

Using Benchmarks to Identify Water Conservation Opportunities Among Industrial, Commercial and Institutional Water Users

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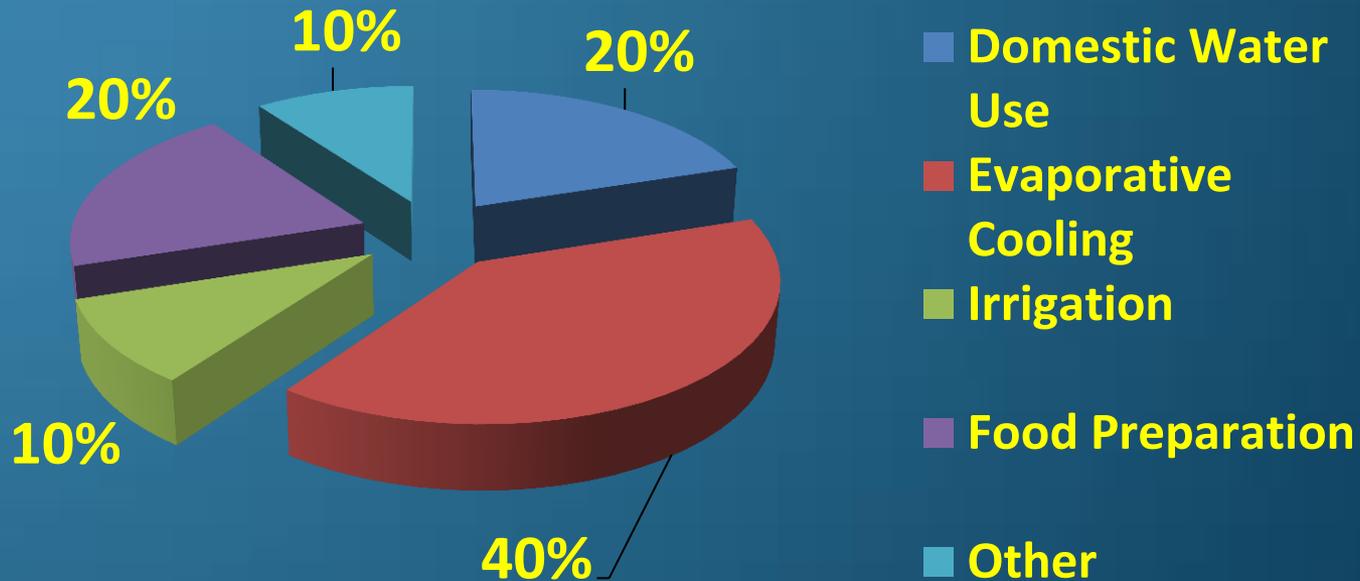


Commercial Water Conservation Technical Workshop - September 24, 2014

Overview

- Water Budgets
- Consumption Over Time
- Bench Marking
- Identifying Opportunities
- Evaluation of Water Consumption in Terms of Appropriate Measures

Water Budget



Consumption Over Time



Benchmarking

In evaluating your consumption, it is highly important to develop the correct benchmarks. Benchmarking allows you to:

- Compare your own water use history over time
- Compare your water use against others with similar functions
- Compare your own water use history over time
- Effectively Evaluate Opportunities
- Account for water conservation even when production increases

Typical Benchmarks

Gallons per Square Foot

Gallons per Capita

Gallons per Occupied Room

Cycles of Concentration

Gallons per Customer

Gallons per Patient

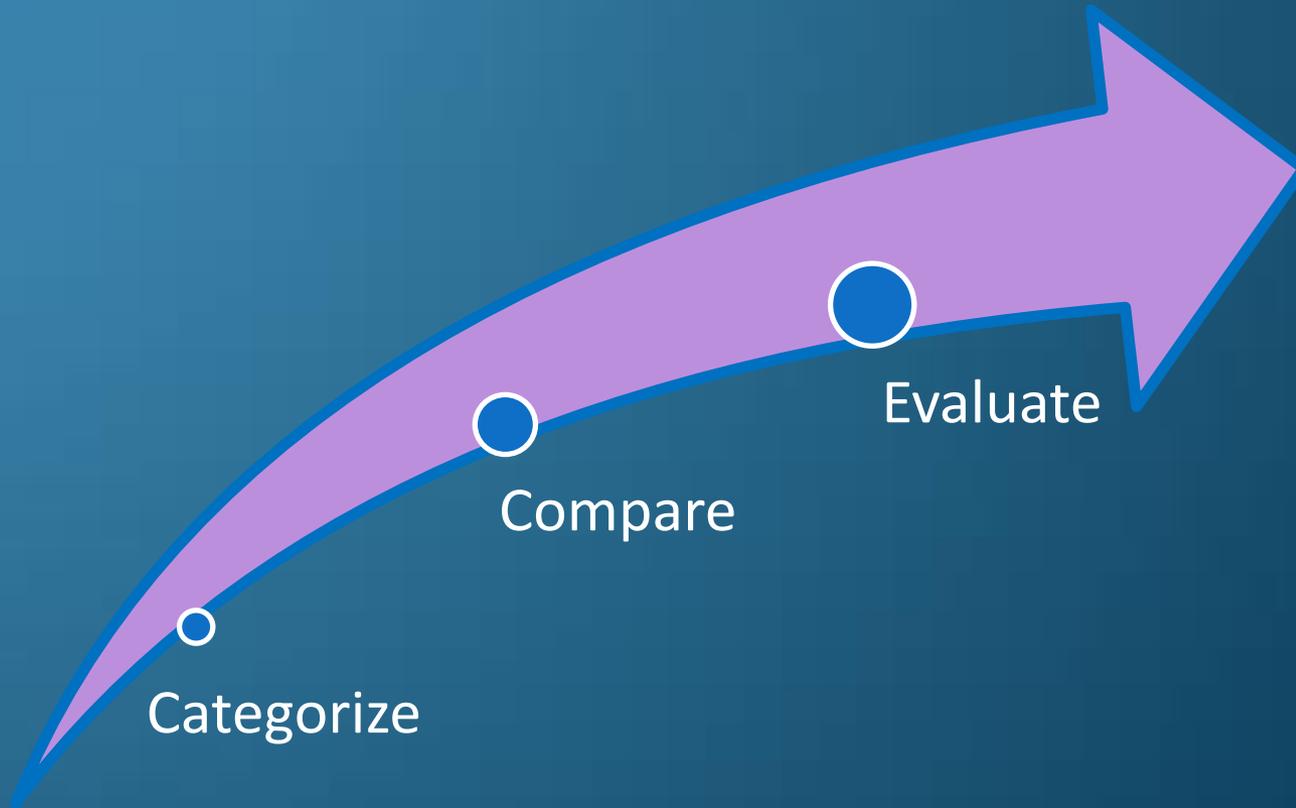
Gallons per Student

Gallons per Pound of Product

Gallons per Meal

Gallons per Employee

Identifying Opportunities



“TEXAS WATER CaRISIS”

A Gripping Tale of Mystery and Intrigue



Our Suspect “The Outlier”



“If it Does Not Fit...”

Circumstantial Evidence

Identifying the Largest Users in Each Category

RETAIL CUSTOMERS

<u>CUSTOMER NAME</u>	<u>TYPE OF BUSINESS</u>	<u>ANNUAL WATER USE IN GALLONS</u>
Texas Auto Sales	Car Dealership	26,000,000
Walmart # 22	General Merchandise	12,750,000
HEB # 7	Grocery Store	11,360,000
Walmart # 14	General Merchandise	11,325,000
Target # 1	General Merchandise	10,750,000

The Lineup



CAR DEALERSHIPS

<u>CUSTOMER NAME</u>	<u>TYPE OF BUSINESS</u>	<u>ANNUAL WATER USE IN GALLONS</u>
Texas Auto Sales	Car Dealership	26,000,000
Northwest Ford	Car Dealership	6,200,000
Southside Chevrolet	Car Dealership	5,750,000
WorldCar Acura	Car Dealership	3,250,000
CarMax # 1701	Car Dealership	2,875,000

Checking the Alibi

Comparing Usage Patterns



Texas Auto Sales



CarMax



Gathering Evidence

Interviewing the End User



Gathering Evidence

Interviewing the End User



Gathering Evidence

Comparing End User Demographics

	Texas Auto Sales	Car Max
Building Square Footage	175,000	190,000
Year Built	2007	2006
Operational Days per Year	300	300
Hours of Operation	0800 - 2200	0800 - 2300
Number of Full Time Employees	60	72
Number of Part Time Employees	30	35
Ratio of Male to Female Employees	2 to 1	2 to 1
Estimated Visitors Per Day	100	110
Annual Sales	\$70 Million	\$68 Million
Landscape Irrigation?	No	No
Evaporative Cooling Tower	No	No
Are Cars Washed on Site?	Yes	Yes
Type of Car Wash	Tunnel Wash	Tunnel Wash
Year Current Car Wash System Installed	2012	2011

The Smoking Gun

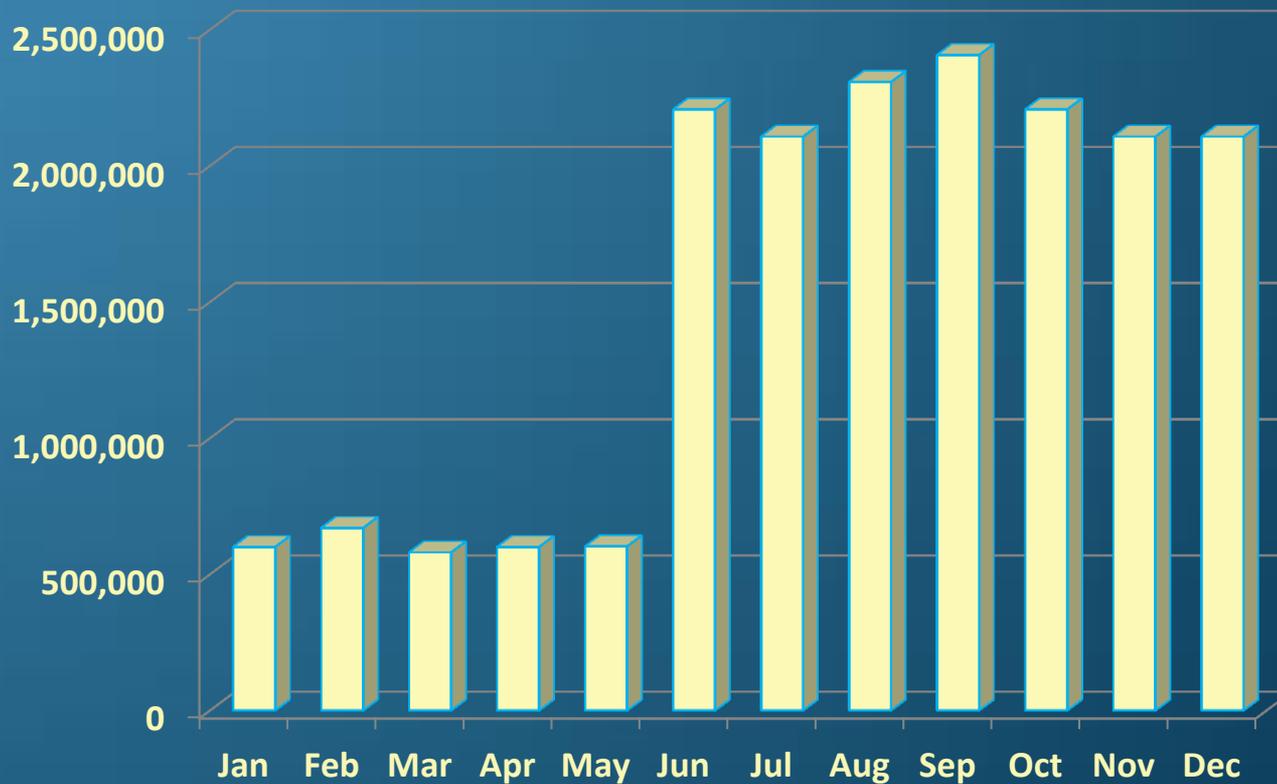
Evaluation of Water
Consumption in Gallons per Cars
Sold per Year



Units of Measurement	Texas Auto Sales	Car Max
Number of Cars Sold per Year	2,333	2,720
2013 Gallons of Water Per Car Sold	11,144	1,057

Closing In

When and Where Did the Change Take Place?



The Culprit



“Water Waster”



Things to Remember

- Every user has its own unique characteristics.
- Adopting someone else's strategy without a full understanding of your own situation can and will result in failure
- The best conservation survey starts at your computer
- Large water users are not always indicative of wasteful users
- Smaller water users are not always indicative of efficient users
- Simply categorizing and comparing like users can result in the identification of significant water saving opportunities

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