

# This presentation premiered at WaterSmart Innovations

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# Leveraging New Technology for Conservation

## Tablets/Software to Streamline CII Surveys



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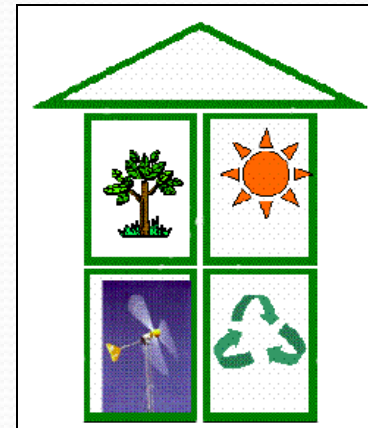
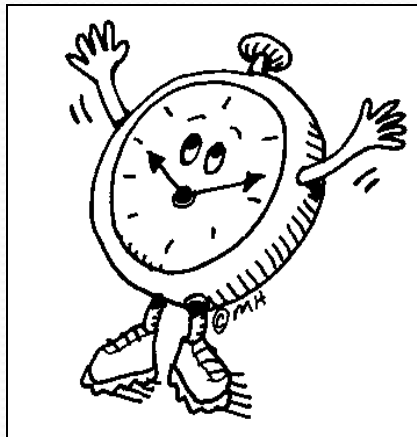
Water Smart Innovations Conference  
October 3, 2012

# Agenda

1. Background of Need for the New Software
2. Highlights of Tablet Technology
3. Overview of Water Audit Software
4. Case Studies
  - University of California San Francisco (audit)
  - Honolulu Board of Water Supply (training & audit)
5. Questions

# 1. Background – Need for the Software

- Provide easy way to store data electronically
  - ✓ More time efficient - reduce data entry time for complex sites
  - ✓ More sustainable - eliminate use of printed paper
  - ✓ Safe storage - Paper cannot get wet / lost during the survey
- Provide real time fixture data and organized list of water conserving projects



# Typical CII Customer Types

- Offices
- Grocery Stores
- Shops
- Restaurants
- Automobile businesses
- Microbrewery
- Hotel/Motel
- Schools
- Government Facilities
- Parks/Greenbelts



Honolulu District, Oahu, Hawaii

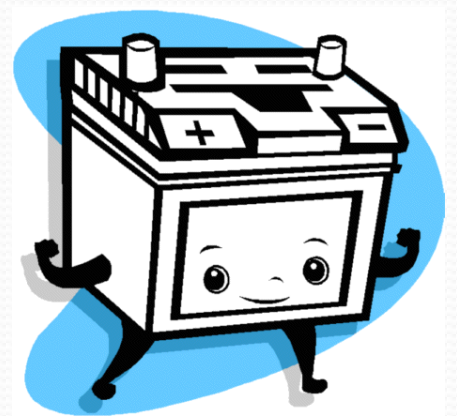
## 2. Highlights of Tablet Technology

- Three main types of tablet platforms:

1. Windows
2. iPad
3. Android



- Not all tablets are created equal
- Not all tablets have the same battery life
- Not all tablets can run Microsoft Excel
- Not all tablets are the same cost \$\$
- Software written for one tablet cannot run on another





# Benefits of Windows based software

- Windows has the benefit of running Microsoft Excel
  - ✓ Allows Excel based file to easily be emailed to CII customer and/or agency following the completion of the audit
  - ✓ Allows files to run on a laptop in addition to a tablet
  - ✓ No need to do additional software training, most employees already know the basics of Excel
  - ✓ Allows easy access in the field with “stylus” or finger touch based entry
  - ✓ Excel based applications can easily add more graphs / tables for written summary audit reports

# 3. Overview of Water Audit Software

5 Basic Steps to the Water Audits Software MS Excel Application:

1. Enter Basic Site Data
2. Select Area with Water Using Equipment / Fixture (“Rooms”)
3. Enter Equipment / Fixture Data
4. Review List of Projects & Summary Data
5. Report Summary Graphs / Tables / Charts



# Step 1: Enter Basic Site Data



## Water Audit Tool v2.3

Start Audit

Getting Started

Troubleshooting

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### Facility Name

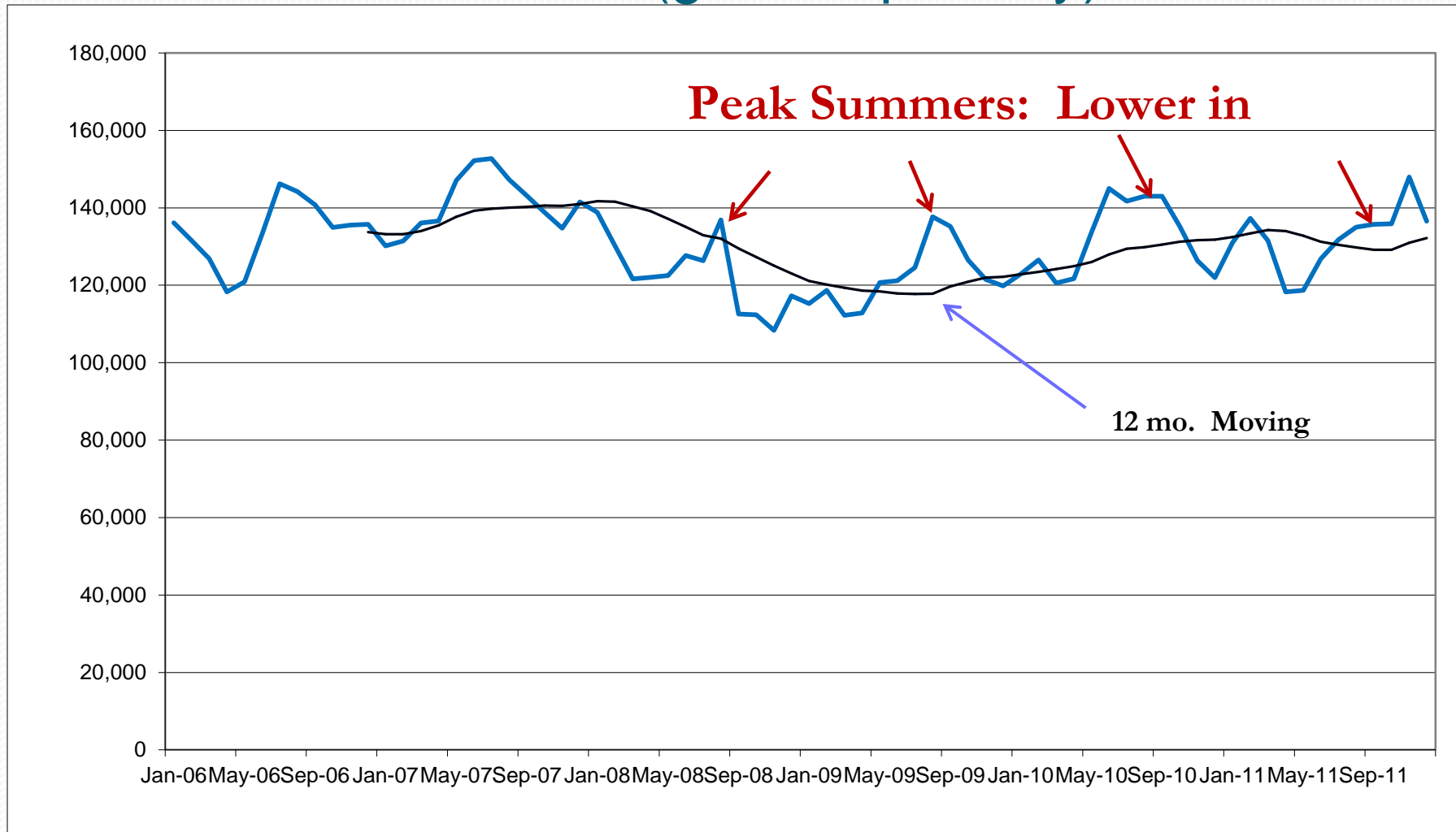
Prince Hotel, Honolulu, Hawaii

Date Audited	8-Feb-12			
Customer Billing Category	Commercial			
Green Business Type	Hotel/Motel			
Average Monthly Water Use				
Meter Numbers				
Date Account Opened				
Water connection size (inches)				
Number of Employees Working in Building	200			

### Contact(s)

Name				
Title				
Address				
Company				
E-mail				
Telephone				
FAX				
Department				

# Paperless Review of Prince Hotel Water Use History 2006-2011 (gallons per day)



# Step 2 – Select Room/Area Type

Back to Interview

Rooms

Restroom

Laundry Room

Maintenance

Laboratory

Landscape Area

Other Room/Area

Food Service

Fitness Room

Janitorial

Exam Room

Pool/Spa Area

Hotel Room

Locker Room

Mechanical

Classroom

Water Feature

Salon/Barber/Spa

Roof

Project List

Facility Name

Prince Hotel, Honolulu, Hawaii

Room	Type	Description	Room #	Floor	Actions		
Room1	Food Service	Main Kitchen	0	0	Edit	Copy	Delete
Room2	Laundry Room	Large room 5 machines	0	4	Edit	Copy	Delete
Room3	Fitness Room	Unisex	0	5	Edit	Copy	Delete

# Step 3 – Enter Equipment / Fixture Data

<b>Restroom</b> Tank Toilet   Showerhead FV Toilet   Faucet Urinal Back to Rooms		<b>Food Service</b> Spray Valve Ice Machine Dishwasher Food Steamer Kitchen Faucet		<b>Cooling</b> Cooling Tower Vacuum Pump Distilled Water Swamp Cooler		<b>Cleaning</b> Autoclave Clothes Washer Janitorial Faucet		<b>Landscaping</b> Irr Controller Turf Area Shrub Area Hose Bib		<b>Other</b> Lab Faucet Other Faucet Pool / Spa Water Feature Other Device	
--	--	---	--	---	--	---	--	---	--	---	--

Rooms or Areas	RoomId	Description	Room Type	Room #	Floor/ Location	Building	Access	Use Lvl	Estimated #Visits/dy			
	1	Main Kitchen	Food Service									
	Notes:											

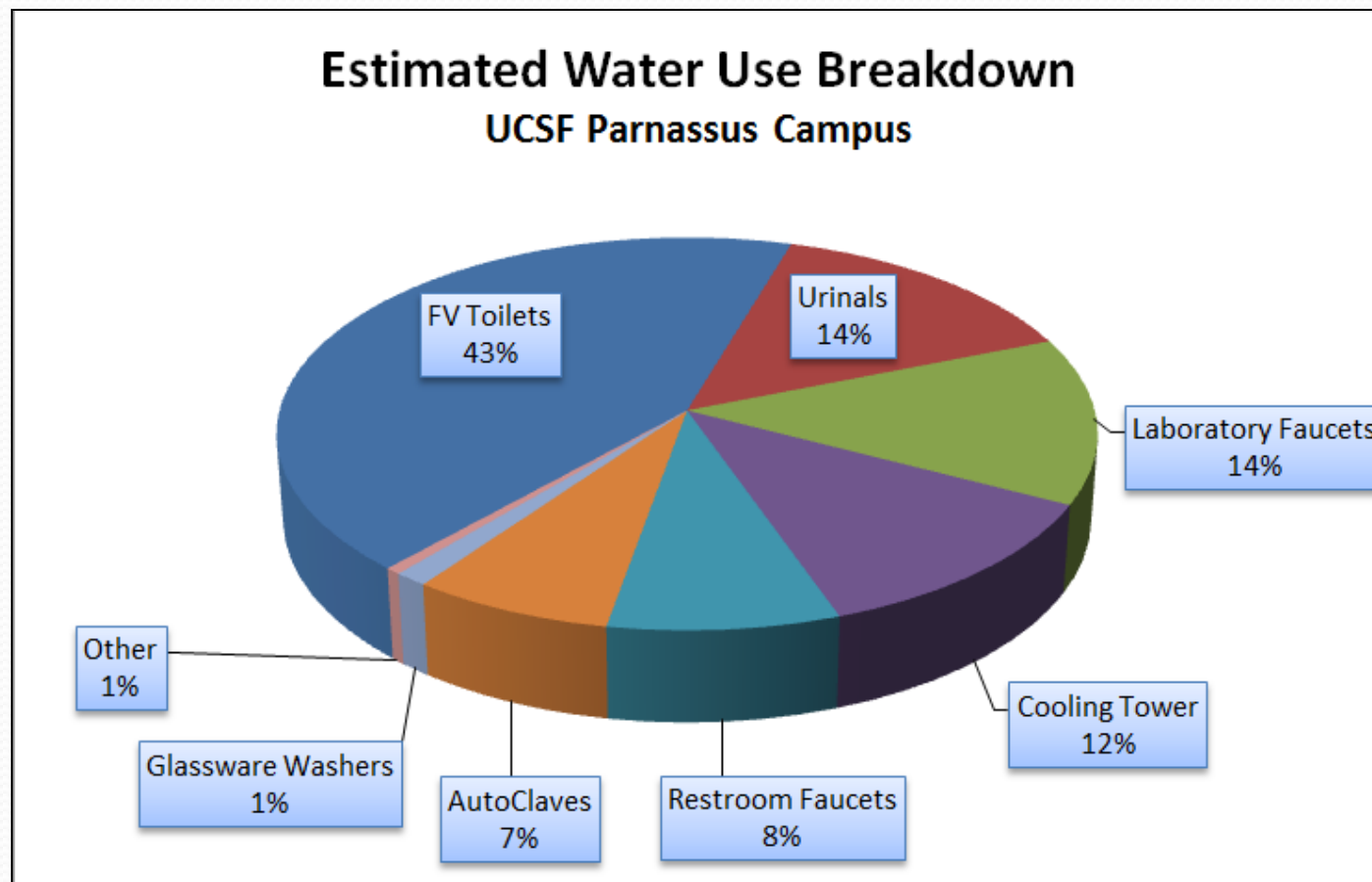
Dishwasher	Position	Type	Rinse Type	Manufacturer	Model #	Serial #	Loads/day	Age				
	1L	Conveyer Belt	Both	Stero co	stp ow-17	51 38 4 89	Unknown	22				
	Notes: 16 hours/day											

Ice Machine	Position	Air or Water	Manufacturer	Model #	Serial #							
	1R	Air Cooled	Hoshizaki	km1300sah	q02937c							
	Notes: 1200 lbs of ice											



## Step 5 – Create Summary Graphics



# Step 5 – Create Summary Tables

	Measure	Total Project Cost, \$	Total Annual Savings, \$	Payback Years	Number of Devices
<b>Small Projects</b>					
1	Reduce pressure on all laboratory distilled faucets	\$4,798	\$3,445	0.3	196
2	Install low flow faucet aerators in all industrial faucets (2.2 gpm)	\$1,815	\$631	0.4	121
3	Install low flow faucet aerators in all exam room faucets (1.5 gpm)	\$7,260	\$12,182	0.6	484
4	Install low flow aerators in all laboratory faucets (2.2 gpm)	\$11,160	\$42,992	0.1	744
5	Install low flow shower heads in locker rooms	\$400	\$2,210	0.2	8
6	Install low flow faucet aerators in all bathroom faucets (0.5 gpm)	\$5,535	\$33,452	0.2	369
7	Retrofit low traffic restroom urinals with Dual Flush handles	\$7,455	\$2,844	3.3	71
	Subtotal	\$38,423	\$97,756		



# Case Study #1: Large CII Audit

University of California, San Francisco (UCSF) Medical School

- Project Goals
  - Create complete water fixture inventory of 2.5 million building square feet
  - Provide prioritized list of recommended cost effective conservation projects with costs & savings
  - Summary report and tables in final written audit report



# Electronic Data Entry for UCSF:

- Potable and Non-potable water systems
- Medical teaching facility
  - School of Dentistry
  - School of Optometry
  - Hospital + Clinic
- Extensive Medical Research
  - Steam Sterilizers / Autoclaves
  - Laboratory faucets
  - Toilets
  - Urinals
- Library / Classrooms
  - Toilets
  - Showers
  - Faucets
- Food Court
  - Spray Valves
  - Ice Machines
  - Dishwashers
- Athletic Center
  - Pool
  - Laundry
  - Showers
  - Faucets
  - Toilets



# Benefits of using Water Audit Tool for Inventory and Tracking Changes

- Efficient electronic data entry in the field
- No transcription time or errors
- Provided MS Excel database to management staff so know exactly which fixtures need to be replaced / repaired
- Serves as a tracking inventory when changes made

# More Benefits: Save Time during Generation of Summary Report Findings

- Efficient summary report creation with an organized fixture database
- Database provides justification / Documentation for qualification of local water agency rebates
- Management obtained clear and easy understanding of conservation saving opportunities, costs and expected water savings



# Case Study #2: Hands-on Training Session

Honolulu Board of Water Supply: Waikiki Prince Hotel

## Project Goals:

- CII audit training over 3 days with 24 attendees from all Hawaiian Islands
- Attendees learned equipment & recorded data electronically during training including MWM Water Audit Tool



# Electronic Data Entry for the Prince Hotel:

- Sample of 521 Hotel Rooms
  - Faucets
  - Toilets
  - Showers
- Cooling Towers
- Pool (Outdoor)
- Fitness Center
- Public Restrooms
- Wash Down
- Food Service – 3 restaurants
  - Pre-Rinse Spray Valve
  - Dishwashers
  - Ice Machines
- Landscaping
- On-site Laundry
- Water Features
- Meters
- Leaks



# Benefits: More Connection to Training Concepts & Efficiency Levels

- Training attendees learned data with real time results for fixture flow rates
  - Very helpful to reinforce levels of efficiency
  - Detail needed for documentation and photos
- Hotel provided the software with list of projects
  - Lobby bathroom and other plumbing fixtures
  - Landscape improvements
  - Cooling tower adjustments
  - On-site laundry upgrades (supporting justification)
  - Kitchen equipment (dishwashers, defrosting methods)





# More Benefits: Creditable Findings & Follow-through on Recommendations

- BWS reviewed the software and findings along with providing written suggestions with hotel staff
- Hotel maintenance staff received robust justification for more investment from property owner
- Validation Tool for Green Business Certification
- Overall more follow-through on audit recommendations



## WATER CONSERVATION

A: Water Use Control  
Section N/A ☐

If N/A, please explain in the box below:

Implement the required measure (in bold) below and at least six (6) credits within this section.

	Yes	Date Implemented
1. Track and plot water consumption using the Energy Star Portfolio Manager	<input type="checkbox"/>	



# Online Resources Available

- Microsoft Windows “Surface”:
  - Planned to be release Sept/Oct 2012
- Apple “iPad”
- Google various “Android” Tablets (mfg. Samsung, etc.)
- Only option above that runs Microsoft Excel is Windows Surface
- Overview of all three technologies:  
<http://reviews.cnet.com/best-tablets/>





## PRODUCTS

## HOME IMPROVEMENT

## NEW HOMES

## BUILDINGS &amp; PLANTS

## PARTNER RESOURCES

## Products

## Find ENERGY STAR Products

How a Product Earns the Label

Save Energy at Home

Join Our Movement

[Home](#) > [Products](#) > [Find ENERGY STAR Products](#) > **Commercial Dishwashers**

## Commercial Dishwashers

 for Businesses and Operators(Are you a partner? [For Partners](#))See also: [Residential Dishwashers](#)

### Did You Know?

Each ENERGY STAR qualified commercial dishwasher can save businesses energy about 90 MBtus, and an average of \$900/year on their energy bills. In addition, businesses can expect to save more than \$200/year and 52,000 gallons/year due to reduced water usage.

#### About ENERGY STAR Commercial Dishwashers

**Overview**

## Specifications

## Buying Guidance

## FAQs

Commercial dishwashers that have earned the ENERGY STAR are on average 25 percent more energy efficient and 25 percent more water-efficient than standard models. For more information on saving water, please visit "[Best Practices - How to Achieve the Most Efficient Use of Water in Commercial Food Service Facilities](#)".

High and low undercounter temp, single tank door type, single tank conveyor, and multiple tank conveyor machines are all eligible for the ENERGY STAR. Qualified models must meet maximum gallons per rack requirements during the final rinse and use less energy while idling



#### Commercial Dishwashers Resources

- » [Qualified Commercial Dishwashers](#)
- » [Where to Buy](#)
- » [Locate CFS Incentives](#)
- » [Commercial Kitchen Equipment Savings Calculator](#)

#### Related Products

- » [Commercial Kitchen Package](#)
- » [Commercial Fryers](#)
- » [Commercial Griddles](#)
- » [Commercial Hot Food Holding Cabinets](#)
- » [Commercial Ice Machines](#)
- » [Commercial Ovens](#)
- » [Commercial Refrigerators & Freezers](#)
- » [Commercial Steam Cookers](#)



# FOOD SERVICE TECHNOLOGY CENTER

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Certified Green Business

About Save Energy Save Water Design Equipment Testing Education Ventilation Publications



## Food Service Technology Center

Promoting energy efficiency and performance  
in commercial food service since 1987.

### What's Hot:

#### New Ice Machine Field Study Completed

This study details the results of upgrading to a high-efficiency ice machine and load-shifting its operation.

#### FSTC Receives Sustainability Award

Sustainable Contra Costa recognizes the FSTC for local work in the community.

#### California Energy Wise

A new California investor-owned utility program for promoting energy-efficient foodservice appliances.

[» More](#)

#### Educational Seminars

Go green! Learn about energy efficiency, saving water, sustainability, lighting, and more!

#### Equipment Rebates

It pays to be efficient! Take advantage of cash incentives on energy saving equipment.

#### Events and Seminars

#### Latest Publications

##### Specifying Energy Efficient Equipment

Nov 17th, 2011 - San Ramon, CA

##### Cook Chill and Retherm

Nov 29th, 2011 - Irwindale, CA

##### Save Water and Energy in Foodservice (Basic Food Service...

Dec 8th, 2011 - San Ramon, CA

[»more](#)

### Green Your Restaurant



Being Green is about sustaining the environment and sustaining your bottom line. The FSTC is partnering with NRA's Conserve to introduce the industry's first comprehensive green recognition program. [» Learn More](#)

# Summary & Observations

- Benefit as a training tool:
  - Aids attendees to learn equipment - get immediate response from fixture time in seconds (10 seconds) converted to flow rate (2.5 gallons per minute)
  - Keeps attendees engaged during training
  - Informs attendees the type of information that needs to be collected
  - Software has flexibility to adapt to any CII audit facility type (hotel, hospital, restaurant, school, etc.)
  - Allows attendees to talk to each other and learn about equipment based on real time data provided by software  
“I measured 10 seconds and 2.5 gpm. What did you get?”

# Summary & Observations

- Benefits of tablets CII audit tool in the field:
  - Real time information provided to auditors and managers
  - Mobility, more portable than laptops
  - Functionality, calculation checks in the field
  - Decreases total data entry time and potential for errors
    - MWM has found ~50% reduction for complex sites
  - Options for full compatibility with desktop applications
    - Windows = Microsoft Excel
  - Mobile upload or linking of draft audit report / audit files to Work Order Systems (depending on system), other audit tracking software (saves file and documents time to complete audit)
  - More costly custom software program options available



# Summary & Observations

- Benefits of tablets CII audit tool for report generation:
  - Automatic generation of summary tables
    - Fixture counts by type of device (toilets, faucets, dishwashers, etc.)
    - Fixture flow rates by type of device (2.5 gpm)
  - Automatic generation of project lists
  - Automatic generation of summary graphics
  - MS Excel format so can generate custom graphs / tables as requested by the customer / agency
  - Ability to run any other type of Windows based software
    - MS Excel templates set-up for validation of checklists like Green Business Program certifications (i.e., scorecards)
    - MS Word report templates to send to customer
    - MS Powerpoint graphics for presentations to financial managers



# Closing Remarks and Questions?

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