Hot Topics Series 2011

Developing an Integrated Water Management Strategy

Wednesday 23rd February

MC: Sheridan Blunt &
Penny Mueller

Tania Struzina

Clearwater

Training and Marketing Coordinator

About Clearwater

- We aim to increase the uptake of sustainable water management
- Not-for-profit capacity building program endorsed by government
- Work with Stormwater Vic and AWA
- Partnership with Australia's largest stormwater research program; *Cities as Water Supply Catchments*
- Technical training, events/seminars and tours
- Tailored solutions
- Hot Topics – a forum for the industry to discuss emerging issues, share information, develop shared approaches and celebrate achievements

- Who's Who – Stormwater Event – 9th March
- WSUD Celebration - 24th March

Overview of today

Welcome

Phil Edwards	Melbourne Water
Penny Mueller & Sheridan Blunt	Moonee Valley City Council
Sara Lloyd	AECOM

Morning Tea

Daniella Gerente & Elissa Blake	Knox City Council
Penny Mueller & Sheridan Blunt	Moonee Valley City Council
Ralf Pfleiderer	Melbourne City council

Marion Urrutiaguer	Melbourne Water
Penny Mueller & Sheridan Blunt	Moonee Valley City Council

Lunch

What would you like from today's session?

Phil Edwards

Melbourne Water

Integrated Water Management
Partnership Manager

Why Committing to Targets is Important

Phil Edwards
IWM Partnership Manager

healthy waterways

State Government Victoria

Melbourne Water

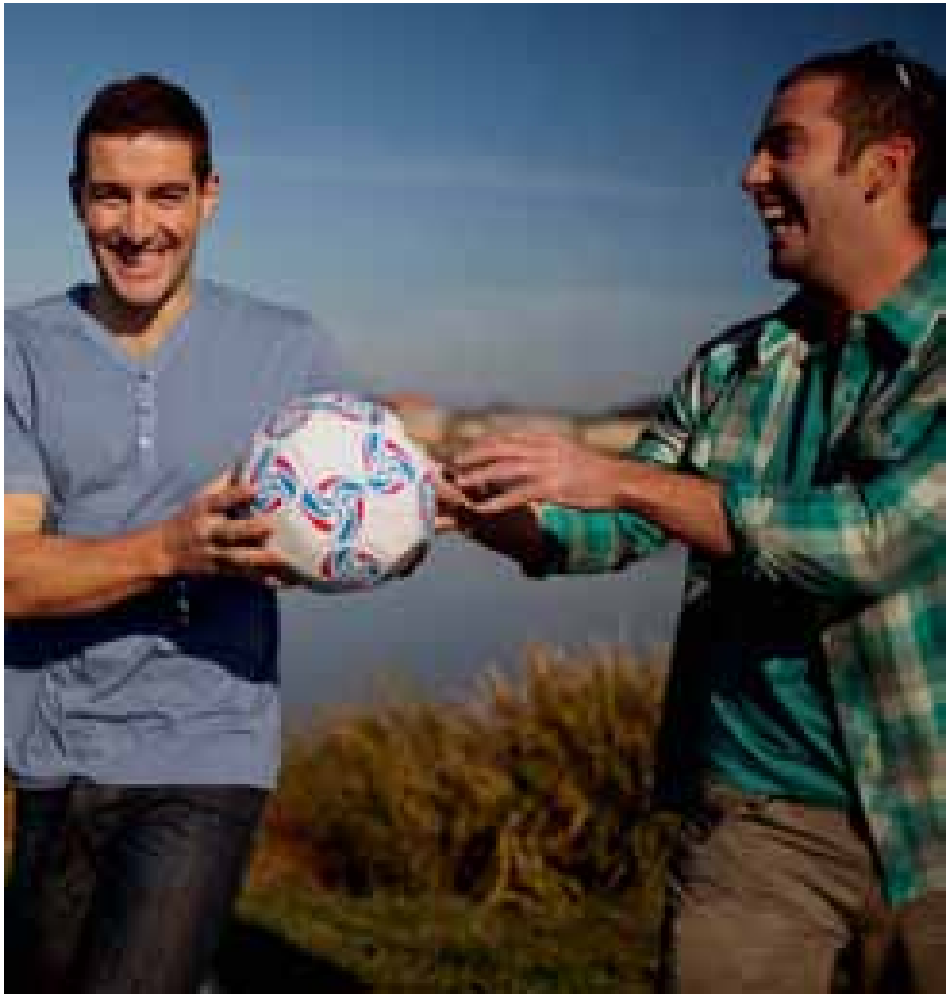
Why committing to targets is important

- Local community outcomes.
- Regional environment outcomes.
- WSUD in context of emerging Integrated Water Management responsibilities.
- Stormwater focus for waterway health

How do targets fit in?

Local Considerations.

- Links with council water management initiatives
- Physical Characteristics of Council Area
- Current Strategic Context
- Opportunities for Implementation
- Capacity to deliver WSUD



WSUD implementation targets

What does a strategic approach look like?

- Guidelines to support local development
- Support programs for local government with funding assistance
- A framework for reporting on local WSUD outcomes

WSUD implementation targets

What are targets?

- Stormwater pollutant load or flow reduction
- Potable water saving
- Alternative water use for additional benefit
- Wastewater reduction and groundwater quality and quantity.

The End Game

Stormwater managed for local & regional outcomes

Partnership

Working together for a sustainable water future

- Our partnership is important
- Our regional waterway environment is important
- Our community is important

Penny Mueller

Senior Sustainability Officer

Sheridan Blunt

Sustainable Environment Coordinator

Moonee Valley City Council

Setting the scene

Penny Mueller and Sheridan Blunt, Moonee Valley City Council

What's in a name?

- Integrated Water Management
- Sustainable Water Management
- Total Water Management
- City as a Catchment

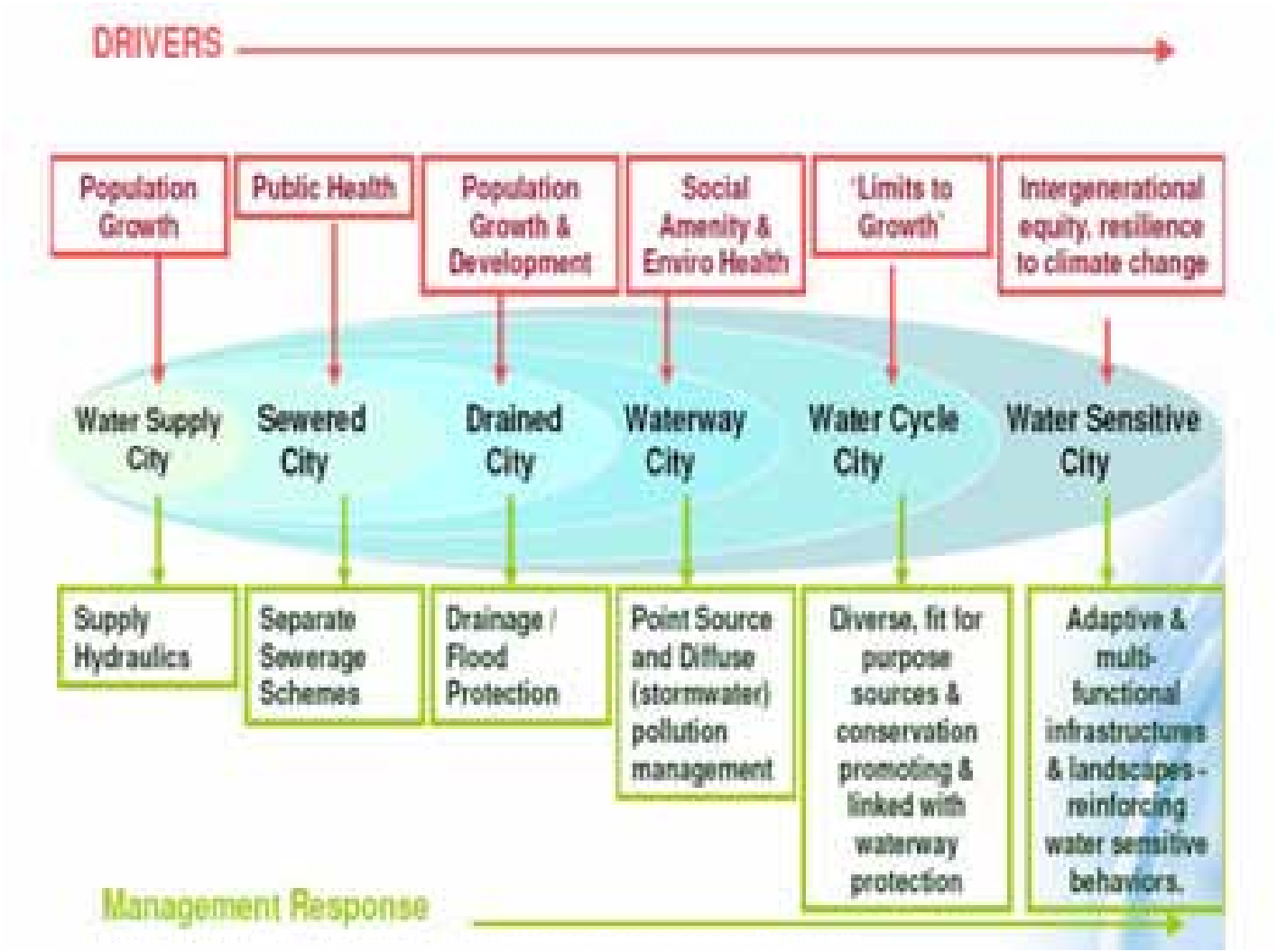
Water sensitive urban design

Consider and plan all elements of water together…

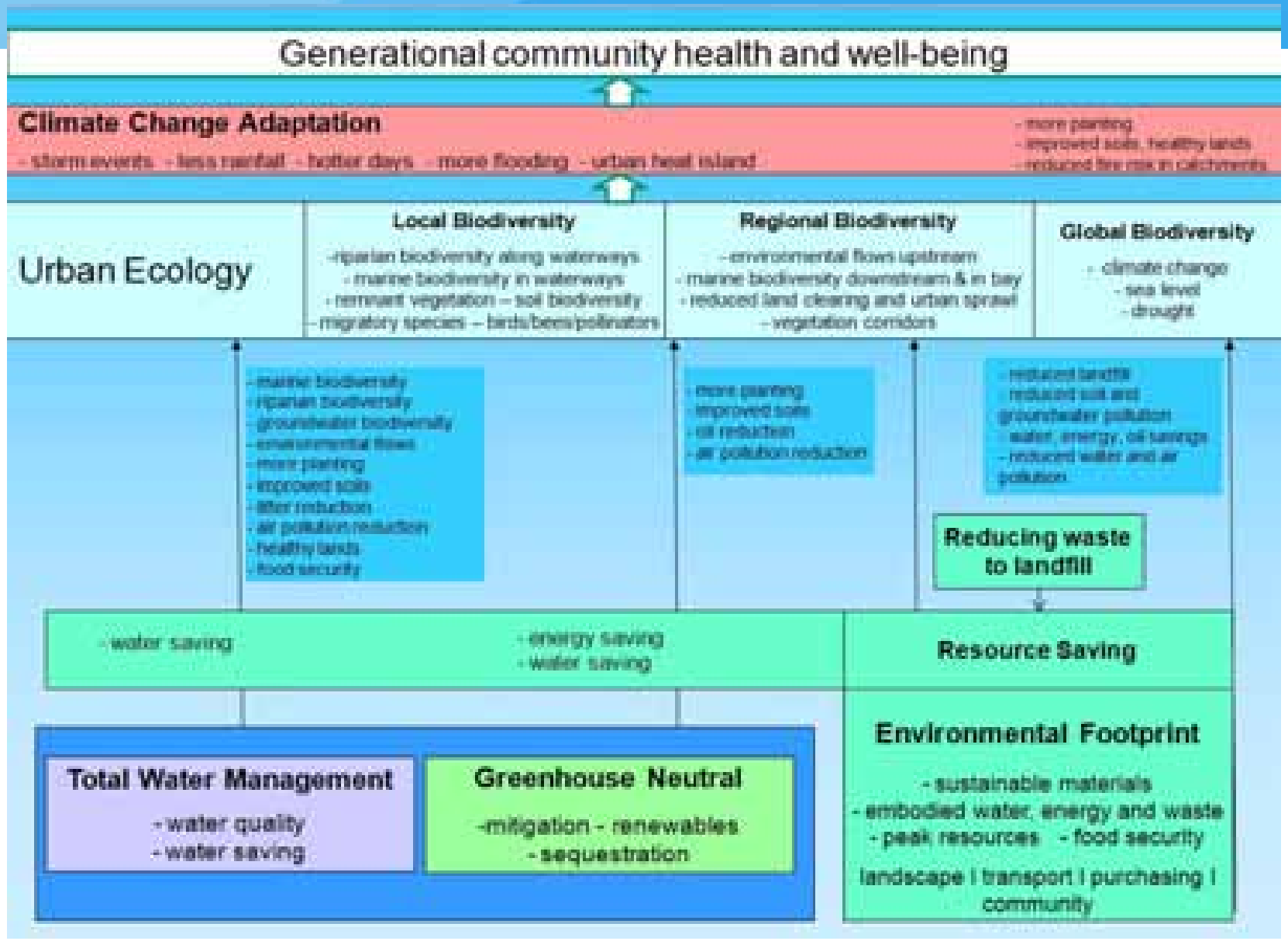
Water Sensitive Urban Design – comes in many forms

START WITH DEMAND MANAGEMENT !!!

Consider and plan water together with the city



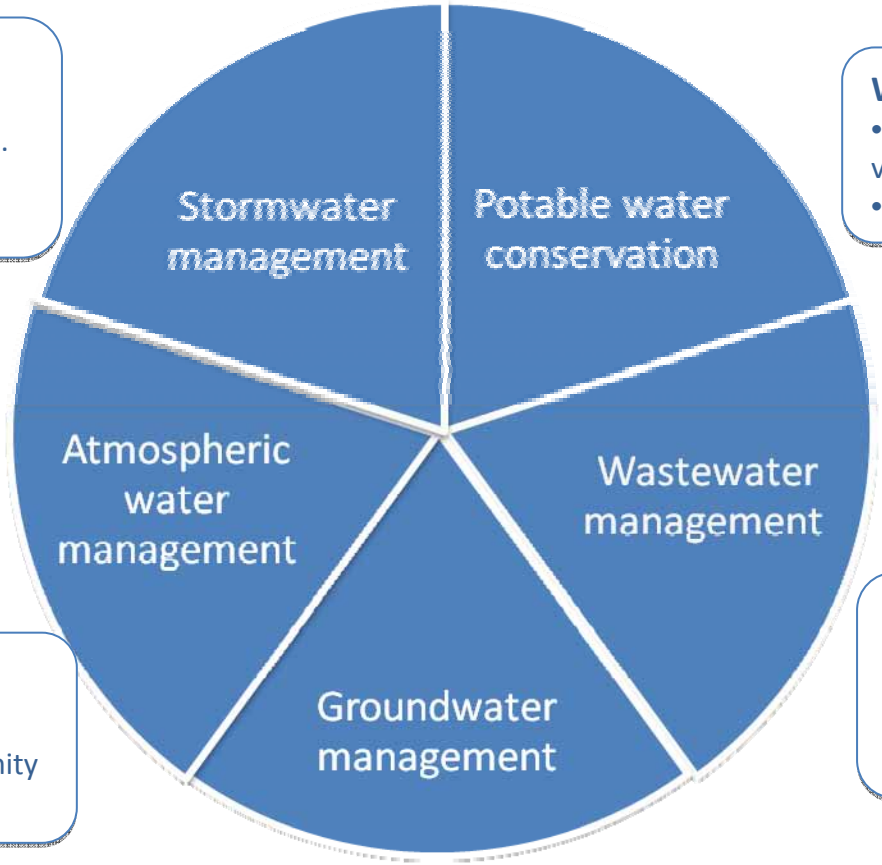
Consider and plan water together with all environment issues



Consider and plan all elements of water together

They all help each other…

Why manage stormwater?
- Protect waterways, bays, habitats, communities and assets.
- Improve soil moisture for vegetation



Why save water?
- Use the water we have for best value use
- Draw less from upstream waterways

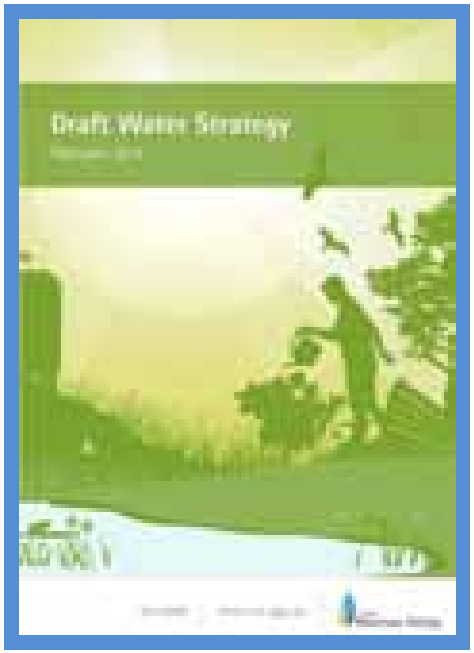
Why manage wastewater?
- Manage sewer to protect communities and environments.
- Capture wastewater and use it nearby.

Why manage groundwater?
- Protect water supplies (ground and surface water) from pollution and overuse.
- Use for storage

Why manage atmospheric water?
- Protect vegetation and community health through air moisture

What is in an *integrated water management strategy*?

- **Policy** *(context and commitments)*
- **Targets** *(to help guide and measure)*
- **Actions** *(in the ground, and with people)*
- **Guidelines** *(help staff and developers)*
- **Regulations** *(planning schemes, watermaps)*
- **Communication** *(for all of the above)*



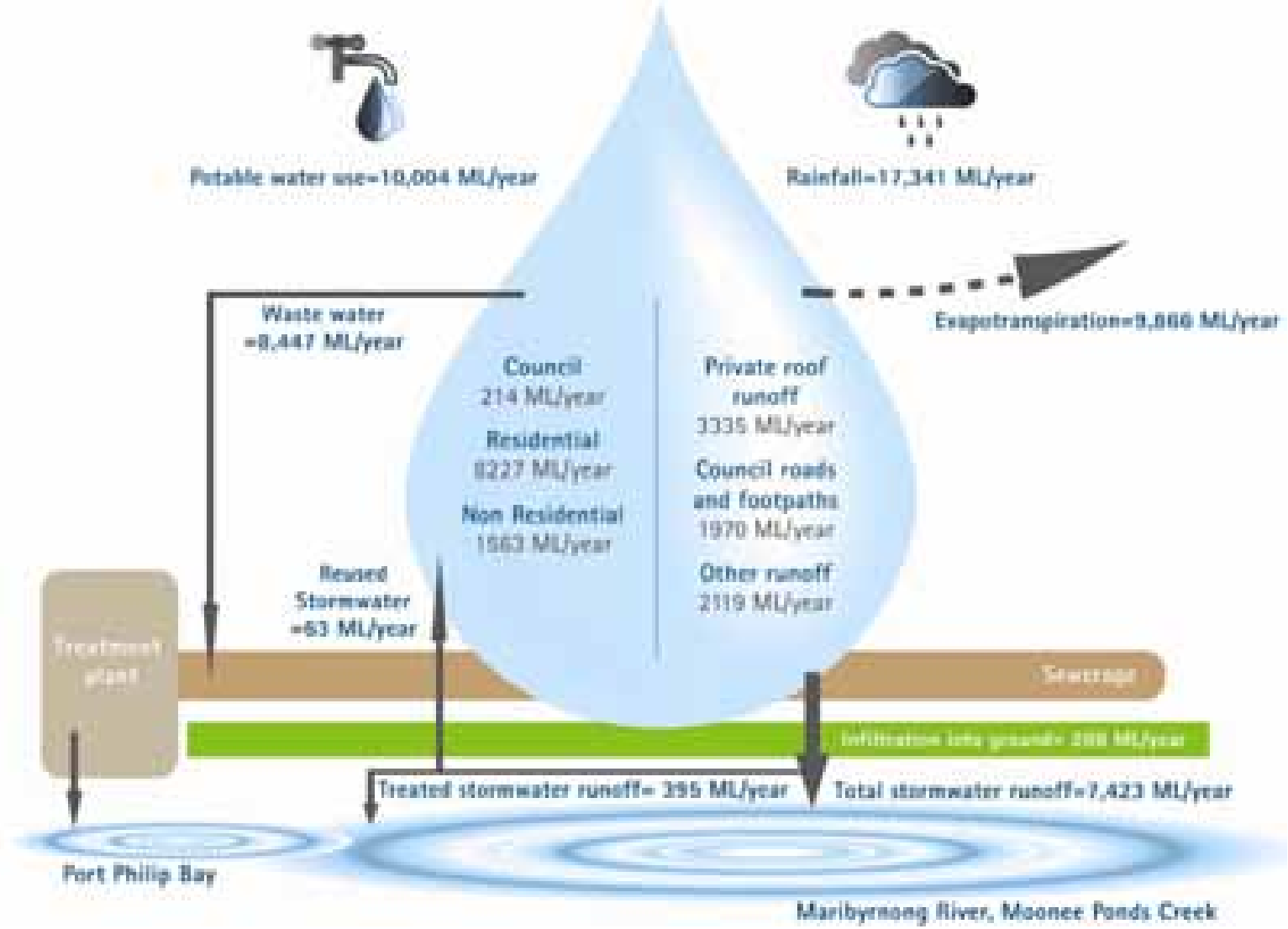
How to set good looking targets …

We need to:

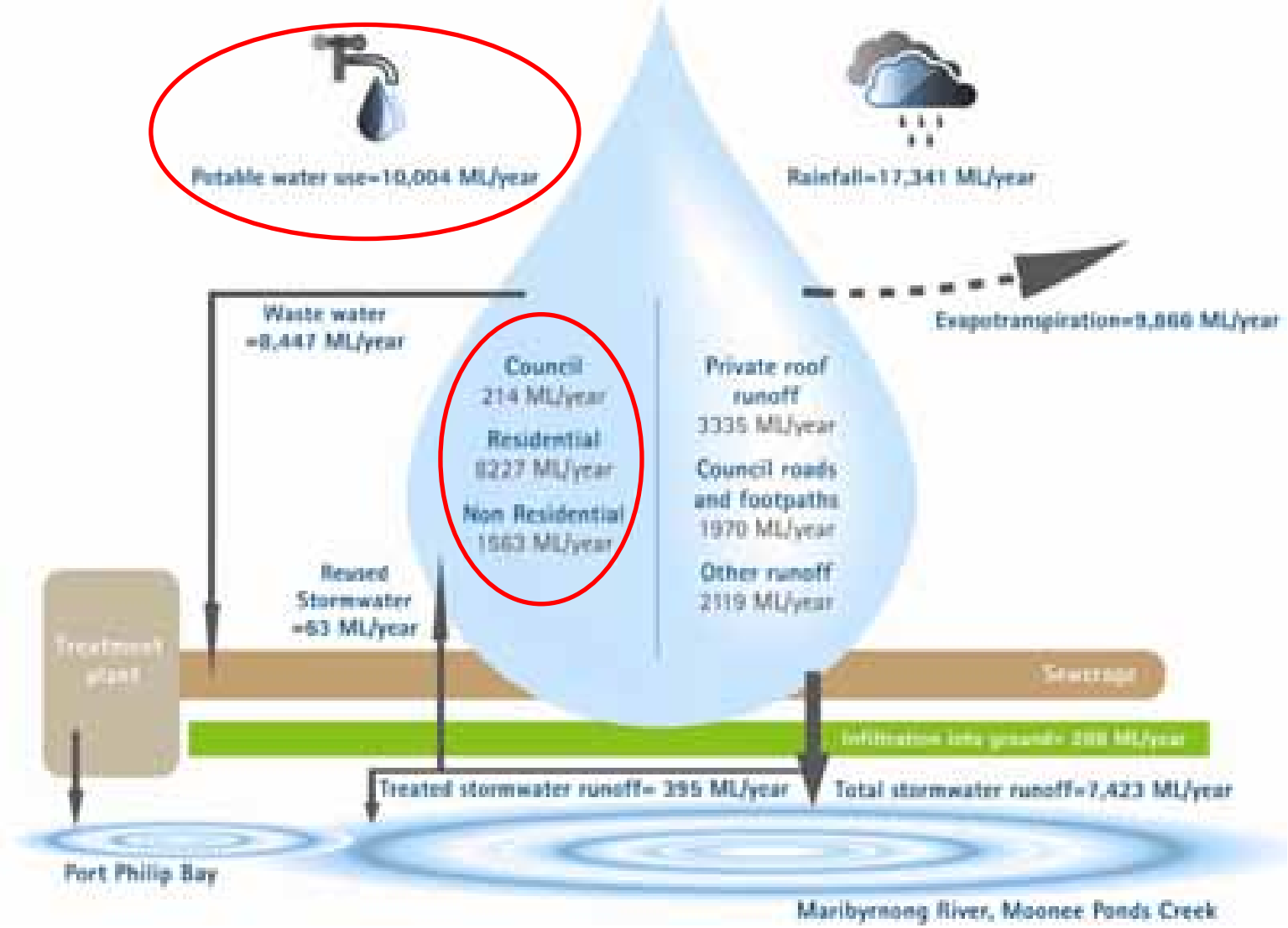
1. Know what is currently happening to water in our municipality
   - Where and how much is used
   - Quantifying pollutants carried with water flows
2. Decide what we want this to look like in future
   - Water saving
   - Stormwater quality
   - Wastewater
   - Groundwater
   - Atmospheric water

How do Councils find this out?

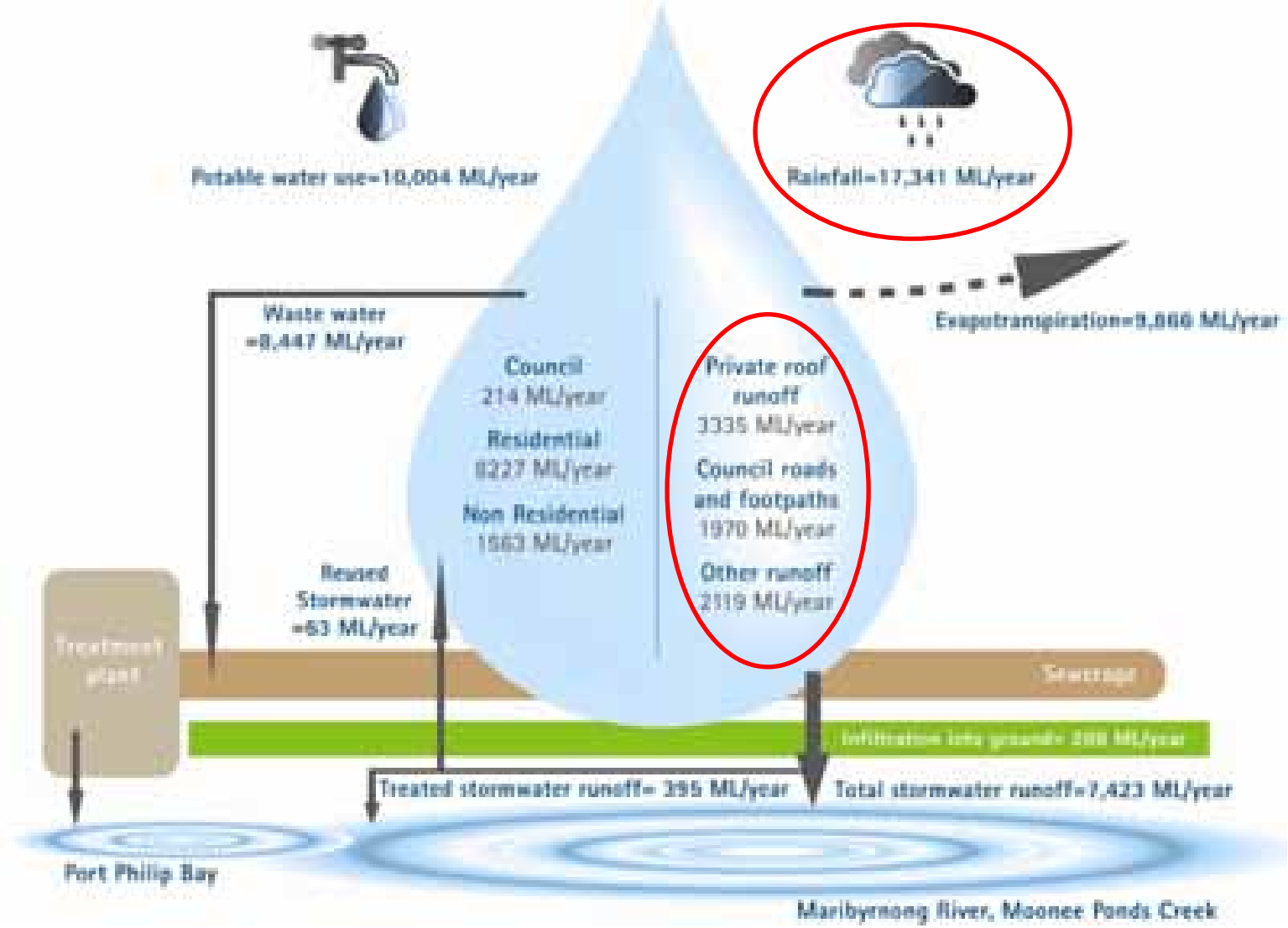
Understand our water balance



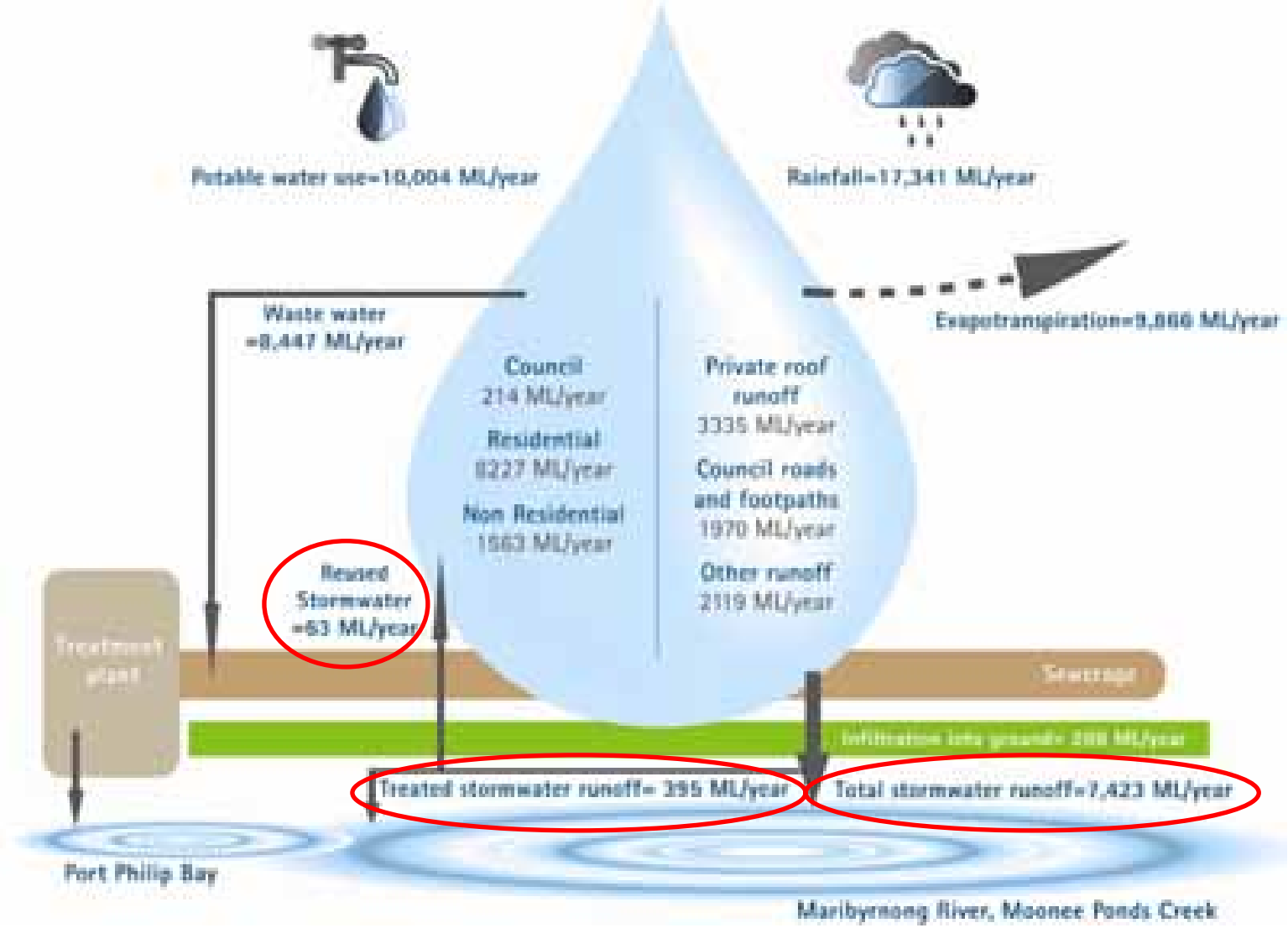
Understand our water balance



Understand our water balance



Understand our water balance



Understand our pollution balance

Pollutant	Effect on environment	Source
Total Suspended Solids *e.g. dirt, tyre residue* **TSS**	•Reduces light in water available for plants •Reduces supply of food for other organisms •Forms thick deposits in lakes and streams which suffocate organisms	**Council roads (71%),** Private impervious (17%) Private roof (9%)
Total Nitrogen *e.g. airborne pollutants, fertiliser* **TN**	• Causes excessive plant growth which can choke waterways and affect oxygen levels, which threatens fish and other animals • Causes blue-green algae blooms which can be fatal to fauna affect human health.	**Private roof (45%)** Council road (30%) Private impervious (9%)
Total Phosphorus *e.g. fertilisers and detergents* **TP**		**Council roads (53%)** Private roof (23%) Private impervious (18%)
Gross Pollutants *e.g. litter, debris*	•Unsightly. Animals can eat and choke on this material	

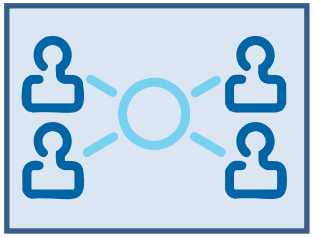
80:45:45

TSS:TN:TP

What is this?

Why is it the centre of the stormwater world?

How does it relate to setting targets?



What progress has been made to date?

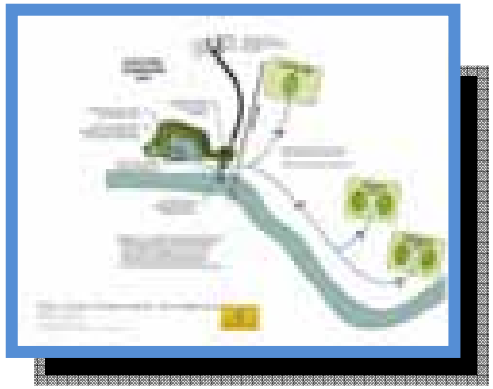
Existing target	Where we are now?
40% reduction in Council mains water use by 2020	43% reduction by 2008/09 ✓✓✓
40% reduction in community mains water use by 2020	11% reduction by 2008/09 ✓
15% of Council water use to be from alternative water sources by 2012	11% of council water from alternative sources ✓✓
Improve water quality of the Moonee Ponds Creek and Maribyrnong River	10% reduction in total suspended solids 4% reduction in nitrogen 7% reduction in phosphorus 6% reduction in litter ✓✓

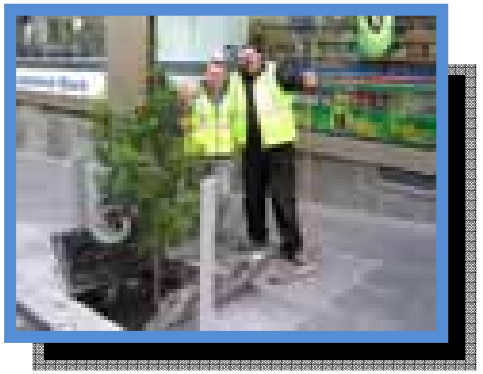
Note :
All targets are based on 2001 levels

How much will you spend?

Council currently spends $331,000 pa (including grants) for WSUD projects
To meet targets, Council needs to spend:

- Concept and detailed designs - $100,000 per year
- WSUD construction - $330,000 per year
- Maintenance - $60,000





Draft targets for Moonee Valley

By 2020, Moonee Valley is aiming for:

Water saving

- 50% reduction in Council mains water use
- 40% reduction in Community mains water use

Alternative water use

- 20% of Council water use to be from alternative water sources

Stormwater quality targets (we meet 80:45:45 in 2117)

- 16% reduction in total suspended solids
- 9% reduction in total nitrogen
- 12% reduction in total phosphorus
- 8% reduction in litter
- reduction in directly connected imperviousness

Wastewater, groundwater and atmospheric water targets are still to be determined.

Sara Lloyd

AECOM

Director, Design and Planning

Setting of targets for integrated water management strategies

Sara Lloyd

AECOM

Key Steps in the Framework

Identify appropriate IWM targets based on natural assets and councils vision

Water balance

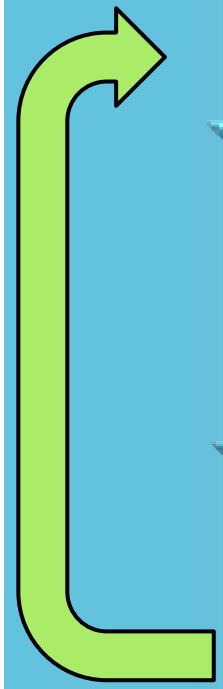
- Water consumption, wastewater generation, groundwater consumption, stormwater generation (flow and quality)

Setting targets

- Potable water use reduction, stormwater quality improvement, flow management, alternative water use, wastewater minimisation, sustainable groundwater use

Future water balance

- climate change, increased need for functional POS, population growth projections)



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Identifying appropriate targets

What are the key natural assets and/or areas desirable to protect?

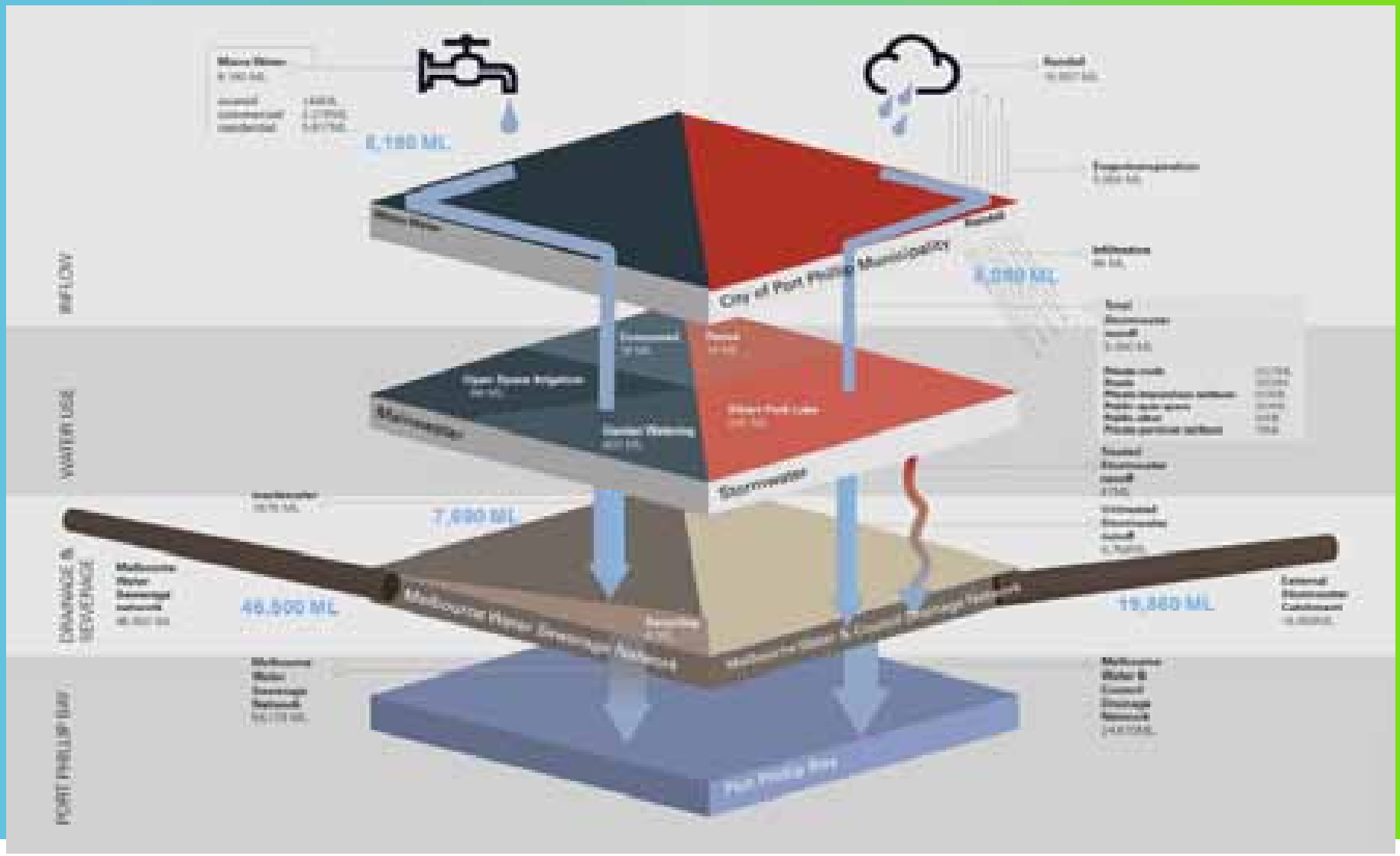
- What are the key threats?

What are councils long term vision for:

- Groundwater use and management?
- Potable water use?
- Wastewater/recycled water use?
- Stormwater use

Existing targets

Water balance



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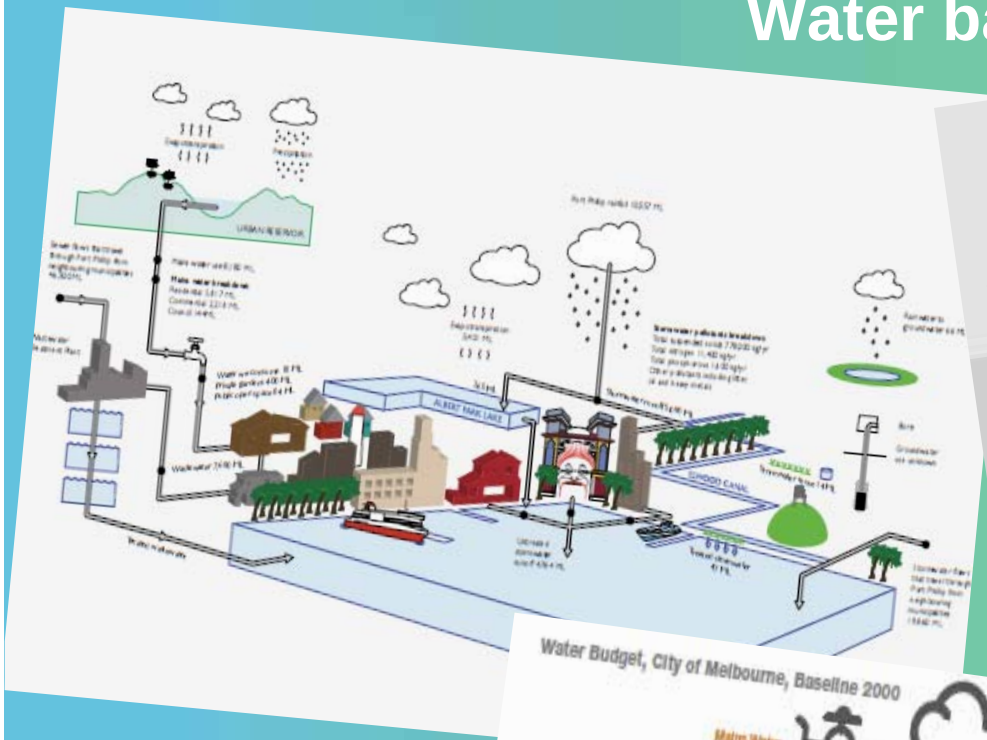
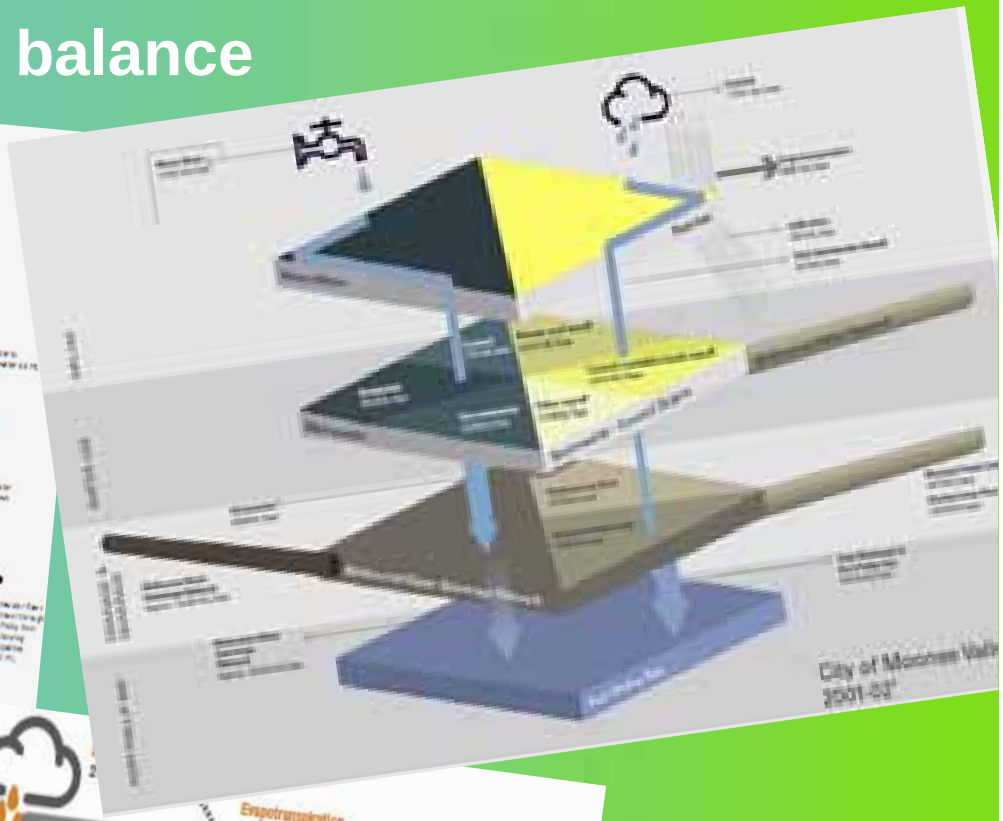
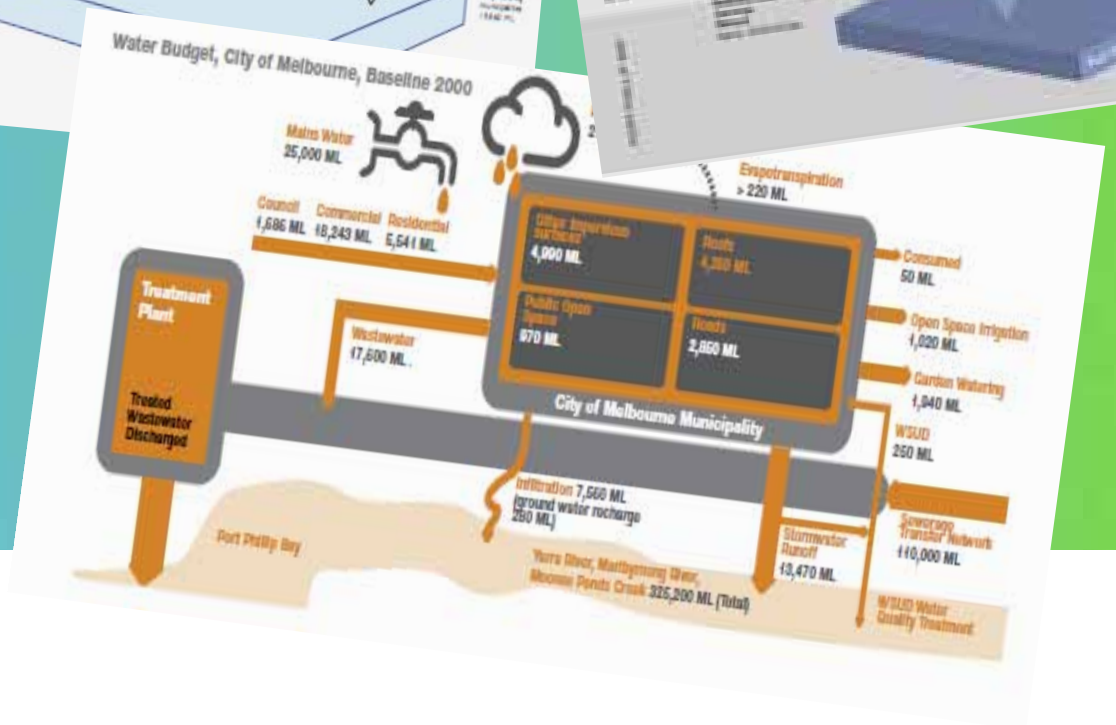
Water balance







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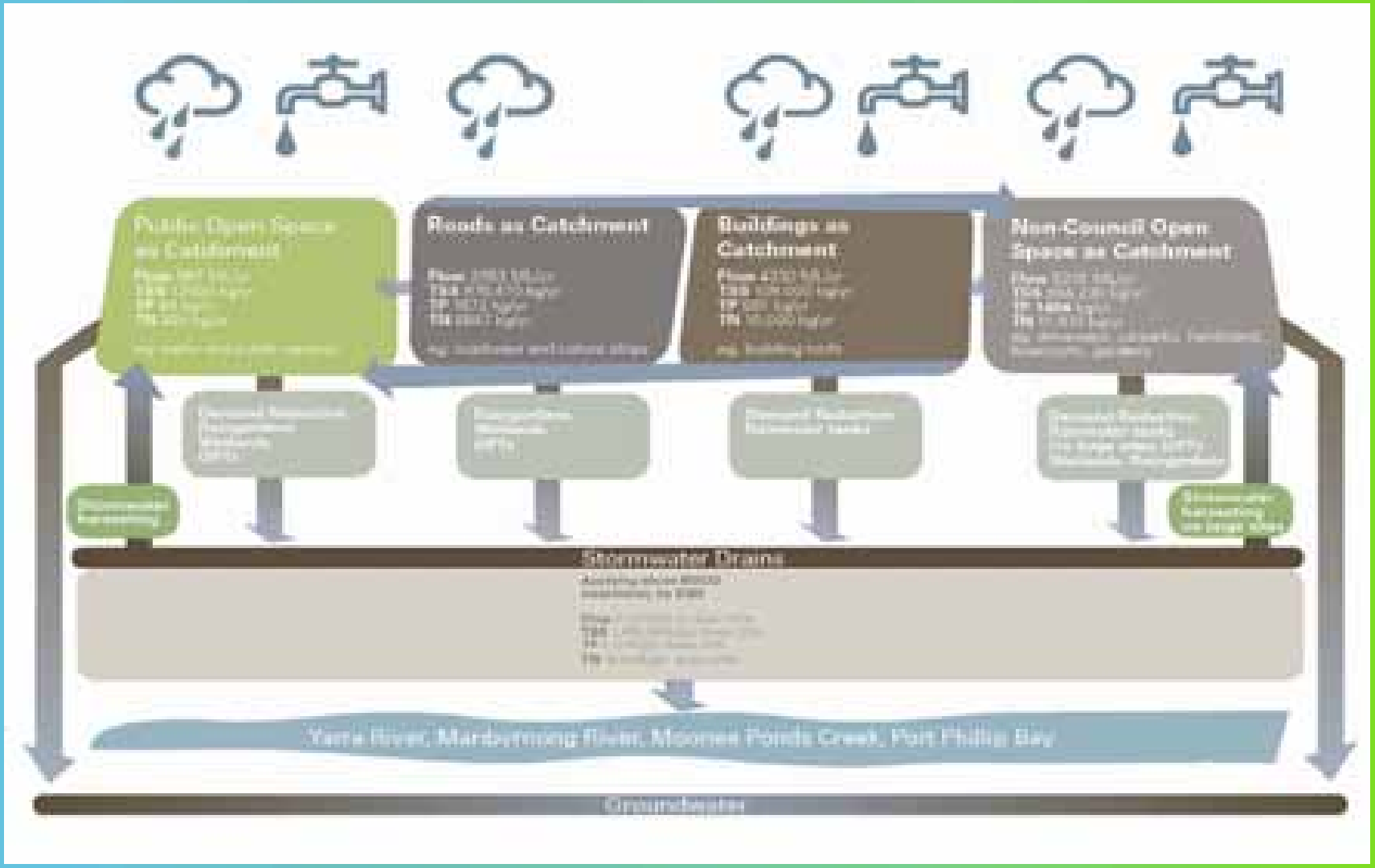
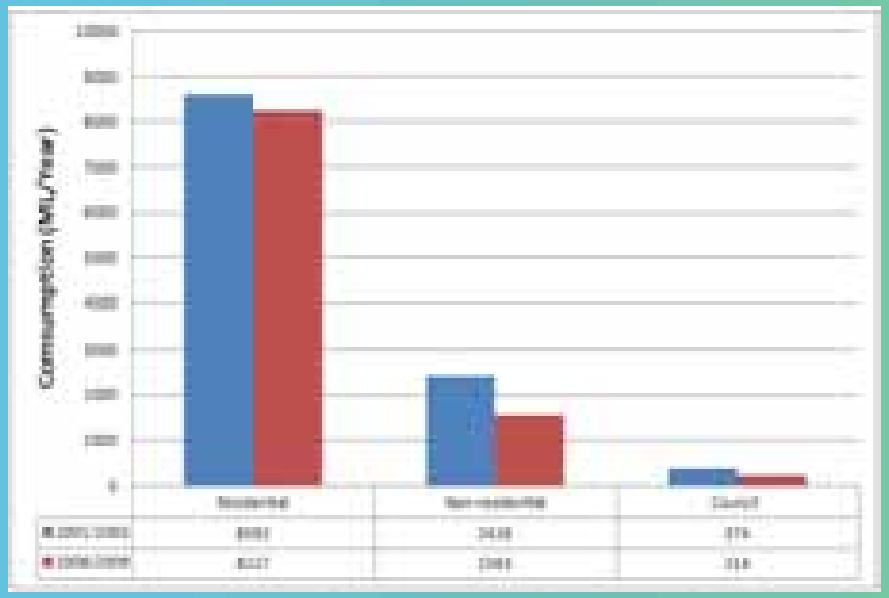
Pollutant budget

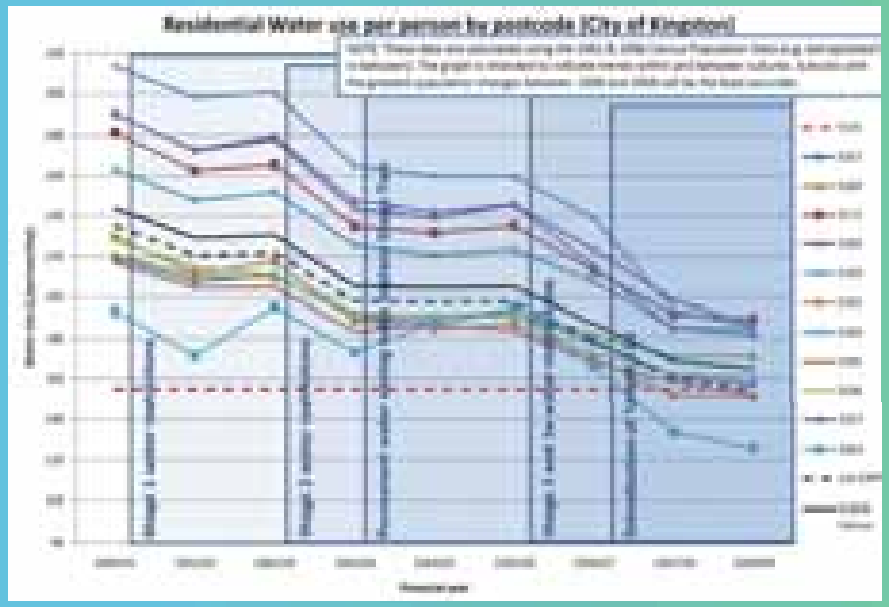


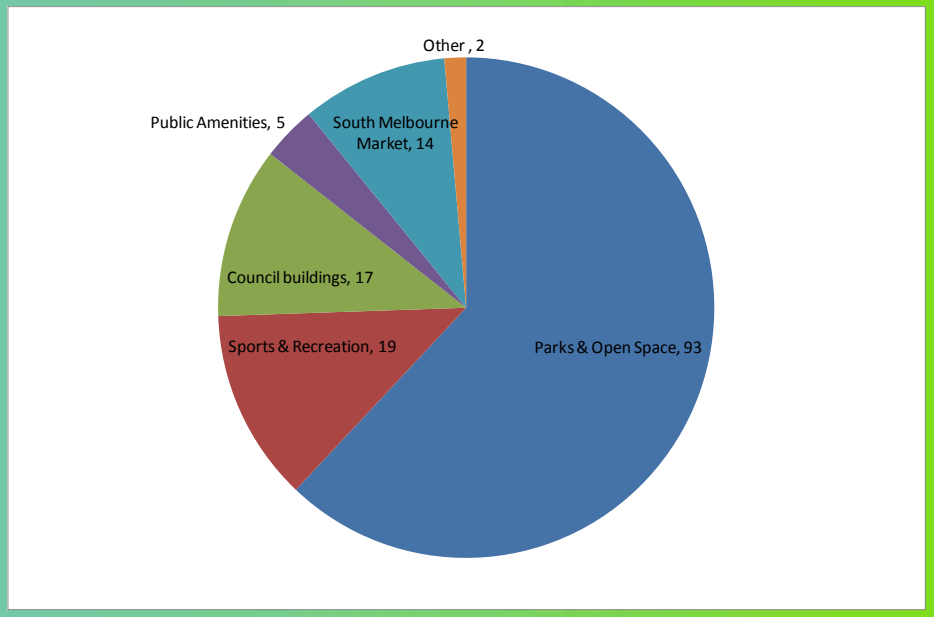


Mains water consumption

Annual metered consumption

- Council, residential, non-residential





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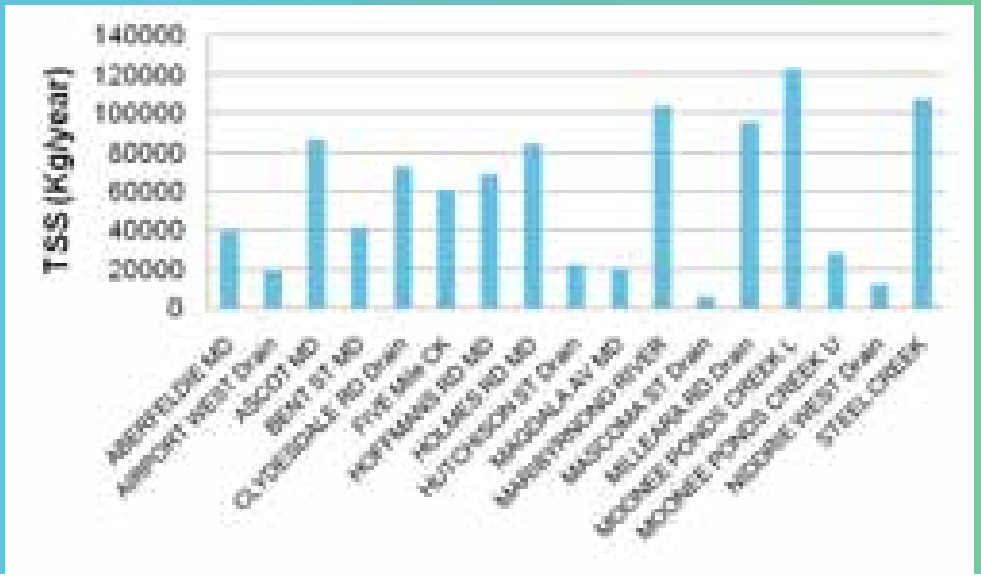
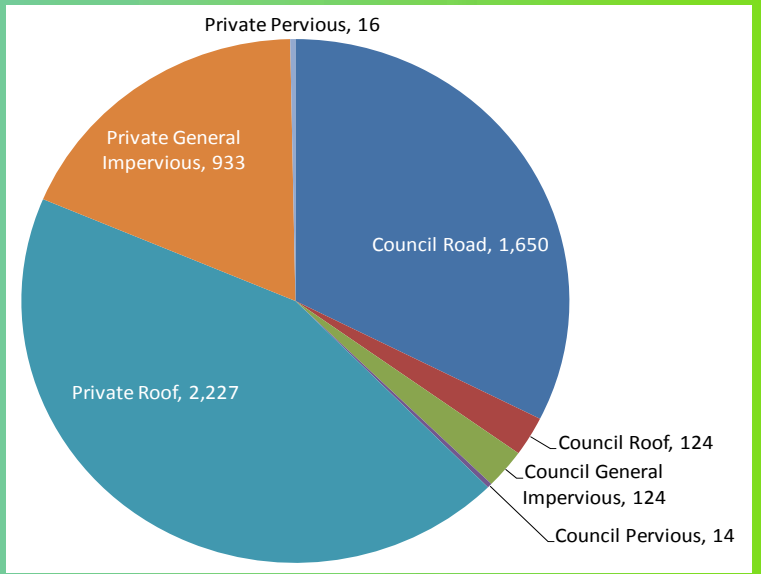
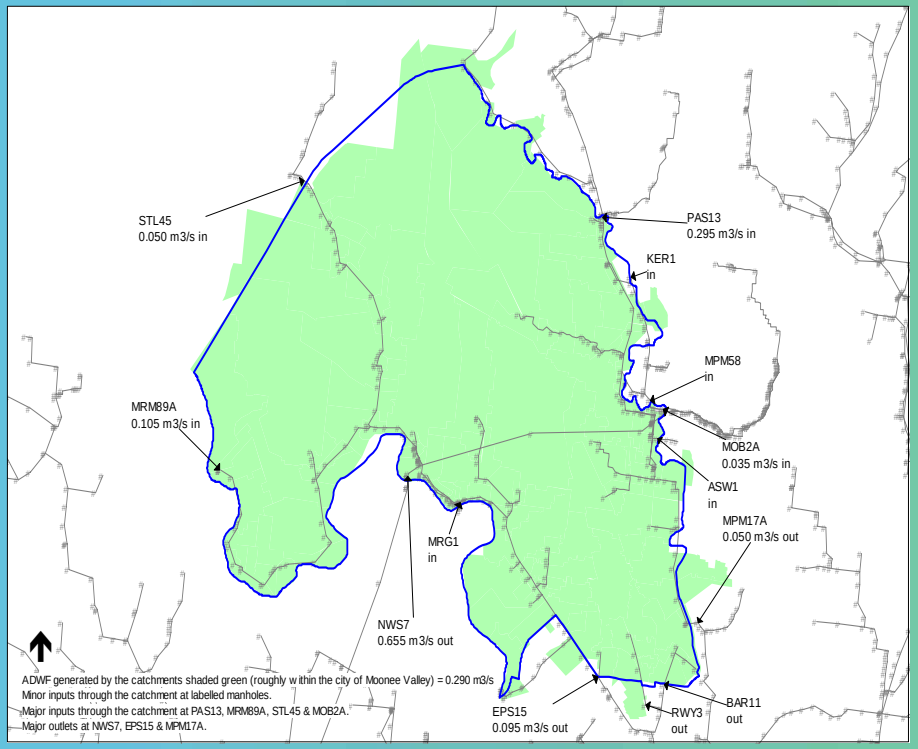
Stormwater

- Runoff volumes and pollutant loads
- Rainwater capture and use
- Surface water diversions/stormwater harvesting







Wastewater generation

- Generation rates
- External sources
- Availability and current use of recycled water
- Septics
- Local STPs

Groundwater resources

Regional groundwater summary
- Upper aquifer & lower aquifer
  - depth and salinity

Groundwater consumption
- Annual metered consumption
  - council, commercial
- Estimated domestic consumption
  - residential

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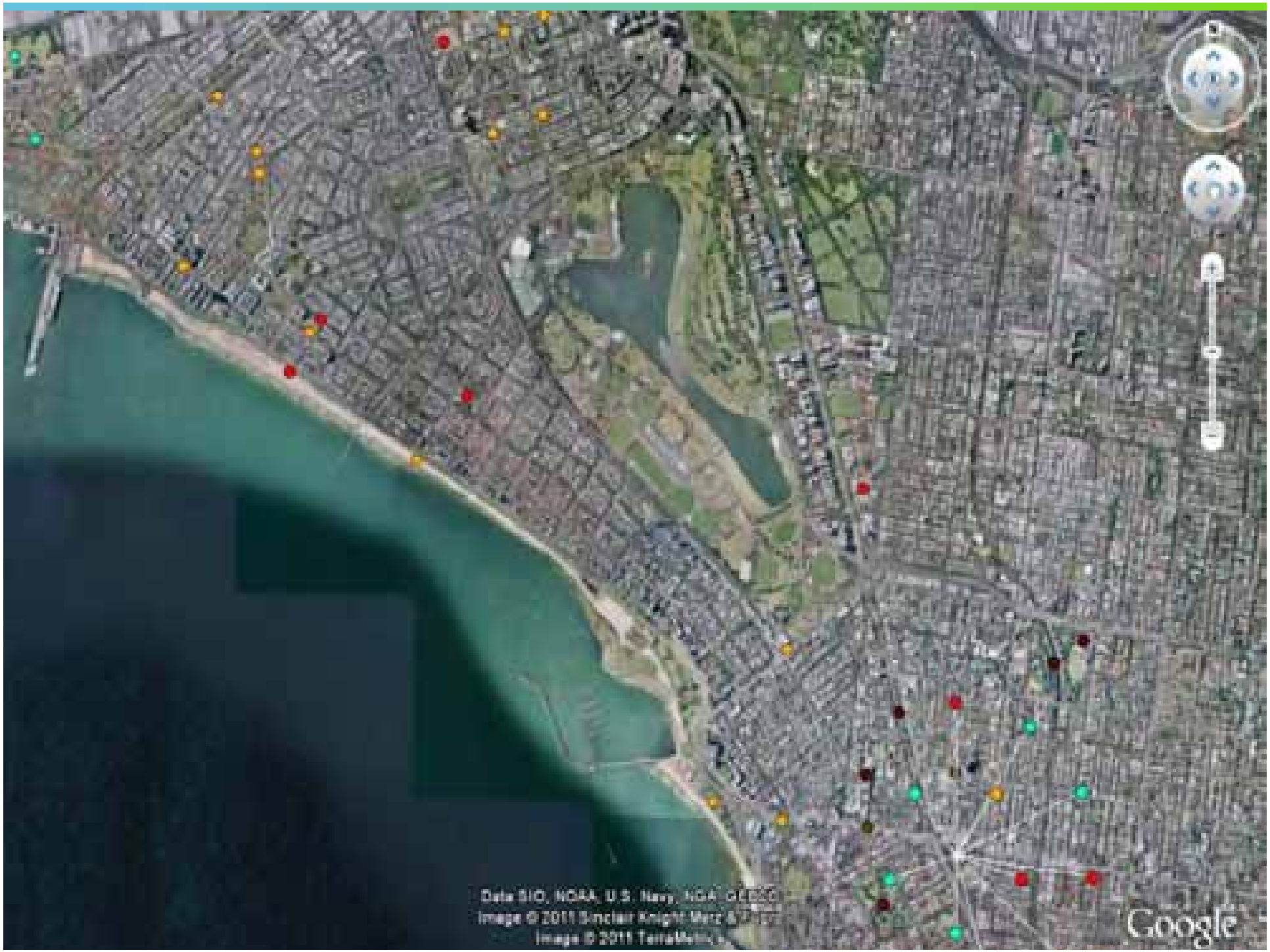
Setting Targets

Key considerations:

- Identify primary and secondary targets
- Interim and long term targets
- Assess benefits associated with WSUD


Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image © 2011 Sinclair Knight Merz &
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Coventry St, South Melbourne

Field Name	Field Value
FID	30
Shape	Point
ID	31
Category	Council Parks & Streetscapes
Primary Strategic focus area	ST
Action Name (Location)	Coventry St, South Melbourne
Date	2009/10
WSUD system type	Rain garden
Mains water conserved	NA
Wastewater flow reduction	NA
Stormwater flow reduction	0
TSS Reduction (kg/yr)	1460
TP Reduction (kg/yr)	1.54
TN Reduction (kg/yr)	2.6
Image_Link	

	Water stream	Land ownership	Baseline year 1999 Volume generated (ML/yr)	Current 2006/2007 Volume reduction (ML/yr)	Current 2006/2007 % reduction	2020 reduction target
Demand	Mains water supply	Municipality (total)	25 470	2 467	10%	40%
		Council	1 685	473*	28%	40%
		Private residential	5 541	1 088*	20%	40%
		Commercial/industrial	18 243	1 017	6%	40%
Source	Stormwater	Municipality (total)	13 466	250	2%	n/a
	Wastewater	Municipality (total)	22 510	2 076	9%	n/a

* current water use includes reductions attributed to water restrictions as well as to the installation of permanent demand management fixture and fittings

2008	TSS		TP		TN	
	Current load removed (kg/yr)	% attainment 2020 target	Current load removed (kg/yr)	% attainment 2020 target	Current load removed (kg/yr)	% attainment 2020 target
Municipality (total)	67 107	18%	165	39%	1,177	36%
Council	37 798	21%	105	54%	778	91%
Private residential	2 651	5%	5	8%	35	5%
Commercial / industrial	26 658	20%	54	34%	364	22%

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Reductions in mains water use	
Council	70% reduction
Community	50% reduction per capita
Supply from alternative water sources	
Council	15% of 2000/01 water use or 50% of future projected outdoor water use+
Reductions in indoor water use^	
Council	9% on 2000/2001
Community	3% reduction per capita

Stormwater quality reductions in mean annual pollutant loads		
	Reasonable and achievable	Aspirational
TSS	**19%**	26%
TP	**15%**	20%
TN	**10%**	13%

Proposed 2020 water management targets

•*All reductions relative to 2000/2001 unless otherwise stated

•+Outdoor water use for irrigation purposes

^Reductions in indoor water use translate closely into reductions in wastewater discharge

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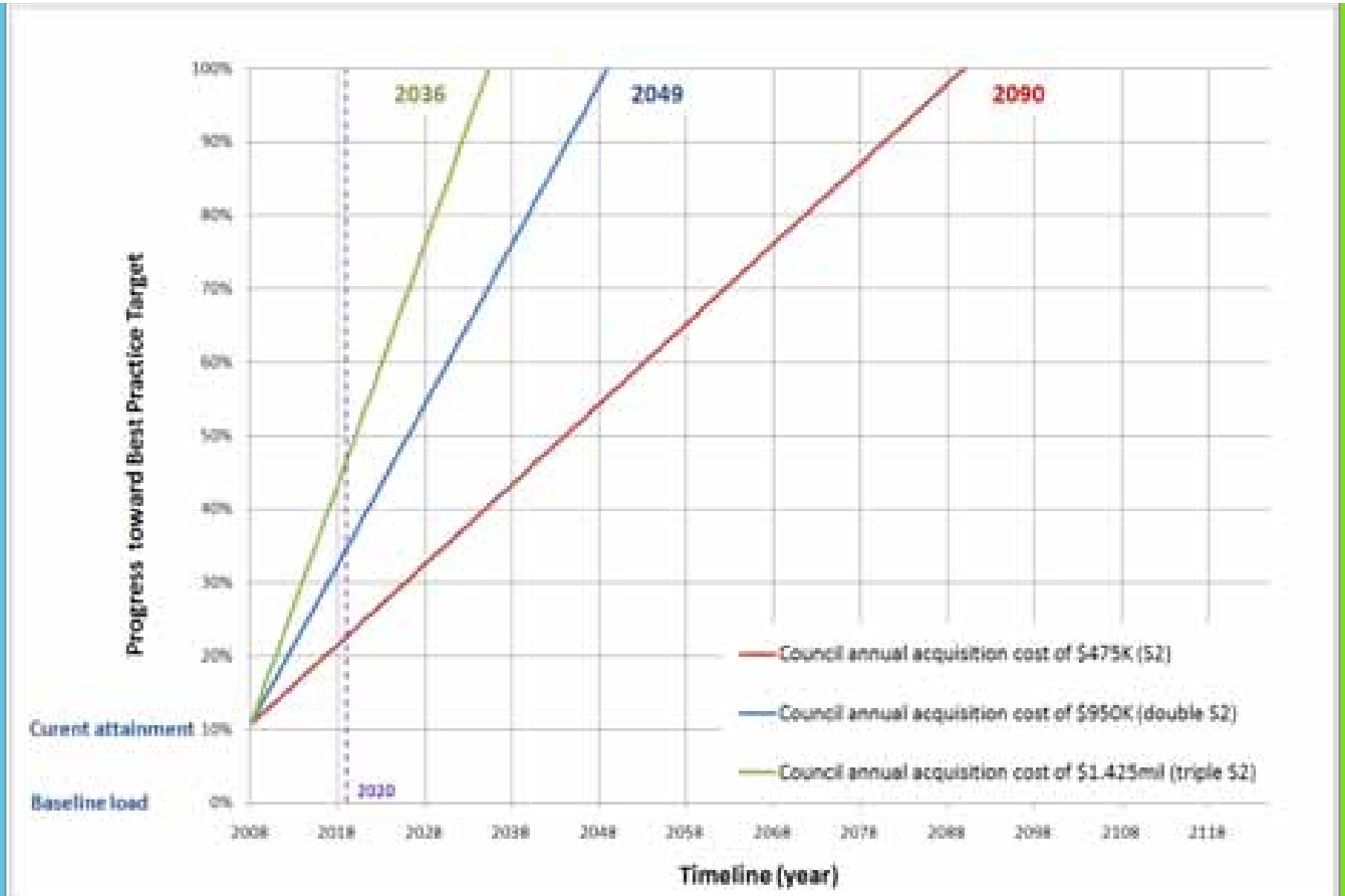
2036
2049
2090
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Progress toward Best Practice Target
Current attainment
Baseline load
2020
2008
2018
2028
2038
2048
2058
2068
2078
2088
2098
2108
2118
Timeline (year)
Council annual acquisition cost of $475K (S2)
Council annual acquisition cost of $950K (double S2)
Council annual acquisition cost of $1.425mil (triple S2)

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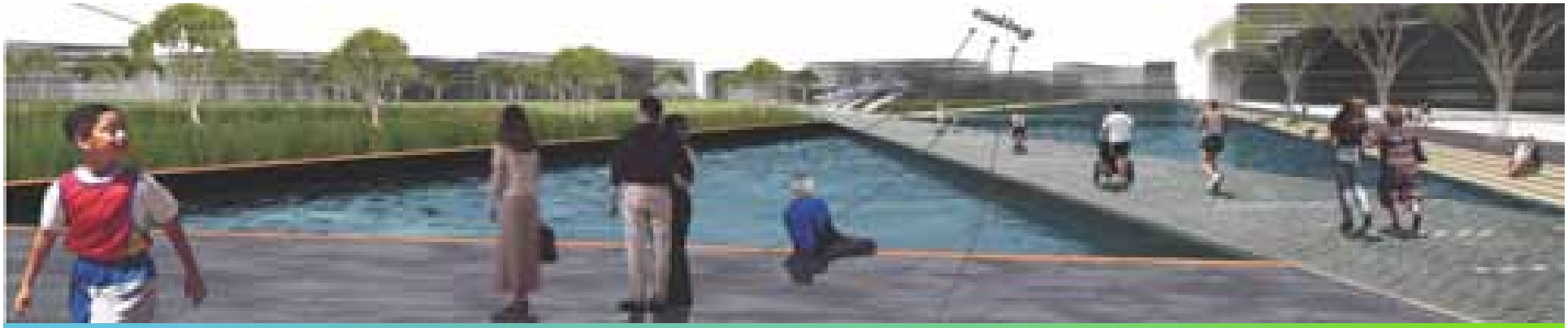
WSUD Treatment	Reasonable and achievable	Aspirational
Water conservation – reduction in council mains water use (ML/yr)	9.3	12.7
Water conservation – reduction in private mains water use (ML/yr)	11.8	16.4
Alternative water sources – council supply (ML/yr)	8.6	12.0
Reduction in TSS loads (kg/yr)	**10,973**	**15,255**
Reduction in TPloads (kg/yr)	**18**	**25**
Reduction in TN loads (kg/yr)	**88**	**122**

Future water balance

Quantify the impacts of:

- Population growth on future water demands and stormwater generation
- Climate change impacts on water supply opportunities



Key learnings

- Requires a multidisciplinary team to appreciated the complexities of unique attributes within different municipalities
- Collaboration with council to address specific needs
- Sourcing data from stakeholders may impose time delays
- Don’t assume data is correct without reality checks along the way
- Involve top tier managers


AECOM
Thank you.

Floor Questions

Phil Edwards
Sheridan Blunt
Penny Mueller
Sara Lloyd

Morning Tea

Melbourne Water

clearwater

Daniella Gerente

Water Sensitive Cities Project Officer

Elissa Blake

Drainage Engineer

Knox City Council

Developing a WSUD & Stormwater Management strategy for Knox

Hot Topics: Integrated Water Management Strategies

February 2011

Knox City Council

Presentation Outline

- Council's story – developing a WSUD & S/W Management strategy
- Identifying high-value catchments
- A framework for WSUD prioritisation
- Wicks Reserve Bio-Infiltration System – Project helps find gaps in Council policies & processes and define strategy
- WSUD Strategy Targets
- Opportunities – Benefits of the strategy

Motivation for a WSUD strategy

- Council is already spending large amounts on WSUD.
- Is it being spent in the most cost-effective way?
- How should we prioritise our WSUD activities?
  - By “threat” (e.g. Hotspots)
  - Or by values (i.e. values of receiving waters).
- Need an integrated soundly-based strategy

Strategy based on...

* Council's responsibility in relation to stormwater
* Methods to analyse the state of Knox's waterways
  - Not just "pollution threat" but focussed on "waterway value"
  - Identifying high value waterways, as well as pollution hotspots
* What other Councils were doing in relation to stormwater management and WSUDs
* Consult Council staff internal stakeholders to define gaps in Council policies and processes in relation to WSUD

Research behind strategy

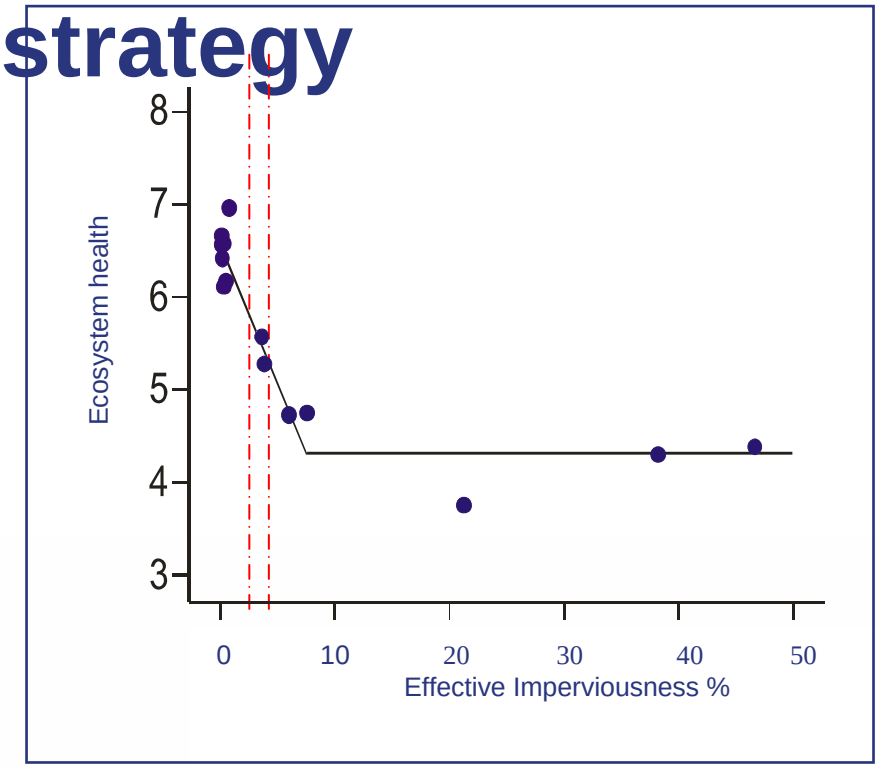
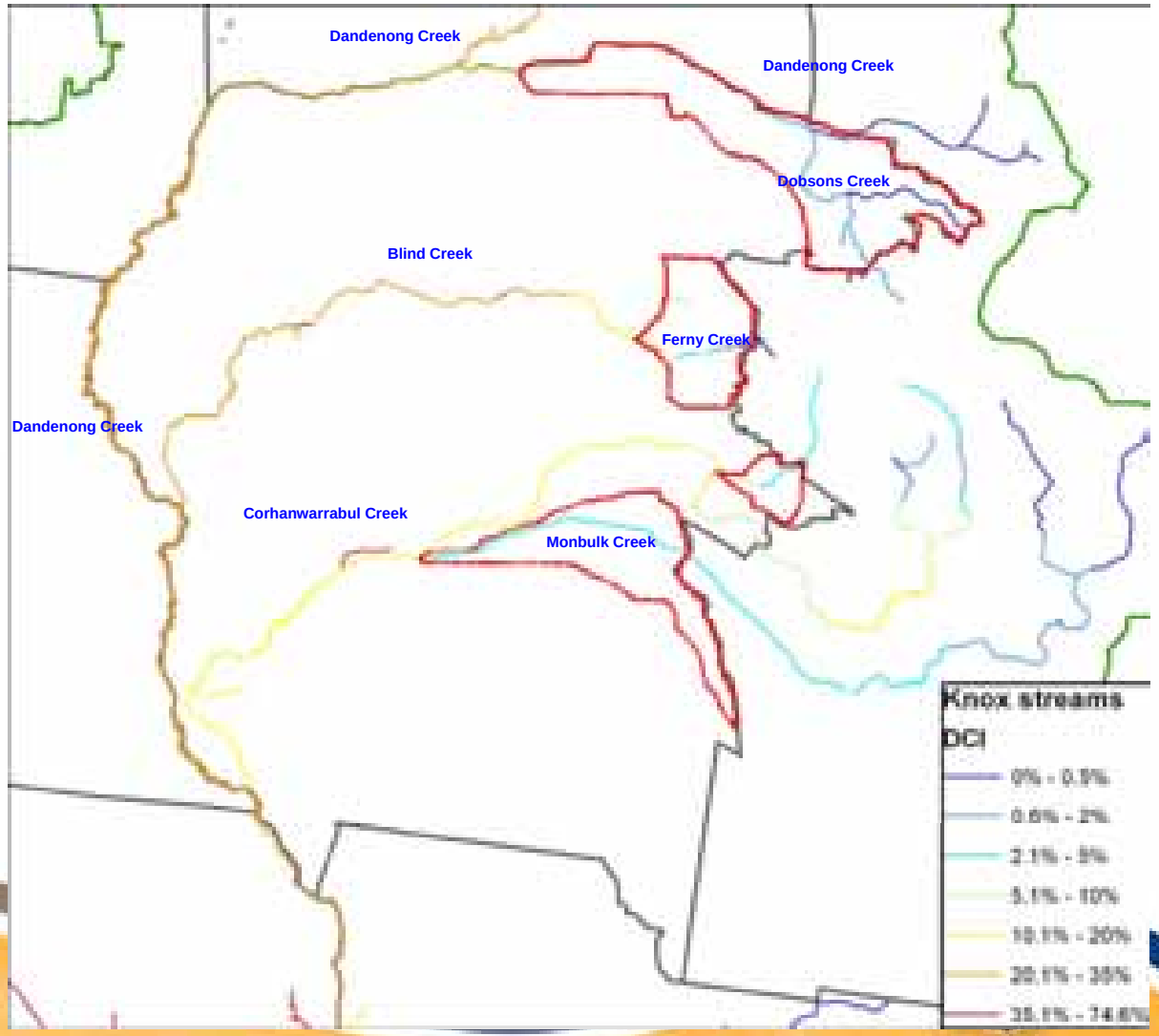


Figure 1. Effective imperviousness vs. waterway health. Waterways in good condition all have catchments with less than 2% effective imperviousness. Source: Walsh et al. (2005).

Knox City Council

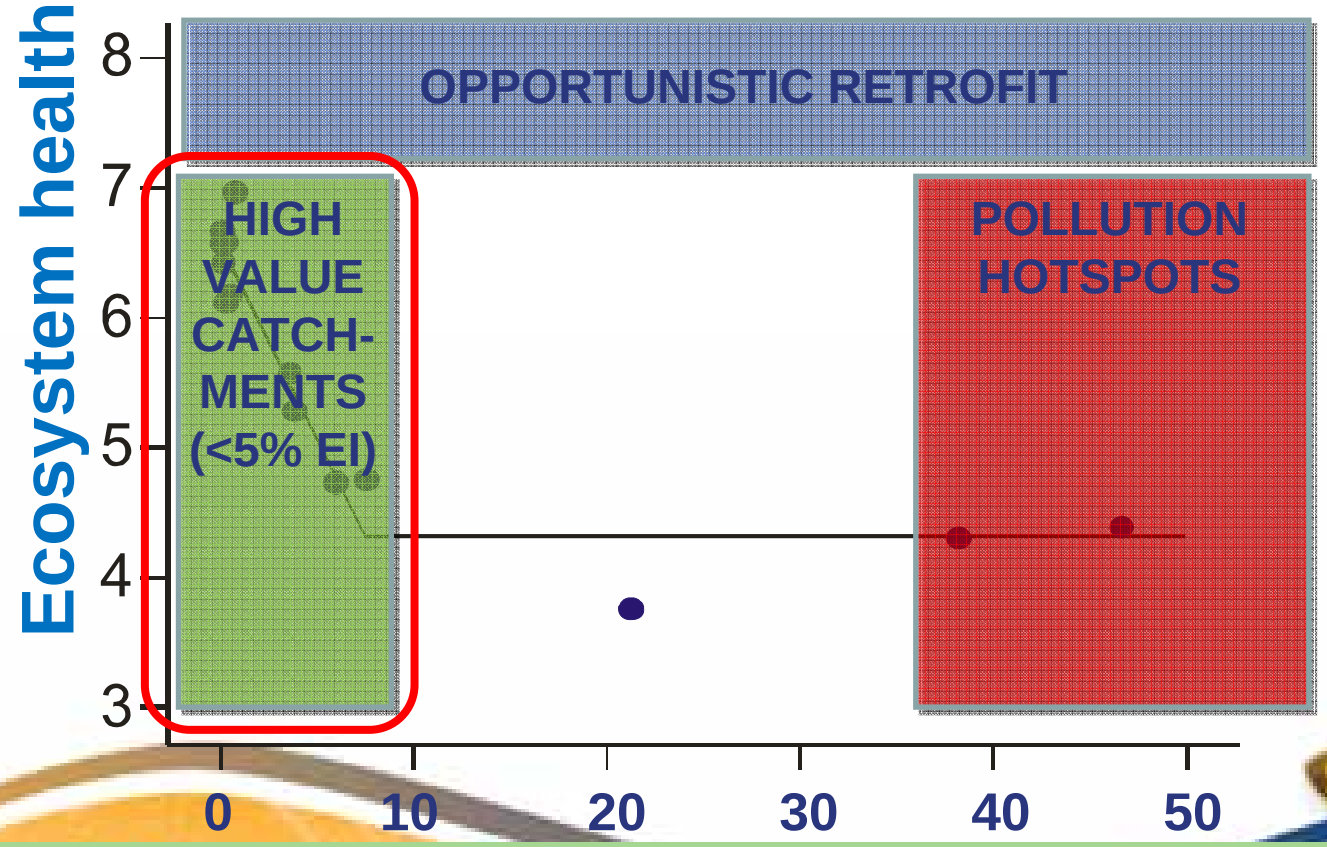
Identifying high-value catchments

- Effective Imperviousness of every catchment in Knox mapped
- High Value Catchment Areas highlighted in red



Knox City Council

A framework for WSUD prioritisation



Walsh et al. (2005)

WSUD Strategy (proposed % of investment)

- High-Value Catchments Program (50%) Large environmental outcome.
- Opportunistic Retrofit Program (15%) Large capacity-building outcome.
- Hotspots Program (10%) Large water quality outcome.
- Planning Program (10%) Large environmental outcome at low cost.
- Maintenance Program (10%) Large outcome at very low cost.
- Monitoring & reporting (5%) Important feedback.

Wicks Reserve Bio-Infiltration System

Project helps find gaps in Council policies & processes and define strategy

WSUD Strategy Targets

Implementation Target 1: Modelled performance of individual WSUD projects

Implementation Target 2:

Reduction in Effective Imperviousness (EI)

Waterway Health Target 1: Improve Water quality & aquatic life

- ***Index of Stream Condition (ISC)***

Opportunities – Benefits of the strategy

- Funding & Support -
  - For projects in high value waterways and hotspot pollution areas from Melbourne Water & Council
  - Partnerships with water authorities and universities
  - Partnerships within Council departments
  - Council's Councillors & Management support for projects
  - Potential to work with neighbouring Councils
  - Community awareness and engagement

Engagement within Council / Community engagement

Management

⇩

Council's Environment Advisory Committee and Youth Committee

⇩

Council

⇩

Community Consultation

⇩

Council

⇩

Internal WSUD Working Group


Knox City Council

Penny Mueller

Senior Sustainability Officer

Sheridan Blunt

Sustainable Environment Coordinator

Moonee Valley City Council

Linking strategy to action

Penny Mueller and Sheridan Blunt, MVCC

Choosing the best value WSUD project to spend its $ on?

Sustainable Water Hierarchy

When choosing a water source for a site, the following hierarchy is to be considered:

Local catchment

1. Demand Management
2. Roof runoff capture and reuse
3. Stormwater harvesting

Local/Regional catchment

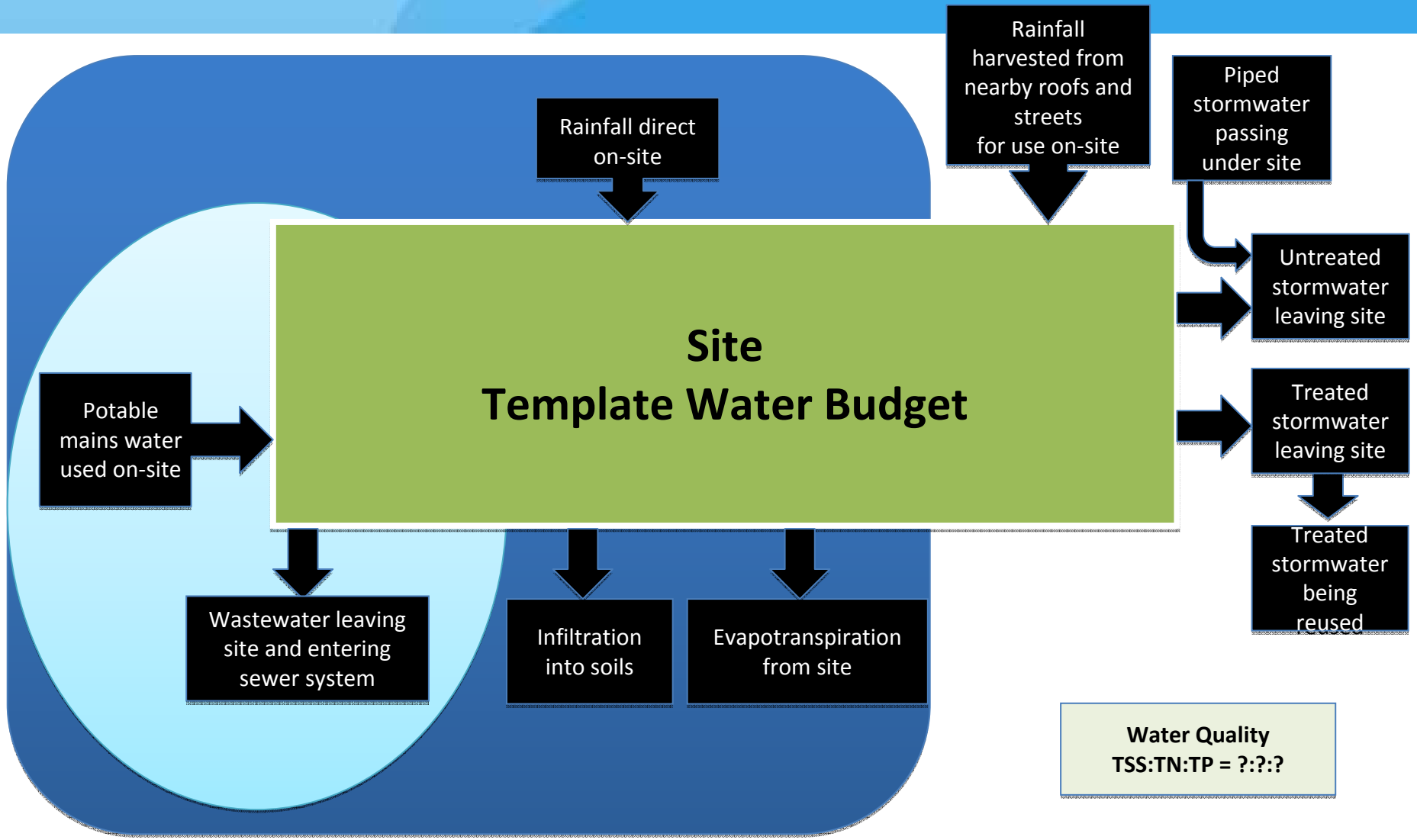
4. Waterway sourcing
5. Wastewater recycling

Regional catchment

6. Mains water
7. Groundwater (bore water) extraction

This hierarchy is suitable for a downstream, highly urbanised municipality.

Template Water Budget



Early days…back of the envelope

To treat 260 sq. metres of road reserve catchment

1 sq. metre of WSUD treatment
=
1 small wsud street tree pit
=
26 kilograms of TSS removed

To treat 2500 sq. metres of road reserve catchment

10 sq. metre of WSUD treatment
=
1 raingarden
=
260 kilograms of TSS removed

To treat 1 ha of catchment

40 sq. metre of WSUD treatment
=
1 swale
=
1290 kilograms of TSS removed

To treat 5 ha of catchment

1000 sq. metre of WSUD treatment
=
1 small wetland
=
2600 kilograms of TSS removed

To treat 1000 sq. metres of road reserve catchment

30 sq. metre of WSUD treatment
=
porous paving
=
100 kilograms of TSS removed

To treat 2500 sq. metres of roof

1.3 ML/year of roofwater reused
=
100 KL rainwater tank
=
26 kilograms of TSS removed

However there will still be some new works that will lower stormwater quality.
These are accounted for with negative points…

1,000m2 pervious open space
=
1,000m2 porous paving
= - 30 kg/yr

1,000m2 pervious open space
=
1,000m2 impervious surface
= - 160 kg/yr

Early days…back of the envelope

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1290 kilograms of TSS removed

To treat 5 ha of catchment

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=
1 small wetland
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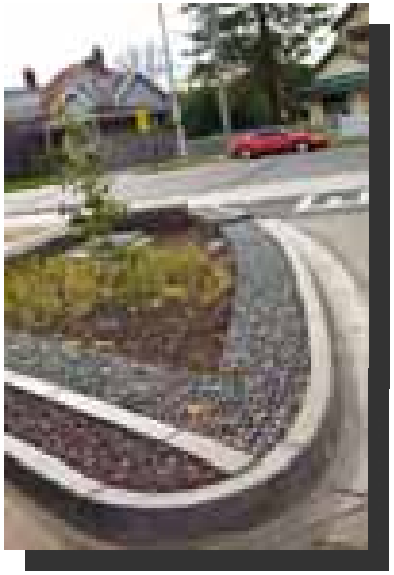
=
1,000m2 impervious surface
= - 160 kg/yr

Moonee Valley – TSS story

Baseload = 988,551
Target:16% by 2020 = 158,000
To date:10% achieved = 99,000

Still to go: 6% = 59,000 kg/pa
45 swales?
Two Afton Street Wetlands
226 raingardens? (Kingston has over 150…)

How do these projects help to meet targets?



Blair Street Raingardens –
329kg TSS
2.4kg TN
0.6kg TP

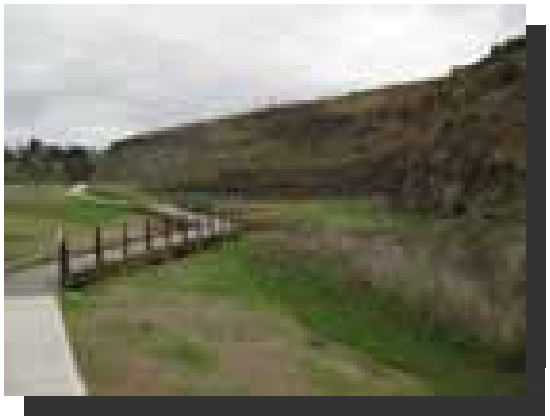
Progress to target – 0.6%

Doyle Street Raingardens –
290kg TSS
0.9kg TN
0.4kg TP

Progress to target – 0.5%

Afton Street Wetland –
30,900kg TSS
200kg TN
51kg TP
20.1ML water

Progress to target – 52%



Valley Lake wetland –
28,100kg TSS
117kg TN
19kg TP
5.3ML water

Progress to target – 47%

At what cost?

WSUD tree pit in residential area

Median price
$2,000 per tree

Wetland costs

Median Price
$120 per m2

Raingarden

Median price
$1,000 per m2

Porous Paving

Approximately $150-$500 per m2

Swale

Median price
$90 per m2

Maintenance

Link to map of projects

Ralf Pfleiderer

Melbourne City Council

Water Sensitive Urban Design Coordinator

Implementing and Tracking Water Sensitive Urban Design

Ralf Pfleiderer
WSUD Coordinator

CITY OF MELBOURNE

TOTAL WATERMARK –
CITY AS A CATCHMENT

Water Strategy

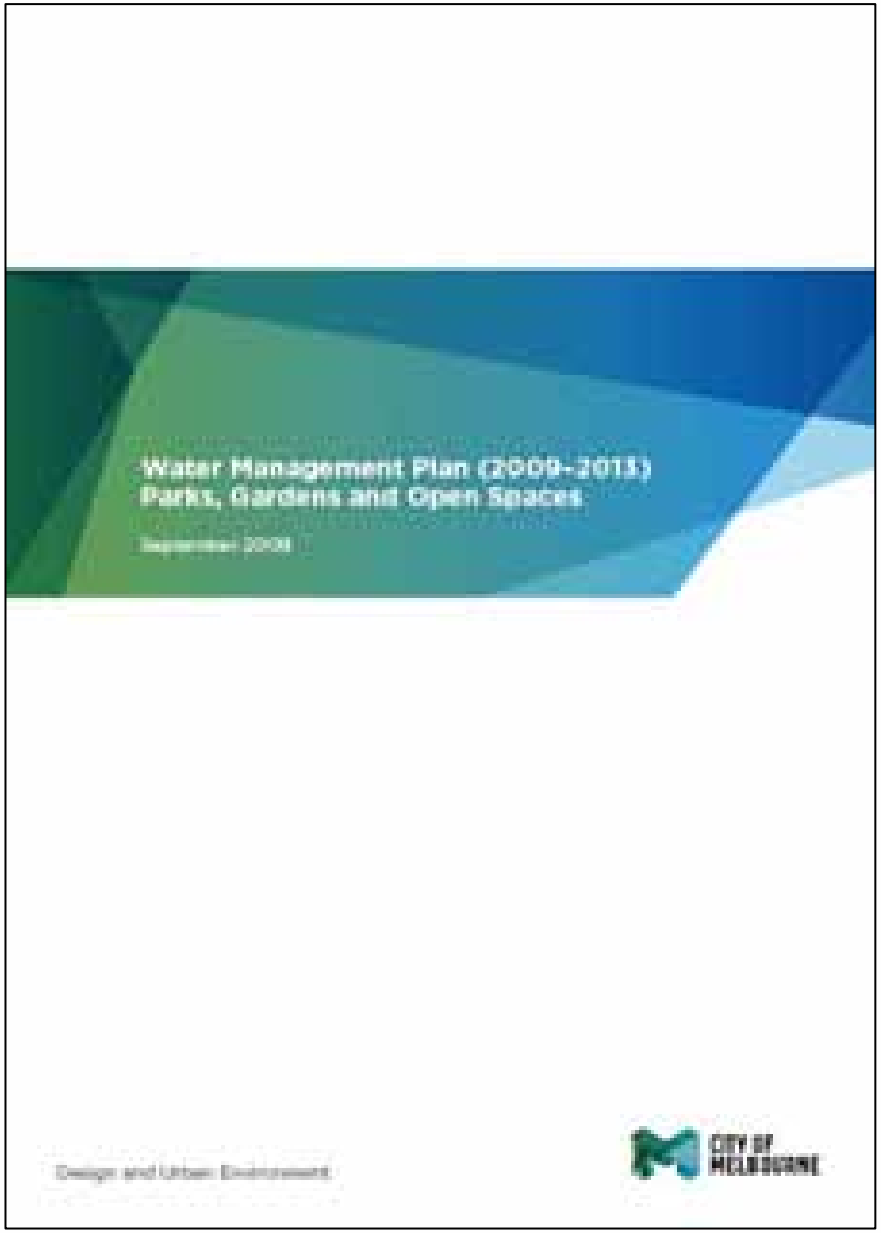
In 2007, City of Melbourne modelled sources and sinks for water use and stormwater pollution.

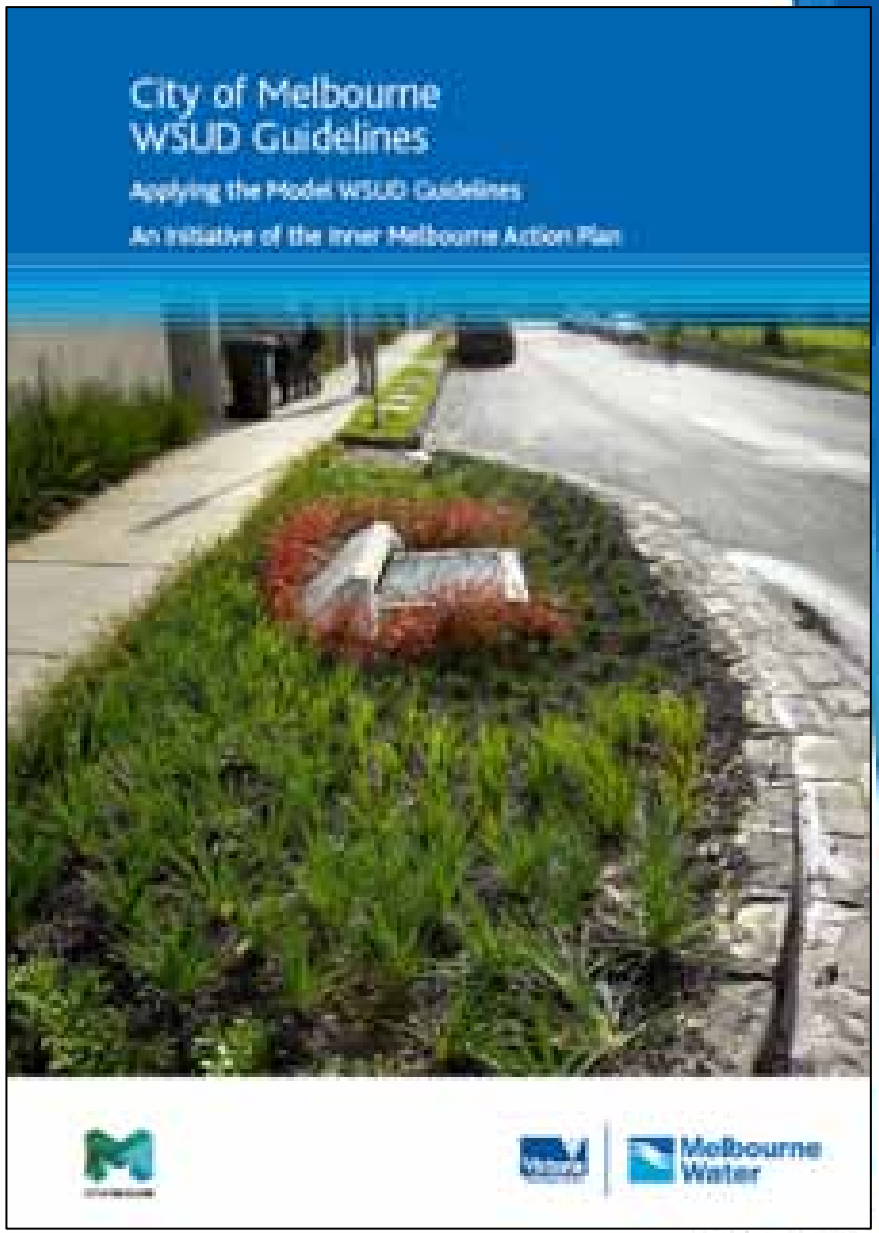
In 2009, targets were adopted for;

- Water saving
- Alternative water use
- Stormwater quality improvement
- Wastewater
- Groundwater

Targets based on track record and best industry knowledge at the time.

Water Strategy supported by...



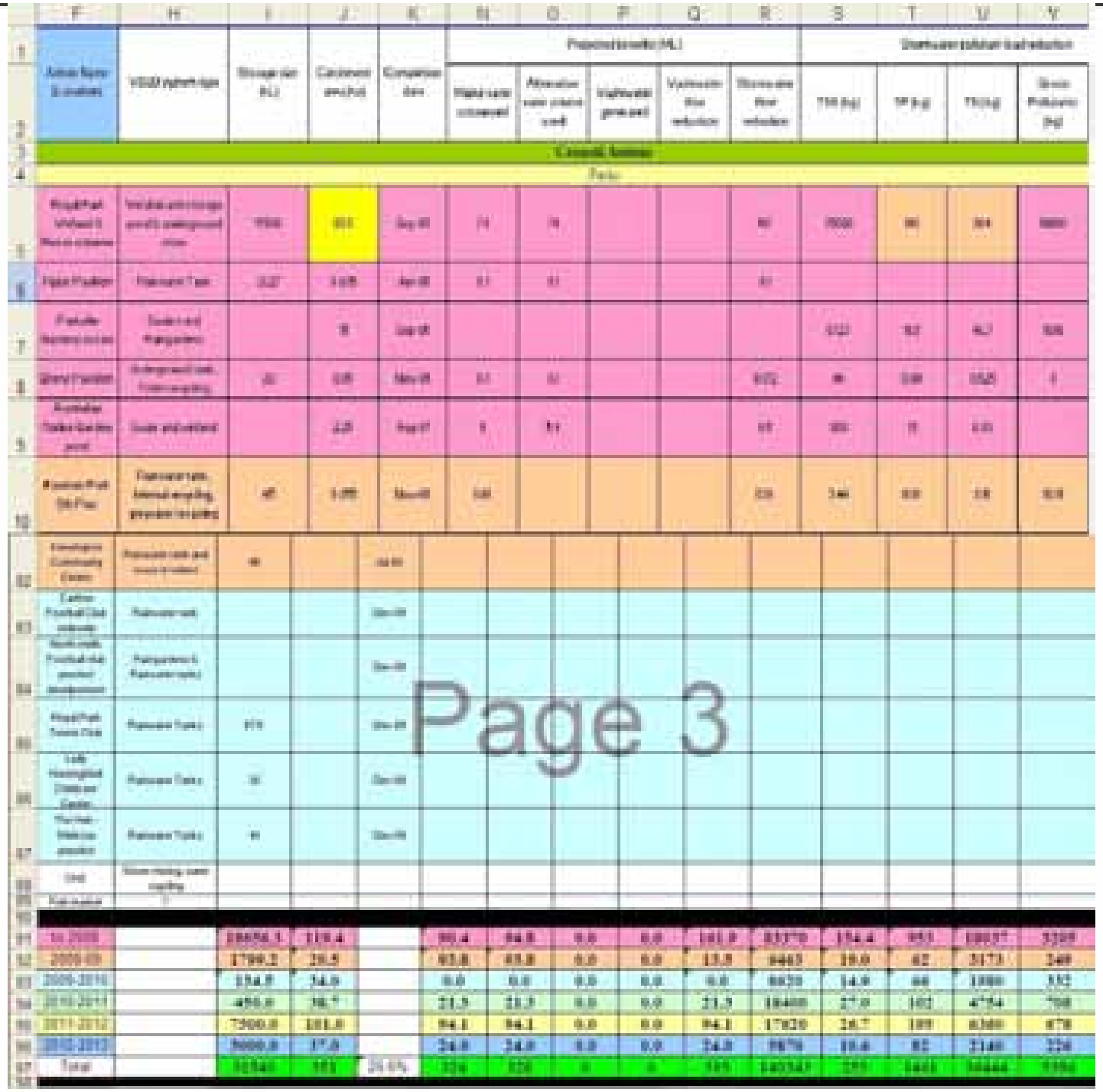


2020 Targets

- Stormwater quality improvement
  - decrease total suspended solids load by 20%
- Water saving
  - 90% reduction in Councils potable water use
- Alternative water use
  - Council to source 30% of it’s 480ML water needs from alternative sources

Stormwater targets achieved to date

- 13.2% of council managed land being treated
- 79% of 2020 TSS target achieved already
- 16% of total modelled TSS load removed
- 20.6 million litres of available storage
- 256 million litres of recycled stormwater



Page 3

CITY OF MELBOURNE

Stormwater Pollution Data

Pollutant	Land Ownership	Pollutant Load generation*	2020 % Reduction Targets	2020 Load Reduction Targe*	Load Reduction Progress to June 2010*	% of total Load Removed	% of 2020 Target Removed	Load Reduction Needed*	
								2010-2020	Annually
TSS	Total	1,441,254		288,250					
	Council	670,536	20%	134,107	106,157	16%	79%	27,950	2,795
	Private	770,718	20%	154,143		0%			
TP	Total	2,939		606		0%			
	Council	1,289	15%	193	200	16%	103%	-7	-0.7
	Private	1,650	25%	412		0%			
TN	Total	22,318		8,381		0%			
	Council	5,459	30%	1,637	1,129	21%	69%	509	51
	Private	16,859	40%	6,743		0%			
Gross Pollutants	Total	36,2150		108,645		0%			
	Council	81,380	30%	24,414	23,229	29%		1,185	118.5
	Private	280,770	30%	84,231					

***Load data given in kg per annum**

Summary Issues

- Non-council data is not freely available and hard / impossible to chance up
- MUSIC requires a minimum data input of catchment size, storage size and reuse demand for results. Often only tank size is known
- Tracking requires high input of time and skill
- Update as industry knowledge change

Possible solutions for tracking

- A best guess pollution generation model based on tank size for certain application
  - residential home
  - apartment tower/ office tower etc.
- Revise targets based on catchment area treated to BMP
- Flow based, reduced/treated to BMP
- Others?

Implementation Plan

Parks

focused on stormwater harvesting

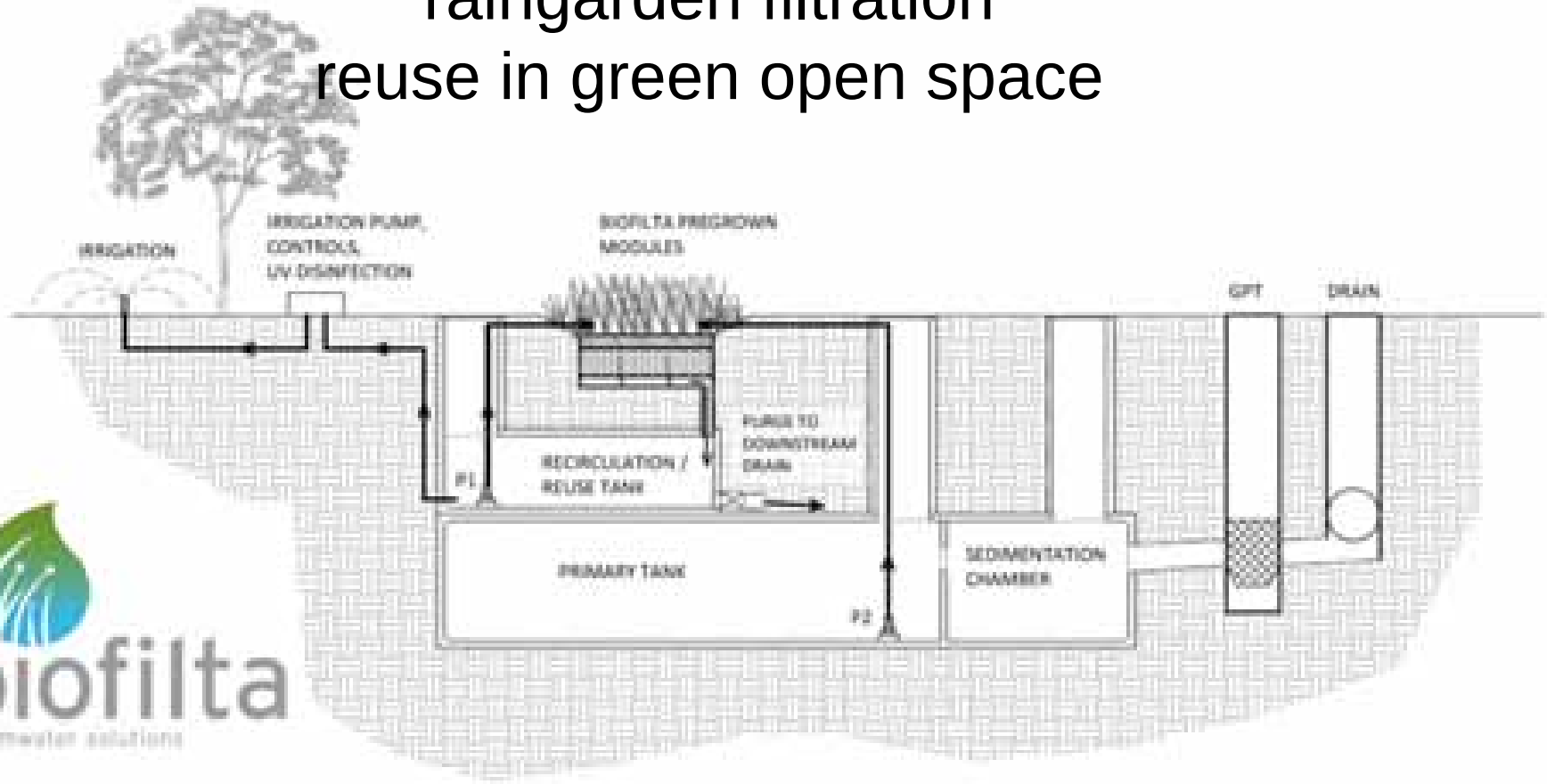
Action Name (Location)	WSUD system type	Storage size (kL)	Catchment area (ha)	Completion date	Projected benefits (ML)			Stormwater pollutant load reduction				
					Mains water conserved	Alternative water source used	Stormwater flow reduction	TSS (kg)	TP (kg)	TN (kg)	Gross Pollutant (kg)	points
Fitzroy & Treasury Gardens	Stormwater harvesting and reuse schemes	5000	67	Dec-10	69	69	69	12100	18.2	155	4960	465.4
Birrarung Marr	Stormwater harvesting and reuse schemes	3000	37	2012	24	24	24	5870	10.64	82.2	2140	225.8
AG&QVG	Stormwater harvesting and reuse schemes	2500	34	2013	25.1	25.1	25.1	5520	8.52	40.1	1400	212.3

Streetscape Implementation Plan

underground storage

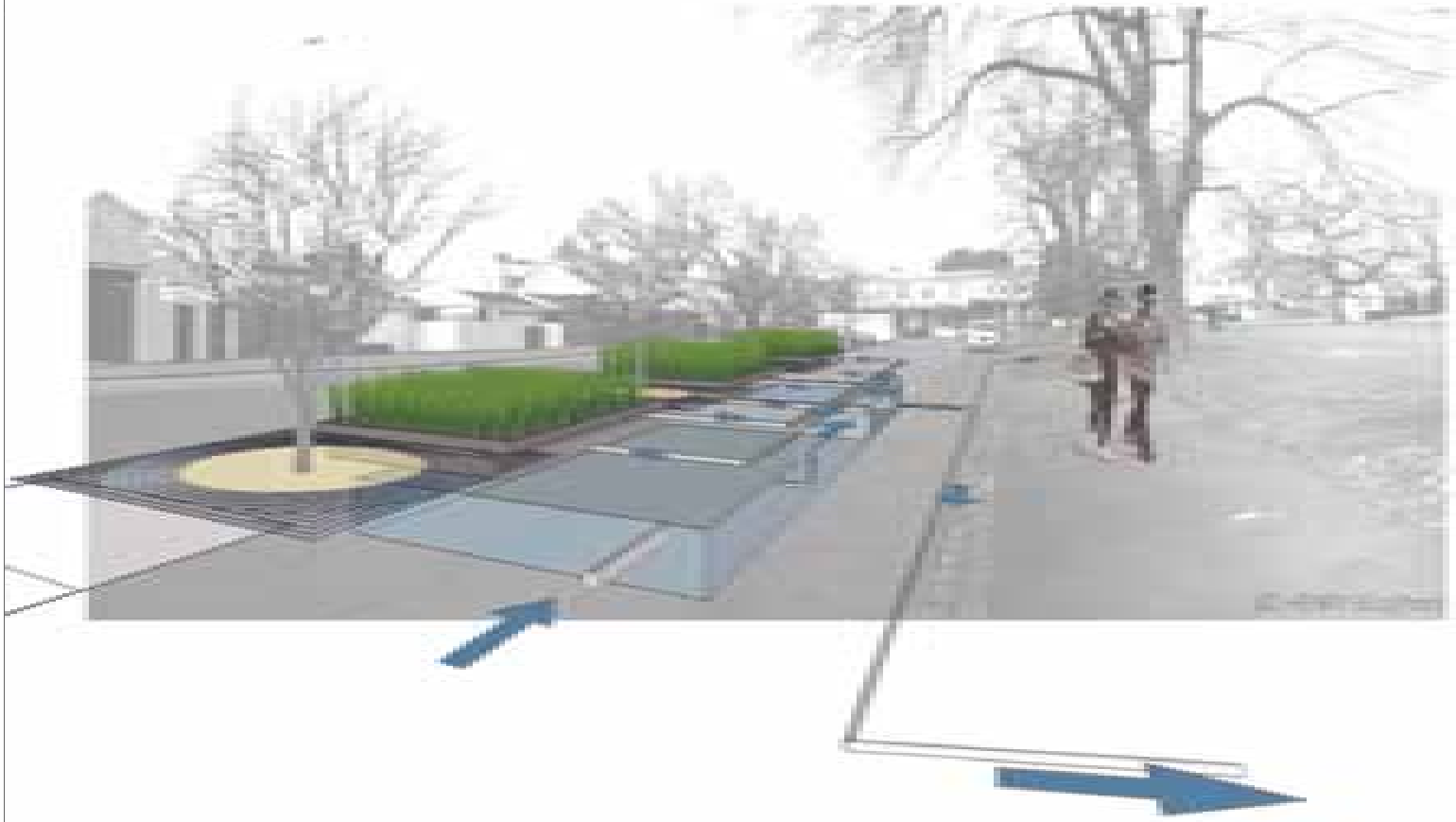
raingarden filtration

reuse in green open space



BIOFILTA STORMWATER (PATENT PENDING) HARVESTING SYSTEM SCHEMATIC

N.T.S.



biofilta

Therefore the parks and street WSUD implementation become one
Majority of catchment treated through reuse systems
Major flow reduction achieved as well
Some flood mitigation depending on the placement within the catchment

CITY OF MELBOURNE

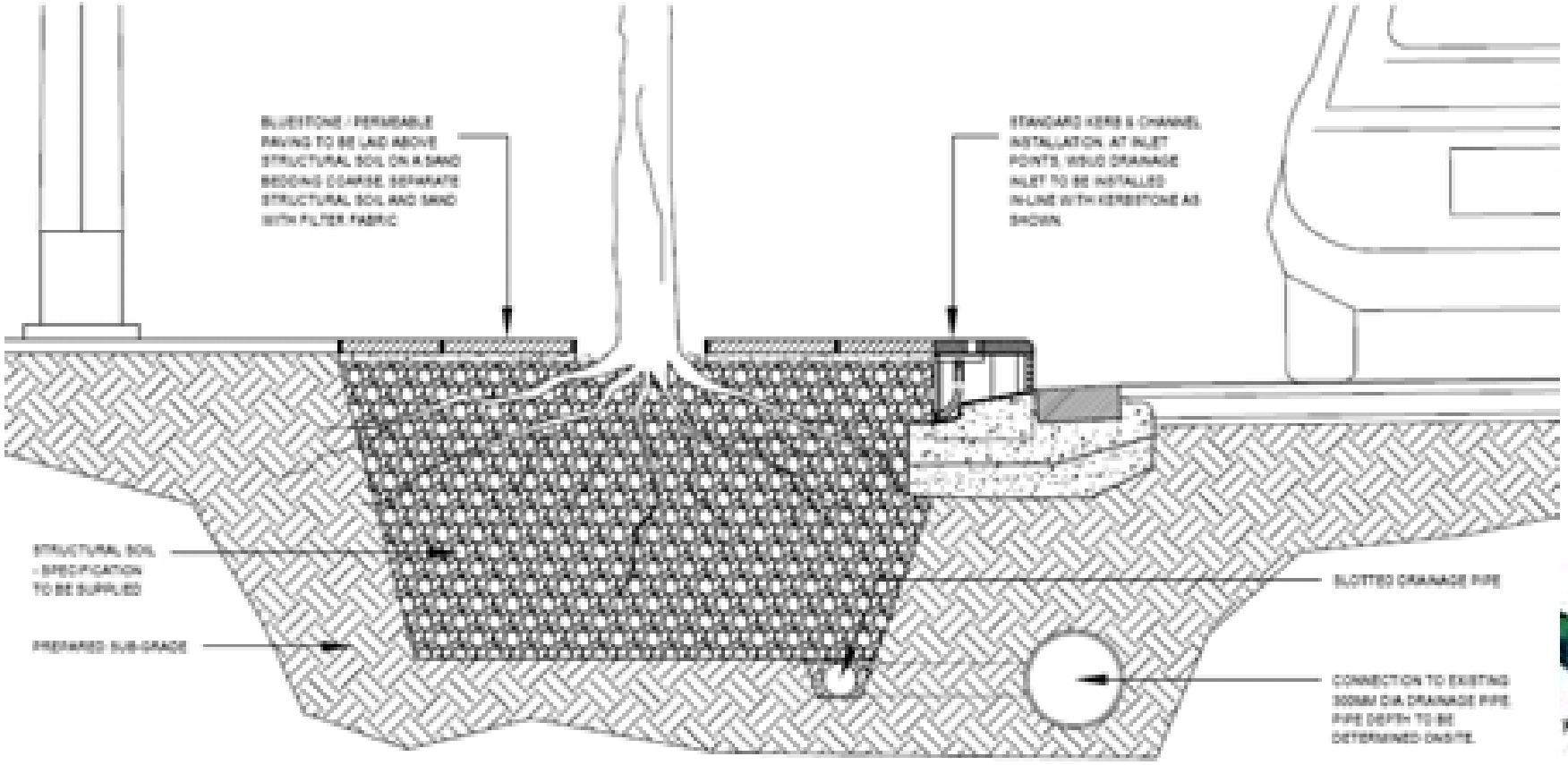
Business case

- Treat 20-30 ha of catchment per year
- Approx $560,000 capital cost per year to exceed the annual reduction targets of 9,500kg TSS (less ¼ of raingarden WSUD capital cost)
- Annual maintenance commitment of $10,000 per system

  (less then 10% of standard WSUD)

Passive Irrigation

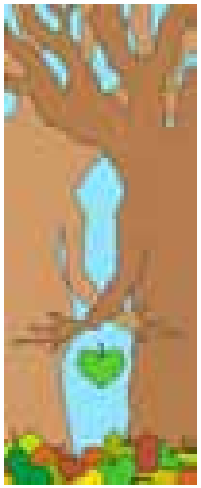
- Areas where harvesting or other WSUD not possible
- Watering street trees in busy CBD streets & avenues
- Monitoring needed to determine any pollution reduction



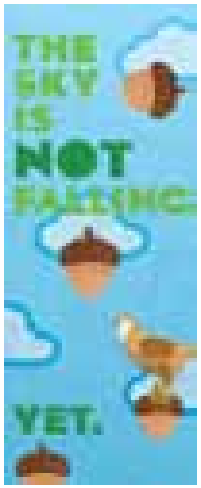
Beyond policy…

Day to day grind to implementation

(turning the titanic)

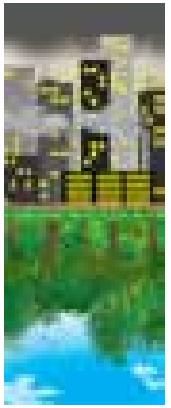


Internal Commitment



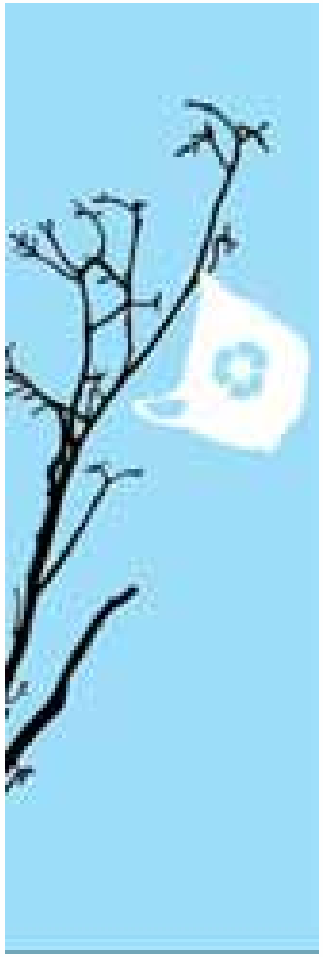
- Champions (other then you)
  - indentify and foster them
- Cross corporate relationship building
- Insert yourself into key meeting groups
  - Streetscape and parks planning/design
- Assist with planning application
- Work to resolve actual or perceived issues

Profile
raise it high and keep it there



- Get know to the executive
- Look for icon projects to involve WSUD
- Get your face know around council
- External exposure to raise council profile (and by default commitment)
  - Community talks
  - Industry conferences
  - Tours (if you have existing projects)

Limitations



- Work with (or around) limitations
  - Budgets
    - Find funding
    - Tack-on to other projects
  - Personalities
    - Slow, patience, persistence, be cooperative, help problem solve, don’t push too hard
  - Contracts
    - Lateral thinking
    - How are other council doing it?

Floor Questions

Daniella Gerente & Elissa Blake

Penny Mueller & Sheridan Blunt

Ralf Pfleiderer

Marion Urrutiaguer

Melbourne Water

Senior Stormwater Quality Planner

Developing a Strategic Approach to WSUD Implementation

Guidelines for Councils

Marion Urrutiaguer

State Government Victoria

Melbourne Water

Stormwater Management

- Need for collaboration and commitment across the region

- As a caretaker of river health, Melbourne Water aims to provide support to local government to implement sustainable stormwater management practices

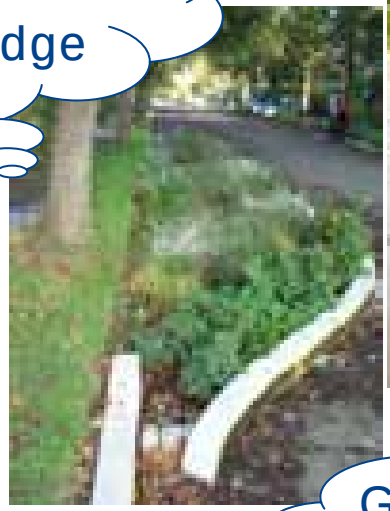
Capacity building through opportunistic implementation

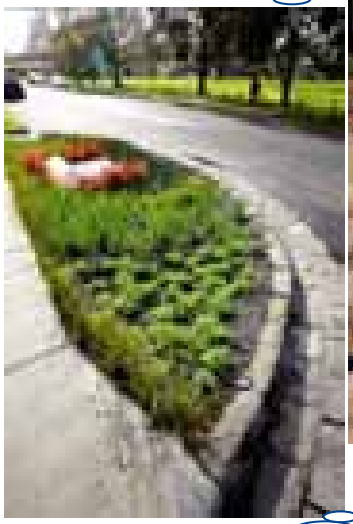
Design for construction and maintenance

Inter-disciplinary approach

Community engagement

Building skills & knowledge





Gaining political support

Working with contractors to build WSUD as specified

⇨ Moving to a strategic implementation of WSUD

Moving to a strategic approach to WSUD implementation

Why?

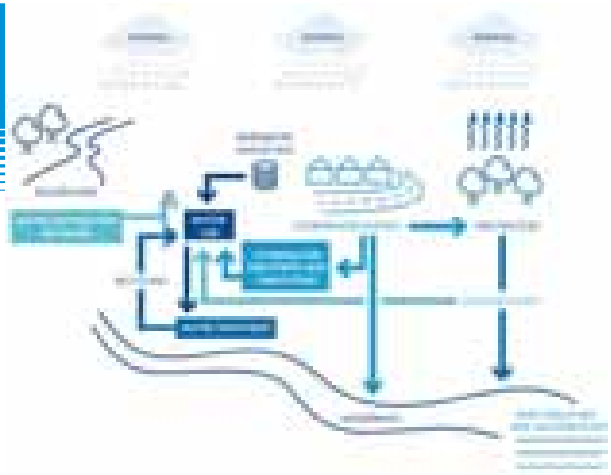
- Link environmental objectives to implementation
- Embed WSUD as a standard practice
- Translate a vision into commitment to action
- Provide a strong basis to form or consolidate partnership arrangements
- Assist reporting on WSUD outcomes

WSUD Implementation Targets Guidelines

In short…

- **Target audience:** council officers who are responsible for developing WSUD Implementation targets.
- **Content:**
  - a methodology to develop WSUD Implementation targets
  - learning from MW and councils who have adopted targets
- **Why?** To help councils interested in developing a strategic approach to WSUD Implementation

Context and focus of the guidelines

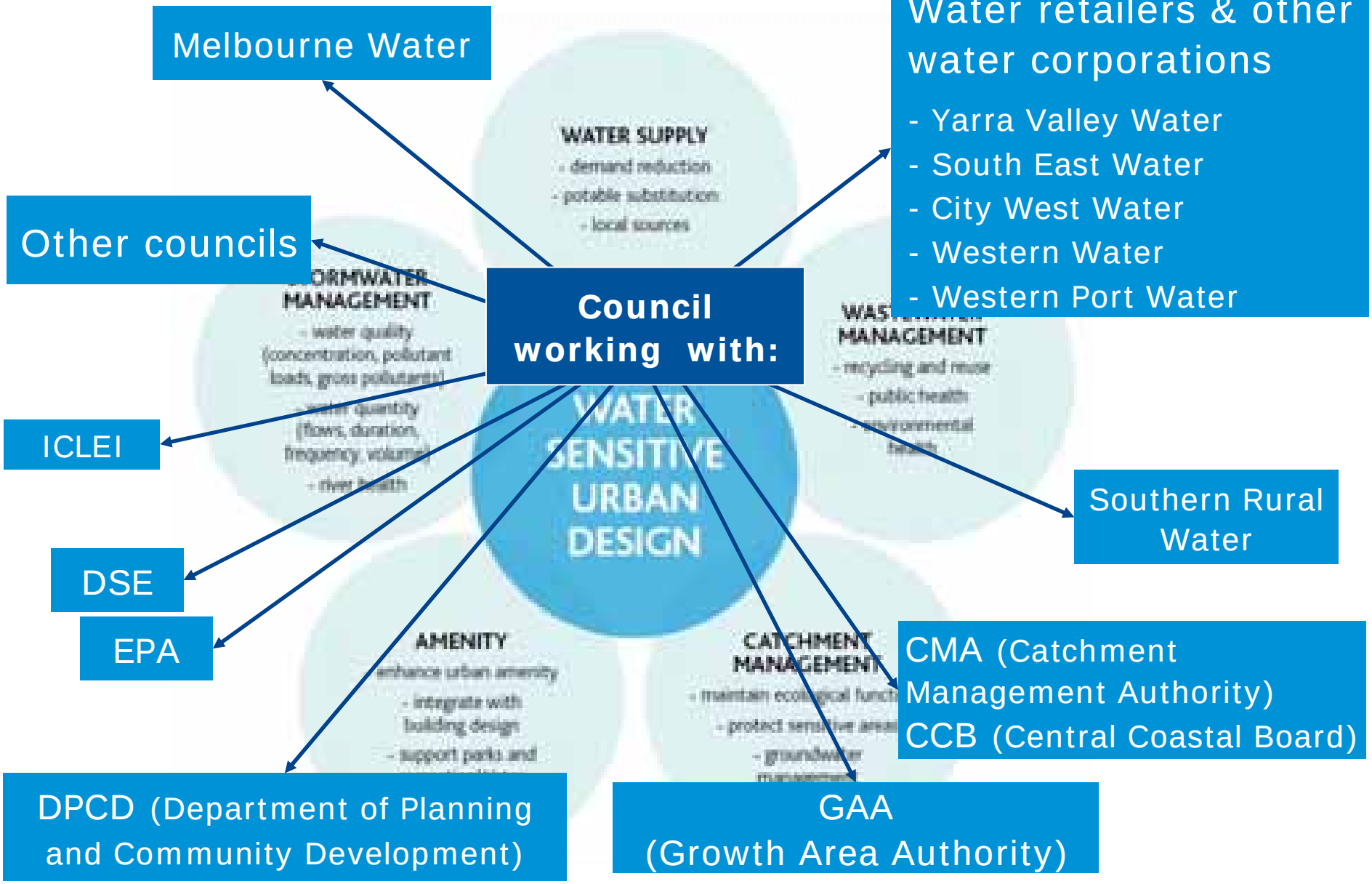


- Integrated Water Management

- In their broadest scope, WSUD implementation targets encompass:
  - stormwater (reduction of pollutant loads and/or connection of impervious areas to waterways);
  - water saving (reduction of potable water consumption);
  - alternative water use;
  - wastewater reduction; and
  - groundwater quality and quantity.

The guidelines focus more strongly on stormwater management for river health

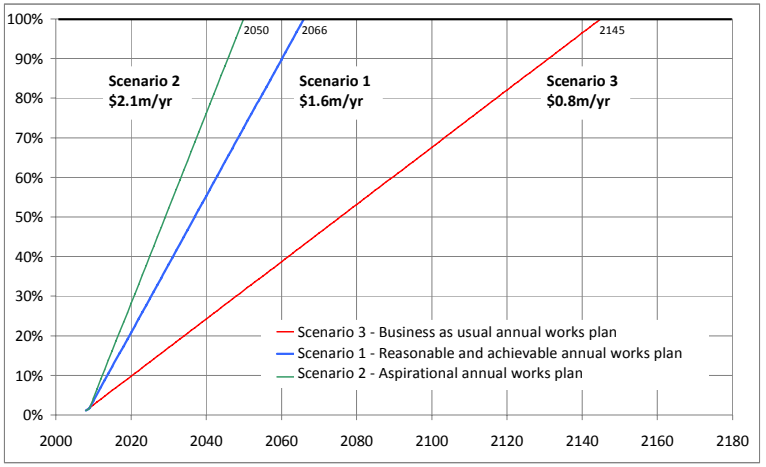
Facilitating WSUD – multiple benefits – multiple actors



Content: Key steps of the methodology proposed

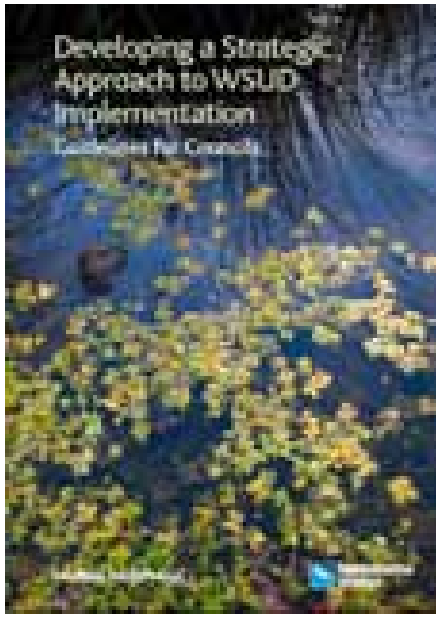
ENGAGEMENT

- Project scoping
- Understanding the municipal catchment:
  - Water and pollutant balance
  - Waterways condition - DCI mapping
  - Other issues (e.g. litter hotspots, implementation of WSUD in new developments)
- Understanding opportunities
- Setting WSUD targets
- Action planning



How to best utilise the guidelines

- Modular approach
- Working document
- Not a template
- Many examples
- A starting point



Explanation of the Guidelines layout

A modular approach has been taken with developing the Guidelines and it is intended that each section may be considered on its own.

Throughout the Guidelines, coloured highlight boxes are used to identify:

Examples of council responses to WSUD implementation targets.

Further guidance on development of WSUD implementation targets.

Actions and tasks to consider:

potential actions, tasks and responses for a council to consider, such as establishing a water vision and developing WSUD implementation targets.

Guidelines ‘road map’

KEY STEP OR ACTION	MAJOR OUTPUTS	INDICATIVE ELAPSED TIMELINE
1. Getting Started › consider the role of WSUD implementation targets and obtain approvals (see Section 1) *Aim: Getting started on WSUD implementation targets*	› Approval to prepare WSUD implementation targets	1 to 2 months depending on approval processes
2. Determining the Physical Characteristics of a Council Area › assess the physical characteristics and the water balance and diffuse pollutant load of a Council area (see Section 2) *Aim: Understanding the physical characteristics of a Council area*	› Integrated water and pollutant balance	Up to 4 to 6 months depending on complexity of water balance
3. Current Strategic Context › develop an overall Council vision and framework for WSUD implementation targets (see Section 3) *Aim: Developing a water vision and assessing the strategic context for WSUD implementation targets*	› High-level Council water vision › Assessment of the strategic context for WSUD implementation targets	1 to 2 months depending on engagement approach and level of assessment
4. Opportunities for Implementation › assess opportunities for implementation of WSUD implementation targets (see Section 4) *Aim: Assessing opportunities on Council and Non-Council land*	› Analysis of apital Works Programs and Budgets › Assessment of opportunities to achieve targets on non-Council land	1 to 2 months depending on level of assessment and engagement approach
5. Setting Objectives and WSUD Implementation Targets › develop water objectives and establish WSUD implementation targets (see Section 5) *Aim: Establishing water objectives and setting robust WSUD targets based on appropriate modelling and costing*	› High-level water objectives › A set of WSUD implementation targets › Scenario modelling and costing to support targets	2 to 4 months depending on level of assessment

Melbourne Water support

The Living Rivers Stormwater Program offers support to councils to develop a strategic approach to WSUD.

David Greenwood	Melanie Holmes	Matt Mulqueeney	Nick Paulin
• Bayside • Dandenong • Frankston • Kingston • Knox • Monash • Mornington • Whitehorse	• Banyule • Brimbank • Darebin • Hume • Nillumbik • Manningham • Mitchell • Moonee Valley • Moreland	• Bass Coast • Baw Baw • Cardinia • Casey • Greater Geelong • Hobsons Bay • Macedon Ranges • Melton • Moorabool • South Gippsland • Whittlesea • Wyndham	• Boroondara • Glen Eira • Maribyrnong • Maroondah • Melbourne • Port Phillip • Stonnington • Yarra • Yarra Ranges
9235 2214	9235 2213	9235 1436	9235 7112

Penny Mueller & Sheridan Blunt

Things that will help

Which reference document is which?

Integrated Water Management Strategy
Sets the direction for water management in the municipality

Council operations

Internal WSUD policy
Policy that directs the processes staff should take when considering and implementing projects

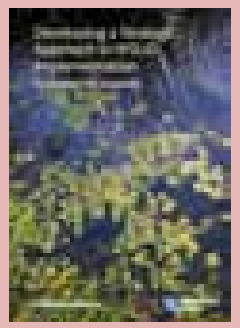
Implementation plan
Council's plan to meet targets through implementation of projects.

Community

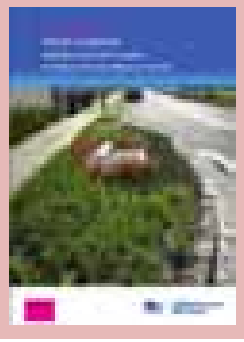
Planning scheme amendment
Can be undertaken by Councils to ensure that WSUD is incorporated into new developments.

Tools to support developers in applying WSUD

Setting WSUD targets



Model WSUD guidelines



Standard drawings
Produced by Council to assist developers in proposing WSUD for new sites.

You are not alone

Other players…

- Melbourne Water
- Water authorities
- WSUD practitioners groups
- Department of Health
- Departments in your own Council
- Other councils

Keep in mind

- Each strategy is different but there is a process to help
- The story doesn't end when your strategy is developed
  - implementing
  - monitoring
  - communicating
- There are useful reference documents and people you can talk to

Model WSUD Guidelines

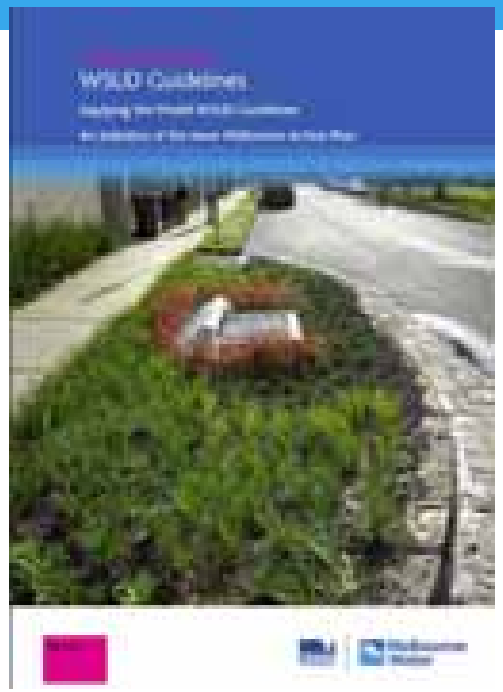
Part One - WSUD Policy Commitment
- Local context
- Melbourne's Urban Water System
- WSUD Guiding Principles – city as a catchment
- Legislation and Policy Framework

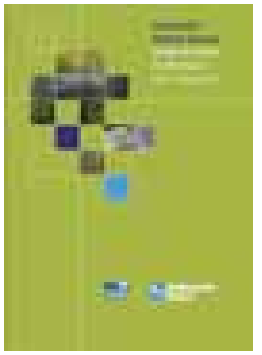
Part Two – Getting WSUD On The Ground
- *Starting the Project* – decision making checklist
- *Scoping WSUD Options* – sustainable water hierarchy
- *Considering Environmental Impacts* – aquatic, land, biosolids
- *Being Carbon Sensitive* – greenhouse considerations
- *Considering Life Cycle Costs* –true costs over time
- *Assessing the Risks* – risk management framework
- *Site Design and Approvals* – planning and health approvals
- *Maintaining WSUD Assets* - maintenance

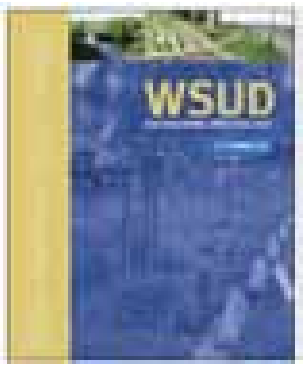
Part Three – Case Studies

Part Four – Fact Sheets

Part Five - Glossary







Floor Questions

Marion Urrutiaguer
Penny Mueller
Sheridan Blunt

Discussion

- **Where is your organisation on this journey?**
- **What are the next steps you might take?**
- **Who would you involve and how?**

Report Back

Wrap Up

Sheridan Blunt

- **Strategy** is important
- **Targets** are a key part of an integrated water strategy
- **Tools** and support are available
- **Reference documents** make it easier

Melbourne Water

Lunch

clearwater