

# Water Demand Management in Auckland

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May 2014 update

*Roseline Klein, Sustainability Manager*

# Auckland demand management target

- **Purpose:** to promote efficient use of water and defer the need for additional water sources and water treatment capacity by ten years
- **Target:** 15% reduction in gross per capita consumption by 2025, based on 2004 levels
- **Origin:** Three Waters strategy, 2008
- **Adopted by Watercare** in 2011, then included in the Auckland Plan

# Gross and residential per capita consumption (pcc)

- **Residential Per Capita Consumption**

= total water supplied to residential customers only, divided by the number of people connected to the water supply system

- In Auckland, the residential pcc in 2012 was **157 litres per person per day** <sup>1</sup>
- Includes only household water use
- Used to track how water efficient households are

- **Gross Per Capita Consumption**

= total water put into supply, divided by the number of people connected to the water supply system

- In Auckland, the gross pcc in 2012/13 was **274 litres per person per day** <sup>2</sup>
- Main KPI for demand management in New Zealand
- Includes domestic water use, non-domestic water use and non-revenue water

1: 2004 Auckland residential pcc is not known

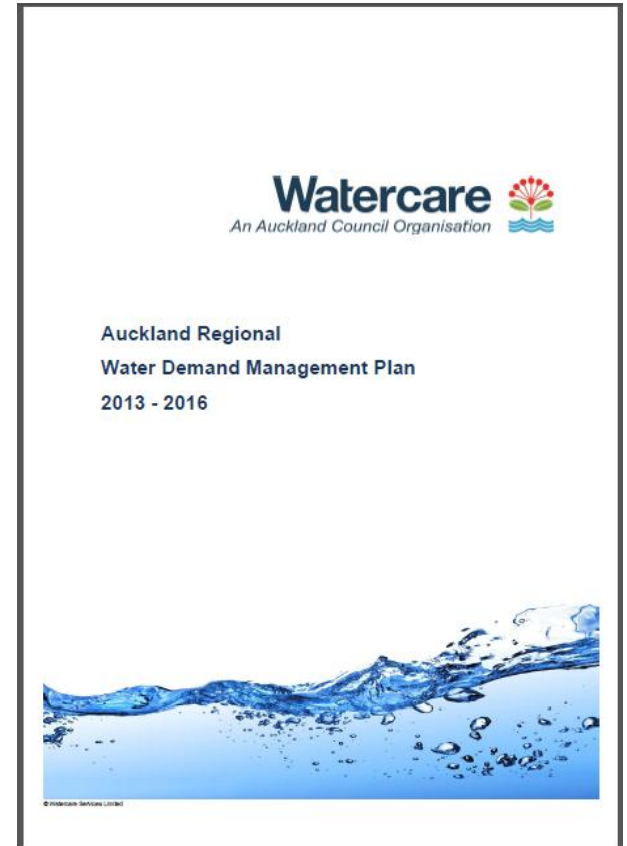
2: 2004 Auckland gross pcc was 298Lpd

# Merits of residential pcc v. gross pcc

- **Residential per capita consumption is a true water efficiency indicator**
  - It is very consistent (includes households uses only)
  - It is less used than gross pcc in NZ since it requires all households to be metered and volumetric usage to be captured
- **Gross per capita consumption has strong limitations**
  - It includes non-comparable uses of water
  - It is influenced by factors not related to water efficiency and could increase despite improved water efficiency.
    - e.g. If one water user similar to our top five customers had moved to Auckland in 2012/2013, gross pcc would have been 275Lpd instead of 274Lpd
- **Watercare is the enabling agency in relation to water and wastewater services to achieve Auckland's growth vision. The gross pcc reduction could be contrary to that goal.**

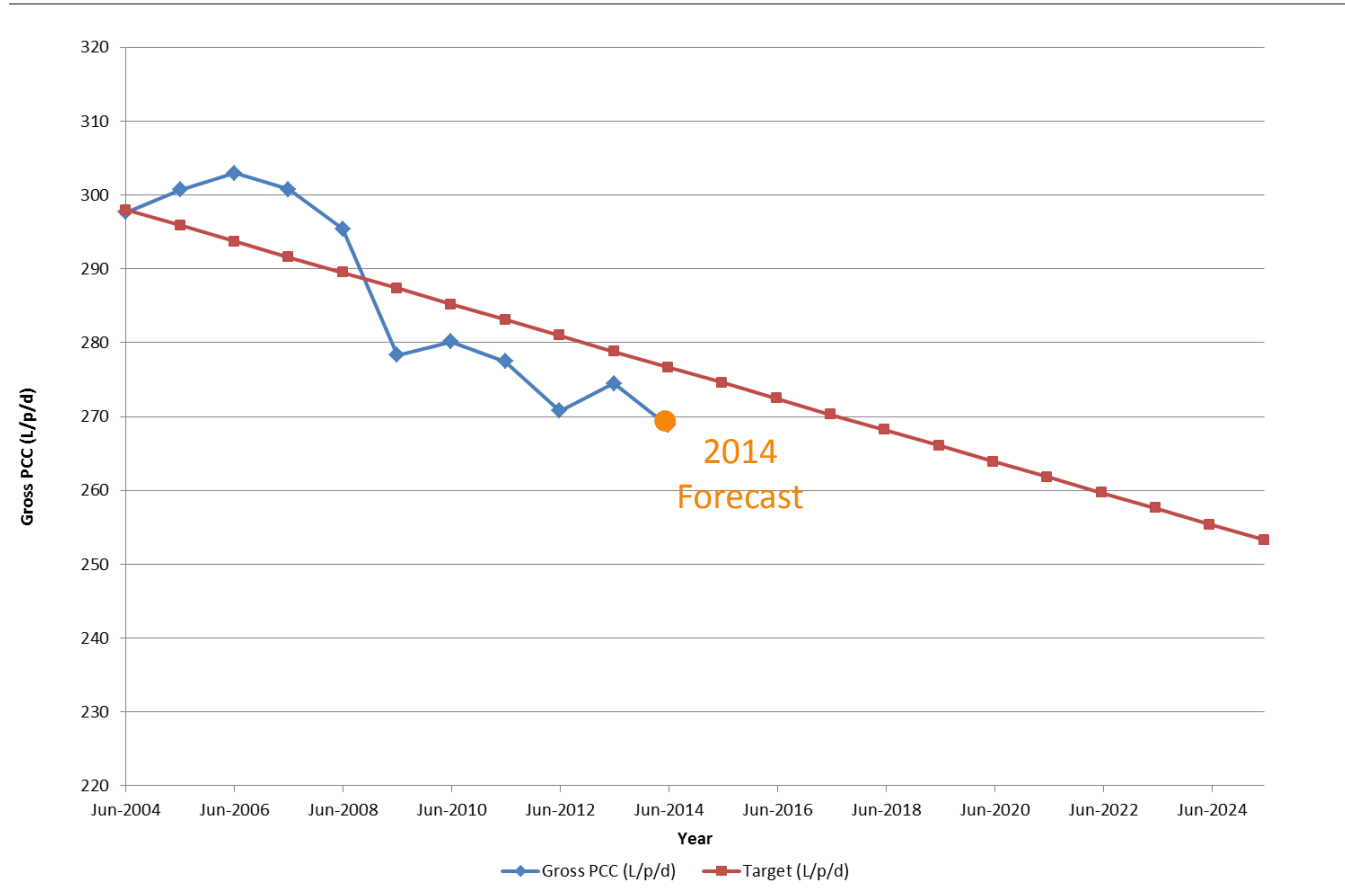
# 2013-2016 Auckland Regional Water Demand Management Plan

- **Achievements of the last years:**
  - More water use data available (bimonthly reading, volumetric charging)
  - New demand management initiatives implemented, existing ones strengthened
  - Obtaining the residential per capita consumption figure
- **The plan:**
  - Applies a framework (WSAA guide to demand management)
  - Reviews potential options and quantifies reduction in water demand, focusing on peak demand
  - Structures action
  - Initiates a 3-yearly review process



# The 2014 situation

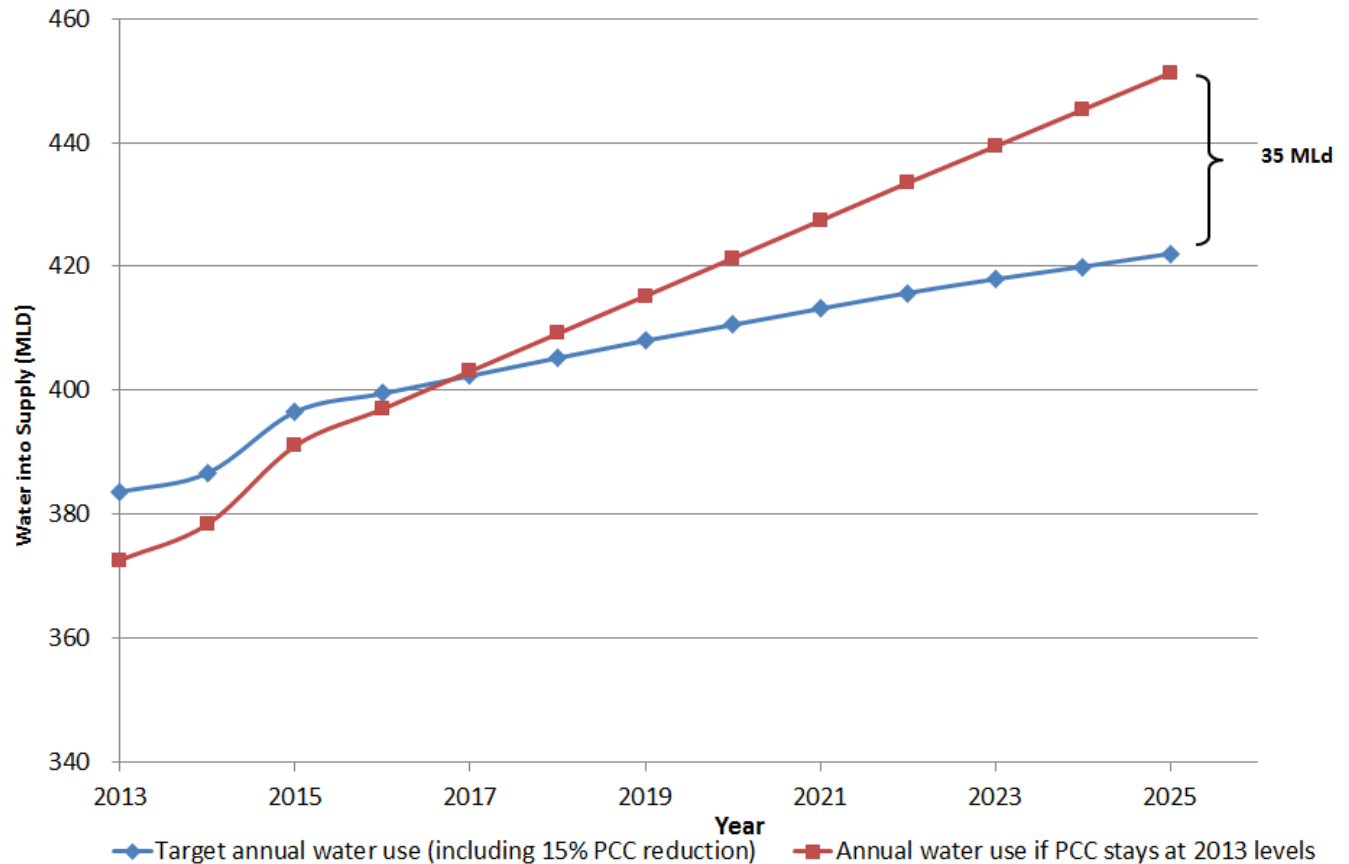
- 2006-2009: Gross pcc diving, making us ahead of the target. Most likely to be recession- driven
- Since then: Gross pcc only slightly decreasing
- Census years: 2006 and 2013
- 2013 census: Population data likely to make us revise and increase past years' pcc (population growth has been lower than expected)



# Efficiency gains needed by 2025

- The change to make between 2013 and 2025 is equivalent to saving 35 Megalitres a day
- Equivalent to a medium-sized dam, or 4 times the popular Waitakere dam
- We need to strengthen our action plan to achieve the 2025 target

⇒ **Step change needed**



# Range of possible initiatives

## 1. System changes:

- Universal metering ✓
- Water volumetric charging ✓
- Wastewater volumetric charging ✓
- Frequent readings ✓
- Frequent billing ✓
- Pricing strategies (e.g. peak pricing, block tariff)

## 2. Non revenue water:

- Leakage management ✓
- Pressure management
- Unauthorised consumption ✓

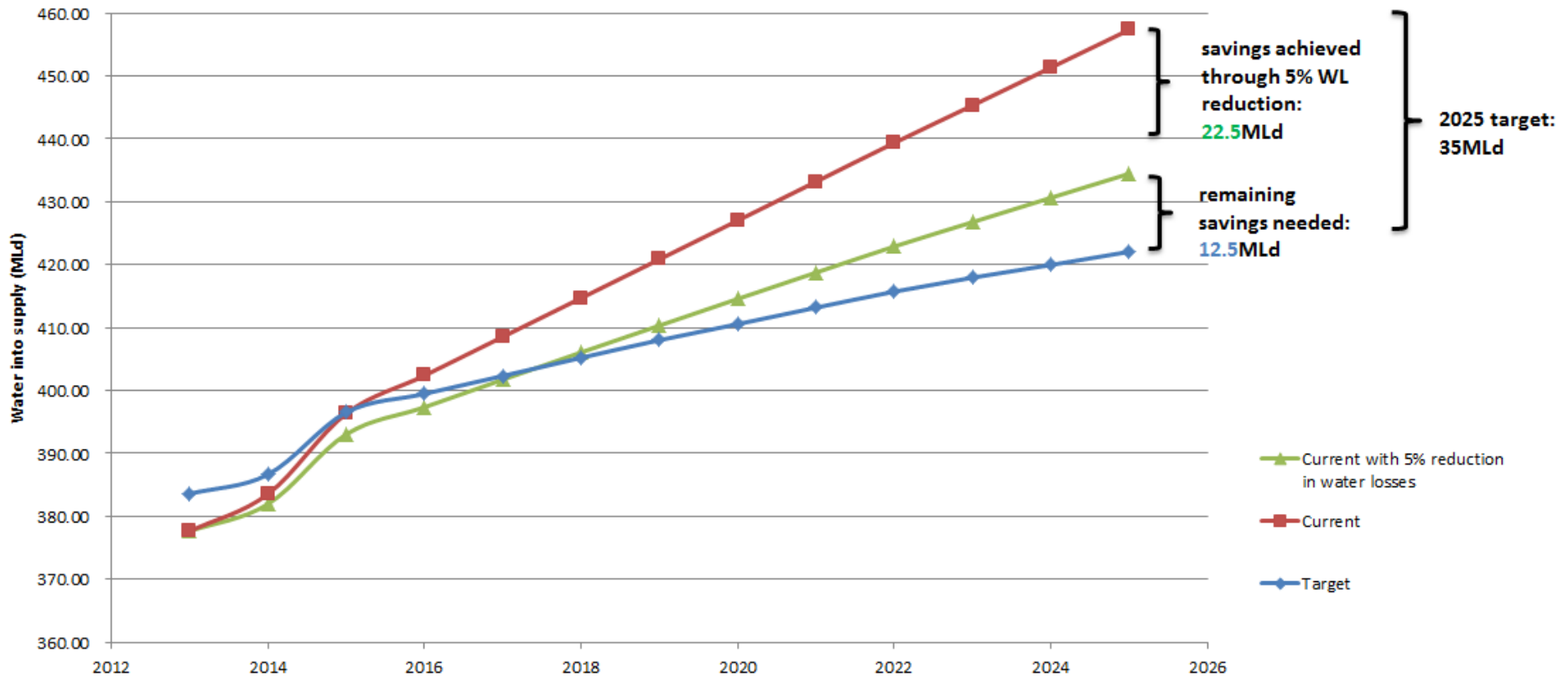
## 3. Customer service:

- “Be Waterwise” information ✓
- Water efficiency support for households ✓
- Water efficiency support for non-domestic customers
- Education campaigns



# Example of step change: Impact on gross pcc and 35MLd target

## Potential impact of 5% additional reduction in water losses by 2025



## ***Appendices – 2014/2015 action plan***

# 2014/15 Action plan

1. Improving our understanding and analysis of demand (see next slides)
2. Carrying on working on Watercare assets (efficiency, pressure and leakage) and unauthorised water use (see next slides)
3. Working with domestic customers (see next slides)
4. Working with non-domestic customers (see next slides)
5. Influencing water efficiency standards
6. Making information and tools available (e.g. website, brochures, contact centre)

# 1. Understanding and analysing demand

- Started:
  - Mapping demand in GIS (Water Planning team)
  - Improving demand line (Water Planning team)
  - Improving data analysis (started FY2013, ongoing)
  - Updating BRANZ end use study (FY2014 and 2015)
- Planned:
  - Understanding peak demand (FY2015)
  - Updating Rainwater tank study (attempt for FY2014)

## 2. Network efficiency, pressure and leakage

- Objectives:
  - Testing status of meter stock and accuracy
  - Challenging hypothesis used for non-revenue water
  - Finding illegal connections
- 2013/14 forecast for water losses: 14.03%
- Currently being audited
- Monthly report to the Board on leakage rate and pro-active leak detection

# 3. Working with domestic customers

## Water Advice Line

Gail Batten  
21 Lewin Road  
Royal Oak  
Auckland

17 Mar 2014

**EcoMatters Environment Trust**  
our environment matters

Dear Gail,

**Water Savings Report first (revised) update from the Water Advice Line**

As discussed, please disregard the initial follow-up letter received a couple of weeks ago as both graphs had errors. My apologies for causing confusion, hopefully this letter will make more sense!

Since I spoke with you in August last year you have implemented the following recommendations in order to save water:

- Installed a 1000L rain harvesting container for gardening use
- Reduced time in shower and purchased a shower timer
- Purchased a gizmo to use in the older toilet to limit flush
- Recycling kitchen sink grey water for garden use

In addition, the following changes have occurred in your household:

- A guest stayed for 3 months over the winter period, which may have increased your household's normal daily water usage

In the time since we last spoke with you, you have managed to reduce your household's water consumption from 320 litres to 172 litres per day.

**How well are you doing?**

Category	Litres / person / day
Your Household in Feb 2014	172
Your Household in Aug 2013	320
Household Median	137
"Water-Wise" Household	100

A saving of 148 litres per day is very impressive, especially considering that most households increase their water use over summer.

## BeWaterwise booklet

**Watercare**  
An Auckland Council Organisation

# Bewaterwise

Water is essential to life. Every day, we use it for drinking, bathing, cleaning, cooking and gardening. It is vital for many industries, a key ingredient for agriculture, and an essential element in many of our leisure activities.

If you live in Auckland, you enjoy high-quality water provided by Watercare. We also collect your wastewater, treat it and dispose of it safely in order to protect our region's beaches and harbours. We care for the environment and, with your help, we will continue to ensure the best use of our precious water resources.

There are many benefits to using water wisely. It's good for the environment and your wallet. Not only that, many people gain a sense of satisfaction from living a sustainable lifestyle. This booklet provides a wide range of tips and ideas to help you save water in the home and outdoors.

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## Attending expos



### FY 2015 work:

- Scope online water use calculator
- Scale up Water Advice Line
- Write case studies (Comms)

## 4. Working with non- domestic customers

Objective: by July 2014, develop a suite of tools and partnerships to help non-domestic water efficiency

Building blocks:

- Pathway towards water efficiency (next slide)
- One2Five Water management tool
- Be Waterwise non-dom
- Potential partners
- Case studies

# Pathway towards water efficiency- draft

1. Have you got a system in place to implement and track water efficiency?

Water management system

Diagnostic tool:



Follow-up tool:

A screenshot of a data table from a water audit report. The table has columns for 'Plant Name', 'Plant ID', 'Plant Type', 'Plant Location', 'Plant Status', 'Plant Capacity', 'Plant Age', 'Plant Condition', 'Plant Efficiency', 'Plant Cost', 'Plant Value', 'Plant Risk', 'Plant Priority', 'Plant Action', 'Plant Date', 'Plant User', 'Plant Notes'. The first row is highlighted in red and contains the text 'WSL's customised non-dom report' overlaid on it.

Plant Name	Plant ID	Plant Type	Plant Location	Plant Status	Plant Capacity	Plant Age	Plant Condition	Plant Efficiency	Plant Cost	Plant Value	Plant Risk	Plant Priority	Plant Action	Plant Date	Plant User	Plant Notes
Volvo's van charger	001	EV Charger	Volvo's van	Operational	1000W	5	Good	High	1000	1000	Low	High	Replace	2023-01-01	John	WSL's customised non-dom report
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

2. Do you know how your organisation uses water?

Water audit – water balance

WSL's "How-to" guide



List of potential partners to help run the audit

3. Does your organisation need to take action?

Leak detection

Check-metering or sub-metering

Smart metering

Process improvement

Regular update



**Thank you for your attention**