

# This presentation premiered at WaterSmart Innovations

[watersmartinnovations.com](http://watersmartinnovations.com)



# Water Smart Home Program



# Water Smart Home Program

This program encourages the promotion and adoption of high-efficiency appliances, plumbing fixtures and landscape designs in new single-family residential construction.





# Water Smart Home Program



- Partnership with Southern Nevada Homebuilders Assn.
- Estimated water savings:
  - Estimated to save 75,000 gallons per year over a home built previous to 1994 and 10,000 gallons compared to homes built today
- First of its kind program to certify for water efficiency
- Water element of the SNHBA Greenbuilding program
- Model for national WaterSense for New Homes Program

# Program History

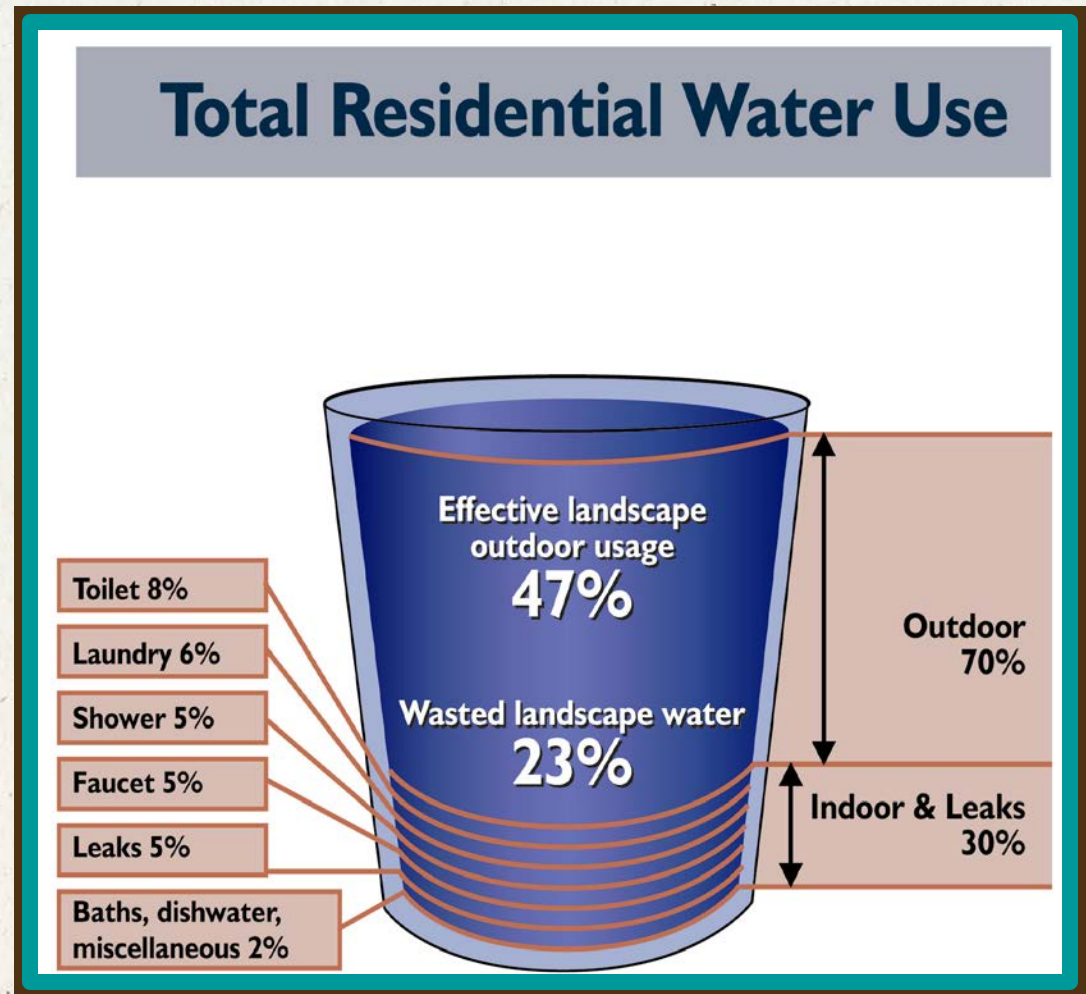
- Developed in 2004 and 2005 through a partnership between SNHBA and SNWA
- First builder to join program was KB Homes in 2005
- First home built to the program standards in Fall of 2005
- KB Homes, R/S Development, Astoria , Pulte , and Habitat for Humanity have participated
- Approximately 9,400 homes built to our standards





# Typical Household Water Use

- Most residential water is used outdoors
- Potential exists for savings indoors as well



# Program Standards

- Outdoors
  - Landscape Design
  - Irrigation System Standards
  - Swimming Pools
  - Absence of Leaks
  
- Indoors
  - Plumbing Standards
  - Appliance Standards
  - Air Condition System
  - Absence of Leaks



# Outdoor Program Standards

- Irrigation System Standards
- Landscape Design
- Pool/Sewer Drain Enclosure
- Swimming Pools and Spa
- Absence of Leaks





# Outdoor Program Standards

## Irrigation System Standards

- The following items must be installed and easily accessible for the homebuyer:

### Drip Irrigation System with/

- Pressure regulator and filter
- Flush end assembly





# Outdoor Program Standards

## Landscape Design

- Turf is not allowed in front yards – part of building code since 2004
- Back yard turf cannot exceed 50% of total landscapable area or 1,000 square feet, whichever is less – pools count towards turf allowance
- Spray irrigation is allowed only for turf areas and must use 4" pop-ups



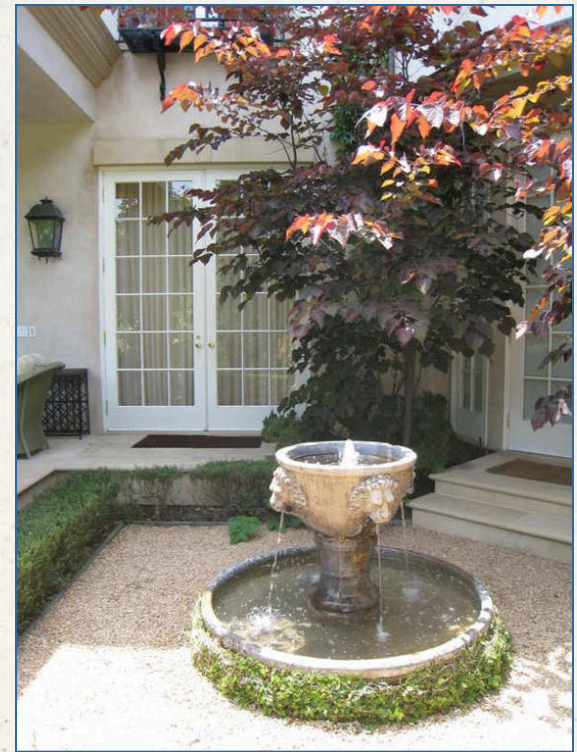
**This would NOT PASS**



# Outdoor Program Standards

## Landscape Design

- Non-turf areas require a 2" layer of mulch
- If used, weed barriers must be permeable to air and water
- Ornamental water features are not allowed – even in models!



**This would NOT PASS**



# Outdoor Program Standards

## Sewer/Pool Drain Enclosure

- The 3-inch sewer cleanout must be located inside a below ground enclosure
- The enclosure lid must be clearly and permanently marked “Sewer/Pool Drain”



# Outdoor Program Standards

## Other Outdoor Items

- Static service pressure must be 60 psi or less
- Irrigation Controller requirements:
  - 2+ programs
  - 3+ start times per program
  - 1-minute increments
  - Even/odd and day interval scheduling
  - Day of week scheduling
  - Capable of accepting external soil moisture/rain sensors
- Seasonal lawn water guide must be posted next to controller





# Outdoor Program Standards

## Absence of Leaks

- A water meter must be installed
- Absence of leaks is verified at the meter and on site





# Indoor Program Requirements

- Appliance Standards
- High Efficiency Fixtures
- Hot Water Delivery System



# Indoor Program Requirements

## Appliance Standards

- Dishwashers may not exceed 6.0 gallons per normal cycle
- Washing machines must have an Energy Star water factor not to exceed 6.0 gallons per cubic foot capacity
  - Water softener (NSF/ANSI 44 standard)
  - Drinking water treatment system (85 percent efficiency rate)





# Indoor Program Requirements

## High-Efficiency Fixtures

- High Efficiency Toilets (HET) are required
  - Dye tablet test is performed to verify absence of leaks
- Fixtures must meet maximum flows:
  - Kitchen faucet: 2.2 gpm
  - Bathroom faucets: 1.5 gpm
  - Showerheads: 2.5 gpm





# Indoor Program Requirements

## Hot Water Delivery System

- Hot water delivery must minimize water loss through the use of:
  - Recalculating pump
  - Manifold systemor
  - Customized system with hot water delivery in < 0.5 gallons
    - Performance standard verified through flow testing



# Inspection Process

- 10% of homes and ALL models will be inspected
- The process will be coordinated through the builder and SNWA
  - Coordination is important because small window exists for when inspection can be completed
- The homes are randomly selected
- Inspection takes 30-45 minutes
- Results will be provided within the business day





# Water Smart Homes Study (WSHS)

- Completed in 2009
- All savings estimates initially based on engineered estimates – wanted to verify with actual numbers.
- There are now a significant number of homes and multiple years' water use history.





# WSHS Objectives

- Determine how the water use of WSHs compares to similar non-WSHs currently.
- Determine the influence of water efficient landscape codes on single family homes' water demand.
- Determine how variation in summer/winter demands may indicate outdoor/indoor efficiency differences.



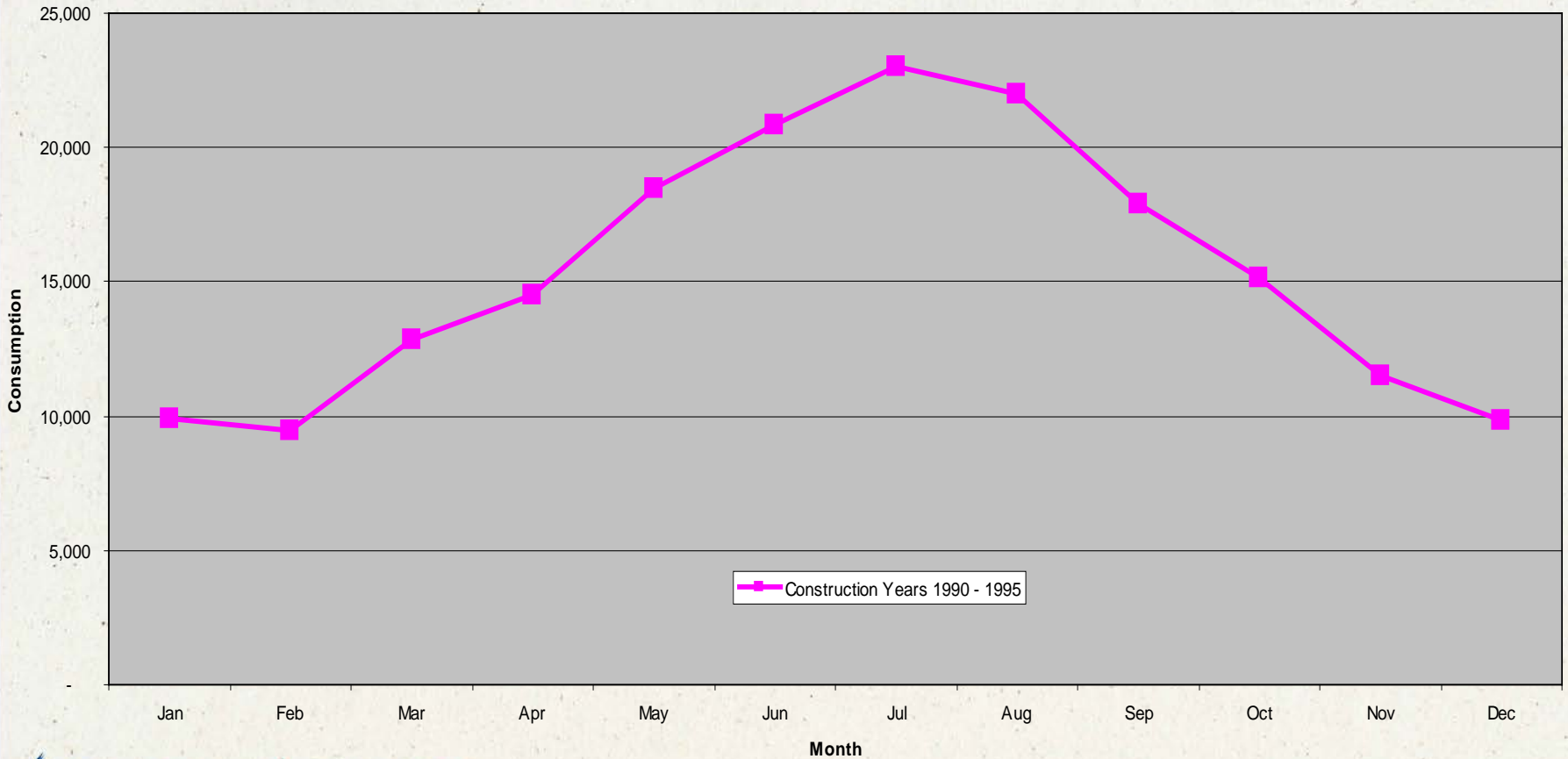
# Study Groups

- Water Smart Homes ( $n = 1,675$ )
- Pre- EPACT Homes ( $n = 34,989$ )
- Recent, pre-drought code (2000-2003) homes ( $n = 44,323$ )
- Non-WSH built simultaneous to WSH homes ( $n = 22,798$ )



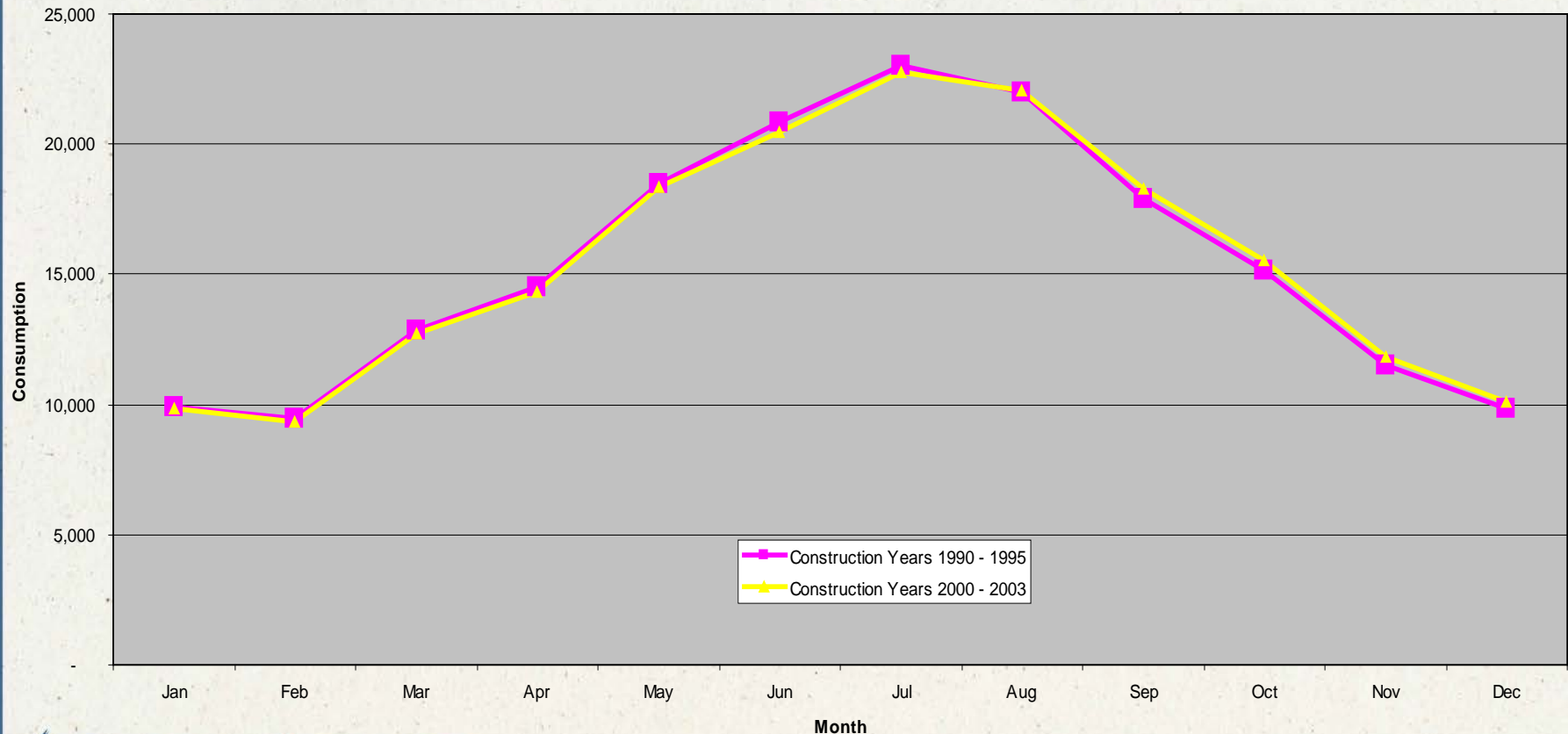
# Monthly Consumption Standing Homes Built 1990-1995

Average Monthly Consumption  
Two calendar years of 2007-2008



# Monthly Consumption 1990-1995 v. 1995-2003

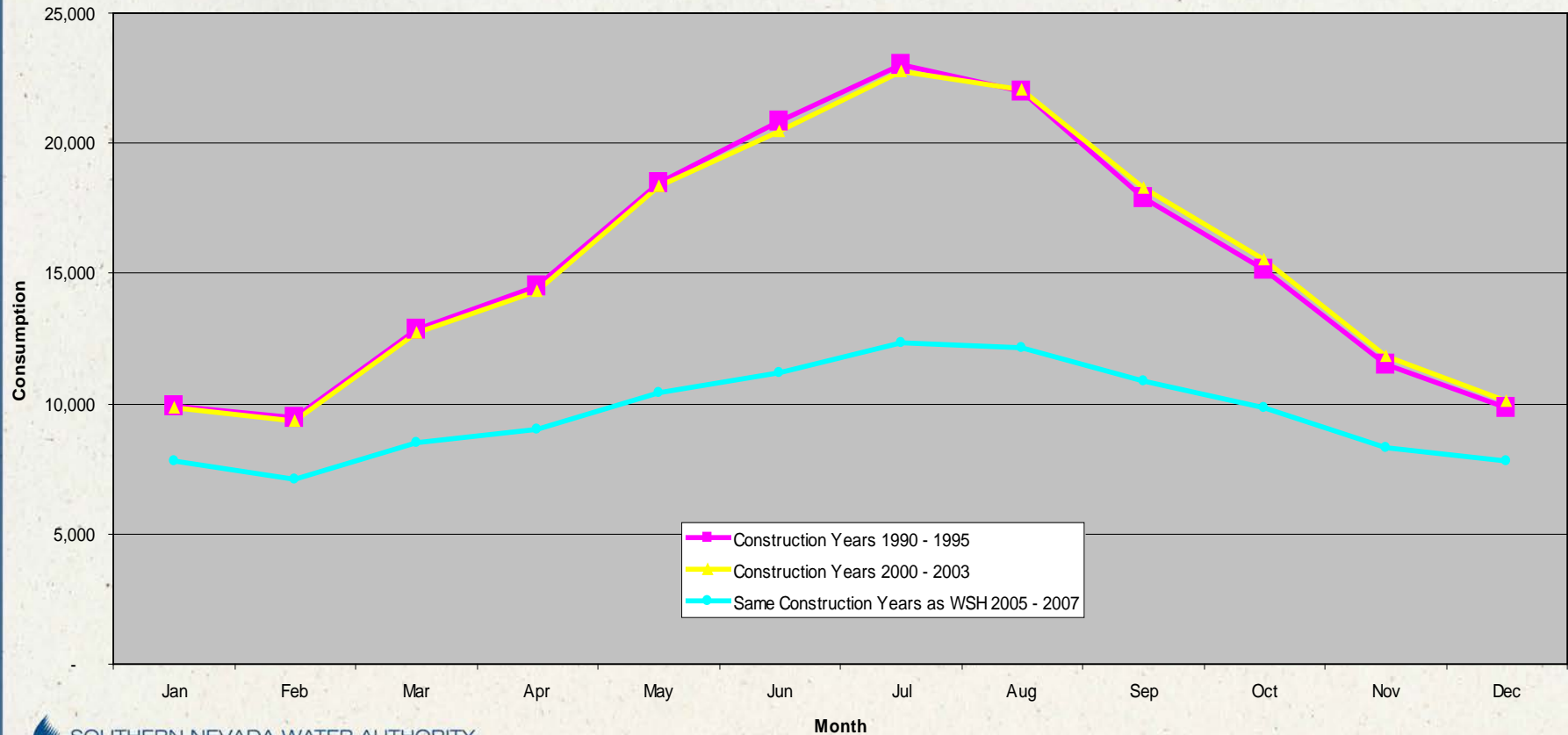
Average Monthly Consumption  
Two calendar years of 2007-2008





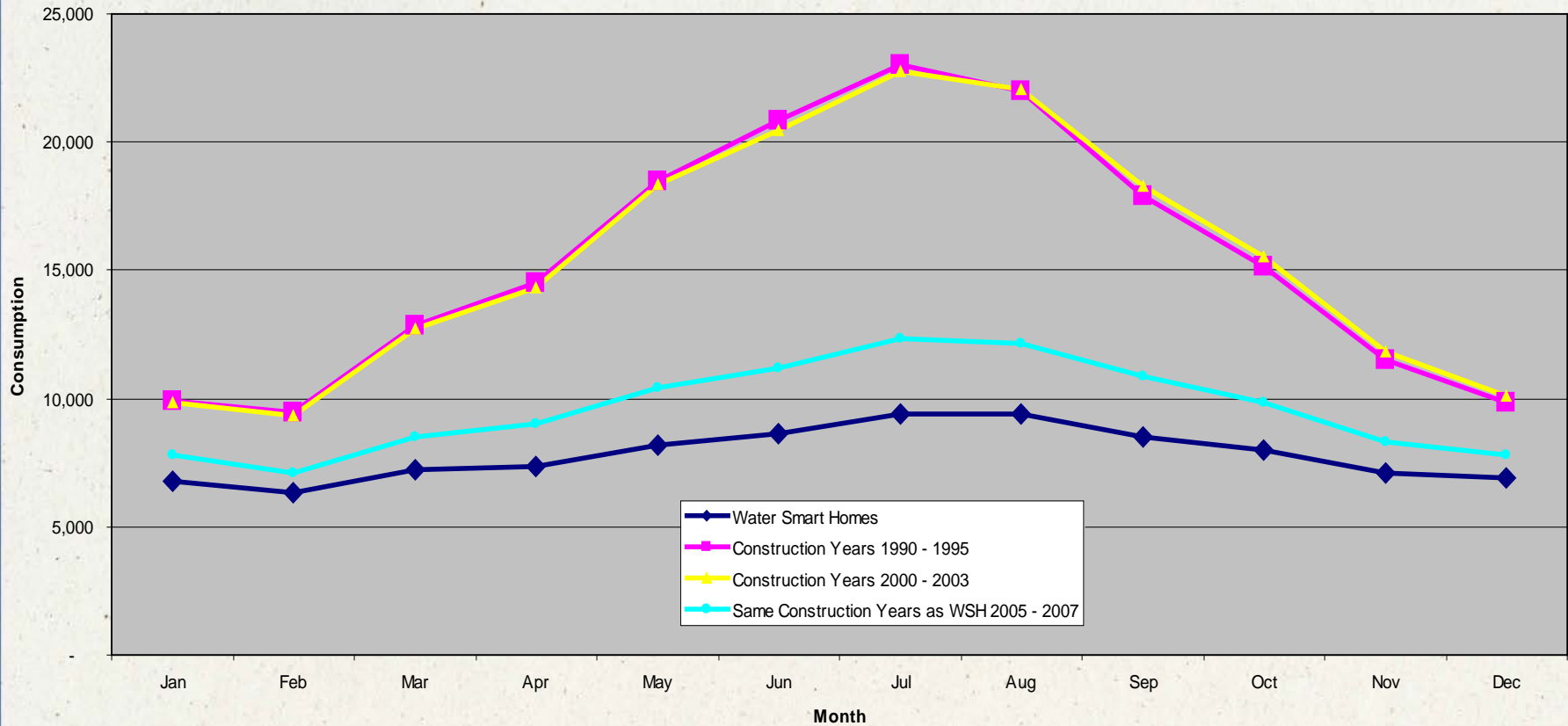
# Monthly Consumption Post 2003 Homes Comparison

Average Monthly Consumption  
Two calendar years of 2007-2008



# Monthly Consumption Water Smart Homes Comparison

Average Monthly Consumption  
Two calendar years of 2007-2008





# Water Smart Home Fees

- Contract Fee:
  - \$2,000 per Contractor
- Quarterly Fees
  - \$15 per completed home
    - April (Jan, Feb, Mar)
    - July (Apr, May, Jun)
    - Aug (Jul, Aug, Sep)
    - Jan (Oct, Nov, Dec)
- Re-inspection Fee
  - \$100 per re-inspected home
- **All fees used to market the program for the builder**



# Marketing



Participation Fees are used to market the program to potential homebuyers:

Bill inserts

Print ads

Media placement

Billboards

Web pages

Builders may use Water Smart Home logo





# Questions?



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