



The Mayor's Youth for a Sustainable Future
Water Conservation & Audit Training
2008-2009

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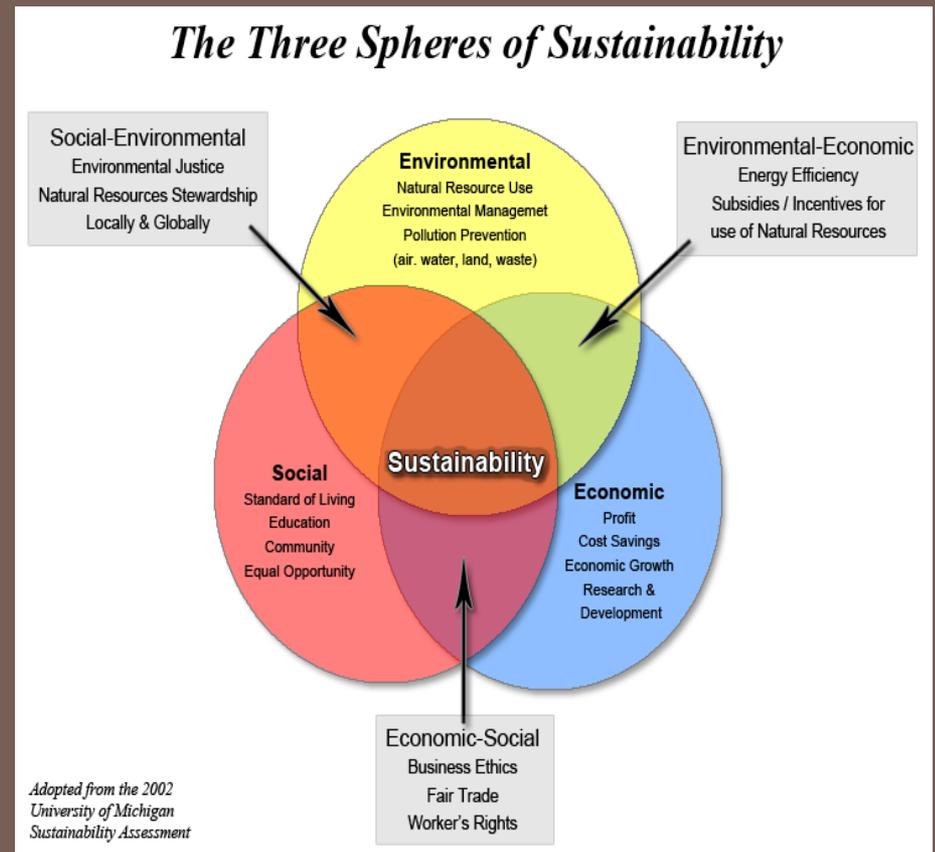
Kristen Powers: 9th grade

History of MYSF

- In the Spring of 2007, the Mayor's Office petitioned the Youth Council to create a program for the youth of Chapel Hill that would empower young people to make change in their homes, schools and communities by way of the political process.
 - ▣ The Chapel Hill Youth Council created a committee to design and implement a sustainability initiative for members of the Youth Council and other area youth.
- With help from the Mayor's Office, the Office of Sustainability, Parks & Recreation and UNC's Environmental Resource Program, the committee recommended a four-part program that was unanimously approved at the Youth Council's first meeting in September 2008.

Our Mission

To empower the youth to become leaders of change in their homes, schools, neighborhoods and community by way of the political process through engagement in relevant, hands-on sustainable learning models.



Program Overview

- Defining Sustainability
- Sustainable Enterprise in the new “Green” Economy
- Field work
- Community Service



Why should we conserve water?

- Only 0.3% of the Earth's water is available for human consumption
- NC has experienced severe, state-wide droughts each year since 1998
- University Lake water level 7.75 inches below full in July 2008



Social & Economic Impact of Conservation

- In October 2008, OWASA rates increased 17%.
- For the residents we surveyed in Colony Woods, 671 gallons of water were used per day (5 units – 10 residents).
- For these households, outdated fixtures cost an additional \$36 per month due to the increased water rates.

Our Water Audit

- Of the five units we chose to retrofit, we found that the existing fixtures had the following characteristics:
 - ▣ Toilets used at least 4.0 gallons of water or more per flush
 - ▣ Showerheads typically used 2.5 gallons of water or more per minute
 - ▣ Bathroom sink aerators used 2 gallons of water or more per minute
 - ▣ Kitchen sink aerators used 1.5 gallons of water or more per minute

High-efficiency fixtures

- Niagara Conservation Corporation donated all fixtures at no cost to the residents or the Town of Chapel Hill
 - ▣ In 5 units, we replaced the existing toilets, bathroom aerators and the showerheads.



Colony Woods Retrofit

Flapperless toilets with 1.28 GPF rating

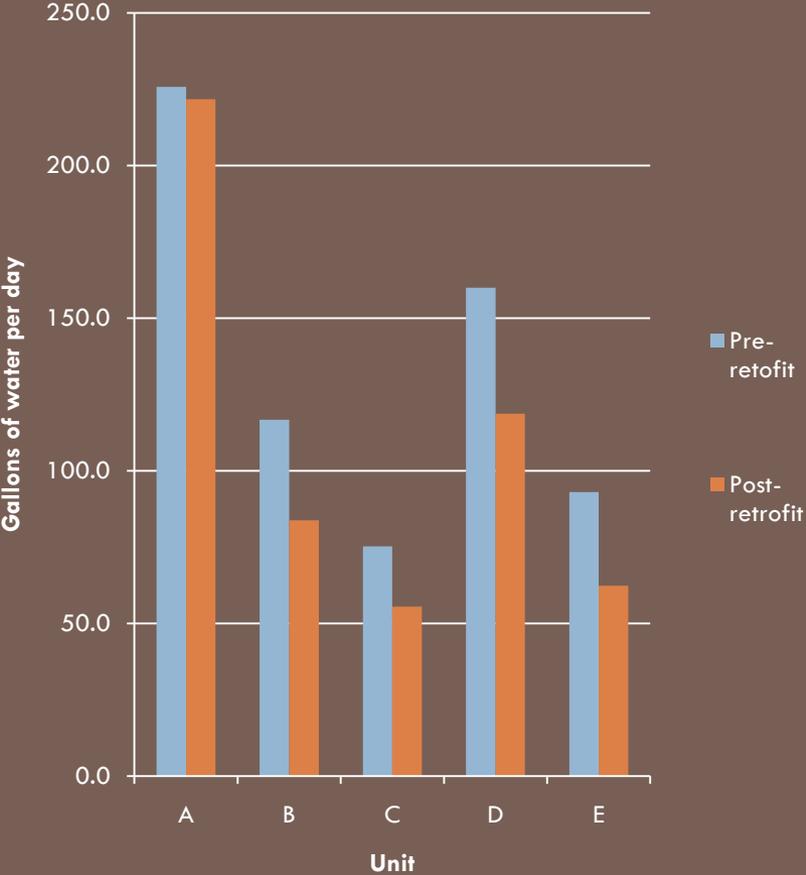


Showerheads and Aerators with low flow ratings and adjustable settings



Post-Retrofit Water Usage

Average Daily Use



Estimated Annual Savings



Recommendations

- Overall recommendation: replace all water using fixtures in all public housing units.
 - ▣ Given the current economic climate, this may be difficult. That being said, we have three other recommendations:
 - Retrofit toilets first, especially those that use 4 gallons per flush or more; or
 - Retrofit units with the most occupants first; or
 - Retrofit units that town pays water bill for first

Option 1: Large Fixture Retrofit

We recommend that the Town replace the fixtures using the most water.

As the difference in GPF decreases between new and old fixtures, then there is an increase in the time needed to see a payback.

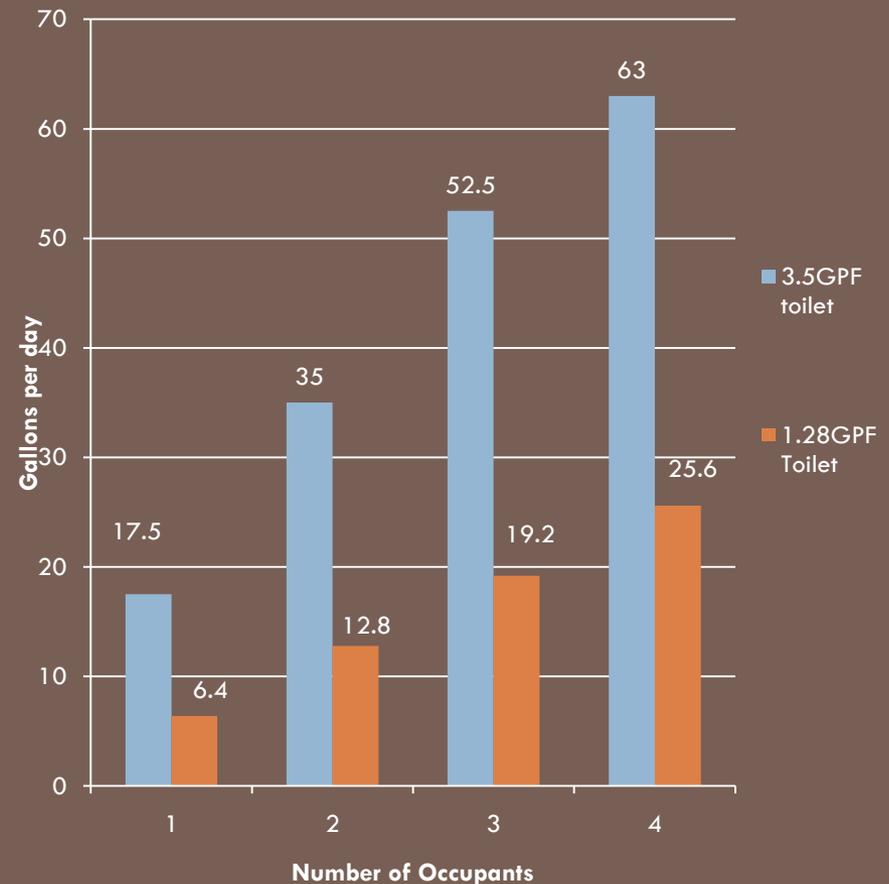
Payback in years for installation of 1.28 GPF toilets



Option 2: Resident-based Plan

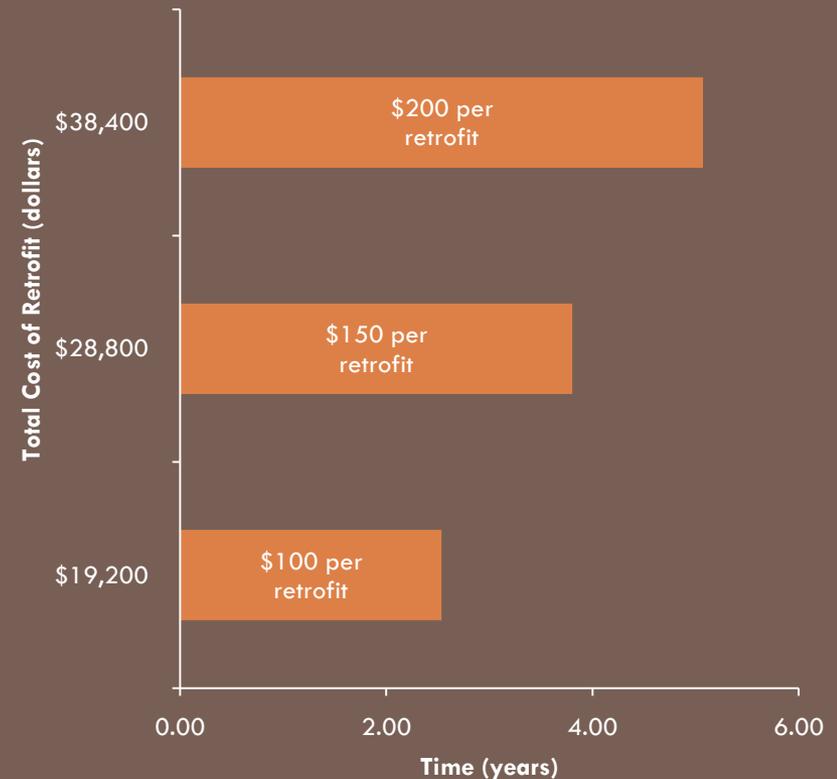
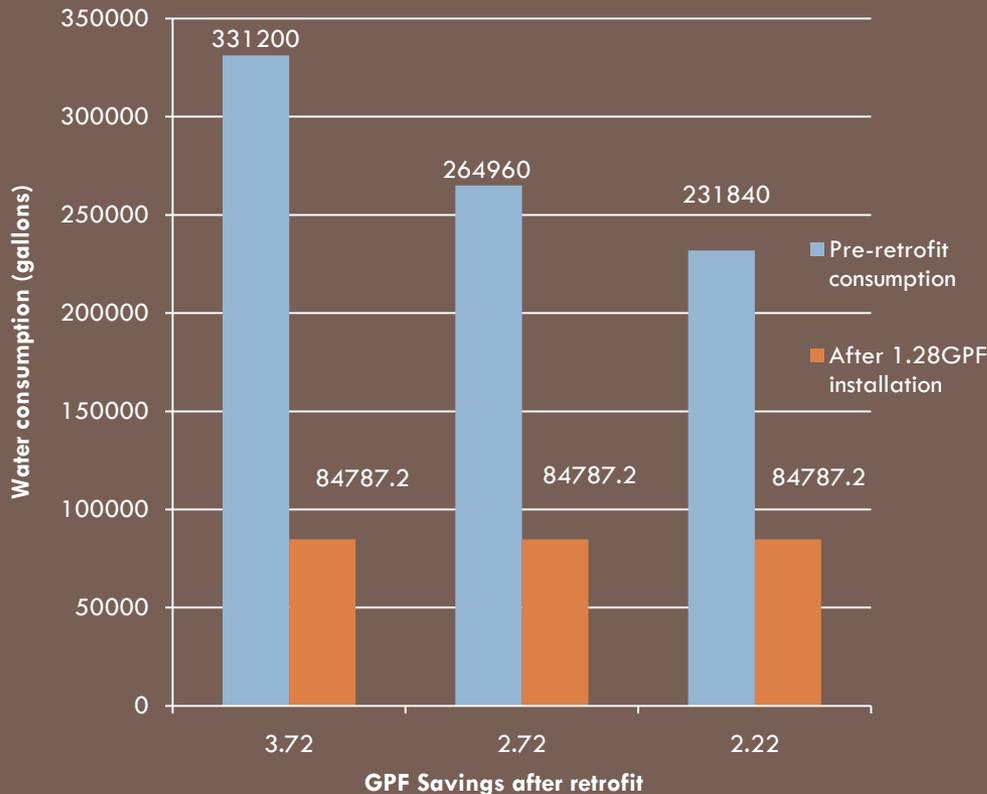
- The units with the most occupants use the most water:
 - ▣ Retrofitting units with high occupancy levels will result in a faster payback
- We recommend the town retrofits units with 3 or more occupants first
 - ▣ In order to do this, the town should survey all public housing units to find the number of occupants.
 - ▣ Retrofit units with 1 or 2 occupants later once there is enough money in budget.

Gallons Used Per Day Based on Occupancy



Option 3: Retrofit Town-paid Units

The Town pays for water in 192 of 336 units. If the Town retrofitted these units, paying particular attention to the other retrofitting options (i.e., higher occupancy, least efficient fixtures), then the expected savings would perhaps free up money to eventually retrofit remaining units.



Final Thoughts

- The Mayor's Youth for a Sustainable Future recommends that the Town Council conduct an audit of the 336 public housing units. This will determine which houses are in need of retrofits the most, resulting in a faster payback period.
- Water-saving retrofits are worth every penny. These recommendations help residents and the Town save on their water bills, but they will also help conserve a limited resource.
- By conducting an audit of the units, the Town would demonstrate its commitment to social equity and environmental protection while also remaining fiscally responsible.
- It is our hope that the Town Council strongly consider these recommendations for the future as they will most certainly improve the Town's efforts to create a more sustainable community.

Thank You



**Orange Water
And
Sewer Authority**