A Local Government Perspective
The Proposed Statewide Stormwater Rule: How We Got There

At a Meeting of the

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Presentation by
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AAEE
Why Do We Need Statewide Stormwater Rule?

The diagrams show how groundwater infiltration decreases and surface runoff increases dramatically as a watershed is developed.

Want to control this!
We’re here 88% <1”
LIQUID ASSETS

Why water is causing energy to dry up.

Between 7-8 percent of U.S. energy consumption can be traced to moving or treating water. Thirty-nine percent of the country’s fresh water is used for agricultural irrigation. Thirty-eight percent goes to power plants. Every 1 million gallons of water used requires the expenditure of 1 million kilowatt hours of electricity and the emission of 5,360 pounds of CO₂ into the atmosphere.

Conserve the water you use. It’s more than just a drop in the bucket.

get ENERGYsmart

Stop draining our energy resources.

Sarasota County
WATER=ENERGY

• The further we move/treat water the more energy we use... 7-8% of US energy
• 1 million gals of water uses 1 million kilowatts of electricity and 5360 lbs of CO$_2$
• When we use highly treated drinking water to flush toilets or water our grass....Think about the energy going down the toilet and all the unnecessary CO$_2$ going into the atmosphere!!!
Water......where does it come from and what do we use it for?

- Rainwater
- Stormwater
- River water
- Waste Water
- Reclaimed Water
- Floodwater
- Surface Water
- Groundwater
- Condensate water
- Irrigation Water
- Gray Water
- Drinking Water
- Runoff
- Evapotranspiration
- Harvested rainwater (stormwater)
- Soil or pore water
- Cooling water
Redevelopment and Retrofitting is a Priority for Sarasota County!

Our challenge in Sarasota County is reversing cumulative impacts which occurred one lot, one business, one person at a time!
Roberts Bay Watershed Average Age of Buildings

Phases of Development
Average Year Built
- Gray: Parceled, but not built-up as of 2004
- Red: Prior to 1972 (Federal Clean Water Act)
- Orange: 1972 - 1984 (SWFWMD Permitting)
- Green: 1984 - 1995 (FDEP ERP Permitting)
- Blue: 1995 - 2004 - Extent of Current Data

Slide by Jon Perry
Old Style Development/Regulation

- Clear
- Fill
- Compact
- Make impervious
- Drain as fast as possible or possibly attenuate (control the rate of runoff but not the volume)
Results of This Style of Development

- Loss of native vegetation (including rainfall interception and evapotranspiration)
- Covering and compacting of native soils which were conducive to plant growth (our fertilizer ordinance and water efficient landscaping code have highlighted this as a problem).
- Loss/reduction of infiltration capacity of the native soil.
- Loss of local recharge of groundwater table.
- Impervious area (often Directly Connected) greatly increasing the volume and changing the timing of runoff resulting in salinity and pollutant load changes.
One watershed through the years

Phillippi Creek

1847
Today’s watershed

 Phillippi Creek

Fruitville Rd
Bee Ridge Rd
Clark Rd
Beneva Rd
Bee Ridge Ext
Sarasota County’s Decided to Develop an LID Manual

- Completed September 2008
- SWFWMD partnered with us on developing an LID manual that we both can use in the permitting process.
- Our goal was to make it compatible with the anticipated State-Wide Stormwater Rule.
- Put together a team to develop the manual including JEA, Program for Resource Efficient Communities (U.F.), and Dr. Marty Wanielista (U.C.F.) plus a committee of interested professionals for an LID Manual Working Group.
Sarasota County LID Manual

• Lid Overview and Site Evaluation (Designing with Nature)
• Four LID Practices
  – Green roof/cistern
  – Detention with Biofiltration
  – Permeable Paving
  – Stormwater Harvesting
• Mechanisms for long-term operation and maintenance (U of Fla Law School)
GREEN ROOF WITH CISTERN

UCF Green Roof/Cistern

Sarasota’s first Greenroof

National Home Builders New American Home Orlando

Bank of America Parking Garage in Tampa
Stormwater Harvesting

Horizontal Wells

Ponds

Cistern at the Hillsborough County Courthouse

Florida House Cistern
PERVIOUS PAVING

Typical applications

Typically, pervious pavements are used for low-intensity site applications such as parking areas, retention ponds, entryways, and pedestrian paths. They can be used in various locations, including parking lots, driveways, and pedestrian areas (Figure 3.2-9).

Figure 3.2-9 Typical Urban Pervious Pavement System Cross Section

Pervious pavements are designed to support light traffic loads. However, certain pervious pavement systems require maintenance to control soil erosion due to higher volumes of vehicle traffic. To address this concern, pervious pavements can be installed with structural elements to provide a durable surface in areas where vehicle traffic is minimal. For example, entryways and pedestrian areas can be designed to support lighter traffic loads, while the parking areas may require more maintenance to ensure proper drainage and performance.
BIOSWALES

Bioswale at River Forest

Figure 3.1-2  Cross Section View a Detention with Biofiltration System.
Detention with Biofiltration

Figure 3.1-1 Plan View Illustrating a Detention System with Biofiltration
Possible Cross Section of Bioswale

Figure 3.1-2 Cross Section View a Detention with Biofiltration System.
Proposed Retrofit Project
How Do We Succeed at Better Stormwater Management

• Improved local government regulations including LID.
• Compatibility with Water Management District regulations which allows credit for LID.
• Statewide Stormwater Rule which supports LID and Green Infrastructure.
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