Stormwater Utilities
Sustainable Funding

By Mark Hoskins, P.E.,CFM
One of every $10 spent on goods and services in the U.S. is spent on construction.

19% of all flood claims (since 1979) come from one city (New Orleans).
40% of all flood claims come from one state (Louisiana)

Prior to this year, Tennessee flood claims = $72M
May 2010 Nashville suffered $2B in damages
Stormwater Claims – Perception of needs

The “Bad Penny” spent is on stormwater infrastructure

“Every stormwater system functions perfectly, as long as it is not raining.” – Andy Reese

Suggestion of a Stormwater Fee:

**PRE-Flood:** Taken like a proposal to kill the first born of every family.

**POST-Flood:** “You knew about the problem and did nothing?”
Stormwater Funding- Sustained Approach

People are naïve/foolish about stormwater management

Everyone’s actions, changes the watershed

1) People need to be educated/informed
2) Prevent flood damages
3) Protect our water wildlife
Stormwater Utility Fee- three aspects

**Stormwater** man reacts to rainfall

a) Three Rainfall Rules

**Utility** is a service provided to a customer, based on use.

a) water, sewer, garbage, natural gas, etc.

**Fee** is a charge.

a) Equitable, regulatory and voluntary
Jim Angel is the Illinois state Climatologist for Illinois. Illinois appears to be in a 40 year wet cycle as compared to collected observations dating back to the year 1830.
Stormwater - Spatially Variable rainfall

September 12-14, 2008  Storm Event in the Des Plaines Watershed

Des Plaines River watershed

http://mrcc.isws.illinois.edu/cliwatch/watch.htm#
Stormwater - man accelerates flooding

Natural changes, **GRADUAL**...

Manmade changes, **FAST**...

Dewberry
Three Rainfall Rules

1) Impervious Area increases Runoff: Volume & Velocity
2) Debris and Bad-Pipes Backs-up Runoff
3) We have to Pay... to Prevent... or Repair... flood damages

More urbanization slows infiltration, increases runoff, then flooding

RURAL
10% Runoff

URBAN
55% Runoff

Increased runoff speeds erosion, making for dirty stream water.
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Infrastructure Maintenance Cheaper than Replacement
Ecosystem repair may not be possible
Utility — a fee based on Use

Many utilities are paid by their use...a Fair Approach

Water  Gas  Cable  Garbage  Sewer  Electric
Utility — Funded activities

- Erosion Control Issues
- Capital Improvements
- Street Sweeping
- Rain Gardens
- Retain First Flush
- Education Outreach
- NPDES Permitting
- Operations and Maintenance
- Engineering Services
- BMPs
- Inlet Labeling
- Master Planning
29 total = 21 upheld + 3 pending + 5 struck
Fee – Typical Programs Funded

- Capital Improvement Program
- Indirect
- Regulation
- Engineering & Planning
- Special Programs
- Water Quality
- Administration
- Operations & Maintenance
## Fee- Typical Expenses

<table>
<thead>
<tr>
<th></th>
<th>Existing Expenditures</th>
<th>Proposed (Not including your input!)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detention/Retention Ponds</td>
<td>$12,750</td>
<td>$18,350</td>
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<tr>
<td>Creek System</td>
<td>$722,500</td>
<td>$756,800</td>
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<tr>
<td>Inlets/ Catch Basins/ Manholes</td>
<td>$345,000</td>
<td>$385,000</td>
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<tr>
<td>Pipelines/ Ditches</td>
<td>$476,000</td>
<td>$559,750</td>
</tr>
<tr>
<td>Debt Service</td>
<td>$1,010,000</td>
<td>$1,010,000</td>
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Over the next 5 years the Preliminary Total Expenditures average $2.6 Million
Fee – What is an ERU?
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Equivalent Residential Unit (ERU) – community’s average impervious area on a single family residential lot (sq. ft.)

All developed single family residential parcels usually pay a single fee

Average U.S. ERU = 3,000 sq. ft. impervious

ERU usually determined using GIS and is estimated from a random sample of single family residential properties
Fee – ERU fair tiered “stepped” rate vs. single rate
Fee — ERU that is overcharging smaller tiers
Fee — How do you set up a Stormwater Utility?

1. 5 Year Masterplan- Determine problems, needs goals
2. Develop a public outreach program
3. Enlist Significant Political Support

1. Feasibility Study- Determine level of service to be provided
2. Determine a rate methodology and rate base
3. Outreach to Major Stakeholders

1. Implement the SWU Program
2. Create master account file and supporting tools
3. Begin the billing

1. Report the results to residents (every 6 months)
2. Consider early construction
Outreach is the Key
Marketing Plan:  Web-based and Event-based

Public Service Announcements  Car Care, Fertilizer, Pet Waste
Educational Programs  EPA Toolbox
Adopt a Reach  Organizations hold clean-up days, install signs
Stencil Inlets  Public Works Day, Web Calendar, Advertising, Fair Event
Resident Volume Volunteers  Rain Gardens, Rain Barrels

Rain barrel
Rain gardens Infiltrating
Go Blue and "Be Prepared"

Involve Community based Organizations

Enlist Conservation groups:
Conservation Foundation, Fermi Lab Arboretums
Engineering Groups - IAFSM, ASCE, ISPE
Boy Scouts - Eagle rank Projects

Plan Events at:
Local Museums, Libraries
Parks for Rain Garden Lectures
State Fairs or County Fairs
Fee — Outreach could be at a State Fair
Fee – What is Outreach?

Consider Outreach to School Districts early on...

Adults will listen to their children when they can’t spare a minute for a stormwater professional

Most adults are basically ignorant of floodplain issues
Block swales with privacy fences and flower beds
Place lawn debris in gutter
Unprepared for the big one
Involve Schools as Outreach

Kid quotes after a Stormwater Class

"I learned that if we throw the things in the storm drain the fishes will die."
Sincerely, Daniel A., age 8

"Thank you for helping the water and fish keep clean because the dirty water kills animals. I learned not to throw dirty trash on the floor...water is the fish's home because fish like to be happy."
Sincerely, Yajqera B., age 8

"Thank you for coming to our class. I promise not to throw stuff away that can hurt any kind of animal. This way we can go to the beach and so that all the animals will live and not die very fast."
Sincerely, Martin G., age 9
Questions?