WATER LOSS TASK FORCE

AAEES E3S Conference

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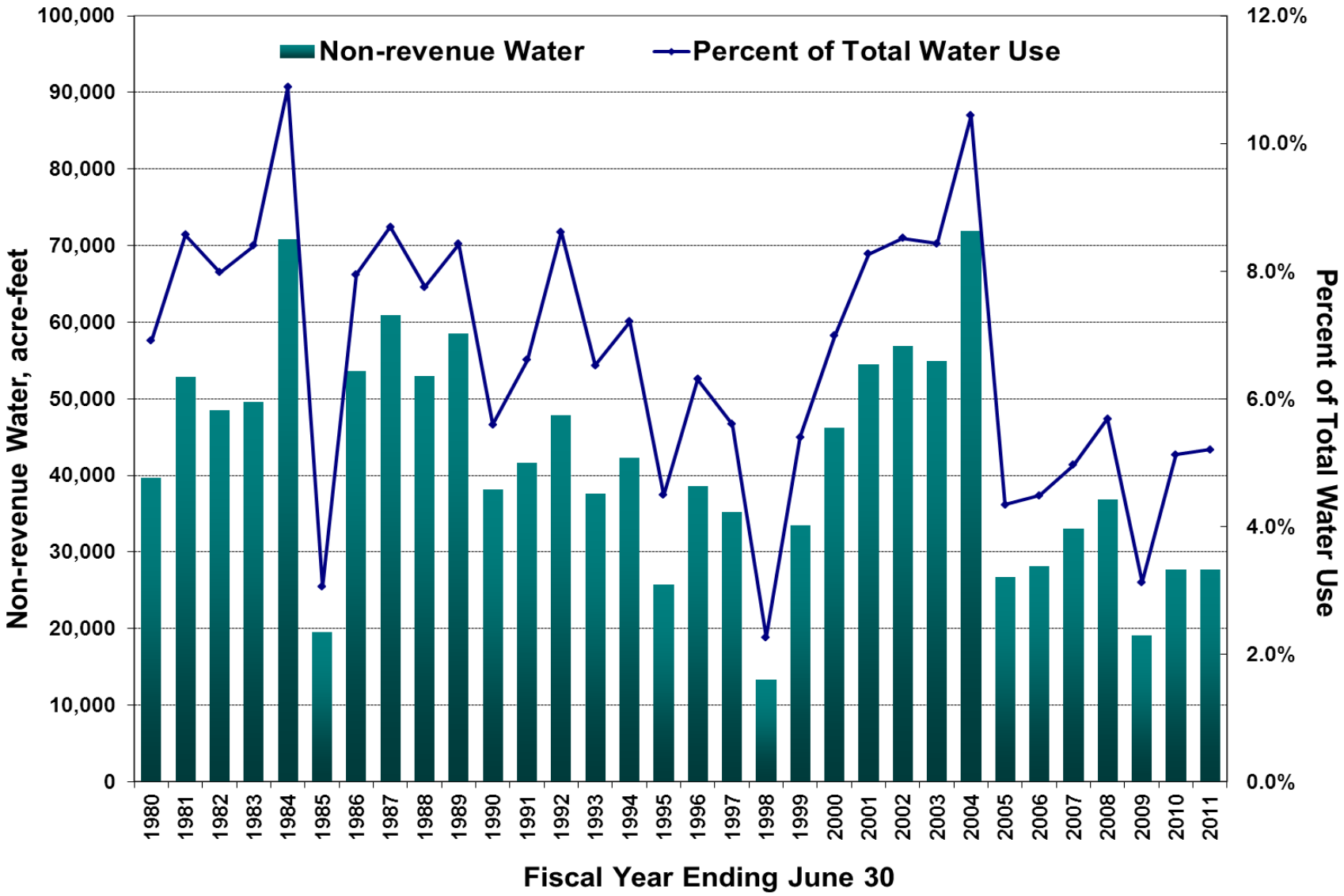
Nation's Largest Public Utility

Why are we doing Water Loss Audits?

- Fulfills California Urban Water Conservation Council (CUWCC) requirements:
  - Water loss audit due annually
  - Component analysis due every 4 years

- New regulations require water loss audits be submitted annually to State Department of Water Resources
- ***Discovering and addressing system water losses saves water and money!***

Historical Tracking of Non-Revenue Water

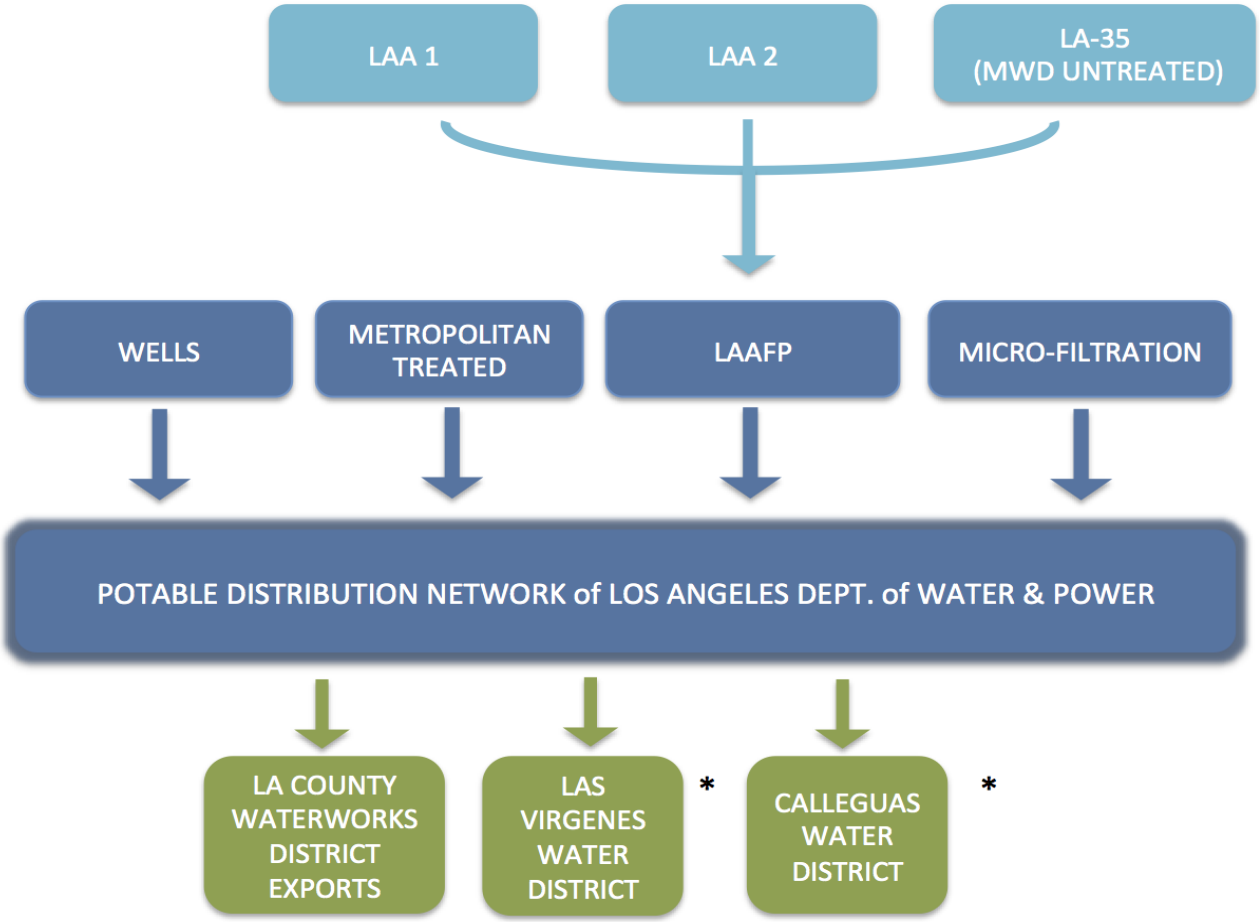


American Water Works Association Water Balance

System Input Volume	Authorized Consumption	Billed Authorized Consumption	Billed Metered Consumption
			Billed Unmetered Consumption
		Unbilled Authorized Consumption	Unbilled Metered Consumption
			Unbilled Unmetered Consumption
	Water Losses	Apparent Losses	Unauthorized Consumption
			Customer Meter Inaccuracies
		Real Losses	Leakage on Transmission and Distribution Mains
			Leakage and Overflows at Storage Tanks
			Leakage on Service Connections up to Point of Customer Meter

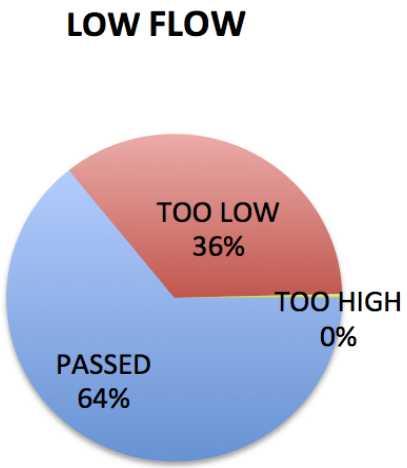
System Input Volume Validation

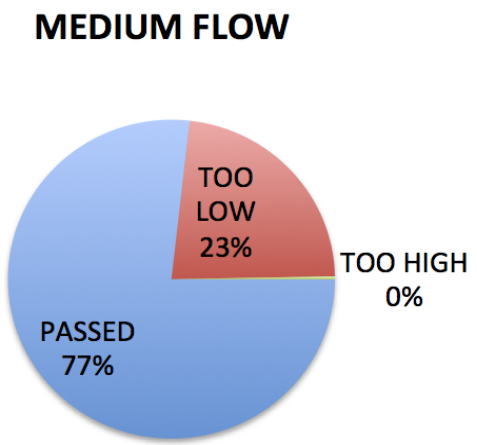
- Analysis of system input volume data and meter accuracies

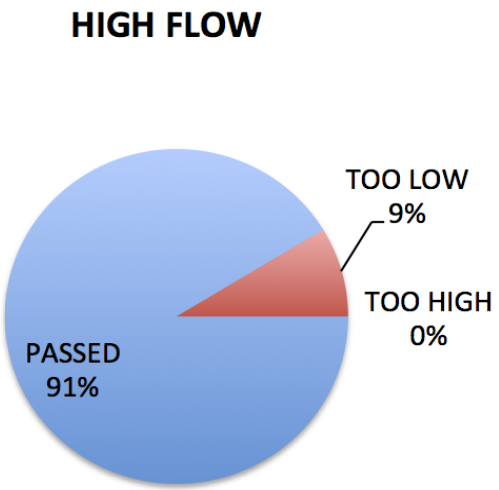


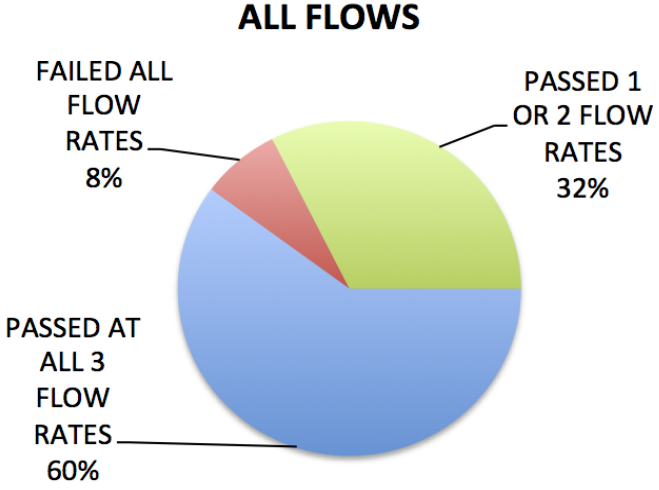
*no exports during FY 2010-2011

Apparent Losses: Small Meter Testing

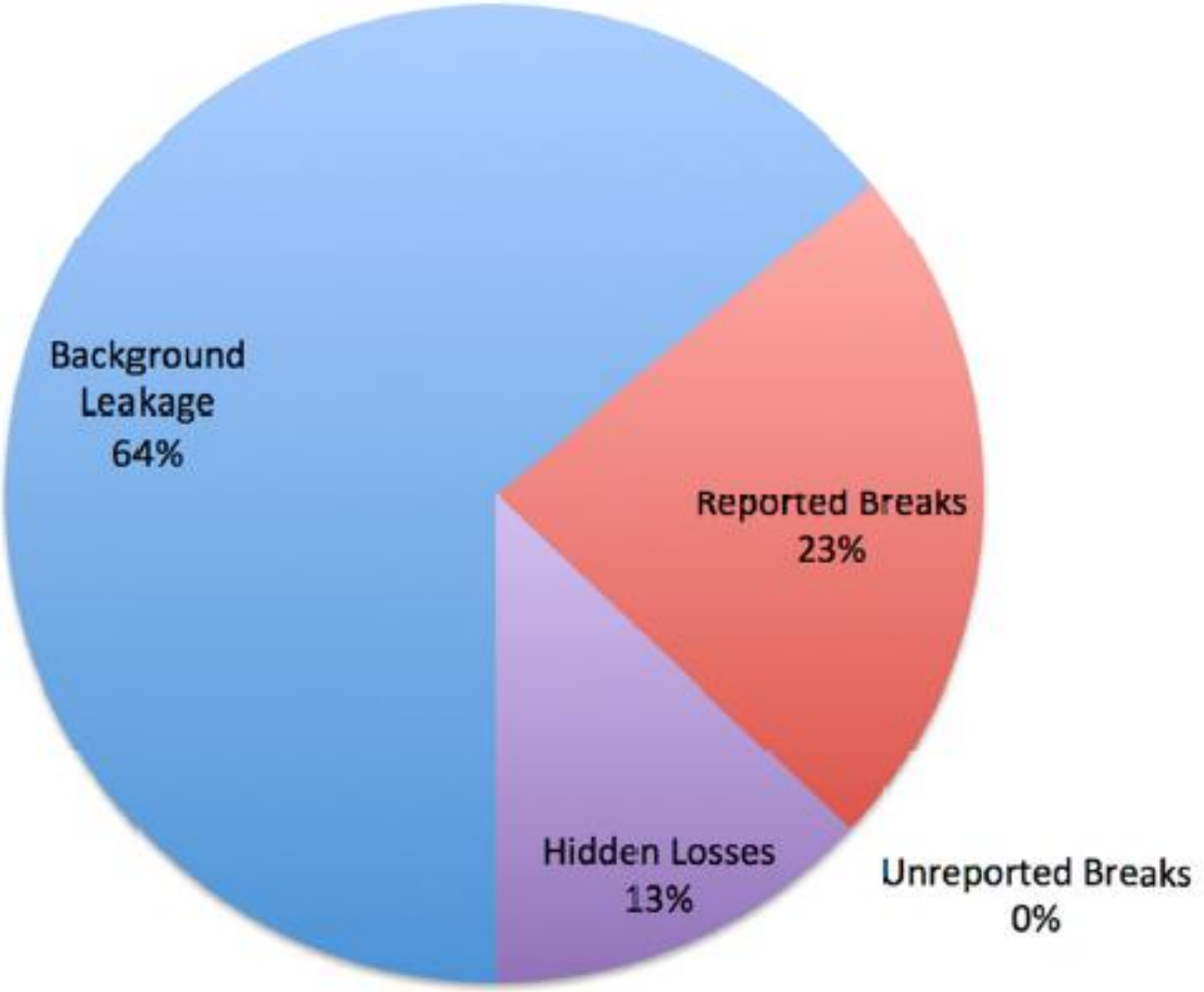








Component Analysis of Real Losses for FY 2010-2011



Water Loss Task Force

1. System Input Volume

Recommendations:

- *Reevaluate meters used for accurate system input volume tracking*
- *Improve meter reading accuracy*
- *Install meters on two backup supply sources*

Actions:

- *Change supply tracking for aqueduct and groundwater meters*
- *Calibrate supply volume meters on an annual basis*
- *Install backup supply source meters*

2. Database Management

Recommendations:

- *Centralize multiple meter and leak databases*
- *Improve recycled water and process water tracking*
- *Address discrepancies between different databases*

Actions:

- *Evaluate feasibility of centralized operational technology system*
- *Develop pilot mobile leak reporting system*
- *Establish billing system protocol to identify recycled water and treatment process water*
- *Address remaining duplicate badge number discrepancies*

3. Meter Testing and Replacement

Recommendations:

- *Replace worst performing meters*
- *Prioritize large meter replacement and analysis*

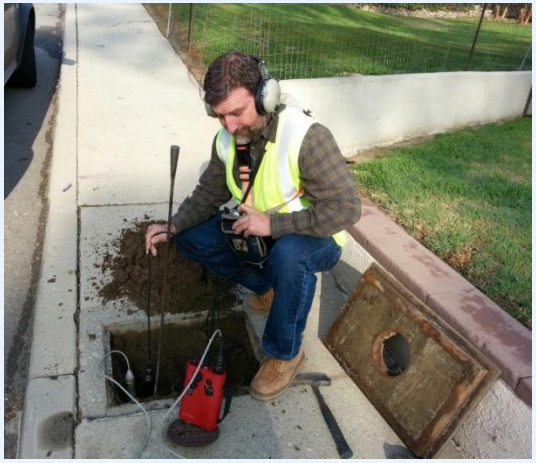
Actions:

- *Implement meter testing of a representative sample of 1,500 operational small meters*
- *Analyze large meter test results*

4. Leak Detection and Prevention

Recommendations:

- *Implement pressure monitoring*
- *Reduce average time to locate and repair leaks*
- *Implement active leak detection programs*



Actions:

- *Site-specific pressure monitoring in 13 highest leak density areas and 17 high pressure zones*
- *Increase staff to decrease leak response time by 50%*
- *Perform acoustic leak detection on 10% of the entire system per year*
- *Install acoustic leak monitoring sensors in high leak density areas*

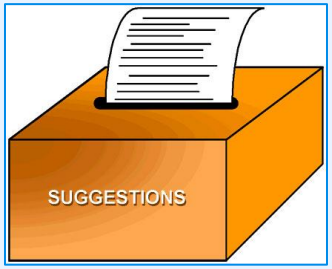
5. Unmetered and Unauthorized Consumption

Recommendations:

- *Implement measures to improve tracking of theft activities*
- *Implement measures to improve estimates of authorized unmetered uses*

Actions:

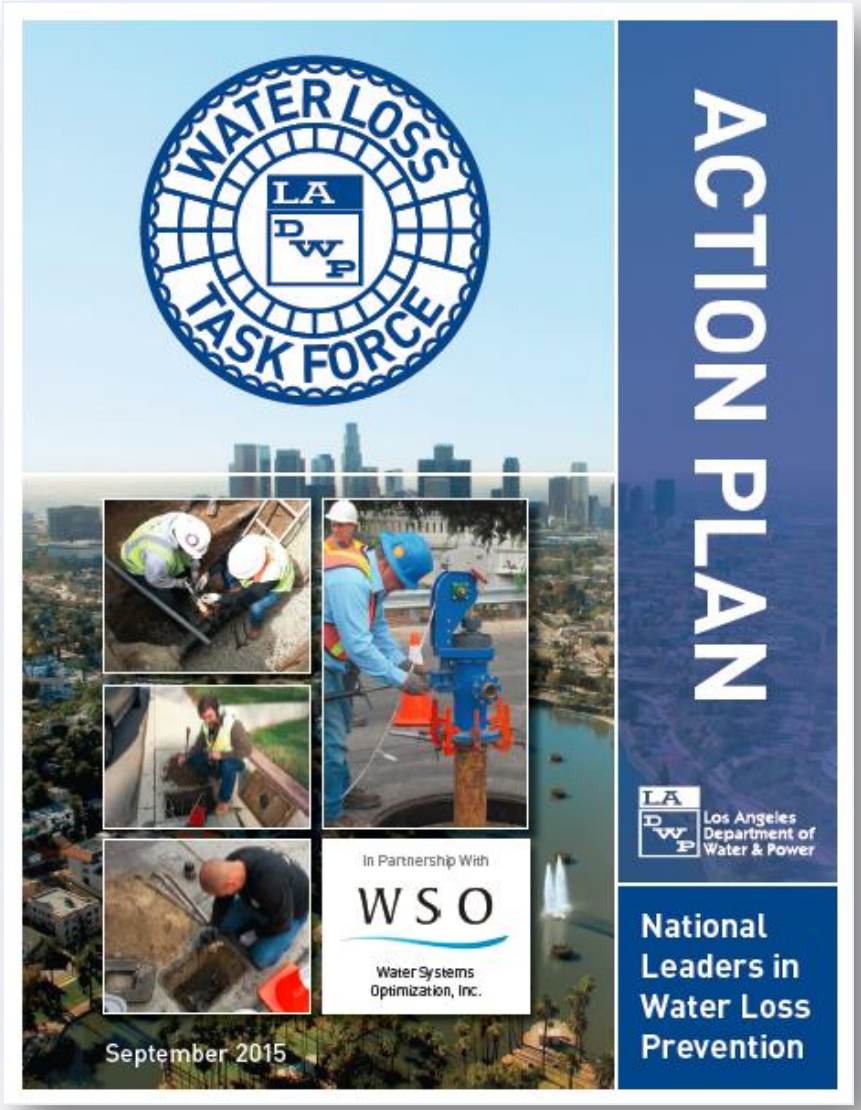
- *Add AMI/AMR to record fire service meter data on a continuous basis*
- *Develop estimates to track volume used for system flushing*
- *Collaborate with the LA Fire Department to estimate volume used in fire fighting and training activities*



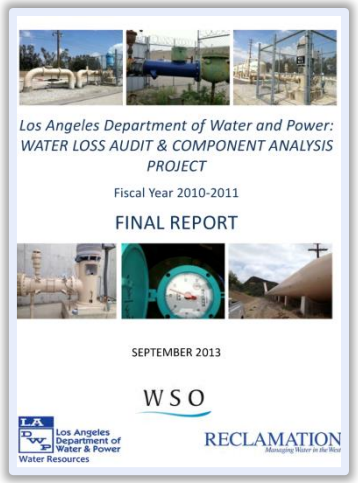
Summary of Costs

Section 1: System Input Volume	Capital Cost	O&M Cost
Section 1 Total Costs of Proposed Actions	$1,518,000	$191,600
Section 2: Database Management		
Section 2 Total Costs of Proposed Actions	$83,000	$0
Section 3: Meter Testing and Replacement		
Section 3 Total Costs of Proposed Actions	$244,000	$0
Section 4: Leak Detection and Prevention		
Section 4 Total Costs of Proposed Actions	$1,281,000	$355,000
Section 5: Unmetered and Unauthorized Consumption		
Section 5 Total Costs of Proposed Actions	$1,241,000	$1,402,000
Total Costs of All Proposed Actions	**$4,392,000**	**$1,948,000**

Final Report and Executive Summary



The ***Water Loss Task Force Action Plan*** and the ***Water Loss Audit and Component Analysis Study*** can be found on our website:



http://www.ladwp.com/wc

Los Angeles LA DWP Department of Water & Power

KEEP SAVING WATER, L.A.!

STATEWIDE DROUGHT

WATER LOSS TASK FORCE