

Kingston Stormwater In-lieu Mechanism

Stormwater Victoria Conference
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community inspired leadership



Acknowledgements



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Alan West – City of Kingston

Urmi Buragohain – City of Kingston

City of Kingston



INTEGRATED WATER CYCLE STRATEGY

February 2012





Mordialloc Creek



Kingston's Beaches

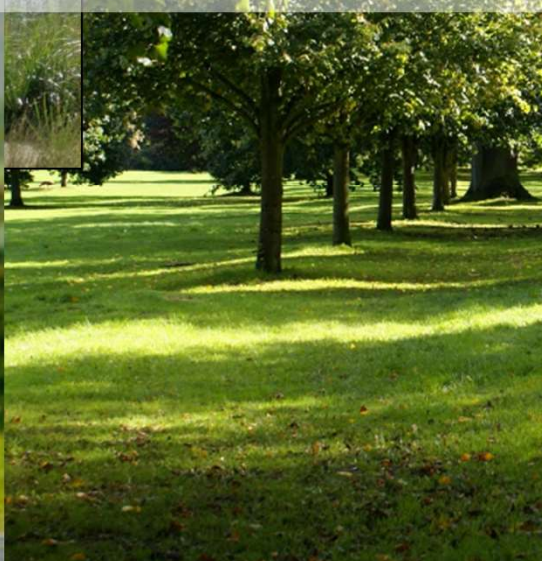
TARGETS



100% Stormwater Quality by 2040



15% decrease in potable water use by 2040



TARGETS



Large Projects



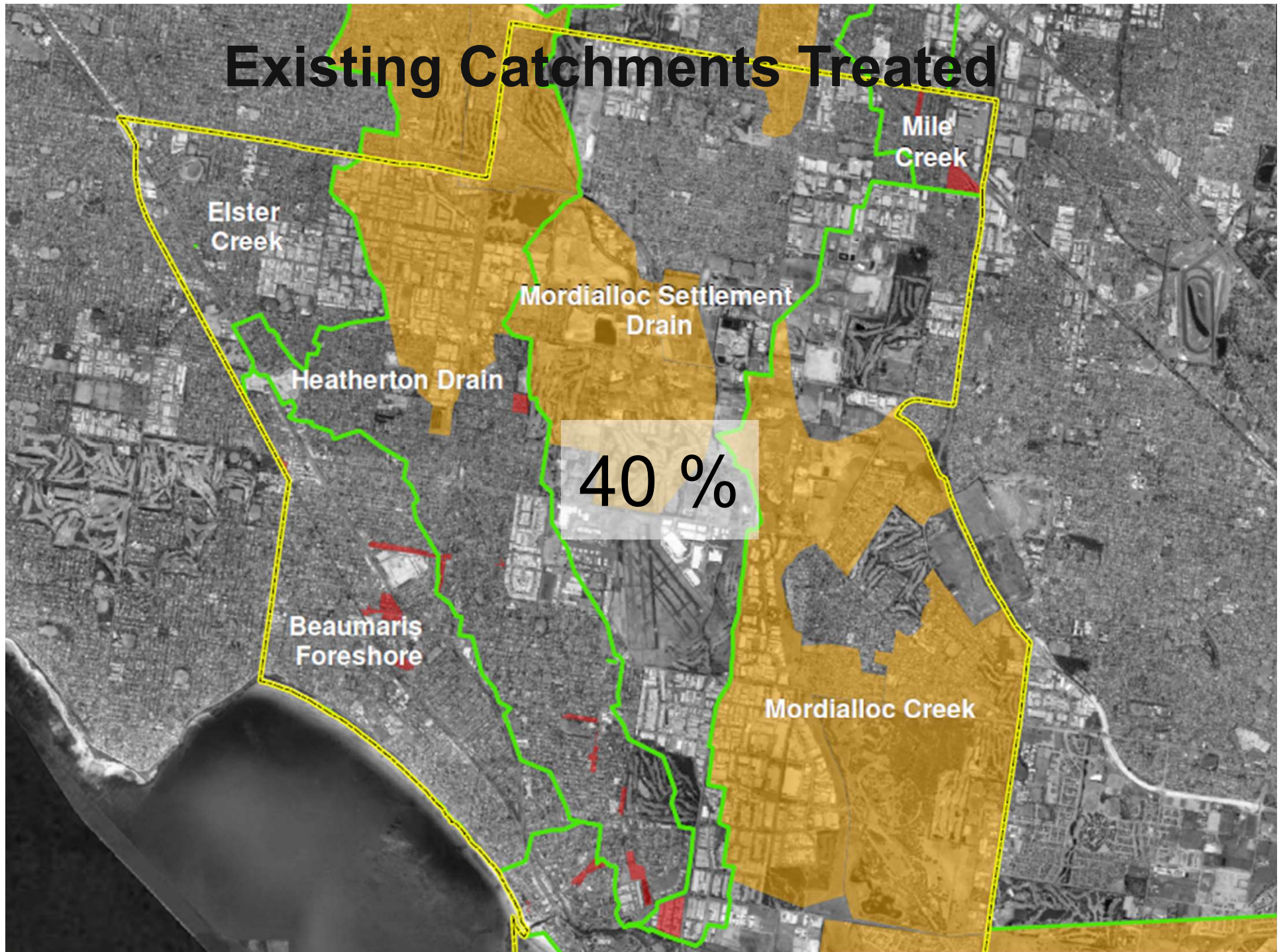
Medium Projects



Small Projects



Existing Catchments Treated



| | |
|------------------------|------------------|
| Catchment | Mordialloc Creek |
| Diversion type | Pump |
| Treatment type | Bioretention |
| Storage type | Above |
| Funder | Council |
| Total catchment area | 61 ha |
| Reuse demand | 9 ML/yr |
| Catchment % impervious | 63% |
| Upstream systems | - |
| Downstream systems | - |



Costs and benefits

| | |
|-------------------------------------|--------------|
| Capital cost (millions) | \$0.67 |
| Potable water saving | 8.2 ML/yr |
| Volume water treated | 110 ML/yr |
| SS reduction | 33,000 kg/yr |
| TP reduction | 40 kg/yr |
| TN reduction | 260 kg/yr |
| Reuse Ratio | \$4.1/kL |
| TN Ratio | \$130/kg |
| Project Comparison Factor | 16 |
| % reduction achieved for catchment: | |
| SS | 77% |
| TP | 47% |
| TN | 45% |

Description

Low flows pumped from Council drain at the east end of Fraser Avenue to the bioretention located to the north of the playground. The total bioretention footprint will be approximately 1,140 m² (filter area 800 m²). Pumped flows will pass through a GPT before entering the bioretention. Water will be pumped to the bioretention system at a rate of 90 L/s. Low flows are already pumped from this pipe to a main drain as part of the minor drainage system so the pumping costs are not included in the cost of this project. The pipe network stores up to the six month ARI flow. Treated water will be used to irrigate the three ovals at Edithvale Recreation Reserve. Treated flows will be pumped to above ground storage tank(s) (total volume 600 kL). This option involves pumping enough water to the bioretention system to meet best practice. 80RP007b involves just treating enough water to meet reuse demand.

Benefits

- Irrigate valuable sporting reserve

Further investigations

- Confirm feasibility of diversion, bioretention and storage construction

80RP007a: Edithvale Recreation Reserve harvesting Option 1

Kingston Council
Prioritisation Project – regional opportunities



Value for money



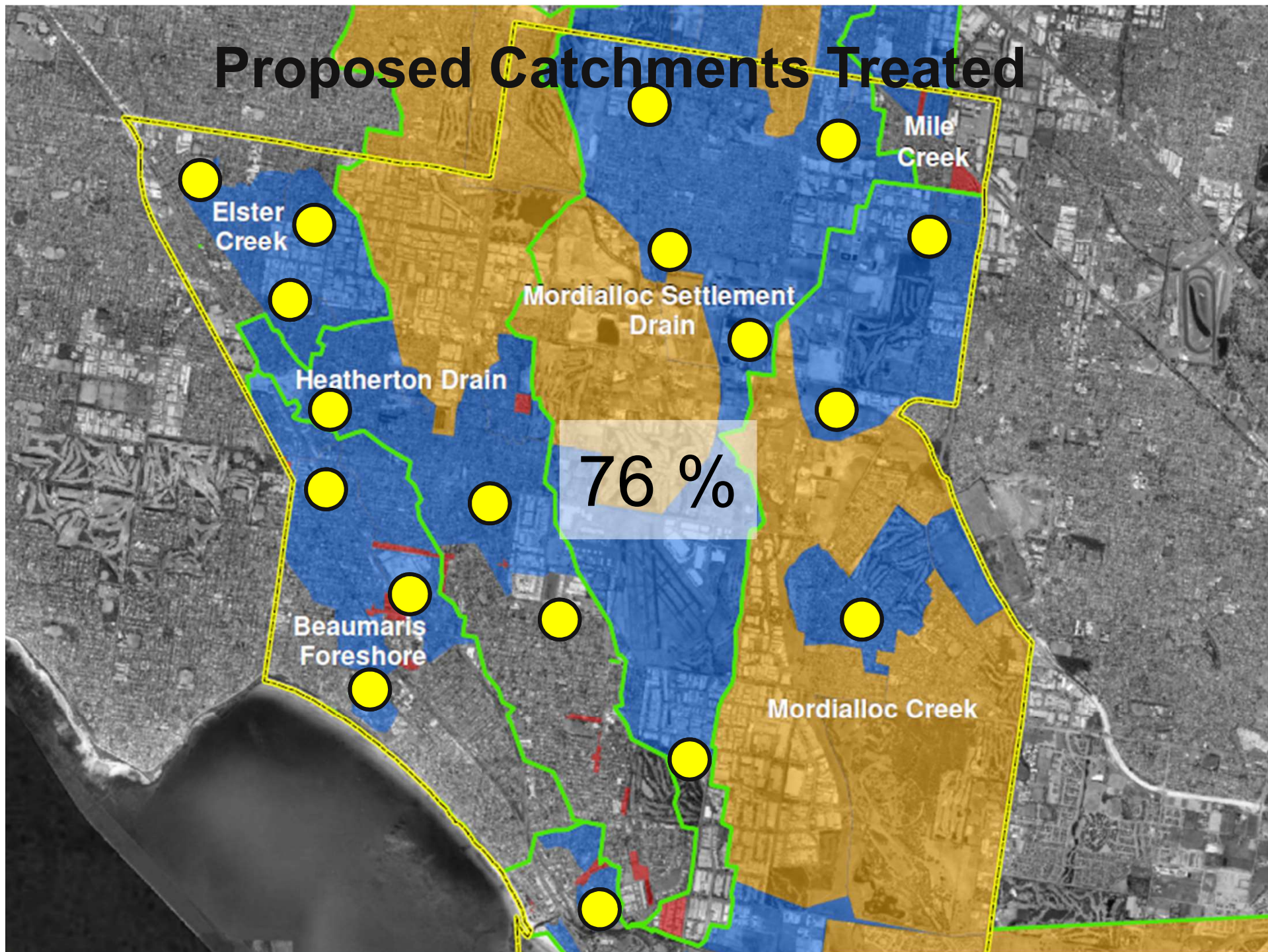
Small Scale Project



Medium Scale Projects

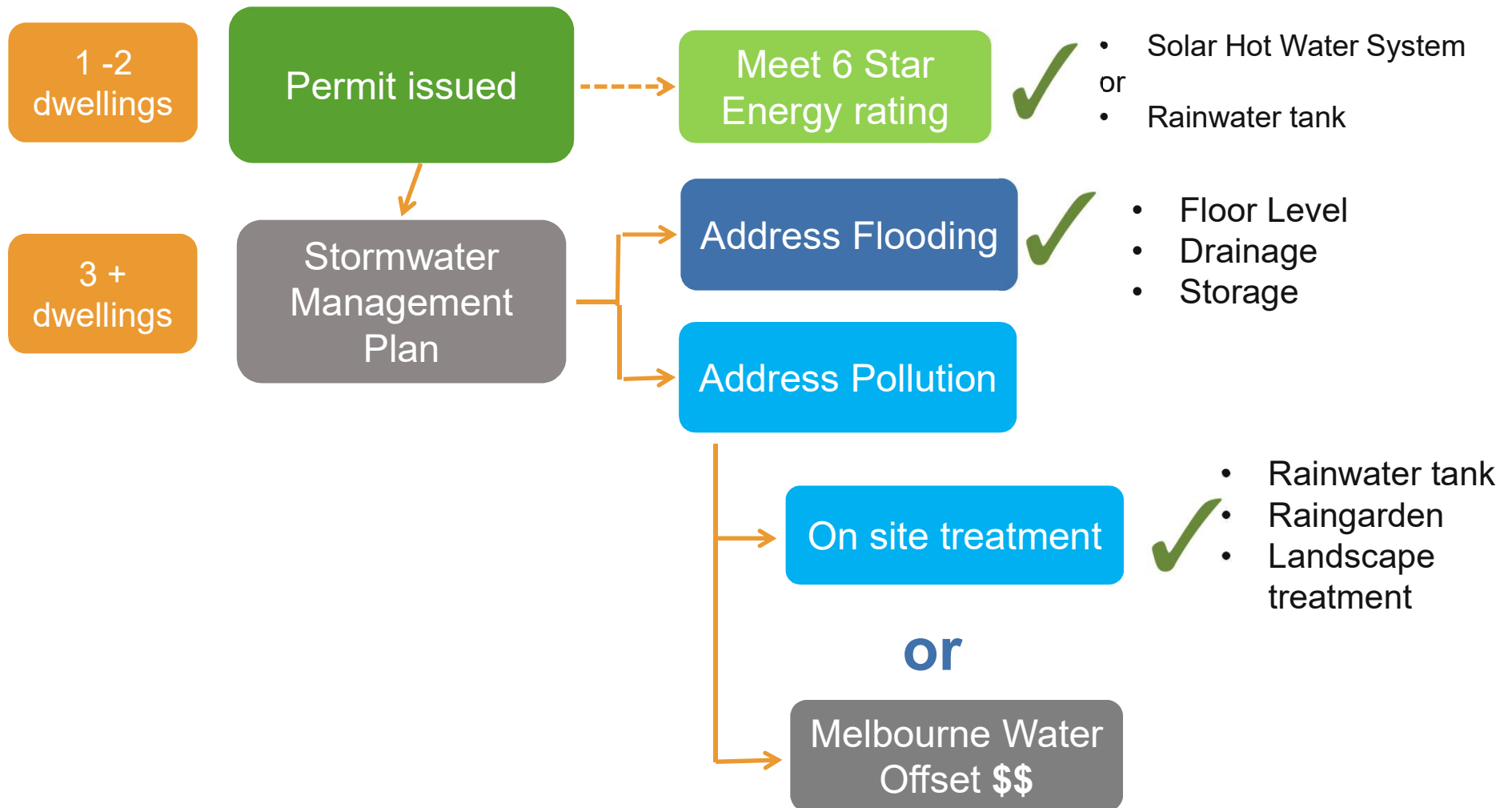
For each \$ invested  5 to 15 times the benefit

Proposed Catchments Treated

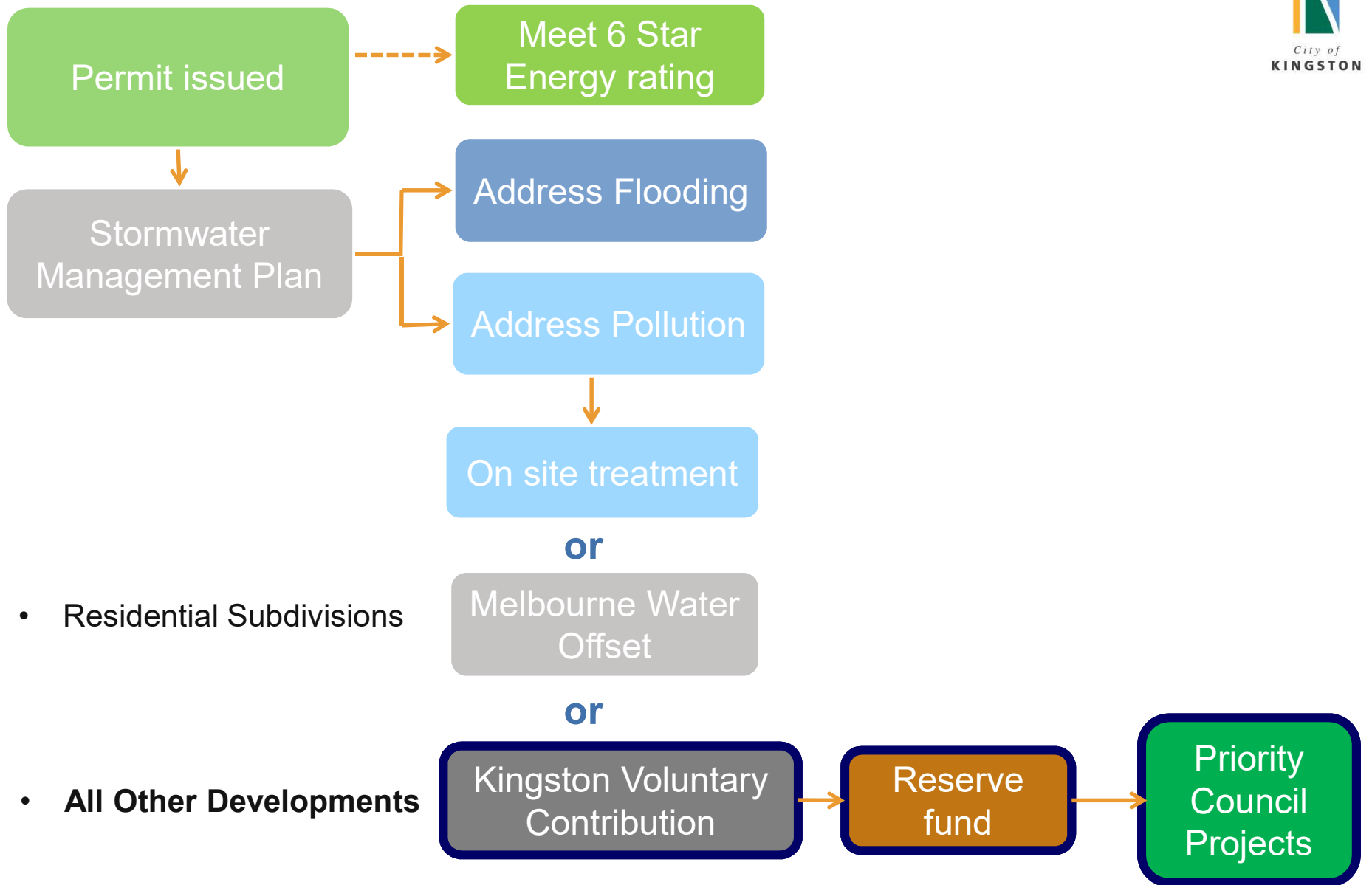


**31 Council stormwater quality
projects**
\$27.5 million

What happens now?



What is being proposed?



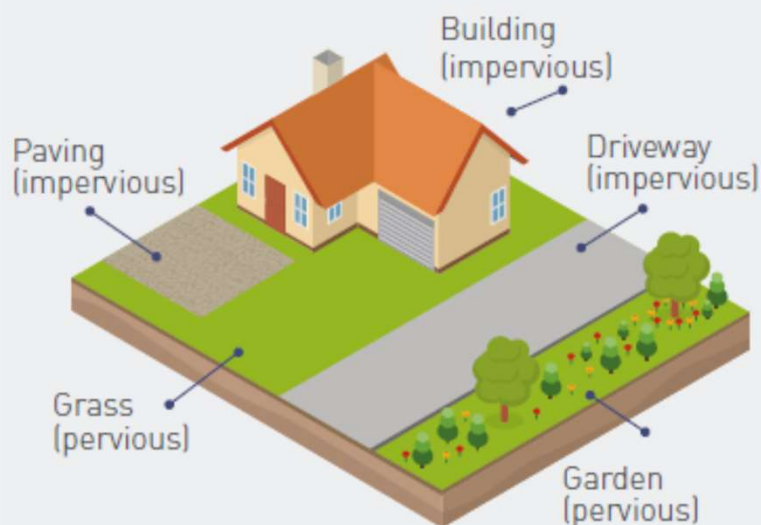
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Permit conditions

1. Unless with the prior written consent of the responsible authority, before the development commences, the following Integrated Stormwater Management documents must be prepared, by a suitably qualified person, to the satisfaction of the responsible authority:
 - a) Stormwater management plan(s) must be prepared, with supporting computations, showing the stormwater drainage works to the nominated point of discharge. The plan(s) must show all details of the proposed stormwater works including all existing and proposed features that may have impact on the stormwater drainage works, including landscaping details.
 - b) Prior to submitting detailed plans, a comprehensive stormwater management strategy for the site must be prepared that addresses the requirements specified within Council's *"Civil Design Requirements for Developers – Part A: Integrated Stormwater Management"*.
 - c) The stormwater management strategy must include a report **with STORM/MUSIC modelling results** demonstrating water sensitive urban design treatments that achieve Victorian best practice objectives. These may include the use of an infiltration or bio-retention system, rainwater tanks connected for reuse, or other treatments to the satisfaction of the responsible authority.
 - d) **The water sensitive urban design treatments as per conditions 1a, 1b & 1c above must be implemented on-site, unless an alternative agreement is reached with the responsible authority.**
2. Stormwater works must be implemented in accordance with the approved stormwater management plan(s) and to the satisfaction of the responsible authority including the following:
 - a) All stormwater works must be provided on the site so as to prevent overflows onto adjacent properties.
 - b) The implementation of stormwater detention system(s) which restricts stormwater discharge to the maximum allowable flowrate specified by the responsible authority.
 - c) All stormwater works must be maintained to the satisfaction of the responsible authority.

HOW IS IT CALCULATED?

Depending on the area of pervious and impervious surfaces Council will calculate the in lieu stormwater quality contribution. More details can be found on the website.



HOW WILL IT WORK?



Discuss stormwater requirements with Council*



Applicant decides to pay stormwater quality in-lieu contribution

OR

Applicant decides to meet stormwater quality requirements on-site



In-lieu contribution calculated and paid for part on-site treatment or full off-site treatment



Applicant submits detailed stormwater quality and quantity designs for approval

Applicant submits detailed stormwater quantity designs for approval



Stormwater quality treatment is constructed by Council off-site. Stormwater quantity treatment is constructed on-site by applicant.



Stormwater quality and quantity treatment is constructed by the applicant on-site.

*There are no opportunities to make in lieu contributions for stormwater quantity, these requirements must be met on-site.

Contributions

Table 1: Proposed developer in-lieu contribution rates (2016)

| Total impervious area (sqm) | In-lieu contribution | Total impervious area (sqm) | In-lieu contribution |
|--------------------------------|----------------------|--------------------------------|----------------------|
| <300 | \$2,000 | 3000 | \$40,023 |
| 400 | \$12,664 | 3500 | \$43,706 |
| 500 | \$14,385 | 4000 | \$47,170 |
| 600 | \$15,964 | 4500 | \$50,452 |
| 700 | \$17,433 | 5000 | \$53,581 |
| 800 | \$18,814 | 5500 | \$56,578 |
| 900 | \$20,123 | 6000 | \$59,461 |
| 1000 | \$21,371 | 6500 | \$62,242 |
| 1500 | \$26,940 | 7000 | \$64,933 |
| 2000 | \$31,750 | 7500 | \$67,542 |
| 2500 | \$36,065 | 8000 | \$70,078 |

- Insert graph showing line of best fit & exponential costs

Worked Example



- 4 units on a 730sqm site
75% site coverage (547sqm)
- 4 x 2,000 Litre Rainwater tanks
STORM rating of 70% (credit)
- The contribution applies to the remaining
30% of the site that is untreated.
- Using the calculator, an impervious area of
547 sqm = \$15,000.
- The Net Contribution payable is therefore
 $\$15,000 \times 30\% = \mathbf{\$4,500}.$

The journey

| Stages | Timeline |
|--|-------------------|
| • Kingston Integrated Water Cycle Strategy | 2012 |
| • Kingston Master Plan of Projects | 2013 |
| • Economic Report | 2014 |
| • Council Briefings | 2014 to 2016 |
| • State Government Briefings | 2015 to 2016 |
| • Legal advice | 2015 to 2016 |
| • Council resolution | June 2016 |
| • Planning process | Sept to Dec 2016 |
| • Go Live | Jan 2017 |
| • Evaluation Process | 2017 to June 2018 |

Benefits

Community

- Cleaner bay & beaches
- Faster benefits
- Long term certainty
- Watering of reserves

Resident

- Same purchase price
- Removes maintenance obligations

Developer

- Certainty
- Save time
- Removes Design
- Cheaper

Water Management

Stormwater Requirements for Developers

Stormwater Quantity

Stormwater Quantity (flood protection) requirements, including allowable discharge, pipe design, allowance for 1 in 100 year storm events are explained within Council's design standard: **Civil Design Requirements for Developers, Part A: Integrated Stormwater Management**.

See the [Engineering Assessments](#) page for the relevant documents.

Stormwater Quality Contribution Payments

Stormwater Quality (pollution reduction) requirements, including Water Sensitive Urban Design standards are also documented within the above design standard, however Kingston Council is now offering an alternative approach. Kingston Council & Melbourne Water have launched a two-year pilot project offering flexible options for developers to meet stormwater quality management obligations, on all development applications other than 1 - 2 dwellings.

Developers can now apply to:

✓ continue to provide stormwater treatment measures on-site, business as usual
OR

✓ pay a fixed contribution towards Council managed off-site stormwater projects.

The stormwater quality contribution payment is based on the total impervious area within each development and can be estimated using our on-line calculator.





For more details please see:

- The **Stormwater Quality Summary Brochure** that provides an overview of how the contribution process works.
- The **Stormwater Guide for Developers** that provides more details explaining the step-by-step planning application process.
- The **Stormwater Quality Contributions Calculator** that allows applicants to calculate the likely contribution payment.
- The **Stormwater Quality Contribution Purchase Agreement** that will need to be signed to formalise the process once Council has confirmed the payment amount.

Integrated Water Cycle Strategy

The pressures that have been placed on the water cycle due to urbanisation are immense. In Kingston this has serious implications for water security, stormwater quality, flooding, groundwater quality, wastewater and waterway health.

Related Information

-  [Stormwater Quality Summary Brochure \(349KB\)](#)
-  [Stormwater Guide for Developers \(107KB\)](#)
-  [Stormwater Quality Contributions Calculator \(16KB\)](#)
-  [Stormwater Quality Contribution Purchase Agreement \(147KB\)](#)
-  [Application For Drainage / Civil Approval \(78KB\)](#)
-  [Application For Stormwater Quality Quote \(55KB\)](#)



Chat with Kingston

www.kingston.vic.gov.au/stormwater

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