

# Nanaimo's Water Audit



April 22, 2013

Reservoir #1 source meter validation

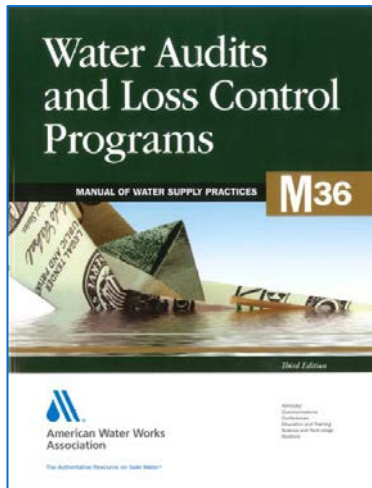
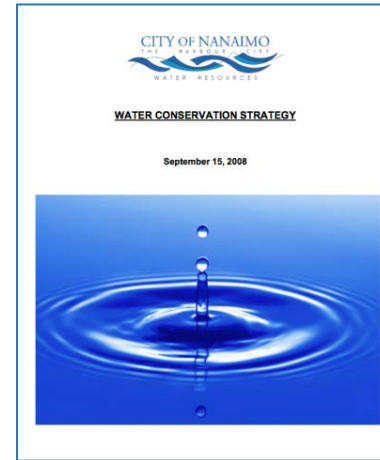
# Nanaimo's Conservation Measures

- Universal metering & expanded block billing
- Full-cost accounting
- Summer watering restrictions
- RDN & *Team WaterSmart*
- Toilet rebate program
- Water Conservation Strategy



# Why do a Water Audit?

- Water Conservation Strategy 2008 identified a Water Audit as a priority for the City



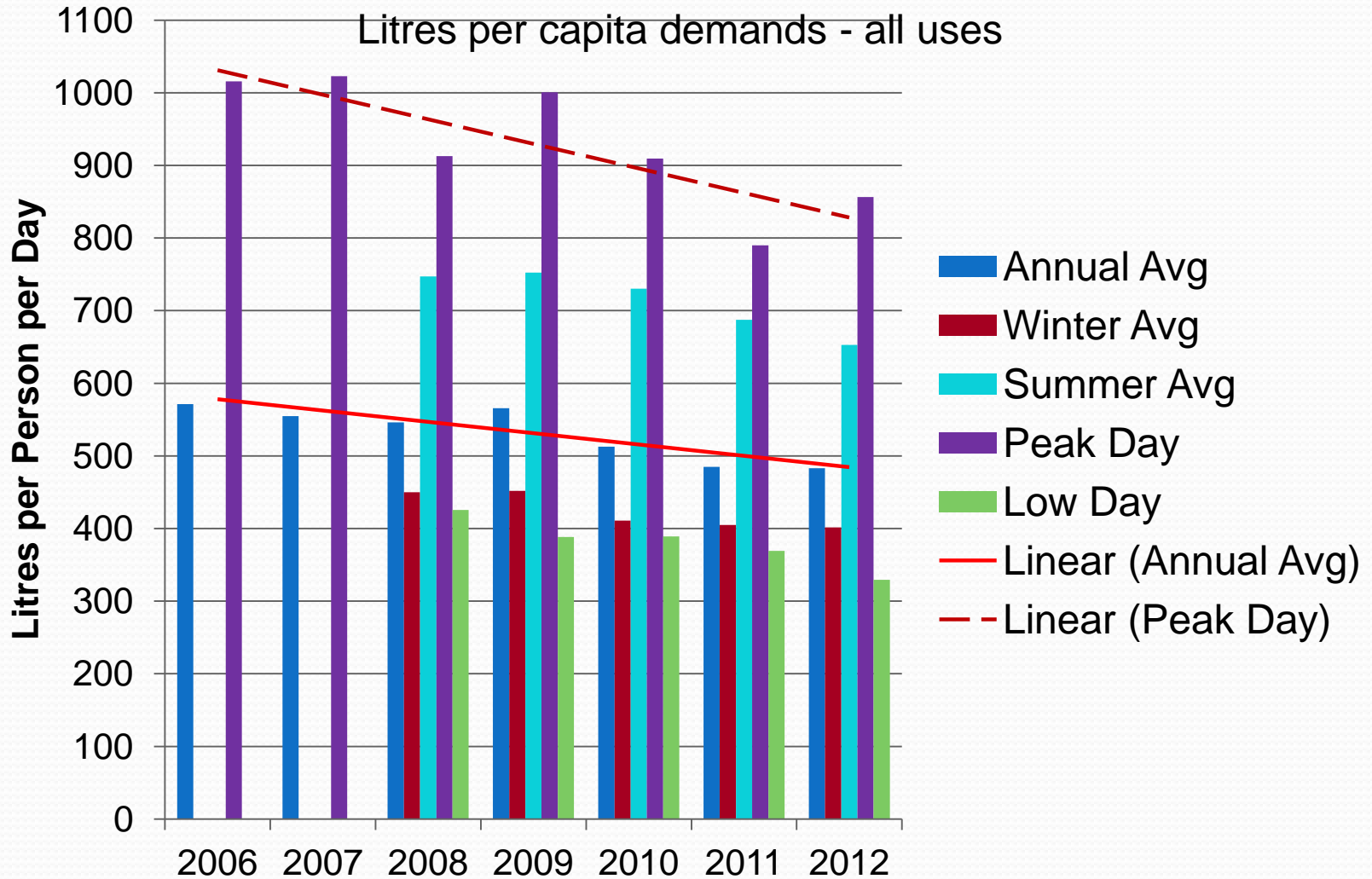
- The Water Audit carried out in accordance with AWWA M36 Water Audits & Loss Control Programs

# What did we do?

- Stage 1 - Desk top study
- Stage 2 – Field work to validate results

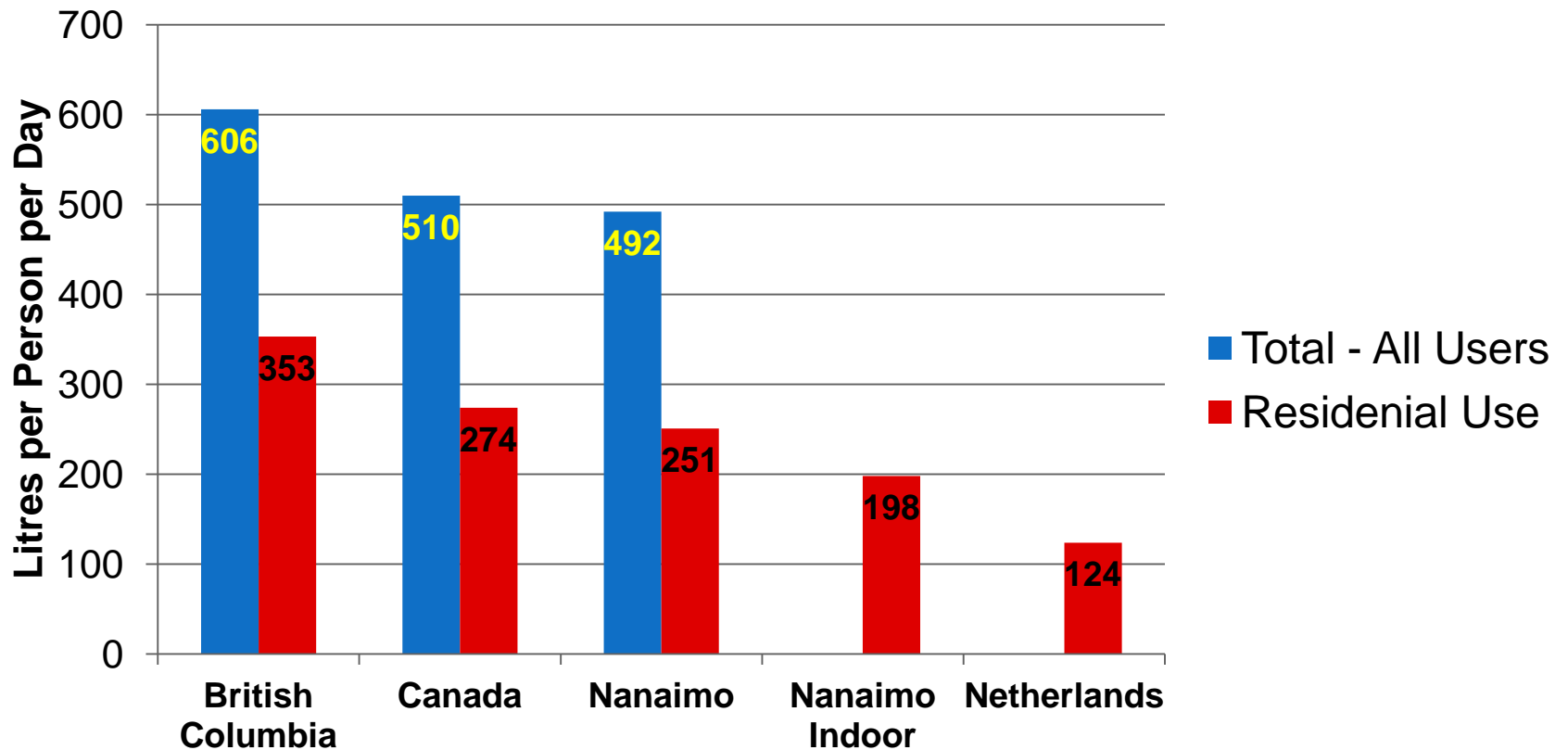


# Nanaimo's Water Consumption Trend



# Per person water use – how does Nanaimo stack up?

## Provincial, National & Municipal Water Use Comparisons

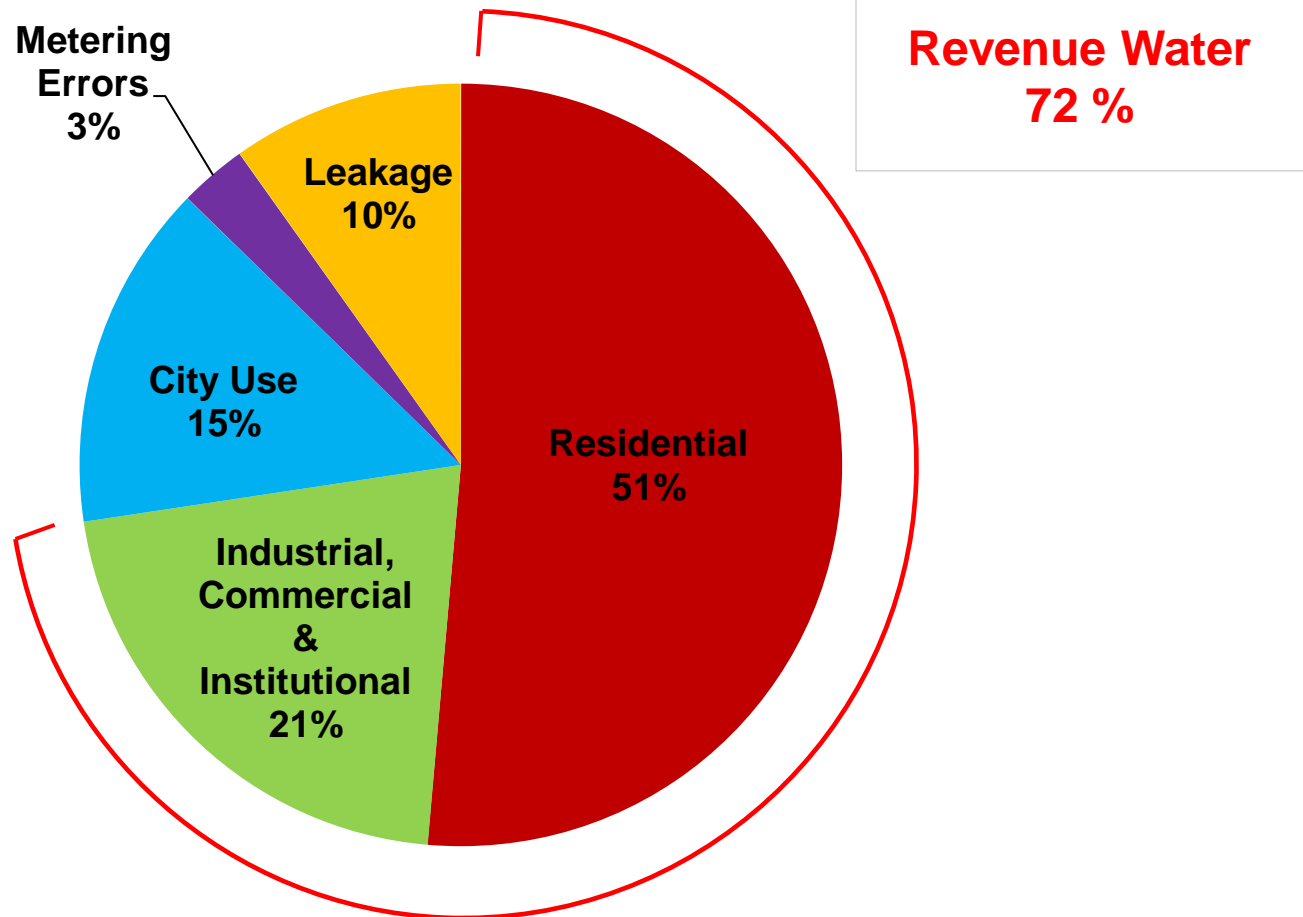


# Residential Use

- Canadian annual average: 274 L/person/day
- British Columbia average: 353 L/person/day
- Capital Regional District: residential 297 L/person/day
- Nanaimo annual averages:
  - Single Family Residential: 251 L/person/day
  - Single Family Residential Seasonal Demands:
    - summer 962 L/dwelling/day  
(or 21-28 m<sup>3</sup>/ha/day for irrigation)
    - winter indoor use 198 L/person/day



# Water Balance





# Customer meter under registration

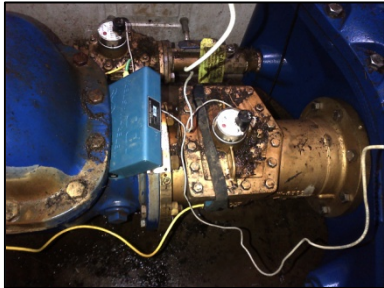
- Factors affecting meter accuracy:
  - age of the meter
  - proper sizing
- Work completed for analysis:
  - validated accuracy of the bulk source meters
  - tested residential meters to gauge age /accuracy relationship
  - reviewed consumption records for large meters to determine if meters were properly sized
  - reviewed City of Nanaimo meter sizing standards
  - undertook flow profile monitoring on large customer meters



# Key findings from the Water Audit



- The City's bulk water meters are accurate
- Actual leakage 9.83% of water supplied



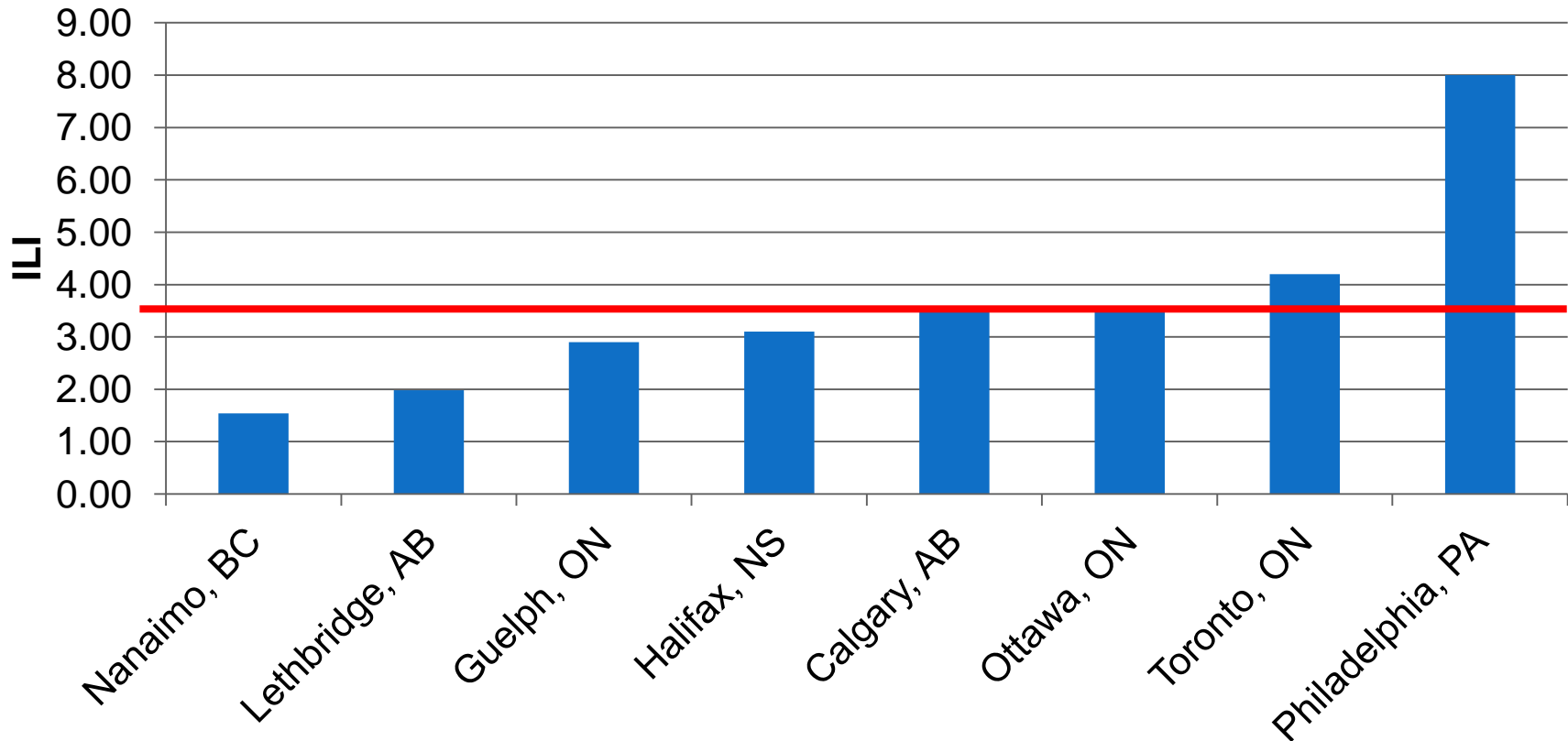
- 50% of large industrial and commercial meters are oversized and under recording
- Residential meters:
  - Average age 14 years
  - 97.8% accurate
  - Lose accuracy and revenue beyond 24 years



# Key findings from the Water Audit (continued)


- Infrastructure Leakage Index 1.54

Infrastructure Leakage Index (ILI) comparisons



# Water Audit Recommendations

- Create a new section in the City's Manual of Engineering Standards and Specifications for meter sizing
- Allocate funding for a meter replacement program
  - to replace older residential meters, and
  - to replace larger oversized industrial & commercial meters
- Consider a water loss management program to address leakage
- Undertake future water audits



# This Lawn Isn't Dead, It's Just Sleeping

We're using Nanaimo's water wisely

