

# Planning Future Water

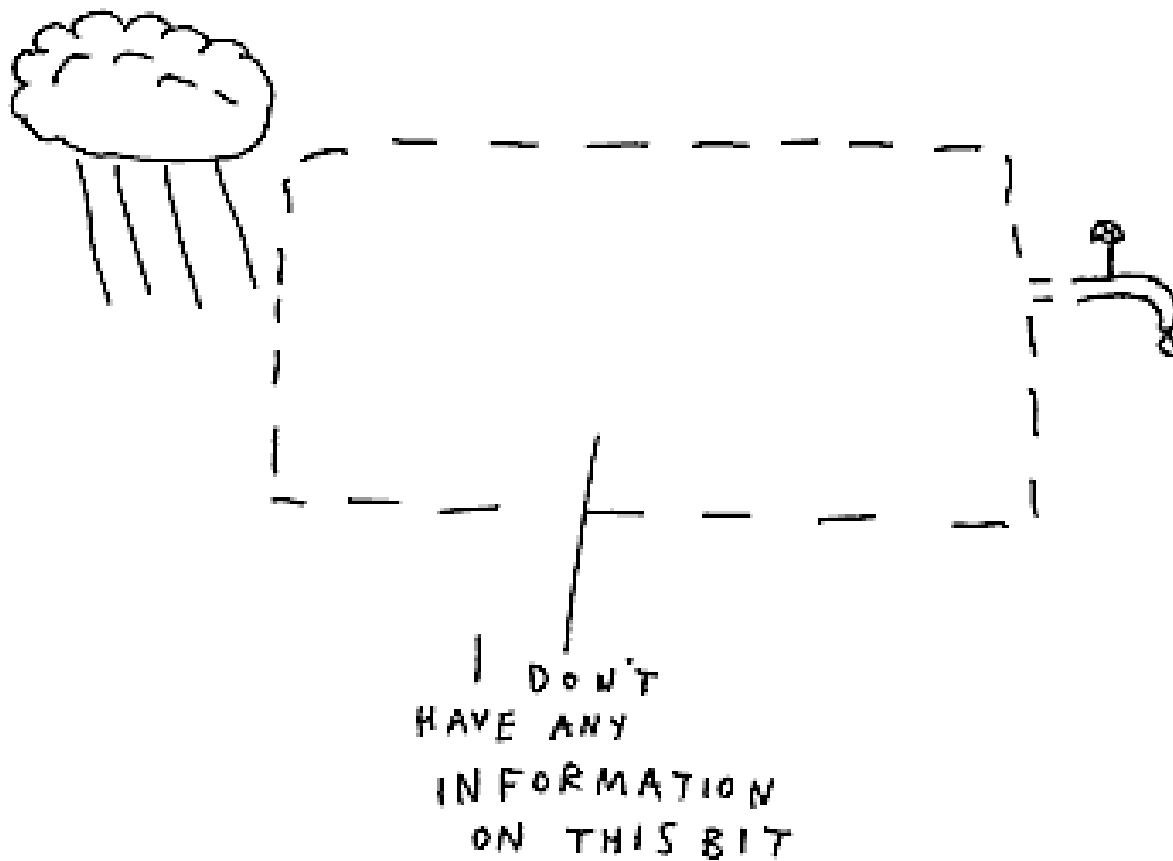
**A local government perspective on  
planning in a changing water landscape**

**Len Kosova, Director Planning & Sustainability**



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# HOW WE GET WATER IN OUR HOMES

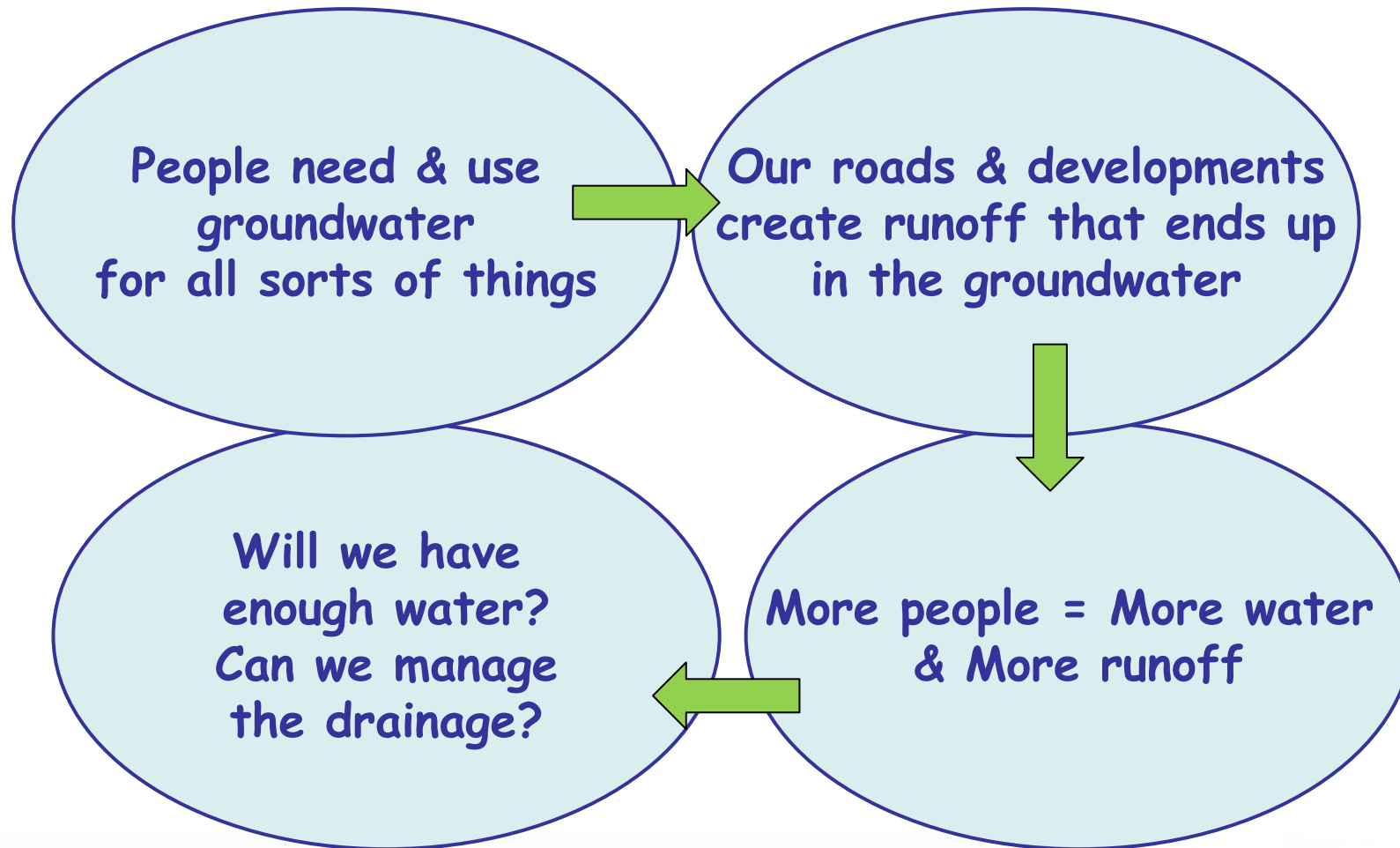


(Dave Walker, 2006)



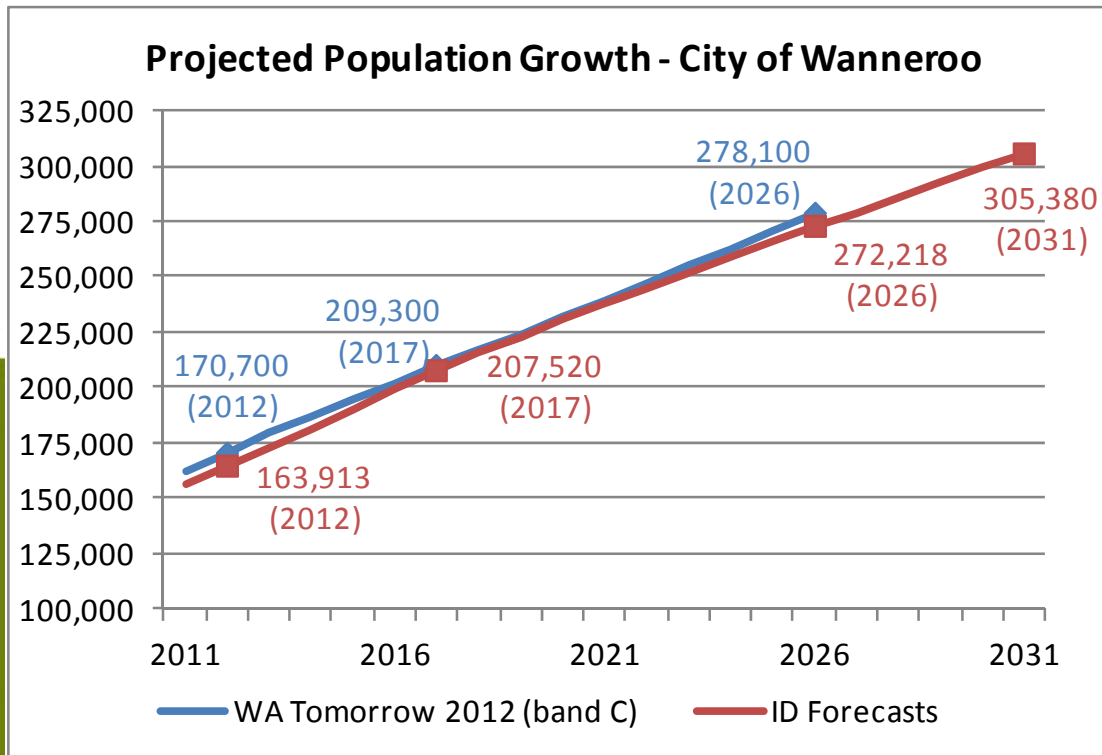
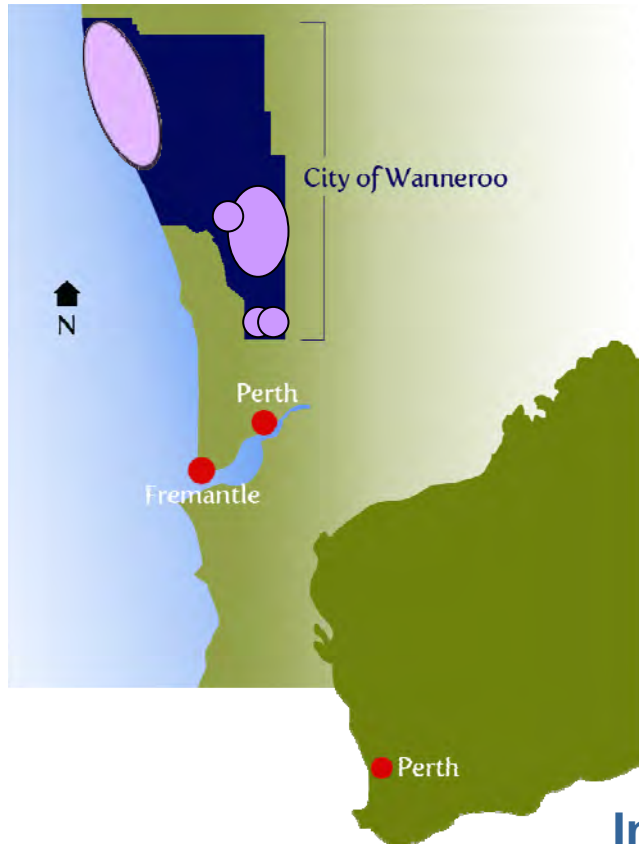
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# A (maybe too) simple equation?



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# The City of Wanneroo Context



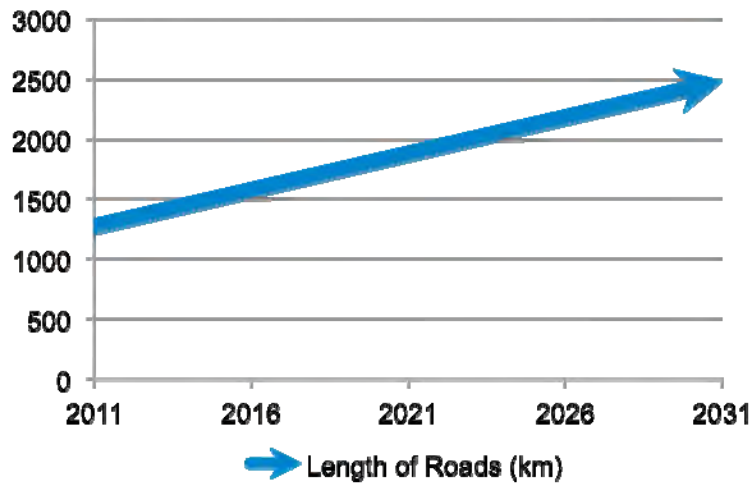
**In the next 5 years = 40,000 more residents and almost 16,000 more dwellings**

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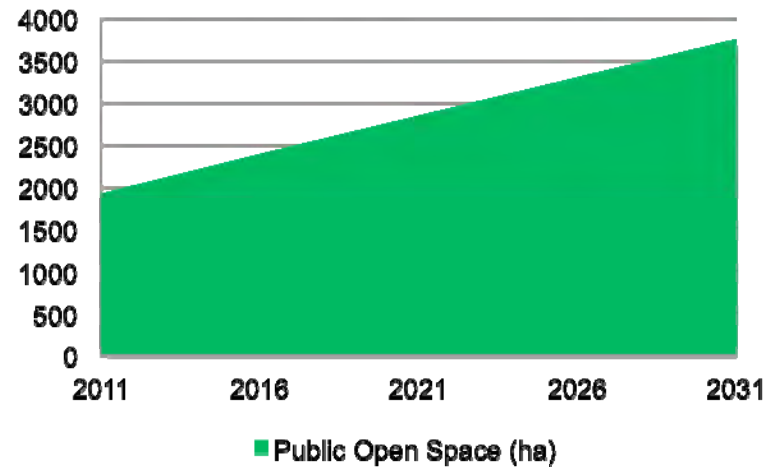


# Growth Impacts

## Forecast Length of Roads



## Public Open Space



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# Decision-making influences

EXTERNAL

Better Urban Water Management Guidelines

Directions 2031 & beyond

Gnangara Sustainability Strategy

Groundwater allocation

Drying climate

Agricultural water users

Future re-use options

Wetlands & water dependant ecosystems

The City as a water user

Management of drainage assets

INTERNAL

Wetlands LPP

Structure Planning LPP

Subdivision engineering standards & specs

POS LPP

LHS Implementation LPP

Strategic Community Plan & Corp. Business Plan



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# Making sense of it all

## The challenge:

To simplify and better integrate water and land use planning. You shouldn't have to be a water expert to make informed decisions.

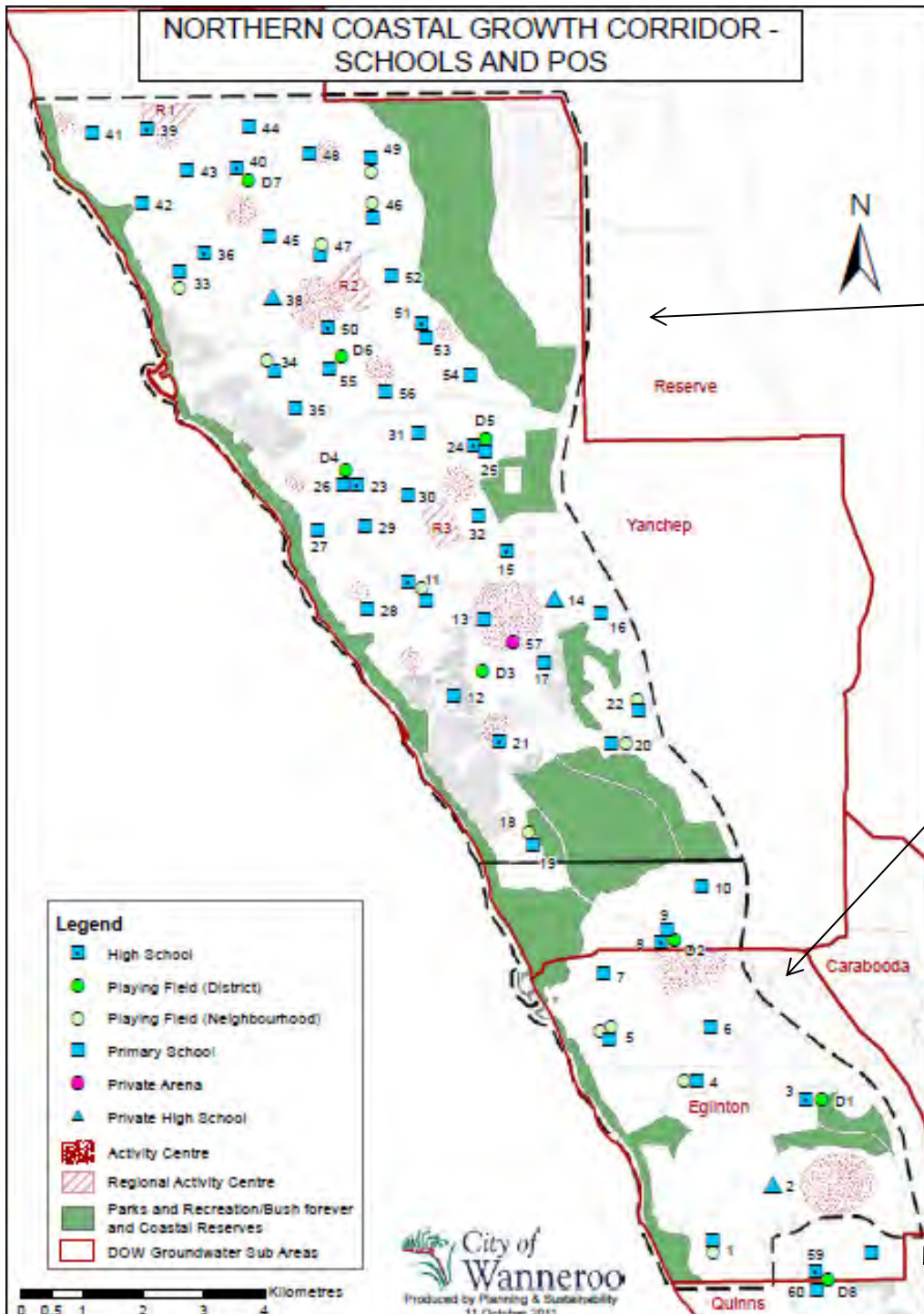
## Key planning responses:

- NCGC water allocation & availability planning
- City Water Management Strategy & Urban Water Management LPP



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# NORTHERN COASTAL GROWTH CORRIDOR - SCHOOLS AND POS



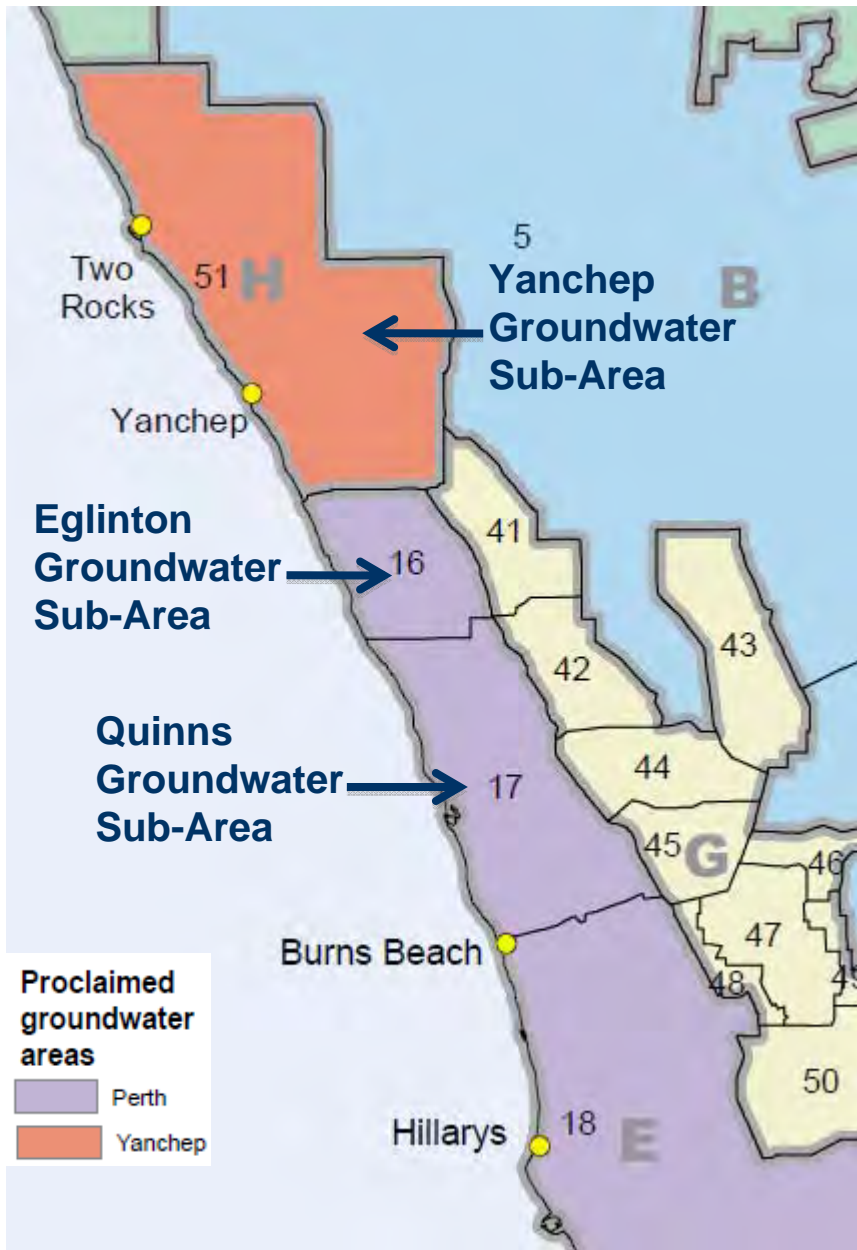
Yanchep - Two Rocks	
Dwelling Units	67 000
Population	155 000
DSP Area	7 550 ha
Annual Water Required (POS)	2 342 550 kL

Alkimos - Eglinton	
Dwelling Units	24 000
Population	57 000
DSP Area	2 626 ha
Annual Water Required (POS)	266 850 kL

Tamala Park	
Dwelling Units	2 600
Population	6 500
Area	200 ha
Annual Water Required (POS)	30 000 kL



# Water Supply



Ground Water Sub-Area	Percent Allocated	Water Remaining	Water Available
Yanchep	97%	0.20 GL	Limited
Eglinton	99%	0.07 GL	Limited
Quinns	97%	0.50 GL	Limited
<b>Total</b>	<b>98%</b>	<b>0.77 GL</b>	<b>Limited</b>

Alkimos-Eglinton alone will need around 7.6 GL p.a. for all non potable uses.

Yanchep-Two Rocks will need around 3 times this amount

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# City Water Management Strategy



City of Wanneroo

Appendix 1

Water Sensitive Urban Design Engineering Toolbox

September 2012



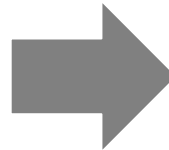
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# Statutory Response

## Local Planning Policy 4.4: Urban Water Management & Engineering Toolbox

- Implementation of Water Sensitive Urban Design
- Increase infiltration and improve water quality
- Requires Water Management Plans at each stage of the planning process



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# Engineering Toolbox




**Lot scale:**

- On site soakage devices.
- Water-wise and Nutrient-wise landscaping.
- Maximise permeable surfaces.
- Porous pavements (Figure 2453-2-0)
- Amended topsoils.
- Landscaped infiltration structures (Figure 2453-5-0 to 2453-7-0)
- Hydrocarbon management and sediment traps, and
- Rainwater tanks for harvesting, detention and re-use.

**Street scale:**

- Landscaped infiltration structures and raingardens (Figure 2453-5-0 to Figure 2453-7-0).
- Sediment traps.
- Porous pavements (Figure 2453-2-0), and
- Conveyance bioretention systems or swales (Figure 2453-3-0 and 2453-4-0)

**Estate scale:**

- Waterwise landscaping and use of smart irrigation systems in public open space, retaining and restoring existing natural bushland wherever possible
- Retention/detention (including water quality treatment) areas integrated within POS, in accordance with the objectives and requirements of Elements 4 (Public Parkland) and 5 (Urban Water Management) of Liveable Neighbourhoods Edition 4 (2009) (Figure 2453-1-0).
- Retain existing wetlands and aim to restore a pre-development ecology
- Stormwater storage and reuse schemes, and
- Non-structural BMPs such as interpretive signage, garden education programs, publishing a WSUD web-page for the estate, and inviting residents to engage with existing community catchment groups.

**Area scale:**

- Non-structural BMPs such as public education campaigns, support of local community catchment groups, installation of interpretive signage and webpages, and the adoption of appropriate planning principles including local laws for On-site Detention and Retention.



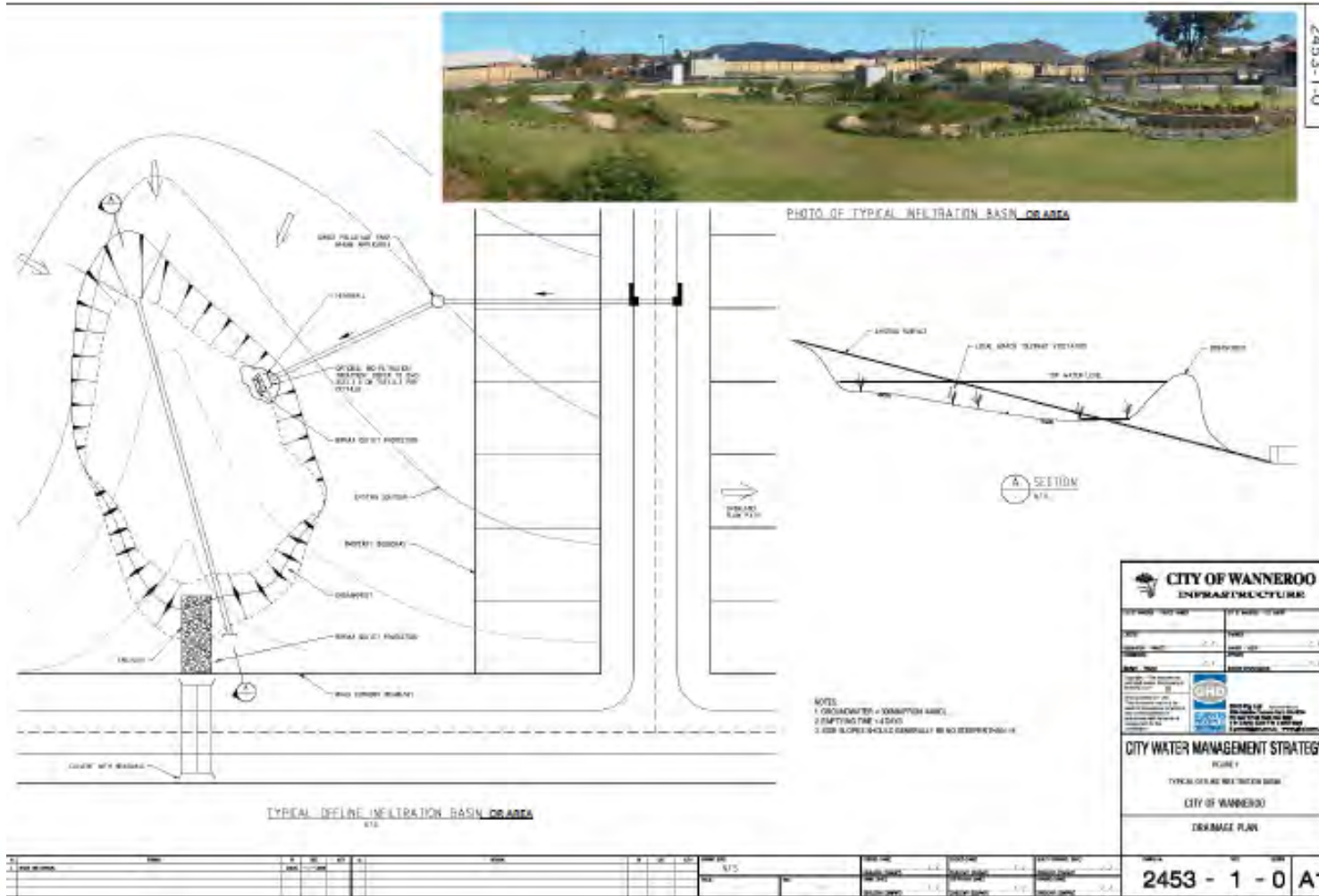


912314602344 City Water Management Strategy Volume 2: Water Sensitive Urban Design, Engineering Toolbox



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# Engineering Toolbox



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# Engineering Toolbox

2453-2-0

REPERABLE PAVING TO THE SURFACE

MANHOLE

100MM CATCHBASIN

PLAN  
SCALE: 1:50

PHOTOS OF TYPICAL PERMEABLE PAVING

TYPICAL BOUNDARY SWALE  
K11

SECTION  
K12

GRATE FRAME  
K13

<b>CITY OF WANNEROO</b>	
<b>INFRASTRUCTURE</b>	
PROJECT NAME	PROJECT NUMBER
DATE	SCALE
<b>CITY WATER MANAGEMENT STRATEGY</b>	
SOURCING	
TYPICAL DRAINAGE TOOLBOX	
CITY OF WANNEROO	
DRAINAGE PLAN	
NO.	REV.
2453 - 2 - 0	A1



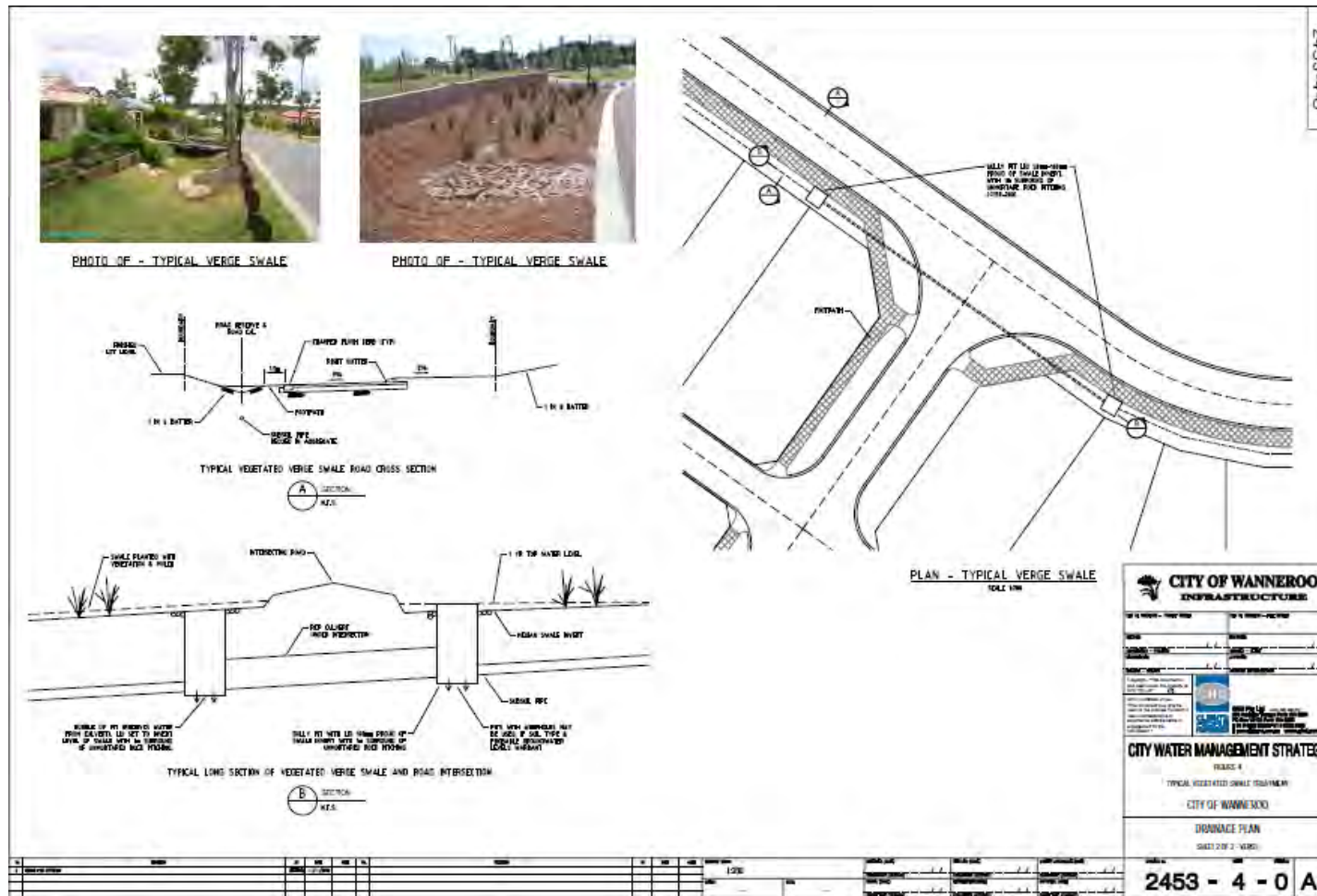
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# Engineering Toolbox



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# Engineering Toolbox



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# Engineering Toolbox

2453-5-0



**PLAN**  
SCALE 1:500



**PHOTO EXAMPLES**



**TYPICAL RAIN GARDEN**

**SECTION**  
SCALE 1:20

**NOTE:**  
SEE ALSO IN APPLICABLE TYPICAL SPECIFICATIONS DRAWINGS



**SKETCHES**

<b>CITY OF WANNEROO</b>		<b>INFRASTRUCTURE</b>	
PROJECT NO. 2453-5-0	DATE 10/2013	DRAWN BY [Name]	CHECKED BY [Name]
<b>CITY WATER MANAGEMENT STRATEGY</b>			
TYPICAL 800mm DEPTH TREATMENT			
CITY OF WANNEROO			
DRAINAGE PLAN			
SCALE 1:50			
<b>2453 - 5 - 0</b>		<b>A1</b>	



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# Some recent results



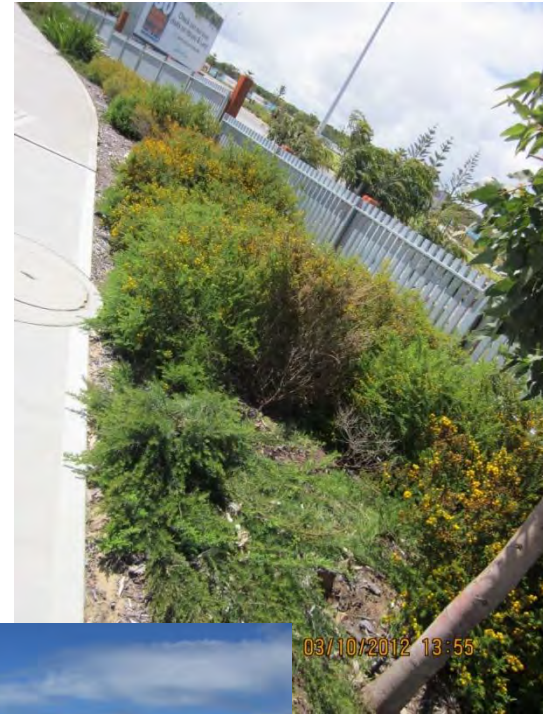
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# Thank you



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