



Chris Chesterfield  
General Manager, Waterways Group





Melbourne Water manages Melbourne's water supply catchments, removes and treats most of Melbourne's sewage, and manages rivers and creeks and major drainage systems throughout the Port Phillip and Westernport region.

Provides water and sewerage services to several retail water companies.

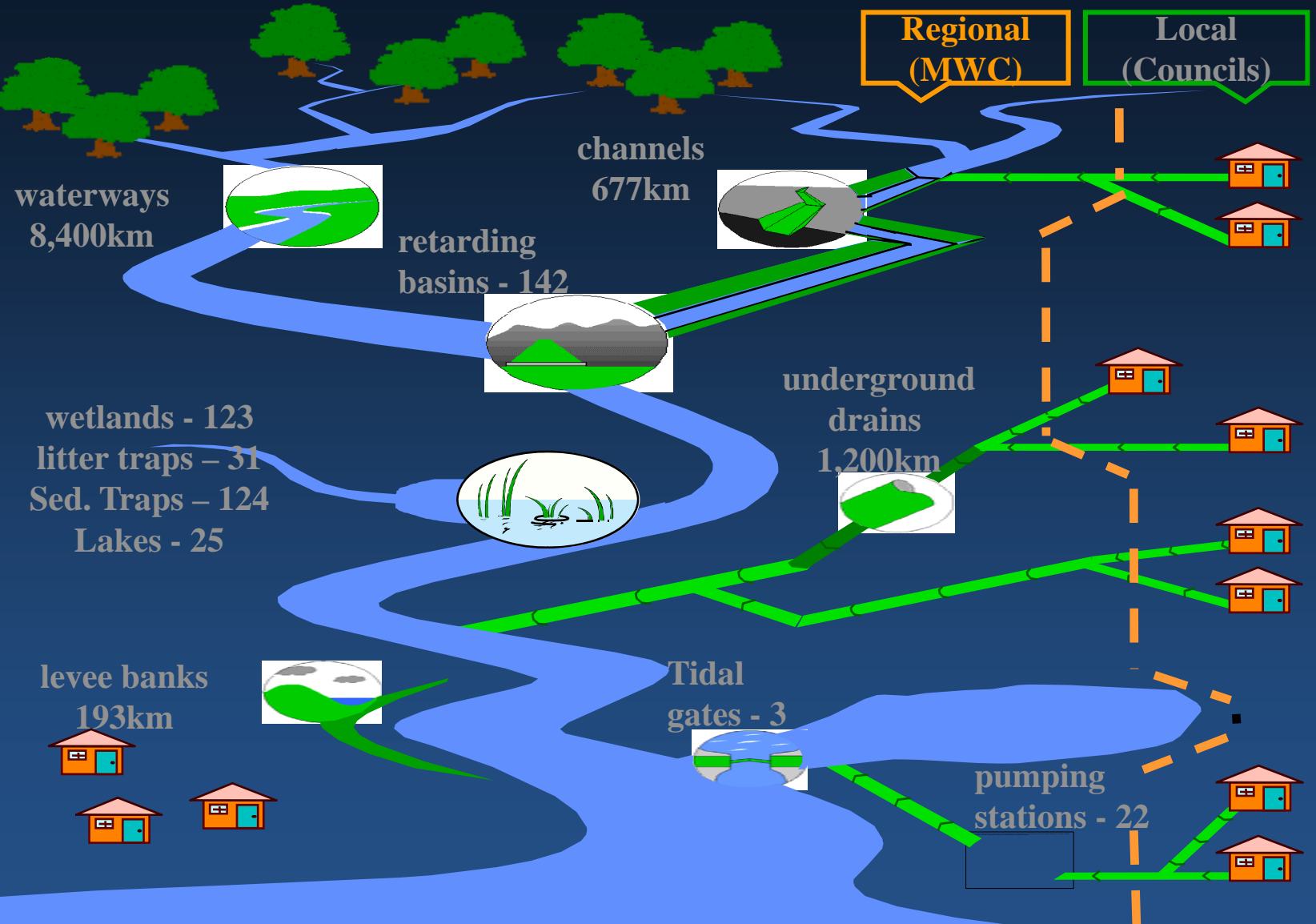
Designated caretaker of river health with responsibility for waterways, drainage and floodplain management.





# Melbourne Water Operating Area





Port Phillip Bay and Western Port

# Waterways Group Programs and Services

- Managing Waterways and Environmental Flows
- Managing Water Quality
- Flood Management & Drainage
- Managing Urban Growth
- Monitoring, Investigations & Research
- Community & Stakeholder Engagement & Involvement



# History

**The early history of urban drainage in Melbourne was dominated by:**

- a lack of resources to meet the demands of the community and local government;**
- disagreement about standards of protection;**
- lack of data to support planning and design;**
- disagreement about responsibilities and the priorities for expenditure;**
- a reactive approach to major flooding or drainage problems, rather than avoiding or minimising problems by appropriate planning.**

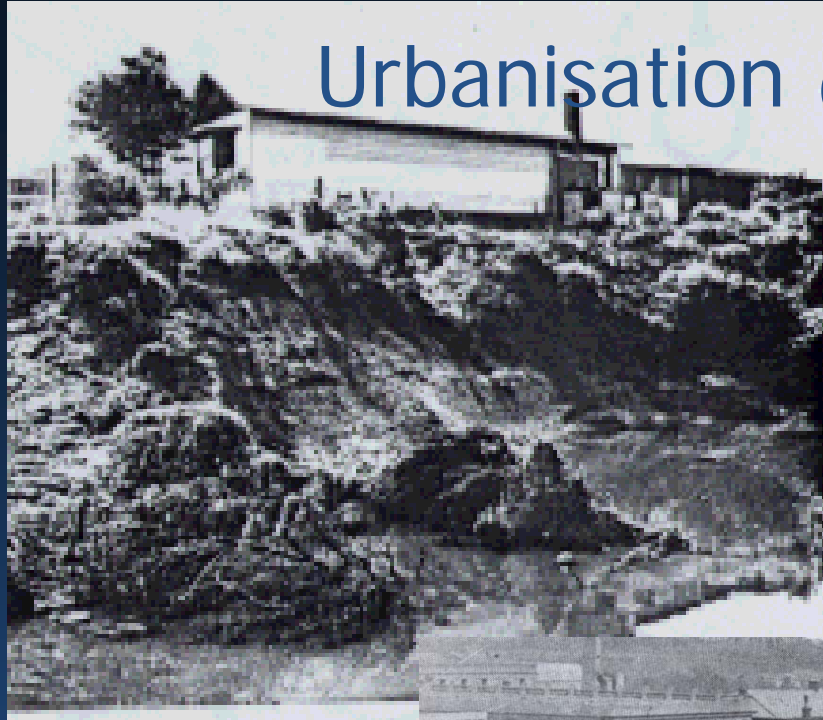


## Urbanisation increases run-off



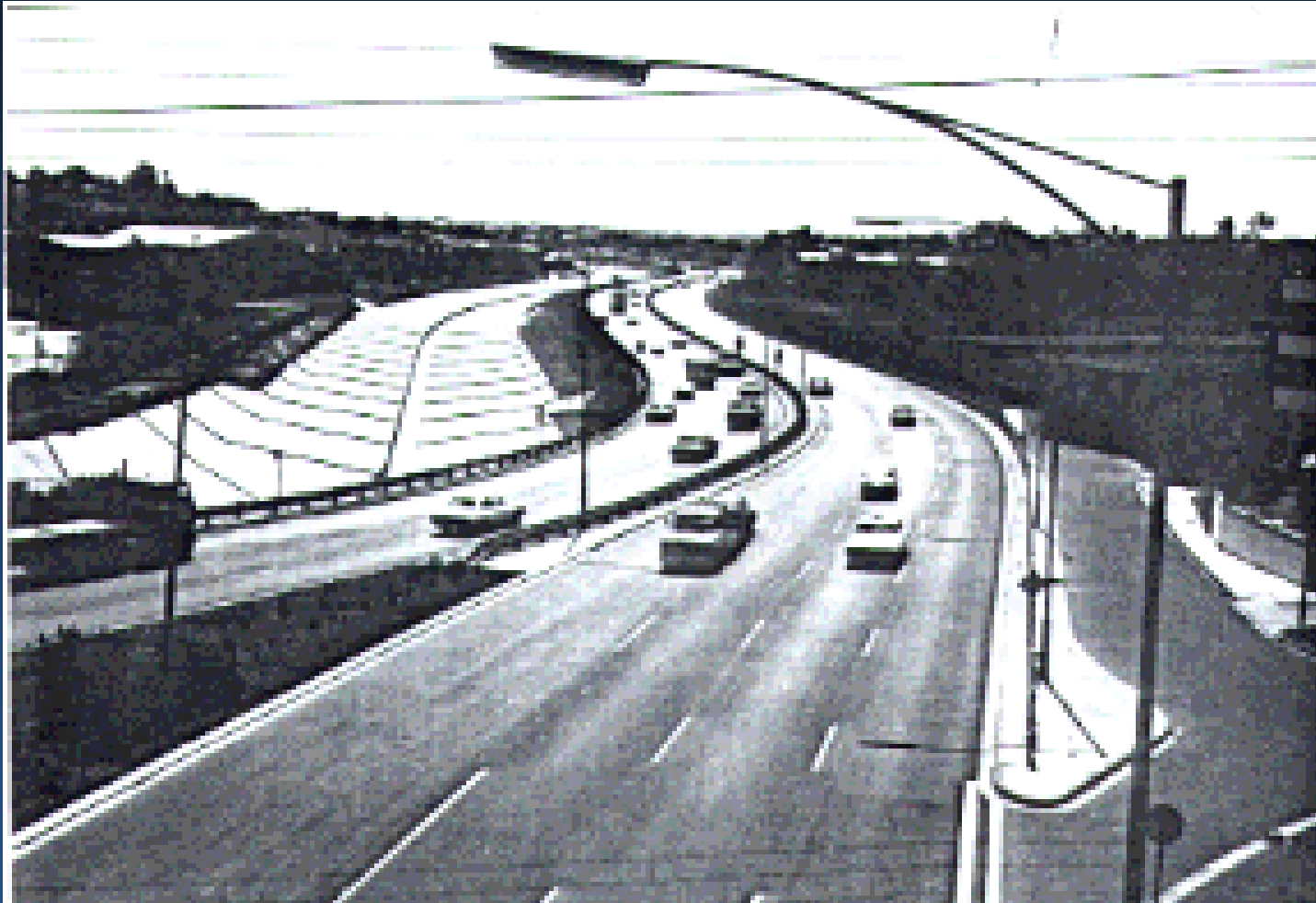


# Urbanisation (Moonee Ponds Ck)

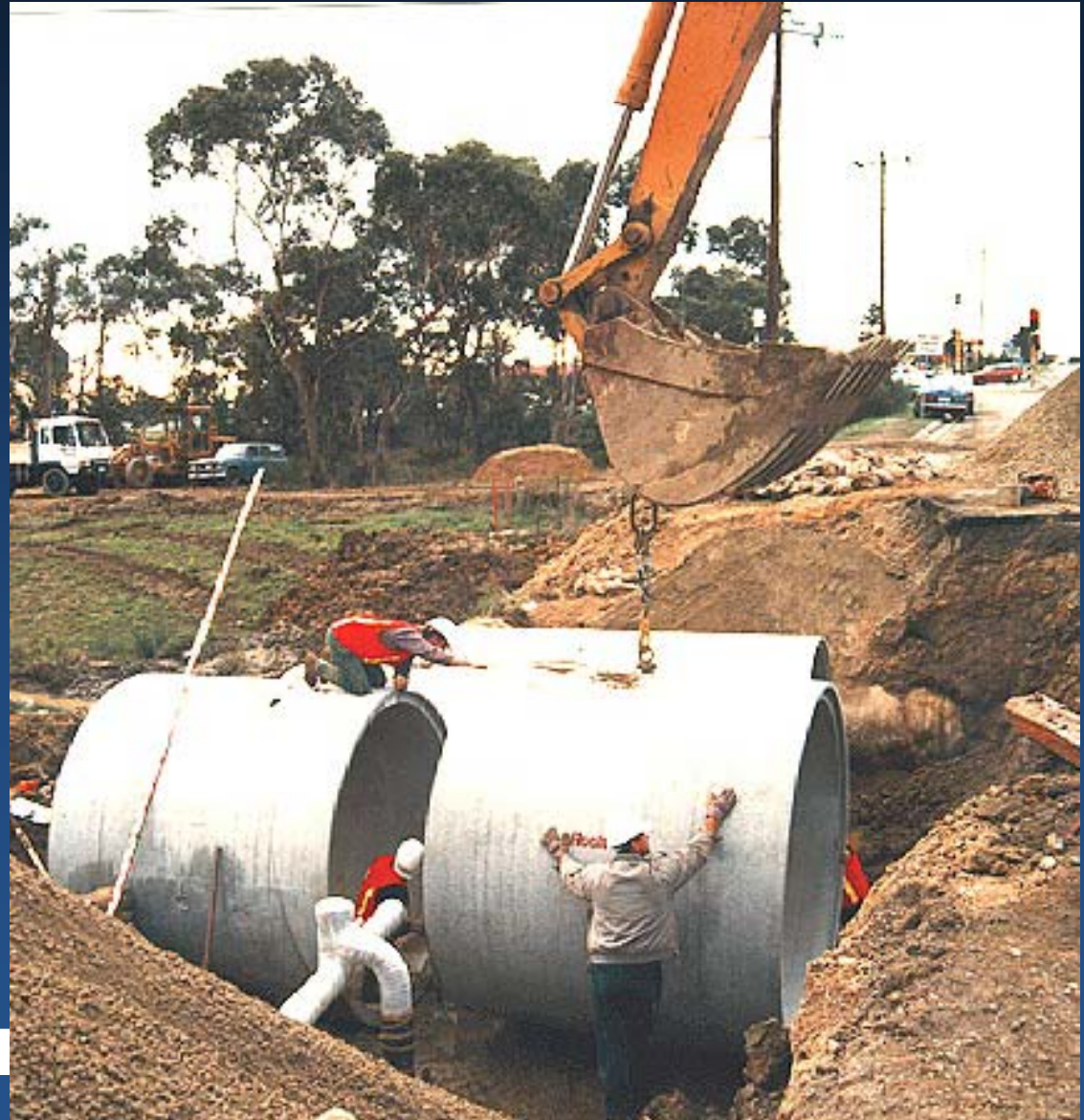




# Drainage Solutions



# Drainage solutions



# Managing for flooding and drainage

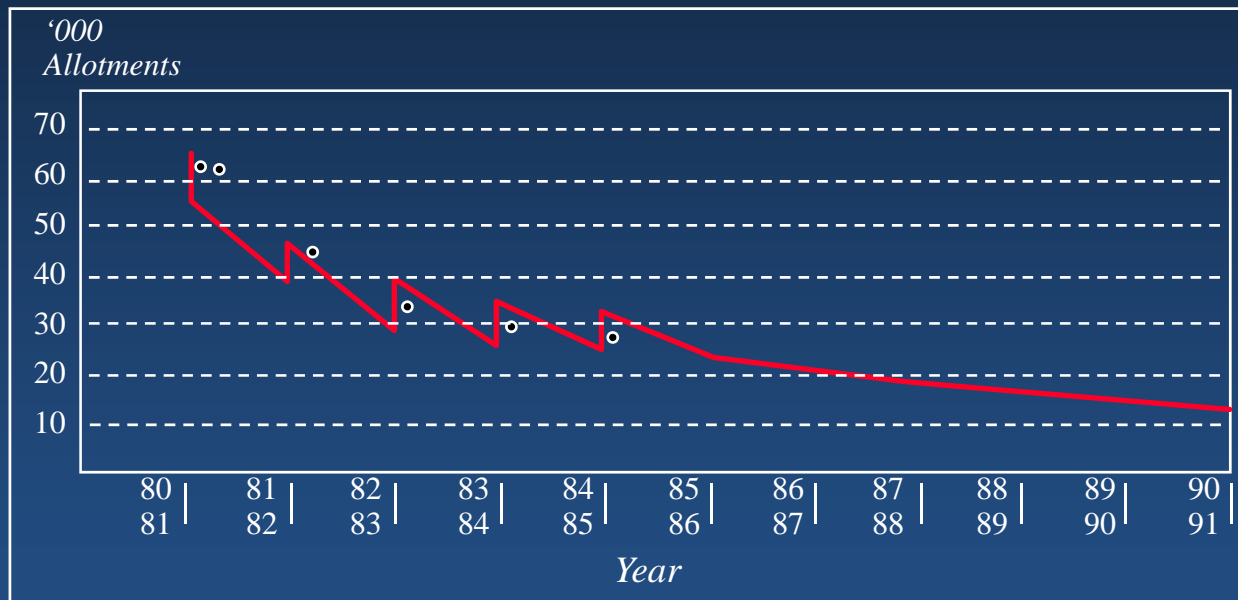




# Urbanisation



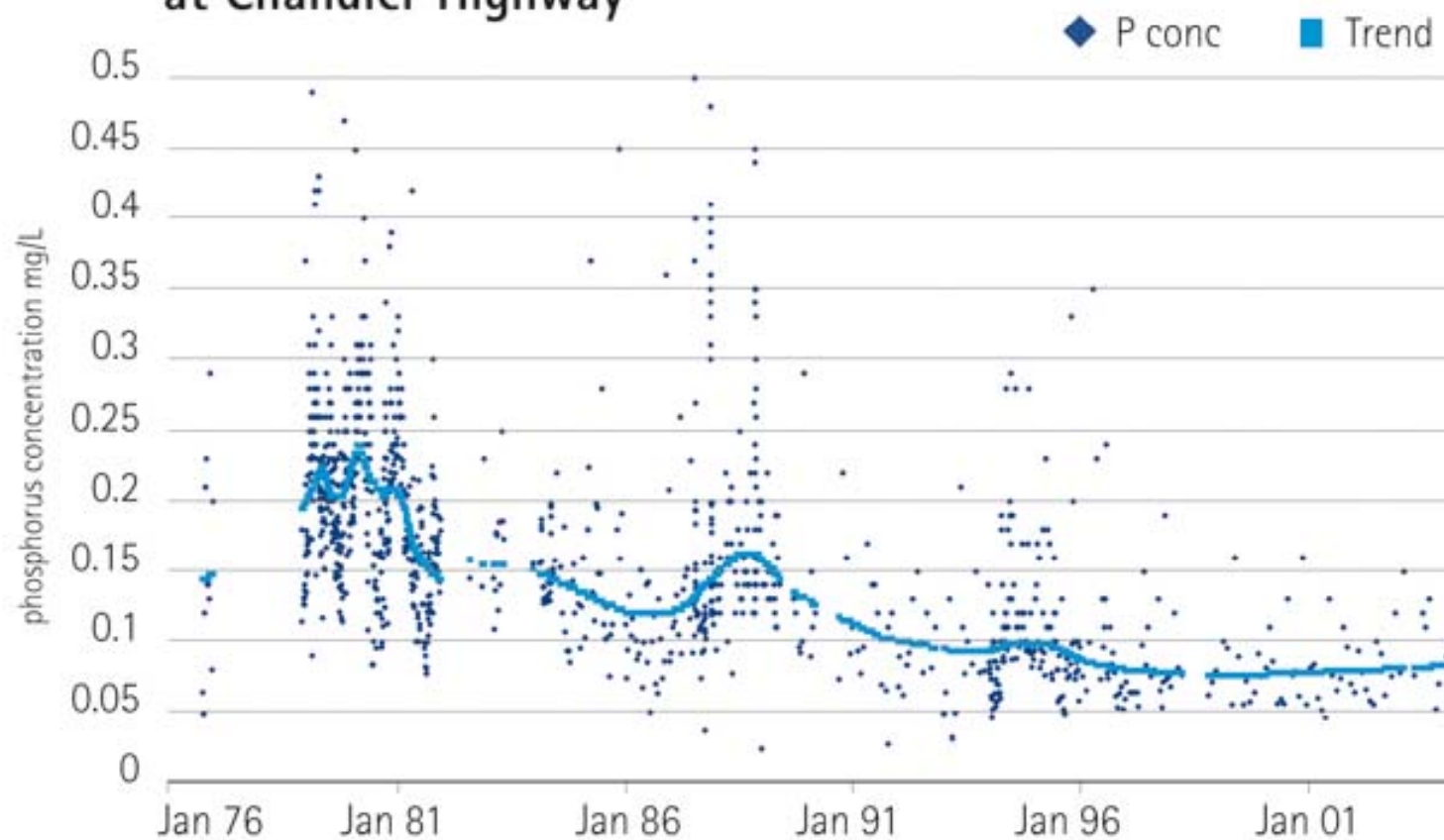
# Historical water quality



Number of unsewered allotments in the Yarra  
Catchment, 1980 to 1990



## Changes in Phosphorus levels in the Yarra River at Chandler Highway





New thinking.....managing for  
environment and amenity values



## Rehabilitating for amenity



Koonung Creek



# Significance of waterways and water quality

- 90% believe waterways contribute significantly to living environment
- More than 50 million visits annually
- 60% regard unhealthy polluted water as a significant problem





# Water Quality

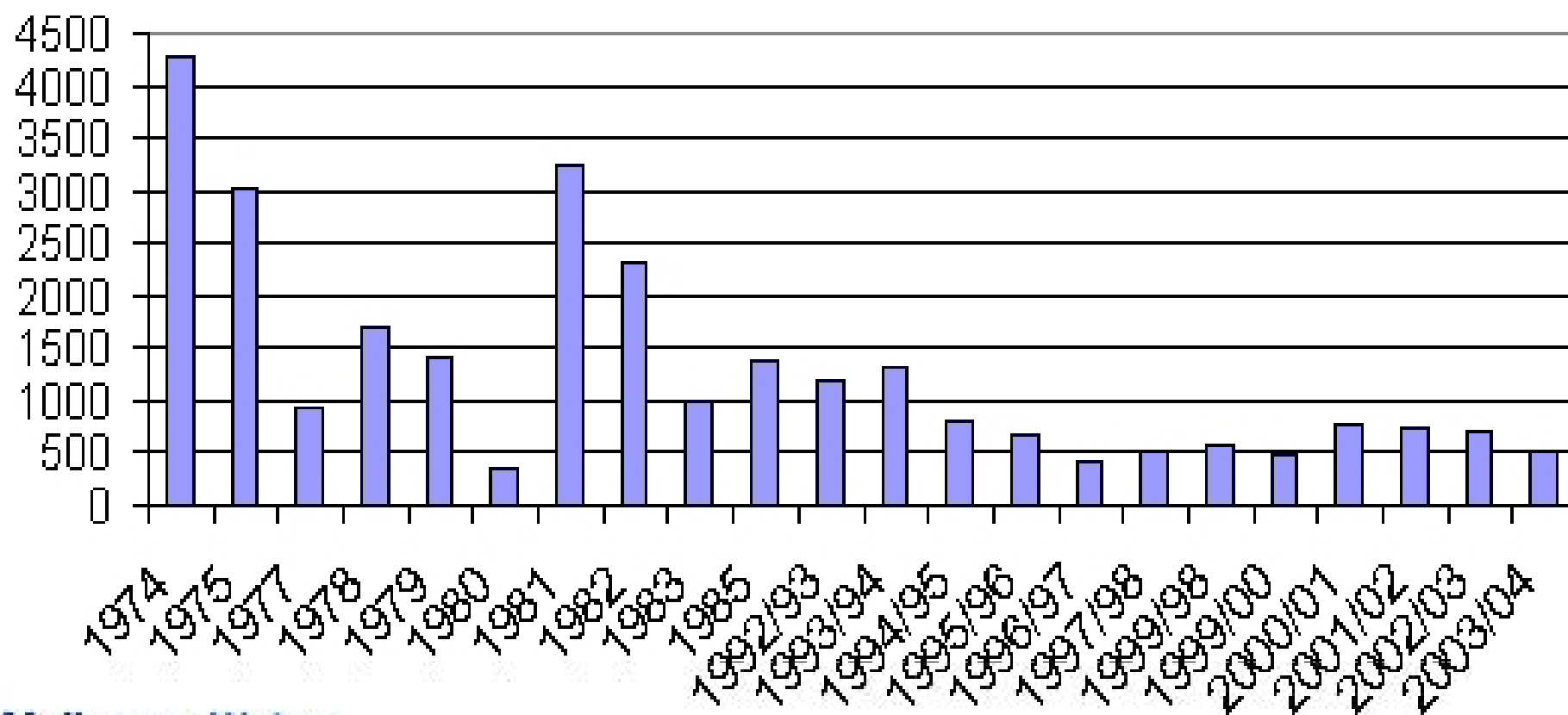


# Water Quality



# Historical Water Quality

Geometric means of E. coli counts (per 100 ml) at Princes Bridge





## Historical water quality

**REVEALED DANGEROUS E.COLI MAKES A  
SWIMMABLE YARRA 'UNACHIEVABLE' BY 2008**

### **Bacteria-riddled river 22 times over safe level**

Canoeists' illness  
spreads alarm

### **Yarra's weekly check-up**

**Milanda Rout**

THE Yarra River will be tested weekly for E coli under a new government monitoring program



### **Bacteria survivor says river's 'like toilet bowl'**

# History repeats

**Today, urban stormwater management is as much about protecting and enhancing environmental values and improving urban amenity as it is about flood protection. However, in achieving these goals, many of the old challenges remain:**

- **overlapping jurisdictions;**
- **uncertain responsibilities;**
- **limited resources;**
- **lack of agreed standards;**
- **limited environmental data on which to base standards and designs.**



# Water Quality Strategy

## From 1997

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Our goal is to improve the environmental management of urban stormwater to protect the health of our waterways and bays.

- Leadership and advocacy
- Water quality treatment in new developments
- Targeted works
- Investigation of water quality priorities





# Leadership and Advocacy

- Working with local government;
- Setting up demonstration projects;
- Building relationships and trust;
- Building capacity in Melbourne Water and other organisations;
- Addressing regulatory issues;
- Providing funding and staff;
- Partnering with a range of stakeholders including research organisations.



**Engagement**

SW Committee  
SWM plans

Walk the  
talk

WSUD  
Conference

**Research**

technology

Performance  
standards

Tools  
(MUSIC)

Refine  
Technology & tools

**Create demand**

Demonstrate  
technology

Create  
incentives

Codify/  
regulate

**Build capacity**

Partnering

Manuals  
Guidelines

Training



# Relationship with Local Government

Low conflict

94% survey respondents agreed “Councils have a duty to protect the health of the waterways”

91% agreed “Stormwater management is a shared responsibility between state and local governments”

Generally, programmatic trust exists:

- 85% respondents (n=103) trust Melbourne Water

MW	DSE	EPA	CMA	MAV	Adj Ccls
85%	50%	64%	42%	72%	74%

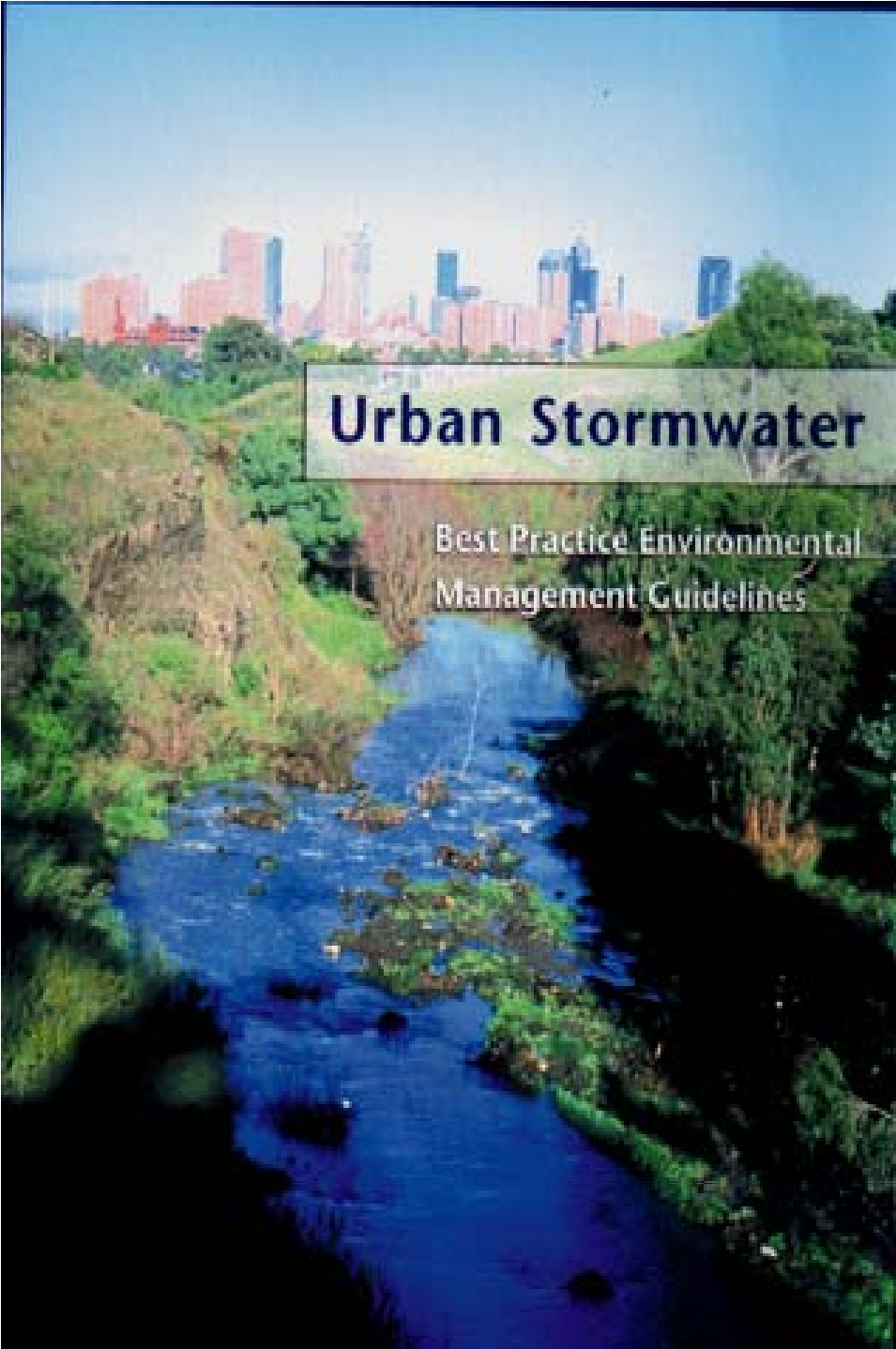
(Dr Peter Morison – Monash University)











## Urban Stormwater

Best Practice Environmental  
Management Guidelines

- Provide environmental performance objectives
- Raise awareness
- Provide information on measures available (tools)
- Guidance on use of different measures
- Stormwater management plans



**Land use  
planning**

**Urban design**

**Planning and Design -**

**Land  
management**

**Education and  
awareness**

**Source Controls -**

**Stormwater  
treatment**

**Flow  
management**

**Structural Controls -**

**Best Practice  
Stormwater  
Management**









# Targeted Works

Hampton Park





# New urban development





# Docklands



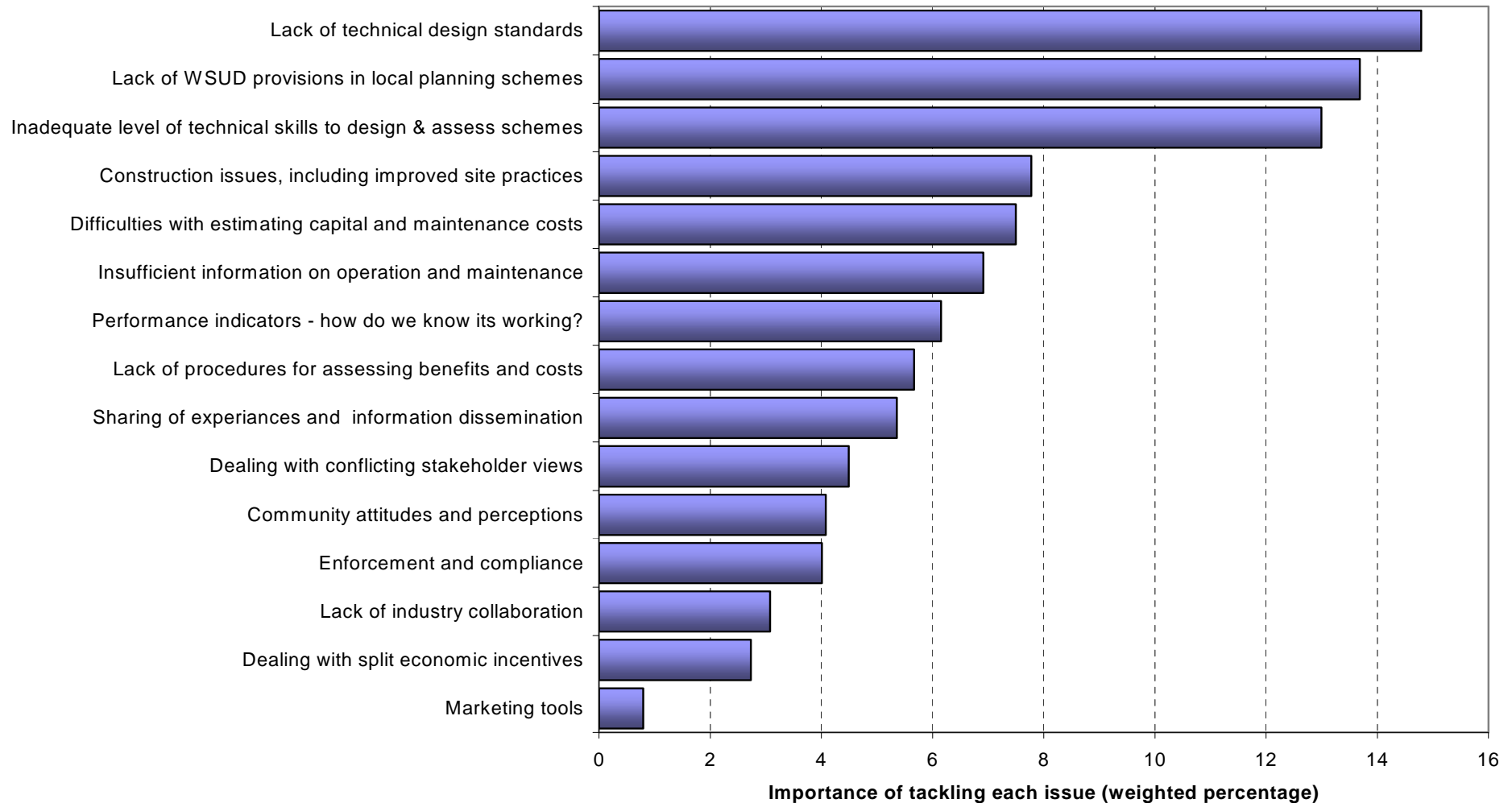


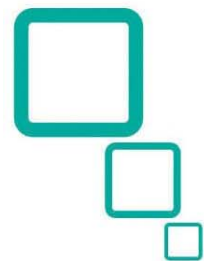
# Water sensitive road design





# Hurdles to the widespread implementation of WSUD





# clearwater

SUPPORTING SUSTAINABLE MANAGEMENT OF **URBAN STORMWATER**



# Clearwater Program



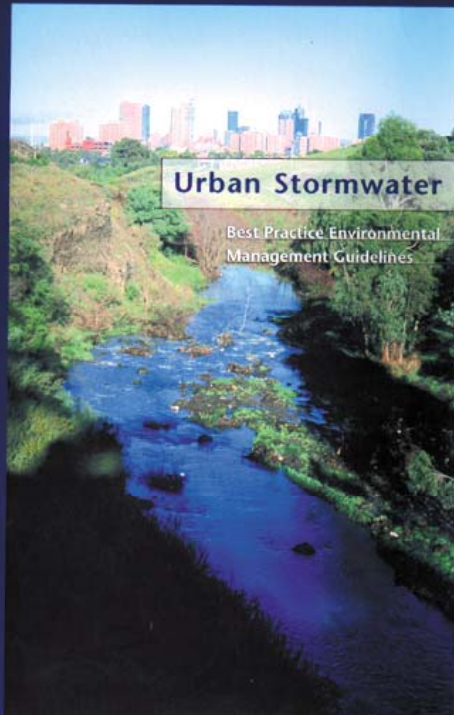
## *Communication*



## *Project Areas*



# Policy and Regulation



Objectives for stormwater management are reflected in documents such as:

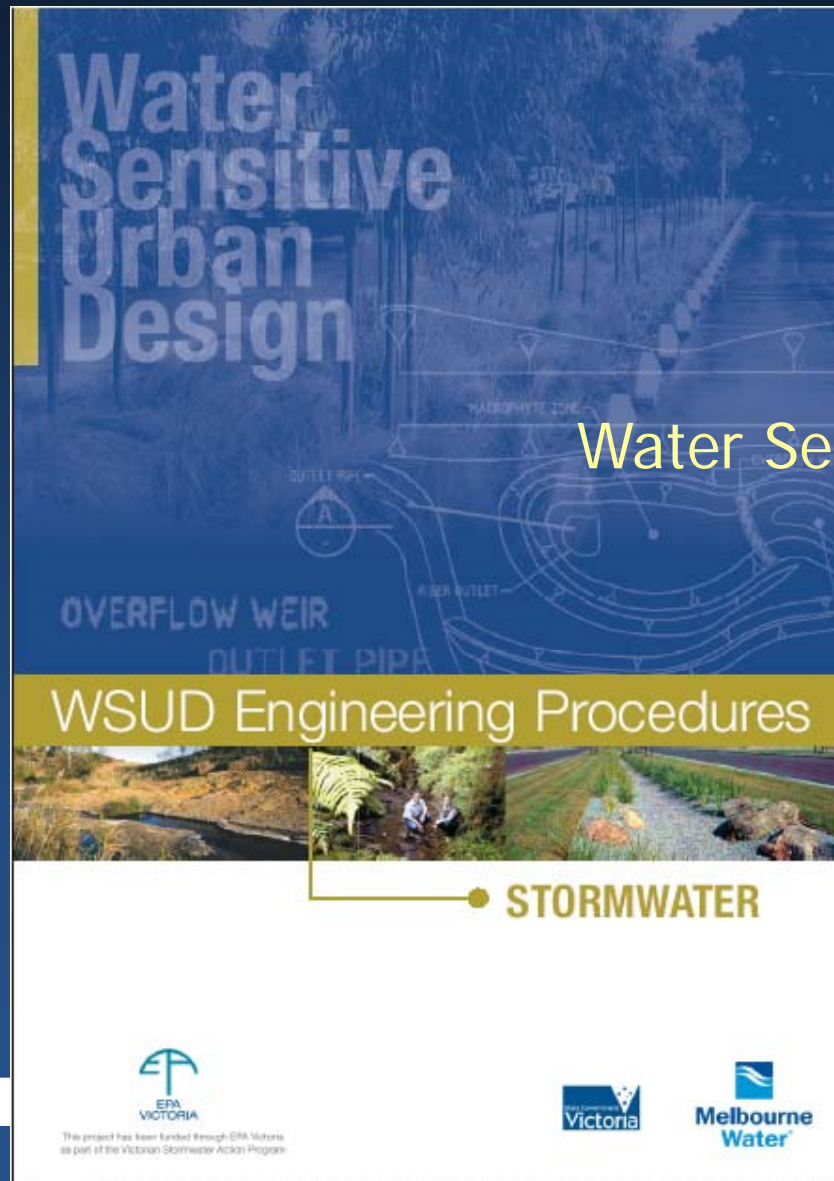
- Victorian Planning Provisions
- State Planning Policy Framework
- State Environment Protection Policy
- Melbourne 2030
- Water Resources Strategy
- Victorian River Health Strategy
- Victorian Nutrient Management Program

Melbourne Water's development standards require compliance with WSUD objectives





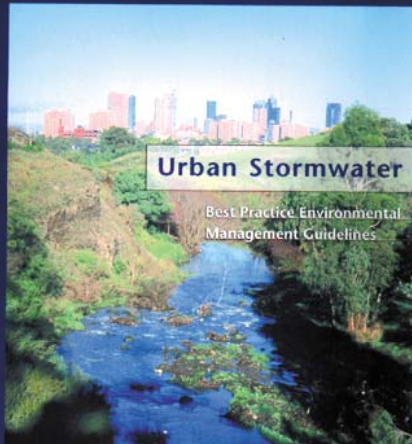
# Technical Design Standards



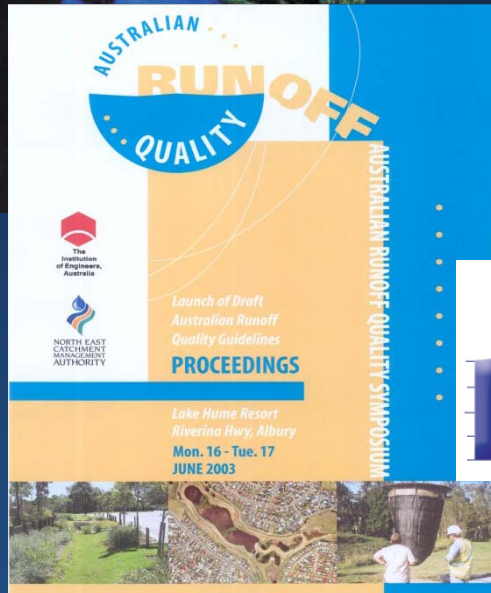
## Water Sensitive Urban Design Manual



# Water Sensitive Urban Design Manual



Water Quality targets set by Victorian  
Urban Stormwater Best Practice  
Environmental Management Guidelines

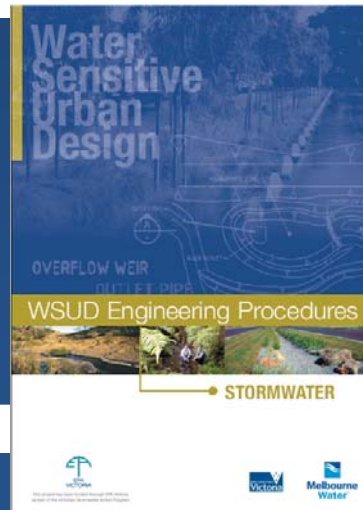


Conceptual design based on Australian Runoff Quality  
& Victorian Urban Stormwater Best Practice  
Environmental Management Guidelines

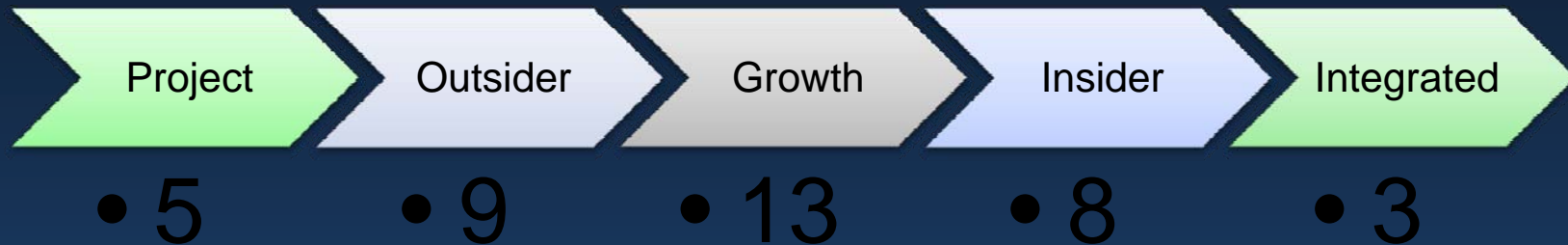


Conceptual design checked by  
MUSIC or equivalent

Detailed design & construction  
based on WSUD Technical Manual



# Results (2007)



## Commitment:

- Organisational Commitment and Action
- Political Capital: external, socio-economic and civic community

## Capacity:

- Internal expertise
- Inter- and intra-organisational structure
- Organisational culture: relationships between actors and SUWM institutions

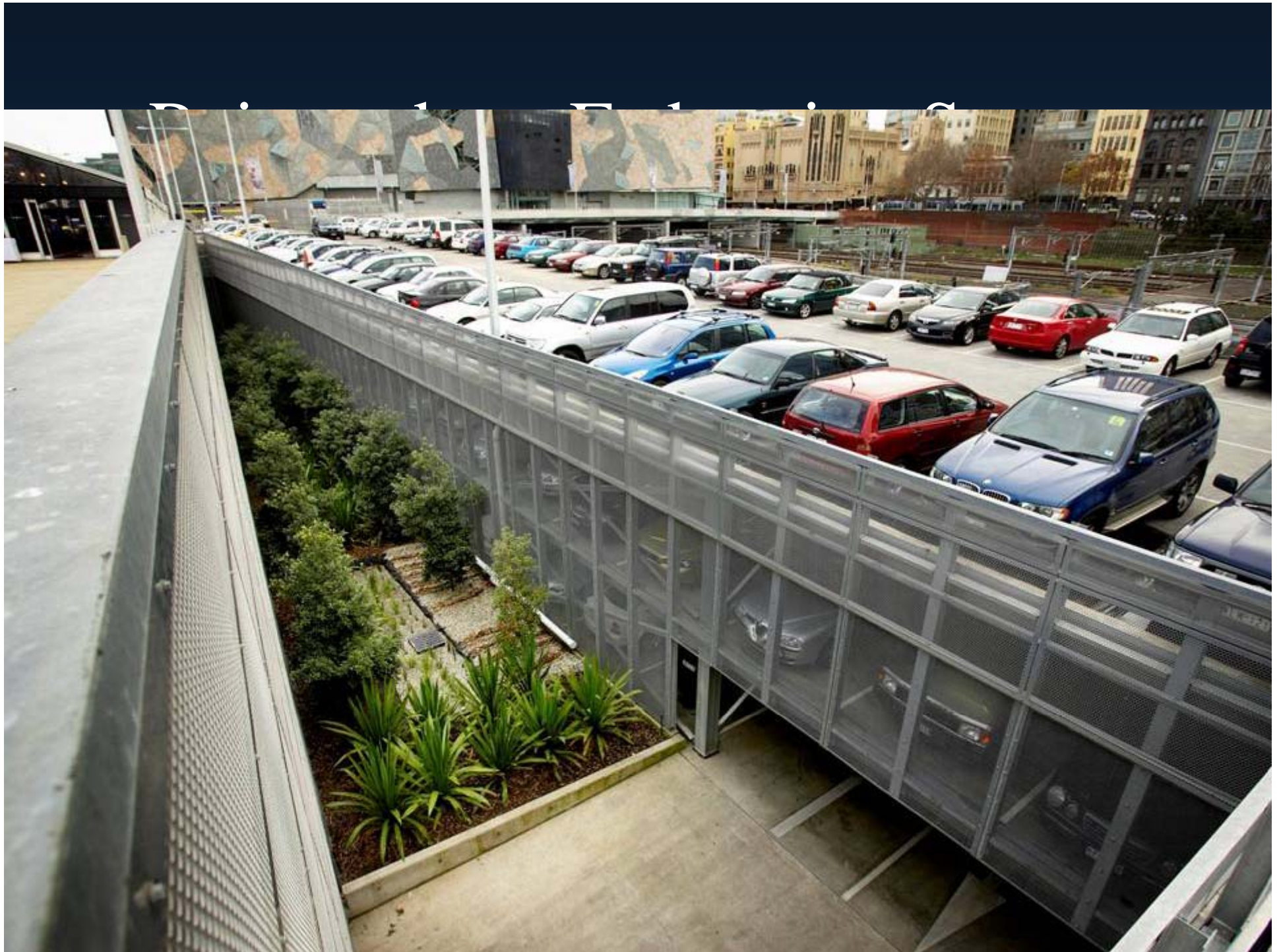




# Royal Park Wetlands and Stormwater Reuse









# Raingarden -Hume City Council, Hume Civic Plaza





# Raingardens, Marwal Avenue Balwyn North





## Collins Street, Melbourne, Raingardens





# City of Stonnington – Henry Street Raingarden Tree Pits





# City of Maribyrnong – Droop Street, Footscray, Raingarden





# City of Stonnington, Orchard Street Raingardens, Malvern





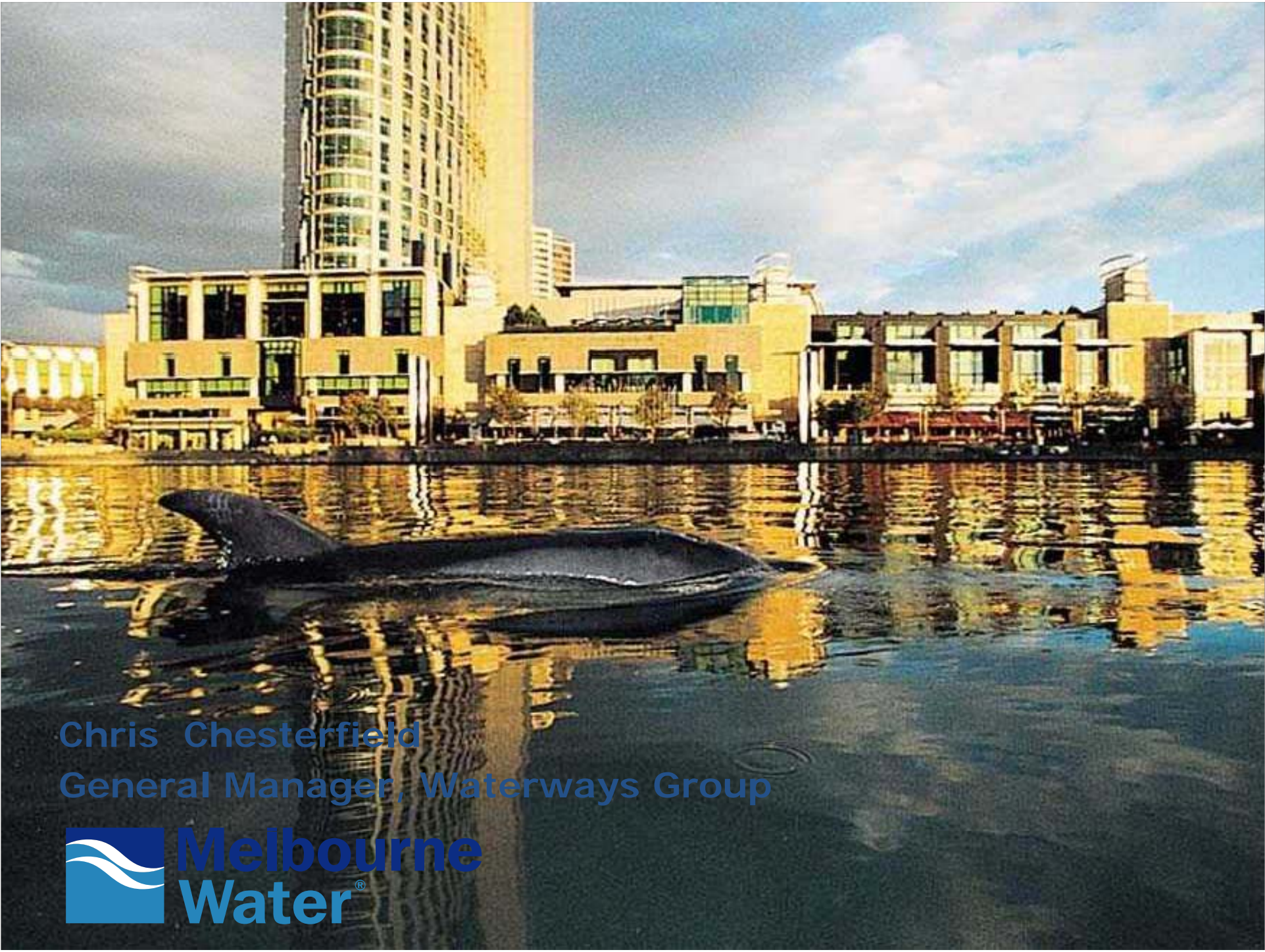
# 10,000 Raingardens Program









A photograph of a city waterfront. In the foreground, a large, dark, curved structure, possibly a boat or a piece of art, is in the water. The water reflects the surrounding buildings and the sky. In the background, there are several modern buildings, including a tall one with many windows. The sky is blue with some clouds.

Chris Chesterfield  
General Manager, Waterways Group



**Melbourne  
Water®**



New thinking.....



# Relationship with local government

