

# City of Austin Water Conservation Study Results

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Presented to  
Austin Integrated Water Resources Planning  
Community Task Force  
September 1, 2015



Prepared  
for:



City of Austin Office of Sustainability

In association with:



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**BUILDING A BETTER WORLD**



# Agenda

1. Overview and Goal of the Survey
2. Industry Trends
3. Key Findings & Highlights
4. Ideas for Austin
5. Questions



*Photo Credit: Austin Water, Wildland Conservation Division*

# Overview and Goal of the Survey

- Survey of 11 Programs in US and Australia
  - Mature and successful conservation programs
  - Water efficiency leaders
  - Compiled savings goals, conservation measures, budgets
  - Payment mechanisms and staffing needs
- Ways to Support Austin Customers
  - Innovative and new methods and strategies
  - Enhance water use efficiency
- Gained lessons learned from conservation programs



# Survey Approach and Participants

- Data gathering via Internet
- Confirmation of and enhancement of data with phone interviews
- Confirmation of data with Administrative Draft Report

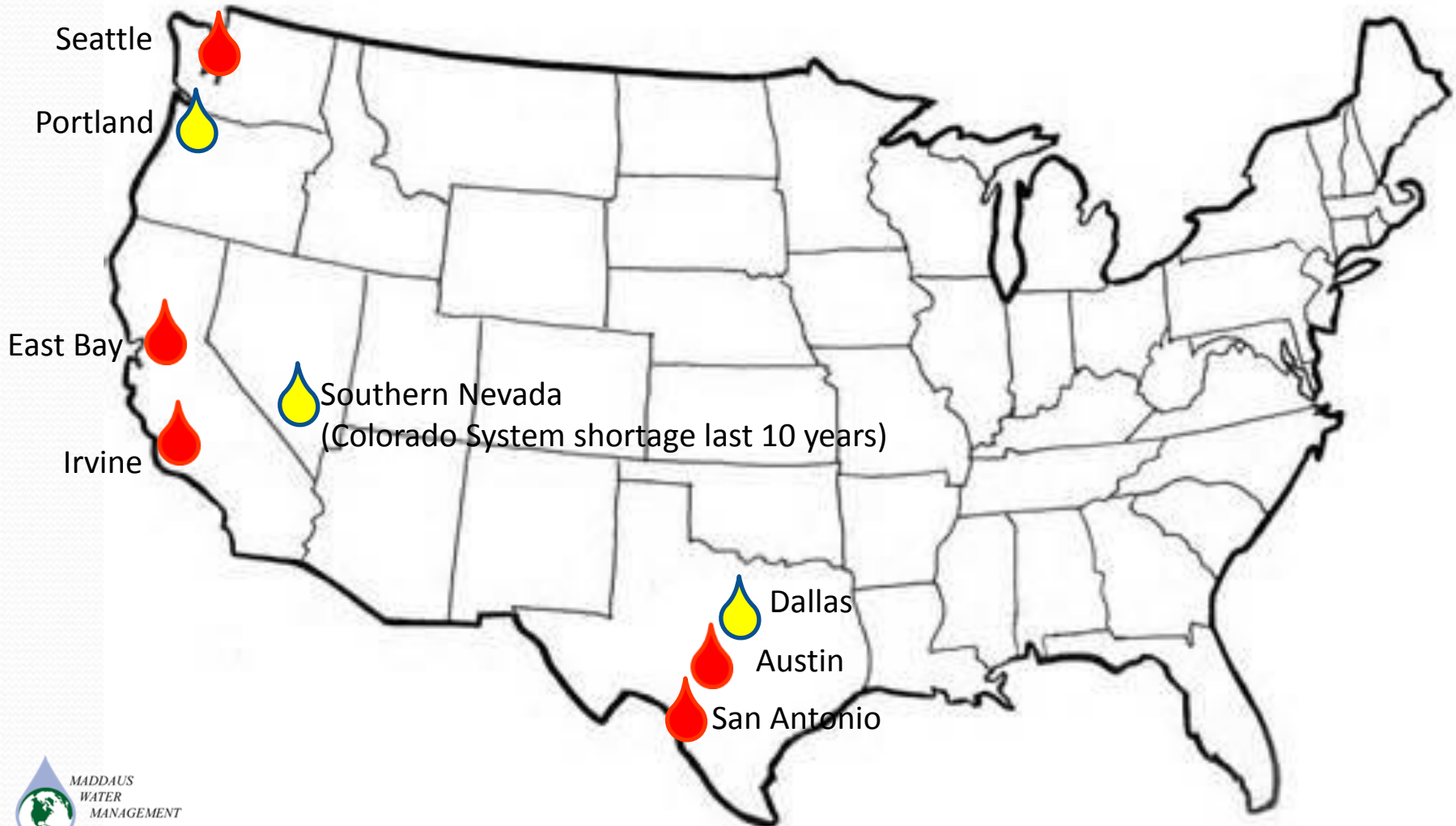
| Western States                                                                                                                                                                                             | Texas                                                                                                               | Australia                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>▪ Seattle, WA</li><li>▪ Portland, OR</li><li>▪ East Bay Municipal Utility District (EBMUD), Oakland, CA</li><li>▪ Irvine, CA</li><li>▪ Southern Nevada, NV</li></ul> | <ul style="list-style-type: none"><li>▪ City of Austin, TX</li><li>▪ San Antonio, TX</li><li>▪ Dallas, TX</li></ul> | <ul style="list-style-type: none"><li>▪ Perth</li><li>▪ Newcastle</li><li>▪ Melbourne</li></ul> |



A red drop indicates drought stage.

A yellow drop indicates system  
been drier than normal

# Map of Survey Participants in US



# 3 out of 6 States in Australia





# Type of Data Collected

- Reviewed programs including public info and rebates, system water demand, reclaimed water, and communication with customers
- Summary tables include the following:
  - Service Area Population
  - Service Area Location
  - Water Demand
  - Conservation Budget
  - Conservation Staff
  - Conservation Goals
  - Conservation Programs
  - Reports and Supporting Documentation

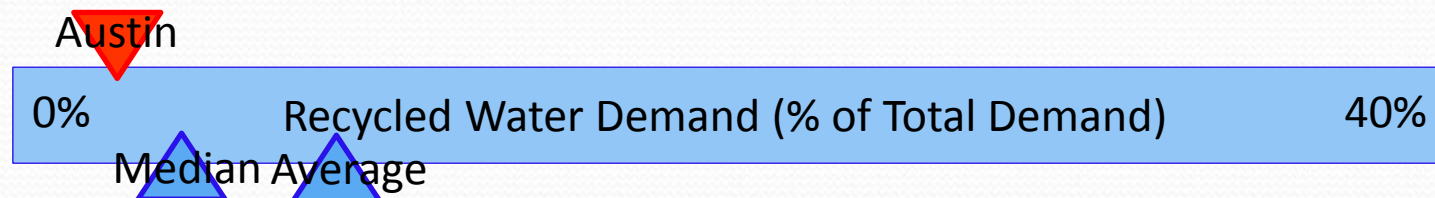
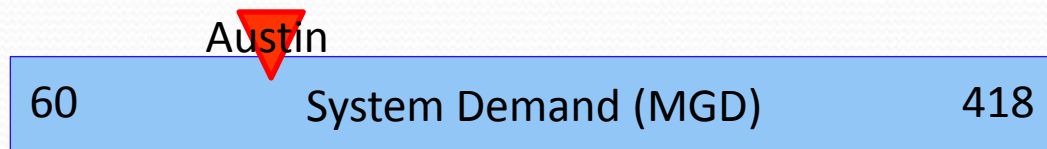
# Industry Trends

|                                              | Number of Survey Participants with the Program     | City of Austin                                                         | Comments                                                                             |
|----------------------------------------------|----------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <b>Automatic Meter Infrastructure</b>        | Most looking at AMI                                | Researching funding                                                    | Leaders are ALL considering or working on implementing AMI                           |
| <b>CII Efficient Custom Rebate Program</b>   | 9 offer CII incentives                             | 3C Business Challenge and Bucks for Business                           | Leaders are targeting high CII water users with more targeted measures.              |
| <b>Rainwater Capture</b>                     | 4 offer incentives + 7 others provide information. | Rebate Offered                                                         | For irrigation in US; for irrigation, toilet, and other indoor uses in Australia.    |
| <b>Grey Water</b>                            | 5 offer incentives + 2 more offer information.     | Info on website, working on guidance document.<br>No incentive program | Been a slow sell with the public.                                                    |
| <b>Reclaimed Water % of Annual Demand</b>    | 0%-40%<br>(Average: 9% & Median:4%)                | 2.8%                                                                   | 8 with both large-scale purple pipe deliveries <i>and</i> on-site recycling schemes. |
| <b>Social Media / Home Water Use Reports</b> | ALL 11 are doing some form of Social Media         | Drop Counter Pilot                                                     | Home water use reports and online billing data increasingly popular                  |



# Key Finding 1: Population and Reclaimed Water

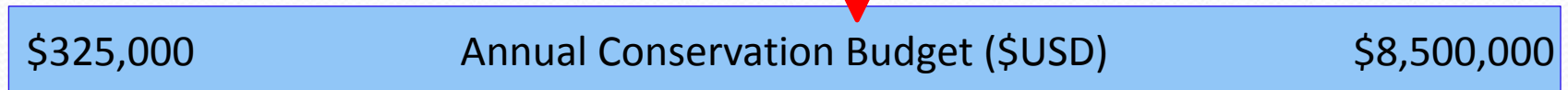
|                             | Range of Survey Participants                     | City of Austin |
|-----------------------------|--------------------------------------------------|----------------|
| Approximate Population      | 370,000 - 2.6 million                            | 977,491        |
| Service Area Size (sq. mi.) | 181 - over 1 million                             | 555            |
| System Demand (MGD)         | 61 - 418<br>(Average: 181 MGD & Median: 119 MGD) | 118.5          |
| Recycled Water              | 0% - 40%<br>(Average 8.7% & Median 4.4%)         | 2.8%           |



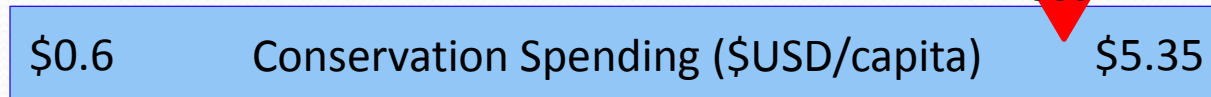
# Key Finding 1: Staff and Spending

|                                           | Range of Survey Participants                                                | City of Austin |
|-------------------------------------------|-----------------------------------------------------------------------------|----------------|
| <b>Annual Conservation Budget (\$USD)</b> | \$325,000 - \$8,500,000<br>(Average: \$3.6 million & Median: \$3.2 million) | \$4,375,000    |
| <b>Conservation Spending (\$/capita)</b>  | \$0.6 - \$5.35<br>(Average: \$2.93 and Median: \$3.00)                      | \$4.48         |
| <b>Conservation Staff in FTE</b>          | 3 – 20<br>(Average: 12.3 and Median: 13)                                    | 20             |

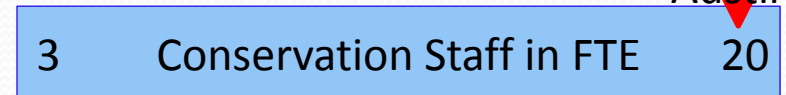
Austin



Austin

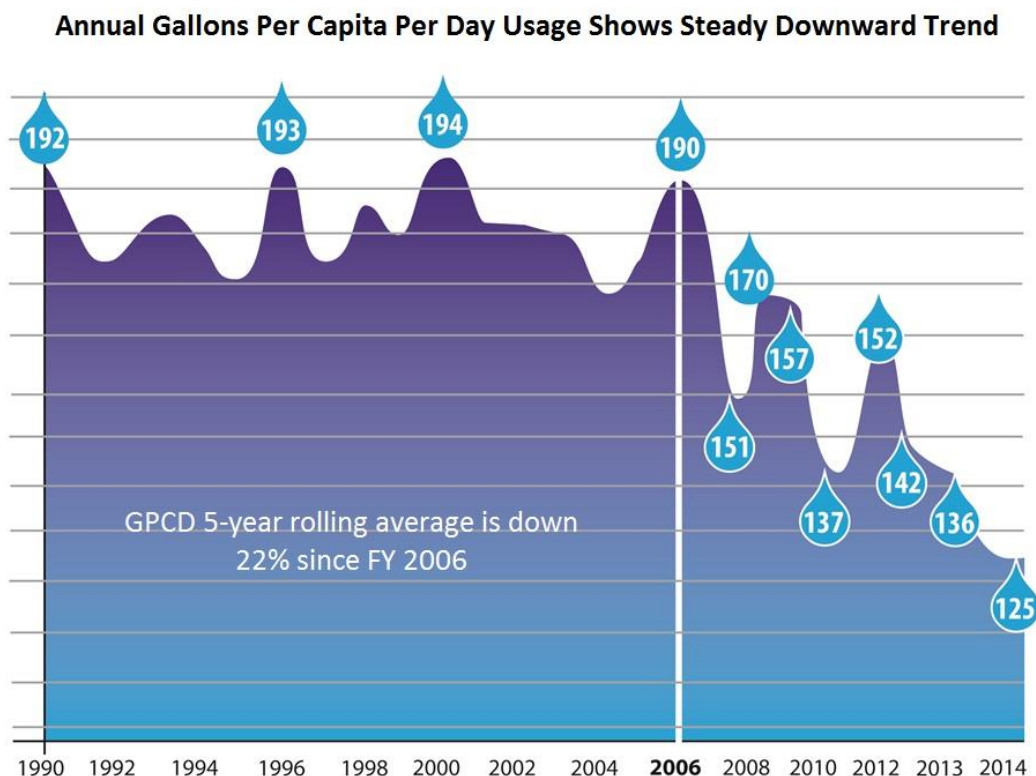


Austin



# Key Finding 2: Water Savings Goals

- Savings goals range: 0.5 – 1.5 % demand reduction per year
- 6 of 11 agencies are currently exceeding their goal
- Austin 140 GPCD Goal equates to 1% reduction per year



Austin exceeded their 140 GPCD by 2020 goal. Should review savings goal as part of the Integrated Plan.



# Key Finding 3: Top 5 Common Measures

The 11 surveyed programs varied. The most common measures are:

- Public and School Education Programs
- Residential Indoor Programs – clothes washer and toilet incentives
- Commercial Indoor Programs – water efficient commercial technologies for process water use and efficient water fixtures (toilets, urinals, etc.)
- Residential Landscape Programs – promotional campaigns with local nurseries, education and incentives
- Commercial Landscape Programs – irrigation equipment and system improvement incentives

Austin has had  
all these  
programs

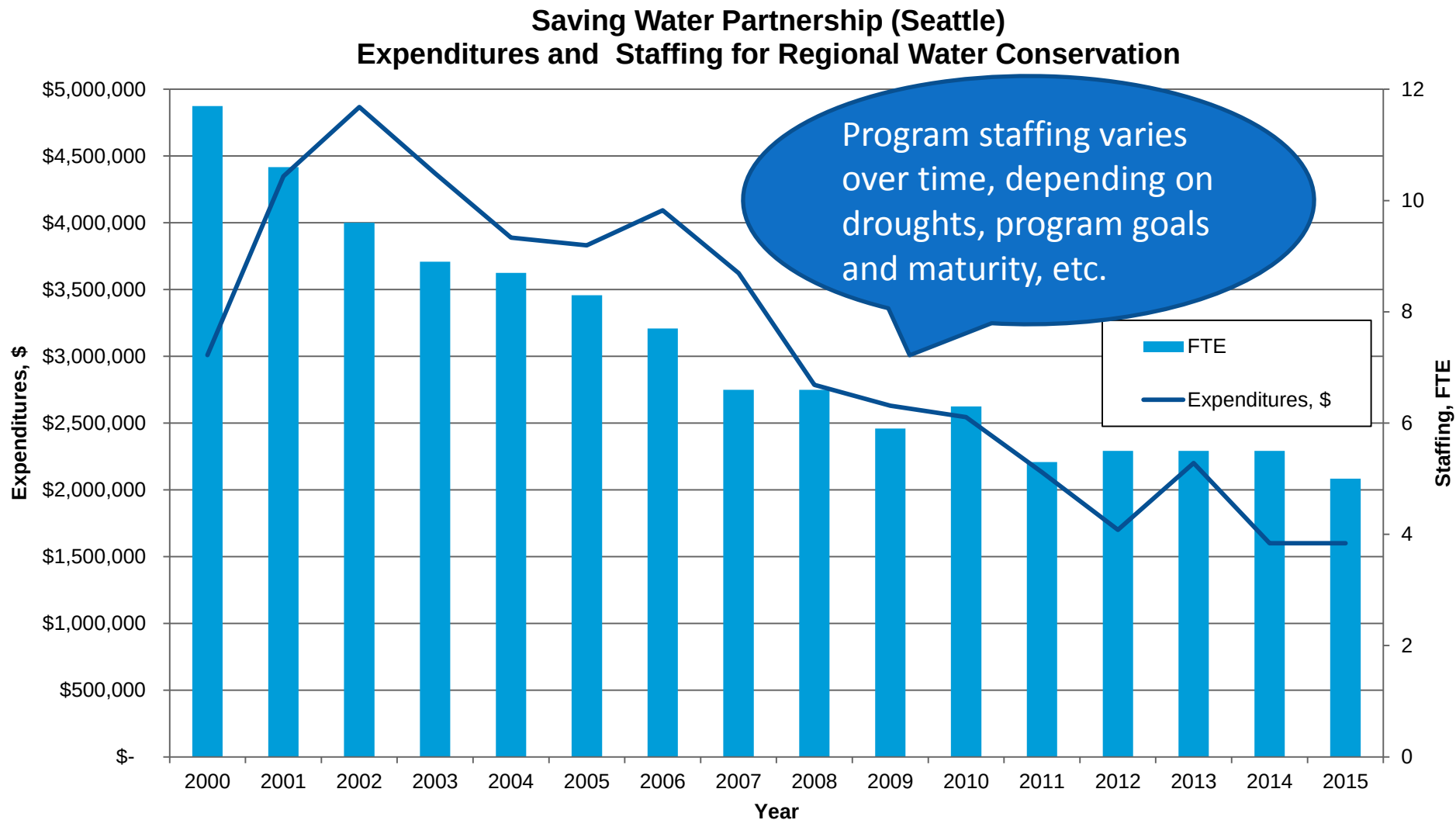
# Key Finding 4: Program Funding Source

- Water charges (rates and/or system connection fees) and grants are the most common source of funding
- Conservation at a regional level is funded through rates and dues (as applicable).
- Supplemental funding comes from state and federal grants.
- Some work with private parties who offer funding from businesses who want to be sustainable.

Austin can review long term funding needs based on a review of Integrated Plan savings goals.

Austin funds through rates and grants - similar to most surveyed. Consider partnerships with businesses beyond rebates and case studies.

# Key Finding 5: Cost and Staffing Example





# Key Finding 6: Commercial Programs

## **Commercial Customers: Challenges can be rewarded with big savings**

- Offering significant funds with a simpler process and targeted by industry is helpful.

## **Semiconductors: Often efficient but there are lots of ways to save**

- Large water user. Lots of rebate ideas are possible.

## **Universities, Schools, Government Buildings: Possible Untapped Savings**

- Typically older buildings and good water savings potential.

Biggest savings are available with commercial accounts. Austin has past success with semiconductors and UT, but there are always more opportunities. Keep at it!



Business Industry and Government (BIG) Water Conservation

*Photo: Portland Water Bureau – Business, Industry and Government (BIG) Water Conservation Program*

# Key Finding 7: Outdoor Water Savings

- **Car wash coupons**
- **Proper plant selection and new landscape design**
- **Landscape rebates for existing irrigation upgrades:**
  - Weather-based irrigation controller rebates
  - High-efficiency rotating Sprinkler nozzle rebates
  - Drip irrigation to replace sprinkler rebates
  - Soil amendment program
  - Turf replacement program
  - Rebates for low-water use landscaping



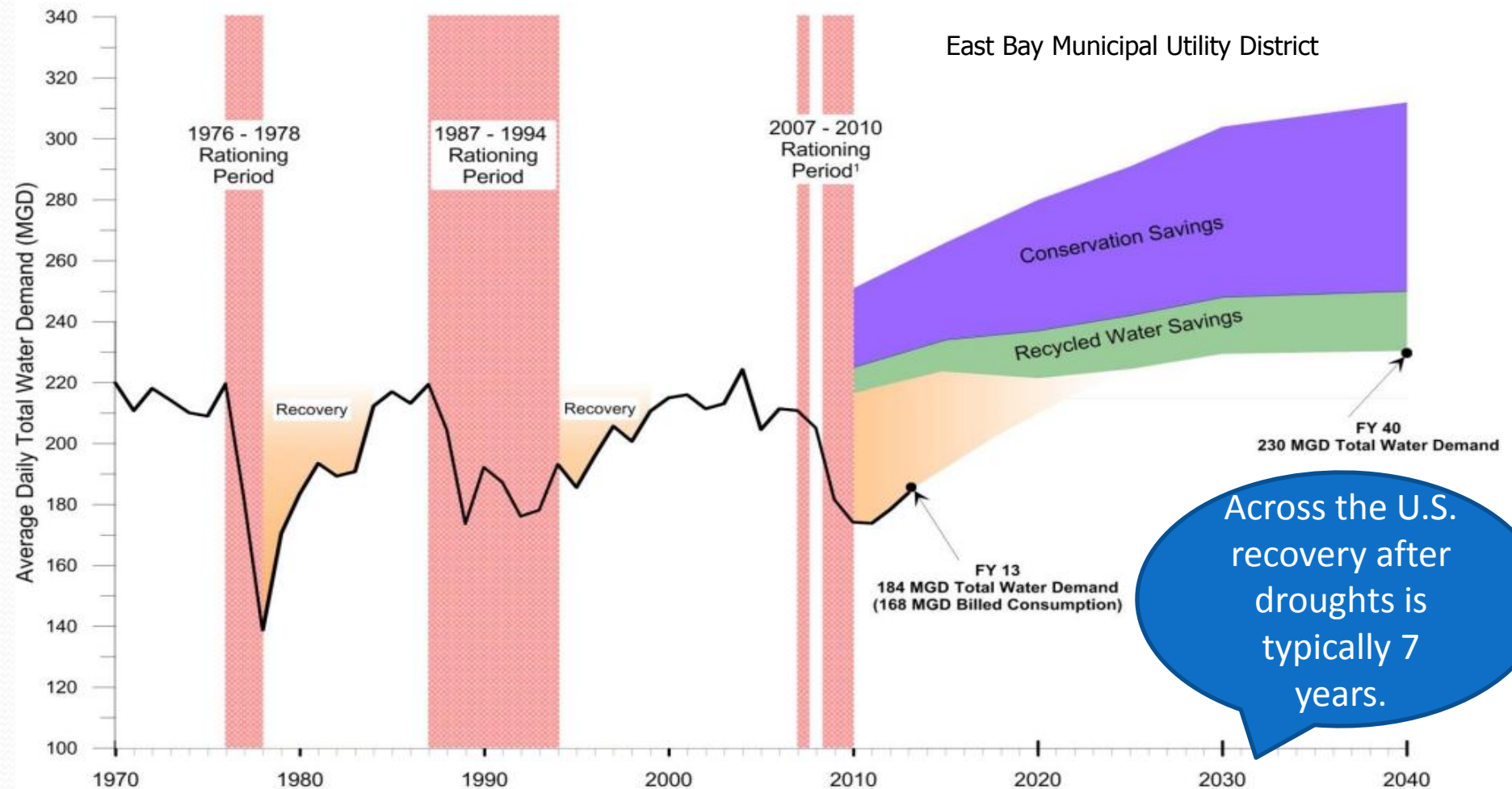
Austin has landscape rebates but funds less than others surveyed. Austin does not have any coupon programs which are well liked by customers and businesses.





# Key Finding 8: Alternative Water Sources

Reclaimed water and non-potable reuse are increasing in popularity, i.e, EBMUD (example below) and Water Corporation (Western Australia)





# Key Finding 8: Rainwater Catchment

- 36% of Australian households use rainfall for irrigation.
- Rainwater capture challenging to make cost effective.
- Ongoing and regular maintenance difficult for residential home owners.
- Large scale successful programs like fields at schools, and roofs of businesses such as ice rinks.
- Some agencies find many who install rainwater tanks already tend to be very low water-users (not much overall savings opportunity), while high water users might install a tank AND a potable water back up, in fact increasing their potable use because they feel good about watering from the tank.



Medibank IceHouse in Melbourne Australia uses rain capture on roof for their for resurfacing their ice.

Austin offers homeowners and schools a WaterWise Rainscape Rebate of up to \$500

# Key Finding 9: Rebates and Incentives

- Rebates/incentives remain a popular method for encouraging water conservation.
- **Review market saturation:**
  - Many agencies assess fixture saturation to determine the continuation of long standing incentive programs (especially residential toilets and clothes washers).
  - Many rebates and incentives shifting to:
    - Landscape irrigation
    - CII accounts

Austin regularly evaluates device saturation levels and modifies their programs accordingly.



Southern Nevada Water Authority  
- Water Smart  
Landscape conversion rebate

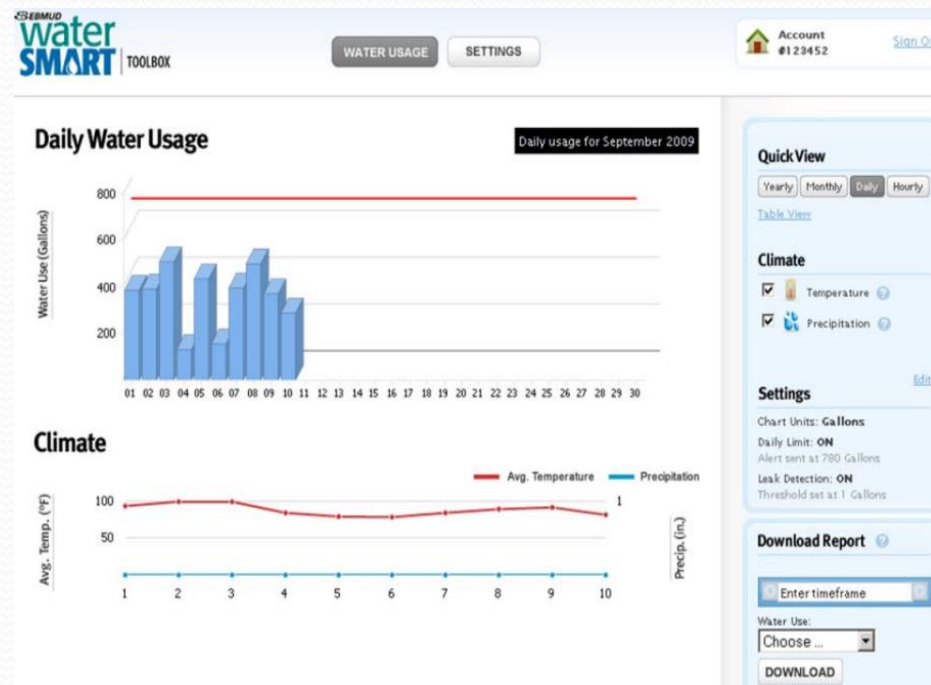


# Key Finding 10: Leak Management

## Water Loss Reduction: Pressure Regulation, Meter Testing, Replacement & Leak

- All 11 survey participants conduct leak management.
- Most use International Water Association/American Water Works Association Manual M36 Water Loss Software.
- Meters have accuracy issues.
- Many utilities have increased meter testing and replacement.
- Automatic Metering Infrastructure (AMI) is more popular.

AMI is the future.  
Austin is  
interested in AMI  
and exploring  
funding.





# Key Finding 11: Building Codes

- Most utilities have some local water use efficiency ordinances
- Ordinances are increasing the number of elements required
- The biggest recent change is enforcement. Many water utilities currently conducting heavy enforcement due to drought
- Some consider keeping drought enforcement caliber after water shortage period.
- New requirement 1-page “checklist format” for business developer’s ease of use.
- Many utilities have water use efficiency checklists as part of their “Green Buildings Program”.

Austin has codes but not in a checklist format. Austin does more enforcement than most agencies.

# Key Finding 12: Communication – Drought

City West Water, Australia:

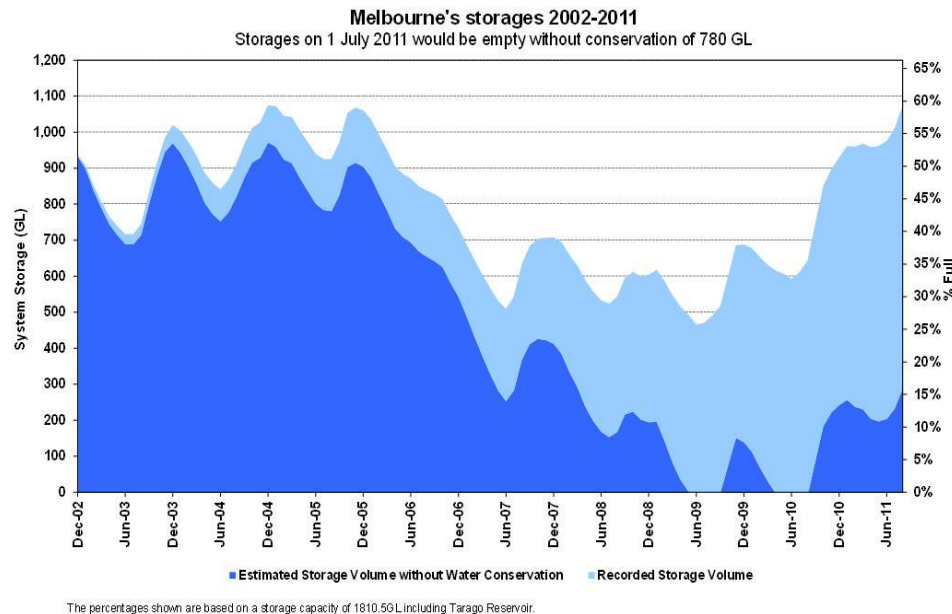
- 14 years lowest recorded streamflow
- 3 significant El-Nino events 1997/98, 2002/03, 2006/07
- In 2012 City West Water made drought restrictions permanent

Austin should consider communication strategies in current drought .



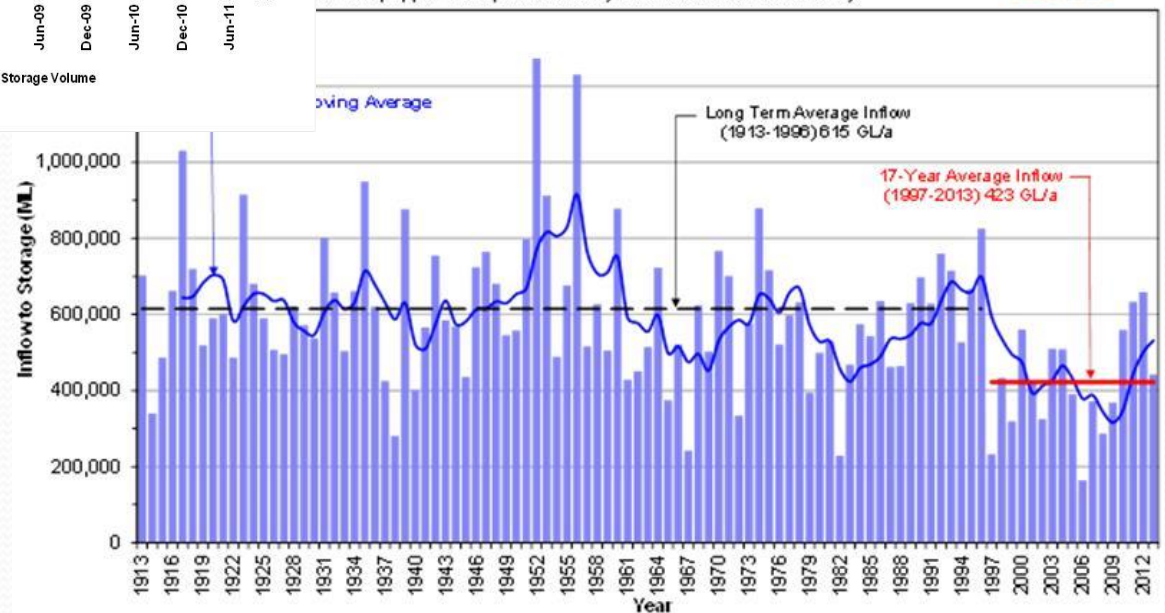


# Key Finding 12: Communication – Drought



Austin on 8 years of Drought.  
Melbourne had 14 year long  
term drought. Consider  
communication with  
customers when easing out  
drought stages.

**Streamflow at Melbourne's Major Harvesting Reservoirs**  
(Tomson, Upper Yarra, O'Shannassy and Maroondah Reservoirs)





# Key Finding 12: Communication – Social Media

- Communication works best during a water shortage – take advantage of it!
  - Old: Websites, newsletters, mass e-mails, bill inserts
  - New: Facebook, Twitter, video sites, and targeted letters and emails
- Continued research conducted on effective ways to communicate water conservation to customers
- Austin Water pilot study: mobile app with Dropcountr, Inc., to provide 10,000 residential customers with free home water use reports
- Consider innovative pricing structures



Austin should continue to expand use of Social Media



Austin posts  
case studies.

# Survey Participant Suggestions:

## Communication with customers:

- Ensure program elements match the climate and economy of the service area.
- Conduct regular surveys of customers to know what is needed.
- Put case studies on the utility website.
- Use online social networking and marketing, which offers 2 way conversations with customers.

Surveys are valuable to communicate customer needs. Austin can do more customer surveys. Especially now with a change in drought conditions.



# Survey Participant Suggestions:

## Program Implementation

- Cost effectiveness is no longer the primary driver of water programs. Key driver is obtaining water savings.
- Identify and target large water savings opportunities.
- CII programs can be tricky but yield big savings when successful.
- Work together regionally. Leverage programs with neighboring utilities, including energy and wastewater.
- Buy-in is critical at all levels. Engage decision makers and stakeholders:
  - General Managers
  - Conservation Program Managers
  - Water Conservation Coordinators
  - Public
  - Other Interested Parties

Austin should review primary drivers for conservation during Integrated Plan. Austin doing good with buy-in and working with others

# Survey Participant Suggestions:

## Program Funding:

- Steady and consistent conservation program is wise - less reactivity to the economy and drought is more effective.
- Enforcement of landscape regulations/ordinances is vital to long term efficiency.
- Fund and publish research on new innovative technologies.
  - Research new innovative devices to how they work and if they save water (example: Home Water Use Reports)
  - Conduct research or pilot studies on new technologies (example: AMI)
  - Leaders similarly fund and publish innovative study findings for industry benefits

Austin has created a steady program in recent years.



# Areas of Interest for Austin Water Consideration:

1. Pursue Advanced Metering Infrastructure
2. Consider keeping permanent outdoor water restrictions 1x day week
3. Encourage living buildings and advanced buildings with dual plumbing, onsite water treatment, etc.
4. Increase customer engagement, 1-1, surveys, etc.
5. Commercial: Improve marketing, expand outreach, use electronic forms to make process work to encourage more participation.
  - Continue fostering relationships w/businesses and publish case studies
  - Continue working w/semiconductors, Univ. Texas, and government buildings
6. Create relationships beyond traditional energy, water, sewer.  
Expand outreach network to community groups and organizations.

# Areas of Interest for Austin Water Consideration:

7. Large scale rainwater capture, commercial and residential
8. Increase recycled water (purple pipe) connections
9. Increase marketing and engagement with largest water users.  
Conduct large projects with effective incentives and advancements, and save large amounts of water.
10. Try coupon programs, such as car wash or purchasing efficient plants
11. Advance use of alternative sources and on-site systems
12. Add more photos to website and multimedia for customer appeal
13. As part of the Integrated Planning process: review saving goals, funding and staffing levels, and consider alternative sources as part of the supply portfolio.





# Questions?

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In association with:



# Participating Agency Contact Info

- Saving Water Partnership, Seattle, WA
  - [www.savingwater.org](http://www.savingwater.org)
- Portland Water Bureau, OR
  - [www.portlandoregon.gov/water/26426](http://www.portlandoregon.gov/water/26426)
- East Bay Municipal Utility District, CA
  - [www.ebmud.com](http://www.ebmud.com)
- Irvine Ranch Water District, CA
  - [irwd.com](http://irwd.com)
- Southern Nevada Water Authority, NV
  - [www.snwa.com](http://www.snwa.com)
- San Antonio Water System, TX
  - [www.saws.org](http://www.saws.org)
- Dallas Water Utilities, TX
  - [dallascityhall.com/departments/waterutilities](http://dallascityhall.com/departments/waterutilities)
- Austin Water, TX
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- City West Water, Melbourne, Australia
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  - [www.watercorporation.com.au](http://www.watercorporation.com.au)
- Hunter Water, New South Wales, Australia
  - [www.hunterwater.com.au](http://www.hunterwater.com.au)