

Water Conservation: An Excellent Investment



Orange Water and Sewer Authority

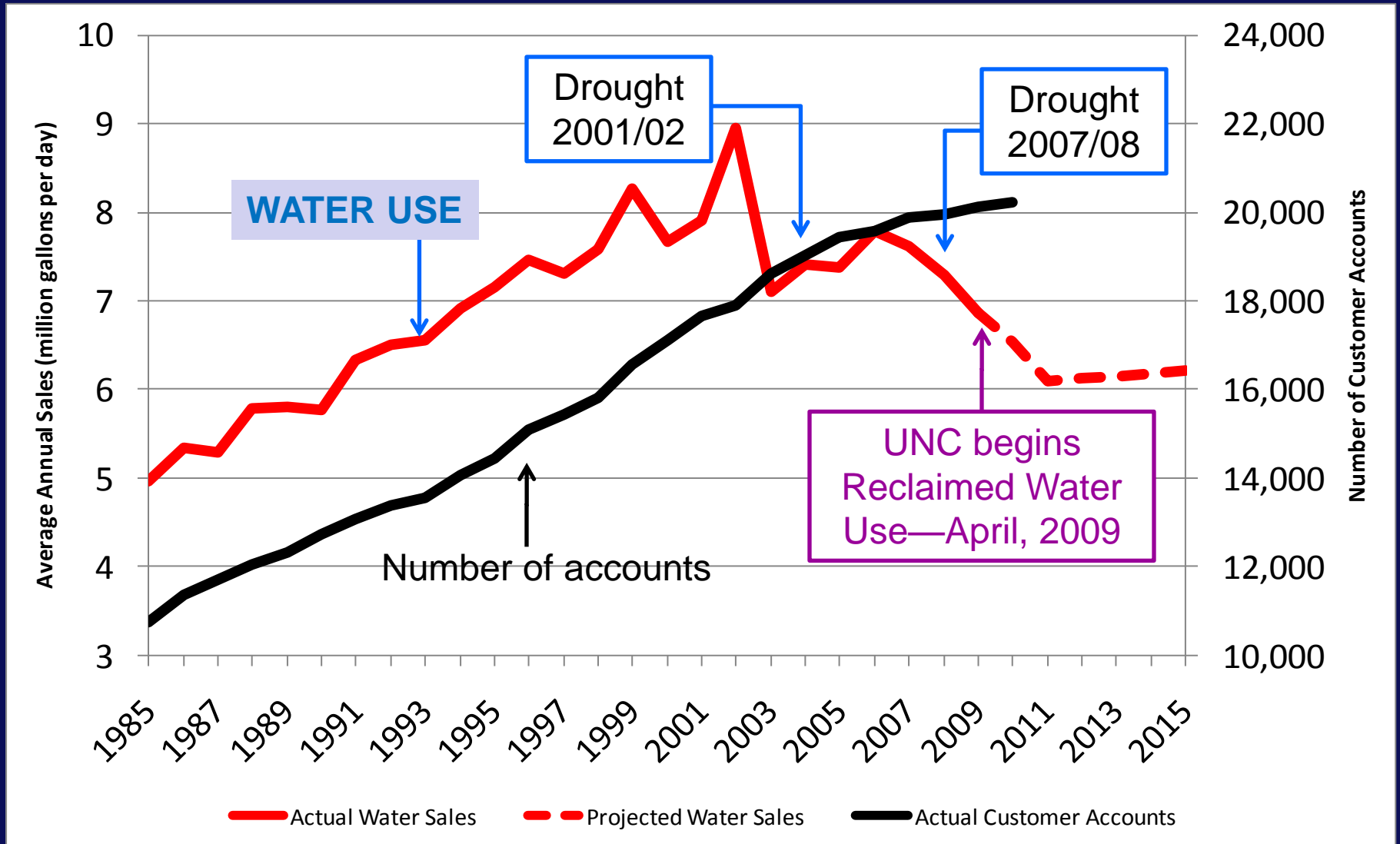
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A public, non-profit agency providing water, sewer and reclaimed water services to the Carrboro-Chapel Hill community

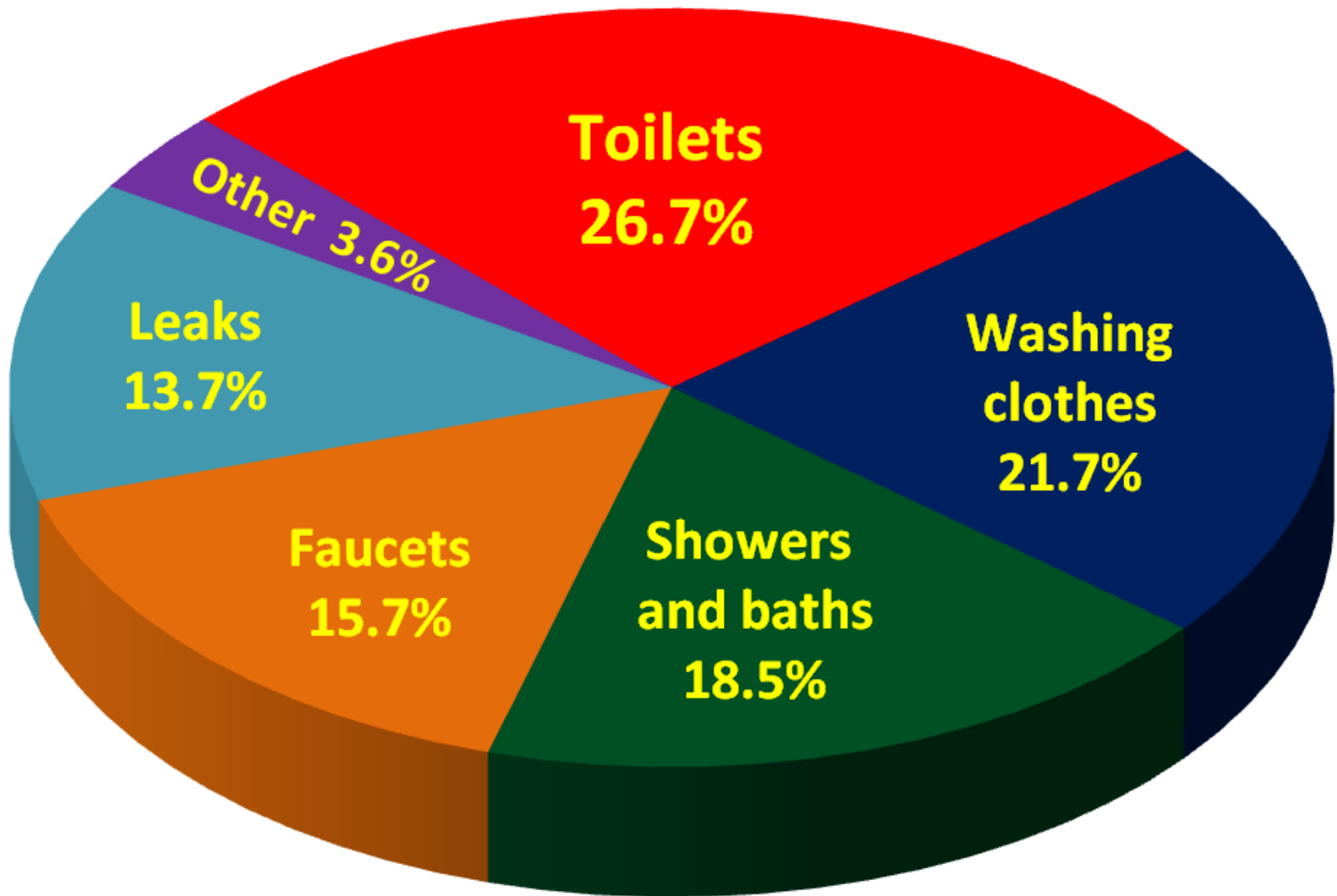
WHY CONSERVE?

- An adequate supply of high quality water is essential for:
 - public health and sanitation,
 - fire protection including sprinkler systems,
 - environmental protection,
 - the local economy/employment, and
 - essential community services (both public and non-profit).
- Water and wastewater are pumped. Most of the energy comes from fossil fuels that produce CO₂ .
- Conservation can reduce long-term costs by reducing the need for multi-million dollar expansion of water system capacities.

HOW WELL ARE WE CONSERVING?



WATER USES in a residence



What is the **MARGINAL** cost of 1,000 gallons of OWASA water for a typical residential customer?

- Block 2 water rate (3,000 to 5,000 gallons/mo.)
= \$6.39 per 1,000 gallons
- Sewer rate: \$6.48 per 1,000 gallons*
- Total: **\$12.87** per 1,000 gallons
(1.29 cents per gallon)

* Up to 15,000 gallons/month for an individually-metered residence
(rates as of October 1, 2013)

OWASA's increasing block water rates per 1,000 gallons for individually- metered residential customers

(October, 2013)

- 1,000 – 2,000 gal./mo. **\$2.63**
- 3,000 – 5,000 gal./mo. **6.39**
- 6,000 – 10,000 gal./mo. **7.83**
- 11,000 – 15,000 gal./mo. **10.94**
- 16,000 or more gal./mo. **19.79**

WHAT ARE THE BEST CONSERVATION INVESTMENTS?

IT DEPENDS.

- Replacing old toilets, showerheads, faucet aerators and/or washing machines is often a good investment.
- Replacing conventional cold season grass turf with more sustainable, drought-resistant landscaping will lower your OWASA bills, especially if you regularly use an irrigation system.



HOW MUCH WATER DO YOUR TOILETS USE?

Year toilet was installed	Water use per flush
before 1980	5 gallons or more
1980 to 1994	3.5 to about 4 gallons
since 1994	1.6 gallons (limit under Federal law)
“High efficiency” toilets now available	1.28 gallons

WATER AND DOLLAR SAVINGS: HIGH EFFICIENCY TOILETS

A FAMILY OF **FOUR**

REPLACING **TWO** OLD TOILETS

THAT USE **5** GALLONS PER FLUSH.

**ANNUAL WATER USE
WITH OLD TOILETS
that use 5 gallons per flush**

36,500 gallons

(4 people X 365 days X 5 flushes
per day per person X 5 gallons per flush)

Cost per 1,000 gallons: \$12.87

if block 2 rate of \$6.39 per 1,000 gallons for water,
plus \$6.48 per 1,000 gallons for sewer service

Annual cost: \$470

(36,500 gallons x \$12.87/1,000 gallons)

ANNUAL WATER USE
AND COST WITH
HIGH EFFICIENCY
TOILETS (HETs)

which use **1.28** gallons per flush:

High Efficiency Toilets

Gallons flushed/year: 9,344

(4 people X 365 days X 5 flushes/day/person
X 1.28 gallons per flush)

Annual cost: \$120

(9,344 gallons X \$12.87 per 1,000 gallons)

ANNUAL WATER SAVINGS

with High Efficiency Toilets

27,156 gallons (74%)

ANNUAL DOLLAR SAVINGS with High Efficiency Toilets:

\$350

(\$470 – \$120 = \$350)

ANNUAL RETURN ON INVESTMENT family of 4

With two new toilets
at a cost of \$300 each, installed:

$$\frac{\$350 \text{ annual savings}}{\$600 \text{ invested}} = 58\%$$

PAYBACK PERIOD:

1 year, 9 months

EXAMPLE NO. 2:

A family of **2** replaces two toilets that use **5** gallons per flush; cost of \$300 per toilet

Annual water savings:	13,578 gallons
Annual dollar savings:	\$175
Annual return on investment:	29%

EXAMPLE NO. 3:

family of 4 replaces two toilets that use 3.5 gallons per flush; cost of \$300 per toilet

Annual water savings:	16,206 gallons
Annual dollar savings:	\$209
Annual return on investment:	35%

EXAMPLE NO. 4:

family of **2** replaces two toilets that use **3.5** gallons per flush, cost of \$300 per toilet

Annual water savings:	8,103 gallons
Annual dollar savings:	\$104
Annual return on investment:	17%

LOW FLOW SHOWERHEADS



TWO KINDS OF SAVINGS:

- Water and sewer bills
- Energy bills (from reducing hot water use)

SHOWERHEAD WATER USE

before 1980: 5 gallons/minute (gpm)

1980-94: 3 to 5 gpm

1994 standard: 2.5 gpm

Available now: 1.75 and 1.5 gpm

SHOWERHEADS

Water use over a full year by a family of four if showerheads use 3 gpm:

21,024 gallons

Water/sewer cost:

\$270

LOW FLOW SHOWERHEADS

Annual water use, family of 4
if 1.5 gpm flow rate:

10,512 gallons

Water/sewer cost: \$135

LOW FLOW SHOWERHEAD SAVINGS, family of 4

1.5 gallons/minute flow vs. 3 gpm:

SAVE 10,512 gallons/yr.

Water/sewer costs:

SAVE \$135 or 50%

CLOTHES WASHERS

Clothes washers now available, such as horizontal axis (HA) models, use

20 to 27 gallons per load

compared to

35 to 51 gallons per load

for older models

CLOTHES WASHERS

Efficient washers may cost \$600 or more, so the investment returns are normally less significant than with toilet and showerhead replacement.

If it is time to replace a washing machine, the incremental cost of choosing an efficient model may be worthwhile.

ENERGY SAVINGS

Water saving clothes- and dishwashers also save energy and energy costs by reducing hot water use (if a customer uses hot water for laundry).

EPA WEBSITES

For more information including the US Environmental Protection Agency's ratings of various appliances and water fixtures, please visit:

www.epa.gov/watersense/

www.energystar.gov/

WATER LEAKS

Some research indicates that residential water leaks account for 22 gallons per day of water use.

WATER LEAKS

Such a leak would total 8,000 gallons over a full year and cost \$103 (plus energy costs if there is a hot water leak).

If you fix a leak, please ask us about an account credit.

(once every 3 years; some conditions and limits apply)

QUESTIONS? COMMENTS?

For more information, please contact us at
919-968-4421 or info@owasa.org.

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