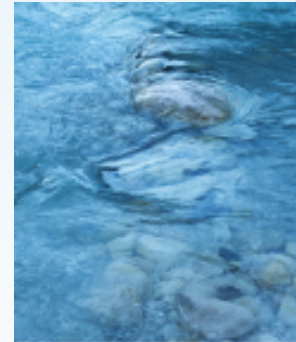
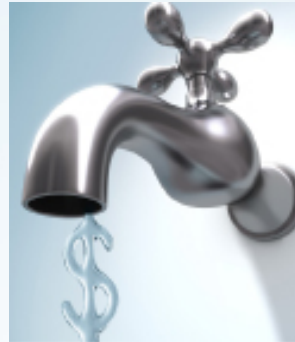


This presentation premiered at WaterSmart Innovations

watersmartinnovations.com

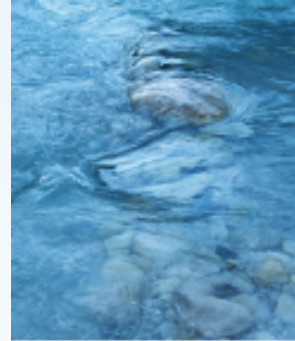




Truth be Told: Explaining the Real Relationship Between Conservation and Rates in Your Community

Speakers

- ▶ Mary Ann Dickinson, Alliance for Water Efficiency
- ▶ Peter Mayer, Water DM
- ▶ Candice Rupprecht, Tucson Water



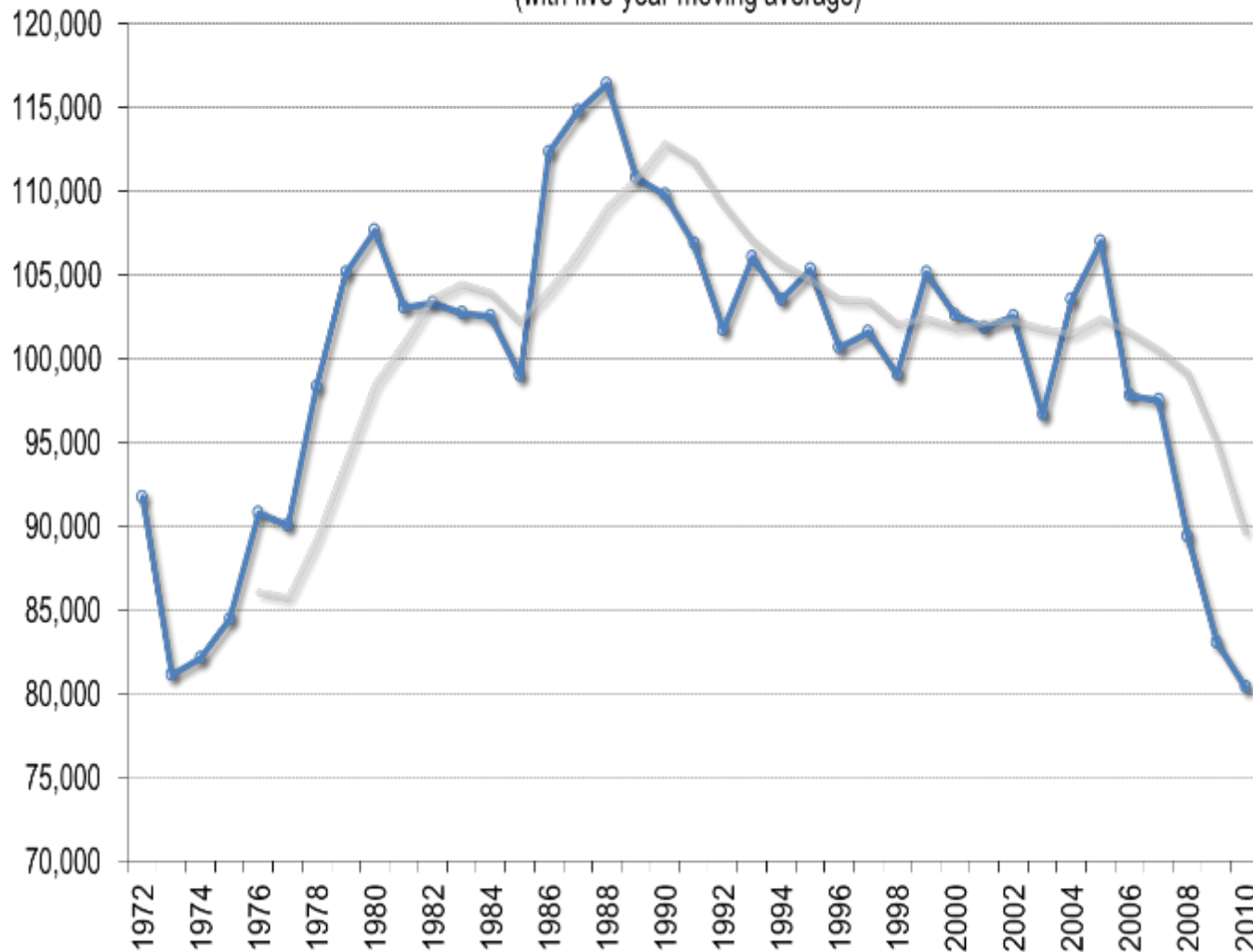
Introduction

**FINANCING
SUSTAINABLE
WATER**
Rates. Revenue. Resources.


Alliance
for Water
Efficiency

Residential Water Sales

Annual residential gallons sold per residential customer (NAWC)
(with five-year moving average)



Isn't this a Success Story?

- ▶ *Yes, but with side effects*
- ▶ Lowered demand means reduced sales revenue
- ▶ Reduced sales revenue can mean not fully collecting fixed costs
 - Short-run variable costs (water, pumping energy, chemicals)
 - Long-run capacity costs (supply, transmission, storage, treatment)
- ▶ Revenue stability therefore becomes an issue – *and conservation is often blamed*
- ▶ Left untreated, long-term unstable revenue collection can affect bond ratings

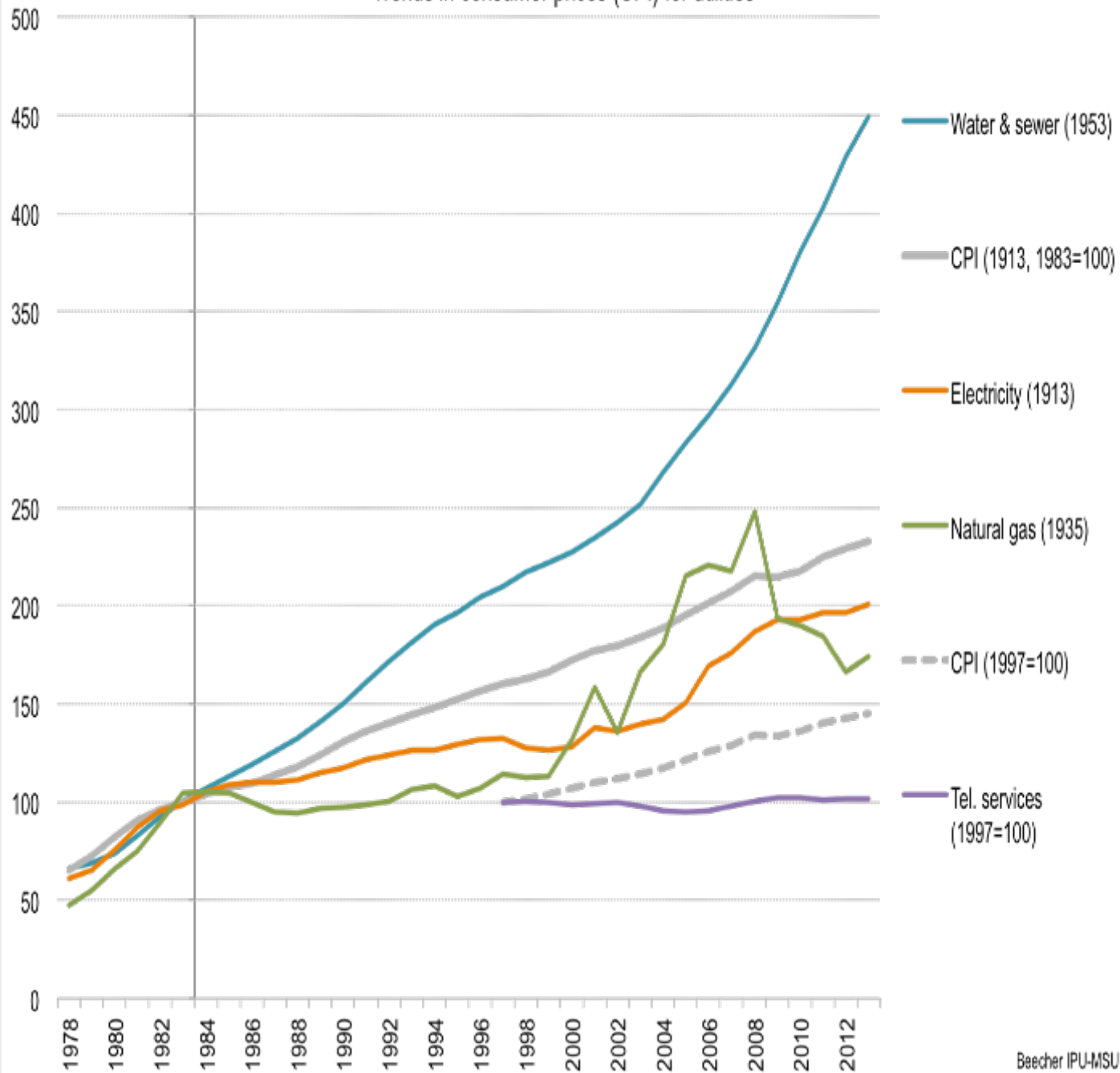
Texans Answer Call to Save Water, Only to Face Higher Rates

By NEENA SATIJA FEB. 8, 2014



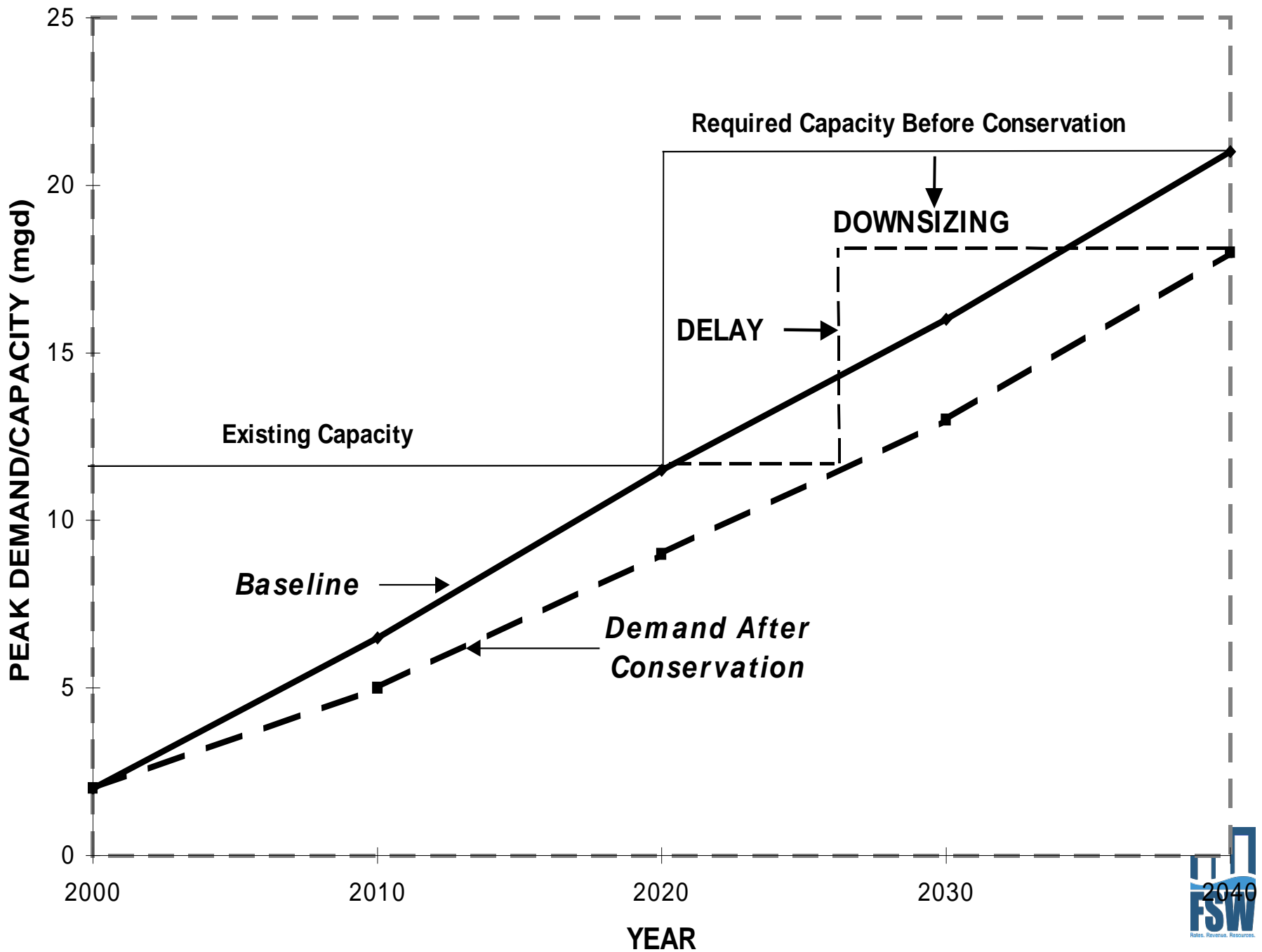
“The losses have prompted credit ratings agencies to look closer at the finances of public utilities in Texas. One agency, Fitch, downgraded some of Fort Worth’s water and sewer debt last year, and last week the firm downgraded the debt of the city’s wholesale water supplier. **Fort Worth lost \$11 million last year because of water conservation.**”

Trends in consumer prices (CPI) for utilities



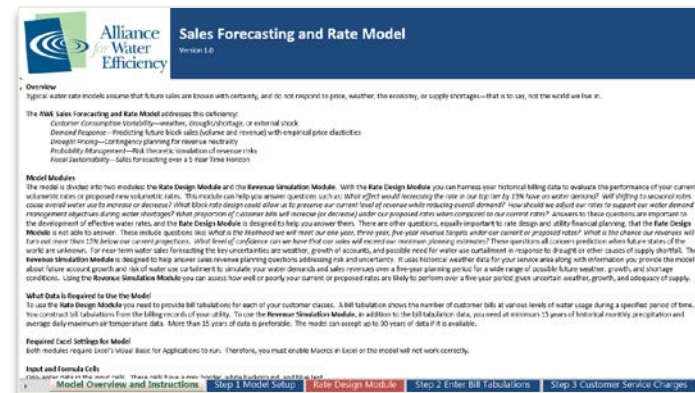
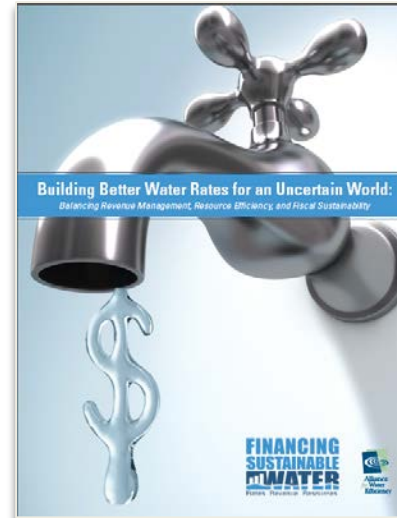
Conservation is Part of the Solution

- ▶ It is a long-term cost reducer to the utility
- ▶ Revenue loss is often due to other drivers
- ▶ Every gallon saved is water that does not have to be pumped, treated and delivered
- ▶ Conservation is an investment and short-term effects must be planned for
- ▶ Reduced utility costs generally mean reduced customer rates in the long-term due to avoided infrastructure capacity increases



What is Financing Sustainable Water?

- ▶ **Building Better Rates in an Uncertain World: A Handbook** to explain key concepts, provide case studies and implementation advice
- ▶ **AWE Sales Forecasting and Rate Model:** Innovative, user-friendly tool to model scenarios, solve for flaws, and incorporate uncertainty into rate making
- ▶ **FinancingSustainableWater.org:** Web-based resources to convey the latest research and information in one location



Communicating the Value of Water

- ▶ Water: What You Pay For Video
 - Explains water service and cost
 - Pipes, plants, power and people that keep water flowing
 - Free for utility use!
- ▶ Water Rates Messaging
 - ▶ Consumer-friendly language
 - ▶ Explain that conservation keeps rates DOWN in the long term
 - ▶ Use for speeches, talking points, press releases, etc.



“Every gallon saved is a gallon that doesn’t need to be pumped, treated or delivered – those savings are reflected in your water bill.

Conservation helps slow the rise of water rates over the long-term.”

Financial Instruments to Manage Revenue Risk

A new white paper explores opportunities for utilities to use financial instruments - such as derivatives, insurance and bonds - to manage weather-related revenue risk in an increasingly volatile climate.



Rates. Revenue. Resources.

Financing Sustainable Water is an initiative of the Alliance for Water Efficiency. It was created to provide practical information to guide utilities from development through implementation of rate structures that balance revenue management, resource efficiency and fiscal sustainability. This website will be updated frequently with new content and we encourage visitors to return often for additional information and resources. The Alliance serves as a North American advocate for water efficient products and programs, and provides information and assistance on water conservation efforts. [Learn More](#)



RATES HANDBOOK
Building Better Rates for an Uncertain World



RATE MODEL
Sales Forecasting and Rate Model

RECENT NEWS

- [Welcome to Financing...](#)

FEATURED RESOURCES

- [Case Study: Cobb County](#)
Public Engagement Success
- [Report: Westminster, CO](#)
Conservation Lowers Rates



WATER MANAGERS

Find guidance on sustainable financial management



ELECTED OFFICIALS

Support your utility through smart management practices



CONCERNED CITIZENS

Learn how you can help create a sustainable water future



MEDIA

Get facts on today's water challenges and solutions

A WILD WEST TALE: DEBUNKING THE MYTH THAT CONSERVATION INCREASES RATES

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WATER CONSERVATION
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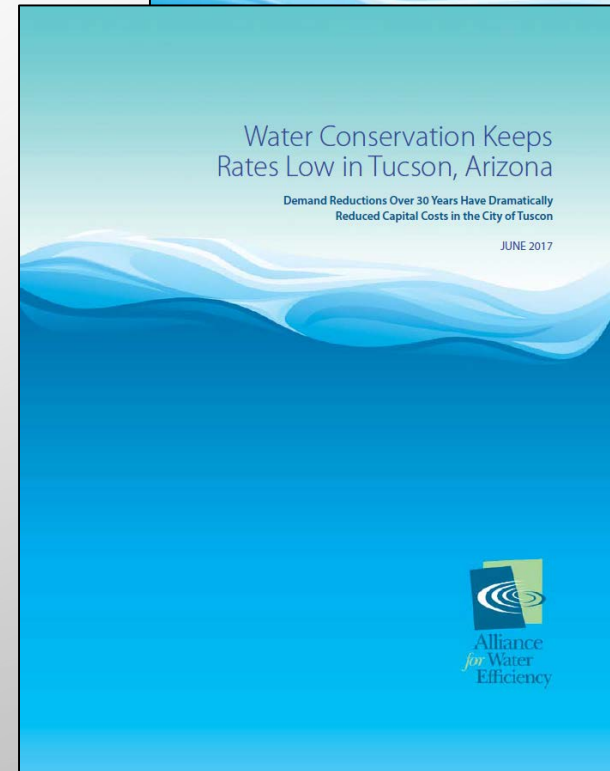
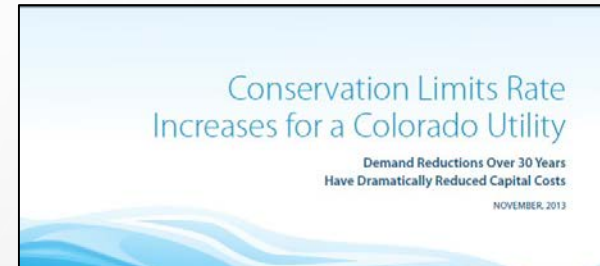
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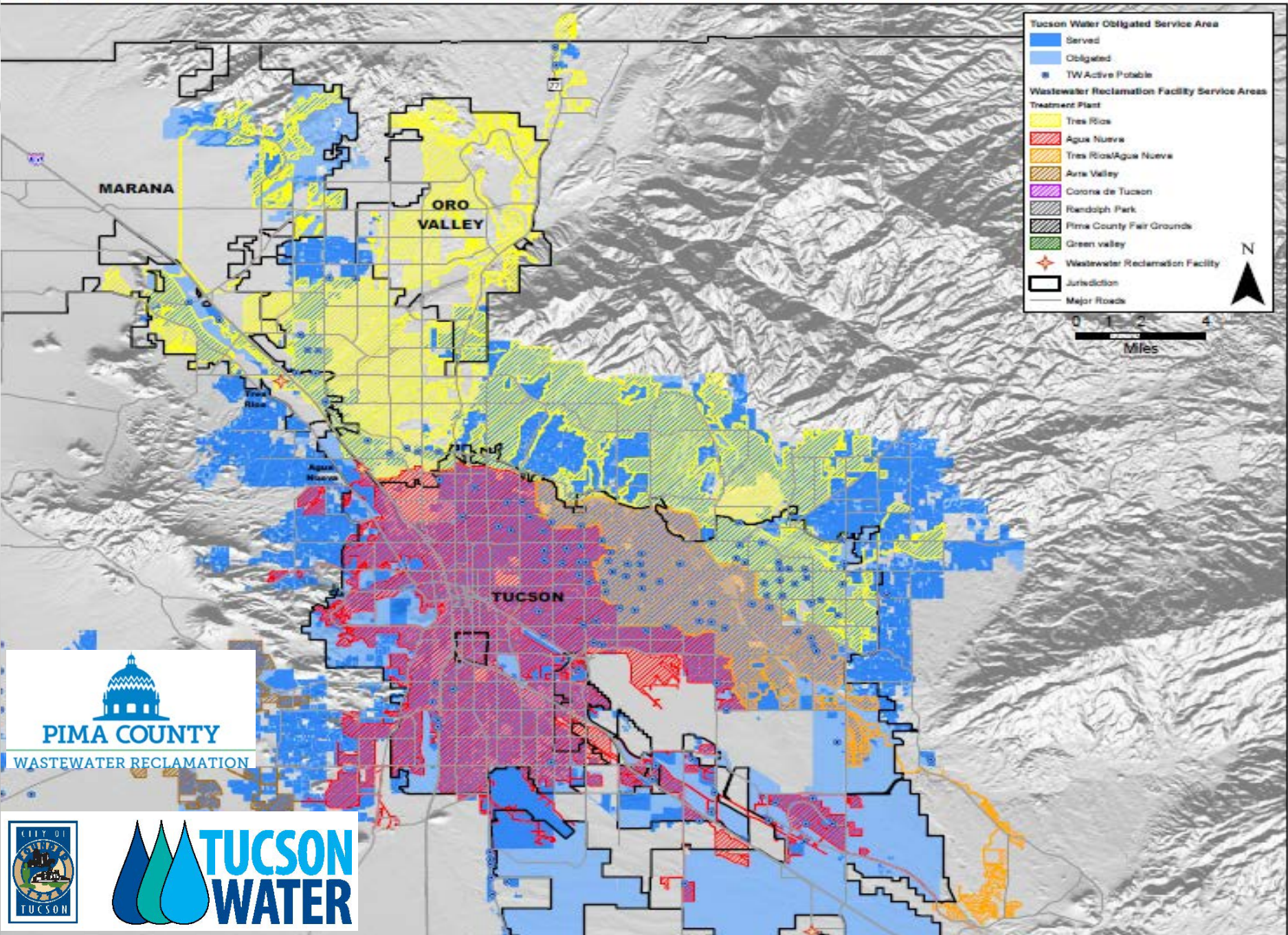


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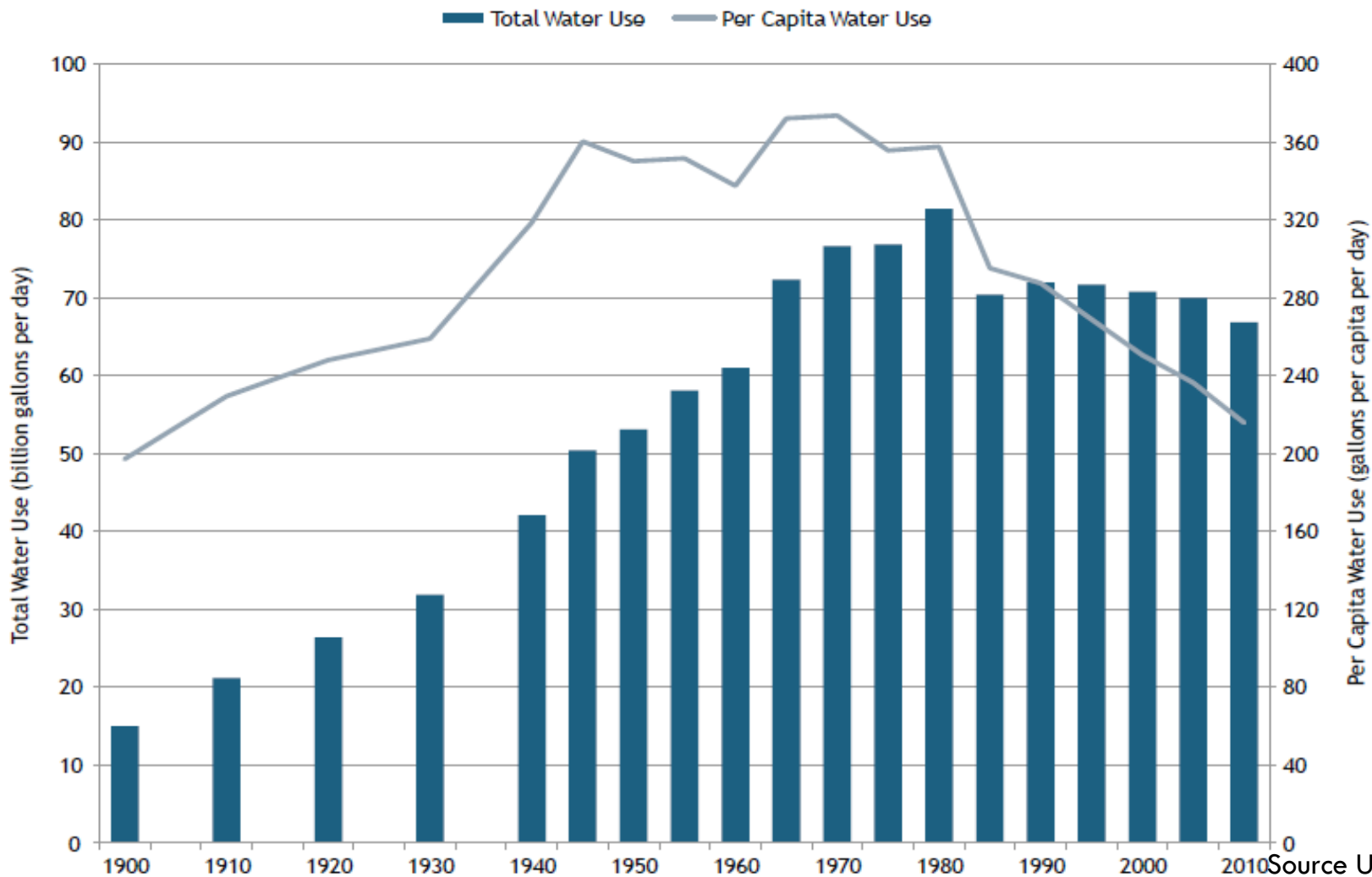
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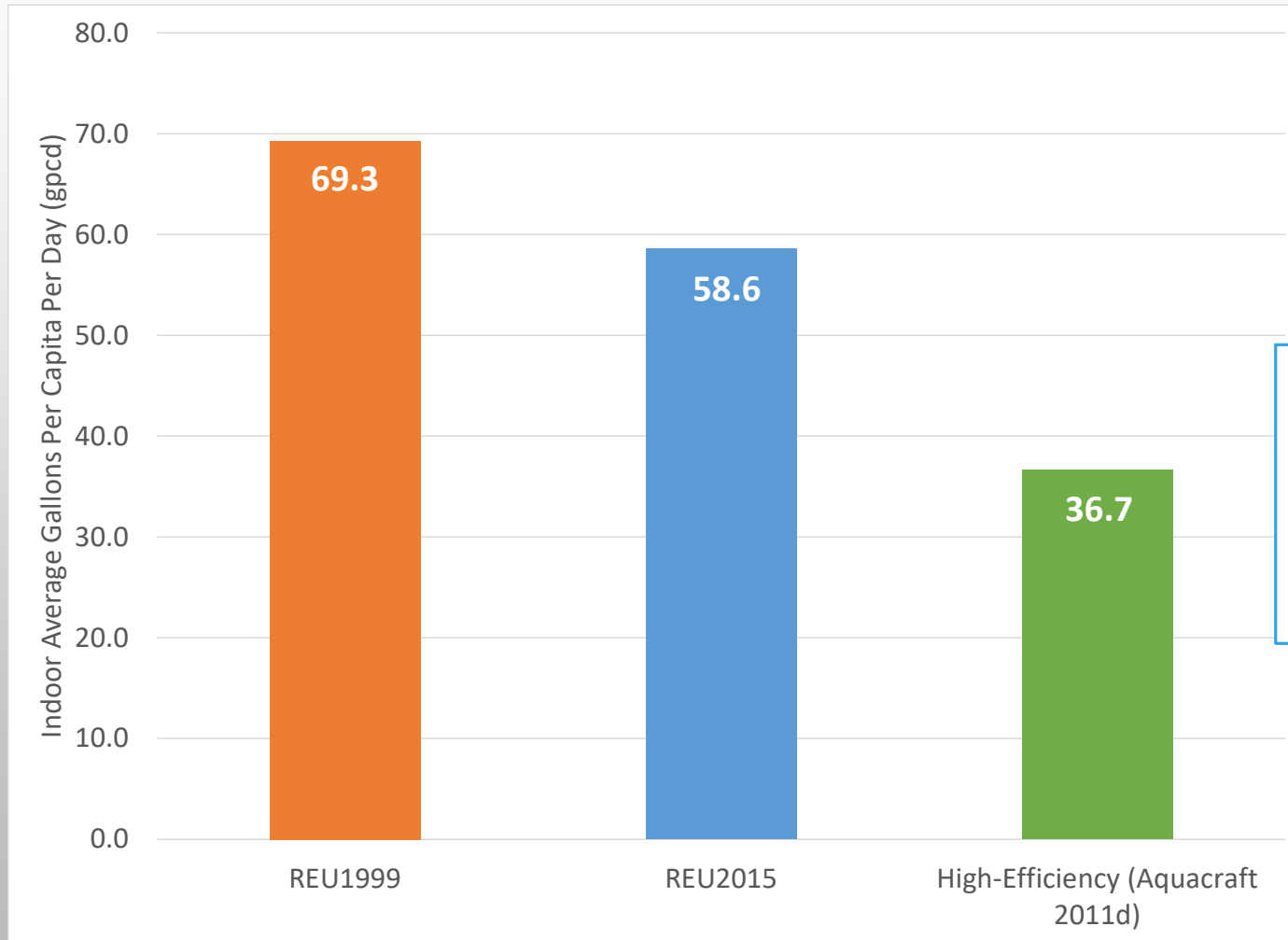


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Source USGS and Pacific Institute 2015

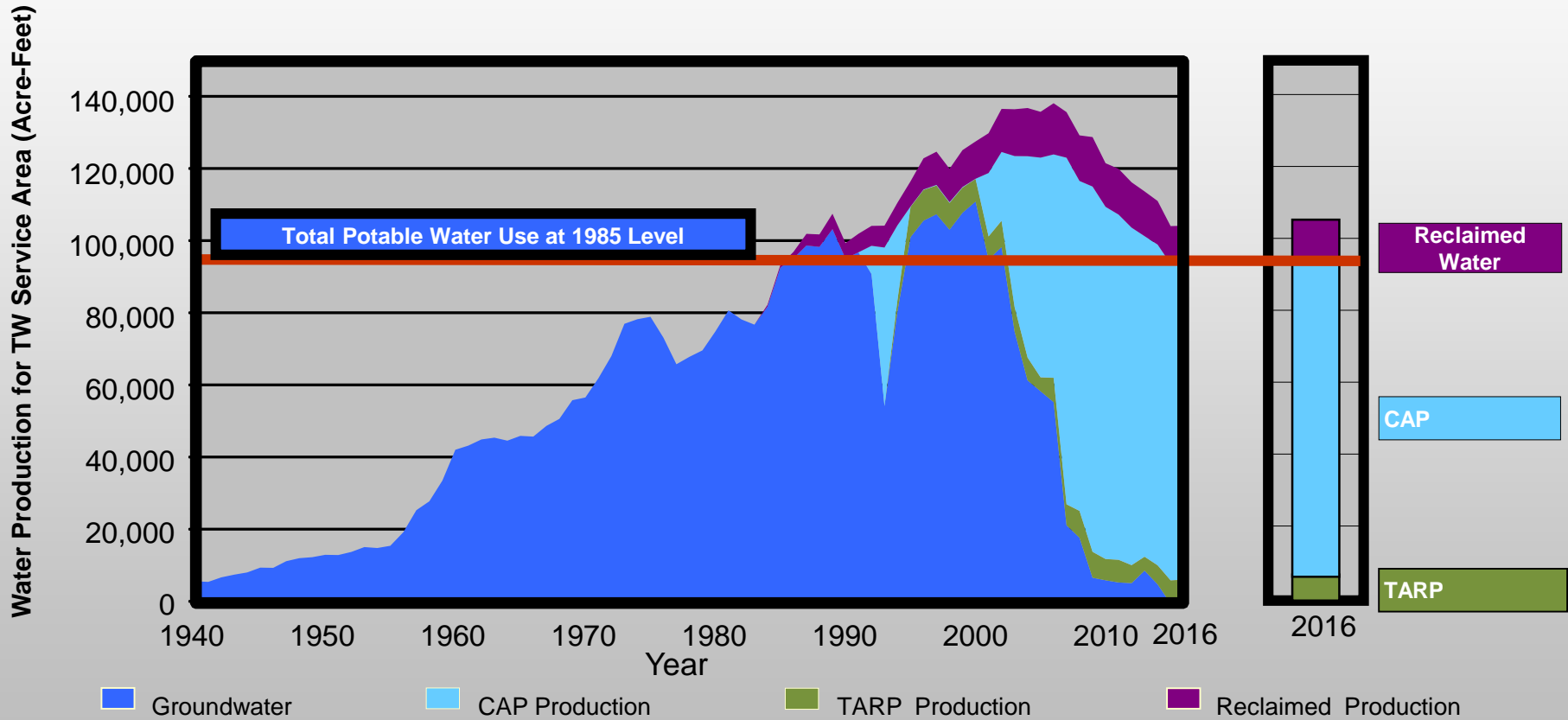
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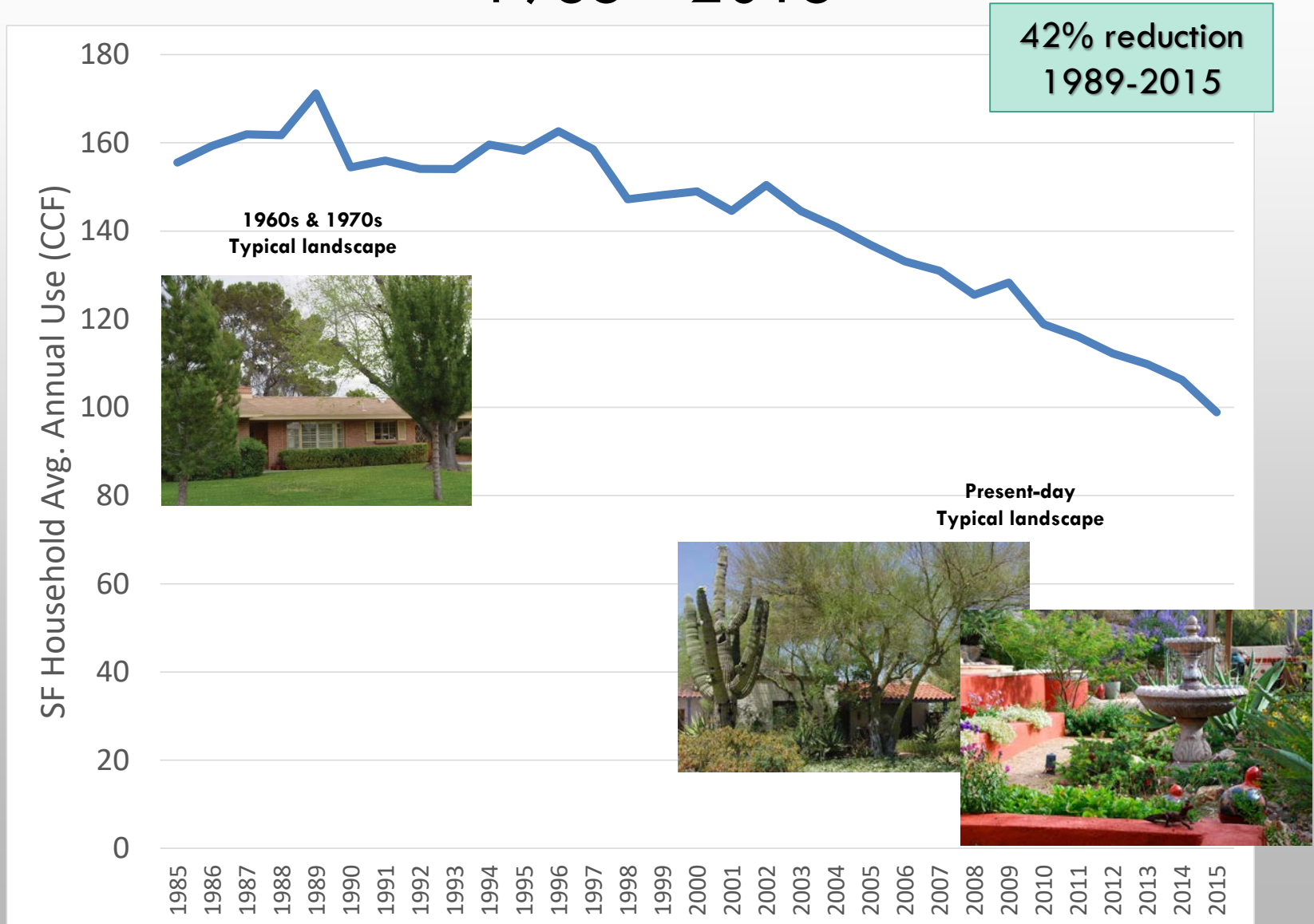
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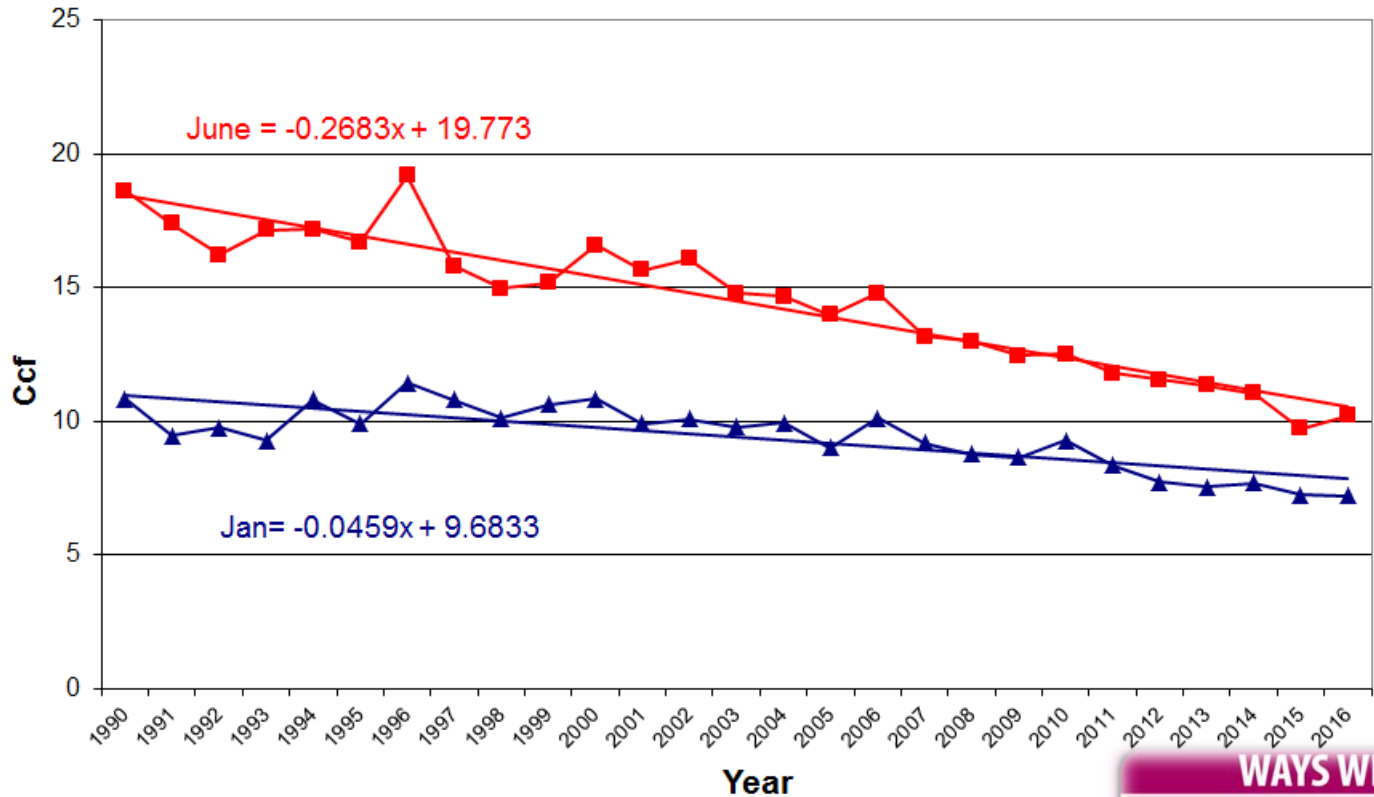


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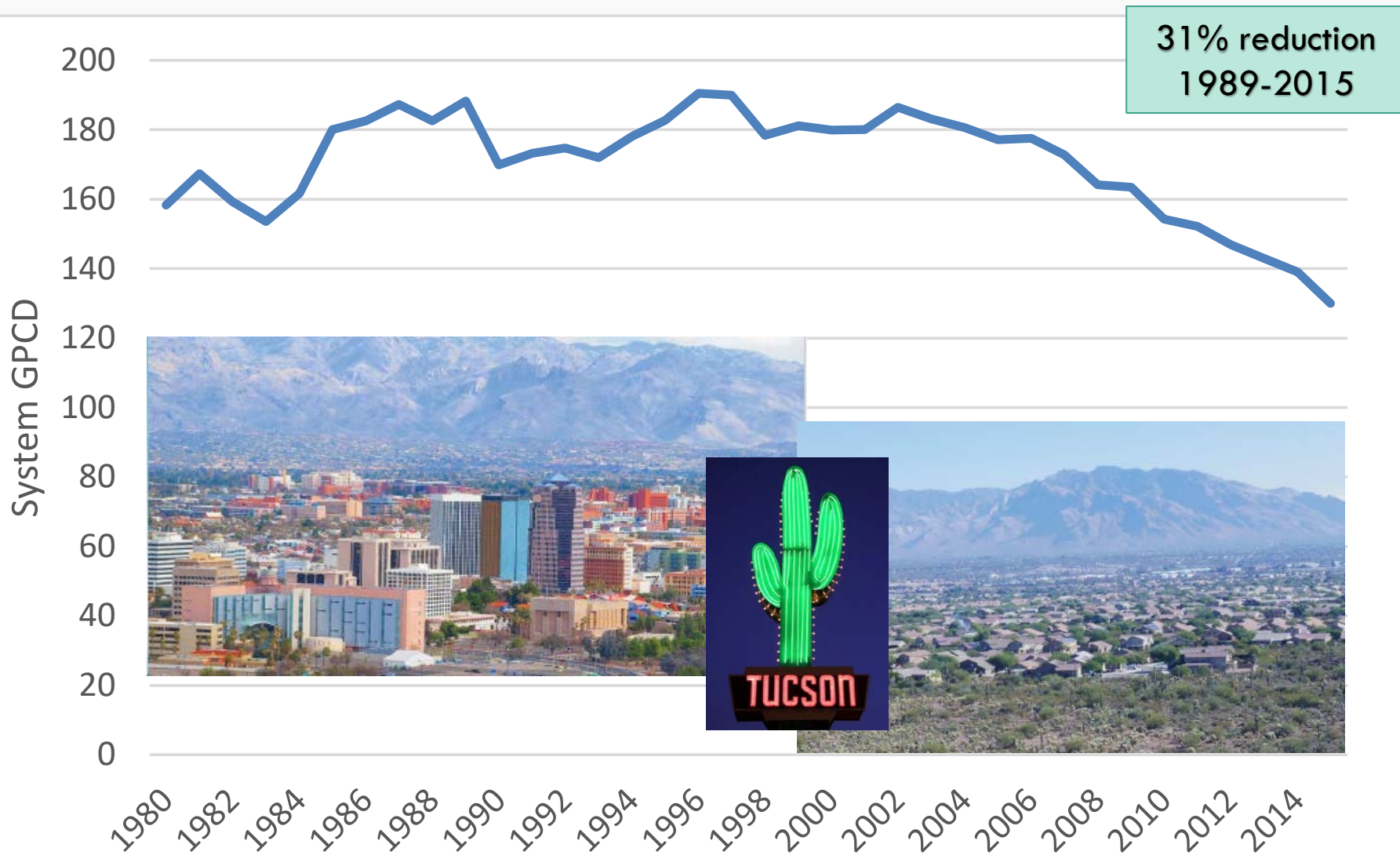


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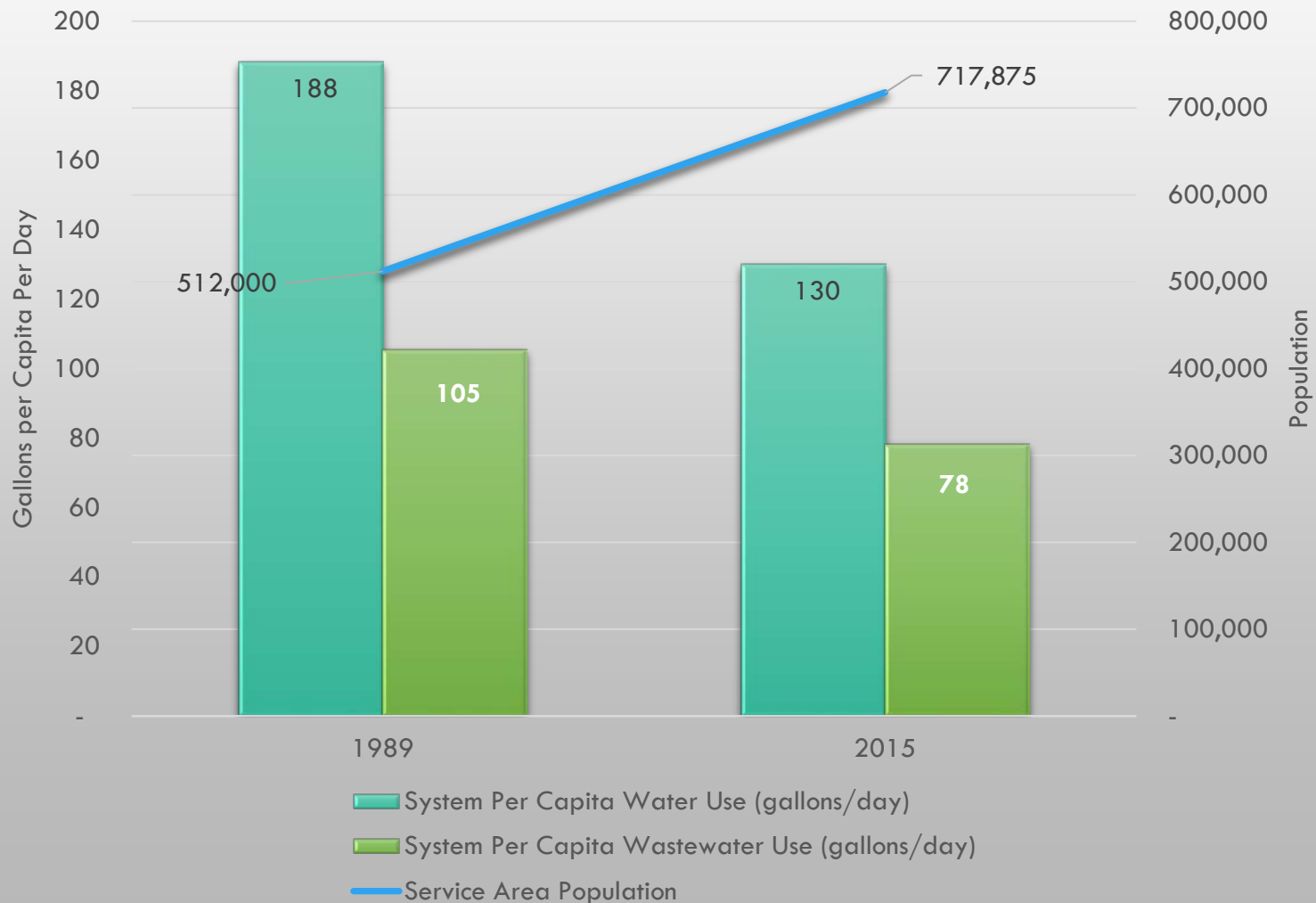
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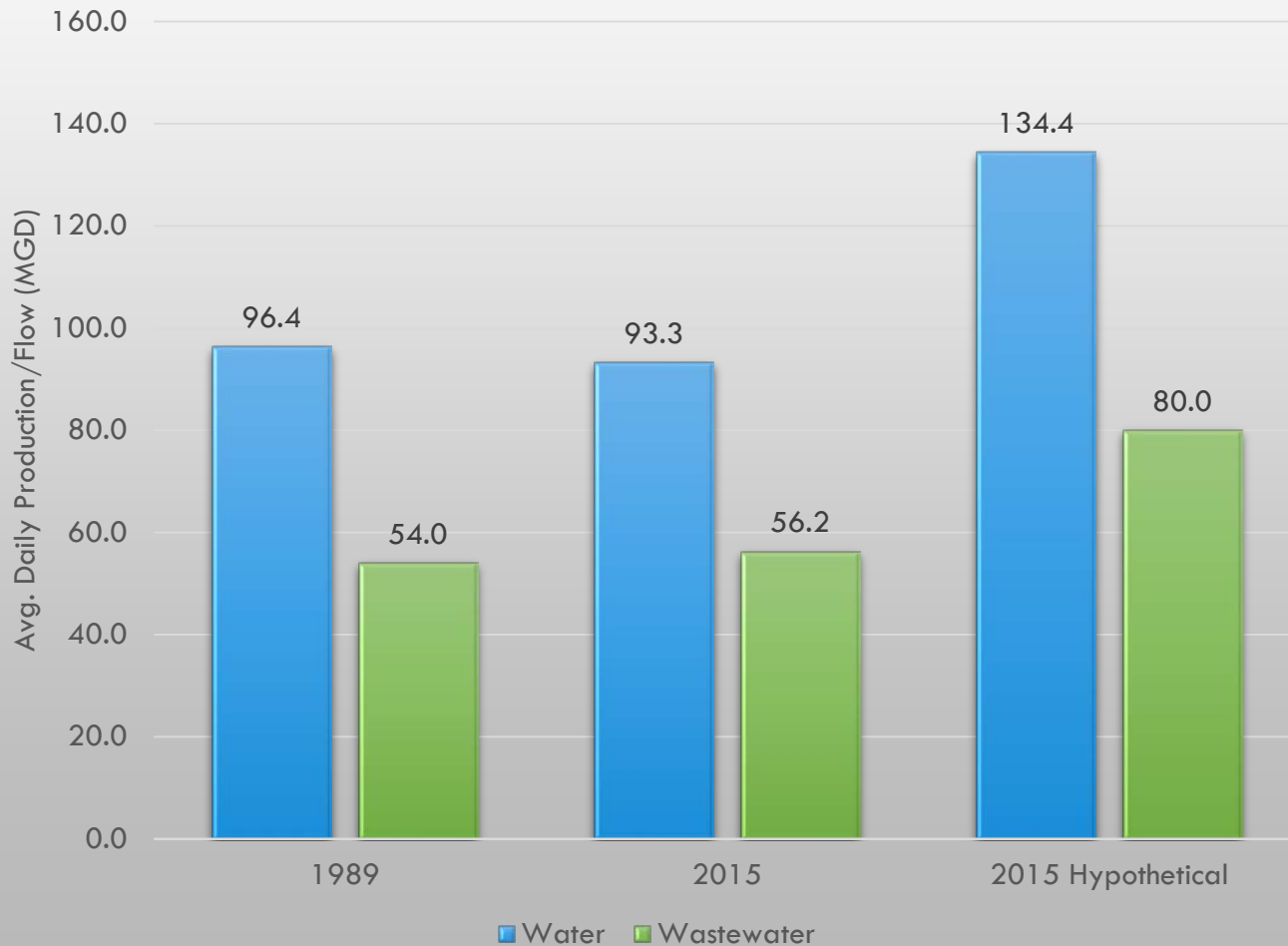
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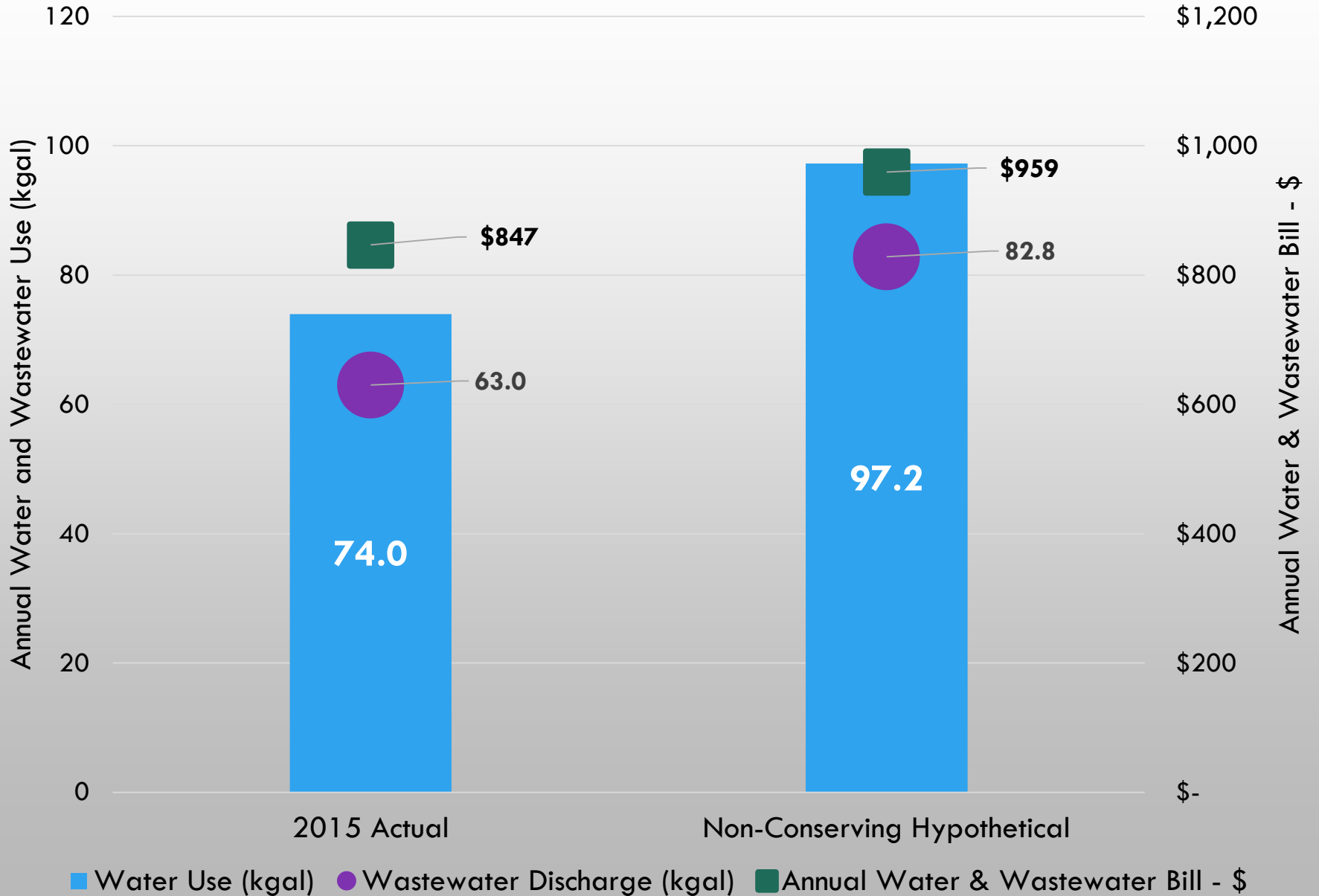


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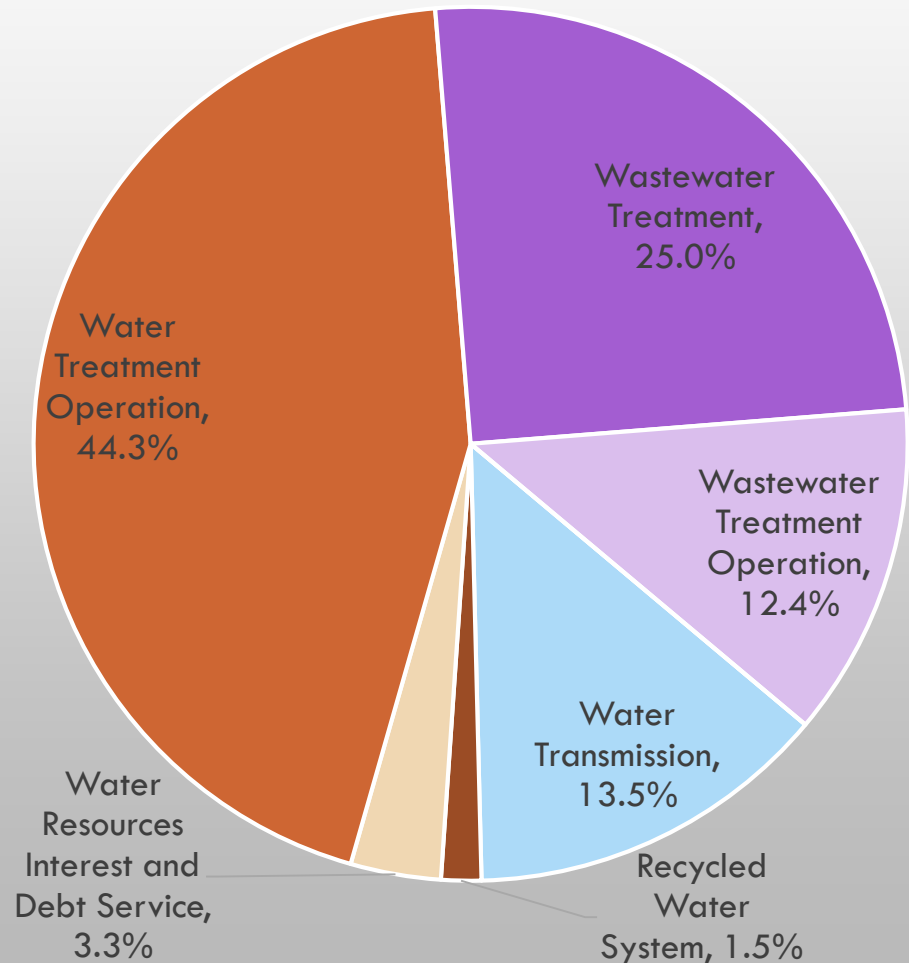
Impact to an Average Single-Family Customer - Tucson, AZ



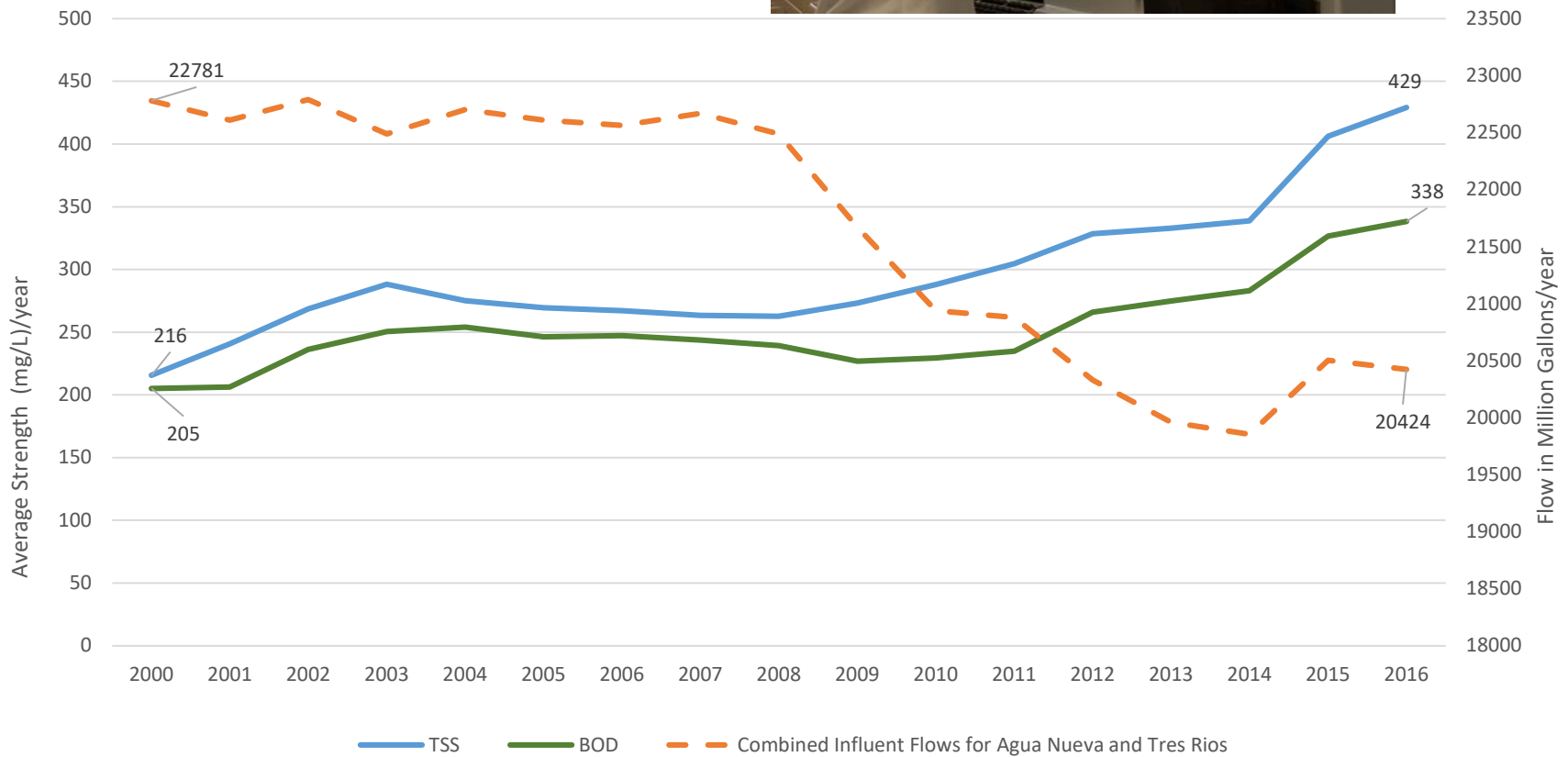
BREAKDOWN OF AVOIDED COSTS

Today, Tucson Water rates are **15% lower** and Pima County RWRD rates are **8.6% lower** than otherwise necessary if per capita water demand had not been reduced.

Total avoided costs:
\$350,862,732



STRENGTH OF SEWER FLOWS



LOWER FLOW IMPACTS TO THE CONVEYANCE PIPES

- Scour velocities may take longer to attain in newer developments with lower flows
- Flushing of pipes may be required
- Potential for more odors in pipes
- Potential for corrosion in pipes
- Terminal ends may require steeper slopes
- Cost goes up for deeper sewers



- Water and wastewater rates have increased because of the increasing costs of providing 24/365 service, while maintaining and improving infrastructure to meet regulatory treatment requirements.
- Decreasing demands are a balancing act: Revenue v. Resources
- **The typical Tucson single-family customer pays at least 11.7% less for water and wastewater service today, than if water efficiency had not been achieved.**

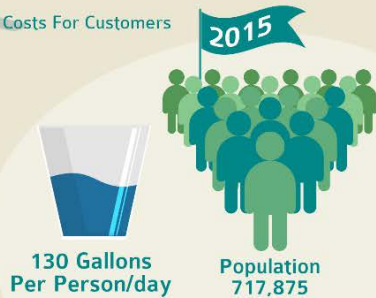
Bottom Line: When Everyone Conserves, Everyone Saves

EVER WONDER WHY your water rates are going up, even though YOU'RE USING LESS?



Tucson, Arizona

Water Conservation Over 30 Years Reduced Costs For Customers



Population increased by 40%, while per person water use declined – **by 31%**

Because the community conserved, the same family's bill is 11.7% lower



Why?

If per person use had not decreased, Tucson would have needed to invest \$350 million in new water and wastewater infrastructure to pump more water through the water system and treat more wastewater.

Primary conservation drivers:

Conservation programs (indoor and outdoor), youth and homeowner education, efficiency-oriented rates, national plumbing codes, equity

Primary water challenges:

Rising costs of water, rising costs of infrastructure maintenance, Public awareness of the value of water

So What Did We Learn?

When Everyone Conserves, Everyone Saves.

Water rates are rising, but when communities conserve, they don't go up nearly as much.

Each water and wastewater customer has avoided the costs of acquiring, delivering, and treating additional water supplies that would have been necessary - had they not conserved.

Individual actions add up! When everyone does their part to conserve, the entire community benefits from lower rates in the long-term, sustainable water supplies, and healthier watersheds.

To learn more, visit
www.FinancingSustainableWater.org



WORKING WITH WATER

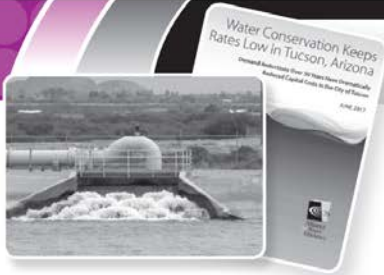
Ward 2 Council Member Paul Cunningham provides a perspective on water rates, usage and the long term benefits of conservation and using water efficiently. He explains how conservation has helped to temper utility capital and operating costs and to keep rates low, as detailed in an independent study by the Alliance for Water Efficiency released in June.

Back in Tucson's territorial days, water could be hard to come by. If you lived in town in the 1870s, chances are you didn't have a well and you had to buy water from someone who would bring it up in a wagon from springs in the Santa Cruz Valley south of town. You'd be charged a penny a gallon.

In today's dollars, that comes out to twenty-one cents a gallon. Tucson Water doesn't bill by the gallon, but by the Ccf, which is 100 cubic feet of water or nearly 750 gallons. You'd be paying the equivalent of \$158.97 per Ccf in the 1870s.

Which brings me to present time: as of July 3, we are paying a bit more for water.

The average single family household that uses 8 Ccfs per month will see an



increase of \$2.84 or about \$35 per year. I have a young family myself, so I know what even a modest price increase can mean for a tight budget. Still, I supported the rate increase.

Despite the fact that it is a part of city government, Tucson Water is self-funded and receives no money from taxpayers. Tucson Water is a public utility meaning it is owned by you and other citizens. The utility runs safely, efficiently, and in the public interest and, even with this rate increase, at rates below the average for other water utilities in Arizona.

Tucson Water has done a good job keeping costs low while maintaining council-mandated conservation and low-income programs. Still, the reality is that many of the utility's expenses continue to increase.

Which leads to a question that I get from constituents: Why am I going out of my way to cut down on water use if you are going to raise my rates anyway?

It's a valid question. Community members have done a lot to save water and use it more efficiently

Go to tucsonaz.gov/water for the June 2017 Alliance for Water Efficiency Study, "Water Conservation Keeps Rates Low in Tucson, Arizona."

than many other southwest towns and cities. After hitting its peak last decade, total water use by Tucson Water customers is now at the same level it was in 1985 when we had 200,000 fewer people. But what's the reward if water bills keep going up? Well, there is something called avoided costs.

There are expansions that Tucson Water has avoided because of lower water use, efficiency and conservation. A study by the Alliance for Water Efficiency estimates that Tucson Water's maintenance and operation costs would be 30% higher than they are now if old usage trends had continued. That's almost \$23 million.

Tucson Water has also managed to avoid having to build some expensive new infrastructure. Plans for an Avra Valley transmission facility were shelved because of the lack of need. That is \$140 million that Tucson Water didn't spend because use is down so much. Pima County Regional Wastewater Reclamation Department collaborated on this study. Lower water use has helped avoid nearly \$200 million in wastewater system expansion costs.

These savings are passed on to customers through lower water and wastewater rates. In all, your bill is 11.7% lower than it would be had we not been conserving.

The reality is that the cost of everything is going up, and that's reflected in our water bill. Still, much of what you've done as conscientious and efficient water users has kept those costs from increasing even more.

WATER CONSERVATION OVER 30 YEARS REDUCED COST FOR CUSTOMERS



AUGUST 2017

WATER MATTERS

inside this issue

- Your Utilities: Wastewater & Environmental Services 2-3
- Working with Water: Conservation Saves Capital Costs 4-7
- One City One Team: Educational Tools about Sustainability 8

Ward 2 Council Member Paul Cunningham provides information about how conserving water saves millions of dollars, backed by a recent study by the Alliance for Water Efficiency.

(See Working with Water, pg. 4-7)

tucsonaz.gov/water

CALL	CLICK	SOCIAL	TDD	WATCH
Public Information English & Español: (520) 791-4331	tucsonaz.gov/water		(520) 791-2639	tucsonwater

QUESTIONS? THANK YOU!

CANDICE.RUPPRECHT@TUCSONAZ.GOV

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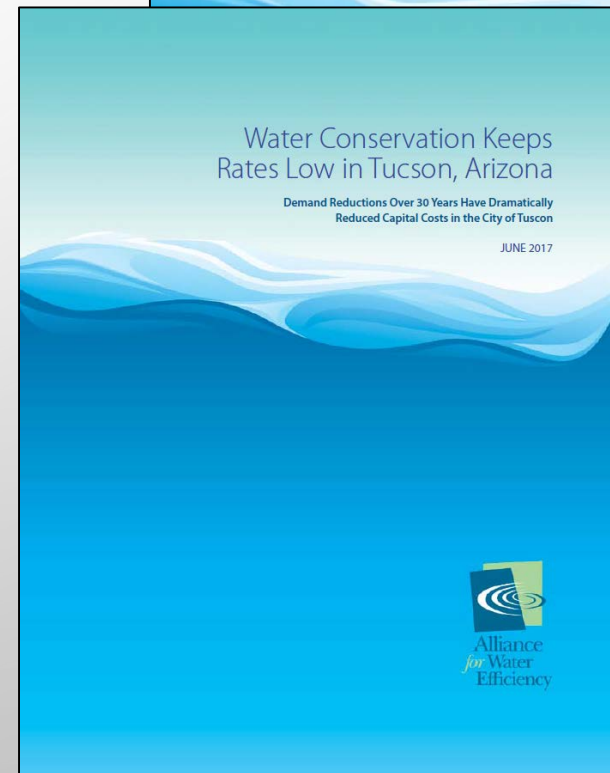
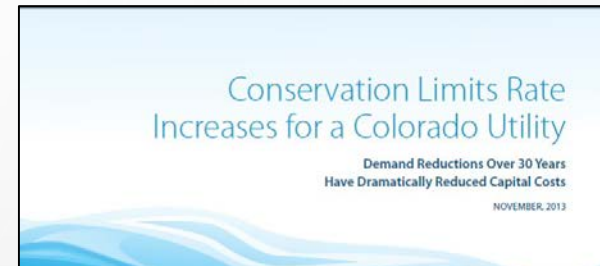
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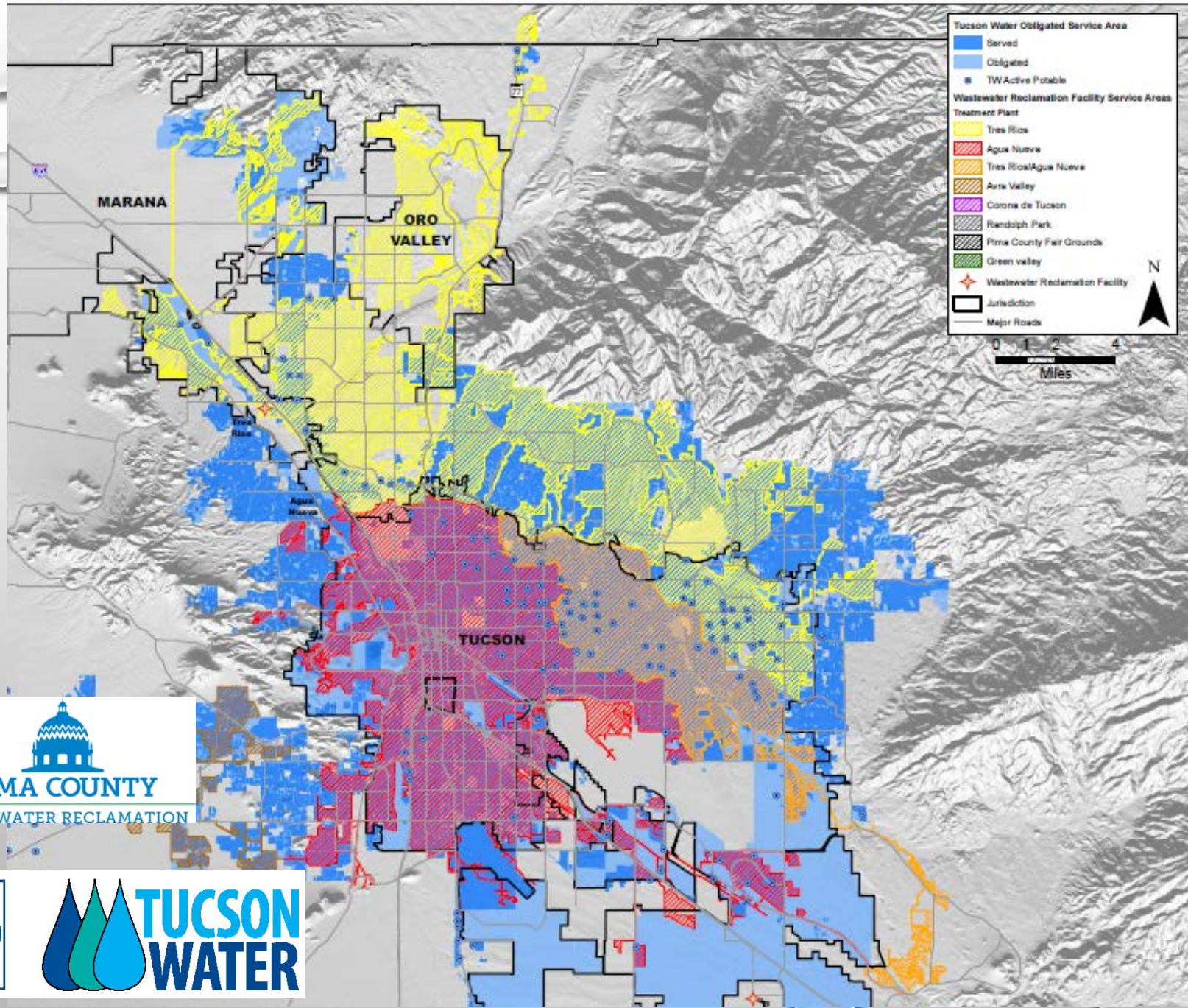


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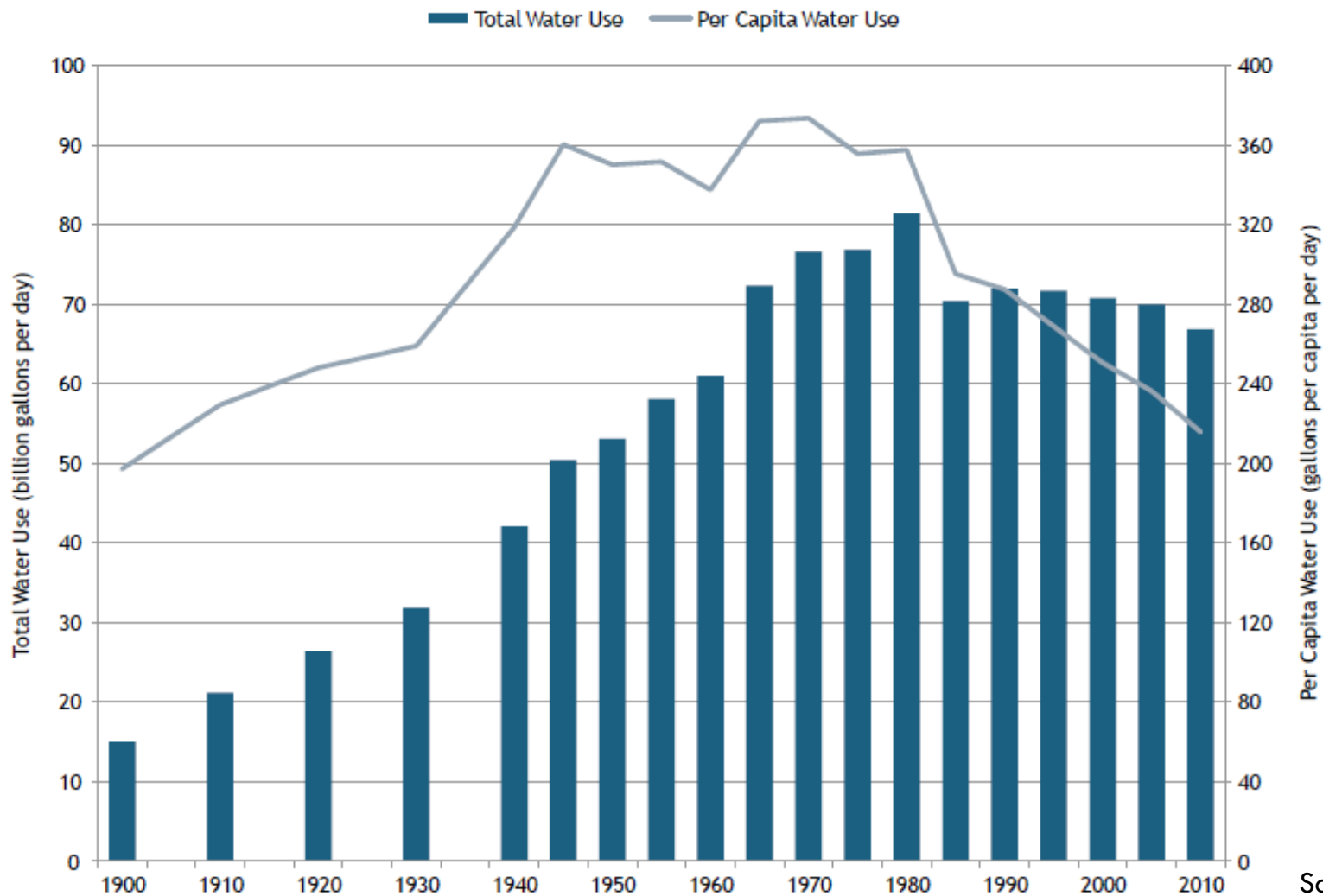
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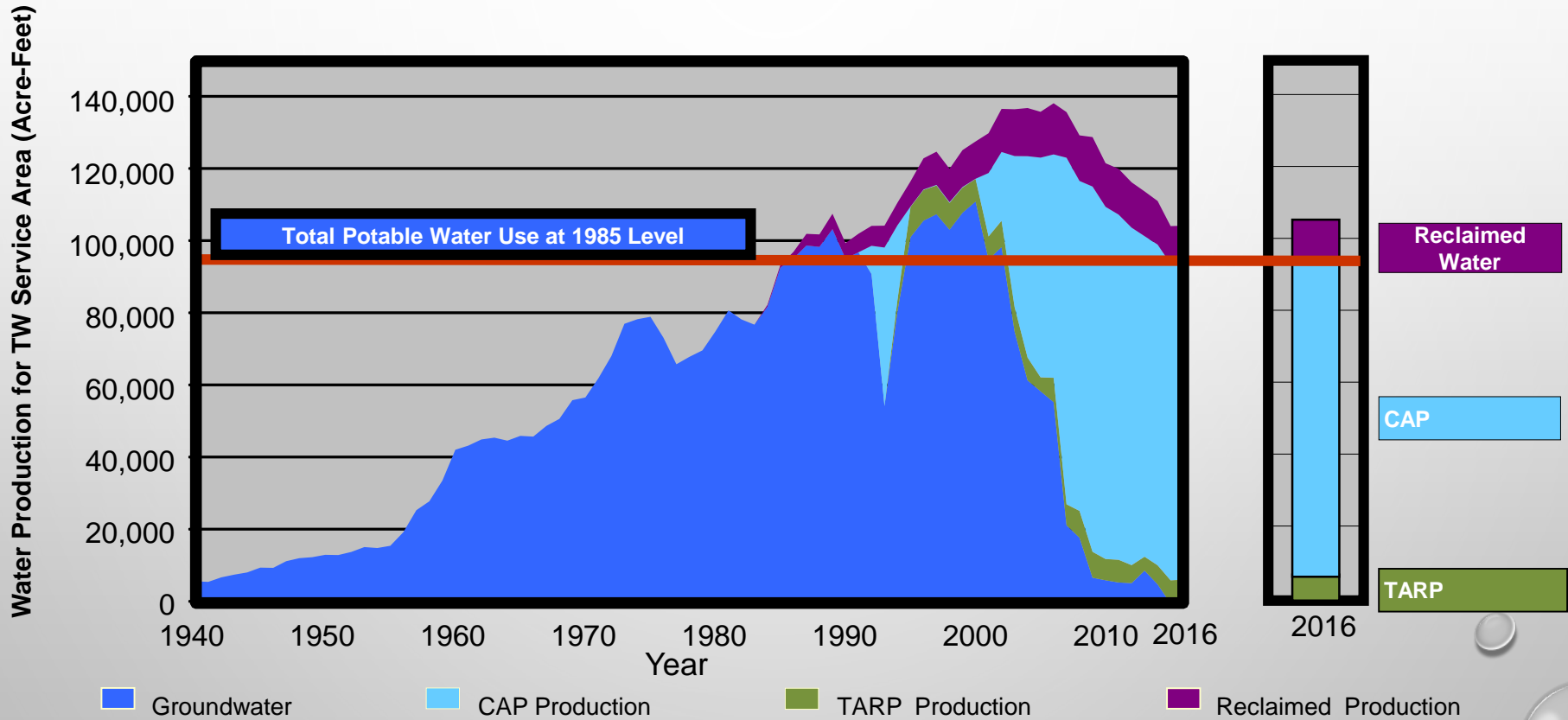
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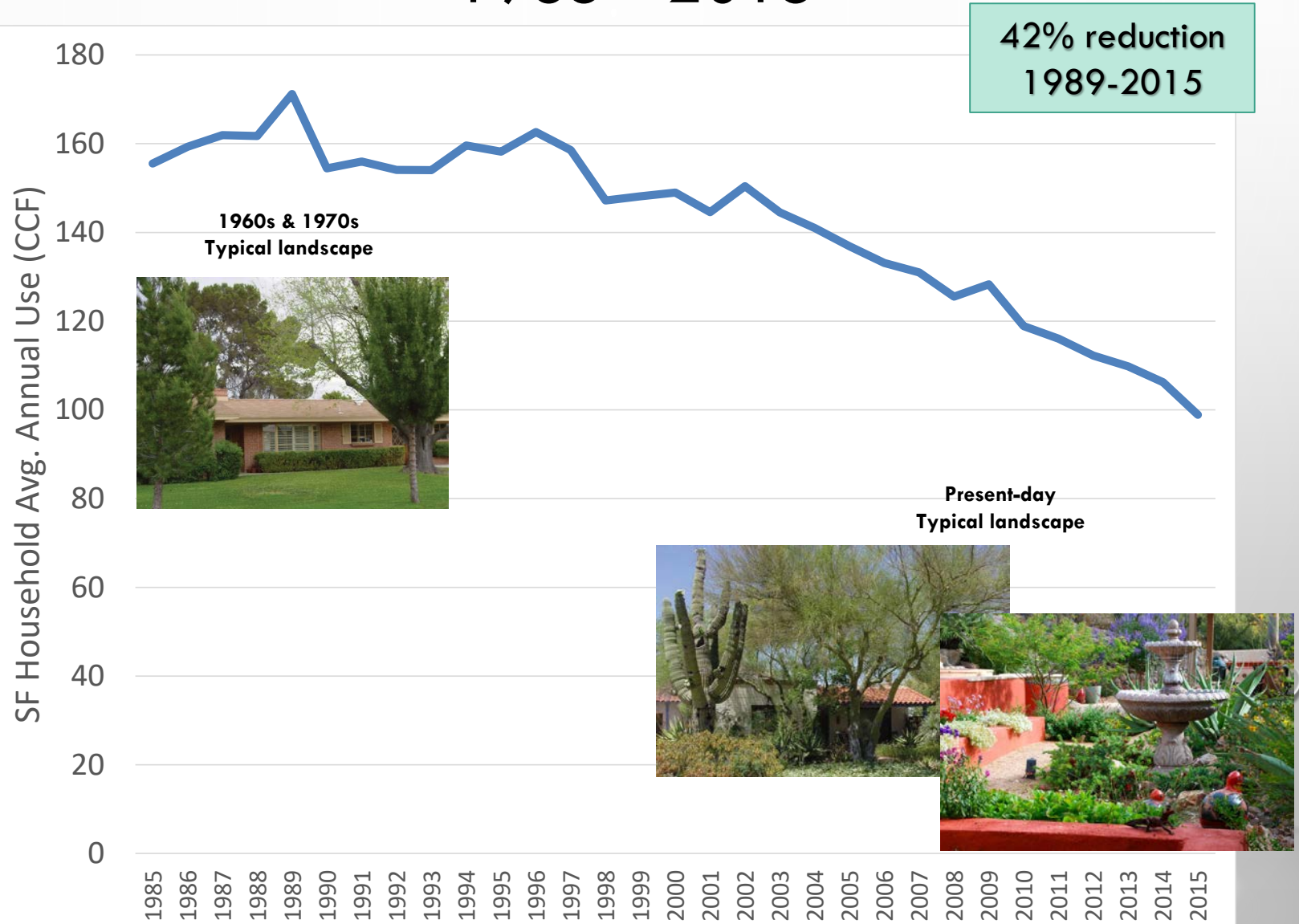
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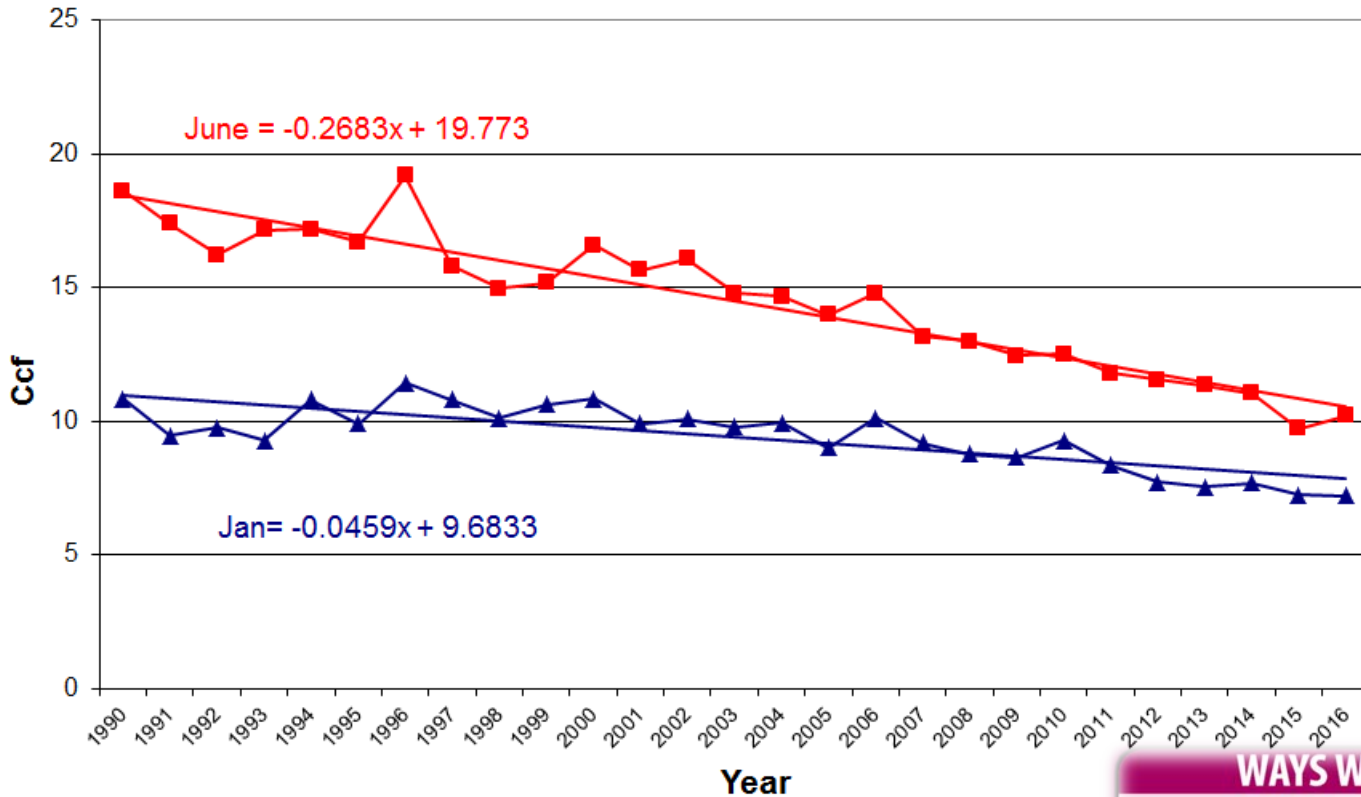


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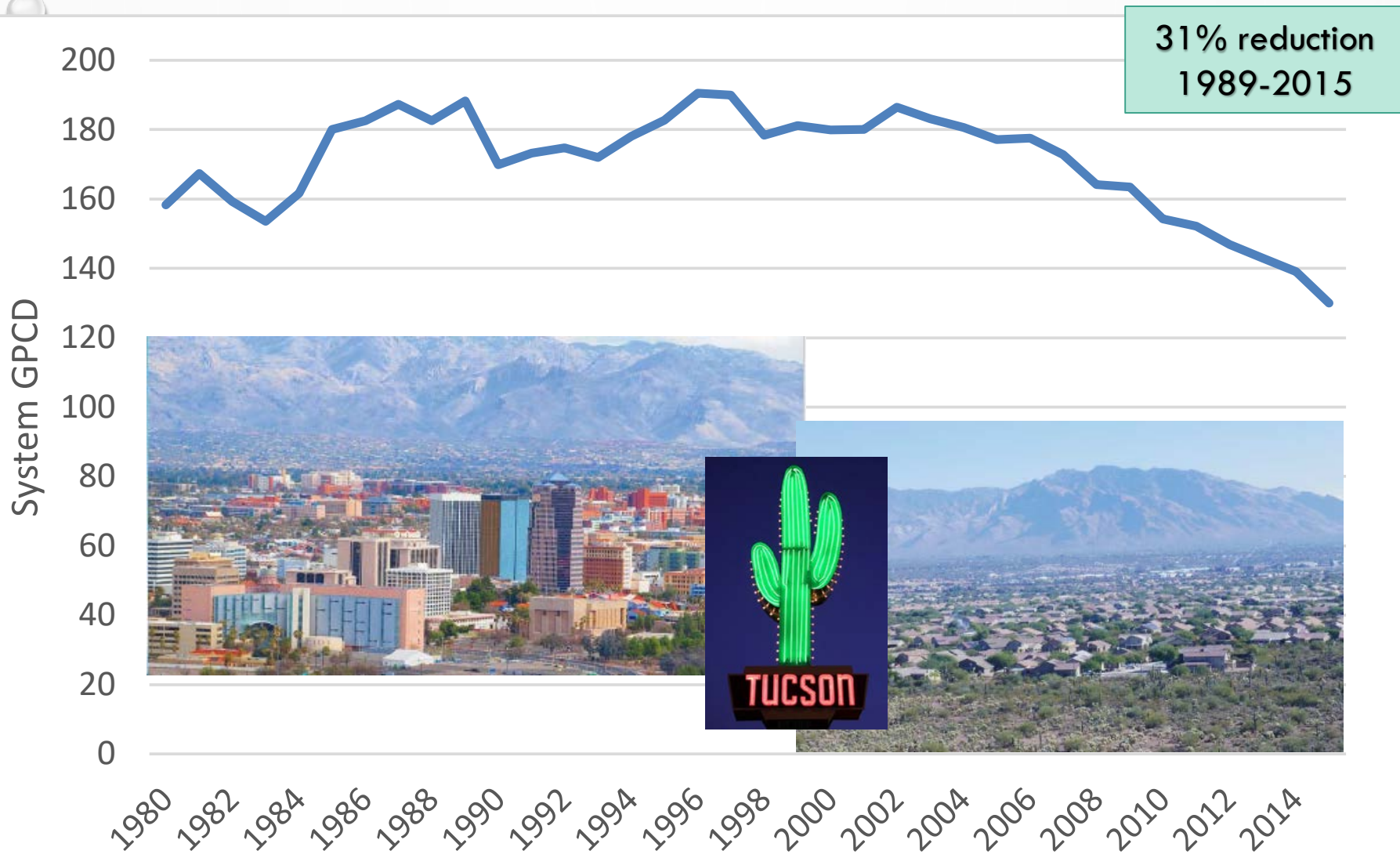


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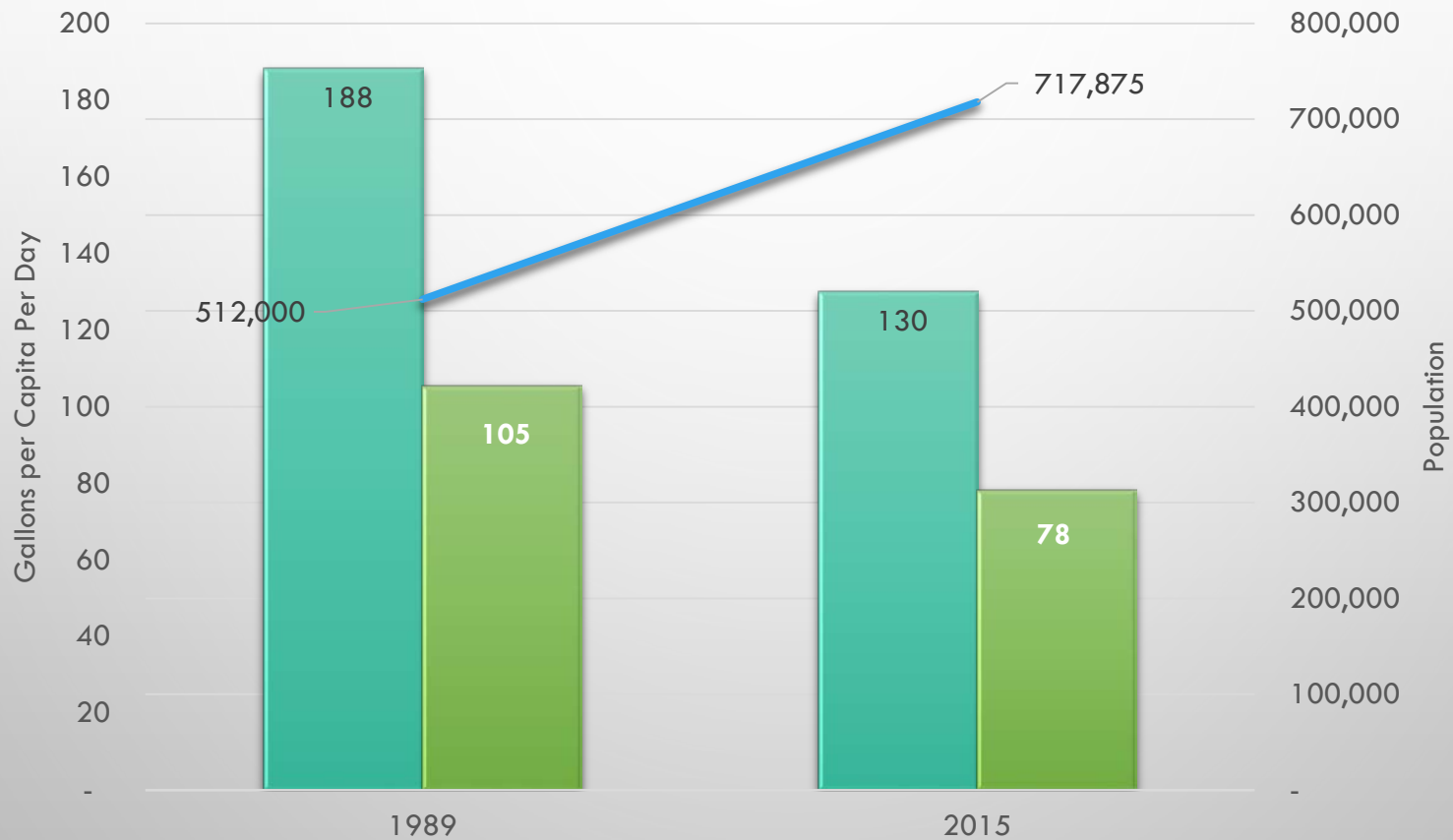
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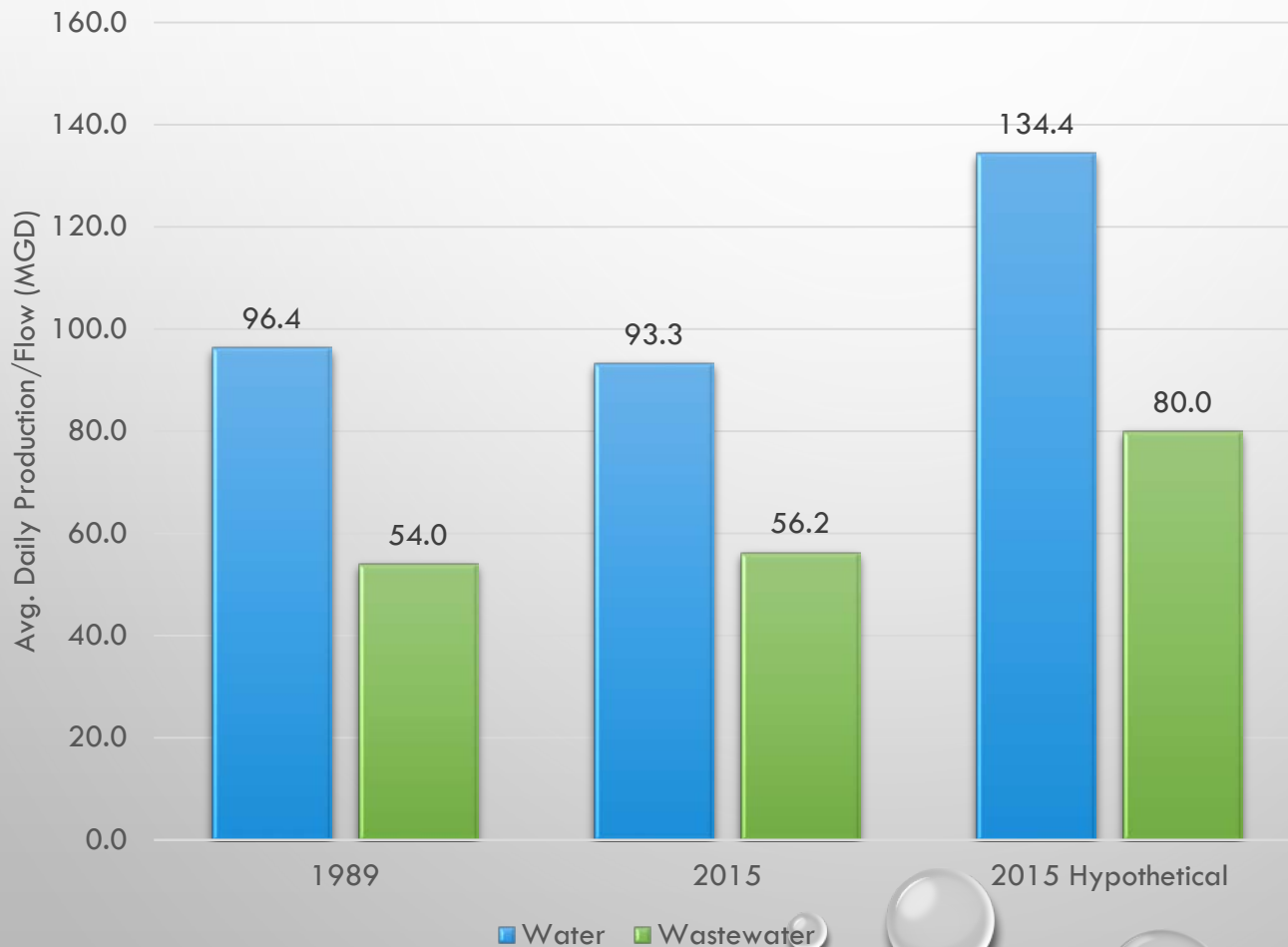


POPULATION AND PER CAPITA WATER AND WASTEWATER USE



- System Per Capita Water Use (gallons/day)
- System Per Capita Wastewater Use (gallons/day)
- Service Area Population

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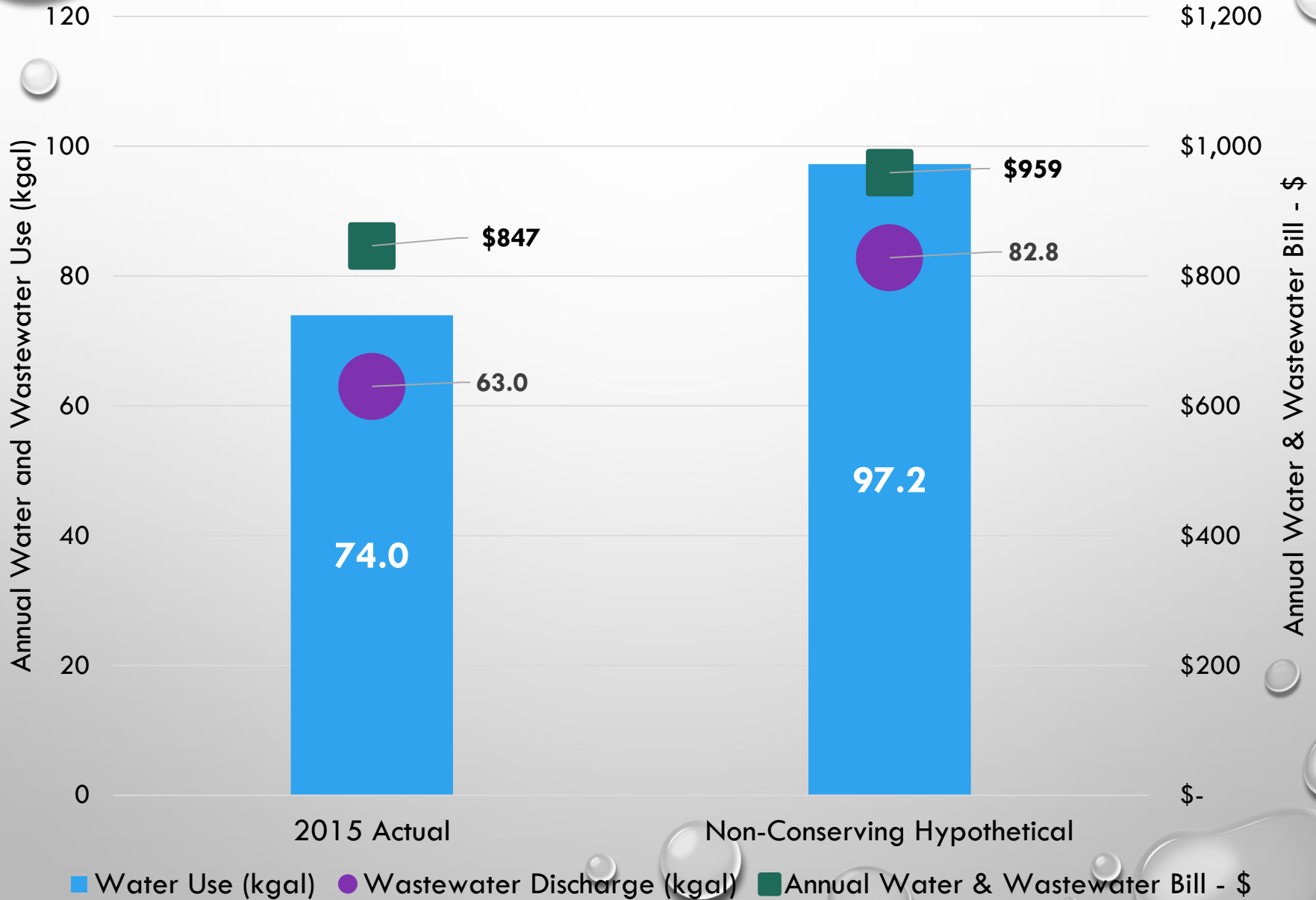


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Due to water efficiency, rates today are at least 11.7% LOWER than otherwise necessary.

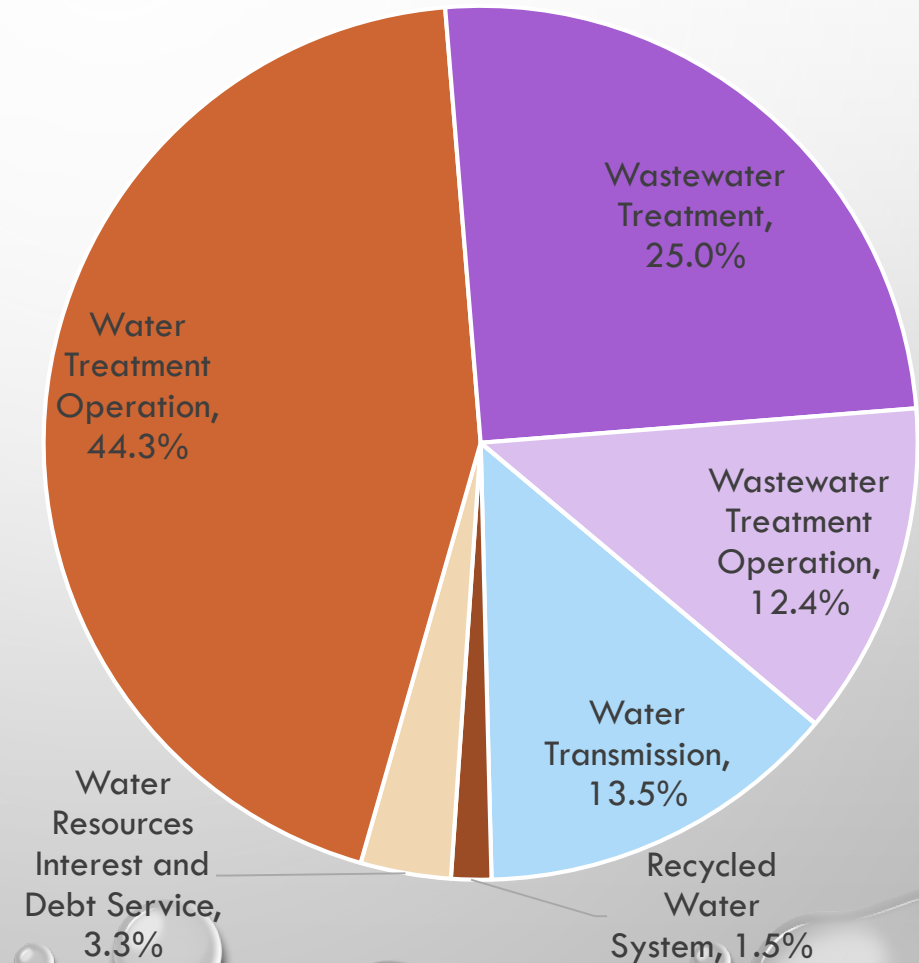
Impact to an Average Single-Family Customer - Tucson, AZ



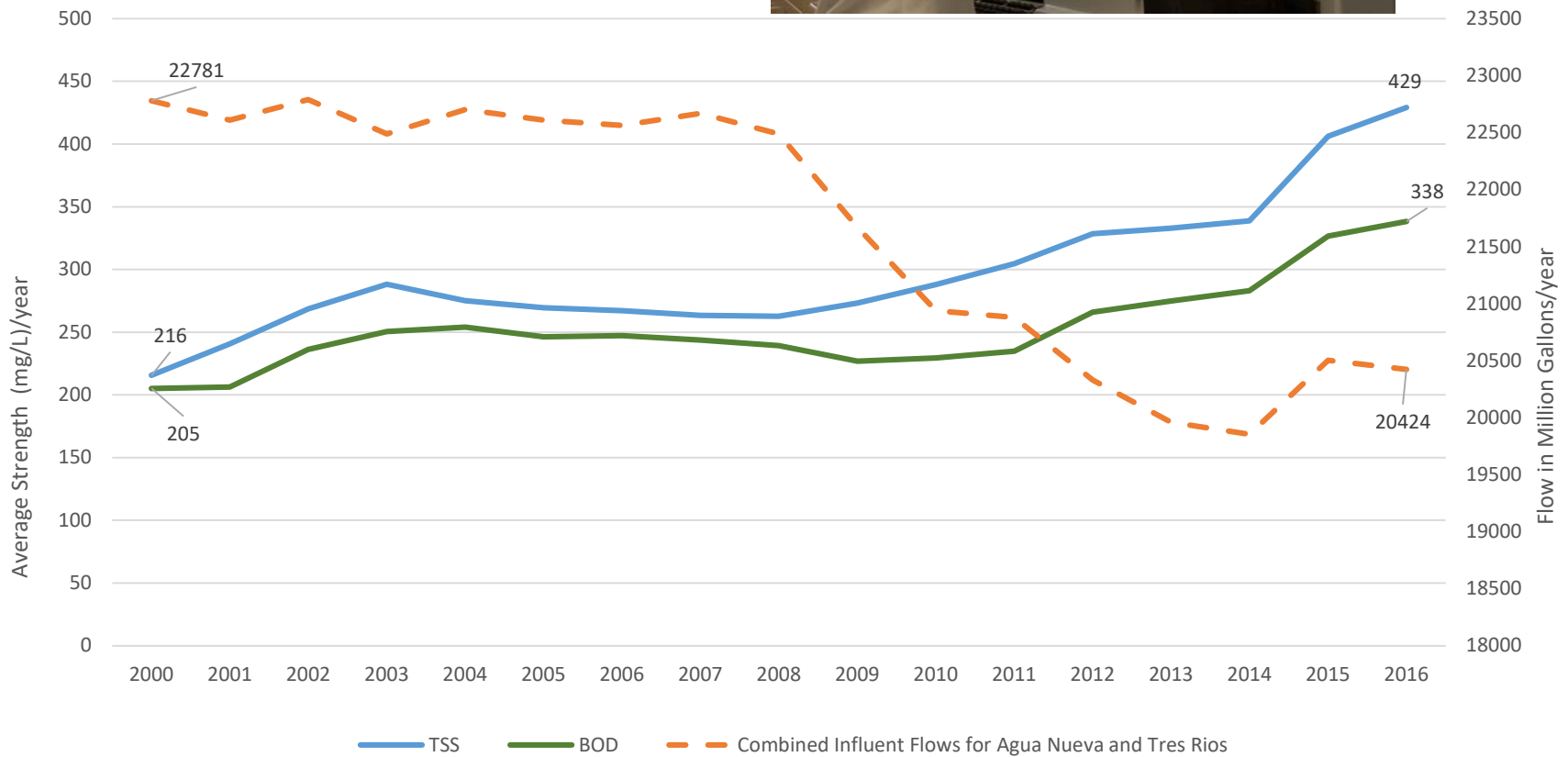
BREAKDOWN OF AVOIDED COSTS

Today, Tucson Water rates are **15% lower** and Pima County RWRD rates are **8.6% lower** than otherwise necessary if per capita water demand had not been reduced.

**Total avoided costs:
\$350,862,732**



STRENGTH OF SEWER FLOWS



LOWER FLOW IMPACTS TO THE CONVEYANCE PIPES

- Scour velocities may take longer to attain in newer developments with lower flows
- Flushing of pipes may be required
- Potential for more odors in pipes
- Potential for corrosion in pipes
- Terminal ends may require steeper slopes
- Cost goes up for deeper sewers



- Water and wastewater rates have increased because of the increasing costs of providing 24/365 service, while maintaining and improving infrastructure to meet regulatory treatment requirements.
- Decreasing demands are a balancing act: Revenue v. Resources
- **The typical Tucson single-family customer pays at least 11.7% less for water and wastewater service today, than if water efficiency had not been achieved.**

Bottom Line: When Everyone Conserves, Everyone Saves

EVER WONDER WHY your water rates are going up, even though YOU'RE USING LESS?



Tucson, Arizona

Water Conservation Over 30 Years Reduced Costs For Customers



Population increased by 40%, while per person water use declined – **by 31%**

Because the community conserved, the same family's bill is 11.7% lower



Why?

If per person use had not decreased, Tucson would have needed to invest \$350 million in new water and wastewater infrastructure to pump more water through the water system and treat more wastewater.

Primary conservation drivers:
Conservation programs (indoor and outdoor), youth and homeowner education, efficiency-oriented rates, national plumbing codes, equity

Primary water challenges:
Rising costs of water, rising costs of infrastructure maintenance, Public awareness of the value of water

So What Did We Learn?

When Everyone Conserves, Everyone Saves.

Water rates are rising, but when communities conserve, they don't go up nearly as much.

Each water and wastewater customer has avoided the costs of acquiring, delivering, and treating additional water supplies that would have been necessary - had they not conserved.

Individual actions add up! When everyone does their part to conserve, the entire community benefits from lower rates in the long-term, sustainable water supplies, and healthier watersheds.

To learn more, visit
www.FinancingSustainableWater.org



WORKING WITH WATER

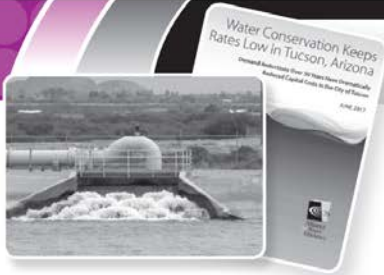
Ward 2 Council Member Paul Cunningham provides a perspective on water rates, usage and the long term benefits of conservation and using water efficiently. He explains how conservation has helped to temper utility capital and operating costs and to keep rates low, as detailed in an independent study by the Alliance for Water Efficiency released in June.

Back in Tucson's territorial days, water could be hard to come by. If you lived in town in the 1870s, chances are you didn't have a well and you had to buy water from someone who would bring it up in a wagon from springs in the Santa Cruz Valley south of town. You'd be charged a penny a gallon.

In today's dollars, that comes out to twenty-one cents a gallon. Tucson Water doesn't bill by the gallon, but by the Ccf, which is 100 cubic feet of water or nearly 750 gallons. You'd be paying the equivalent of \$158.97 per Ccf in the 1870s.

Which brings me to present time: as of July 3, we are paying a bit more for water.

The average single family household that uses 8 Ccfs per month will see an



increase of \$2.84 or about \$35 per year. I have a young family myself, so I know what even a modest price increase can mean for a tight budget. Still, I supported the rate increase.

Despite the fact that it is a part of city government, Tucson Water is self-funded and receives no money from taxpayers. Tucson Water is a public utility meaning it is owned by you and other citizens. The utility runs safely, efficiently, and in the public interest and, even with this rate increase, at rates below the average for other water utilities in Arizona.

Tucson Water has done a good job keeping costs low while maintaining council-mandated conservation and low-income programs. Still, the reality is that many of the utility's expenses continue to increase.

Which leads to a question that I get from constituents: Why am I going out of my way to cut down on water use if you are going to raise my rates anyway?

It's a valid question. Community members have done a lot to save water and use it more efficiently

Go to tucsonaz.gov/water for the June 2017 Alliance for Water Efficiency Study, "Water Conservation Keeps Rates Low in Tucson, Arizona."

than many other southwest towns and cities. After hitting its peak last decade, total water use by Tucson Water customers is now at the same level it was in 1985 when we had 200,000 fewer people. But what's the reward if water bills keep going up? Well, there is something called avoided costs.

There are expansions that Tucson Water has avoided because of lower water use, efficiency and conservation. A study by the Alliance for Water Efficiency estimates that Tucson Water's maintenance and operation costs would be 30% higher than they are now if old usage trends had continued. That's almost \$23 million.

Tucson Water has also managed to avoid having to build some expensive new infrastructure. Plans for an Avra Valley transmission facility were shelved because of the lack of need. That is \$140 million that Tucson Water didn't spend because use is down so much. Pima County Regional Wastewater Reclamation Department collaborated on this study. Lower water use has helped avoid nearly \$200 million in wastewater system expansion costs.

These savings are passed on to customers through lower water and wastewater rates. In all, your bill is 11.7% lower than it would be had we not been conserving.

The reality is that the cost of everything is going up, and that's reflected in our water bill. Still, much of what you've done as conscientious and efficient water users has kept those costs from increasing even more.

WATER CONSERVATION OVER 30 YEARS REDUCED COST FOR CUSTOMERS



AUGUST 2017

WATER MATTERS

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- Your Utilities: Wastewater & Environmental Services 2-3
- Working with Water: Conservation Saves Capital Costs 4-7
- One City One Team: Educational Tools about Sustainability 8

Ward 2 Council Member Paul Cunningham provides information about how conserving water saves millions of dollars, backed by a recent study by the Alliance for Water Efficiency.

(See Working with Water, pg. 4-7)

TUCSON WATER
tucsonaz.gov/water

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