



# New York City's Water Challenge to Restaurants

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In Partnership with



NEW YORK  
STATE  
RESTAURANT  
ASSOCIATION



The City of New York  
Mayor Bill de Blasio





Welcome

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Kara Pho  
Project Manager  
NYC DEP

# NYC Water Challenge to Restaurants Program



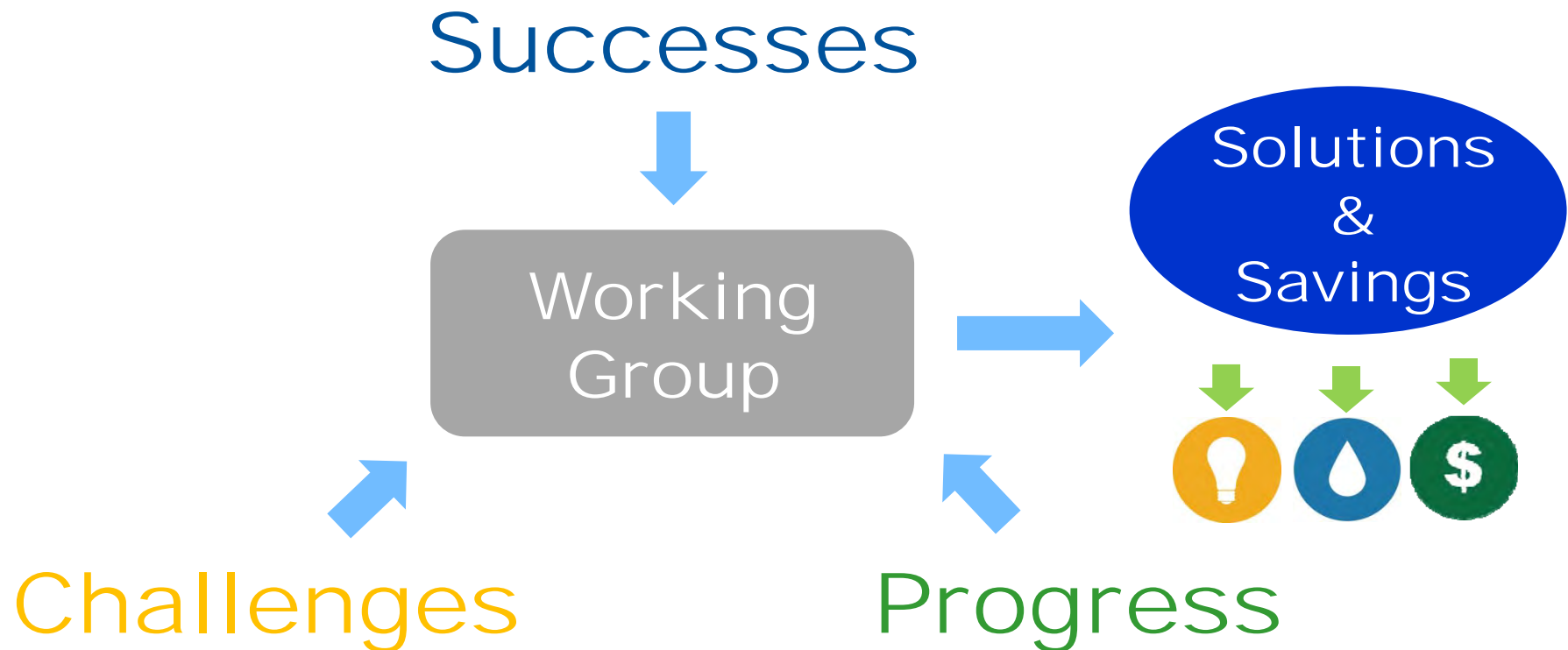
The approach of the New York City Water Challenge to Restaurants will loosely follow the seven step Water Management framework that the US EPA endorses on their WaterSense® website:

- Step 1: Making a Commitment
- Step 2: Assessing Facility Water Use
- Step 3: Setting and Communicating Goals
- Step 4: Creating a Water Conservation Plan
- Step 5: Implementing the Water Conservation Plan
- Step 6: Evaluating Progress
- Step 7: Recognizing Achievement

The goal of the New York City Water Challenge Program is to help Non-Residential water users achieve and sustain long-term water savings.

# Program Welcome – Goals of Workshop 03

1. Learn how other restaurants have implemented programs to reduce water consumption.
2. Share lessons-learned from those experiences.
3. Incorporate applicable strategies into your water conservation program.





# Working With the Water Conservation Plan

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Che Flowers  
Water Management Coordinator  
NYC DEP

# WATER CONSERVATION PLAN



WATER CONSERVATION PLAN  
Make an appointment



NYC WATER CHALLENGE TO  
RESTAURANTS  
WATER CONSERVATION PLAN

# WATER CONSERVATION PLAN



## Introduction

### Water for the Future Demand Management Program

In 2021 the Delaware Aqueduct, which conveys up to half of the City's daily water demand, will undergo major renovations to repair leaks. To supplement water supply during this time, Department of Environmental Protection is taking action to augment supply through a comprehensive water conservation program called Water for the Future Demand Management. The Water for the Future Demand Management program entails planning, evaluating, and implementing water conservation strategies across various types of buildings and facilities with a goal of reducing total NYC water demand by 5%, or 50 million gallons of water per day.

Commercial buildings play a key role in achieving these targeted reductions. Large commercial buildings in NYC account for approximately 35% of all known non-residential water consumption in the city, or approximately 57 million gallons per day. Commercial buildings have a significant opportunity to realize water savings due to limited historical efforts in targeting water efficiency in tenant spaces. The water used for toilets, sinks, and kitchen spaces within large non-residential buildings are a ripe arena for financial savings and water demand reductions.

### New York City Water Challenge to Restaurants

The New York City Water Challenge is a public-private partnership that establishes a voluntary challenge to the private sector with the purpose of supporting city-wide water conservation efforts. In 2013, the Hotel Association of NYC was the first private sector group to partner on reaching such targeted water reduction goals. At the conclusion of the New York City Water Challenge to Hotels in May of 2014 four of the twelve participating hotels had managed to reduce their water demand per square foot by more than 10%.

## WATER CONSERVATION PLAN

Make an appointment

### 1. Introductory Information



### Restaurants and Water Sustainability

*"The foodservice industry is only beginning to pay attention to water issues as drought and groundwater depletion weigh heavily on profits. Consumers' reduction in meat consumption and new preference for hardier greens help, but these trends do not reflect conscious efforts by the industry."*

Menus of Change Annual Report, The Culinary Institute of America and President and Fellows of Harvard College

# WATER CONSERVATION PLAN



## WATER CONSERVATION PLAN

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### 1. Introductory Information

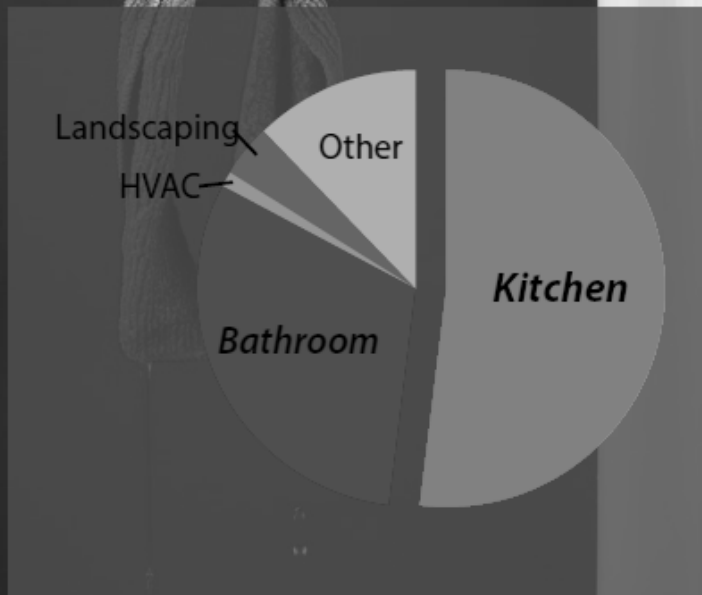
#### Water Use in Restaurants

Restaurant water use is split primarily between kitchen facilities at 52% and lavatory facilities at 28%. The amount of water consumption implied by kitchen facilities varies per restaurant by the size of the kitchen and the frequency of use. In most restaurant kitchens, the dishwasher, pre-rinse spray valve, and ice machine account for a significant portion of water consumption. Additional specialty kitchen appliances that also have significant impacts are ice cream machines, wok stoves, and drifter wells.

Behavioral changes, maintenance, retrofits and replacement options exist across all kitchen items that can dramatically reduce water usage. In general, connectionless kitchen appliances require less water than boiler-based appliances (e.g. combination ovens, steam cookers, etc.). Estimating water and financial savings upon replacement can be done with appropriate care with relative ease.

#### Simple Steps in Estimating Approximate Water Use

*Estimating appliance use is calculated by multiplying the appliances water use rate by amount of uses per day. Most items note their water use rate(s) on a nameplate somewhere on the item or in a manufacturers operation guide. Estimating use can be calculated by averaging the number of dishes cooked that include use of the appliance or quantifying use based on prep-work that utilizes the appliance. Finally, days of operation are the number of days the restaurant will be open per year. Identify water consumption of the new potential appliance by replacing the water consumption per rate in the original formula. Then subtract the two differences to calculate the potential water savings.*





# WATER CONSERVATION PLAN



## NYC Water Challenge Commitment

My name is \_\_\_\_\_ and \_\_\_\_\_

\_\_\_\_\_ is committed to a greener, greater New York and supports the City's efforts to increase sustainability.

I am pleased to announce that [Restaurant Name] accepts the NYC's Water Challenge to Restaurants to reduce our water use per square foot by 5% in one year.

We pledge to make every reasonable effort to meet our reduction target, as specified in the attached NYC Water Challenge program design. We will work with the New York City Department of Environmental Protection and the New York State Restaurant Association to learn best practices, receive guidance on our reporting and reduction strategies, and obtain the resources necessary to achieve our goal.

This Plan includes:

- Background information about [Restaurant Name] and our facilities;
- Water fixture inventory
- Summary of baseline water usage; from December 2013 through November 2014
- An explanation of our strategy to enable [Restaurant Name] to meet its 5% reduction goal by then end of the challenge

Sincerely,

\_\_\_\_\_

## WATER CONSERVATION PLAN

Make an appointment

1. Introductory Information

2. Commitment Letter



# WATER CONSERVATION PLAN



## About

## WATER CONSERVATION PLAN

Make an appointment

1. Introductory Information
2. Commitment Letter
3. General Information

General Information			
Restaurant Name: <span style="background-color: #cccccc; padding: 2px 20px;"> </span>		Year Established (or last renovation): <span style="background-color: #cccccc; padding: 2px 20px;"> </span>	
Address: <span style="background-color: #cccccc; padding: 2px 40px;"> </span>			
Point of Contact: <span style="background-color: #cccccc; padding: 2px 20px;"> </span>		Phone: <span style="background-color: #cccccc; padding: 2px 20px;"> </span>	
Square Footage: <span style="background-color: #cccccc; padding: 2px 20px;"> </span>		Building Wastewater is currently: <input type="radio"/> Treated on site <input type="radio"/> Connected to city water system <input type="radio"/> Other	Conducted Water Audit? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> TBD
Kitchen: <span style="background-color: #cccccc; padding: 2px 20px;"> </span>			
Dinning Space: <span style="background-color: #cccccc; padding: 2px 20px;"> </span>		Equipment Leased or Owned: <input type="radio"/> Leased <input type="radio"/> Owned <input type="radio"/> Both	Equipment Lessor: <span style="background-color: #cccccc; padding: 2px 20px;"> </span>
Lavatory: <span style="background-color: #cccccc; padding: 2px 20px;"> </span>			
Number of Floors: <span style="background-color: #cccccc; padding: 2px 20px;"> </span>			
Water Meter Reader: <input type="radio"/> Utility (NYC DEP) <input checked="" type="radio"/> Subcontractor	Subcontractor Contact: (Name, Address, Telephone) <span style="background-color: #cccccc; padding: 2px 20px;"> </span>		Hot Water Fuel Type: <input type="radio"/> Electric <input type="radio"/> Gas
Annual Number of Occupants			
	From	To	Average Number of Occupants
Weekdays	<span style="background-color: #cccccc; padding: 2px 5px;"> </span> a.m.	<span style="background-color: #cccccc; padding: 2px 5px;"> </span> p.m.	<span style="background-color: #cccccc; padding: 2px 10px;"> </span>
Fridays	<span style="background-color: #cccccc; padding: 2px 5px;"> </span> a.m.	<span style="background-color: #cccccc; padding: 2px 5px;"> </span> p.m.	<span style="background-color: #cccccc; padding: 2px 10px;"> </span>
Saturdays	<span style="background-color: #cccccc; padding: 2px 5px;"> </span> a.m.	<span style="background-color: #cccccc; padding: 2px 5px;"> </span> p.m.	<span style="background-color: #cccccc; padding: 2px 10px;"> </span>
Sundays	<span style="background-color: #cccccc; padding: 2px 5px;"> </span> a.m.	<span style="background-color: #cccccc; padding: 2px 5px;"> </span> p.m.	<span style="background-color: #cccccc; padding: 2px 10px;"> </span>
Holidays	<span style="background-color: #cccccc; padding: 2px 5px;"> </span> a.m.	<span style="background-color: #cccccc; padding: 2px 5px;"> </span> p.m.	<span style="background-color: #cccccc; padding: 2px 10px;"> </span>

# WATER CONSERVATION PLAN



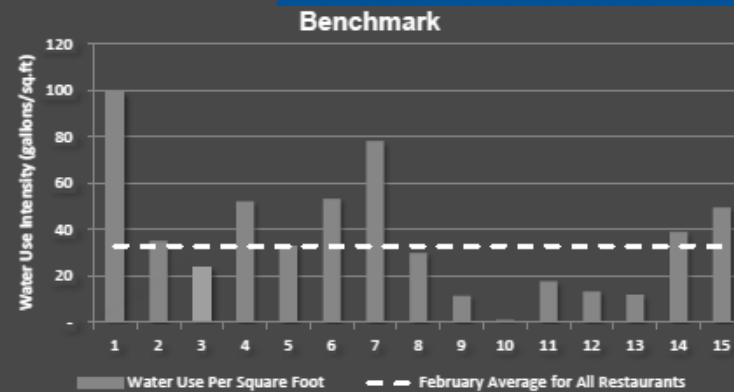
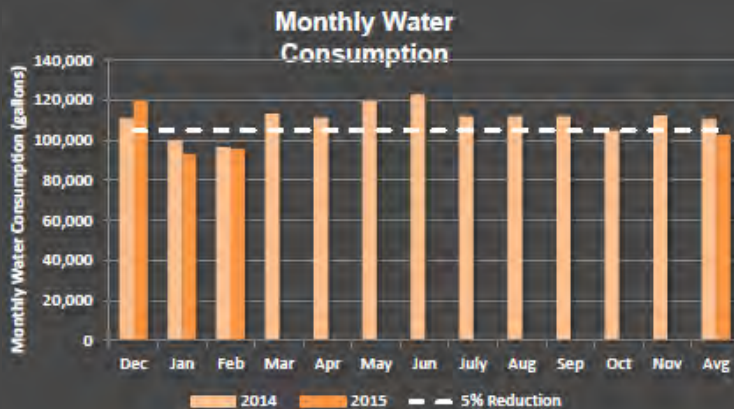
## WATER CONSERVATION PLAN

Make an appointment

1. Introductory Information
2. Commitment Letter
3. General Information
4. Baseline Consumption

### XXX| February Monthly Summary

This is a summary of water consumption data during the month of February for XXX. The graph on the left shows water consumption per month from the commencement of the Water Conservation Challenge, and compares it to a baseline of the previous 12 months (Dec, 2013 to Nov, 2014). The graph on the right shows water use intensity (water use/sq ft) in your facility to participating restaurants.



#### Your Results

For the month of February, XXX consumed a total of 95,788 gallons of water. The white dashed line represents our prescribed targeted monthly consumption, which is 105,038 gallons based on your average monthly consumption from Dec 2013 to Nov 2014.

#### Consumption Intensity

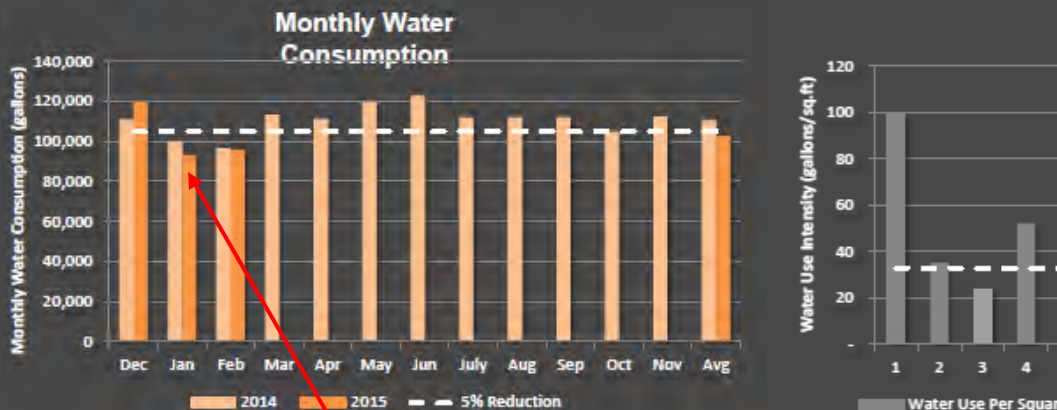
The chart above depicts the water use intensity (water use/square foot) for each of the participating restaurants. This white dashed line represents average water intensity per square foot for all participating restaurants. It is 32 gal/sqft. XXX consumed 23 gallons of water per square foot during the month of February.

# WATER CONSERVATION PLAN



## XXX| February Monthly Summary

This is a summary of water consumption data during the month of February for XXX. The graph on the left shows water consumption per month from the commencement of the Water Conservation Challenge, and compares it to a baseline of the previous 12 months (Dec, 2014). The graph on the right shows water use intensity (water use/sq ft) in your facility to participating restaurants.



### Your Results

For the month of February, XXX consumed a total of 95,788 gallons of water. The white dashed line represents our prescribed targeted monthly consumption, which is 105,038 gallons based on your

### Consumption Intensity

The chart above depicts the water use intensity (gallons per square foot) for each of the four areas. The white dashed line represents a

Savings from one simple behavior change →

## WATER CONSERVATION PLAN

Make an appointment

1. Introductory Information
2. Commitment Letter
3. General Information
4. Baseline Consumption



# WATER CONSERVATION PLAN



## WATER CONSERVATION PLAN

Make an appointment

1. Introductory Information
2. Commitment Letter
3. General Information
4. Baseline Consumption
  1. Tracking in Detail

	Date	Monthly Use	Consumption	F
Base Year	Dec, 2013	167,878		
	Jan, 2014	153,201		
	Feb, 2014	171,648		
	Mar, 2014	106,667		
	Apr, 2014	140,911		
	May, 2014	149,760		
	Jun, 2014	146,468		
	Jul, 2014	170,556		
	Aug, 2014	170,556	37.9	
	Sep, 2014	138,471	30.8	
	Oct, 2014	154,817	34.4	
	Nov, 2014	136,624	30.4	
	Average	150,630	33.5	
Challenge Year	Dec, 2014	127,461	28.3	-32%
	Jan, 2015	133,782	29.7	-15%
	Feb, 2015	103,867	23.1	-65%
	Mar, 2015	0	-	
	Apr, 2015	0	-	
	May, 2015	0	-	
	Jun, 2015	0	-	
	Jul, 2015	0	-	
	Aug, 2015	0	-	
	Sep, 2015	0	-	
	Oct, 2015	0	-	
	Nov, 2015	0	-	
	Avg	121,703	27.0	

# WATER CONSERVATION PLAN



## Water Conservation Strategy

Water Use Reduction Opportunity/Project	Im		
<b>Water Use Monitoring and Education</b>			
Locate Water Meters			
Benchmark 12 months of water use	X		
Install submeters on major water-using equipment, systems, or processes	X		
Implement a leak detection and repair program			
Educate restaurant staff		X	
Review, understand, and utilize information in codes, standards, and voluntary programs for water efficiency	X		
<b>Sanitary Fixtures and Equipment</b>			
Replace old tank-type toilets with efficient models		X	
Replace old flushing urinals with WaterSense labeled models		X	
Replace old lavatory faucets or faucet aerators with WaterSense labeled models		X	
Replace old showerheads with WaterSense models		X	
<b>Commercial Kitchen Equipment</b>			
Replace old ice machines with ENERGY STAR qualified models	X		
Replace old steam cookers with ENERGY STAR qualified models	X		
Switch to connectionless combination ovens, steam cookers, and steam kettles	X		
Replace old water-cooled wok stoves with waterless wok stoves	X		

## WATER CONSERVATION PLAN

Make an appointment

1. Introductory Information
2. Commitment Letter
3. General Information
4. Baseline Consumption
  1. Tracking in Detail
5. Conservation Strategy

# WATER CONSERVATION PLAN



## Water Conservation Strategy

Water Use Reduction Opportunity/Project	Im		
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Review, understand, and utilize information in codes, standards, and voluntary programs for water efficiency	X		
<b>Sanitary Fixtures and Equipment</b>			
Replace old tank-type toilets with efficient models		X	
Replace old flushing urinals with WaterSense labeled models		X	
Replace old lavatory faucets or faucet aerators with WaterSense labeled models		X	
Replace old showerheads with WaterSense labeled models			
<b>Commercial Kitchen Equipment</b>			
Replace old ice machines with ENERGY STAR labeled models			
Replace old steam cookers with ENERGY STAR labeled models			
Switch to connectionless combination over-the-counter dishwashers			
Replace old water-cooled wok stoves with electric wok stoves			

## WATER CONSERVATION PLAN

Make an appointment

1. Introductory Information
2. Commitment Letter
3. General Information
4. Baseline Consumption
  1. Tracking in Detail
5. Conservation Strategy

### Water Conservation Opportunities:

- Low Hanging Fruit
- Retrofits & Upgrades
- Behavior Changes
- Change by Design

# WATER CONSERVATION PLAN



## Kitchen Equipment Inventory

Instructions:

Please complete a survey of fixtures at your restaurant and input the results below. Insert additional rows as needed.

Water Use Inventory				
Item	Location	Quantity	Flow (gallons per minute)	Operating Time (hours or minutes per day)
ex. Pre-Rinse Spray Valve	Prep Kitchen	5	5 gpm	4 hours
ex. Urinal	Men's room	9	3	18 hours

## WATER CONSERVATION PLAN

Make an appointment

1. Introductory Information
2. Commitment Letter
3. General Information
4. Baseline Consumption
  1. Tracking in Detail
5. Conservation Strategy
6. Inventory Equipment



# WATER CONSERVATION PLAN

## Kitchen Equipment Inventory

### Water Conservation Opportunities:

#### Low Hanging Fruit Examples:

1. Aerators
2. Pre-rinse Spray Valves

#### Retrofits & Upgrades Examples:

1. Dipper Well
2. Ice Cream Machines
3. Ice Machines
4. Walk-in Cooler

#### Behavior Changes Examples:

1. Food Prep
2. Kitchen Cleaning
3. Maintenance Schedule

#### Change by Design

## WATER CONSERVATION PLAN

Make an appointment

1. Introductory Information
2. Commitment Letter
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4. Baseline Consumption
  1. Tracking in Detail
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# WATER CONSERVATION PLAN



## Conclusion

### Instructions:

Please provide a brief summary of your future goals or anything else you might wish to add.

### Approach to Water Conservation

Ex. Xxx has undertaken a series of efforts to understand their water usage patterns and behavior (e.g. received a water audit from xxx. Xxx plans to complete an inventory list of water fixture inventory (e.g. etc.) throughout the space (see ddd location). Xxx is working on developing a methodology for identifying water savings opportunities.

XXX restaurant kicked off their water conservation initiative by meeting with Department of Environmental Protection. Together, they discussed the restaurant's scope and boundaries towards conservation. From that discussion, they identified the following:

1. Low-hanging energy and water efficiency opportunities;
2. Retrofit options for larger items; and,
3. Potential behavior changes among staff.

XXX staff recognizes the importance of water and energy conservation for the environment and for the restaurant. They are committed to achieving the 5% water consumption savings and win the Water Challenge to Restaurants.

## WATER CONSERVATION PLAN

Make an appointment

1. Introductory Information
2. Commitment Letter
3. General Information
4. Baseline Consumption
  1. Tracking in Detail
5. Conservation Strategy
6. Inventory Equipment
7. YOUR CONSERVATION STRAATEGY!

# Next Steps

- Make an Appointment to Meet With Us
- Meet with DEP NYC
- Start Working on Your Water Conservation Plans
- Realize savings!



# Water Conservation Case Study's

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Mary Ann Dickinson  
President and CEO,  
Alliance for Water Efficiency

# Restaurant Water Efficiency: Case Studies

New York City Water Challenge to Restaurants  
Workshop  
April 16, 2015

Mary Ann Dickinson  
President and CEO



Alliance *for* Water Efficiency

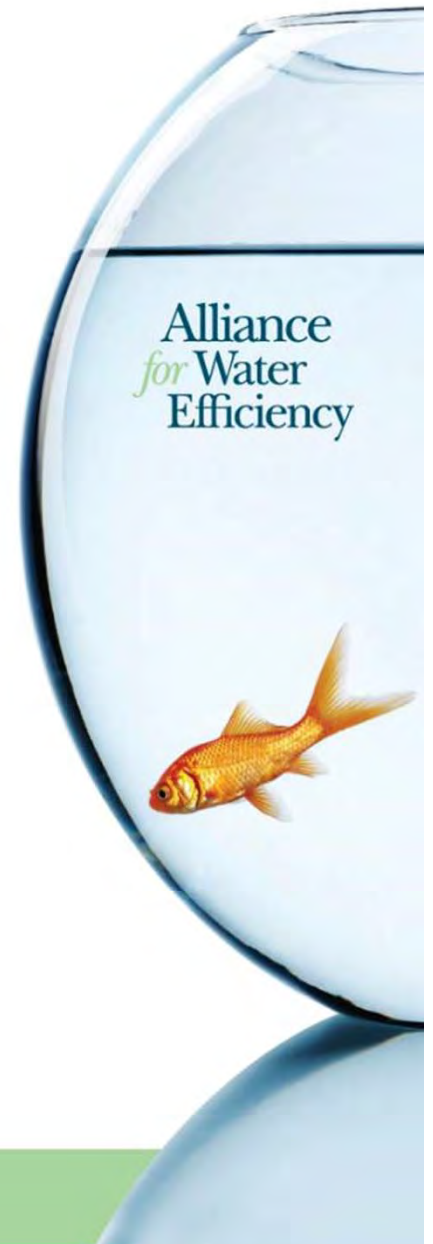


A VOICE AND  
A PLATFORM  
PROMOTING THE  
EFFICIENT AND  
SUSTAINABLE  
USE OF WATER

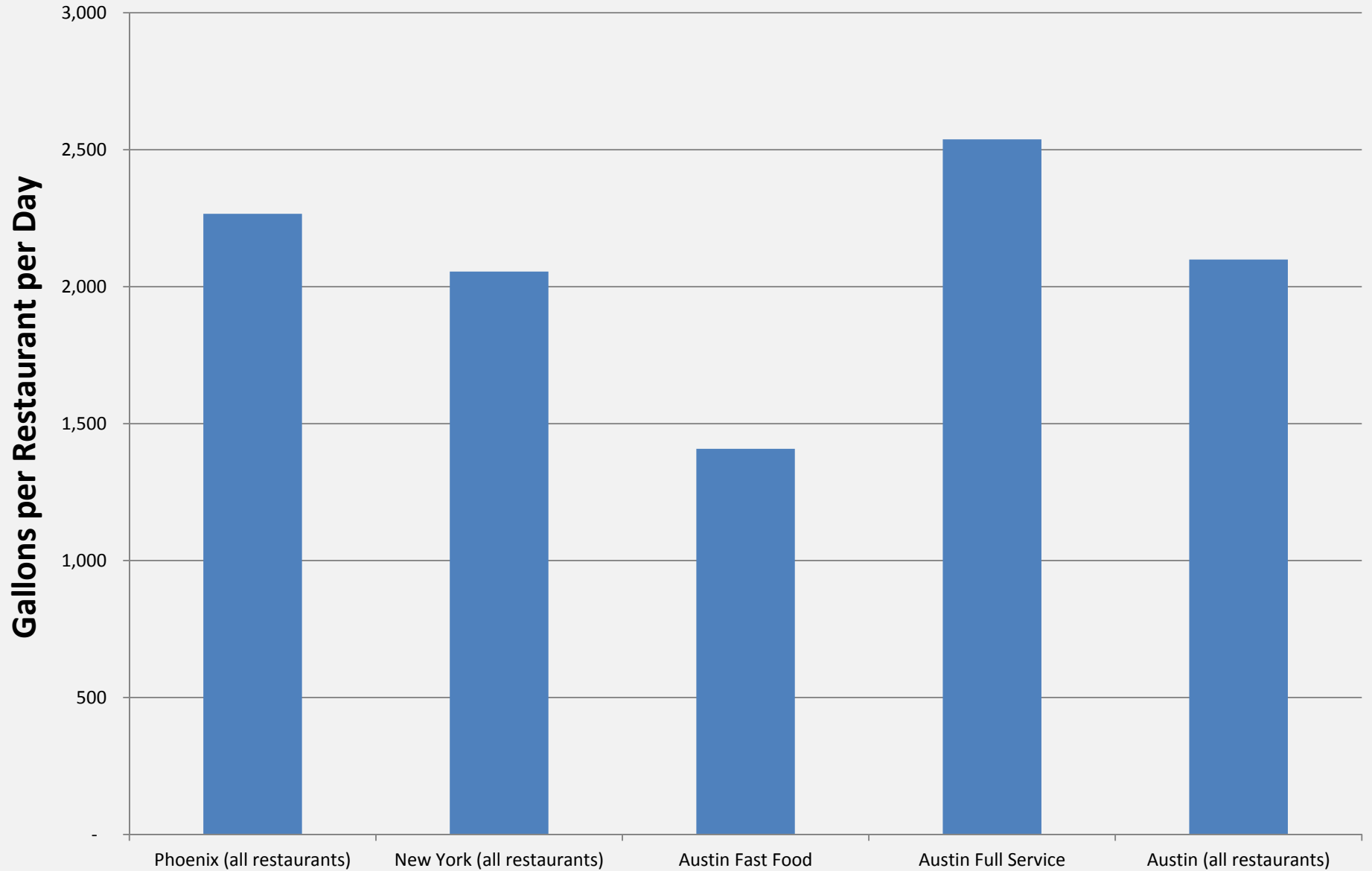


# Questions

- How can water consumption be reduced in restaurants?
- What on site behaviors can be modified?
- What are water and energy utilities doing with incentive programs and audits?
- What are some Case Study experiences?

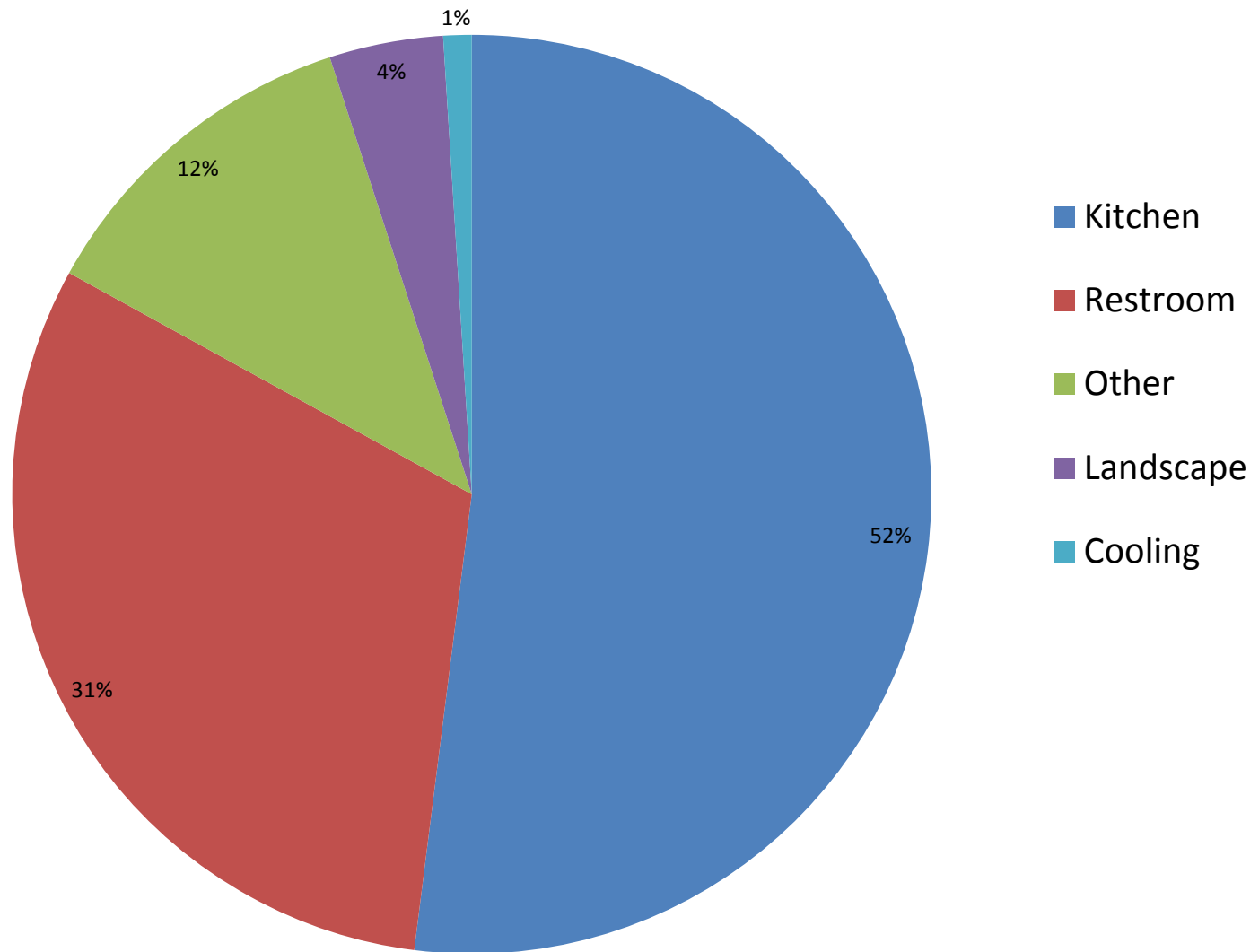


# Average Daily Water Use for Restaurants in Different Cities



# Typical Water Use in Restaurants

EPA WaterSense at Work





# Commercial Kitchen Equipment

- Commercial ice machines
- Combination ovens
- Steam cookers
- Steam kettles
- Wok stoves
- Dipper wells
- Pre-rinse spray valves
- Food disposals
- Commercial dishwashers
- Wash-down sprayers

Putting WaterSense® to Work

## Restaurants Install Water-Efficient Commercial Kitchen Equipment

look for



*Sector: Restaurants and Other Commercial Kitchens; Focus: Commercial Kitchen Equipment*

### Project Summary

The water efficiency best management practices implemented at each of three restaurants—Uncommon Ground, The Grey Plume, and Founding Farmers—are described in this case study.

#### Uncommon Ground (Chicago, Illinois)

When Uncommon Ground first opened, it was a small café in a converted apartment in Chicago. Twenty years later, Uncommon Ground has two 4,000-square-foot restaurants that serve approximately 20,000 customers per month. As the restaurants' popularity began to grow, the owners sought ways to reduce their environmental impact.

In the first year of its plan to reduce water use, Uncommon Ground focused on the “low hanging fruit” and installed water-efficient faucet aerators in prep sinks, changed its pre-rinse spray valve to a high-efficiency model, and began serving water to customers only upon request. To take its water conservation efforts to the next level, Uncommon Ground replaced the dishwashers at both restaurants with ENERGY STAR® qualified models and the ice machines (water-cooled models) with air-cooled, ENERGY STAR qualified models. In addition, Uncommon Ground uses a self-contained steam kettle without an external boiler, which uses less water and energy than boiler-based steam kettles.

Because serving local food is one of Uncommon Ground's missions, management installed a rooftop organic farm watered by a drip irrigation system. The restaurant also has a rain barrel for rainwater collection, and the rainwater is used to water planters and wash down patio areas. Following these water-efficient retrofits, the two



Uncommon Ground

### Certified Green Restaurants®



With social and environmental responsibility becoming the norm among restaurateurs and consumers, restaurants across the country have begun to install water- and energy-efficient commercial kitchen equipment for food preparation, cooking, and cleaning.

Despite measures taken to reduce water use, a challenge faced by many restaurants is the inability to directly quantify the impact of their efforts. In many cases, restaurants might be billed a flat fee for water or, if the building is leased or the restaurant is part of a corporate franchise, utility bills may be directed to the building owner or corporate headquarters.

Although the restaurants highlighted in this case study cannot quantify specific savings, all three are Green Restaurant Association (GRA) Certified Green Restaurants® that



## Restaurants and Commercial Kitchens

Austin  
**WATER**  
Clearly Reliable

# Austin Restaurant Water Savings Tips

- Use the customer's glass for beverage refills
- Do not use running water to:
  1. melt ice
  2. thaw foods – instead, thaw them overnight in the refrigerator
  3. wash vegetables – rather, wash them in a container
- Find and fix any leaks. A leaky faucet that only “dribbles” can waste thousands of gallons of water a month

# Austin Restaurant Water Savings Tips

- Use a steam cooker in a timed mode instead of continuous (manual) mode to save thousands of gallons of water a year
- Back off the setting on your pasta cooker to just maintain a simmer instead of a rolling boil to reduce the amount of water lost to vaporization and have minimal effect on product cook times
- Wok ranges with sufficient insulation do not require the additional cooling provided by continuous water flow, thereby eliminating water consumption
- Recycle water from steam tables to wash down cooking areas

# Austin Restaurant Water Savings Tips

- Soak pots and pans and pre-soak utensils in a basin first rather than rinsing under running water
- Minimize use of pre-rinse settings on dish washers; use low-flow options and turn off hot water pre-rinse to save water AND energy costs
- Wash only full racks in the dishwasher
- Use leftover ice from bar wells and vegetable rinse water on plants to water them overnight, avoiding daytime evaporation

# Austin Restaurant Water Savings Tips

- Install 1.28 gallons per flush (GPF) or 1.0 GPF flush valve toilets and efficient urinals
- Install low-flow faucet aerators
- Use foot pedals at hand wash stations to save water

# Austin Restaurant Ordinances

- Restaurants in Austin may only serve water upon request
- Ice machines must be air cooled or if water-cooled, must use recirculating water
- Pre-Rinse Spray heads must not use more than 1.6 gallons per minute and can save a gallon of water per minute over older models
- Food waste disposal systems are prohibited and kitchens are now using compost collection systems that save on water and waste disposal costs



# Other Water Efficiency Tips

- Check for leaks
- Install water heaters close to the point of use
- Monitor water bills for any spike in water use
- Have water use audited to discover savings opportunities
- Check automatic sensors on faucets, toilets, and urinals to ensure they are operating properly to avoid water waste

# Other Water Efficiency Tips

- Evaluate the potential for onsite water reuse (e.g., irrigation, toilet flushing, decorative water fixtures)
- Raise awareness with staff
- Eliminate constant flows of water in sinks
- Serve water only upon request (or ask your customers if they want water before providing it)
- Check for rebates and incentives that may be available



# SANTA CLARITA VALLEY RESTAURANT WATER CONSERVATION CHECKLIST

Restaurants are one of the biggest water users in the Santa Clarita Valley. The Castaic Lake Water Agency is constantly working to help local restaurants save water and money.

By making changes to daily operations, restaurants can help ensure a reliable water source in the coming years. Make a commitment to water conservation today and significantly lower water bills — and energy bills — by following the checklist below.



✓ Train employees on water-saving procedures. Post signs at your restaurant to create awareness of your water conservation practices. A recent study by the National Restaurant Association shows many customers consider a food establishment's conservation efforts when choosing a restaurant.

✓ Fully load dishwasher racks. Check the temperature pressure — if it is above 25 psi, you could be using more water than needed. You may need to turn dishwashers off when not in use.

✓ Support water conservation efforts by only serving water to customers upon request.

✓ Thaw frozen foods in the refrigerator instead of running water over them in the sink.

✓ Adjust ice machines to dispense less ice if any is being wasted and do not use running water to melt ice.

✓ Purchase appliances that carry the ENERGY STAR label. Install low-flow toilets and waterless urinals.

✓ Detect and immediately repair all leaks. Leaks can be detected by periodically shutting off water valves and reading water meters. If a dial on the meter moves, there is a leak.

✓ Sign up for a free commercial water use audit to determine how and where your restaurant uses water. A contractor will tour facilities, test equipment and review water use patterns. Following the survey, you will receive a report identifying water efficiency opportunities, recommended courses of action, estimated water savings, and a cost benefit analysis. For more information call 661-297-1600.



# *Dishwasher Water Efficiency Case Study at Bridges Restaurant*

**F I S H E R**  
N I C K E L Inc.

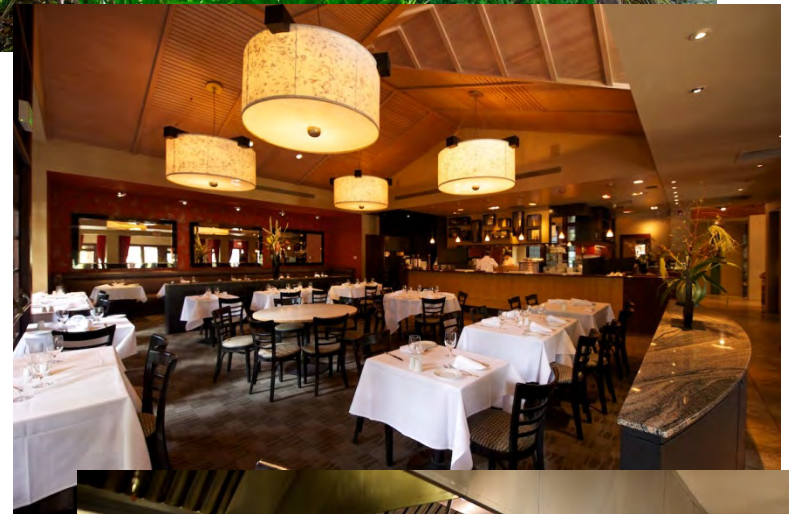


PG&E Food Service  
Technology Center

# Characterization

## Bridges Restaurant

- Fine Dining
  - ✓ Lower number of meals served per square foot than a casual dining restaurant
- Size
  - ✓ 5,000 FT<sup>2</sup>
  - ✓ 107 Seats
- Dishwashers
  - ✓ Door-type dishwasher in kitchen
  - ✓ Undercounter dishwasher at bar



# Door-Type Dishwasher Replacement



## Original Low-Temperature Door-type Dishwasher

- 166 Racks per day, 2.0 gal/rack
- Annual use for 360 days of operation is 120,000 gallons



## New Tall High-Temperature Door-type Dishwasher with Heat Recovery Device

- 166 Racks per day, 0.77 gal/rack
- Annual use for 360 days of operation is 46,000 gallons
- **Annual savings of 74,000 gallons**

# Undercounter Dishwasher Replacement



## Original Low-Temperature Door-type Dishwasher

- 26 Racks per day, 1.6 gal/rack
- Annual use for 360 days of operation is 15,000 gallons



## New Tall High-Temperature Door-type Dishwasher with Heat Recovery

- 26 Racks per day, 0.6 gal/rack
- Annual use for 360 days of operation is 5,600 gallons
- **Annual Savings of 9,400 gallons**

# Uncommon Ground – Chicago, IL

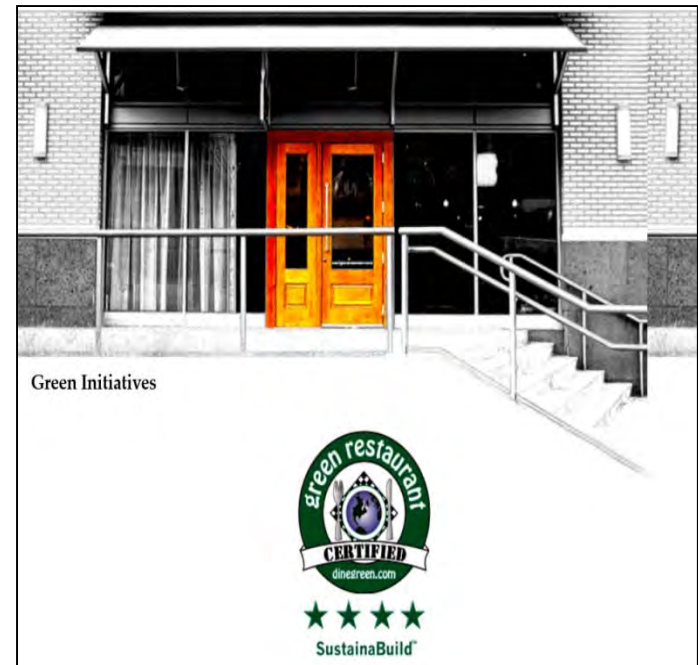
- Installed water-efficient faucet aerators
- Changed its pre-rinse spray valve to a high-efficiency model
- Serves water to customers only upon request
- Replaced the dishwashers with ENERGY STAR® qualified models
- Replaced water-cooled ice machines with ENERGY STAR® air-cooled models
- Uses a self-contained steam kettle without an external boiler
- Rooftop organic farm watered by a drip irrigation system
- Rain barrel for rainwater collection





# The Grey Plume -Omaha, NE

- Water-efficient aerators are installed on all handwashing and prep sinks
- High-efficiency pre-rinse spray valves
- Energy Star ice machine
- Energy Star dishwasher
- Composts instead of using a garbage disposal (2-15 gpm)



# Founding Farmers - Washington, D.C.

- Water-efficient products and equipment were installed during initial construction
- High-efficiency pre-rinse spray valve
- ENERGY STAR qualified dishwasher
- ENERGY STAR qualified steam cooker (3 gallons per hour vs. 40)



[Home Page](#) -- [Water Conservation](#) -- [ICI Water Conservation](#) -- [Restaurant Case Study](#)



# Restaurant case study

## A Largo, FL restaurant saves 31% of its water use

Following a comprehensive water use evaluation, a Largo, Florida restaurant was given the following recommendations for water conservation:

### Bathroom retrofits

- replacing toilets with new 1.6 gallon per flush models
- installing lavatory aerators that reduced the water flow from 2.7 to 1.5 gallons per minute

Potential savings of 700,00 gallons of water and *\$3,860 each year!*

### Kitchen retrofits

- replacement of 2.8 gallon per minute automatic shut off spray nozzles with 2.0 gallon per minute models

Potential savings of 12,000 gallons of water and *\$84 each year!*

### Kitchen modifications

- 50% flow reduction in dipper well and continuous flow sink

Potential savings of 550,000 gallons of water and *\$4,035 each year!*

### Manufacturer

[Case study](#)

[Checklist](#)

### Hotel/motel

[Case study](#)

[Checklist](#)

### Restaurant

[Case study](#)

[Checklist](#)

### Office building

[Case study](#)

[Checklist](#)

### School

[Case study](#)

[Checklist](#)

### Hospital

[Case study](#)

[Checklist](#)



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Trade waste

Recycling water

Working near pipelines

FAQs

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### Saving water

Watering days

Reading your meter

Water saving tips

#### + Case studies

- Aged care
- Aquatic centres
- Caravan parks
- Hospitals
- **Hospitality**
- Hotels
- Local government
- Manufacturing
- Mining
- Office buildings
- Schools
- Shopping centres
- Tertiary education

#### + Water efficiency programs

Training & events

## Hospitality

Share

### Chatters Cafe & Restaurant case study



This busy Midland Chinese eatery reduced water use by 30% by replacing water-cooled woks with aircooled models.

#### Top tips for industry

- Choose water efficient kitchen appliances
- Optimise irrigation settings and choose waterwise plants
- Install low flow taps to reduce flow rate by up to 50%

MORE TOP TIPS

### Results

30%



water use

342



thousand litres saved

1,740



savings

#### More case studies

- RAAFA Erskine Grove Retirement Village used a data logger to find leaks and save \$78,000
- Broome Boulevard Shopping Centre used data logging to reduce

Local information

**Water use in...**

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## Waterless Woks Case Study

Wok stoves in commercial kitchens often require constant flowing water to maintain the right temperature. The waterless wok presents a great opportunity to reduce water use in Asian food restaurants & takeaway establishments.



### Overview

Gold Leaf Chinese Restaurant is based in Sunshine, Victoria. The restaurant uses woks & steamers to produce a lot of its cooked food. Gold Leaf partnered with their water supplier, City West Water, who provided advice on how the restaurant could reduce its water usage.

### Aim

To reduce water used in Asian style restaurants with commercial wok stoves and steamers

### Project implementation

Upgrade of commercial steamer and dishwasher and the introduction of a waterless wok.

### Technology used

Like most wok stoves in commercial kitchens, Gold Leaf's wok stoves were previously cooled by a constant flow of water to keep the woks cool enough for the chef to cook. Each stove could use up to 5,000 litres of water per day. By replacing one stove with a waterless wok that uses air rather than water for cooling, along with a new steamer and dishwasher, the restaurant's water consumption has decreased by around 90%.

### Results - Water savings

Over 5 million litres of drinking water per year (Around 14,000 litres water per day).

### Other savings or improvements

- Staff educated in reading the meter each night to look for unusual increases in their daily water use
- Owner was able to raise awareness of water shortages with his staff, as many do not speak English as their first language.
- Old wok stoves that still use water are now switched off when not in use
- Water monitoring led to the discovery of a massive underground leak in 2009, resulting in renovation and new plumbing to prevent any future leaks.

**Total Project Cost:** \$20,000

**Project Payback:** 3 years

**Project Completed:** 2008



# News & Research

News

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## Illinois Denny's franchisee dishes up conservation



November 2, 2011

Joey Terrell's latest conservation idea may literally be his brightest. The Denny's franchisee has just replaced all the metal halogen lights in the parking lot of his Joliet, Ill., restaurant with 18 LED lamps, which produce considerably more illumination while burning only one-eighth of the electricity.

The new lights cost more than the older technology they replaced, but they'll likely pay for themselves quickly, in sales as well as savings, Terrell said.

"We wanted people to see our store standing out at night," noted Terrell, who's been on a conversation search-and-employ mission since 2003. The restaurant is situated along a strip of stores and restaurants, and, he said, "We're brighter than they are now."

The restaurateur's efforts have drawn the attention of just about everyone, he said. "We've actually had bus tours stop by, and we've hosted school trips - from third-graders to college students," he mused.

Green-minded customers, he added, have visited from as far away as California after learning of the restaurant through sustainability-related searches on Google.

**Energy Efficient  
Dishwasher saved  
300,000 gallons per  
year.**



Home / Manage My Restaurant / Operations / Back-of-House / **An effective plan for sustainable restaurant design**

# Manage My Restaurant

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- Marketing & Sales
- Workforce Engagement
- Food & Nutrition
- Operations
  - Front-of-House
  - Back-of-House
  - Regulatory/back office
  - Alternative Venues
  - All Operations Articles

## An effective plan for sustainable restaurant design

When planning a sustainable build-out of your restaurant, there are a few tips and tools to follow to achieve a successful outcome.

Of course it's important to choose the right [equipment](#), [lighting](#) and [design materials](#), but there are additional steps you should not overlook.

According to expert panelists at the 2013 National Restaurant Association Restaurant, Hotel-Motel Show, operators should:

1. **Have** a plan and stick to it.
2. **Develop** a holistic approach.
3. **Measure** and benchmark to see how you are progressing.
4. **Measure** your return on investment.
5. **Think** critically as you go along.
6. **Start** by yourself by testing a component of sustainability...

### Fintech



### Register today



### Health Care HQ



The National Restaurant Association's  
**ConServe Program**  
SERVING UP SUSTAINABILITY

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It's finally springtime and Earth Day is quickly approaching on April 22. Share what you are doing or serving for EarthDay @ConserveNow!

**FOLLOW US**



## FEATURED VIDEO

### Barton Seaver: Chef, Author, & Food Wellness Pioneer

Meet Barton Seaver as he shares his passion for sustainable food sourcing and how restaurant staff can share compelling stories about the food they serve. Barton is an author of four books and the Director of the Healthy and Sustainable Food Program at the Center for Health and the Global Environment, Harvard T.H. Chan School of Public Health.



# ATHENS-CLARKE COUNTY UNIFIED GOVERNMENT

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SERVICES

Search (put phrases in quotes - e.g. "code of ordinances")



How to Become Blue  
Certified Blue Promotional Opportunities  
Benefits of Being Blue

- ALERT CENTER
- VIDEOS
- PAYMENTS
- REPORT A PROBLEM
- E-NEWSLETTERS
- NEWS

[Home](#) > [Departments](#) > [Departments L - Z](#) > [Public Utilities](#) > [Water Conservation](#) > [Restaurant Conservation Program](#) > [How to Become Blue](#)

## How to Become Blue

The Certified Blue program helps restaurants, bars, and institutions in Athens-Clarke County use less water and promote efficient water use. The Certified Blue program encourages employees and customers to be efficient water users where they work, dine, and socialize. The program is 100% free.

Want more information? [Certified Blue](#) 706-6913-3729 [savewater@athensclarkecounty.com](mailto:savewater@athensclarkecounty.com)

### APPLY

**Step 1)** Fill out and submit a [Certified Blue application](#)

**Step 2)** Meet with the Water Conservation Office (WCO) to review your application, perform a water use assessment, and to determine your certification requirements. We will contact you after you submit your application.

### IMPLEMENT

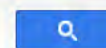
**Step 3)** Implement water-saving strategies from the following list:

- Install HE pre-rinse spray valves, (available from the WCO at no charge)
- Install HE aerators in lavatories and hand-washing sinks, (available from the WCO at no charge)
- Repair leaks identified during your water use assessment,
- Install educational signage to remind staff to be efficient, (available from the WCO at no charge)
- Serve water to guests only upon request, and
- Perform an audit on the restaurant's landscape irrigation system [optional].

**Step 4)** Implement at least 2 of the following public education strategies. All the items listed below are



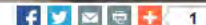
Restriction Details | Report Water Waste



- Who We Are
- Your Water
- Conservation
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- Business Center



HOME > CONSERVATION > COMMERCIAL PROGRAMS & REBATES > WATERSAVER RESTAURANTS PROGRAM



CONSERVATION

Main

Drought Restrictions

Residential Outdoor Programs & Rebates

Residential Indoor Programs & Rebates

Commercial Programs & Rebates

Commercial Custom Rebate

Certified WaterSaver Program: Restaurants

WaterSaver Restaurants List

Irrigation Consultation Design Rebate

Commercial Cooling Tower Audit

Certified WaterSaver Program: Car Washes

Power Washing

Charity Car Washes

Irrigation Checkup

Drought-Tolerant Grass Varieties

Ordinance

Conservation Case Studies

Calendar of Events

Request Conservation Information

## Certified WaterSaver Program: Restaurants

### Is your restaurant rinsing money down the drain?

Retrofitting your business with water-conserving products can lower your operating costs, as well as helping conserve one of San Antonio's most precious natural resources...water. As a Certified WaterSaver, your restaurant will notice measurable cost savings, as well as enhanced performance.

#### Three simple requirements:

- All pre-rinse spray valves must be 1.6 gallons per minute.
- All toilets must be 1.6 gallons per flush.
- All ice machines must be air-cooled.

If you require upgrades in order to become a Certified WaterSaver and want to realize measurable savings NOW, we are offering these benefits AT NO CHARGE TO YOU! Enroll now, start saving today!

#### Certified WaterSaver Program Benefits:

- As a Certified WaterSaver, your restaurant will gain **FREE PUBLICITY** for its efforts in water conservation
- FREE Pre-Rinse Kitchen Spray Valve & FREE INSTALLATION**  
High velocity spray pattern increases performance and efficiency over older, inefficient models. The new stainless steel valve uses less hot water - only 1.6 gallons of water per minute, compared to 2 - 6 gallons per minute with standard valves and comes with a five-year warranty. **Water and waste-water savings estimated at 100 - 300 gallons of HOT water per day.**
- FREE Ultra-Low Flow Toilets & FREE INSTALLATION**  
If you still have old toilets, using 3.5 to 7 gallons of water per flush, you are wasting as much as 80 gallons of water per toilet, per day! Replace your water-guzzling toilets with 1.6 gallon toilets and save on water and sewage costs. **Water savings estimated at 80 gallons of water per toilet, per day.**
- UPGRADE to an air-cooled ICE MACHINE and receive a REBATE of up to 50% of the purchase cost**



#### QUICK LINKS

- Pay Your Bill
- Grease Monster
- Do-It-Yourself Repairs
- How You Can Help



**Kitchen and Restaurant Rebates**

Ice Machine (water cooled to air cooled)	\$450
Dish Machine (high-efficiency)	25 percent up to \$400
Refrigeration Condenser (water cooled to air cooled)	25 percent up to \$400
Pre-Rinse Spray Valve (high-efficiency)	free upon request
Restaurant Table Tents (serving water upon request)	free upon request

**Laundry Rebates**

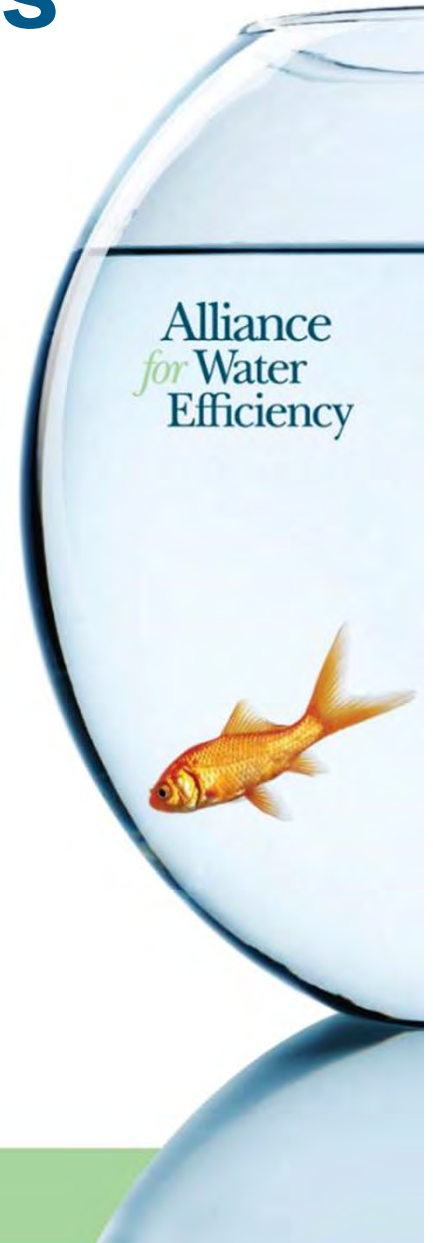
Coin Operated or Commercial Washer on qualifying list	\$300
Clothes Washer on qualifying list	\$100

**Outdoor Rebates**

Irrigation Rebates	see Irrigation Rebates
Water Broom (replacing hose sprayers)	50 percent up to \$100
Commercial Car Wash Spray Nozzle (up to 300 per year)	\$1 each

# Need to Benchmark Savings

- Collect baseline information
- Measure progress
- Compile results and benchmark
- Participate in restaurant certification programs
- Share information nationally





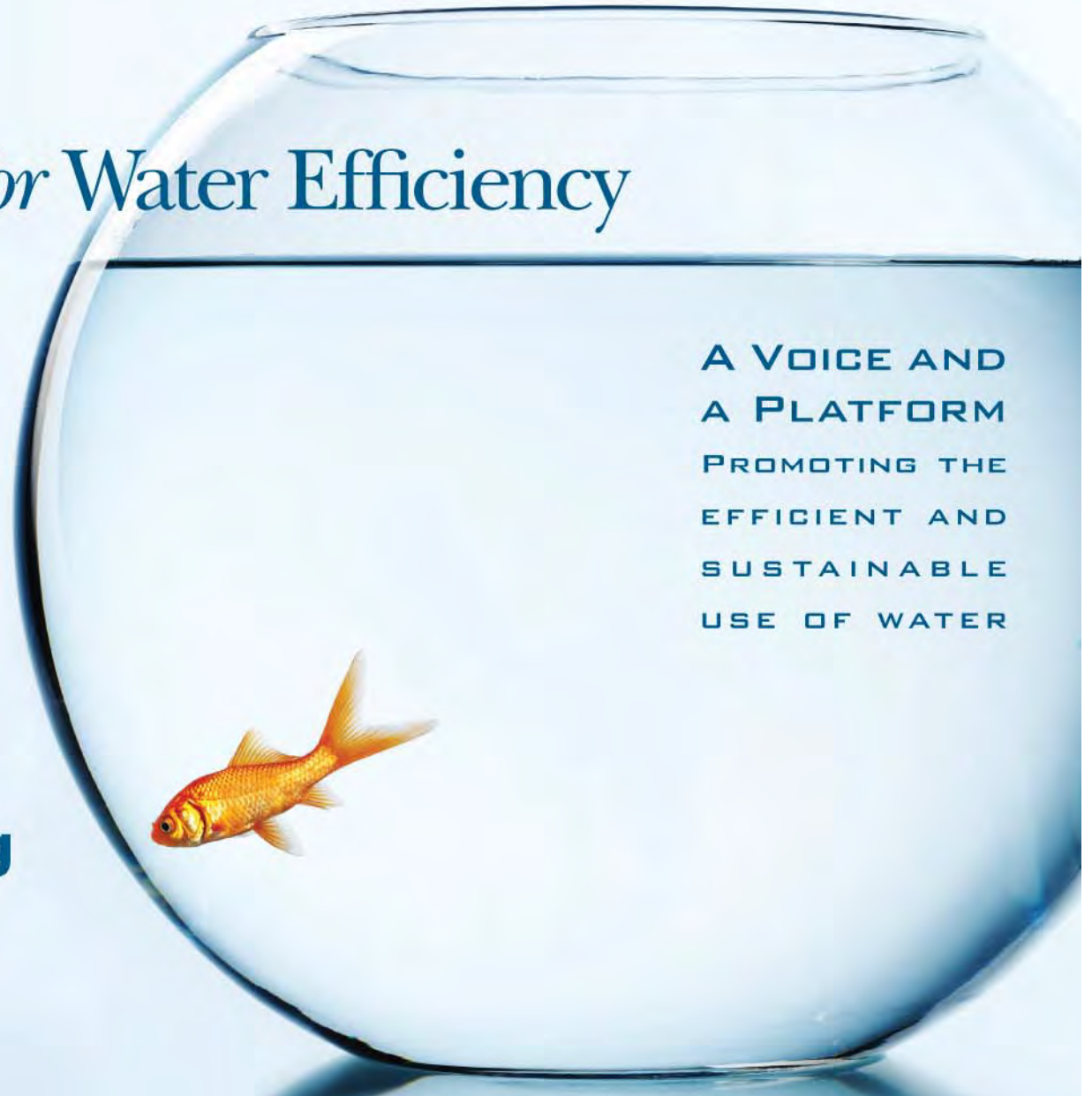
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**(773) 360-5100**

**CHICAGO**



# Acknowledgements



Thank You.

For more information contact the NYC Water Challenge to Restaurants [here](#).