SWSI
CONSERVATION LEVELS ANALYSIS

SEPTEMBER 24, 2010

GREAT WESTERN INSTITUTE

Presentation Overview

- Project Background
- Review of Plans on File with CWCB
- New Framework
- Ramifications

Project Background

- September 2009 CWCB Board Meeting
- Review of SWSI Assumptions and Analyses
- Support to SWSI Updates
  - SWSI "Conservation Levels" Assessment
  - Establish New Framework
  - Characterize Passive Savings

Definitions

Passive Savings

- Customer Driven
  - Retrofits
  - Replacements
  - Behavioral Changes
  - Changes to
    - Market
    - Technology

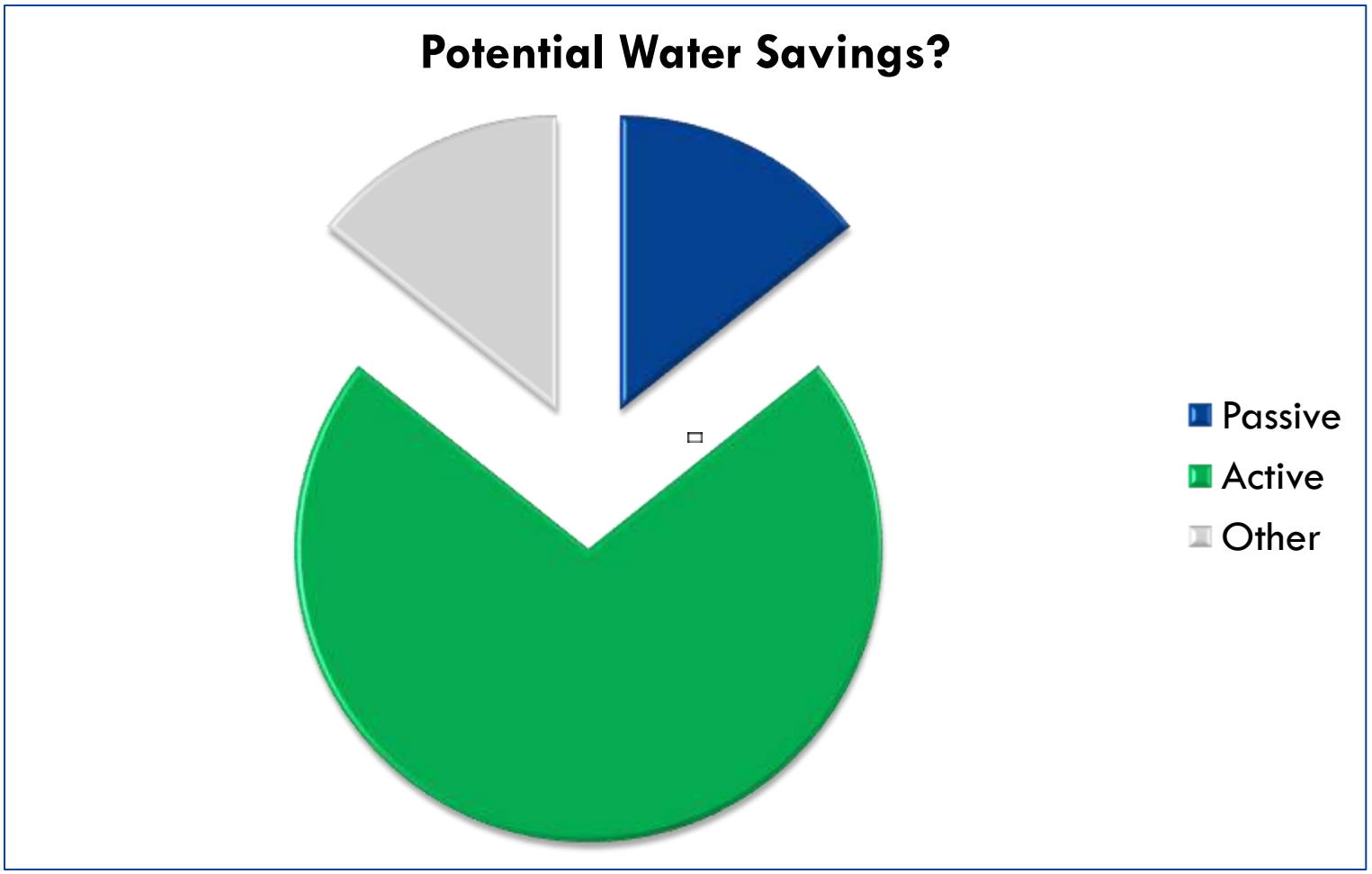
Active Savings

- Utilities Driven
  - Metering/Billing
  - Incentives
  - Technical Support
  - Education
  - Ordinances
  - Data Collection

Other

- Density Changes
- Statewide Regulation

How Much from Passive?



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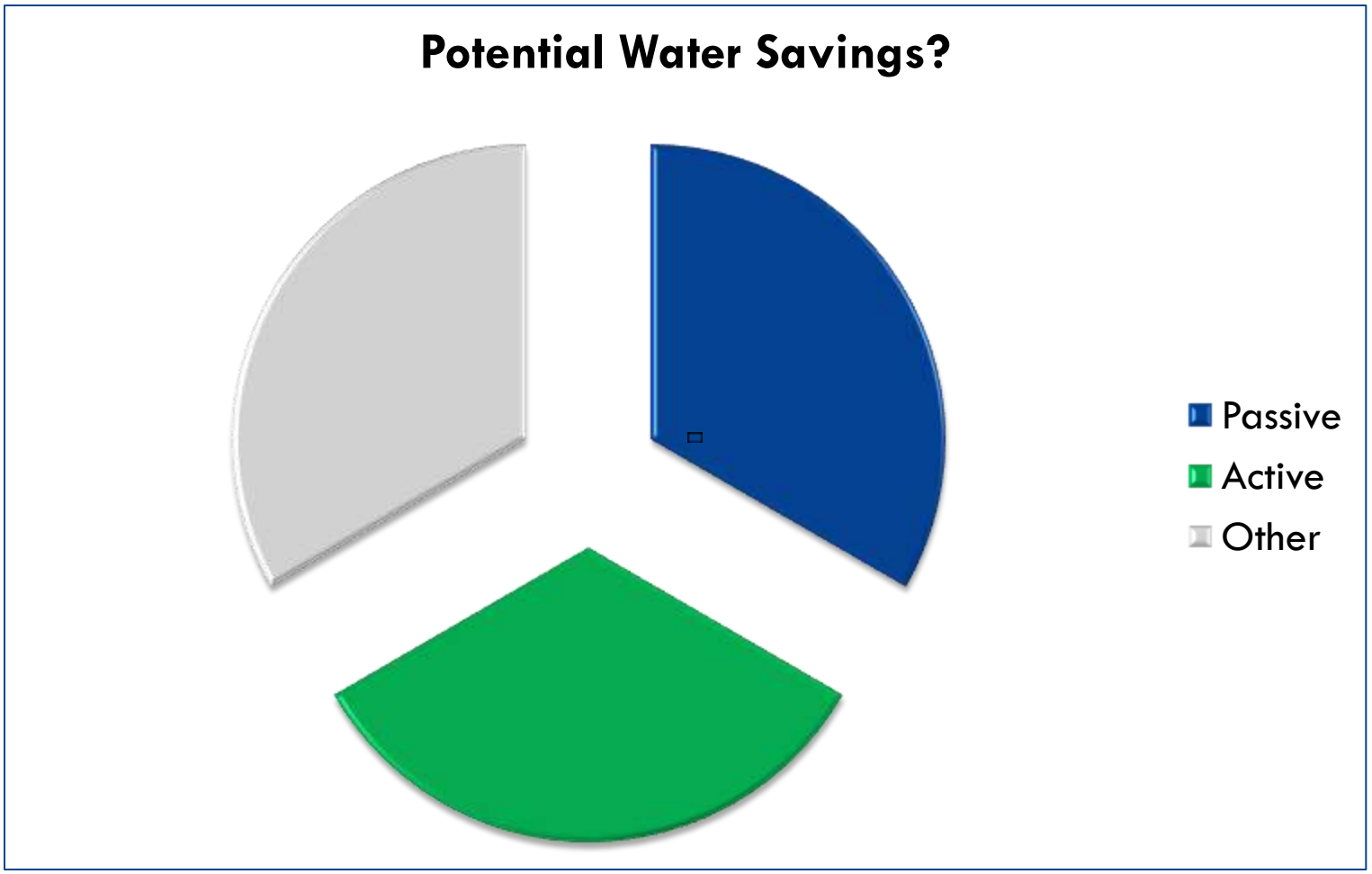


SWSI I % Reduction Curve 2000 - 2030

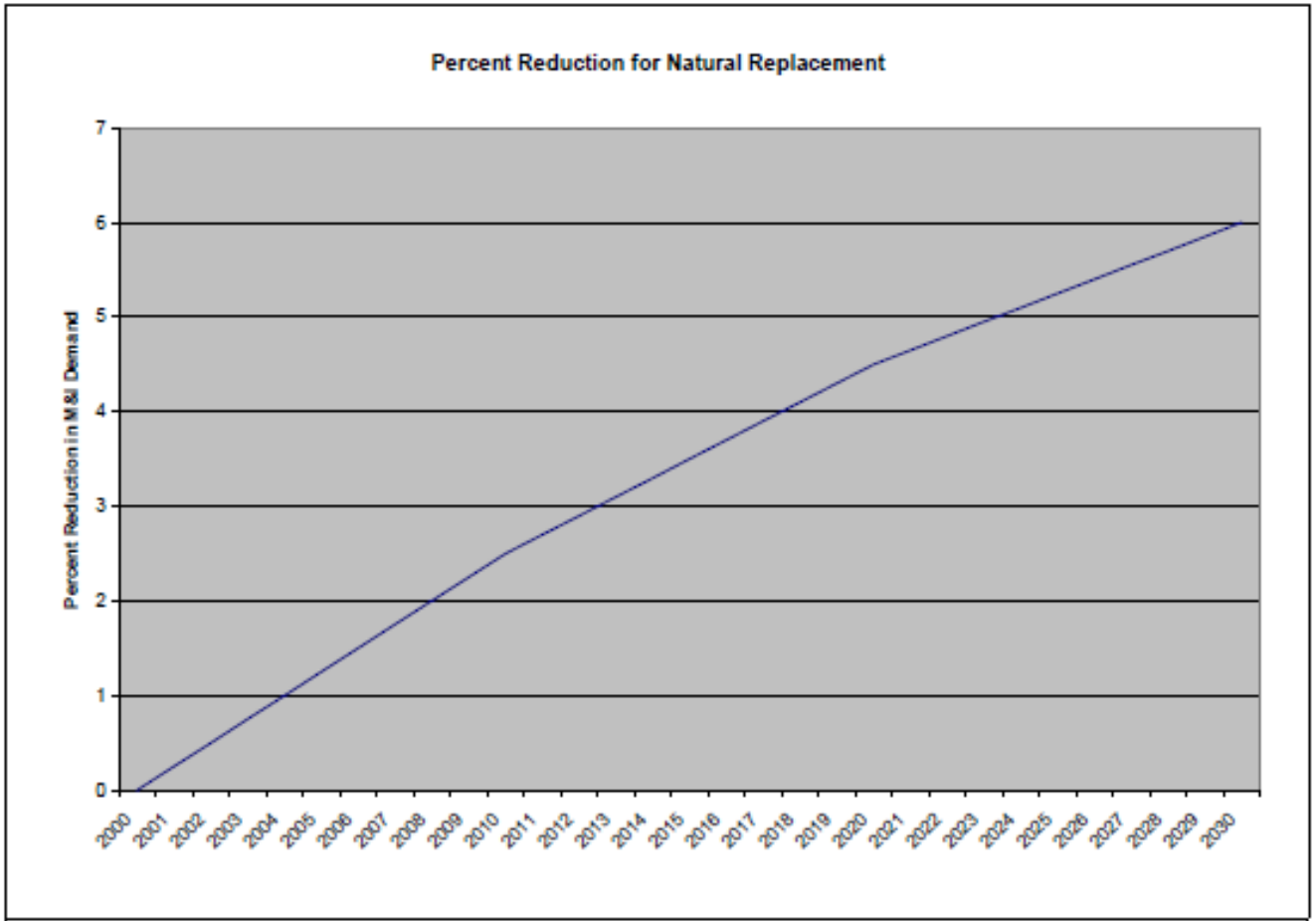
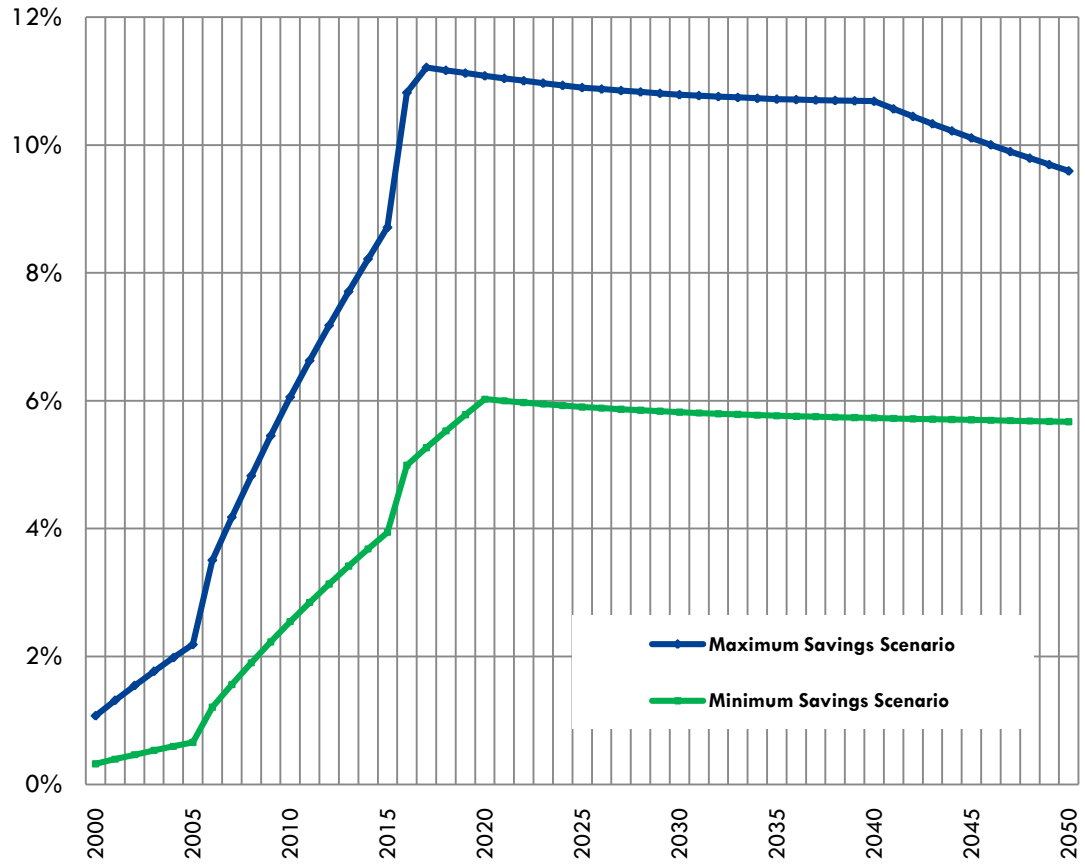


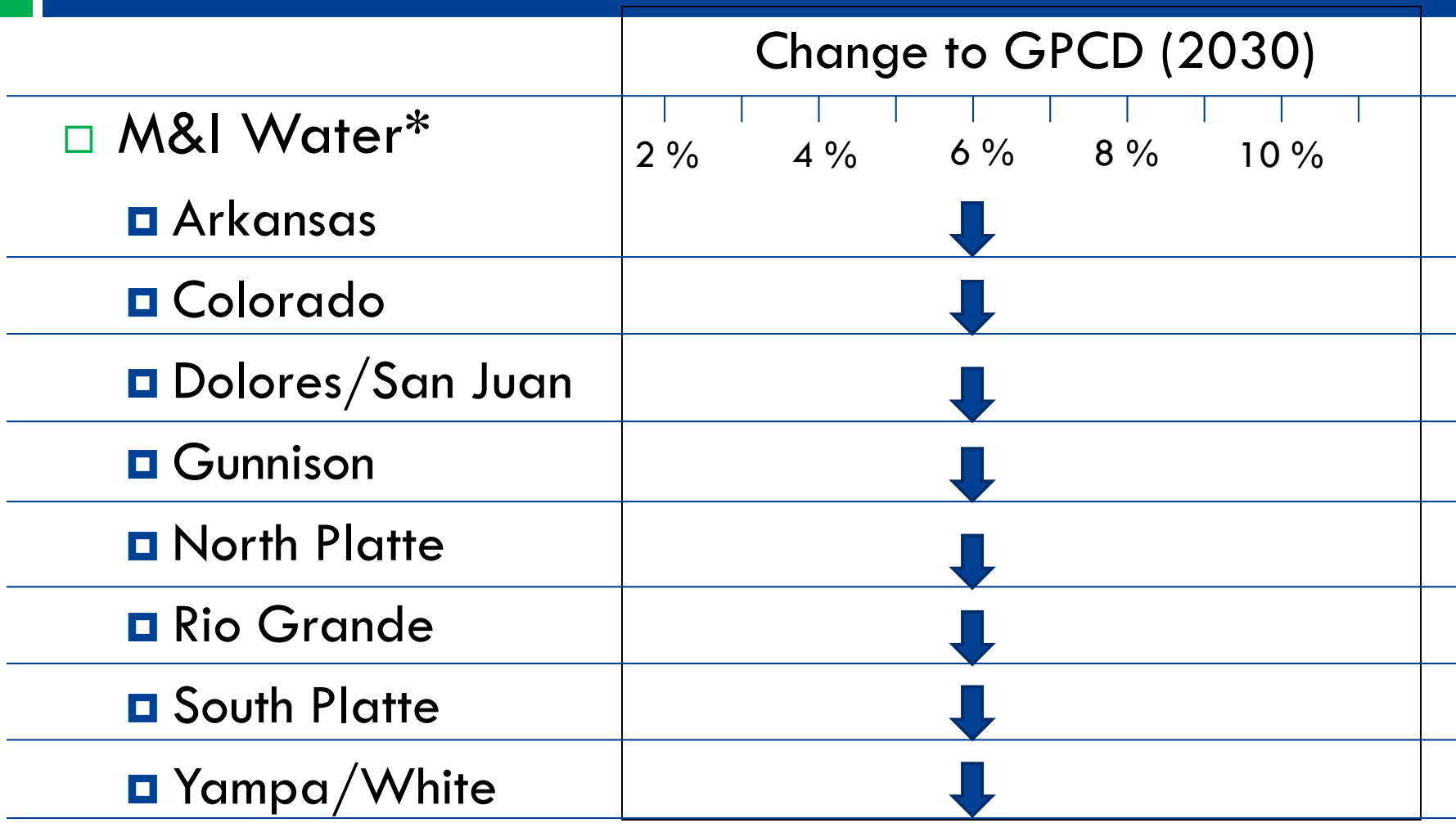
FIGURE 4
PERCENT REDUCTION FROM PASSIVE CONSERVATION

Passive Savings % Reduction Curve 2000 - 2050

Figure 7 - Percent Statewide Demand Reduction From Passive Savings



Comparison of SWSI I to Passive Savings Analysis



* As percent of M&I demand without inclusion of self-supplied water supplies

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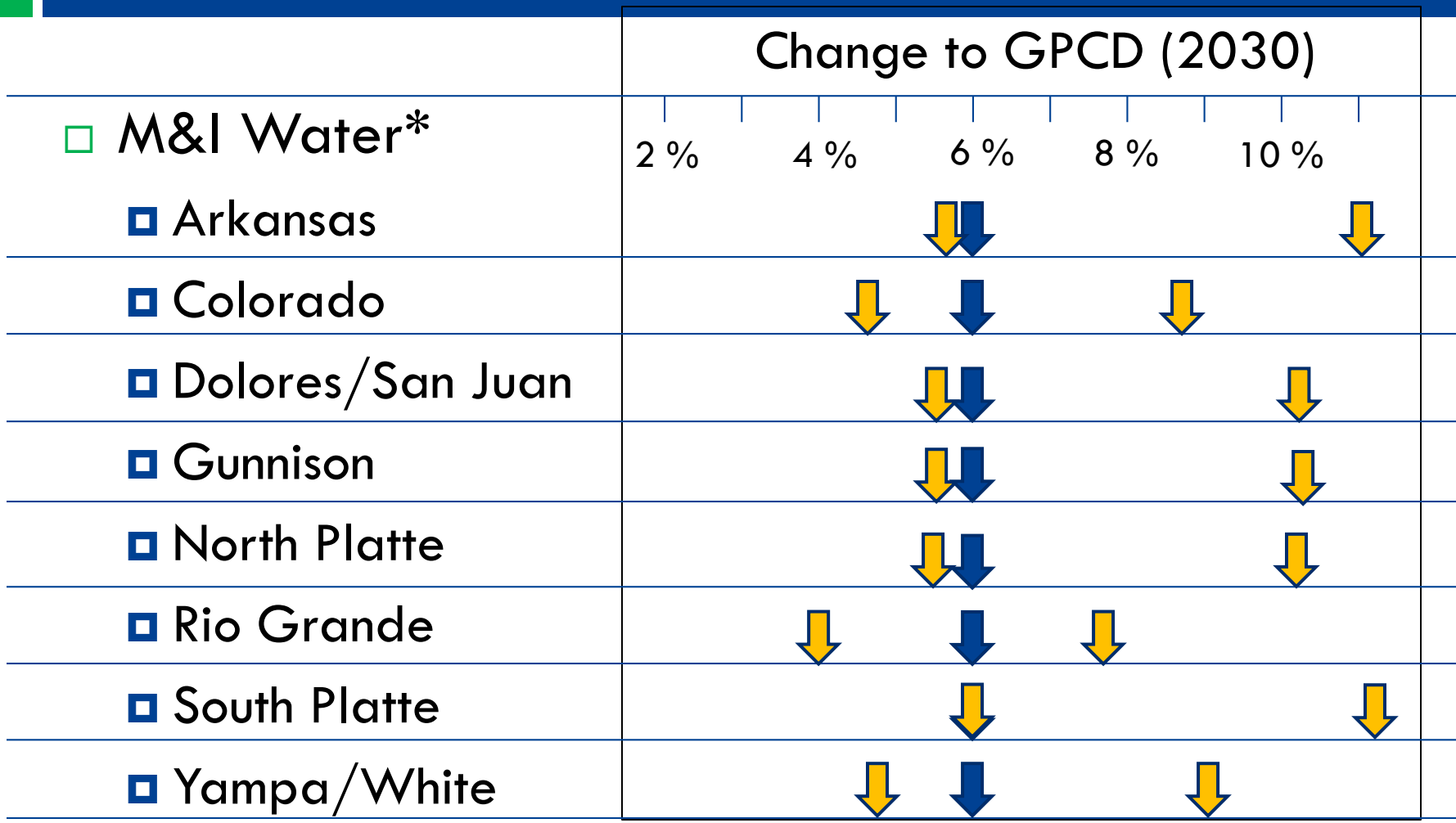

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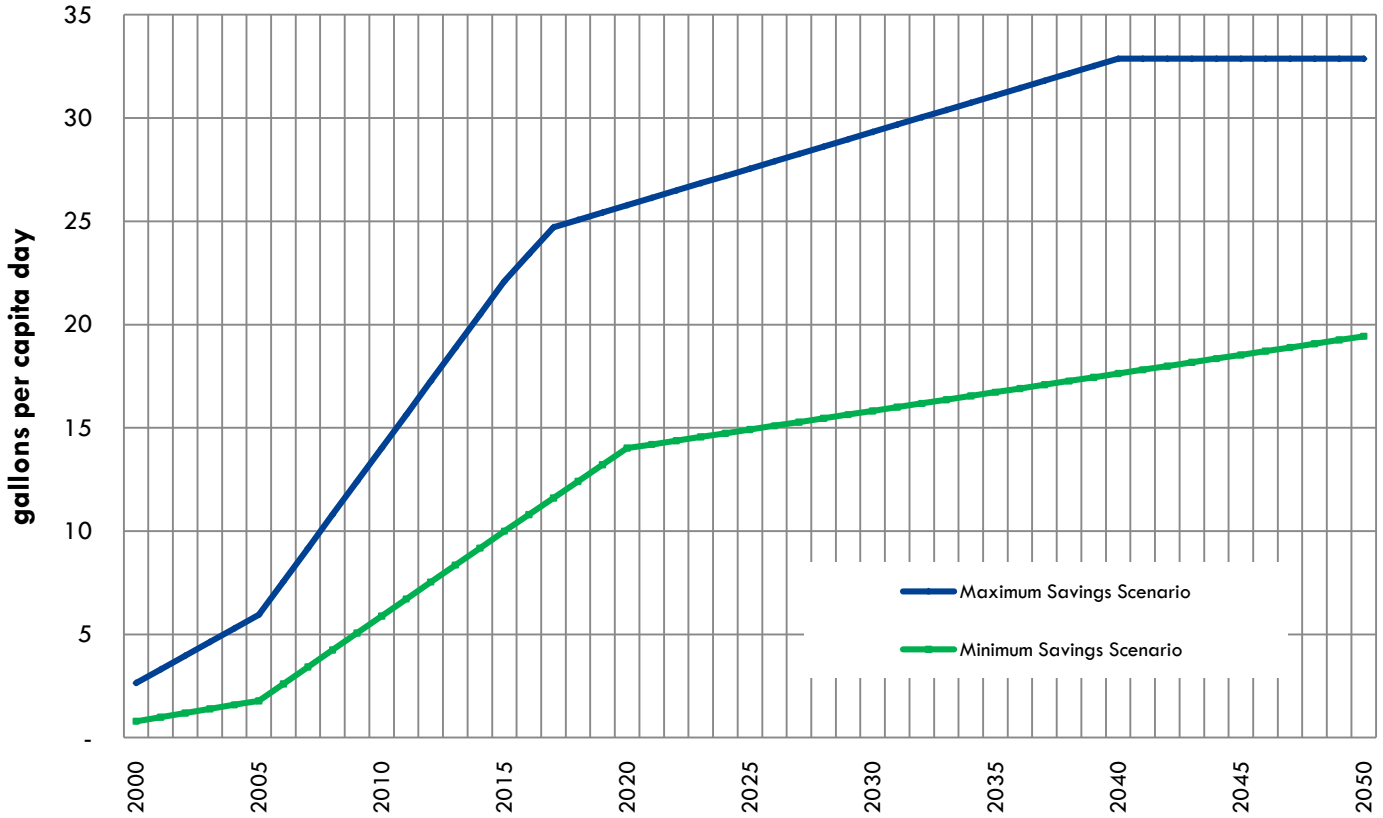
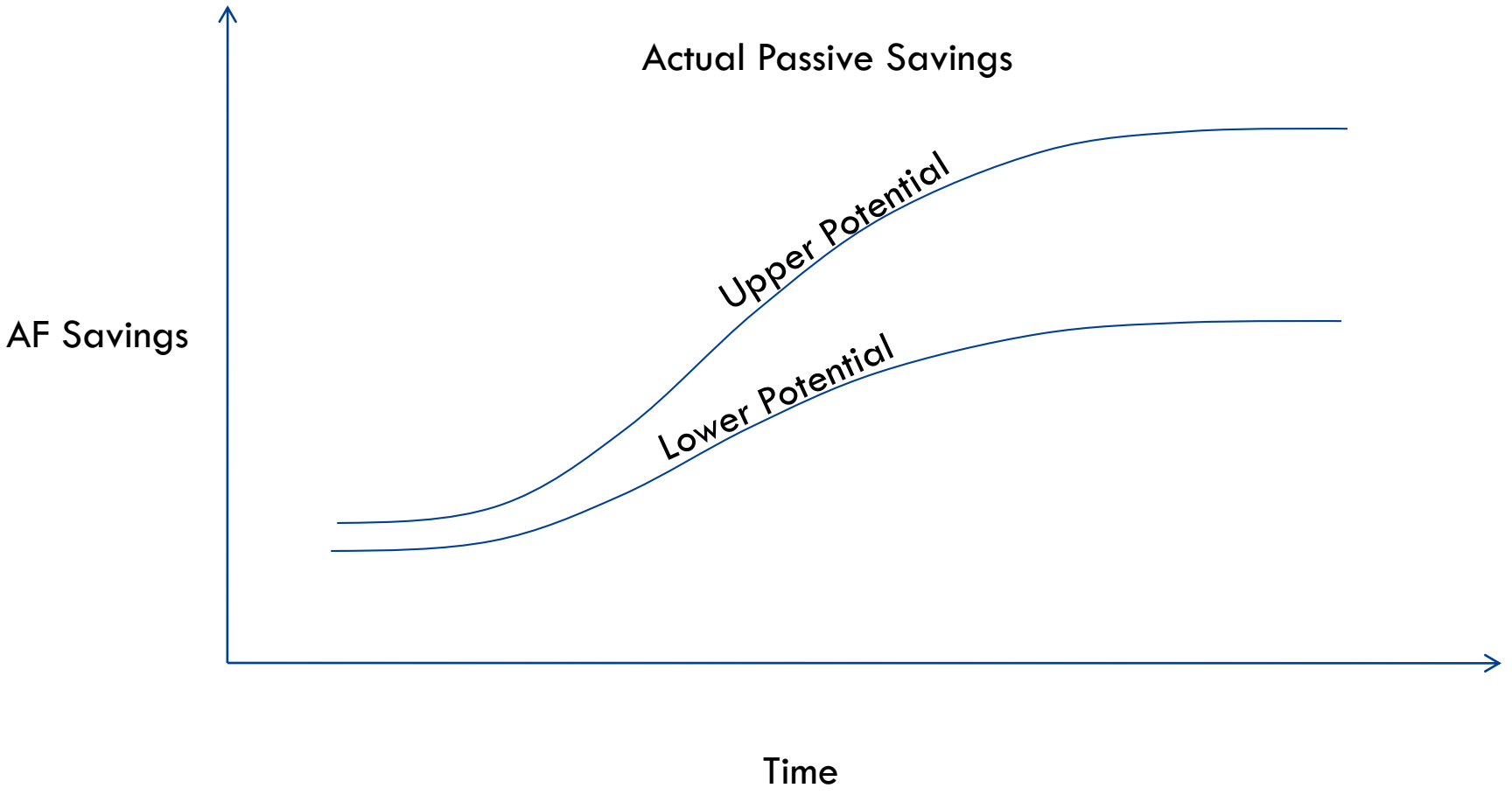
GPCD Reduction versus Time

Figure 8 - Reduction of GPCD Due to Passive Savings



Context of Passive Savings Estimate



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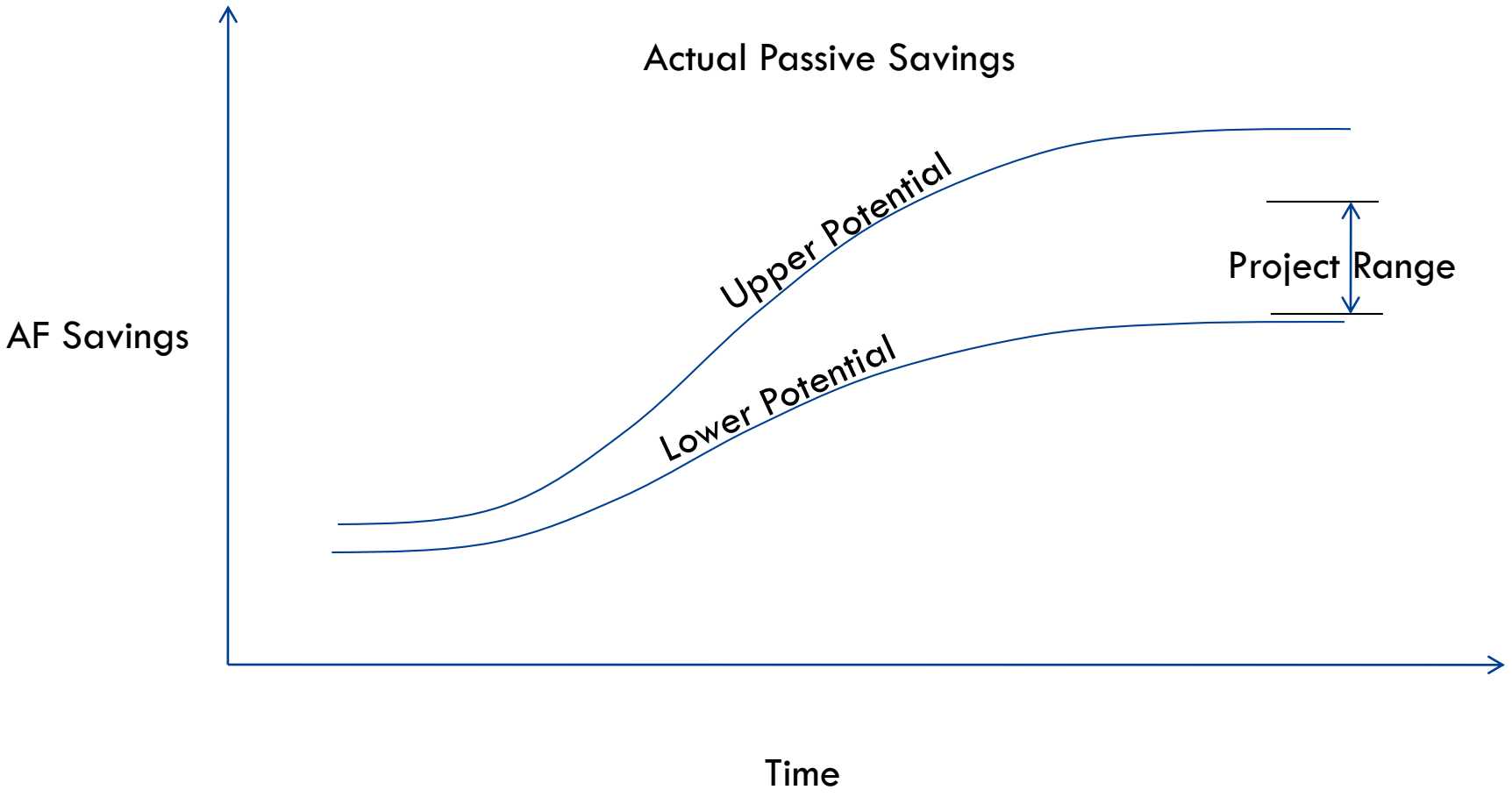


Summary of AF Passive Savings

Acre Feet Savings for Period 2008 to 2050		
	Minimum	**Maximum**
Arkansas	19,000	28,400
Colorado	6,600	10,000
Dolores/San Juan	2,200	3,300
Gunnison	2,250	3,400
North Platte	30	40
Rio Grande	950	1,400
South Platte	76,000	106,000
Yampa/White	950	1,450
Statewide[1]	102,500	154,000

[1] Statewide totals have been rounded

Water Conservation Plans

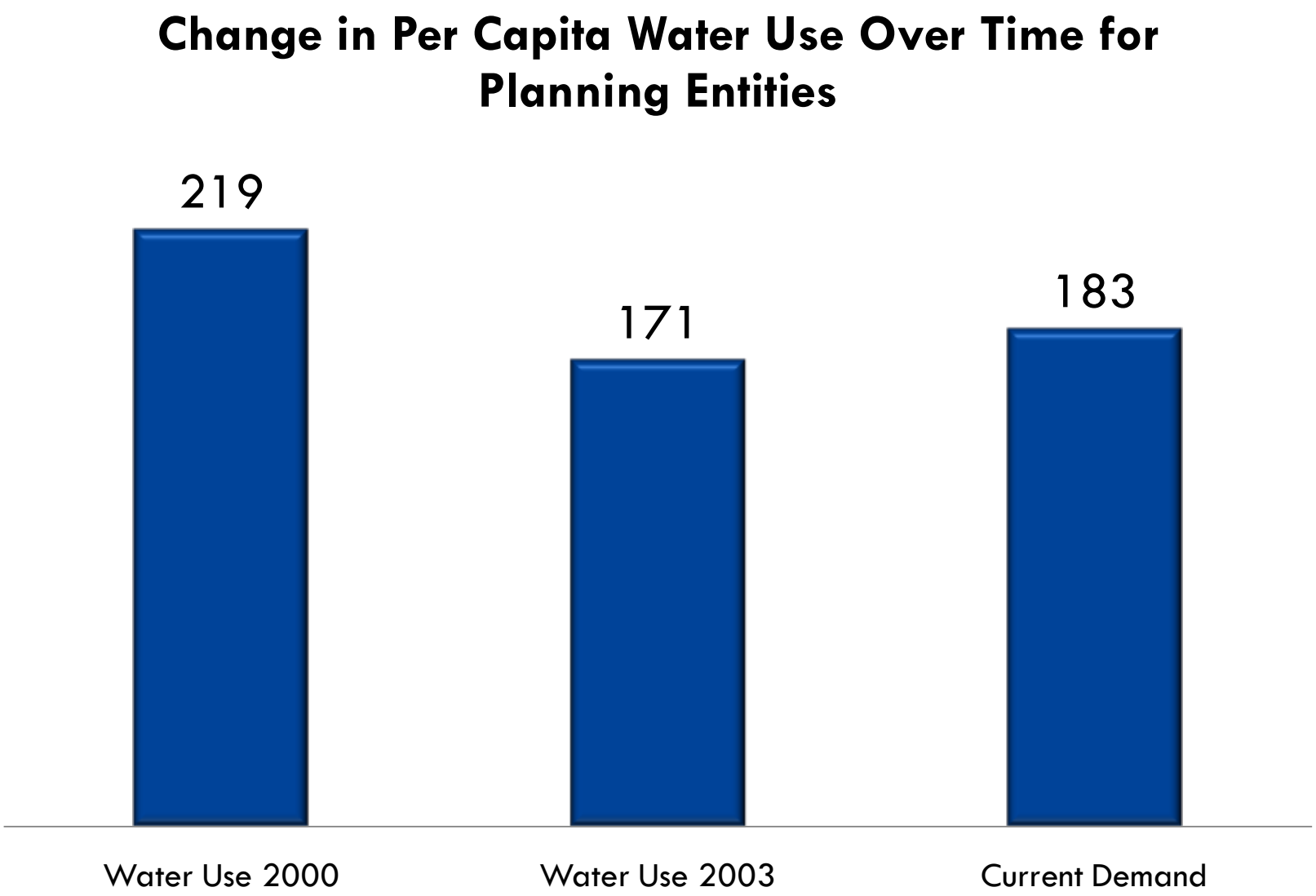
Water Conservation Plan Review

- 30 Plans (January 2010)
- Evaluated Impact of the Drought on Per Capita Water Use
- Cataloged:
  - Selected Measures and Programs
  - Budgets
  - Predicted Demand Reductions
- Interpreted Positives and Negatives

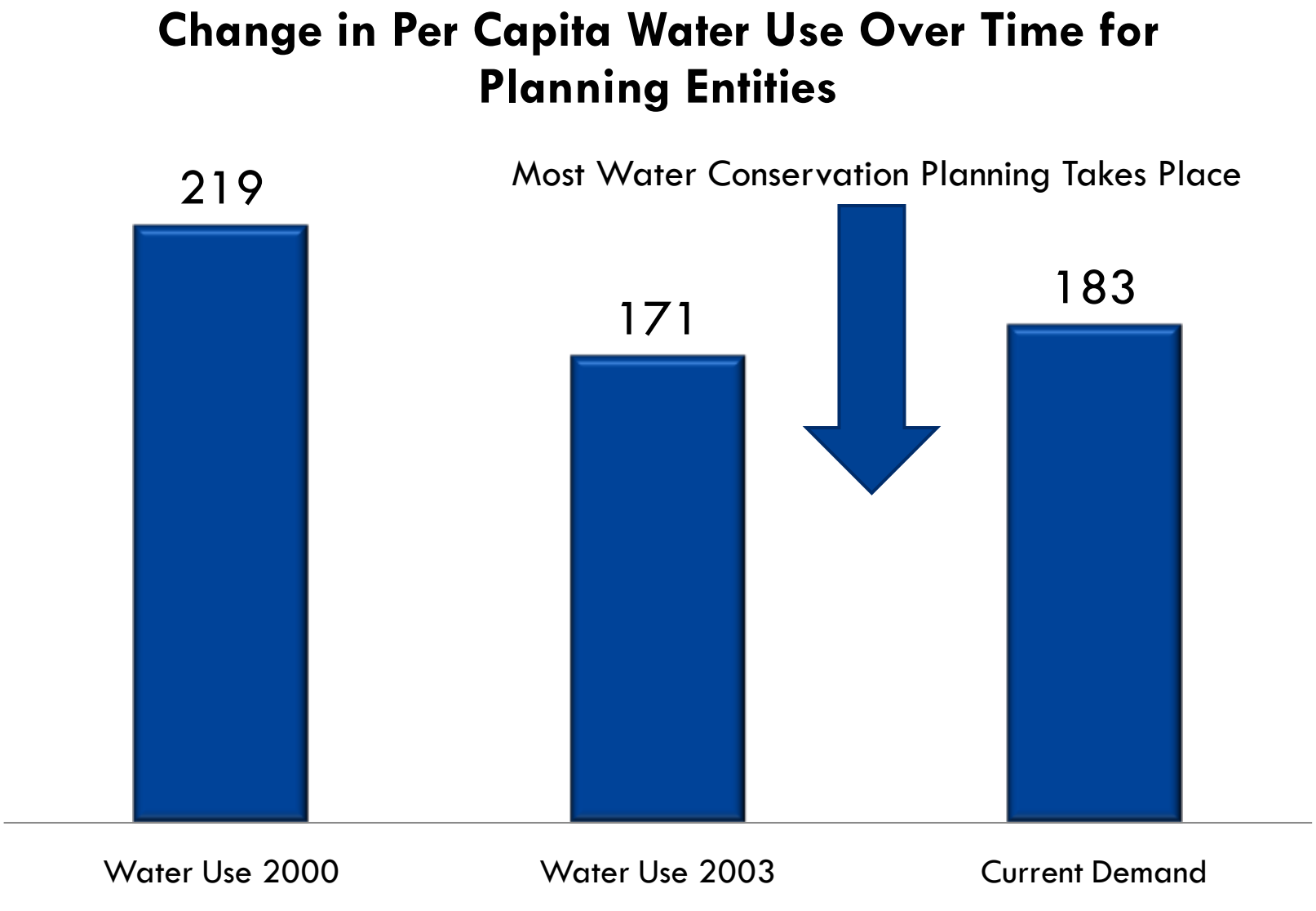
Table 1 – List of Water Conservation Plans on File with the CWCB

Alamosa, City of	Fort Collins-Loveland Water District
Arapahoe County WWA	Fort Lupton, City of
Aurora, City of	Fort Morgan, City of
Boulder, City of	Fountain, City of
Brighton, City of	Greeley, City of
Castle Pines North	Left Hand Water District
Castle Rock, Town of	Longmont, City of
Centennial Water and Sanitation	Northglenn, City of
Cherokee Metro District	North Table Mountain
Colorado Springs Utilities	North Weld County
Denver Water	Pagosa Area Water and Sanitation
East Larimer County	Parker Water and Sanitation
Erie, Town of	Rifle, City of
Evans, City of	Salida, City of
Firestone	Windsor, Town of

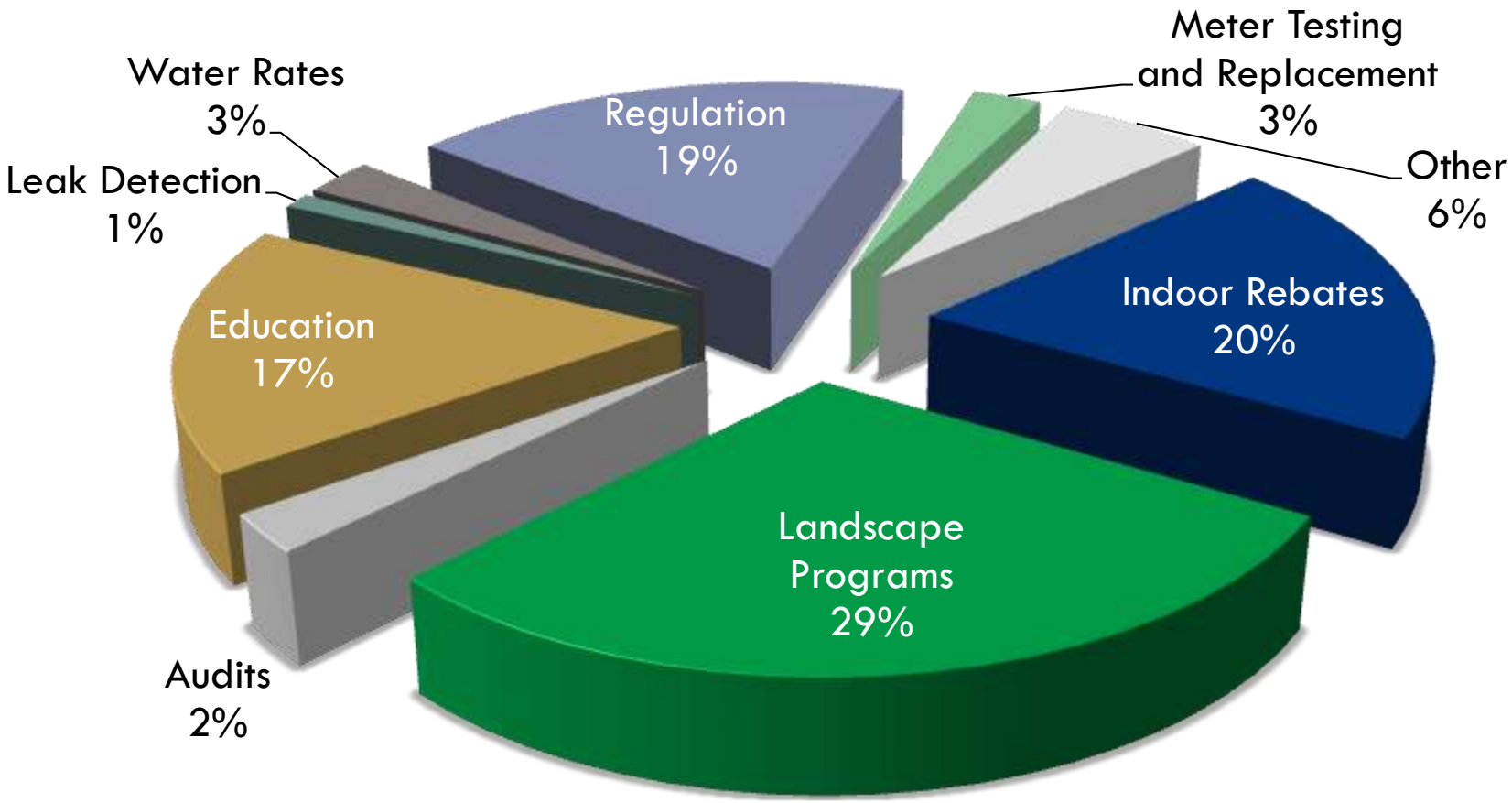
Impact of Drought on Per Capita Water Use



Impact of Drought on Per Capita Water Use

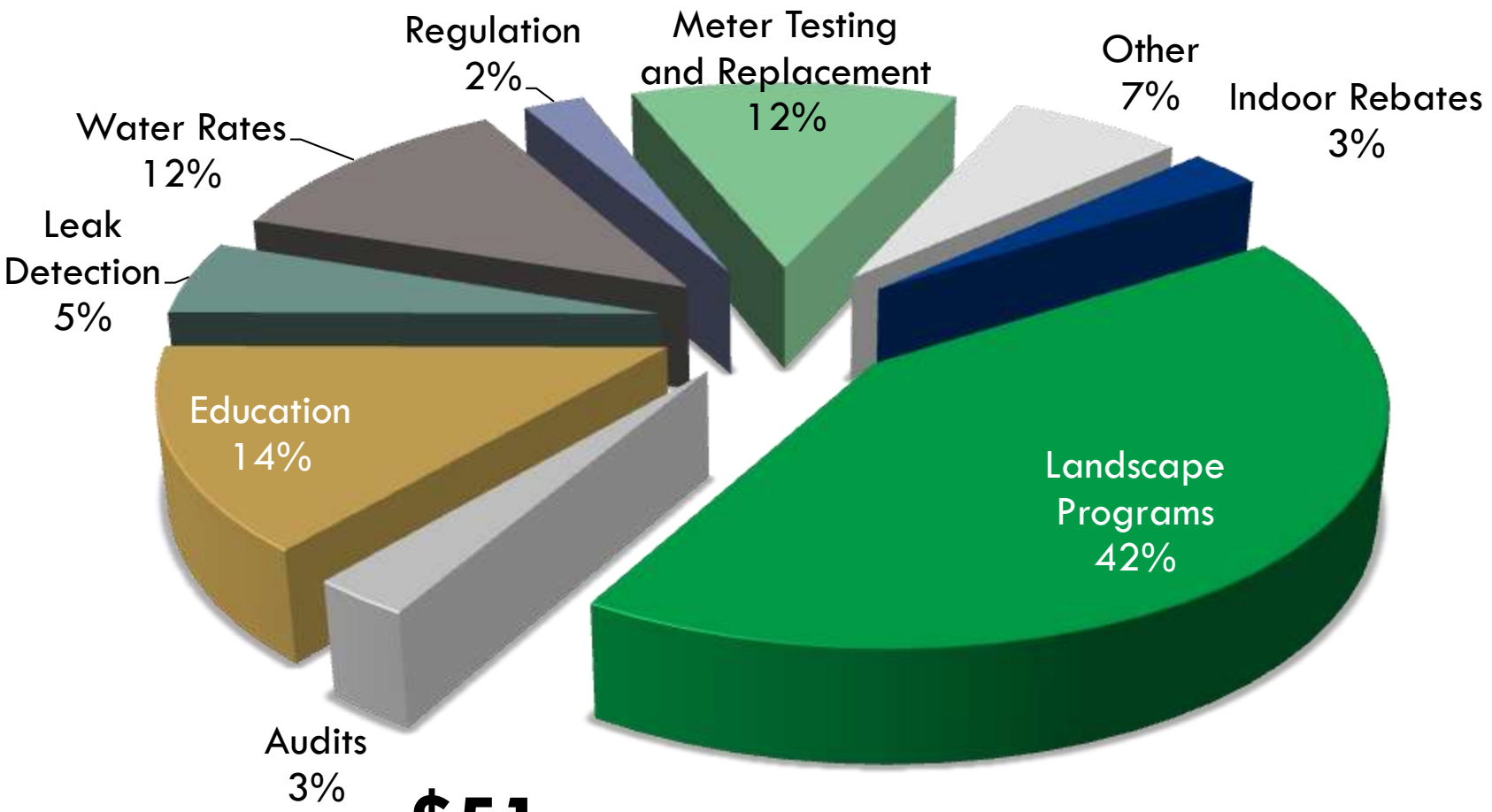


Spending By Utilities



$246 million in 10 years

Spending By Utilities



$51

~~$246~~ million in 10 years

Water Demand Reductions

- SWSI I
  - 12% Reduction Statewide by 2030 (2.3 to 13.6% depending on geography) for Combined Passive and Active
  - Passive Savings 51,000 AF by 2030
  - Active Savings 51,000 AF by 2030

Water Demand Reductions

- 67,000 AF by 2017
- About 1% per year per utility
- $245 to 37,000/AF demand reductions
- Average - $6,300/AF

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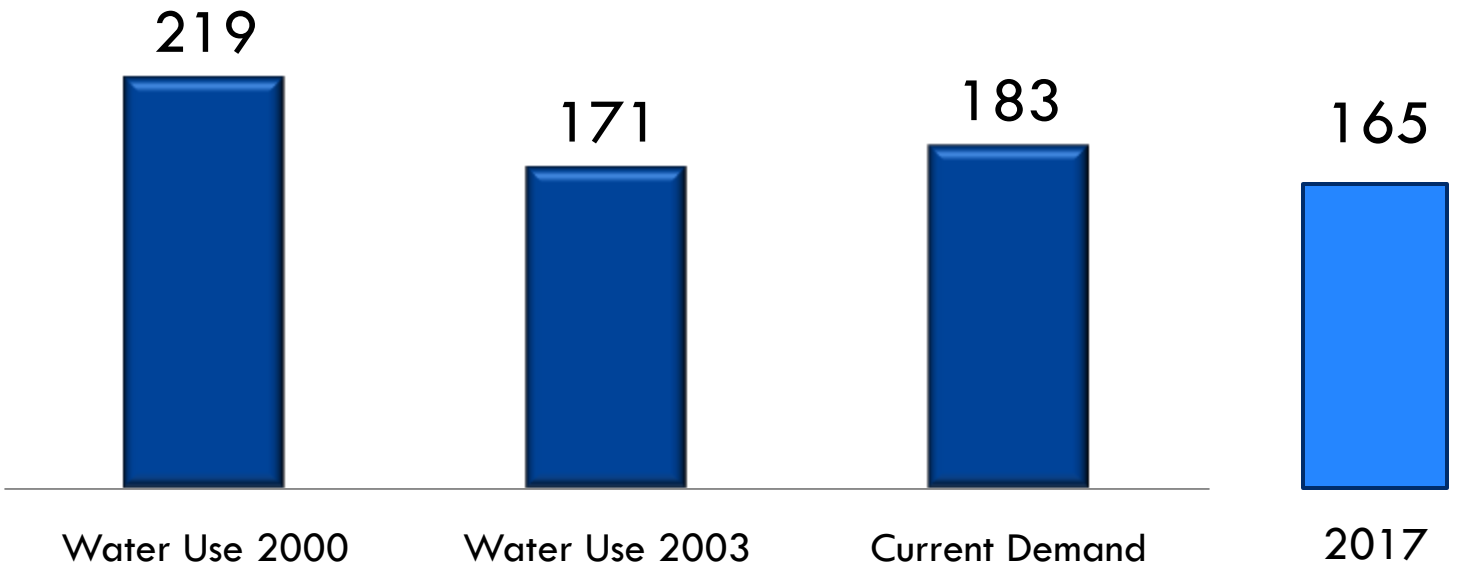


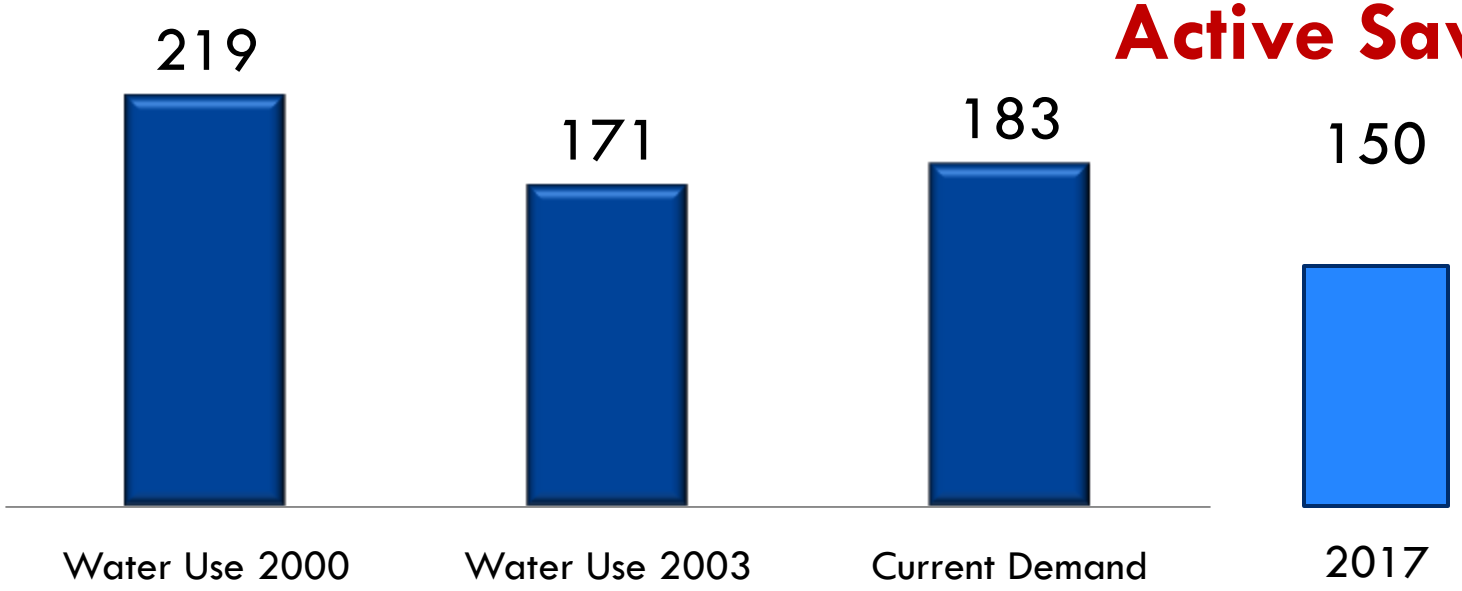
Fly in the Ointment?

- Monitoring and Verification
  - Passive vs. Active
  - Permanency of Savings
  - Customer Behaviors
- Desire for Water Sales

Water Demand Reductions

- 67,000 AF by 2017
- About 1% per year per utility
- $245 to 37,000/AF demand reductions
- Average - $6,300/AF

With Passive and Active Savings

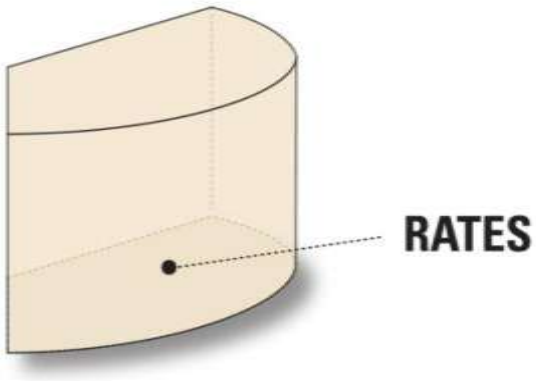


New Framework

- Goals
  - Better Focus On Utility Planning
  - Improve Data Collection (Understanding and Verification)
  - Improve Cost/Benefit Analyses
  - Identify What Can and Can Not Be Implemented

Foundational Components - Rates

- Inclining Block Rates
- Submetering
- Water Budgets
- Monthly Meter Reading and Billing
- Online Water Use Information



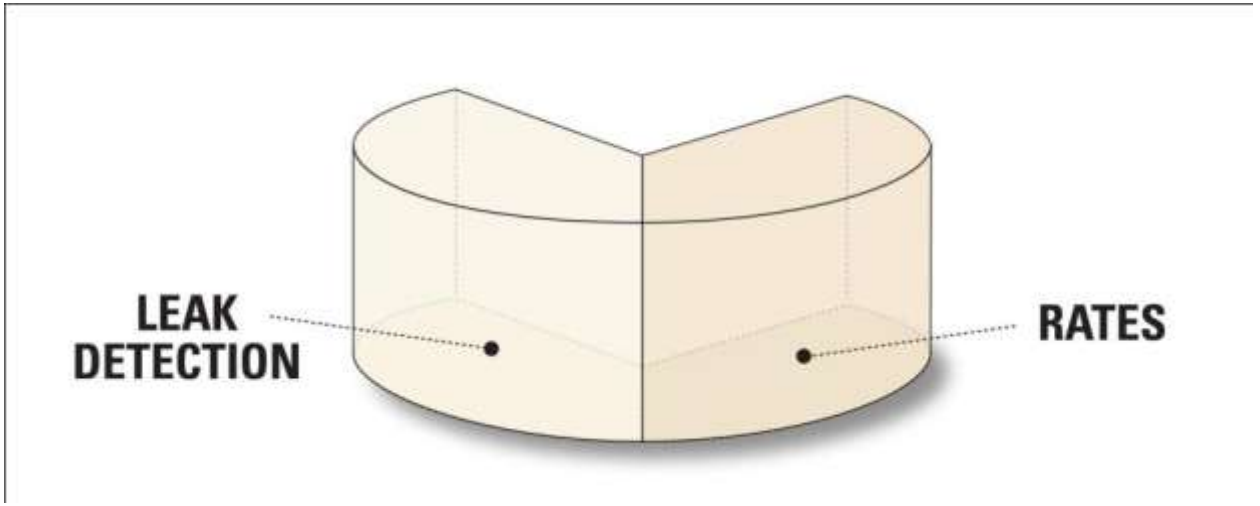
Foundational Components - Leaks

System Wide Audits

Metering Testing and Replacement

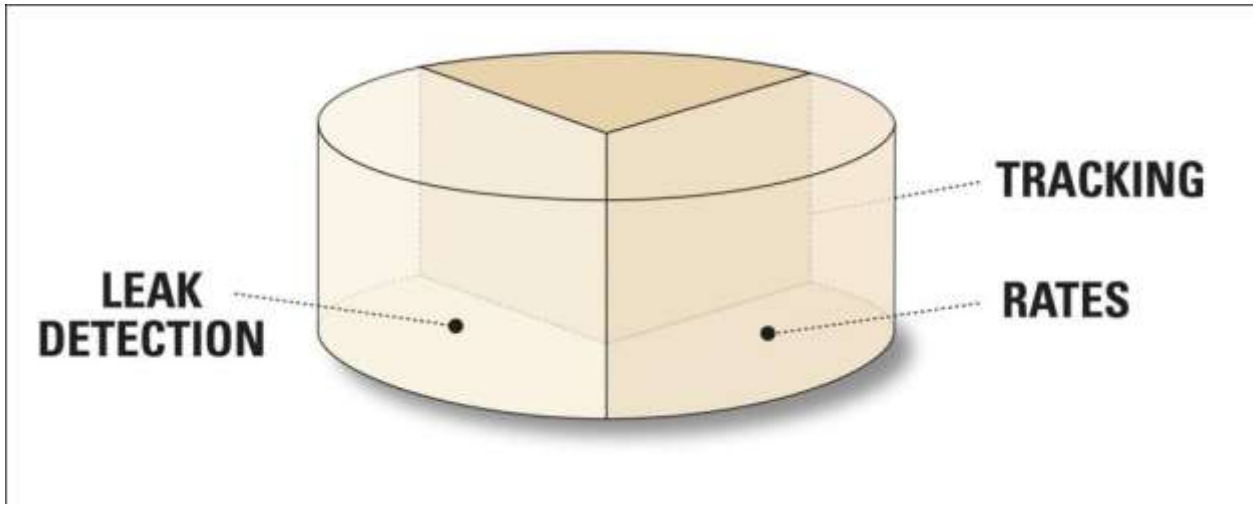
Zonal Metering

AMR



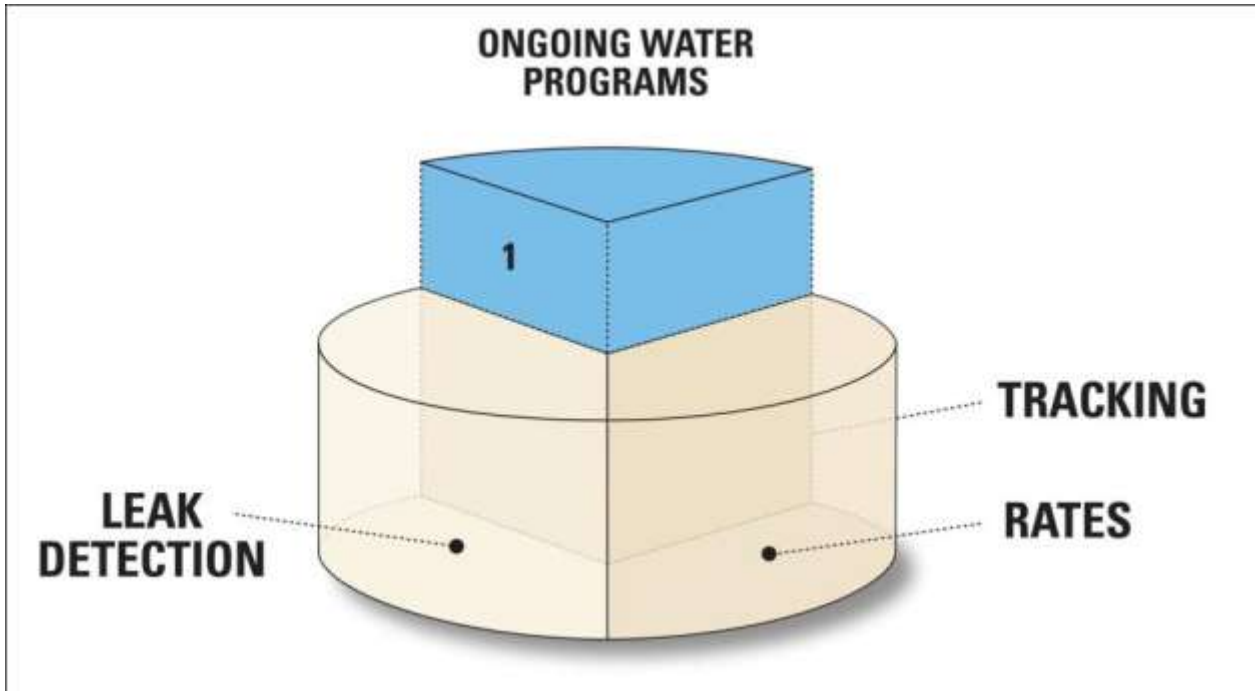
Foundational Components - Track

- Customer Categories
- High Water Users
- Total and Seasonal Demand
- Differentiate BY NAICS Code



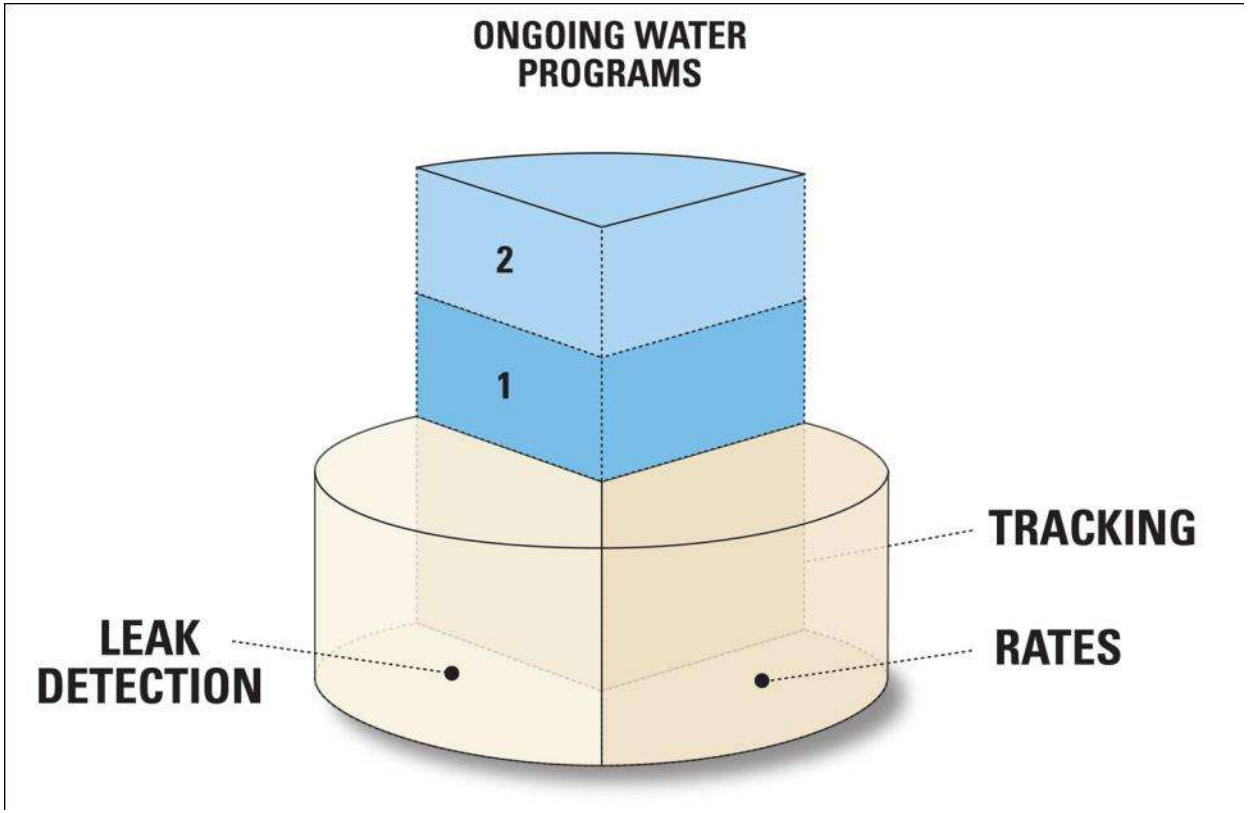
Tiered Programs for Utilities/Districts

- Utility/District /Municipal Demand Reductions
- Parks
- Green Spaces
- Admin Buildings
- Operations
- Rec Centers



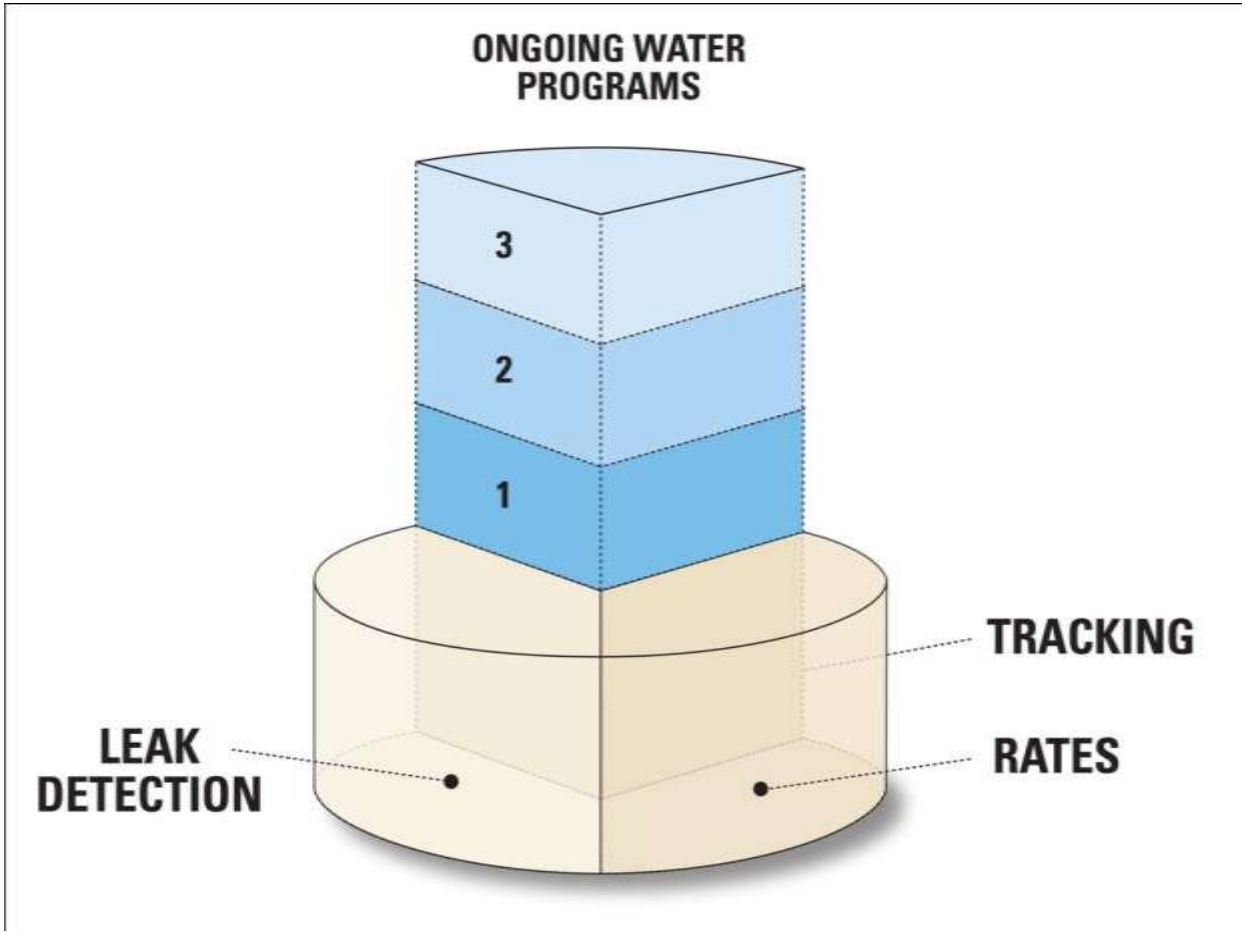
Tiered Programs for Utilities/Districts

- Targeted Customers and Classes
- Audits
- Fixture Replacements
- Irrigation Improvements
- Technical Assistance



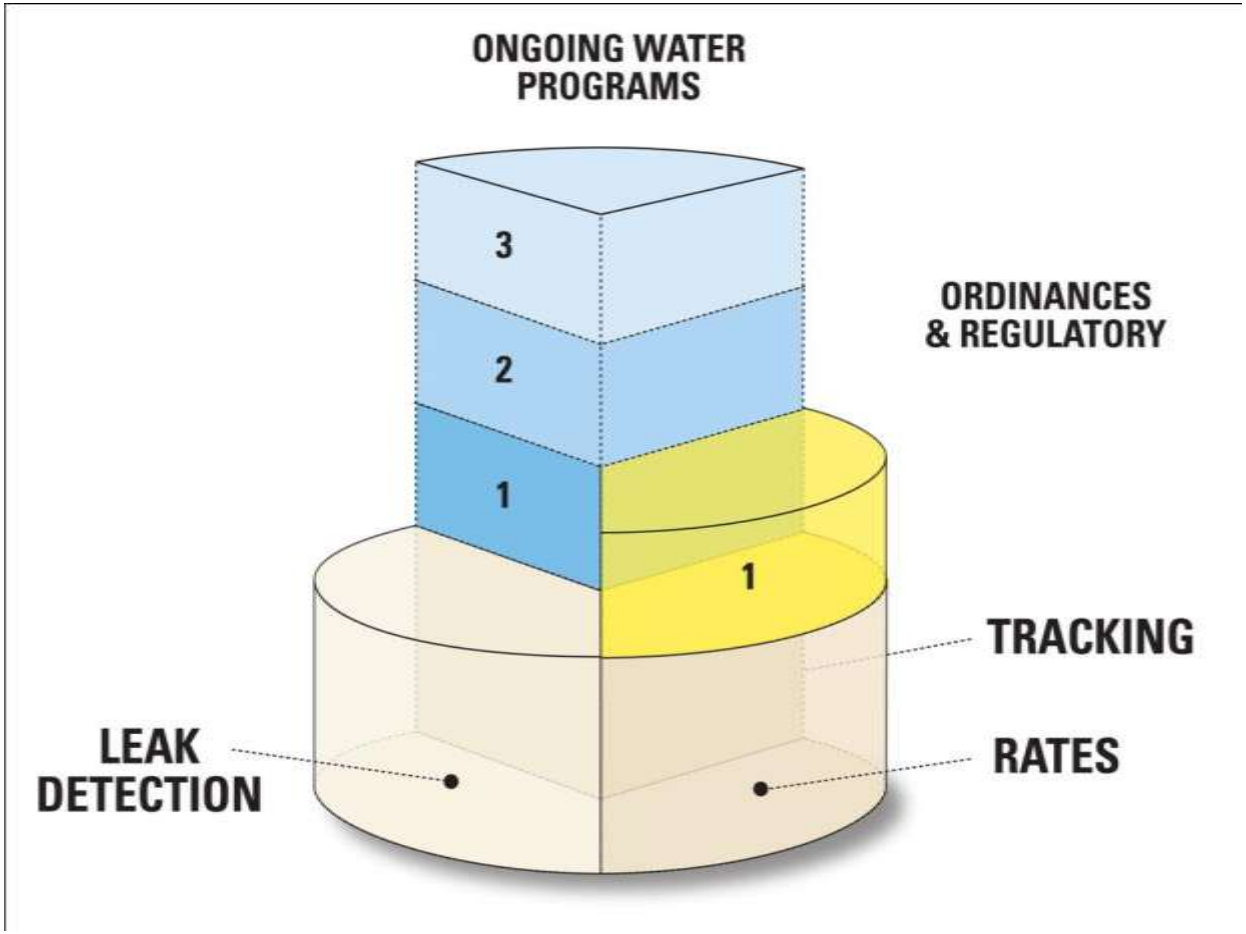
Tiered Programs for Utilities/Districts

Targeted Incentives and Rebates



Tiered Programs for Utilities/Districts

- Water Waste Ordinance
- Timing
- Wet Pavement
- Cooling Water Tower Requirements/ Restrictions



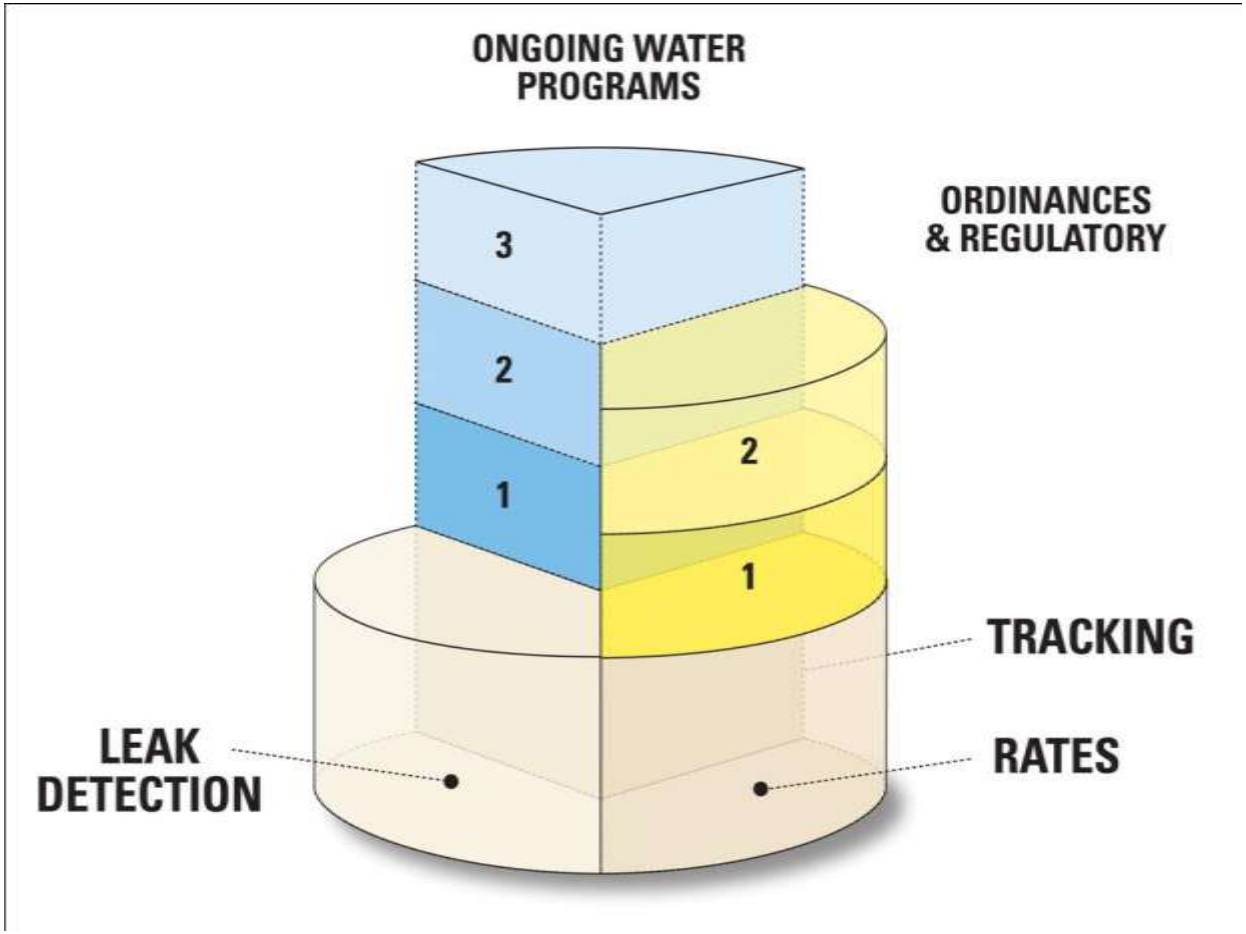
Tiered Programs for Utilities/Districts

New Construction Standards (100% penetration)

Landscape and Irrigation

Indoor Fixtures and Appliances

Water Sense Homes



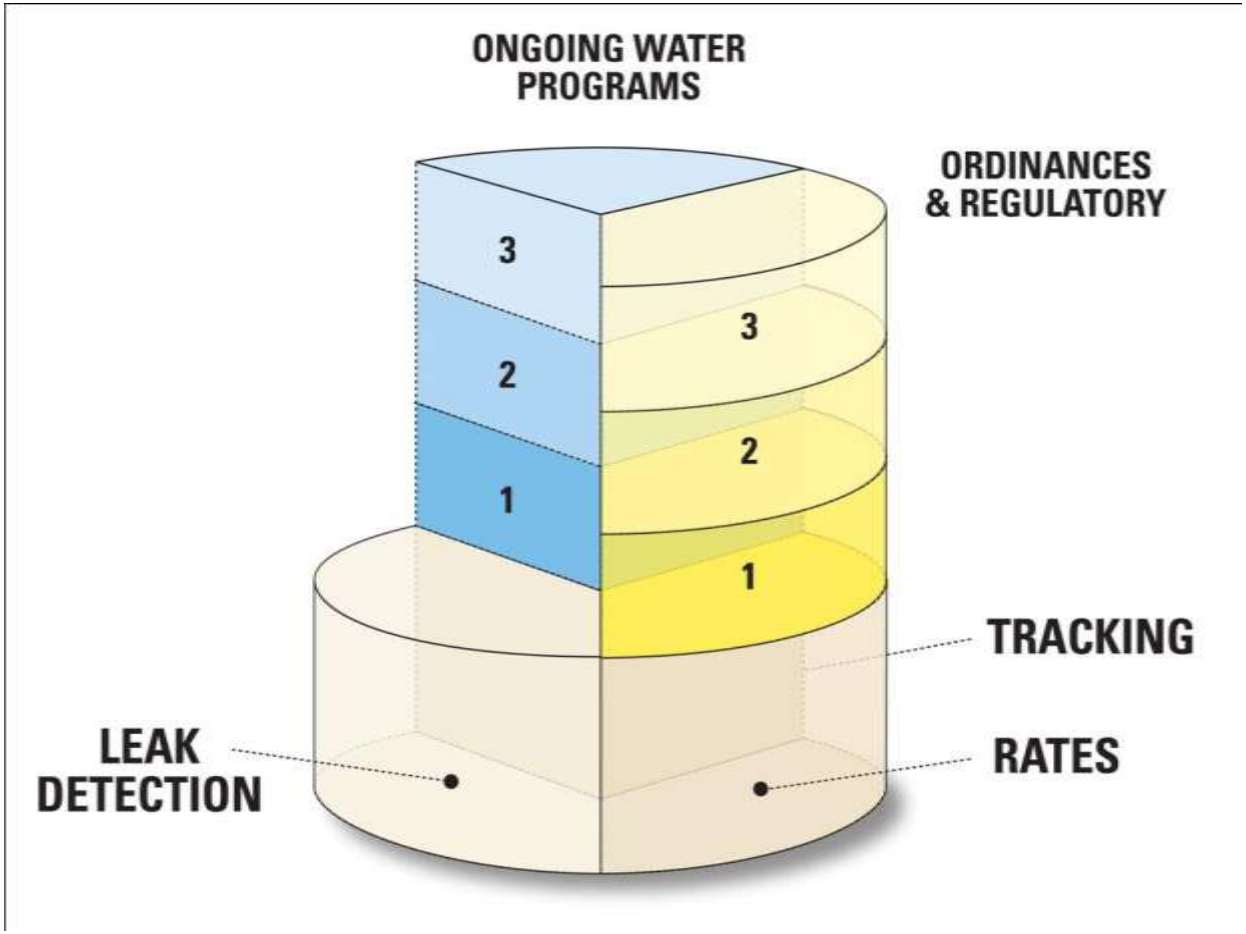
Tiered Programs for Utilities/Districts

Existing Construction Retrofits (100% penetration)

Point of Sales

Reconnect and Retrofit

Certifications and Licensing



Tiered Programs for Utilities/Districts

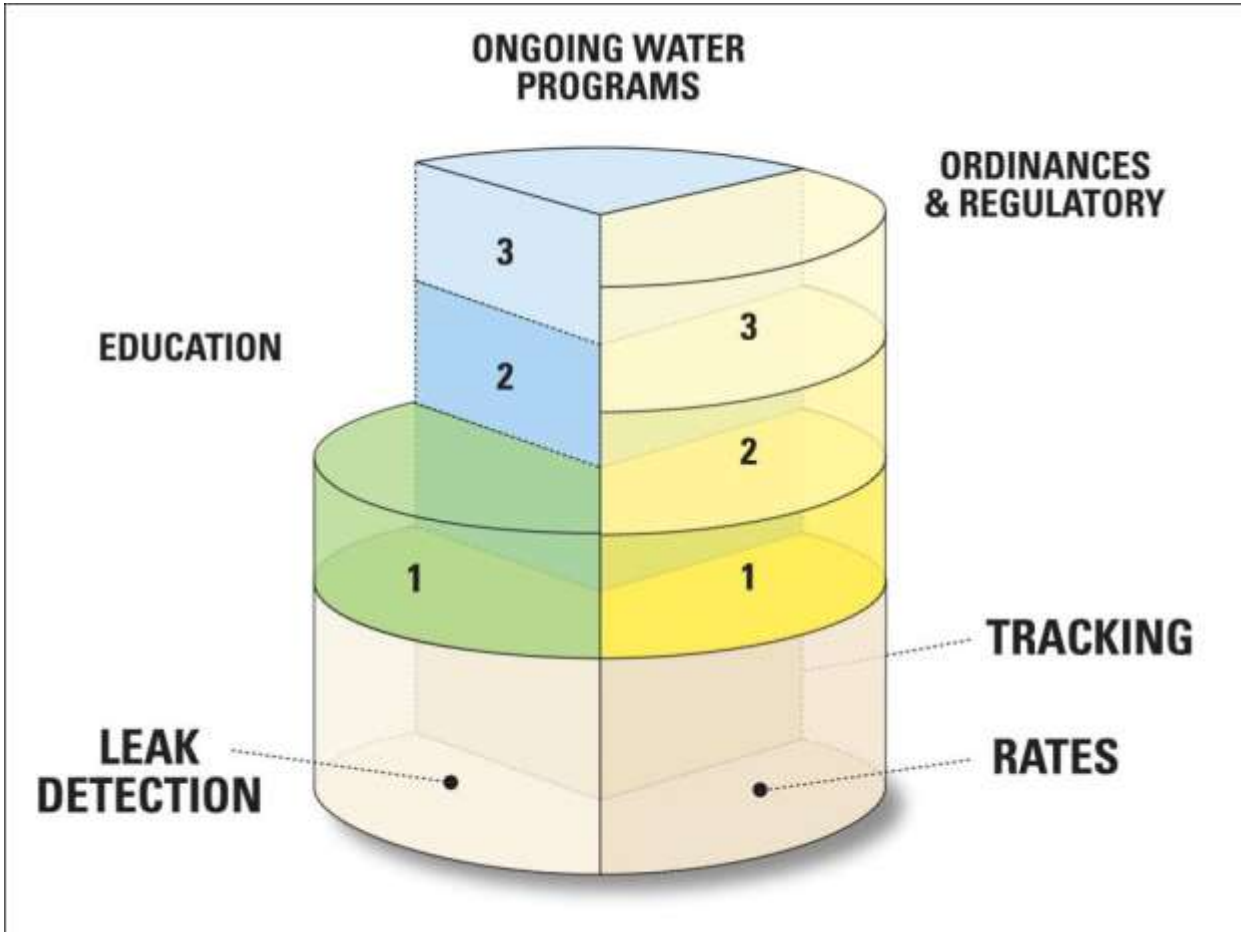
One Way

Bill Stuffers

Website Postings

Mass Mailings

Xeriscape Demo Garden



Tiered Programs for Utilities/Districts

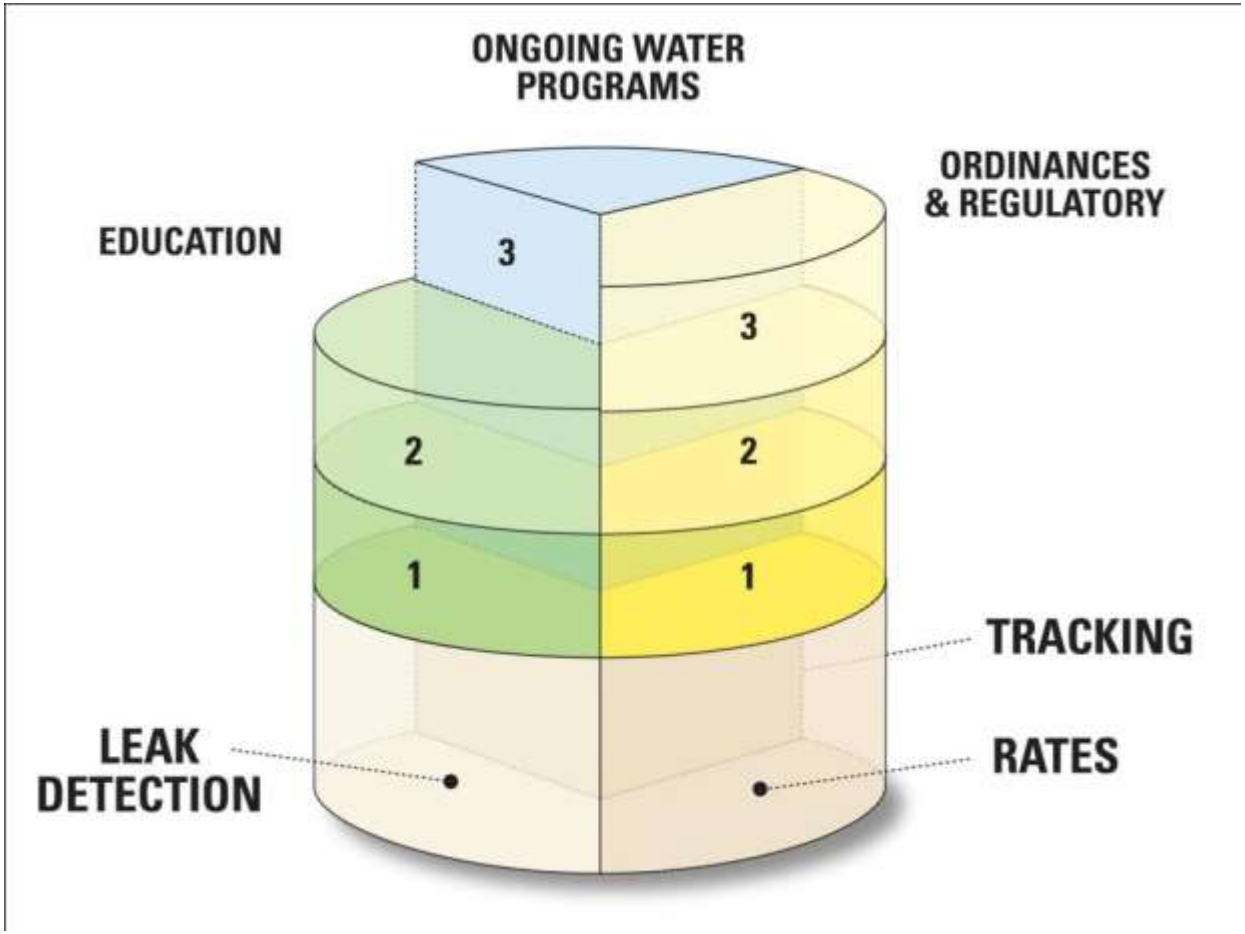
One-Way with Some Feedback

K-12 Education

Water Fairs

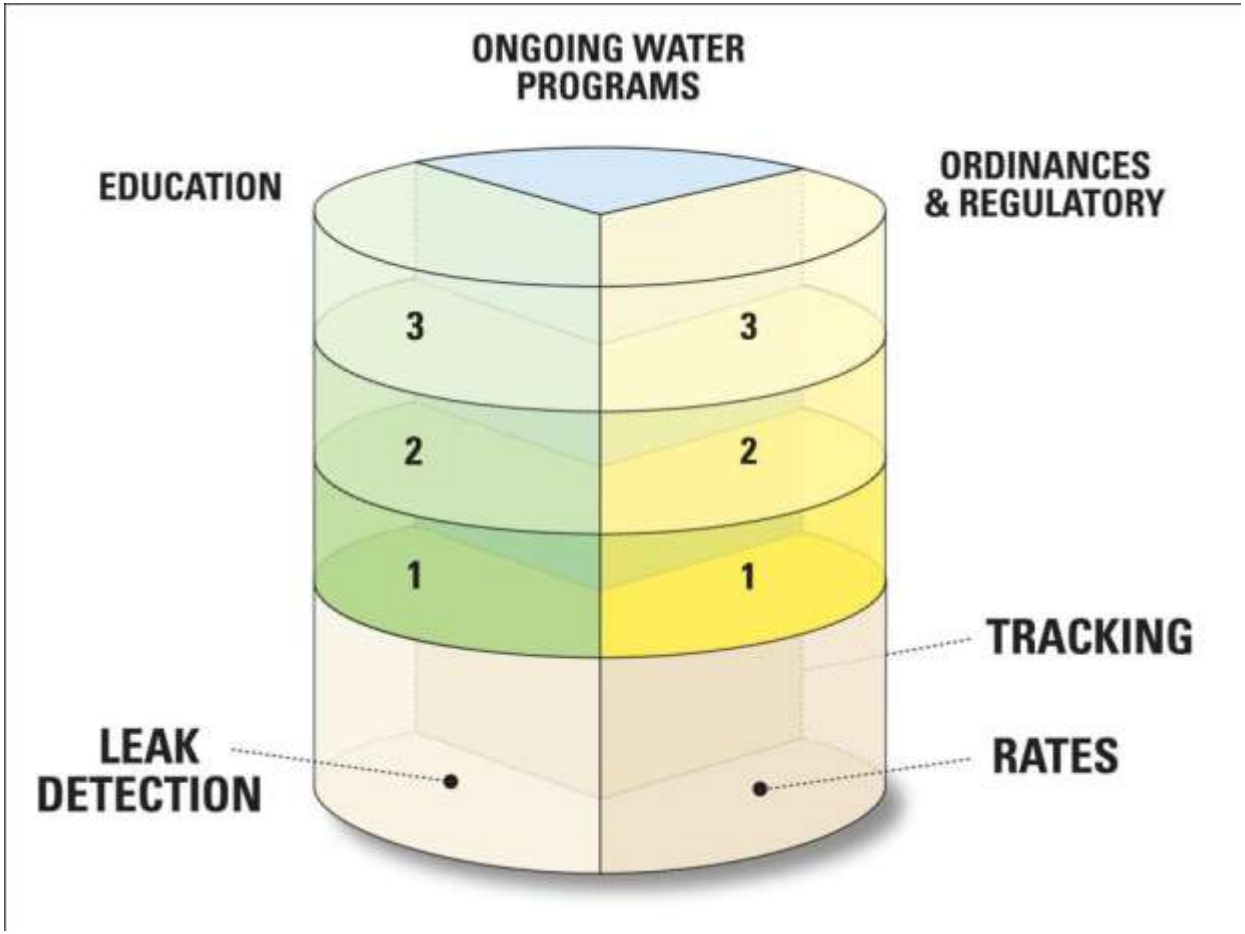
Consistent Messaging

Interactive Website (with tracking)



Tiered Programs for Utilities/Districts

- Two-Way
- Citizen Advisory Board
- Focus Groups
- Social Marketing



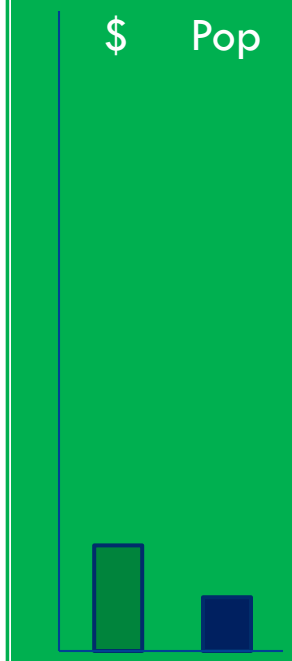
How Do Current Plans Stack Up?

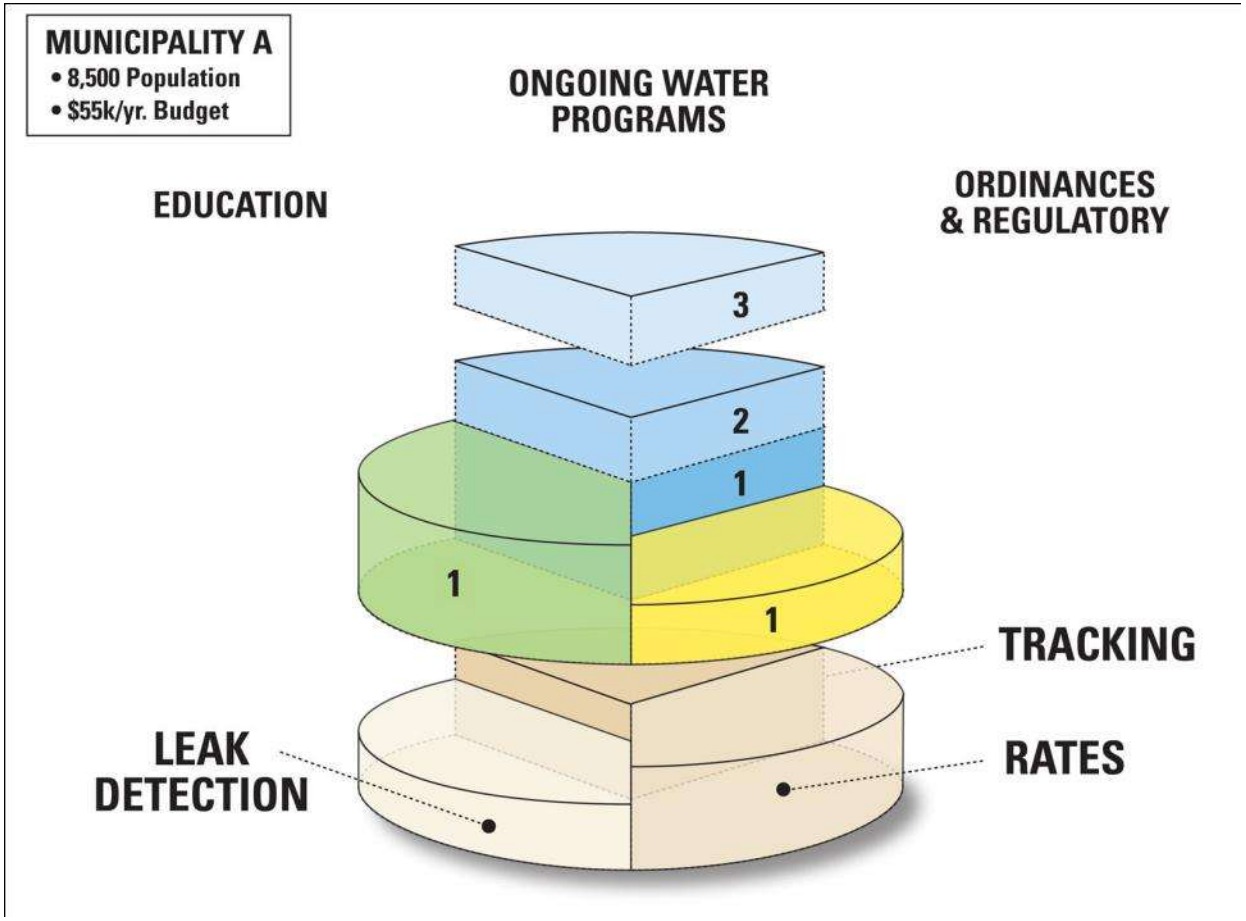
- Look at Six Plans
- East and West Slope
- Small and Mid-Sized Communities
- Proposed Programs (not necessarily implemented)

Example from Submitted Plans

Municipality A

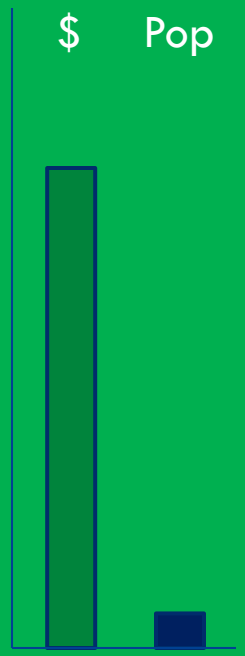
$ Pop

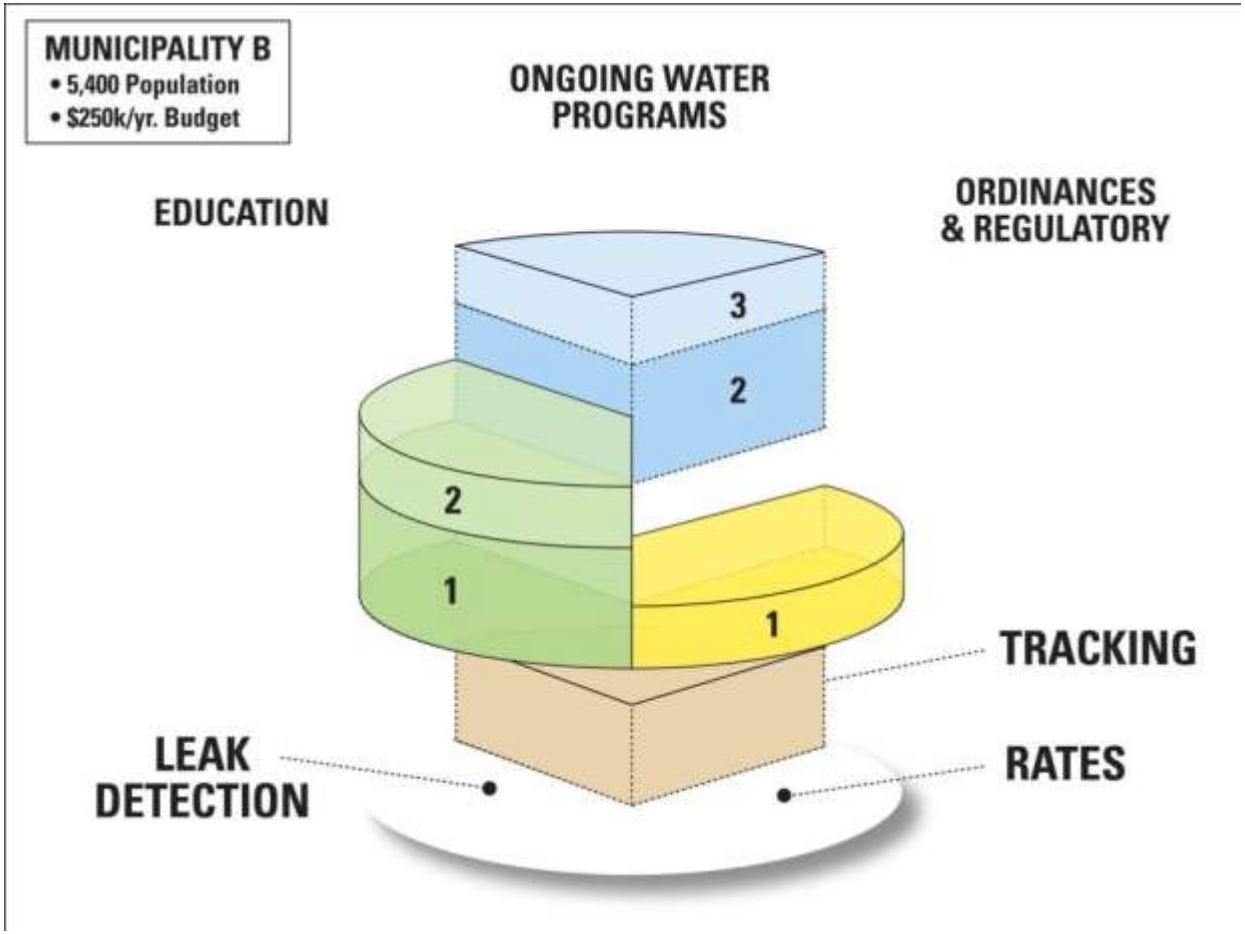




Example from Submitted Plans

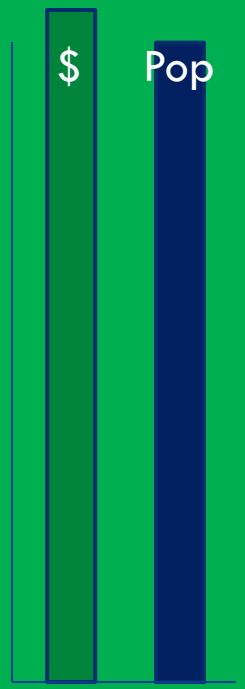
Municipality B

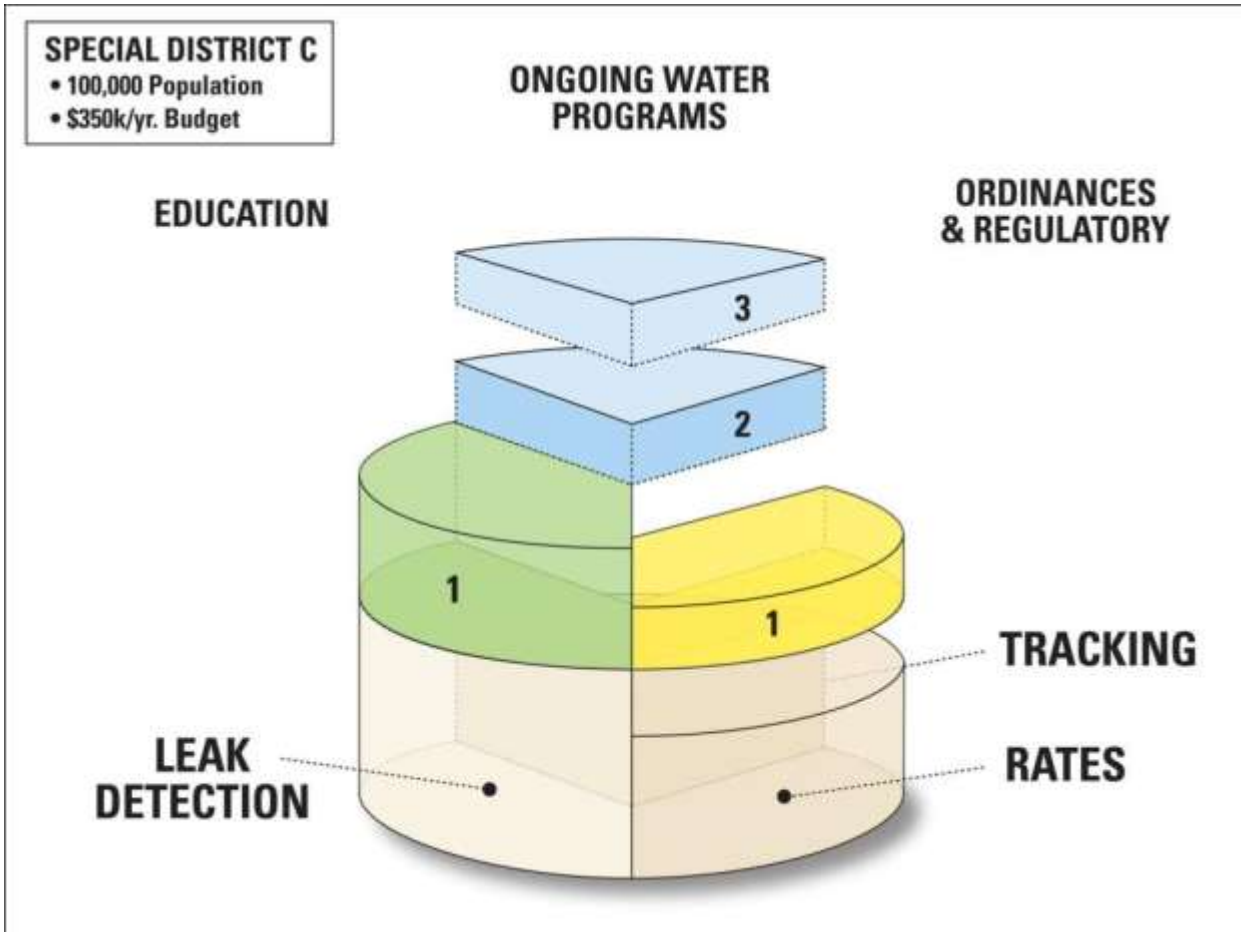




Example from Submitted Plans

Municipality C

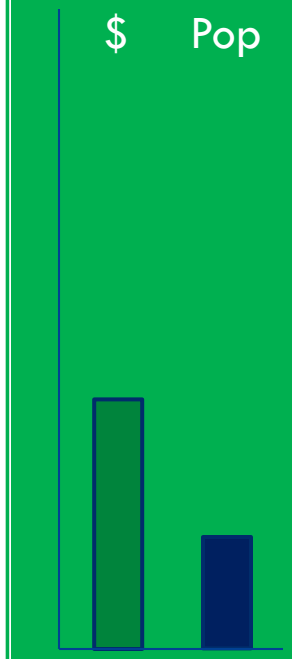


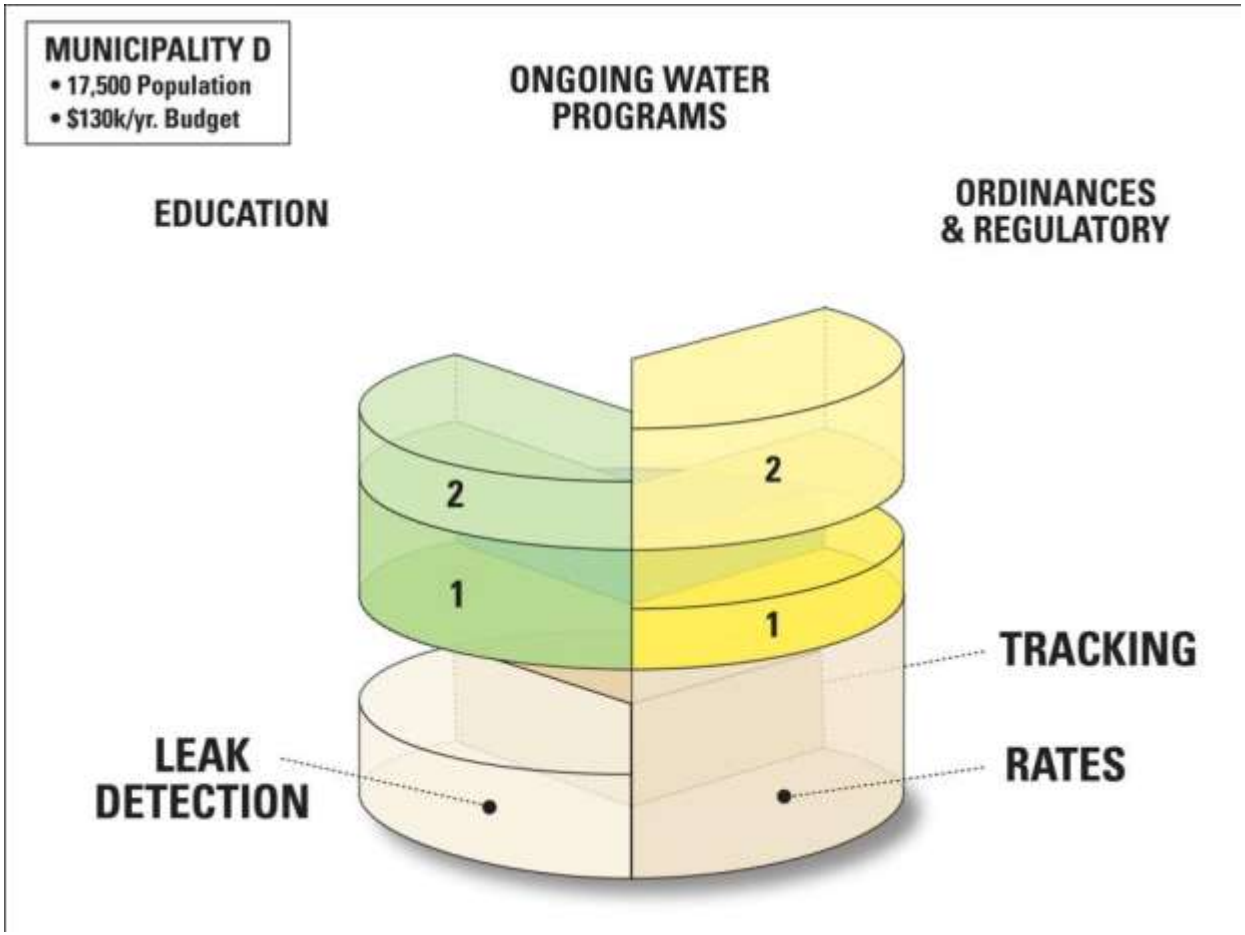


Example from Submitted Plans

Municipality D

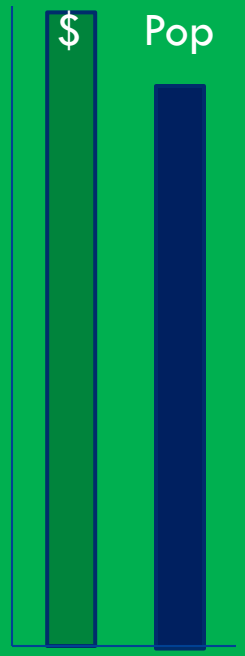
$ Pop

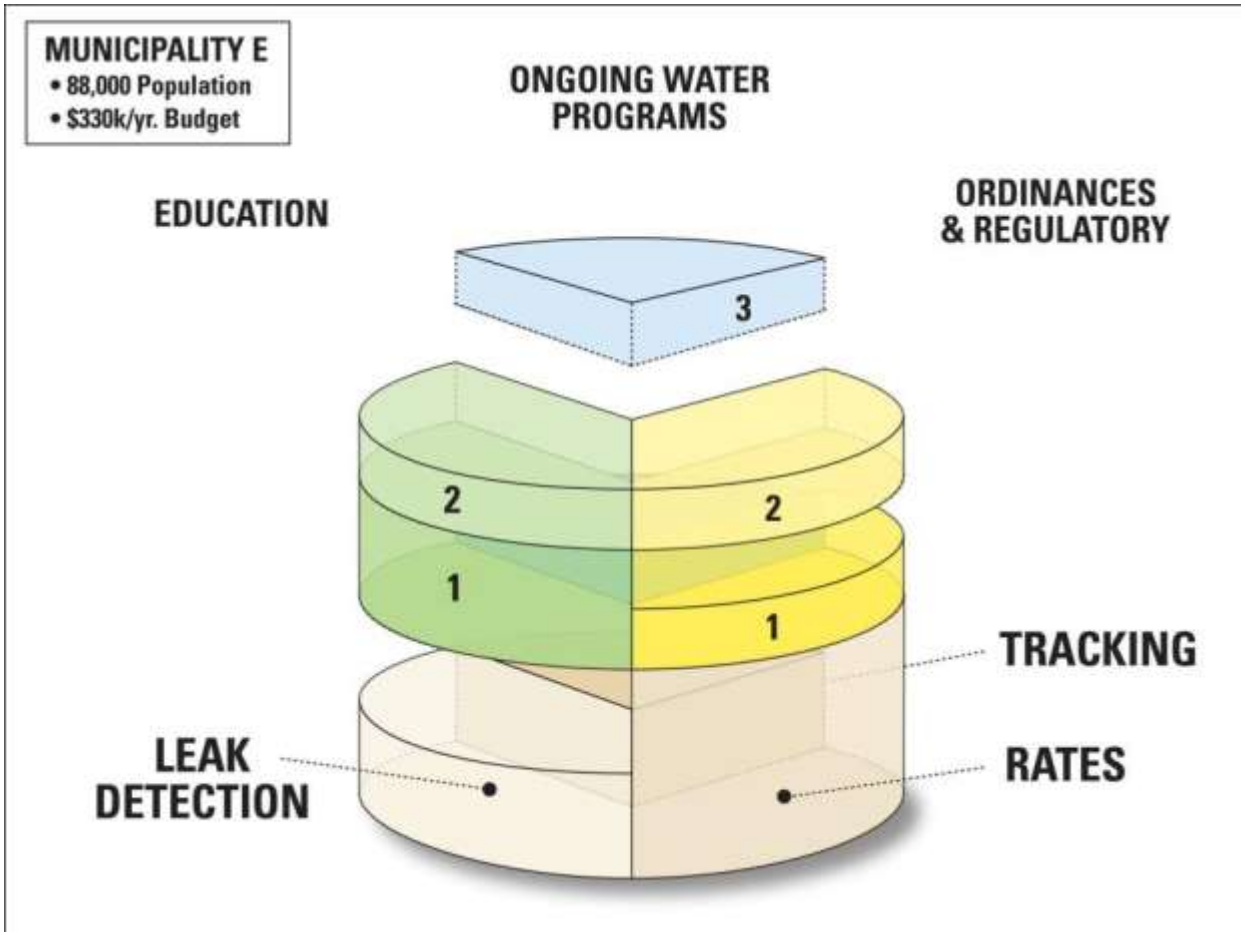




Example from Submitted Plans

Municipality E





Example from Submitted Plans

Municipality F

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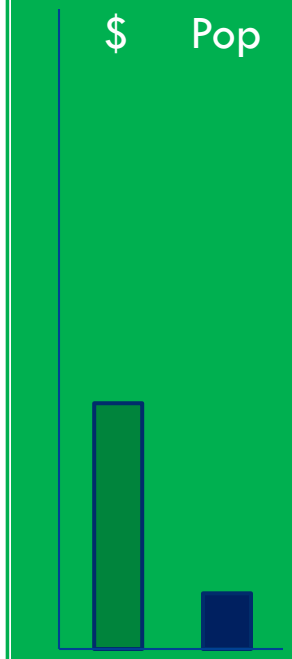

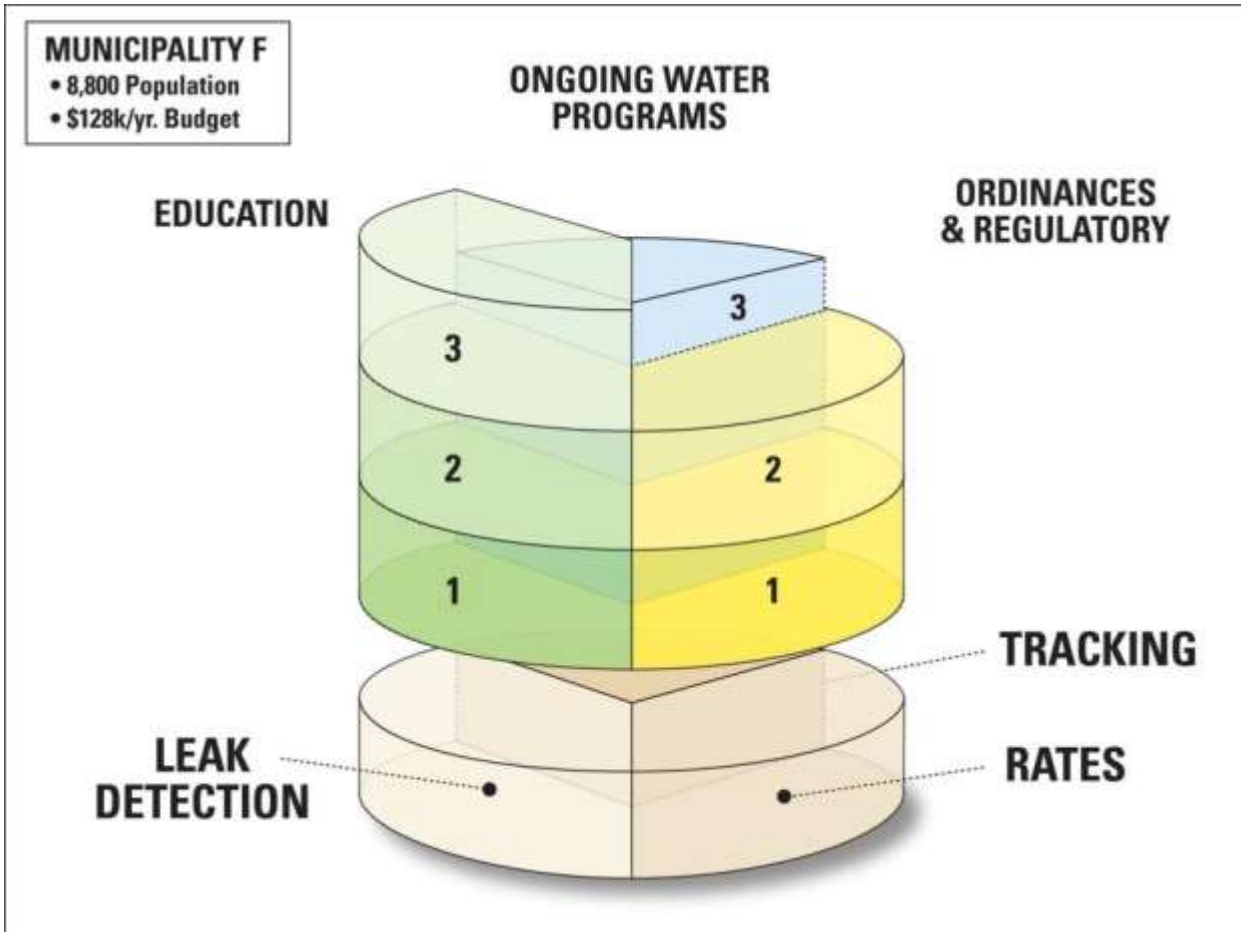

Summary

- Passive Savings by Customers Will Be Substantial
- Utility Focus
  - Business of Water Production and Delivery
    - Improved leak Detection and repair
    - Improved billings/metering
    - Improved tracking of customer water use
  - Build Programs based on Customer and Utility Needs
- State Focus
  - Monitoring and Data Collection
  - Promoting and Tracking Meaningful Water Conservation