

Managing Financial Risk and Declining Water Sales



PNWS – AWWA
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Principal

Presentation Outline

1. Why Consumption is Declining

- Potential Reasons
- Conclusions

2. Managing the Financial Risk

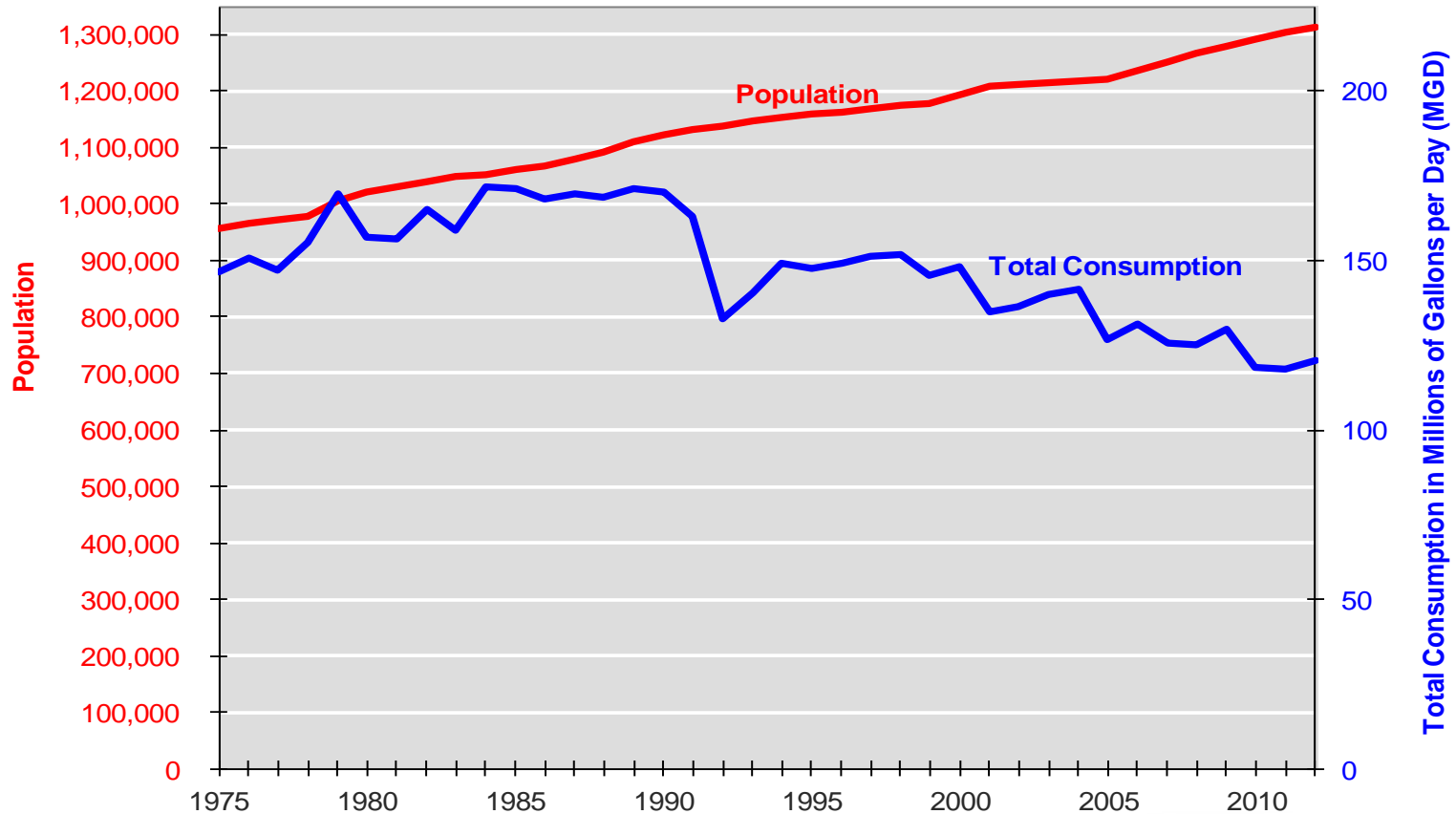
- Financial Planning
- Reserve Policies
- Rate Structure
- System Planning

Is Consumption Declining?

- Regional Water Usage Below Expectations
- Anecdotal Information
 - Rate increases with no accompanying revenue increase
 - Population growth without accompanying demand and associated revenue growth

Regional Water Demand: SPU

Growth in Population and Water Consumption
Seattle Regional Water System: 1975-2012

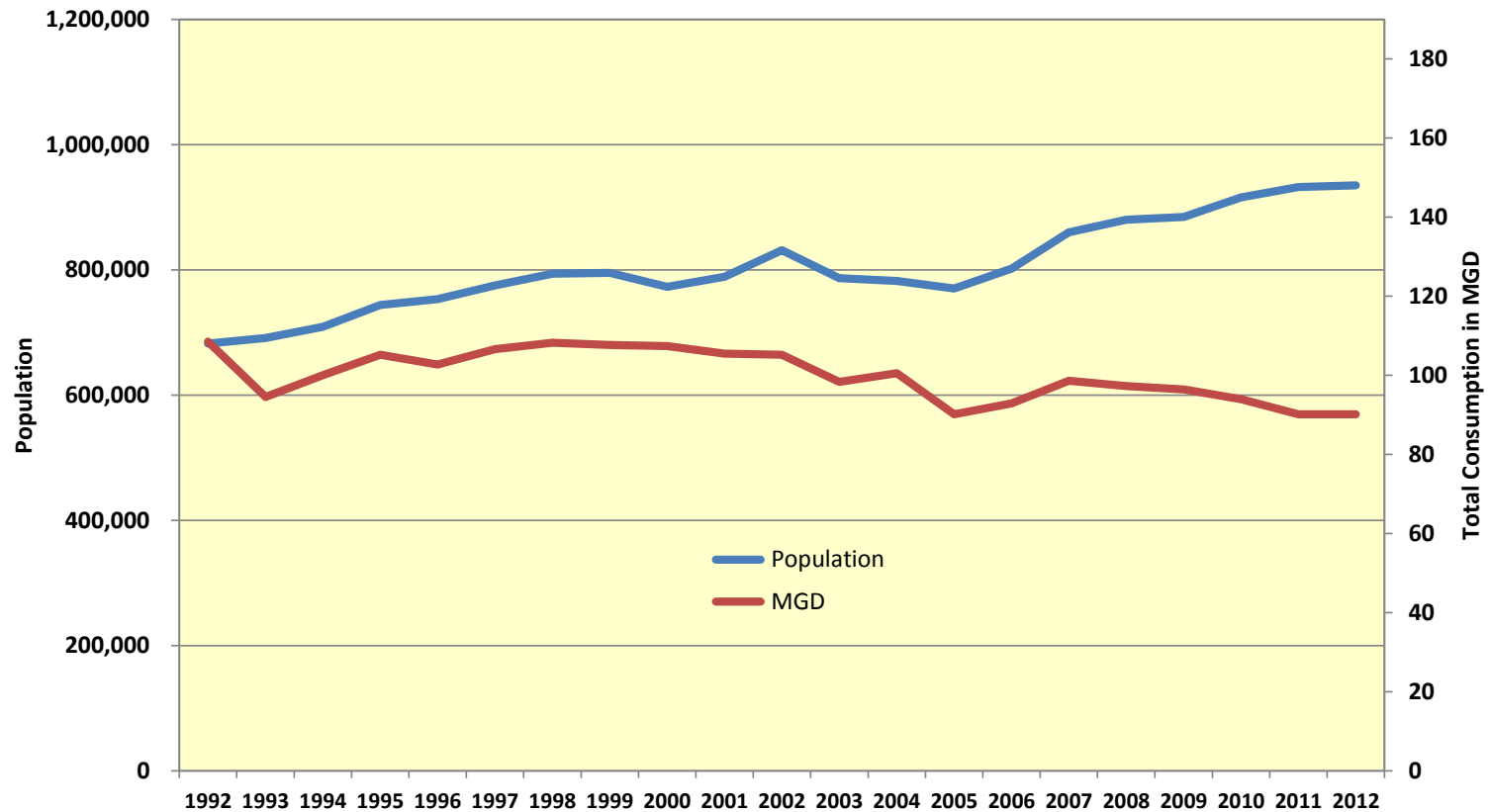


From Seattle Public Utilities



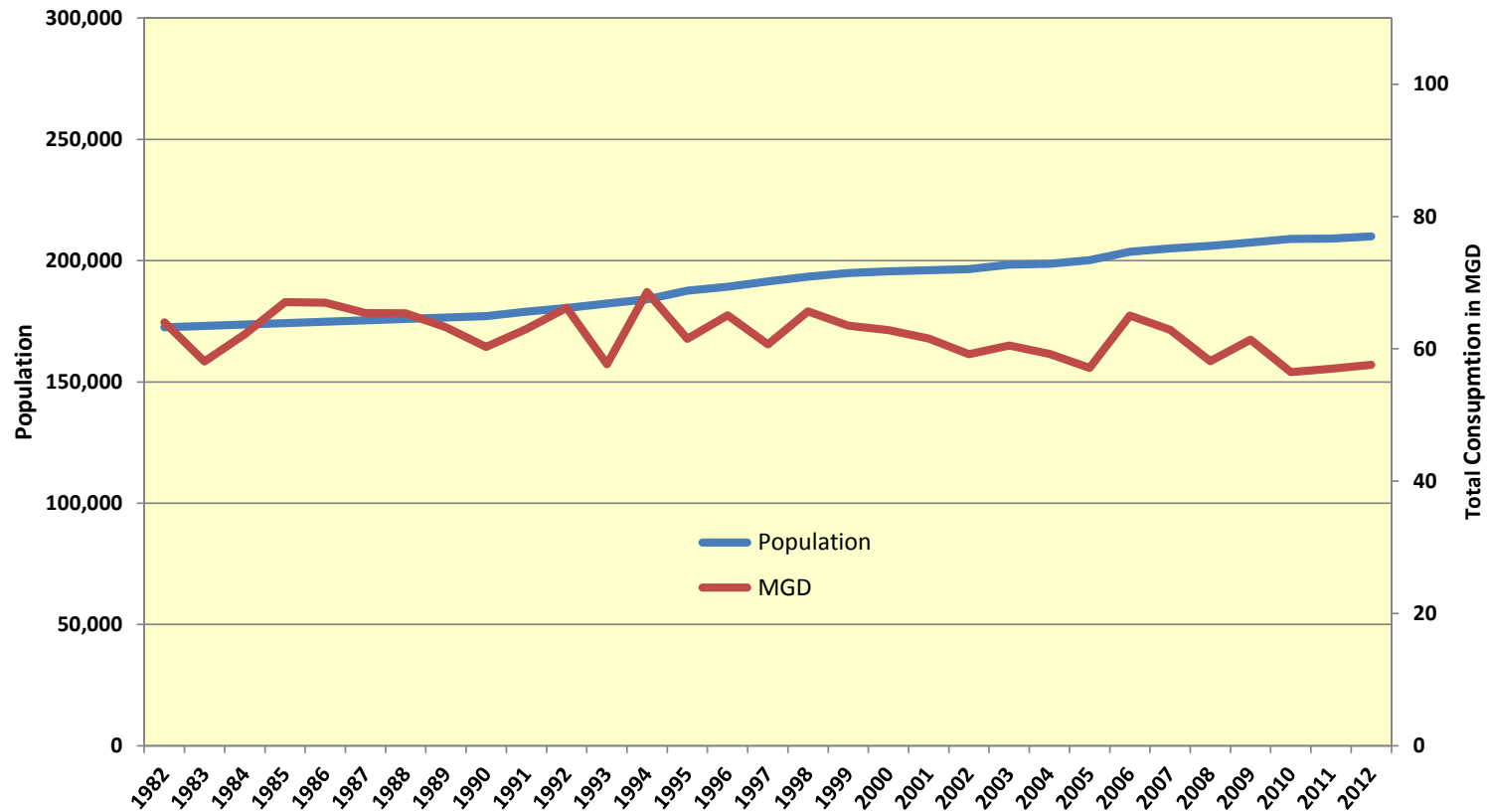
Portland Water Bureau

Portland Water Bureau
Population v. Total Water Consumption



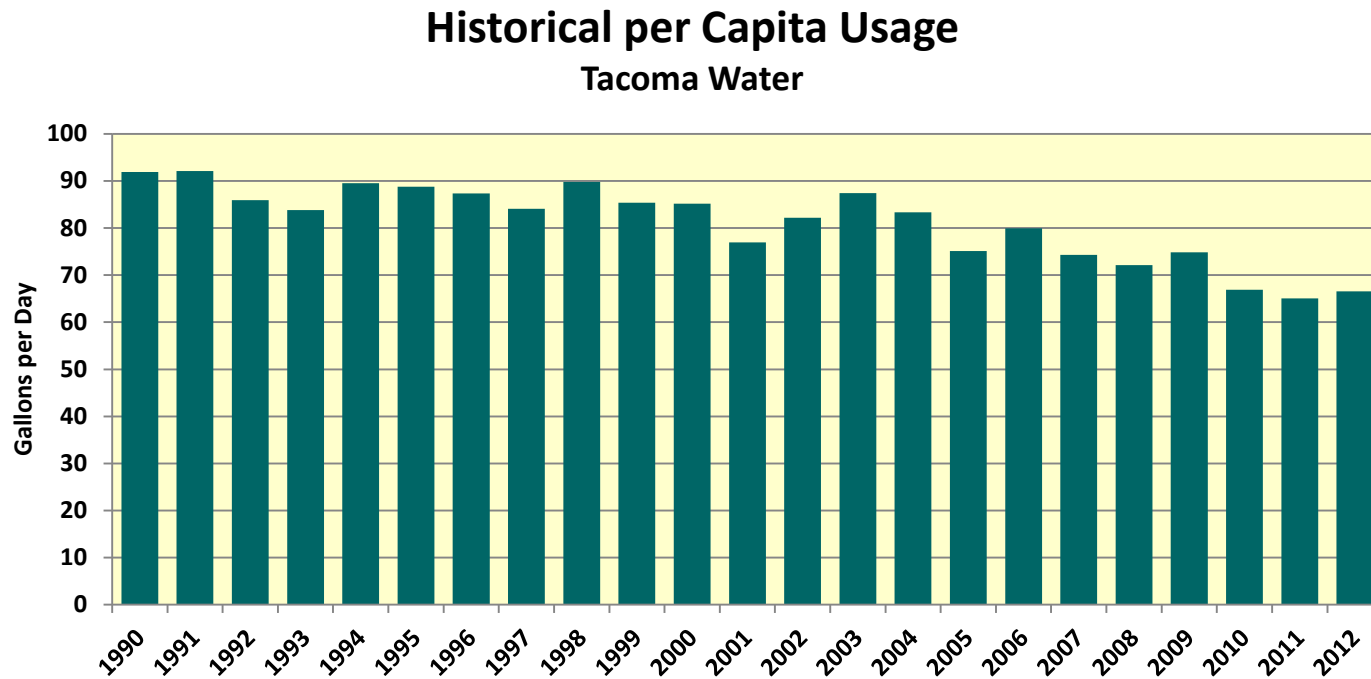
Spokane Water

Spokane Water
Population v. Total Water Consumption



Tacoma Water

Tacoma Water's per capita water use has dropped as follows:



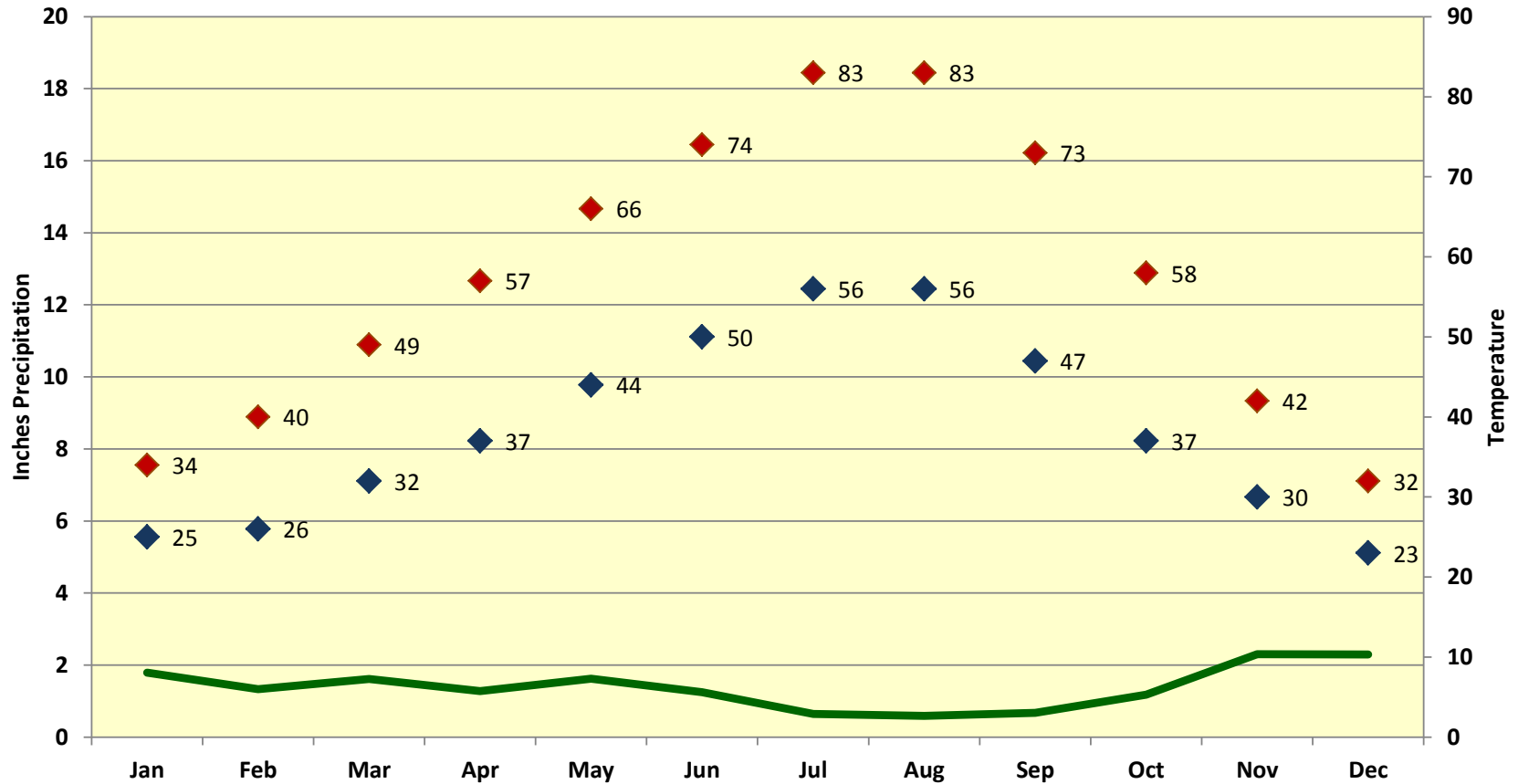
Why Is Consumption Declining?

Reasons for Declining Demand

1. Weather
2. Economic Factors
 - The recession
 - Structural changes in commercial / industrial sector
3. Demographic Factors
 - Declining household size
 - Densification
4. Conservation
 - Imposed – Building code changes
 - Improved – Technology / efficiency
 - Incentivized – Pricing
 - Informed – Education programs

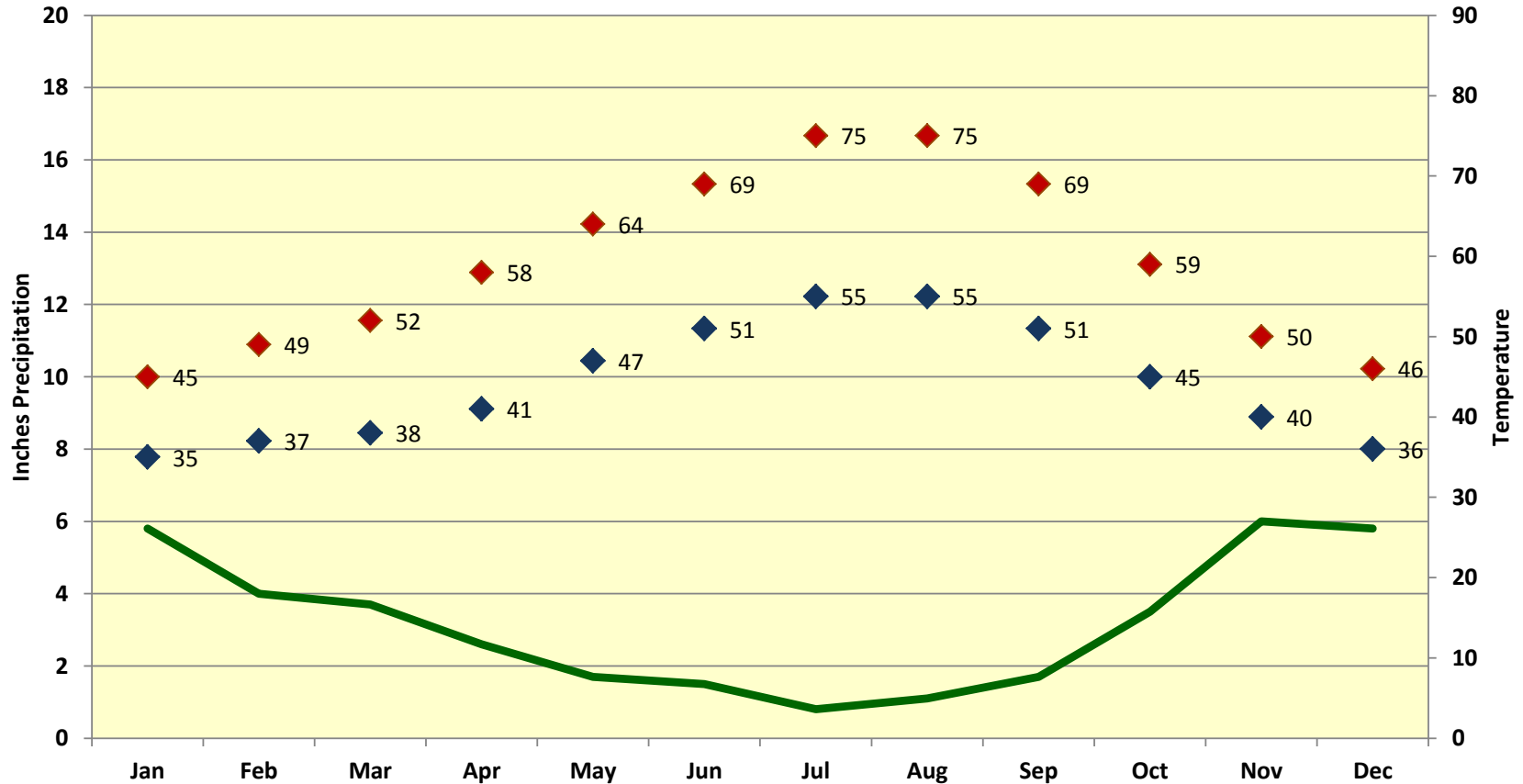
Typical Spokane Weather

Typical Spokane Weather



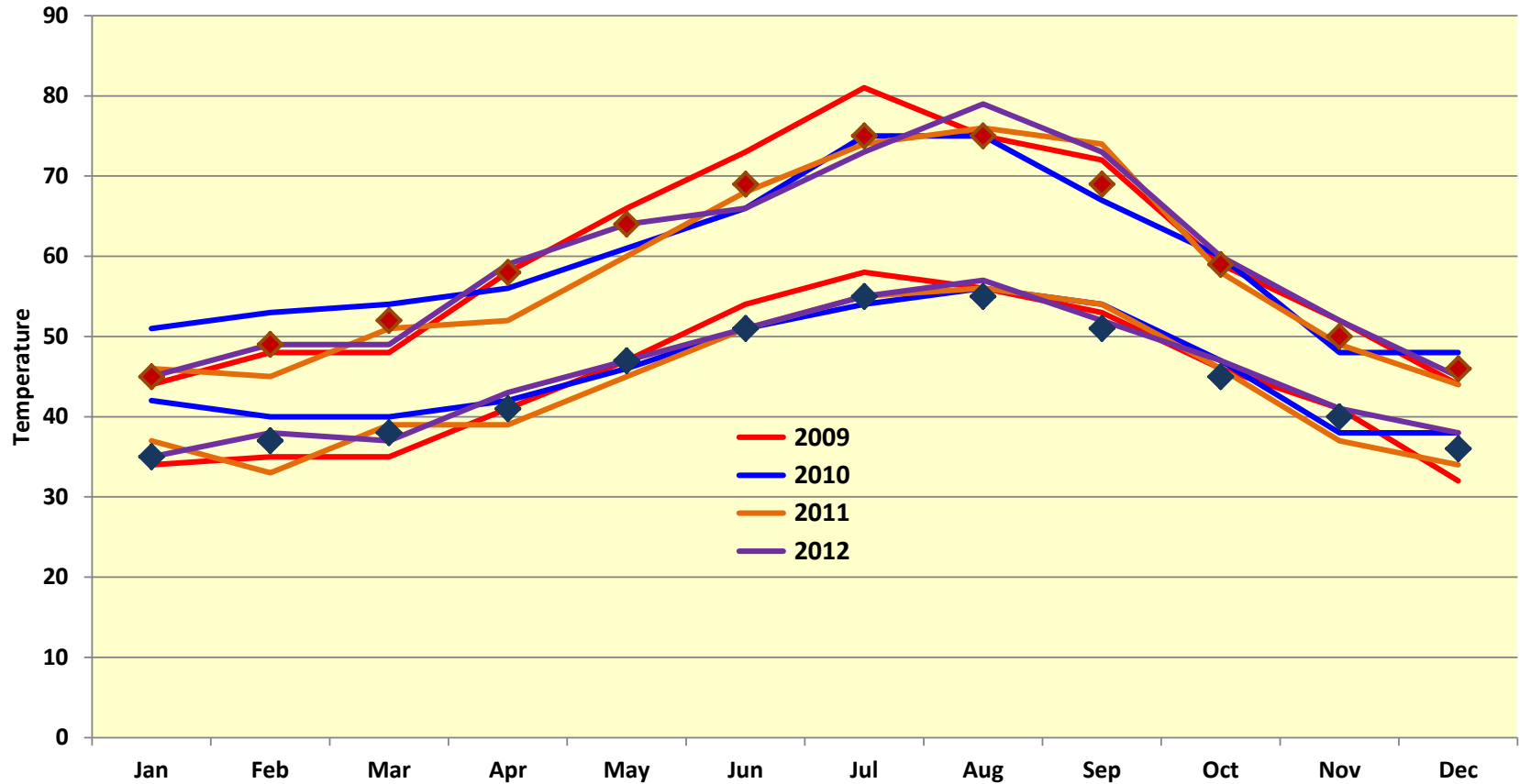
Typical Seattle Weather

Typical Seattle Weather



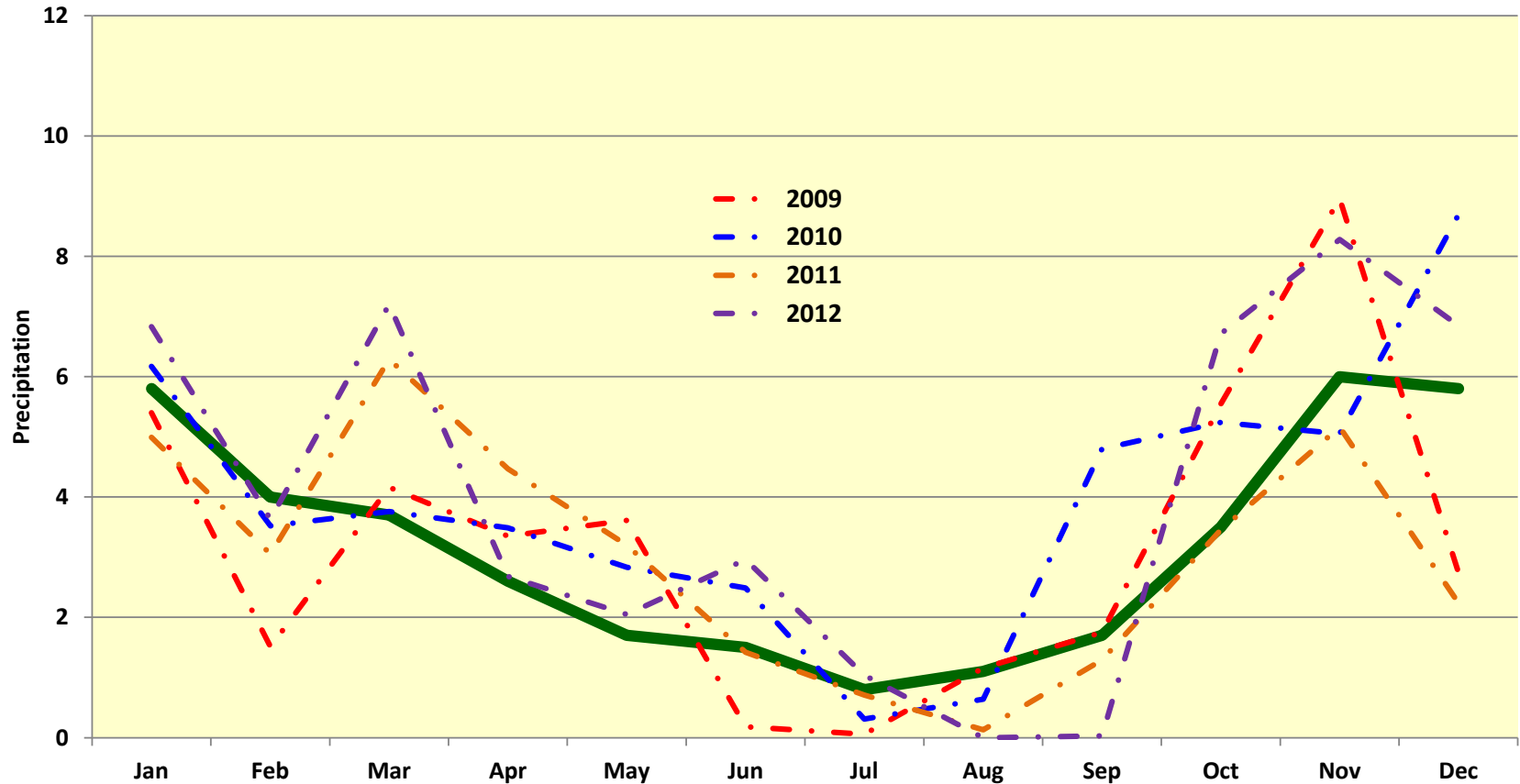
Typical v. Recent Weather

Seattle Typical v. Recent Actual Temperatures



Typical v. Recent Weather

Seattle Typical v. Recent Actual Precipitation



Typical v. Recent Weather

Period	Total Precipitation	% + / -
Average Year	38.2 inches	NA
2009	38.43 inches	+ .6%
2010	46.99 inches	+ 23.0%
2011	36.4 inches	- 4.7%
2012	48.26 inches	+26.3%

Weather – Demand Correlation

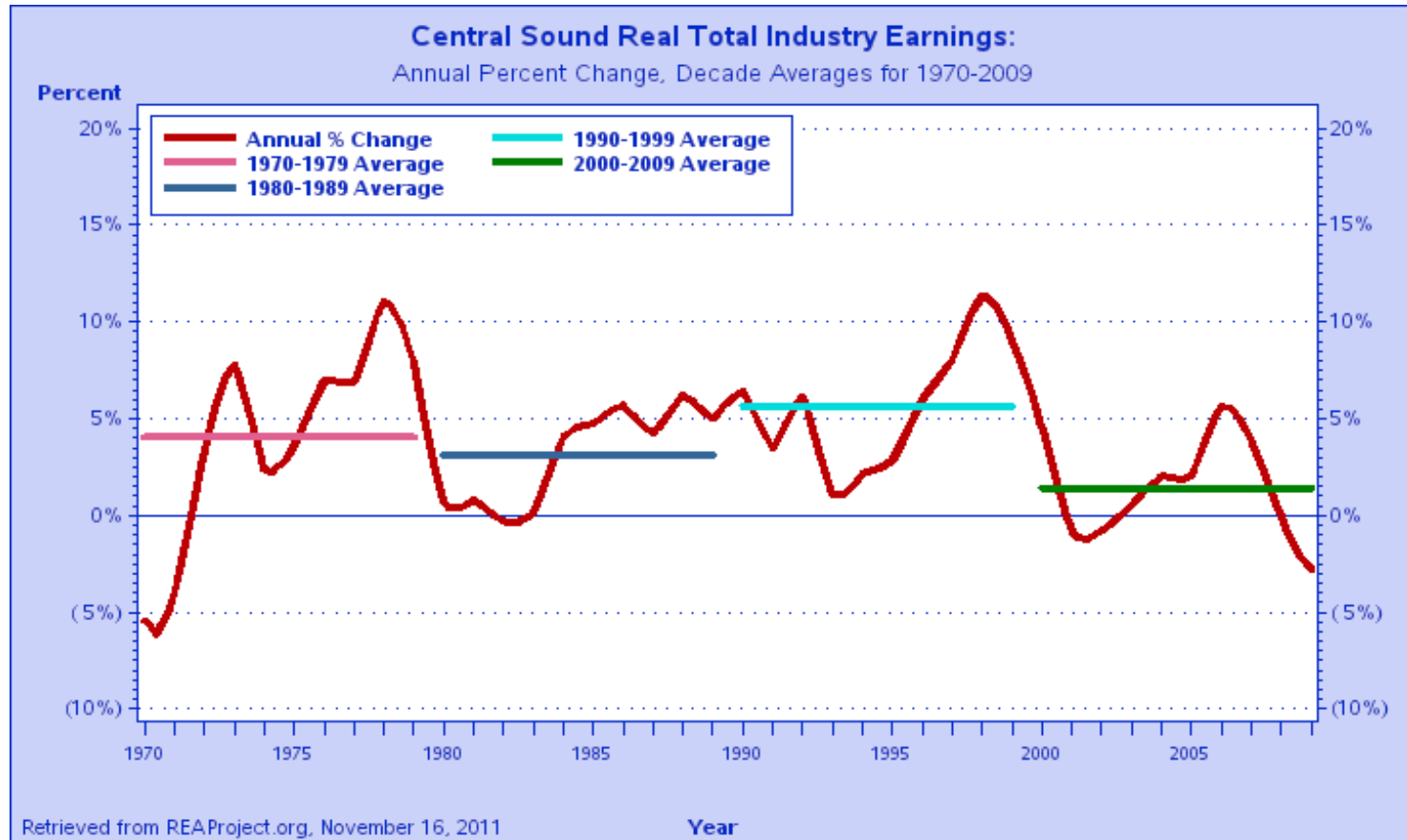
Cascade Water Alliance
Water Demand Forecast Technical Memorandum
December 18, 2009

“Temperature and precipitation are strong explanatory variables in predicting water use. Greater temperatures and lower precipitation results in greater water demands due to greater irrigation use and higher process water for industrial and commercial users.”

“Climate Change alone adds approximately 3 mgd of water demand to the baseline forecast scenario by 2060” (about 5%)

Economics: The Recession

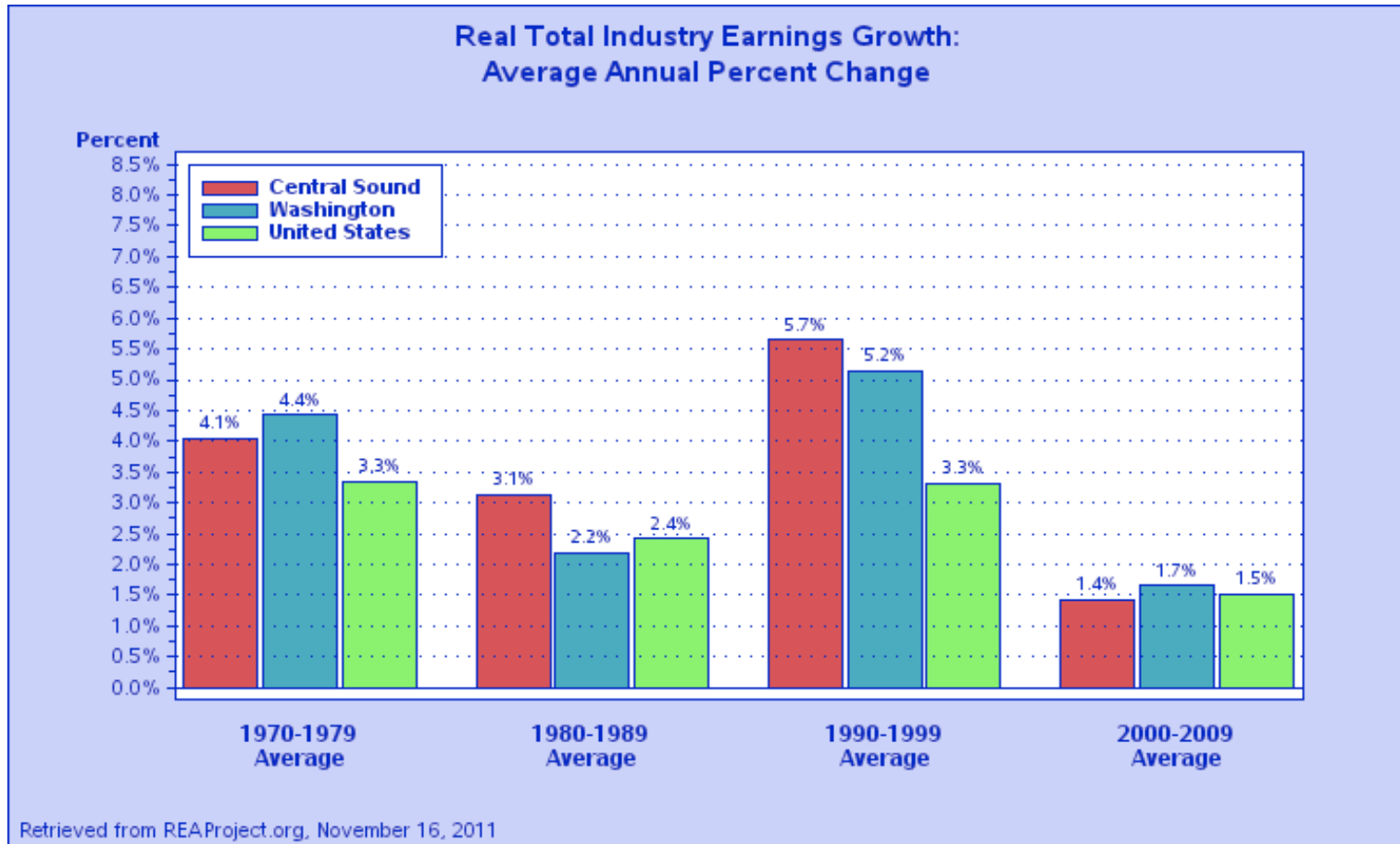
Central Puget Sound Historical Real Industry Earnings



Central Sound Avg. Industry Earnings have fallen since 2007. Structural changes in earnings reflect a drop in AAGR from 5.7% in the 1990s, to 1.4% thus far this decade (2000-2009).

Economics: The Recession

Comparative Real Industry Earnings



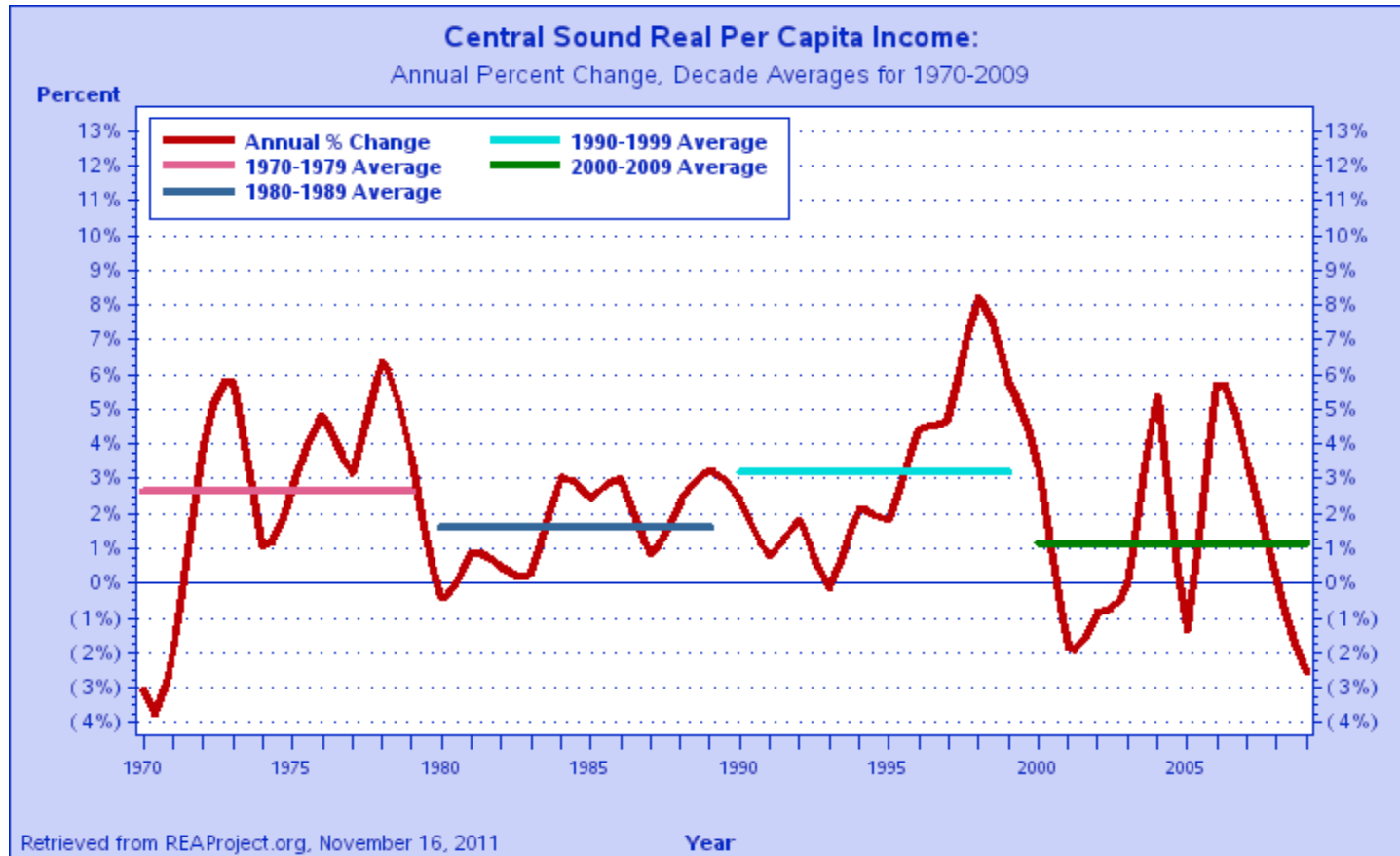
Annual industry growth rates in the Central Sound exceeded the nation in the 1990s (5.7% vs. 3.3%); and fell below the nation from 2000-2009 (1.4% vs. 1.5%).

Economics: The Recession

- Since January 2007, the State of Washington unemployment rate has risen from 4.6% to a peak of 10.2% (from December 2009 to March 2010) and now rests at 7.3% (as of March 2013)

Economics: The Recession

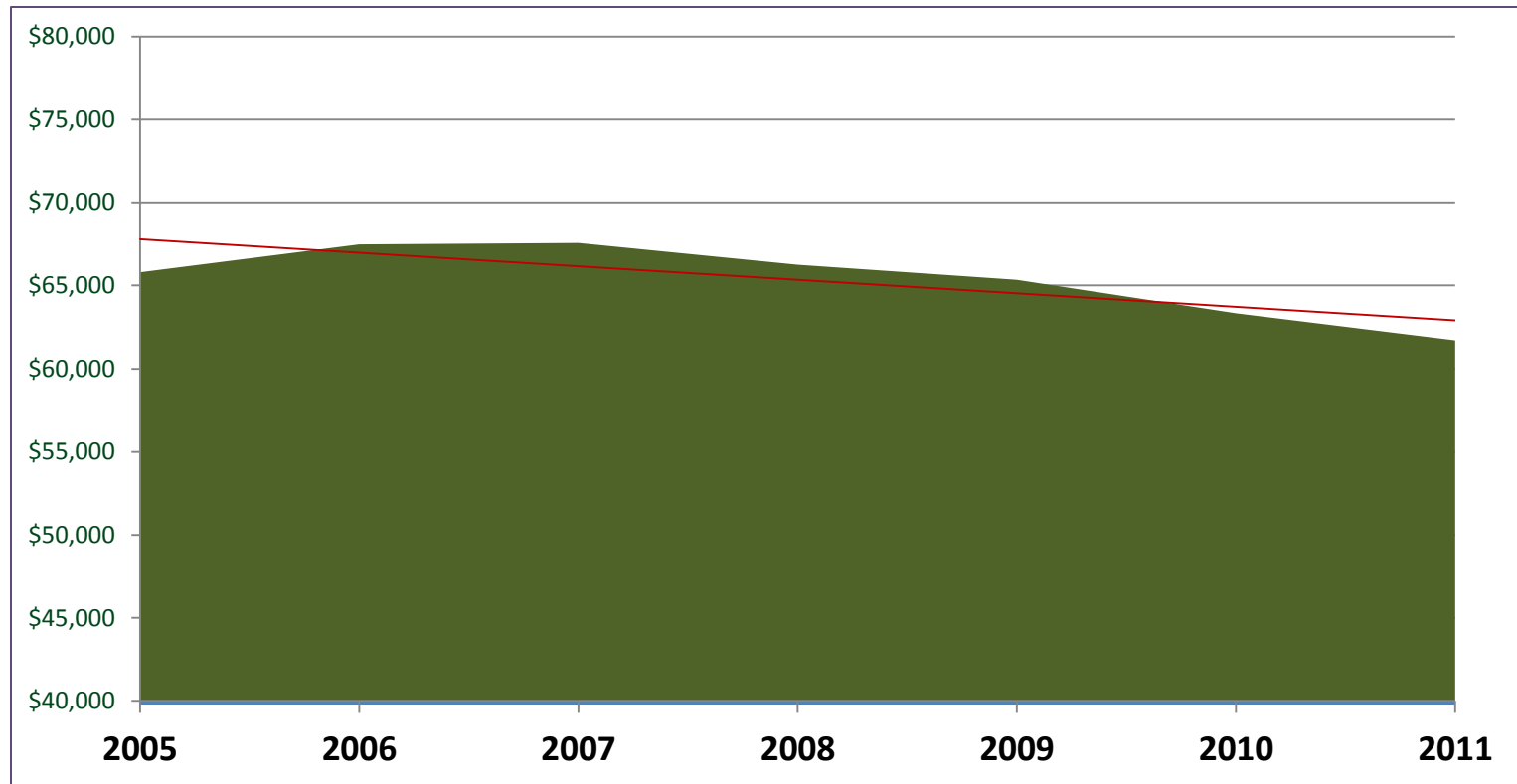
Central Puget Sound Historical Real Per Capita Income



Annual per capita income growth rates in the Central Sound fell from 3.2% in the 1990s to 1.16% thus far this decade (2000 – 2009).

Economics: The Recession

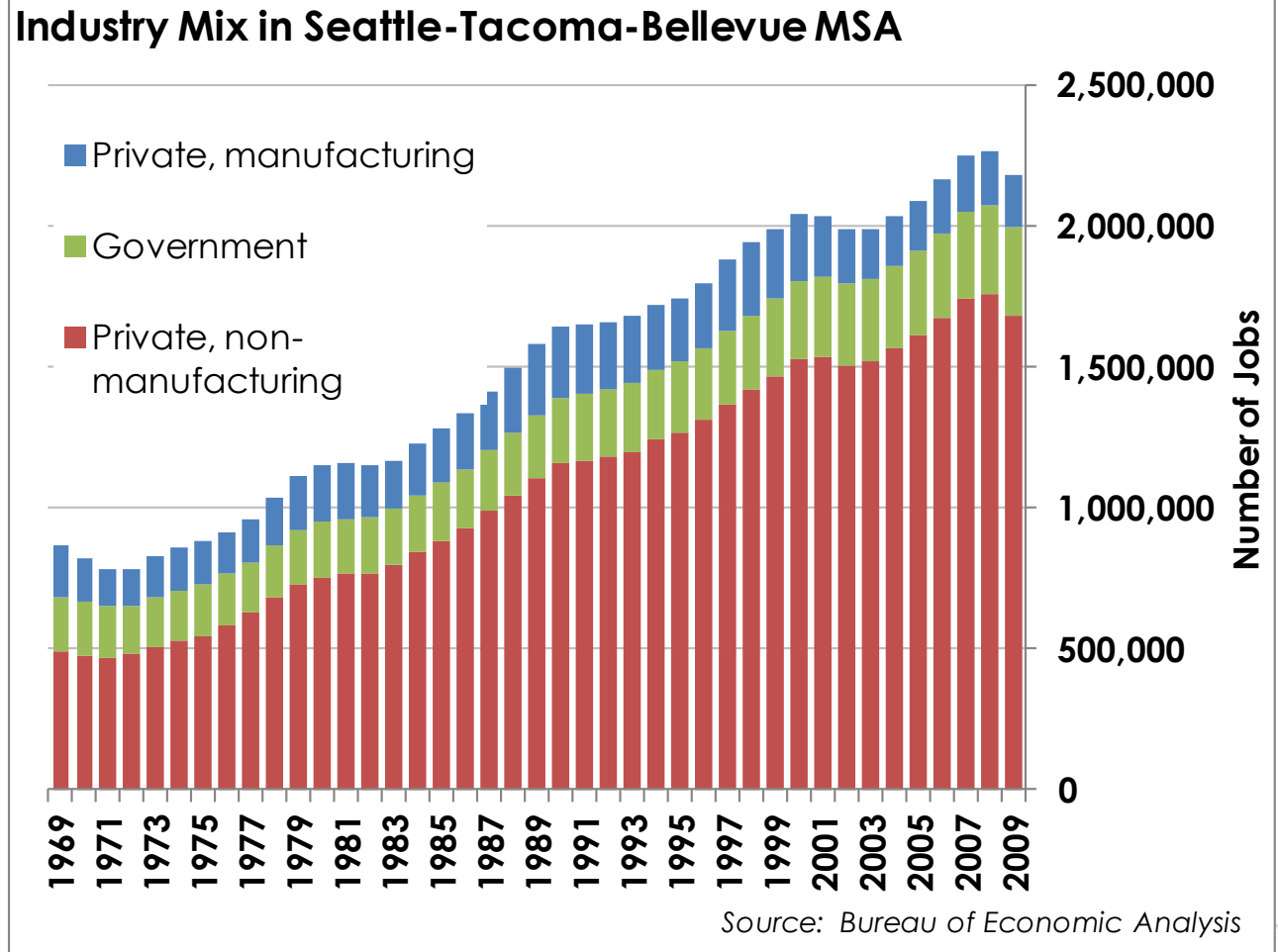
Central Puget Sound Median Household Income



Estimates by OFM (with inflation adjustments by FCS GROUP) indicate that Central Sound median household income declined by 8.7% between 2007 and 2011. **Equates to a real annual decrease of nearly \$5,900 per household** since the 2007 peak.

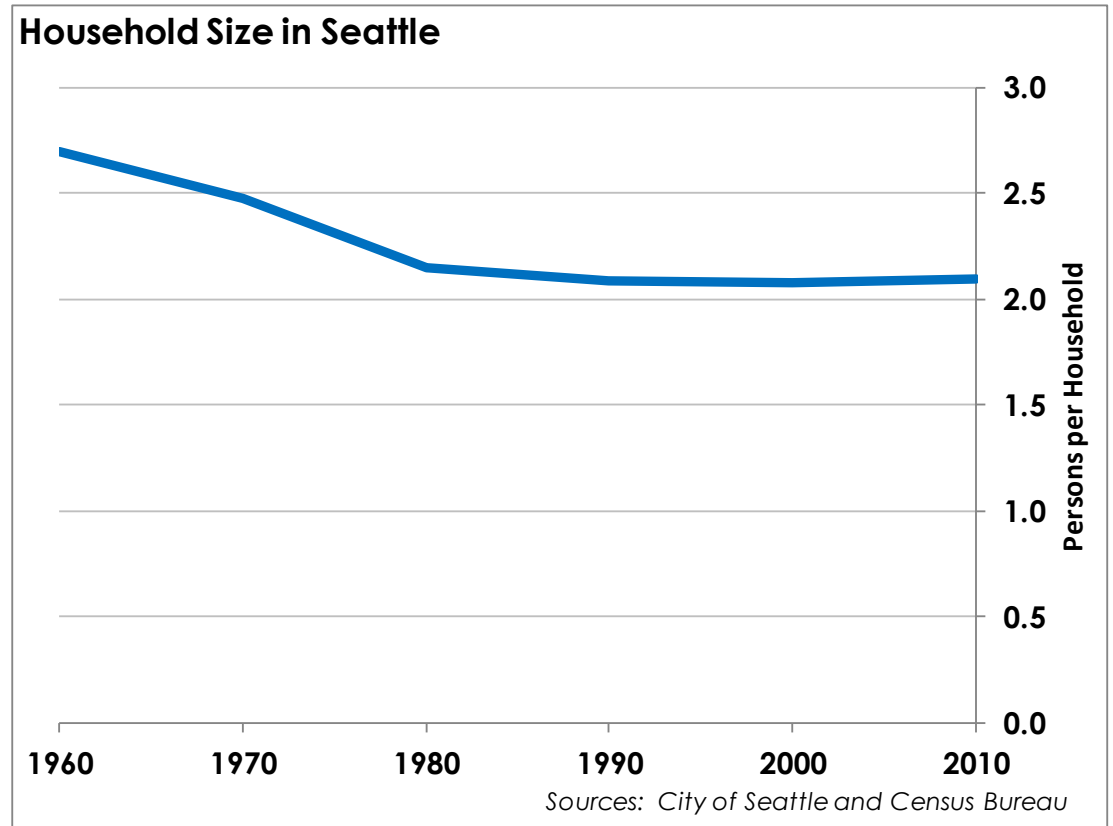
Economics: Structural Changes

Water-intensive (industrial) businesses represent a declining share of the economy in the Seattle area



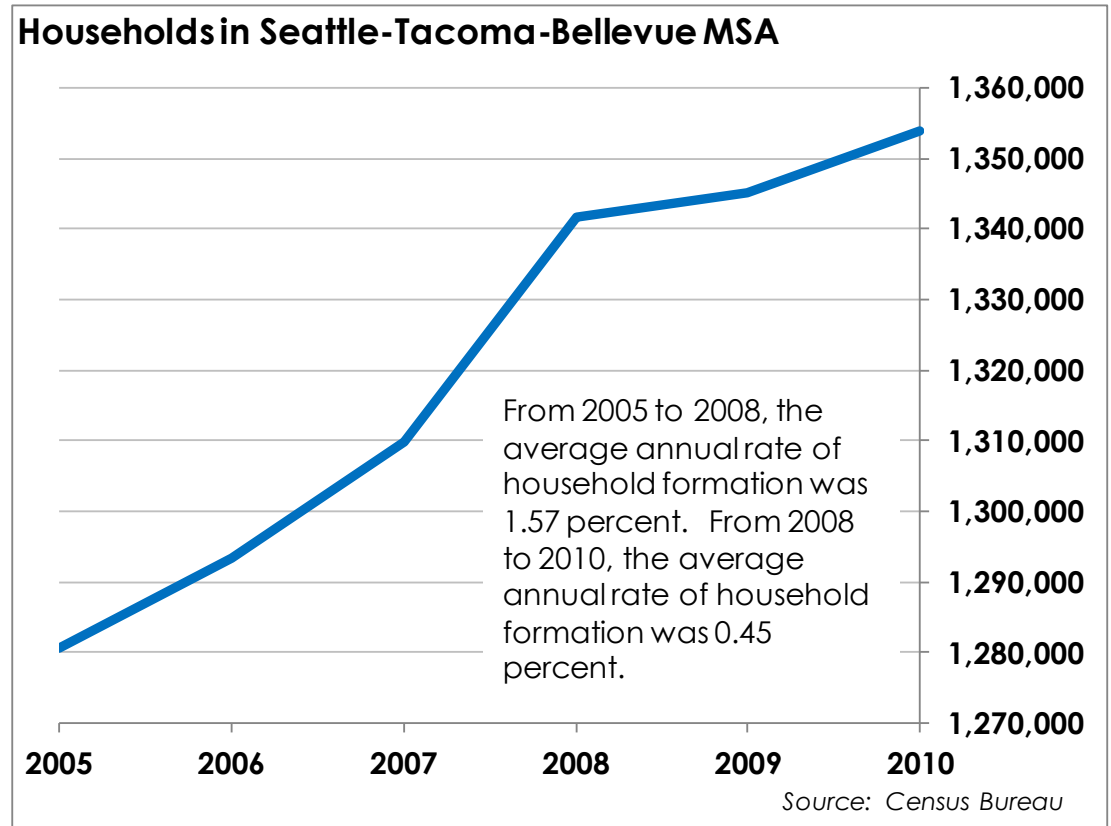
Demographics: Household Size

In the City of Seattle, household sizes declined from 1960 through 1990, but have remained relatively flat since.



Demographics: Household Size

In the Puget Sound area, household size has remained in a narrow range (2.50-2.54) since 2005, but household formations have slowed considerably.



Demographics: Densification

- Residential development utilizes smaller lots, reducing landscaping and corresponding irrigation needs
- Nonresidential development is performed more water-efficiently

Conservation: Code / Technology

■ Energy Policy Act of 1992

- ✓ Effective in 1994 (1997 for toilets)
- ✓ A family living in a house built after 1994 uses 10-13 fewer gallons per day than the identical family in an older house ("North American Residential Water Usage Trends Since 1992," Table 5.3)

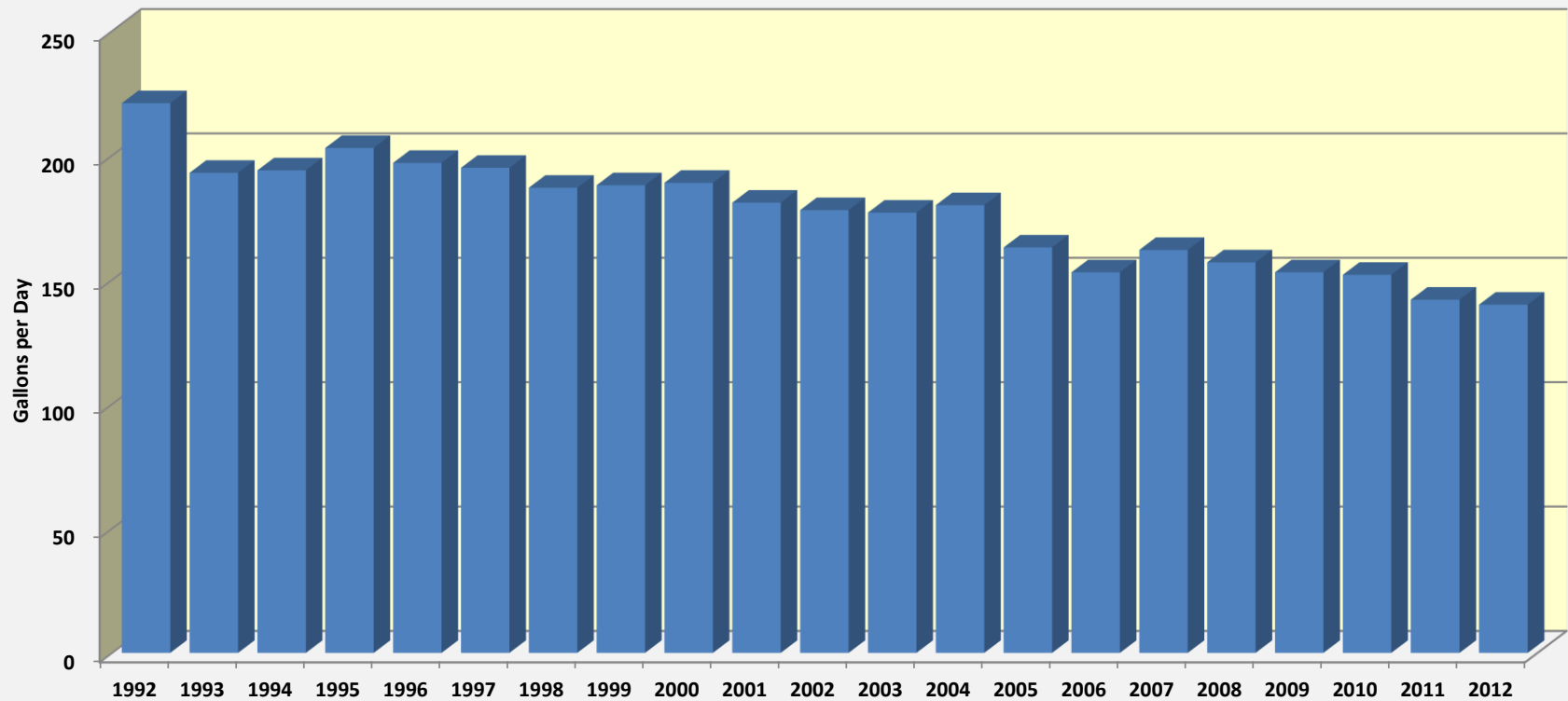


■ New Technology (i.e., LEED standards)

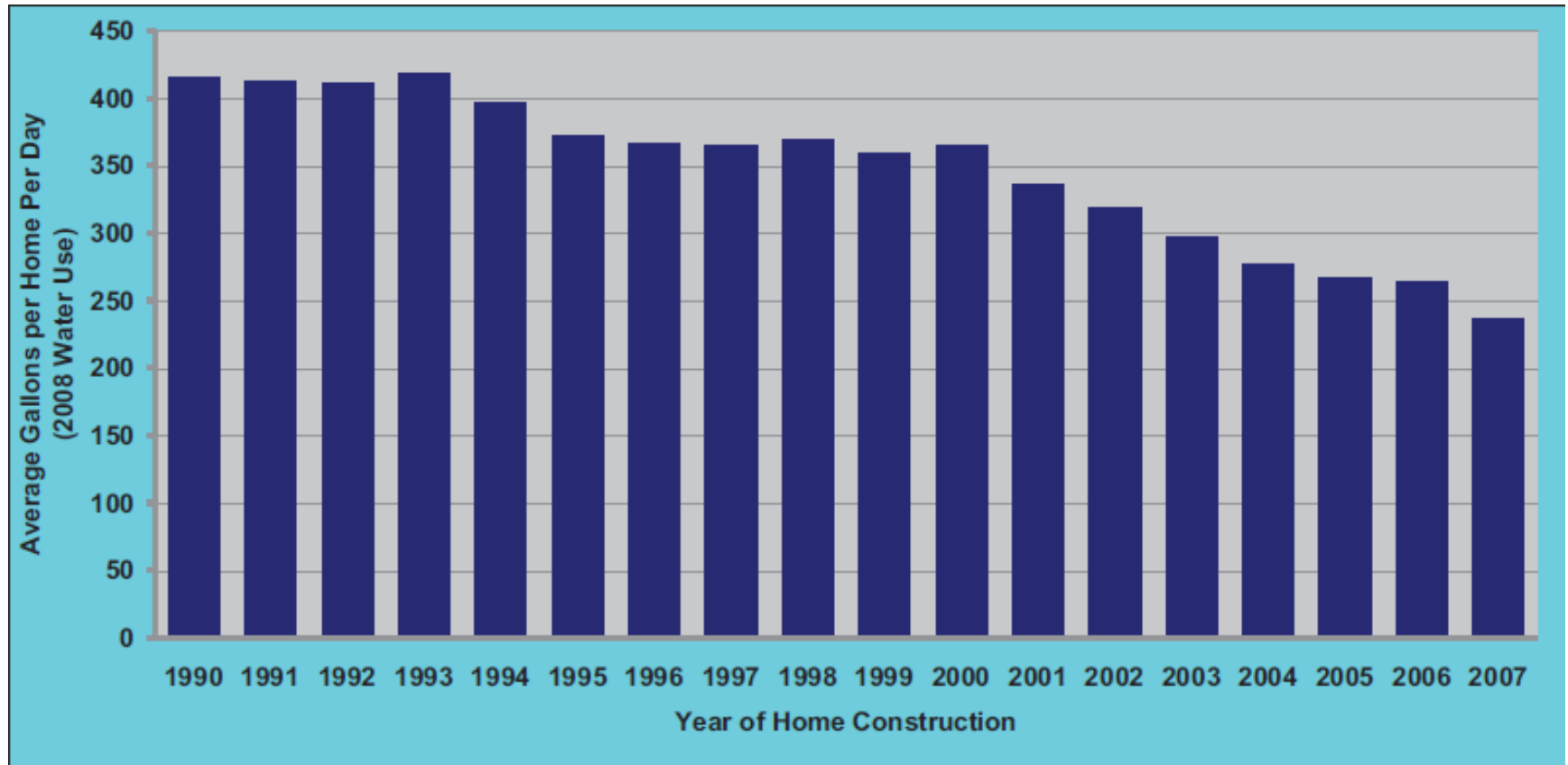
- ✓ New buildings can utilize 70-82% less water
- ✓ And 40-46% less energy than older buildings

Historical Household Demand

Average Daily Usage per SFR Household
Portland Water Bureau



Correlation Between Year of Construction and Water Demands

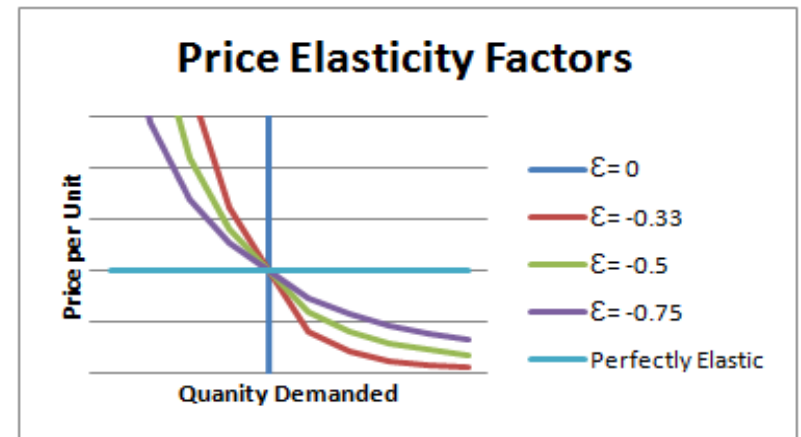


Conservation: Pricing

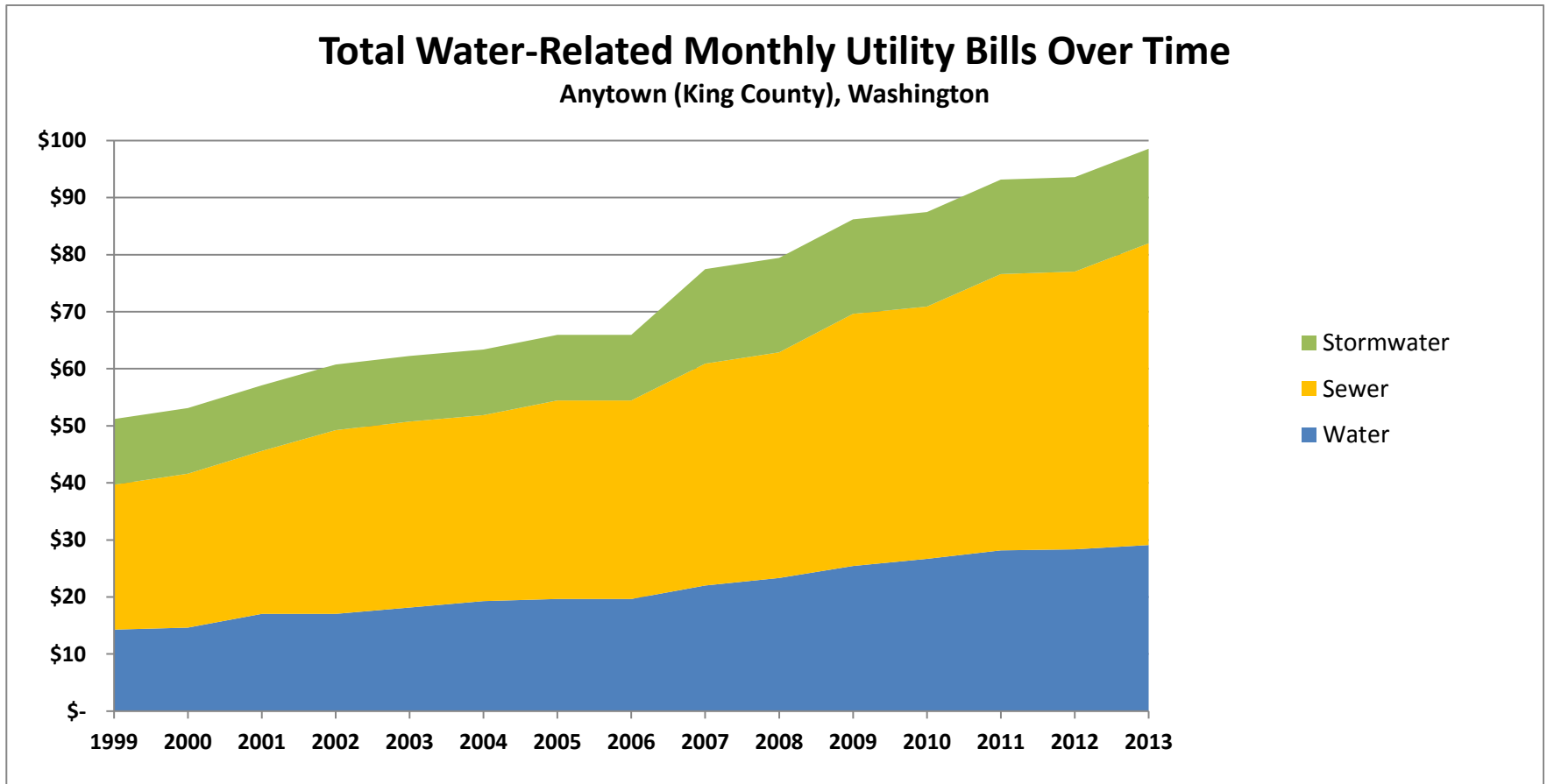
- Conservation based rates now commonplace
- Impact of total utility bill
 - Water
 - Wastewater
 - Rates have increased substantially
 - Usage-based residential rates
 - Stormwater
 - Other

Price Elasticity

- Causation is impossible to prove, but...
- Price elasticity analysis must be considered on a customer class basis
- Price elasticity factors may differ among customer classes and usage levels

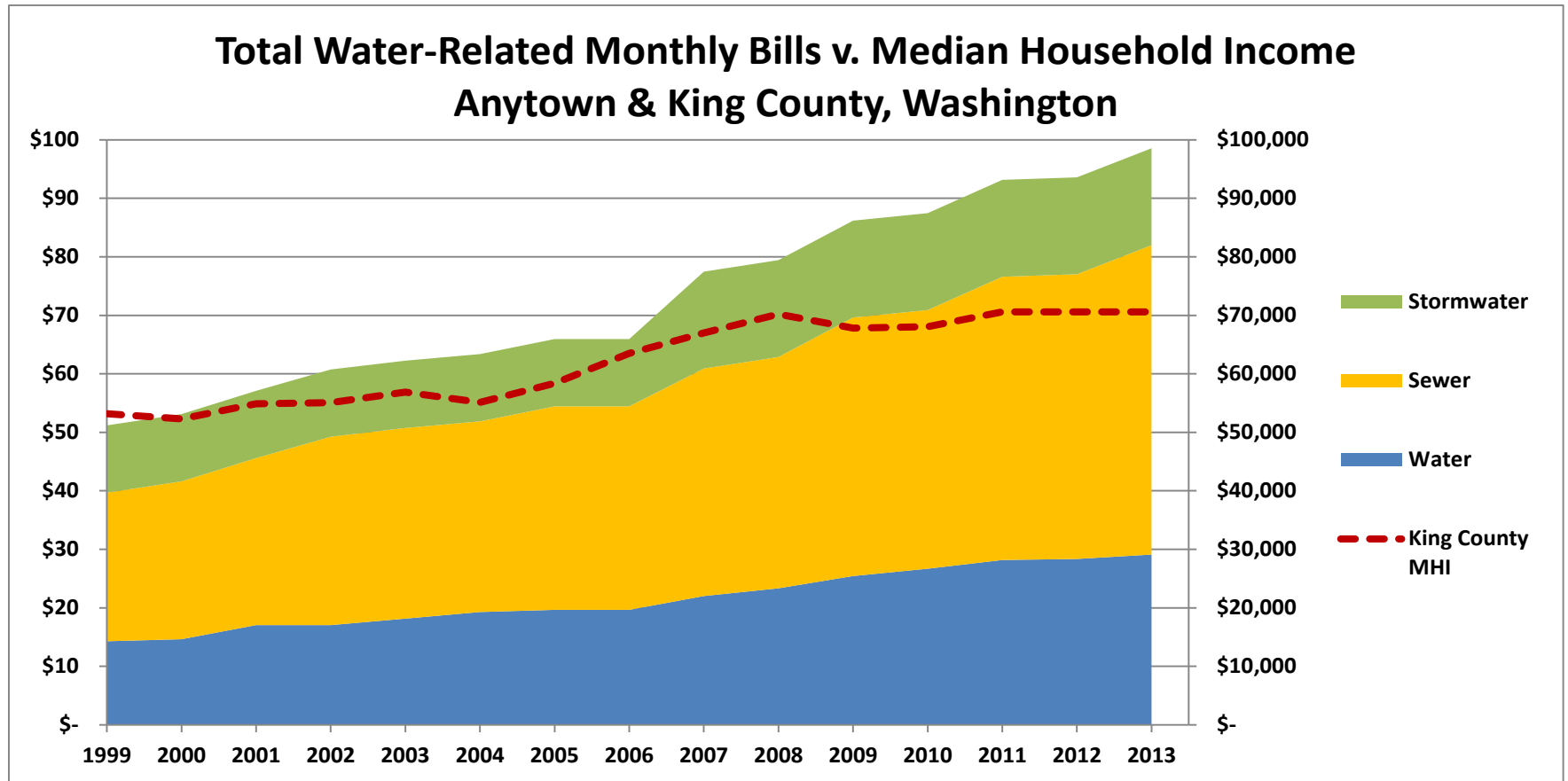


Total Utility Bill Impacts



Total water-related utility bill increased 86% since 1999 for average residential customer

Utility Bills v. Median Household Income



King County median household income increased 35% for same period (not inflation adjusted)

Temporary or Permanent?

Reason	Assessment	Rate of Change
Weather <ul style="list-style-type: none"> • Short-term Cyclical • Climate Change 	Temporary Permanent	Immediate Long-range
Economic Factors <ul style="list-style-type: none"> • Recession • Structural Changes 	Temporary Permanent	Mid-term Long-range
Demographic Factors <ul style="list-style-type: none"> • Household Size • Densification 	Permanent Permanent	Long-range Long-range
Conservation <ul style="list-style-type: none"> • Code / technology • Pricing • Education 	Permanent Permanent Permanent	Long-range Long-range Long-range

Temporary or Permanent?

- Residential customers
 - Growth follows short-term economic cycles, along with long-term demographic patterns
 - Expect “slower growth” when economy picks up
 - Time needed for demand to stabilize after moving to “block or tiered rates”
- Industrial & Non-Res. customers
 - Commercial / Industrial changes likely to continue
 - Technology will lead to even more efficiencies & declines in customer usage
 - May allow deferral of major capital projects

Conclusion

Financial risk factors are a mix of:

■ Temporary	■ Immediate
■ Permanent	■ Mid-term
	■ Long-range

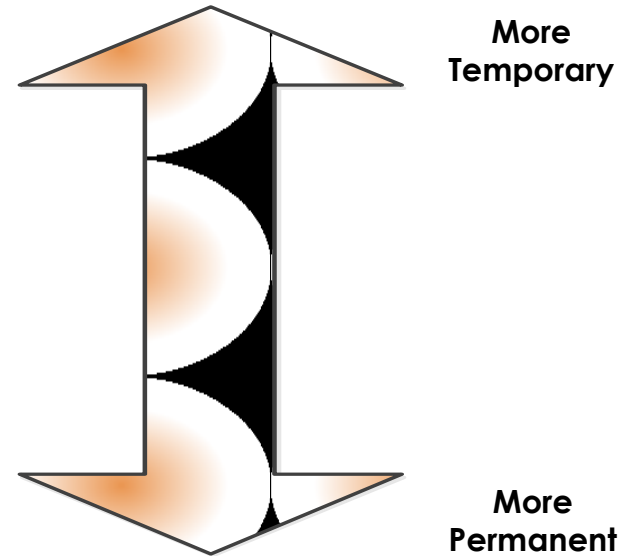
Management of financial risk must be holistic and comprehensive.

Managing Financial Risk

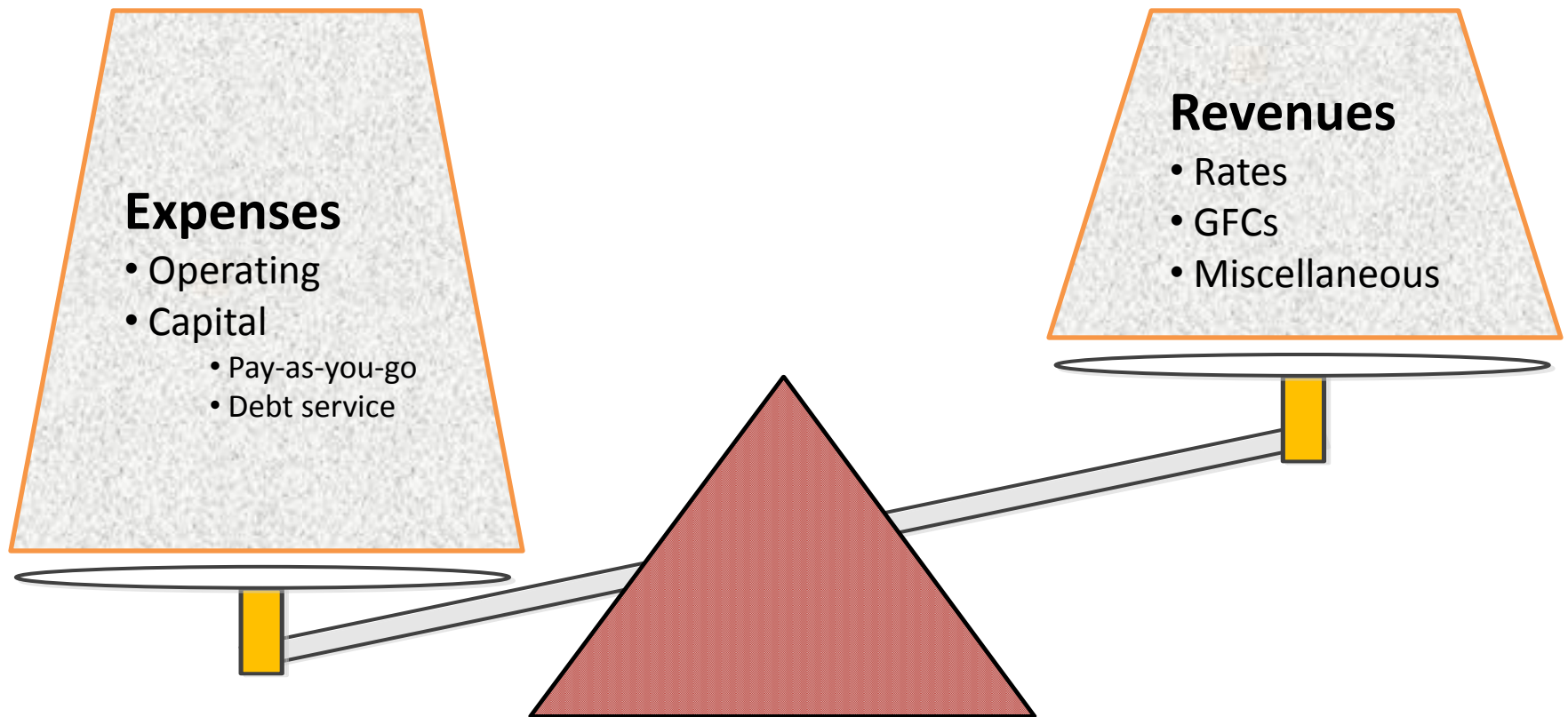
Managing Financial Risk

Strategies for Managing Financial Risk:

1. Fiscal Policies
2. Rate Structure
3. Long-Term
Financial Planning
4. System Planning



What is Financial Risk?



Fiscal Policies Review

- Operating
 - Covers temporary cash flow deficiencies due to timing of revenues and expenditures
- Rate Stabilization
 - Protects against unexpected multi-year fluctuations
- Capital Funding Strategy
 - Bonds versus Pay-As-You-Go
 - Reserves
 - Replacement Funding
- Policy Debt Coverage

Policy recommendations must be tailored to agency specific benchmarks and needs

Reserve Policies

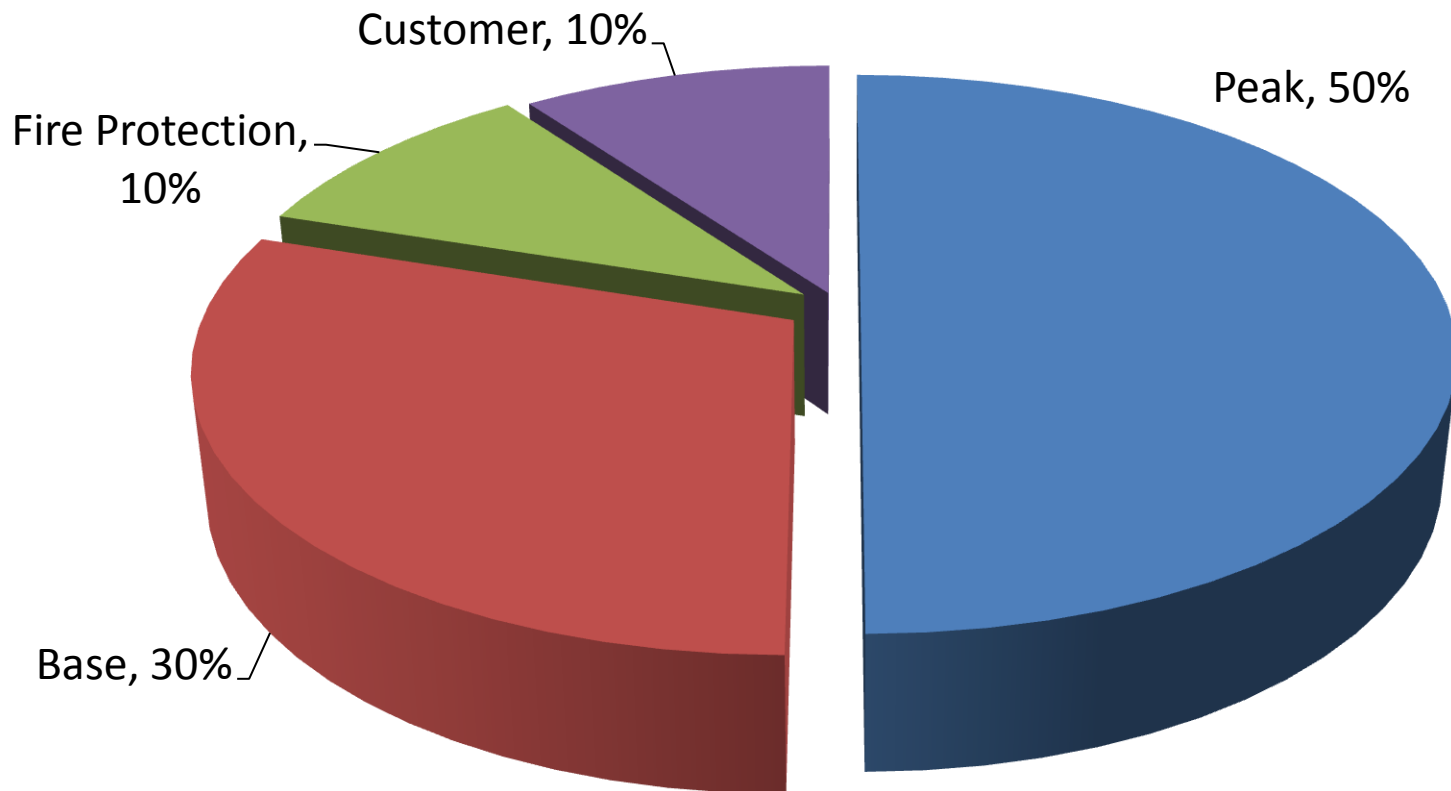
- Reserve policies must be tied to system costs and revenue and expenditure fluctuations
- Operating reserve targets should be “right sized” based on rate structure attributes
- *Increasing Operating or Capital reserve “cushion” will mitigate short-term impacts, but generally leave long-term, structural impacts unaddressed*

Rate Structure Attributes

- Use pricing as the mechanism to encourage appropriate water usage
 - Rewards conservation and penalizes water wasters
- Pricing structure recognizes “essential” vs. “discretionary” usage
 - Targets summer peak/irrigation usage
 - Protect residential indoor usage and commercial usage
- Fixed and variable rate components
 - Many / most utility costs are fixed (capital, labor, etc.)
 - Most rate structures apportion a greater share of cost recovery to volumetric charge

The strength of conservation incentives must be balanced against the need / desire for revenue stability

Cost of Service Allocation Result



Discretion in Rate Design

- **\$ Customer**: cost of administration and billing
- **\$ Base**: all in the usage (per ccf usage)
- **\$ Peak**: in the fixed charges (per meter capacity equivalent) and the usage charges (per ccf usage)
- **\$ Fire**: all in the fixed charges (per meter capacity equivalent)

This mix can be adjusted, and remain consistent with “cost-of-service”

Financial Planning Objectives

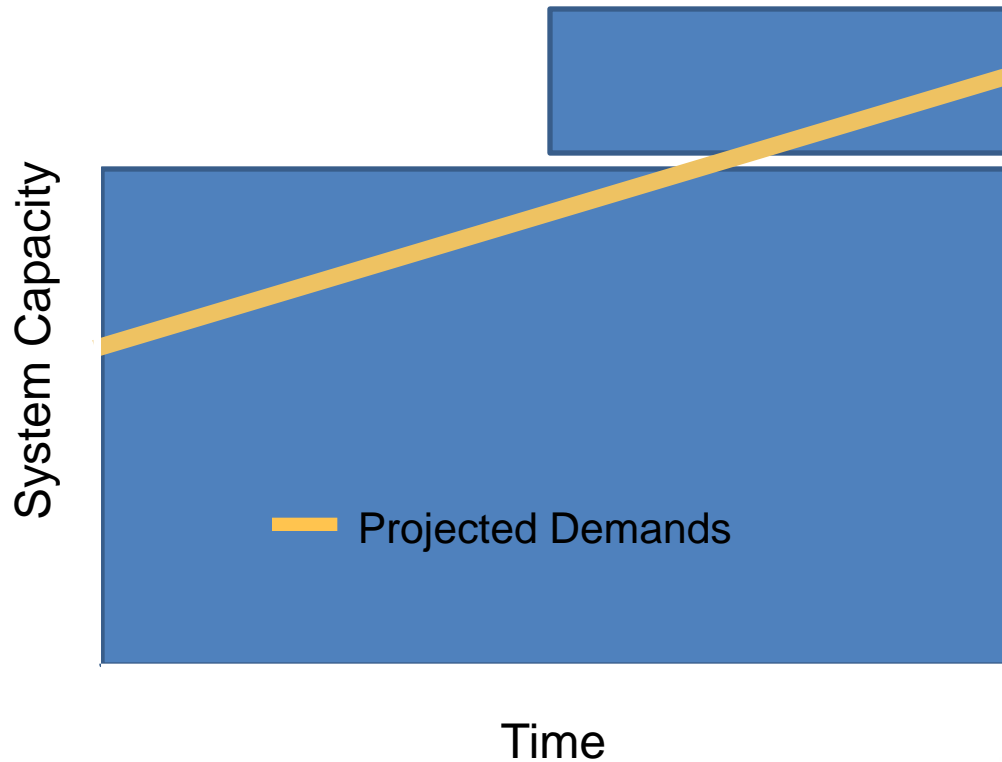
- Incorporate long-term operating & capital needs
- Evaluate financial impacts of CIP alternatives
- Evaluate impact of various growth scenarios
 - Uncouple customer and demand “growth”
 - Uncouple customer and revenue “growth”
- Maintain adequate fund reserves
- Develop flexible capital funding strategy
- Understand consequences of change

Financial plan serves as a roadmap for funding operating & capital programs, and maintaining long-term financial health

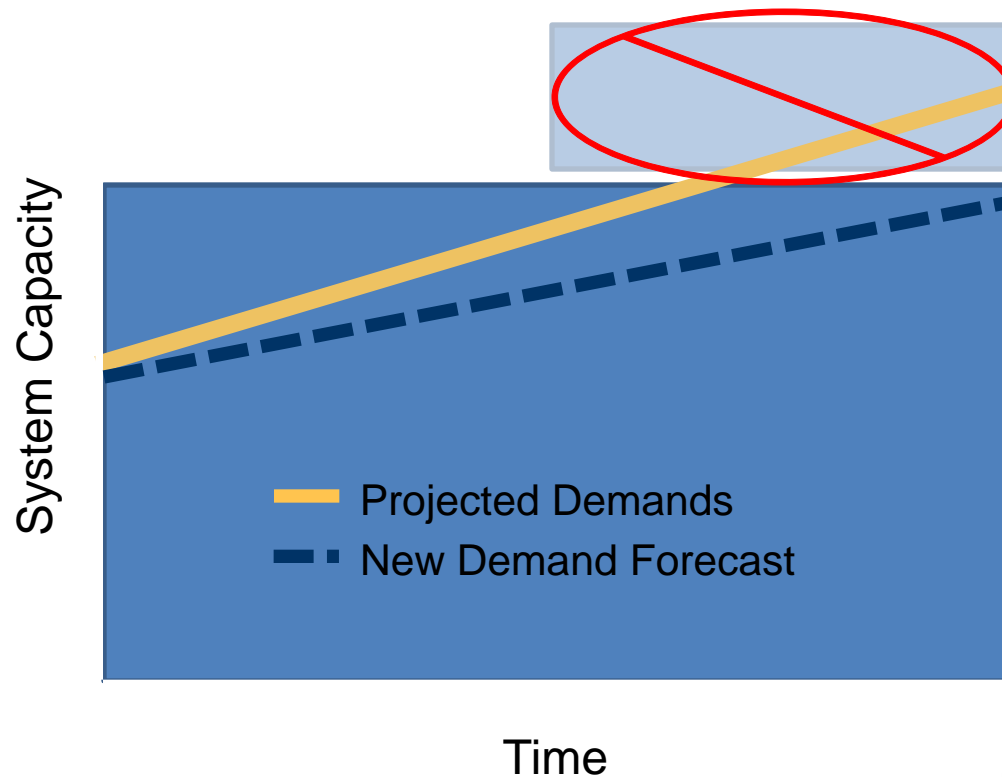
System Planning

- Revisit planning assumptions
 - Uncouple growth and demand
 - Uncouple growth and revenue
- Develop capacity-driven capital improvement schedules – not date-driven
 - Projects for growth can be delayed

Deferral of Capital Expenditures



Deferral of Capital Expenditures



A Look At the Water Industry

Past



- Assumed steady increases in water demands and wastewater flows
- Focus on short-term behavioral impacts
- Augment supplies and capacity in anticipation of growth

Present



- Declining per capita water demand
- Re-evaluating system plans and demand forecasts
- Better understanding of impact of education and price elasticity

Future



- Integrated system planning
- Predictive and risk based modeling
- Modular system planning
- Integrated capital and O&M to extend asset lives