Water Supply Reliability: The Drought and Beyond

Robert Shaver

General Manager

Fremont City Council Meeting
January 12, 2016

Overview of ACWD

- Service Area: Fremont, Newark, and Union City
  - ~105 sq. mi. Service area
  - Population: ~343,500 *
  - Customer Connections ~81,700
- Founded in 1914
- Elected Board: 5 Directors

* California Department of Finance, January 2015

Overview of ACWD (Cont'd)

FY 2015/16 Budget:

- Personnel: 230 Employees
- Operating & Capital Budget: $122.5 million
- Total Revenue: $111.1 million
- Water Sales: $93.1 million
- Operating Expenses: $86.4 million
- Capital Expenditures: $27.2 million

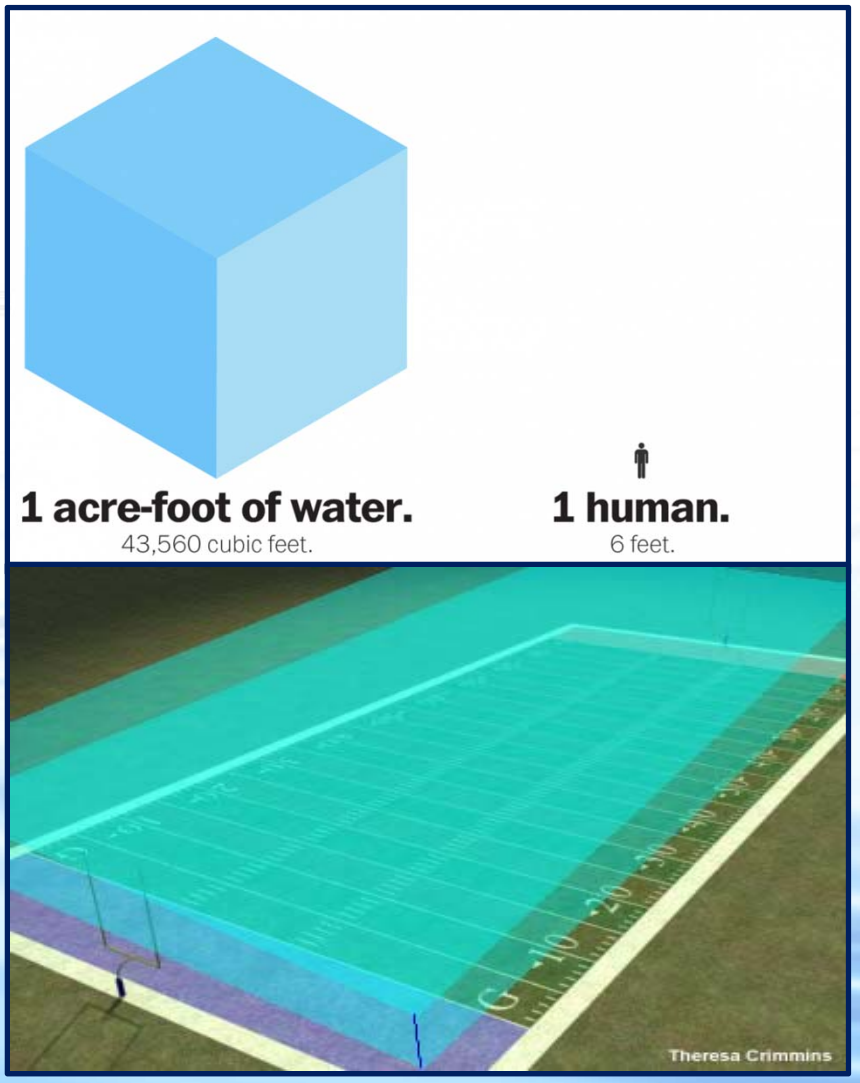
Overview of ACWD (Cont'd)

- Alameda Creek and Quarry Lakes Groundwater Recharge Facilities
- 4 Water Treatment Facilities
- Mission San Jose Water Treatment Plant
- Water Treatment Plant No. 2
- Newark Brackish Groundwater Desalination Facility
- Peralta-Tyson & Mowry Wellfields

Overview of ACWD (Cont'd)

- 12 reservoirs & storage tanks
- 880 miles of pipelines
- Booster pump stations, pressure regulating stations

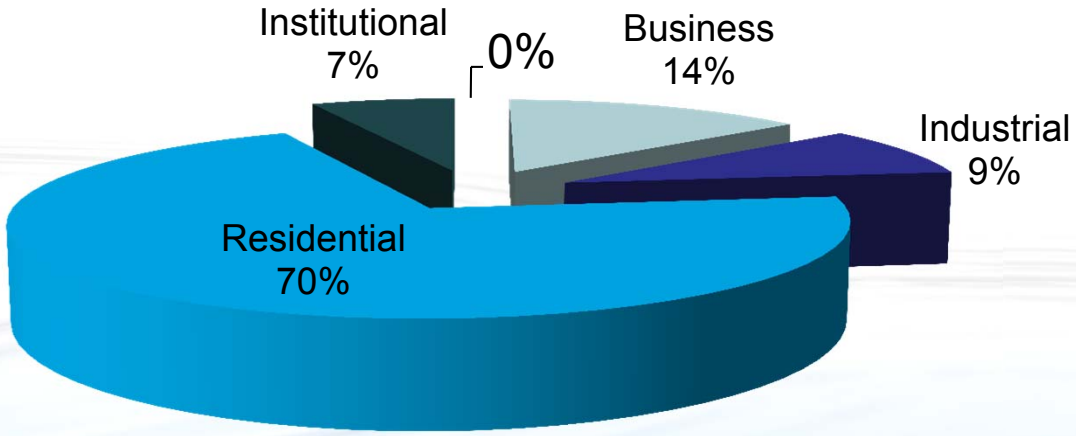
What is an Acre-Foot of water?



- 43,560 cubic feet
- 325,360 gallons
- 90% of a football field, 1 foot deep in water
- Average annual water used by 3.3 homes

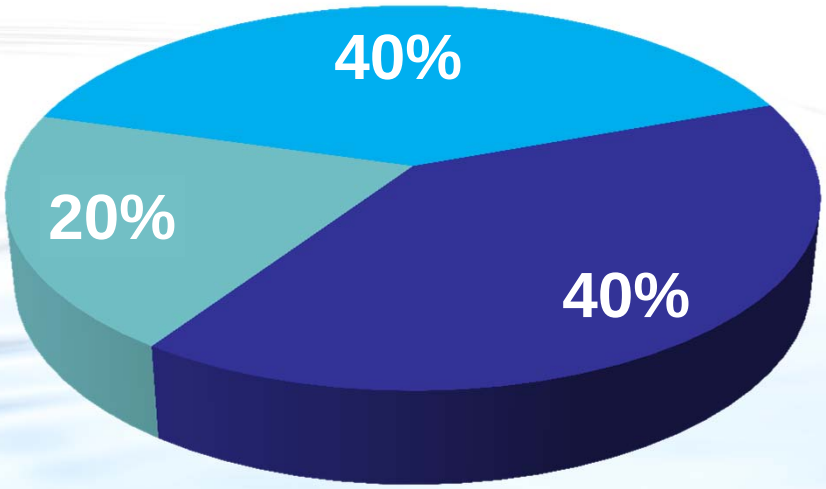
- The average Tri-City Resident currently uses about 90-100 gallons per day (indoor and outdoor)

Customer Profile



Business	14.1%	(≈ 6,000 Acre-Feet)
Industrial	8.8%	(≈ 4,000 Acre-Feet)
Residential	70.4%	(≈ 31,000 Acre-Feet)
Institutional	6.7%	(≈ 3,000 Acre-Feet)

ACWD Water Supply Sources – Typical



- Alameda Creek Watershed Runoff (includes brackish GW desal)
- State Water Project
- San Francisco PUC

Total water demand ~44,000 acre-feet/year

ACWD Water Supply Planning

- Integrated Resources Plan (IRP)
  - Motivated by the 1987-1992 drought and unreliability of the Sacramento / San Joaquin Delta
- Goals and Objectives
  - Develop a diverse water supply portfolio, including conservation
  - Address dry year reliability
  - Reduce risk
  - Increase local control
  - Maintain high water quality
  - Environmental stewardship
  - Reasonable cost

ACWD Integrated Resources Implementation

Item	Status
Water Conservation	All cost-effective BMPs (and more) are being implemented ✓
Off-site Water Storage	150,000 AF of groundwater banking secured at Semitropic (1996, 2001) ✓
Enhanced Local Conjunctive Use	Quarry Lakes recharge pits rehabilitation completed (1996) Fish Passage Projects (2008-present) ✓
Brackish GW Desalination	Phase 1 - 5 MGD (2003) Phase 2 -12.5 MGD total (2010) ✓
Recycled Water	Joint ACWD/Union Sanitary District feasibility studies ongoing, Some “purple pipe” installed

The Drought

Lake Oroville in September 2015

Calendar Year 2014

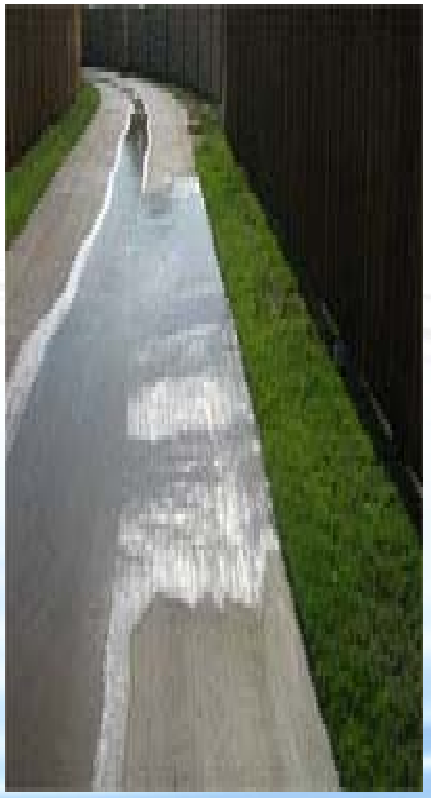
- Calendar years 2012 and 2013 very dry.
- Statewide storage very low.
- The Rain stopped. Water Year 2013/14 was the driest local rainfall year on record (144 yrs.)
- Initial 2014 State Water Project allocation 0% of Contract, before being raised to 5% of Contract.
- Local groundwater reserves were artificially low due to construction of critical projects in Quarry Lakes Park.

2014 Actions Taken

- **January, 2014:** Gov. Declares Drought State of Emergency
- **March 13, 2014:** ACWD Board declared a Water Shortage Emergency and adopted a Water Use Restrictions Ordinance.
  - Reducing wasteful use and non-essential use.
  - Minimize irrigation - enough water to keep plants & trees alive.
- **July 17, 2014:** ACWD Board Adopted Drought Surcharges
  - Tiered Rates for Single Family Residences (up to 16 HCF, no surcharge)
  - Uniform Rates for Multi Family Residences, Non Residential
- **ACWD and Others Got Creative**
  - Local partnership with Contra Costa WD
  - State figured out new ways to operate the State Water Project

Additional State Drought Actions

- July 29, 2014 –State Water Board Statewide Emergency Conservation Regulations in effect that limit or prohibit:
  - Irrigation that results in excessive runoff
  - Number of days per week of irrigation
  - Using a hose to wash a motor vehicle without a shut-off nozzle
  - Washing down driveways and sidewalks
  - Potable water use in non-recirculating fountains/water features
- Water agencies to report monthly
- All State prohibitions were already in ACWD's Ordinance



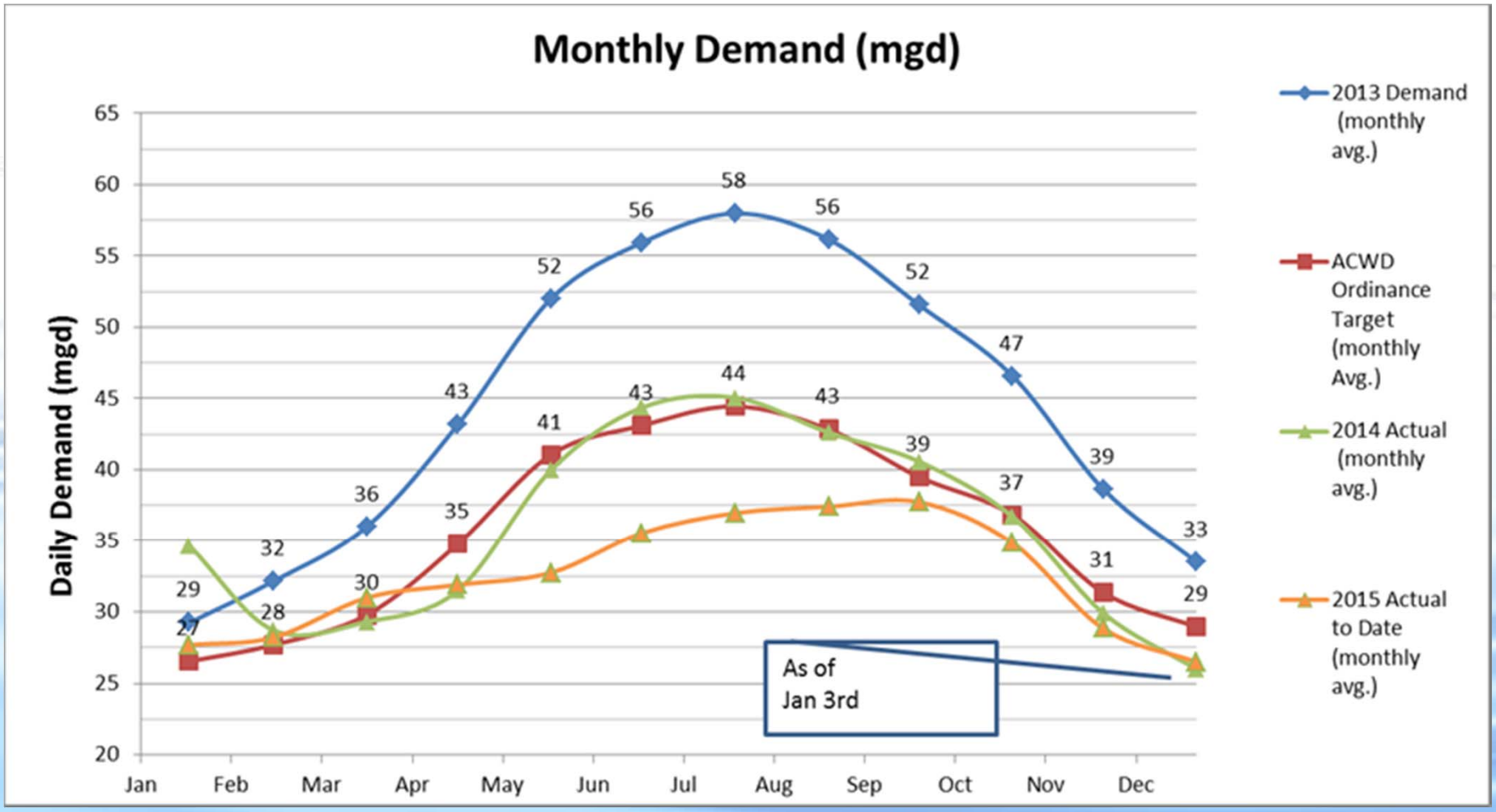
Calendar Year 2015

First ever Statewide Mandatory Water Reductions:

- Impose restrictions on water suppliers to achieve a statewide 25% reduction in potable urban usage (relative to 2013).
- Individual targets established by agency. ACWD's State-imposed conservation target is only 16% due to success in 2014.
- ACWD continues asking customers to conserve 20%.

- **<u>ACWD water supply in 2015 improved over 2014 conditions.</u>**

ACWD Customers Are Conserving!



Moving into Calendar Year 2016

- State Water Project 10% of allocation
- ACWD can access banked water
- The San Francisco Public Utilities Commission requesting 10% reduction.
- Rubber Dam No. 1 is back in service!
- Groundwater basin is at normal levels, recharged by winter storms.
- **ACWD water supply in 2016 substantially improved over 2014 conditions.**

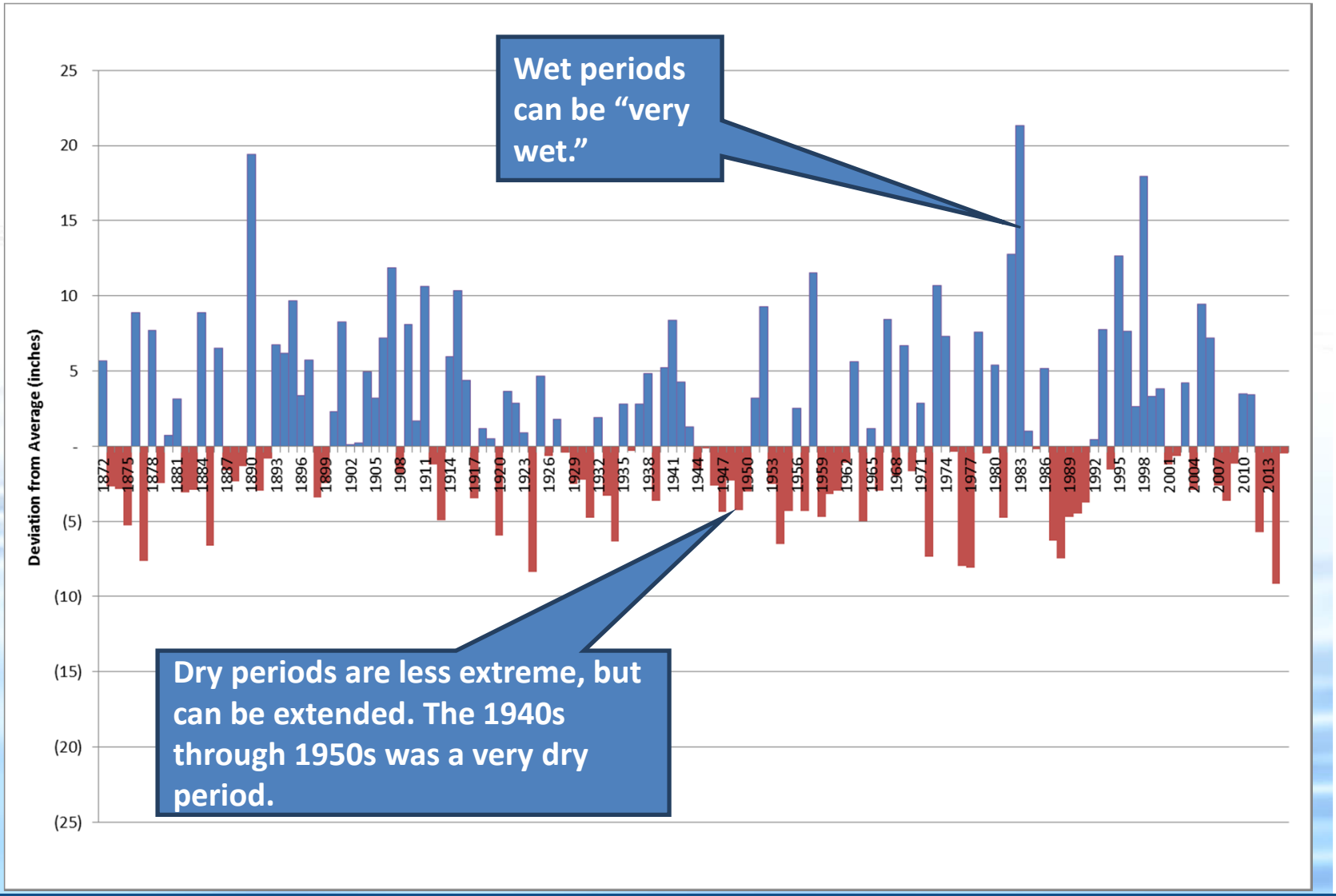
ACWD Water Supply Planning Includes Future Demands

- ACWD planning includes all currently envisioned potential future development, as determined by the City's General Plans and ABAG Projections
- "Growth pays for itself"
- ACWD is neither pro-growth nor anti-growth.
- Development-funded projects often benefit existing customers:
  - Newark Desalination Facility
  - Semitropic Water Banking Expansion

Droughts and Water Shortages

- Droughts are expected in California
- No water supply is 100% reliable and shortages are part of planning. ACWD planning criteria: Shortages of 10% once in 30 years
  - Shortage of < 10% no more than once in 10 years
  - Potential curtailments in development but only under the most extreme conditions
- Documented in published Urban Water Management Plan

What is “Normal Precipitation” for the Tri-Cities?



Above Average “Wet”

Below Average “Dry”

Water Demands from New Developments are Relatively Small

- Projected annual water demand increase from new development is less than 1% per year (in the Tri-Cities)
- New developments are more efficient than existing homes due to higher density housing and new plumbing codes

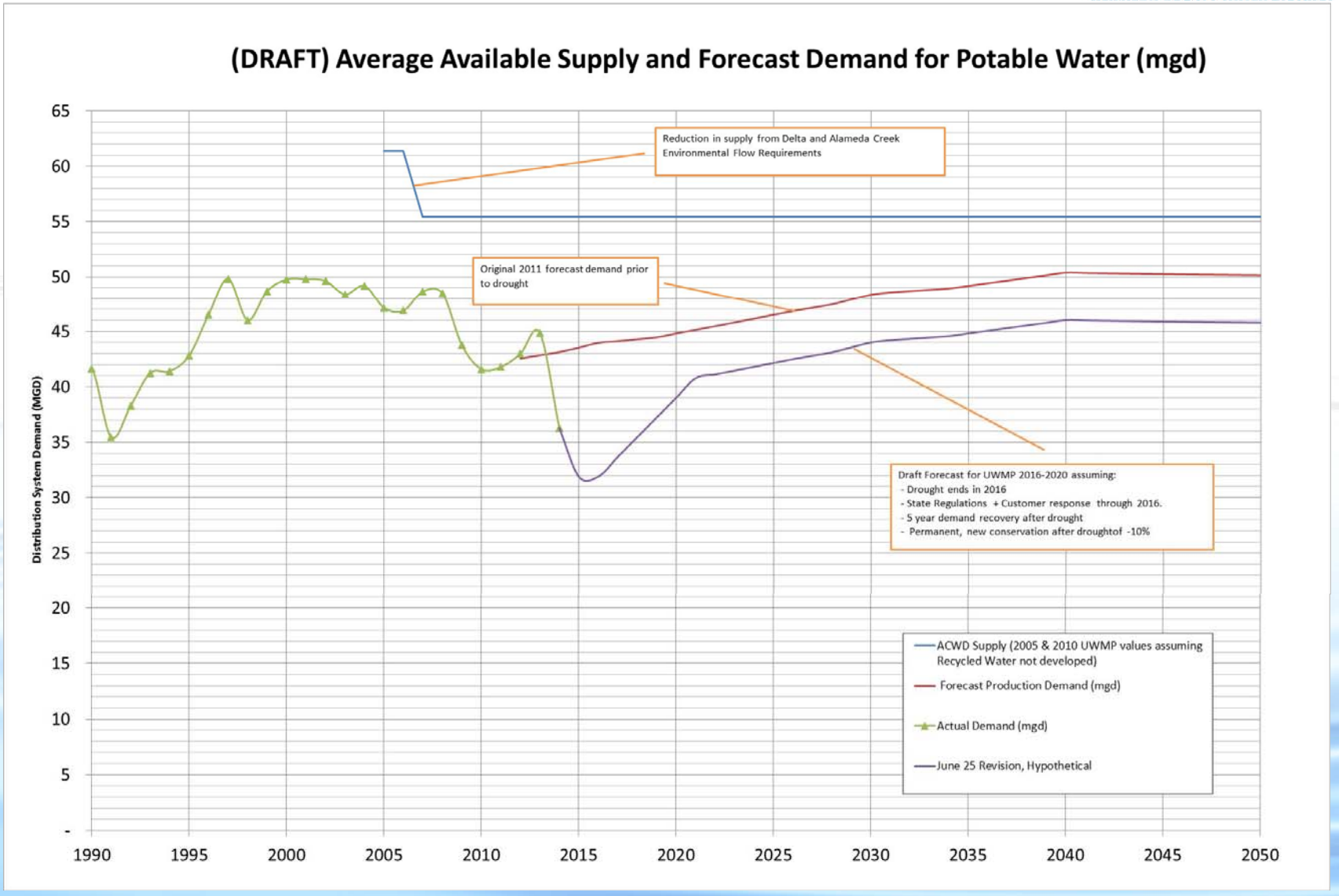
New homes are more water efficient than homes with original plumbing fixtures and larger lots

	Approx. Daily water-use per person (indoor)
Homes Built before 1992	84 Gallons
Homes Built between 1992 and 2004	53 Gallons
Current ACWD average of all	**63 Gallons**
State Target by 2020	*50 Gallons*
New Homes / Updated Homes	**36 Gallons**

Additionally,

- New developments typically have less landscaped area.
- New developments "Model Water Efficient Landscape Ordinance."

Water Use Trends



ACWD Requirements Related to New Development

- New developments are subject to ACWD Water Shortage Emergency Ordinance.
- ACWD and City staffs collaborate to require new developments to be more efficient than required by law.
- ACWD performs “Water Supply Assessments” for 500+ units to verify sufficiency of supply (and subsequent “Water Supply Verifications.”)

Future Water Supplies

- Conservation
- Potential New Water Supplies:
  - Bay Area Regional Reliability (BARR)
    - Interagency connections and agreements
  - Partnership with Contra Costa Water District
    - Los Vaqueros Reservoir
  - Partnership with Union Sanitary District
    - Recycled Water

Summary

- Droughts are expected in California.
- ACWD plans decades in advance to ensure that our water supply remains reliable.
- ACWD has been proactive and tackled this drought head-on.
- ACWD's customers have responded and exceeded conservation goals.
- The Tri-Cities' water supply situation has improved for 2015 and 2016, relative to 2014.
- ACWD's water supply planning accounts for all currently envisioned new development.
- **Continued focus on water efficiency and long-range water supply planning will be needed.**

ACWD's Water Conservation Programs

- WaterSmart reports – www.acwd.org/waterinsight
- Water Savings Assistance Program
- Incentive and rebate programs (HETs, HEWs, Turf Removal, etc.)
- Water saver kits
- Online tools and resources
  - Residential Customers
  - Commercial, Industrial, and Institutional Customer
  - Large Landscape Customers





California Drought – We're All in This Together
We Thank You for Saving Water!
ACWD
ALAMEDA COUNTY WATER DISTRICT