

Rocky Mountain Land Use Institute

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THE NEXT WEST:
20TH ANNIVERSARY LAND
USE CONFERENCE





CONDITIONING DEVELOPMENT APPROVAL ON THE PROPOSED DEVELOPMENT'S PROVISION OF ITS OWN ENERGY AND WATER



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RAINWATER RECAPTURE AS A CONDITION OF DEVELOPMENT APPROVAL

See Julian Conrad Juergensmeyer,
“Rainwater Recapture: Development
Regulations Promoting Water Conservation”
43 The John Marshall Law Review 359 (2010)

Conservation Technology: water

- Rain Barrels
 - Easiest and least expensive
 - School in GA uses them in a large way by placing one on the end of every gutter surrounding the school
- Cisterns
 - More storage
 - Stored underground



Conservation Technology: Water

- Permeable Surfaces
 - Drivable Grass
 - Pervious Cement



Conservation Technology: water and energy

- Green Roof

- roof that consists of vegetation instead of a simple concrete block
- absorbs some of the water and stores it for later use
- slows and filters storm water
- Absorbs heat energy rather than reflecting it
- Problem: can be expensive to implement

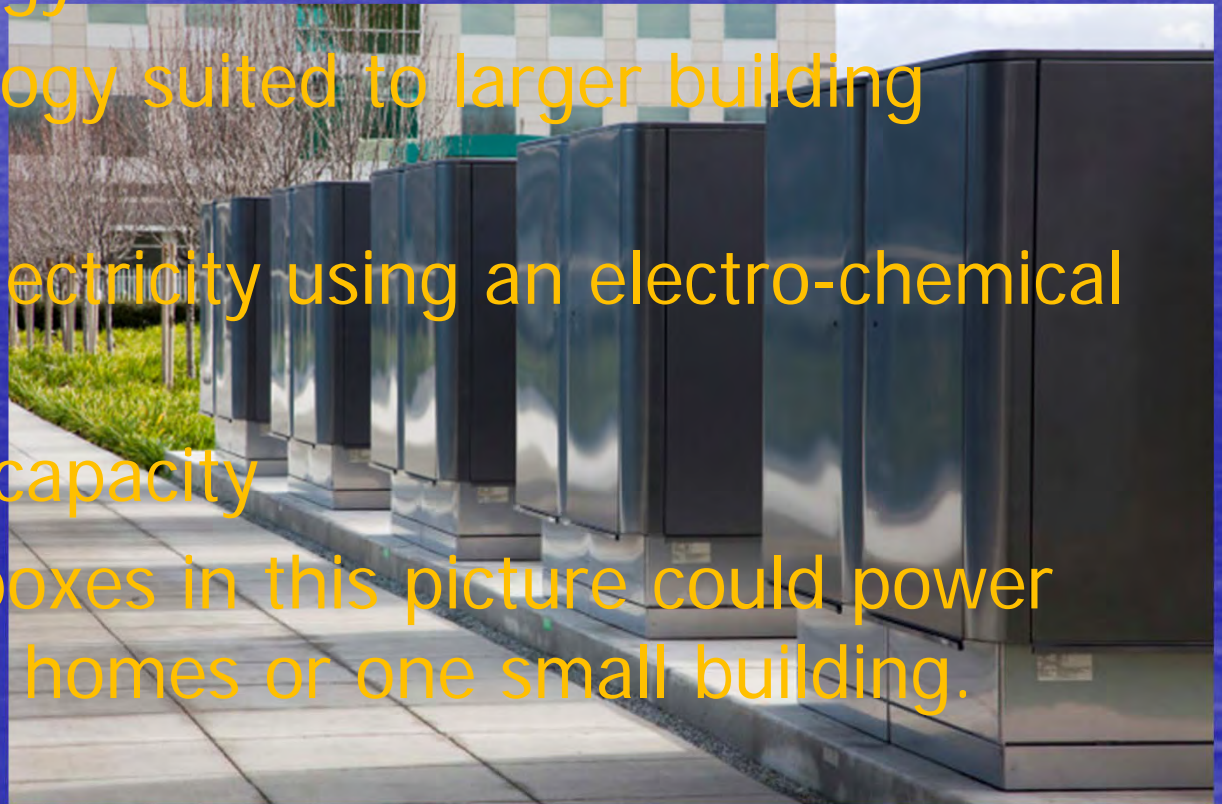


Photo provided by:
Emilio Ancaya
Living Roofs, Inc.

Conservation Technology: Energy

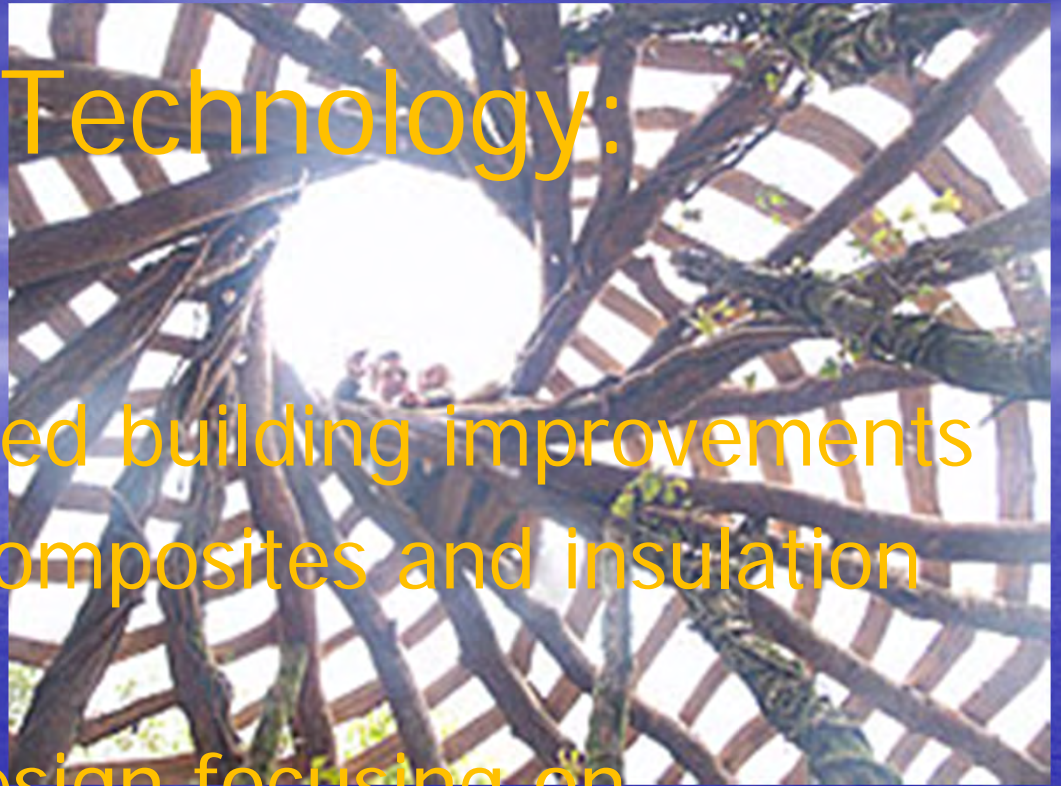
- Bloom Box

- “Bloom Energy Server”
- New technology suited to larger building projects
- Generates electricity using an electro-chemical process
- flexible fuel capacity
- One of the boxes in this picture could power 100 average homes or one small building.



Conservation Technology: Energy

- Good old fashioned building improvements
- New Materials: composites and insulation materials
- Techniques or design focusing on insulation and improved climate control
- Encouraged by the EnergyStar system



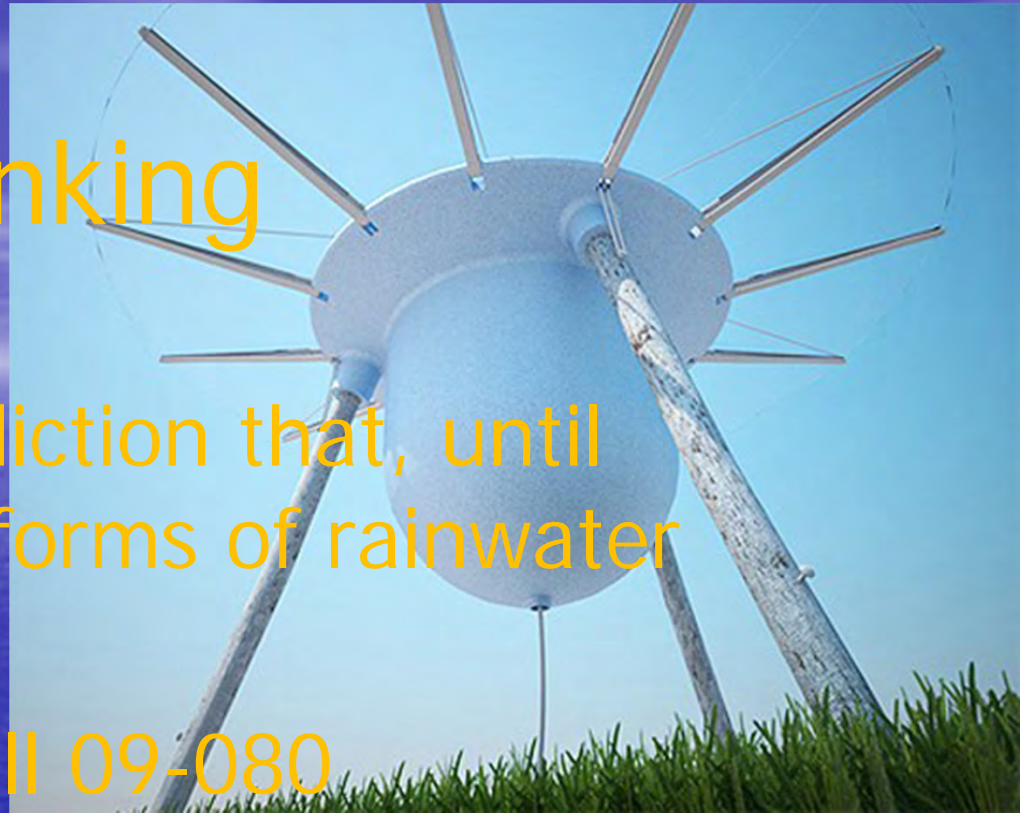
Difficulties with Water Cachement

- Historically: first in time, first in right
- first man to get to the natural resource can hoard that resource and use it all for his personal benefit
 - The Collector farthest upstream keeps water from reaching the downstream community
 - Macro Example: Atlanta and everybody downriver on the Chattahoochee



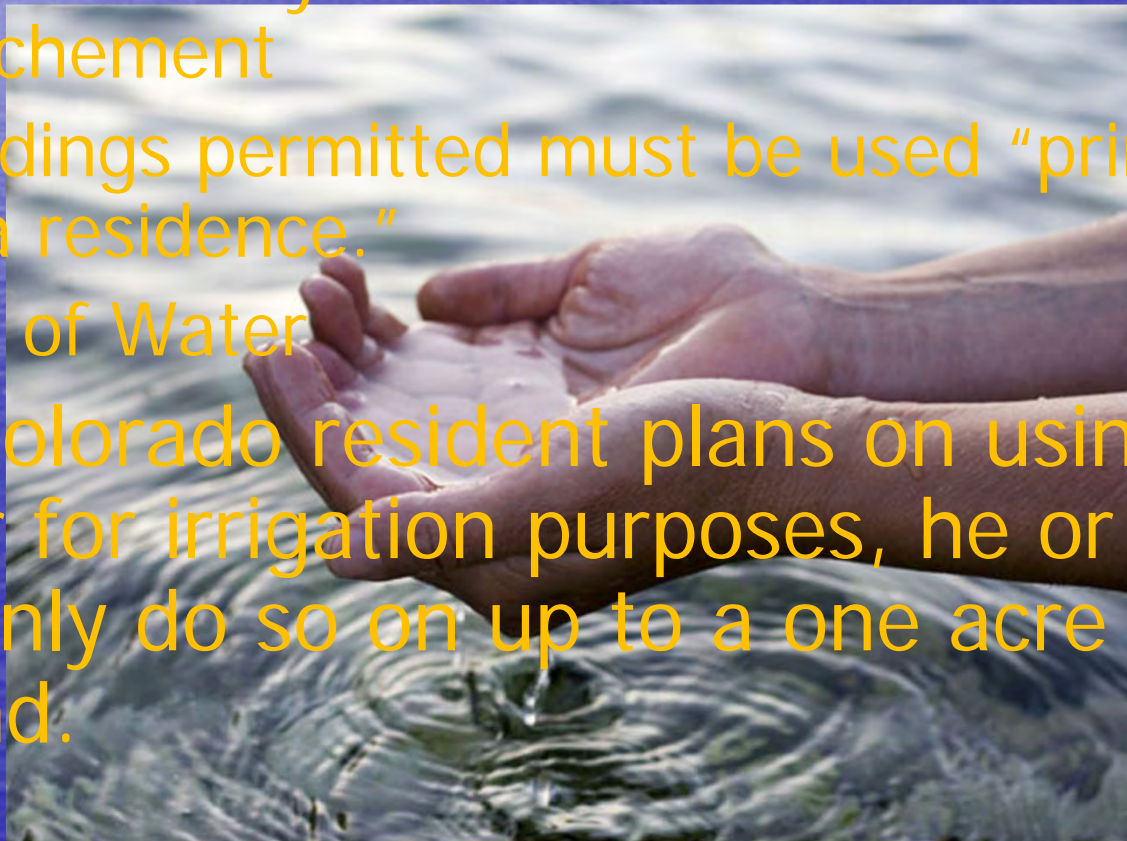
Changes in Thinking

- Colorado is a jurisdiction that, until recently, made all forms of rainwater harvesting illegal
- Colorado Senate Bill 09-080
- The bill allowed for rainwater catchment systems to be implemented legally by individuals



Changes in Thinking Continued

- Bill contains serious limitations
 - Access to city water = no rainwater chachement
 - Buildings permitted must be used “primarily as a residence.”
 - Use of Water
- If a Colorado resident plans on using the water for irrigation purposes, he or she can only do so on up to a one acre parcel of land.



Changes in Thinking Continued

- What has brought about this change in thinking?
 - Drought
 - Green Movement
 - Current state of the economy
 - Climate Change concerns

New Innovative Programs

- Prescott, Arizona
- Tucson, Arizona
- Sandy Springs, Georgia
- Alpharetta, Georgia
- Yankeetown, Florida
- LEED/Green Globe style Guidelines
- PACE

Prescott, Arizona

- Mandatory:
- Requires all new construction to conform to specific water conservation requirements.
- Existing home fixture replacement must comply with certain water conservation requirements.
- Specifies the type of urinals, showerhead, and faucets to be installed within a building.



Prescott, Arizona continued

- Incentive:
 - List of options homeowners could implement to improve water efficiency.
 - Homeowner chooses ideas to employ
 - The homeowner receives the incentive award via the home water bill.
 - Water bill contains a credit for the amount of money received in incentives

Tucson, Arizona

- Mandatory water conservation program, implemented June 1, 2010.
- New Developers required to create a rainwater harvesting program. Developers submit with plans:
 - Water conservation plan
 - Budget and implementation process
 - 50% of landscape water demand must be met with harvested on site rainwater within three years.

Sandy Springs, Georgia

- Voluntary incentive-based program
- Modeled after Alpharetta, Georgia's water requirements
- Problems:
 - Incentive based program has not been very successful
 - Program has not been taken advantage of by any homeowner or developer



Sandy Springs, Georgia continued

- Reason for implementing incentive rather than mandatory based program
 - Because of the current state of the economy.
 - Mandatory program may scare off some developers.

Alpharetta, Georgia

- Mandatory Water Regulations Implemented in January 2008
- No major problems with developers so far
- Modeled after LEED guidelines.
- The regulations came about by way of a city council mandate:
 - 10% reduction in water use.
 - Water Conservation Permit Requirements.

Alpharetta, Georgia regulations:

- Minimum of ten percent water use reduction for new construction.
- Water reduction plan must be submitted with any application for a new construction project.
- Provide:
 - suggested methods for reducing water used.
 - Matrix to determine the amount of water consumed per day for a commercial building.

Yankeetown, Florida

- Com Plan requires all new PUDs, subdivisions and commercial developments to use Low Impact Development practices [Examples]
- Commercial water-dependent land use districts [Requirements]

LEED Guidelines

- The U.S. Green Building Council developed LEED Guidelines in the year 2000.
- LEED is a third party certification program and is a tool that can be used for all types of buildings.
- LEED guidelines cover new construction as well as major renovations.

LEED Guidelines continued

- LEED certification is based on a points system.
- One hundred possible points are available in seven categories.
- Depending on number of points achieved, building may be certified, in descending order of efficiency:
 - Platinum, Gold, Silver, or Certified.

LEED water example:

Water Efficiency:

- 10 points out of 100 are possible under water.
- As a prerequisite, the building must reduce water use in the aggregate by twenty percent.
- If this prerequisite is met, there are three ways to earn points.

LEED water example:

- Water efficient landscaping
 - Worth two to four points.
- Two points: if a building decreases the amount of potable water used for irrigation by fifty percent.
- Four points: This option requires that option one be met and in addition, no potable water be used for landscaping.

LEED water example continued

- Or: innovative wastewater technologies.
- Worth two points.
- fifty percent reduction of potable water use for building sewage conveyance.

LEED water example continued

- The last way to earn points under the water efficiency category is to reduce overall water use by a certain percentage.
- two points for a thirty percent reduction
- three points for a thirty five percent reduction
- four points for a forty percent reduction.

Other Points Based Systems

- Green Globes
- Some municipalities have adopted similar approaches
- Greenroads

THE ECONOMICS OF IMPLEMENTATION

- Rain Taxes
- Freilich's "Monetization"
- PACE legislation
- Government Incentive Programs
- Profit Driven Programs



Rain Tax: why?

- Storm water management can be a huge cost to municipalities.
- Drainage maintenance.
- System backups and flooding.
- Separating the storm and sewer systems.
- Managing the excess rainwater runoff flowing into storm water and sewage systems and the rain tax is a way to recoup that cost.

Rain Tax: what?

- Puts some of those costs on individual homeowners.
- Fee charged to the property owner is based on the total impervious surface area on the property
- Credits for conservation methods on site
- Also known as a stormwater service charge, stormwater utility, or a
- surface water drainage charge



Rain Tax: where?

- England recently considered implementing a rain tax.
- Ofwat, which is responsible for regulating the water industries in England and Wales, recently pushed the water utilities to charge a rain tax.

British Issues with Rain Tax:

- Lots of protest by church groups.
- Before the new rain tax, an area was charged based on a rateable value.
 - Churches, charities, and community sport clubs received very low rateable values under the old system and based on those values, were not charged a high amount.
- Under the rain tax, these groups will see a tremendous rise in their bills.
- The Environment Secretary has said that the legislature will enact laws allowing water firms to exempt these organizations from the new calculations.

Potential Issues with Rain Tax in the U.S

- Lansing, Michigan created a storm water service charge in 1995.
- Attempted to estimate and charge for each landowner's runoff
- A landowner sued, claiming:
- Constitutionality:
 - Not a fee, but a tax
 - Taxes require voter approval
- Michigan Supreme Court agreed
 - Bolt v. City of Lansing, 587 N.W.2d 264 (Mich. 1998)

Freilich's "Monetization" or Refunding Agreement

- The developer obtains advance for conservation measures through a loan
- from water utility or a homeowner's association.
- Homebuyer pays back the advance
- Water utility may lend money for improvement, then add surcharge to bill.
- HOA could front the money, add fee to the HOA dues.
- This approach allows the developer flexibility

PACE

- Stands for Property Assessed Clean Energy
- PACE programs allow landowners to take out loans from their municipality and pay them back through a property tax lien.



PACE continued

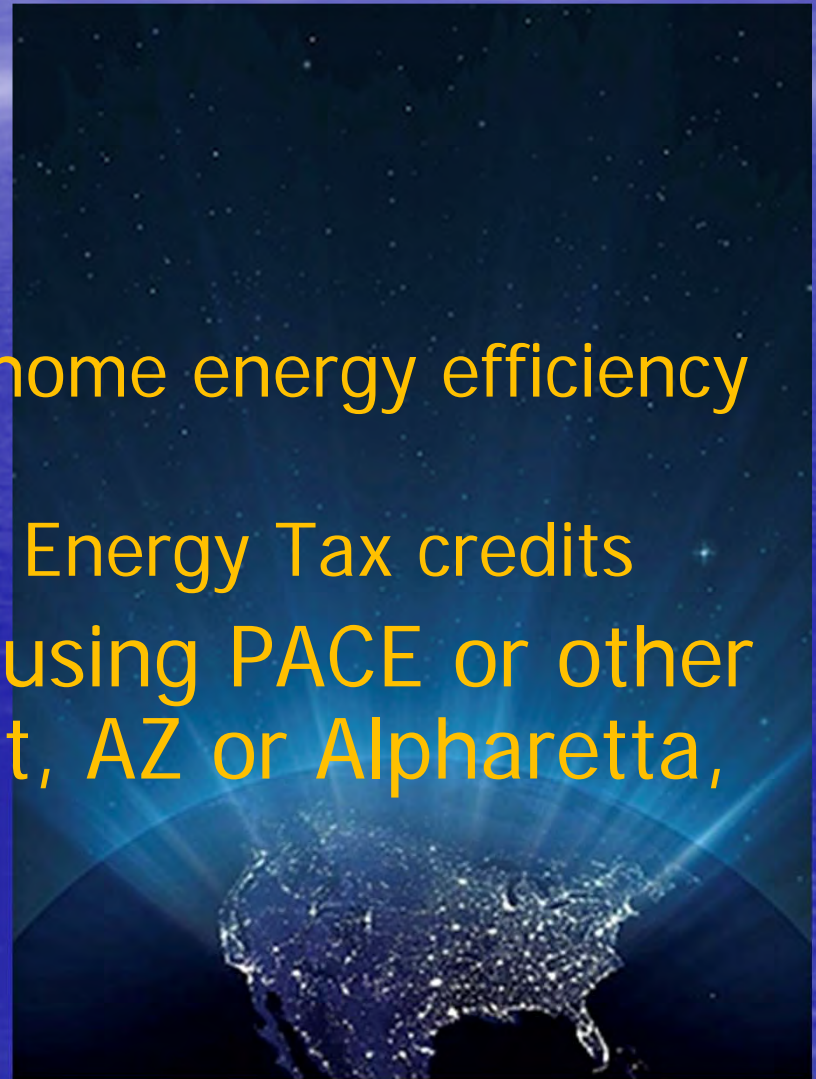
- In order to have a PACE program, the state must pass laws allowing the individual municipalities to create the tax.
- Roughly 22 states have added PACE legislation.
- Georgia passed PACE legislation last May
- But. . .

PACE Roadblocks

- Lenders do not like it because the tax liens are superior to a mortgage
- In July of 2010 the FHFA sent a letter warning lenders that investing with PACE related properties is “risky”.
- Since that letter, the majority of PACE programs have ground to a halt.
- Georgia’s program has yet to be taken advantage of.

Government Incentives

- EnergyStar Program
 - Tax breaks for use of home energy efficiency improvement
 - Residential Renewable Energy Tax credits
- Municipal Ordinances using PACE or other incentives like Prescott, AZ or Alpharetta, GA.



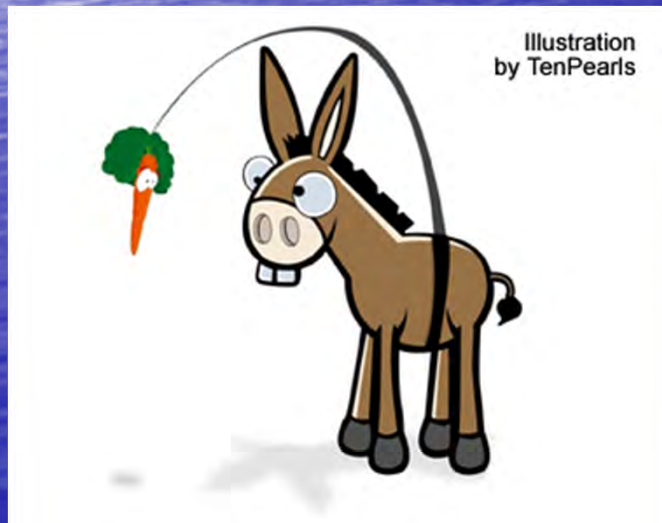
Profit Driven Programs

- Insurance Companies are getting on board and insuring expensive conservation upgrades
- Cap and Trade Programs
 - Europe
 - Interstate
 - Intrastate
- Manufacturers of the aforementioned building materials



Implementing a resource conservation program: What?

- What means should one use?
 - Mandatory
 - Incentive based
 - Or hybrid of the two



Implementing a Resource Conservation Program: When?

- When should the program be implemented?
 - Permitting stage (new development)
 - Renovations
 - Other times

Implementing a Resource Conservation Plan: Who?

- Who Should Pay?
 - Homeowners
 - Developers
- Will the money ever be recouped?
 - Deutsche Bank Study

Conclusion

- Conservation will continue to become more important to municipalities as time progresses.
- Drought and the economy are factors that will keep conservation at the front of people's minds.
- As more and more conservation programs are implemented, they will become more efficient ways to cut water use and to promote rainwater catchment.
- Jurisdictions will continue to promote rainwater catchment through water conservation requirements and will continue to find innovative ways to do so.

