, medium & large scale treatment and reuse opportunities.
- Calculating and comparing the cost effectiveness of the identified project opportunities.
- Reviewing the water quality treatment and potable water reduction targets set in the *Kingston Integrated Water Cycle Strategy* (2012) to confirm whether they are they achievable.

### Outcomes

#### Stormwater improvement opportunities for Kingston

The Masterplan has given Kingston a realistic appreciation of the scale of implementation and investment required for the municipality to achieve best practice stormwater management. The catchment maps developed are particularly useful as they allow the location and effectiveness of existing and proposed projects within each catchment to be visualised.

The evaluation determined that Kingston cannot meet its stormwater quality targets within a reasonable timeframe relying on privately built stormwater assets and smaller streetscape treatments alone. Implementation of medium scale WSUD assets such as large bio-retention systems on public land or recreational open space was identified as the most cost-effective means of achieving stormwater treatment targets.

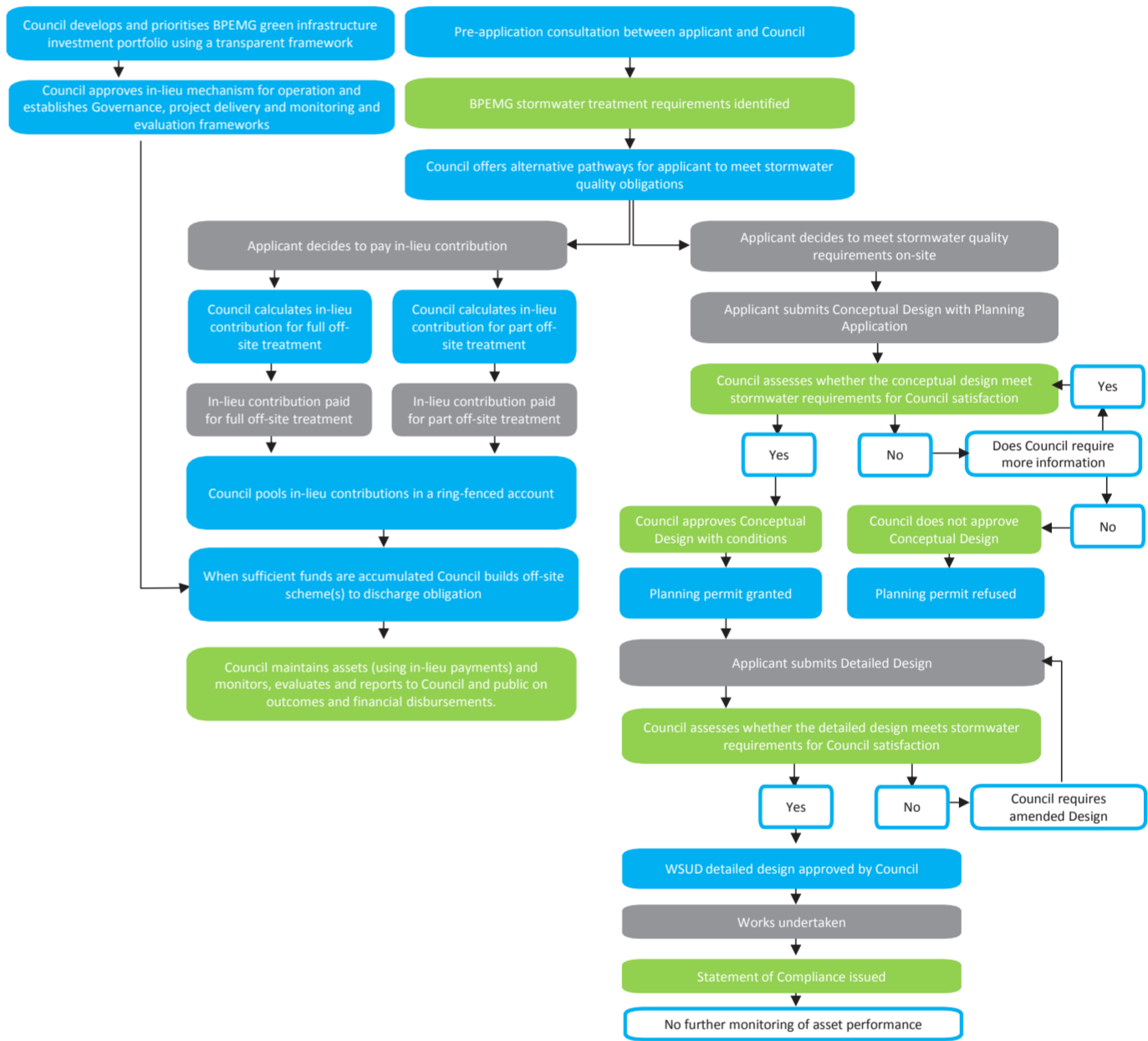
#### In-lieu model

Kingston Council has introduced an option for off-site stormwater mechanisms into their planning process. This mechanism embeds a sustainable approach to Integrated Water Cycle Management into planning by allowing developers and property owners to pay a fee to Council in-lieu of meeting all or a portion of their stormwater compliance obligations on-site.



Medium scale WSUD treatment wetland in the City of Kingston

Council then uses these funds to invest in cost effective medium and large scaled projects off-site that deliver equivalent or better stormwater quality outcomes. Kingston City Council is currently piloting a two-year off-site in-lieu stormwater mechanism in Melbourne with Melbourne Water's support. The mechanism is projected to generate in the order of \$14 million over the next 5-10 years depending on how many developers 'opt-in' to the scheme and land development rates in Kingston. Evaluation shows the scheme has the potential to deliver equivalent or better stormwater quality outcomes at less than half the cost developers would incur to deliver best practice environmental management guideline compliant stormwater treatment on-site.



Steps involved in on-site versus off-site stormwater mechanism (Marsden Jacob & Alluvium, 2017)

### Future work

The Kingston Master plan has opened up significant opportunities to improve integrated stormwater management practice across industry and Council.

- There is an excellent opportunity for other Councils to follow Kingston's Masterplan methodology, which can be modified to suit local needs and constraints.
- Council and industry are interested in implementing off-site stormwater mechanisms in Melbourne similar to that being piloted by Kingston City Council.

### Lessons Learnt

- Using an evidence-based approach improves the accountability of stormwater strategies recommending stormwater treatment and reuse improvements.
- There is 'diminishing return on investment' for seeking higher than 85% of best practice for the entire municipality.
- It is both feasible and cost effective to find locations where stormwater can be harvested from large pipes and treated using medium sized solutions within Council reserves or open space. This should change current thinking that focuses on either large wetlands (involving expensive or limited land) or small onsite solutions.

#### More Information

For more information visit <https://www.melbournewater.com.au/livingrivers>

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