The Auckland Region’s Water Supply: Past, Present and Future

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The History of Auckland’s Water Supply

Water Needs:
• Demand for reticulated water
• Outbreaks of waterborne diseases
• Limited fire fighting supplies
• Severe droughts in late 1800s

First Water Supply: Auckland Domain
1866

Western Springs in 1877

Waitakere Dam in 1910
The History of Auckland’s Water Supply

Western Dams: 1910 to 1971

Waitakere Filter Station Construction 1927 – First Chlorination

Southern Dams: 1955 to 1977
The History of Auckland’s Water Supply

330 MLD Ardmore Filter Station 1956

Waikato Membrane and Carbon Filtration Plant in 2002
Auckland Region
Drought 1993-94

- Drought 1:65 year return period
- Supply system designed to meet a 1:50 year drought
- Demand management programmes had been implemented but still savings to be made
- Demand had exceeded supply
- 24 options considered: Waikato TP met supply needs within required timeframe and cost
- Focussed region on efficient use of water and sustainable solutions
**Present Day**

**Auckland Region Bulk Water Supply System**

- 10 Dams
  - 5 west (Waitakere)
  - 5 south (Hunua)
- 1 aquifer - Onehunga
- 1 river - Waikato

Connected population
~1.3 million

Water supplied
~370,000 m$^3$/day
Key Regional Drivers

- Population growth
- Regulatory requirements
- Levels of service
- Commitment to environmental management

Population growth projections:
- 1.3m by 2050
- 2.1m by 2050
- 3.5m by 2100

Forecast prepared by Shearer Consulting after consulting with senior planners of participating organisations (TWA).
Auckland Water Management Plan

In 2004 a co-operative initiative from the Auckland region’s water authorities

“ensure the most efficient, environmentally sensitive and sustainable use of water now, and for generations to come”
AWMP Demand Initiatives

- Demand Trend Analysis & Forecasting
- Water loss control (leakage)
- Pressure management
- Water-efficient landscaping & outdoor water use
- Information and education
- Promotion of water-efficient technologies
- Water pricing
- Water metering
- Wastewater and stormwater reuse
- Regulations and restrictions
- Best practice
Three Waters Strategic Plan

- Planning horizon 2100
- To investigate ways to deliver water supply, wastewater and stormwater services in the Auckland region in a more integrated and efficient way
Future Urban Water Source Options

- 50 and 100 year planning horizons
- 2.1 million people by 2050
- 34 options considered to augment future water supply
- Comprehensive assessment of well beings: social, cultural, environmental, economic, and legal/technical/risk
Future Urban Water Source Options

1. Huia/Waitakere Options
2. Papakura TP
3. Hunua Options
4. Lower Mangatawhiri
5. Wairoa River
6. Groundwater Options
7. Mangere WWTP Options
8. Desalination
9. Demand Reduction
10. Rainwater Tanks
11. Far North Options
   - Hoteo
   - Wairoa
   - Manganui
   - Araparera / Makarau
Marginal Cost of Future Water Supply Options

Cost curve showing increasing marginal cost of achieving each successive m3 of water.
Future Urban Water Source Options

• Leakage reduction and pressure management
• Waikato River next likely source
• Upgrades of existing plants
• Groundwater/wastewater/stormwater beyond 2050
• Desalination and Rainwater tanks
  highest cost regional solutions
Auckland Governance Reform

- Watercare will become regional water and wastewater provider on 1 Nov 2010.
- Includes communities in Franklin & Rodney Districts.
- Opportunities for regional efficiencies.
- Opportunities for demand management.
- Community specific outcomes.
Thank You