Promoting and Funding Illinois Stormwater Programs

Mark Hoskins  PE, CFM
Promoting Stormwater

Outline

Stormwater Utility Basics (5 slides)

Overcoming Political Obstacles (14 slides)
Initiate a strong outreach campaign

2015 Stormwater Utility Seminar (11 slides)
May 21, 2015 in Chicago
Stormwater Utility Fee

The Basics

**Stormwater**
Infrastructure protected?  Big storm ready?

**Utility**
A municipal utility provides a service based on “use” like: water, natural gas, cable, garbage, sewer, or electrical.

**Fee**
The fee must be equitable, regulatory, and voluntary.

Fair fee for residents and Businesses!

MS4 Permit

Credit Manual
Stormwater Utility – Funded activities

- Erosion Control Issues
- Capital Improvements
- Street Sweeping
- Rain Gardens
- Inlet Labeling
- Retain First Flush
- Education Outreach
- NPDES Permitting Operations and Maintenance Engineering Services BMPs
- Master planning
- Infrastructure
- SWU Funding
SWU Fee Approaches

**Residence Equivalent** = \( \text{REF (Rainfall)} \times \text{Base Rate} \times \text{acreage} \)

**Flat Fee** often based on size of water meter

**Good rate structure**

**Tiered Approach** has one fee for a range of lot sizes, a stepped approach

**Bad rate structure** as larger ratepayers are paying less

**Most Popular = ERU**
2014 Stormwater Utilities Map

Mid western States highest density

2005 Stormwater Utilities

SWUs 2014

Monthly Fee

- $0 - $1.00
- $1.01 - $2.00
- $2.01 - $3.00
- $3.01 - $4.00
- $4.01 - $5.00
- $5.01 - $6.00
- $6.01 - $8.00
- $8.01 - $10.00
- $10.01 - $20.00
- $20.01 - $35.00
Three Point Outreach Plan

To overcome political obstacles

1. Define storms

2. Resident Outreach

3. Projects to lessen future damages
1. Define Storms

**Chicago**

- **Size**: Watershed size = flooding
- **Movement**: Thunderstorms following each other = "Training" = flooding
- **Intensity**: Climate Change = more intense Midwest storms = flooding

**Historical Examples**

- **Midwest Historic Storms**: When will the next flood hit? Chaotic and Unpredictable
Define Storms
Define Rainfall

You hear on the radio... "It rained four inches yesterday!"
You think... "Did my house flood?"

<table>
<thead>
<tr>
<th>Watershed to Storm Size: Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>You need a 10 day storm for a Mississippi Flood</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Storm Size</th>
<th>Watershed</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Day</td>
<td>Mississippi River Watershed (1000 SM)</td>
</tr>
<tr>
<td>1 Day</td>
<td>Fox River Watershed (100 SM)</td>
</tr>
<tr>
<td>1 Hour</td>
<td>Tributary Creek (1 SM)</td>
</tr>
<tr>
<td>10 Min.</td>
<td>Small Creek (0.2 SM)</td>
</tr>
</tbody>
</table>

Bigger Watersheds with longer storms = flooding
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.

Illinois "Climate Change" has Cycles

Define Storms

Annual Precipitation - Illinois

Really Wet
Dry
Wet

Illinois State Water Survey, 2009

Michael Baker International
2. Outreach Plan

It’s expensive to maintain... far more to replace!

INFORM RESIDENTS

a) **Impervious Area** causes flooding
b) Typical Runoff: Urban verses Rural
c) An Animated Floodplain

Internet – Tent Events

a) Facebook Examples
b) Tent Events
Outreach

Urban vs. Rural Impervious

UNDEVELOPED
10% Runoff

DEVELOPED
90% Runoff
City of Los Angeles
Stormwater

Promotional
1) Recycle polluting wastes (oil filters, etc)
2) Pet selfie contests
3) Photo with “Trashman”
4) Monthly volunteers
5) Monthly Themes
Outreach
Computer Animation

XP-SWMM based Animation
developed by Michael Baker
Outreach Venues
Schools, Libraries, Parks, Town Halls, and Fairs

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
Promotion TABLE:  Make it Fun!

- **RAINDROP TATTOOS** (ABOUT 3 CENTS EACH)
- **SOAP BUBBLES** (ABOUT 10 CENTS EACH)
- **NOAA CLOUD CHARTS** PRINT ON 11X17 PAPER
- **GLASS LIGHTENING BALL**
- **THUNDER CUP** MAKES A THUNDER SOUND
- **WILDFLOWER SEEDS**
- **ANIMAL POSTERS** ILLINOS DNR PRINTED FROM PDFs
- **EVENT LITERATURE**
- **RAINDROP TATTOOS** (ABOUT 3 CENTS EACH)
- **CoCoRAS RAIN GAGE**
- **BIOLOGY**
- **HYDROLOGY**
- **METEOROLOGY**

Michael Baker INTERNATIONAL
Outreach Handouts
Meteorology, Hydrology, and Biology
Tent Event: “Rain Day” at County Fairgrounds

Invite Federal and Local Stormwater Agencies

GAMES

USACE, EPA, NOAA, MWRRDGC
Outreach: Public School Events

Watershed Stewardship

Several States have **Water Festivals** where public school students are bussed to a fairground and students are taught about Sustainable / Environmental topics.

Using the **Wards Model** to teach how manmade impacts change runoff can be fun and used to promote municipal stormwater programs. Here a levee fails and homes are flooded.
3. Infrastructure Solutions

Stormwater infrastructure is expensive. Who knows this? Nobody.

Inform residents
a) Highly visible stormwater projects
b) Show flood benefits, CURE the “Measles” Map
c) Consider a Hazard Mitigation Study

Plan and Budget
a) Five year plan: Maintenance-Capital Improvements
b) Example Chicagoland Village Stormwater Budgets
## Infrastructure Solutions

**Annual Stormwater Costs**  
Village of Palatine (Pop.=50,000)

<table>
<thead>
<tr>
<th>Expenditures Type</th>
<th>Recent Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detention/Retention</td>
<td>$12,750</td>
</tr>
<tr>
<td>Creek System</td>
<td>$722,500</td>
</tr>
<tr>
<td>Inlets/Catch Basins/Manholes</td>
<td>$345,000</td>
</tr>
<tr>
<td>Pipelines/Ditches</td>
<td>$476,000</td>
</tr>
</tbody>
</table>

**Total Recent Expenditures:** $1.55 million

### Key Areas of Expenditure

- **Creek Clutter**
- **Aeration & Erosion**
- **Clean Debris (Turtle)**
- **Root Growth**
Stormwater Projects are Expensive

Downers Grove has $16M stormwater
Winnetka is $41.0M for a tunnel project
Bloomington is $136M in 20 years
Decatur is $7.7 M annual
Glenview is $11.4M in 2015
Des Plaines increased $13M in 2015
Illinois Stormwater Utilities Seminar
May 21, 2015
The Experts Present
Stormwater Utility Seminar
May 21, 2015   Willis Tower (CMAP Conference Room)

National Trends in Stormwater Utilities
Dr. Warren Campbell

Stormwater Utility Fee Development
Doug Noel

Tri-County Regional Planning Commission
Maggie Martino

Illinois Legal Aspects
Hal Sprague

Illinois EPA
Amy Walkenbach

Charlotte Mecklenburg
David Canaan

Downers Grove
Karen Daulton Lange

Northbrook
Paul Kendzior

Rock Island
Randy Tweet

POWERPOINTs
AVAILABLE (as a .PDF)
CALL / TEXT
(312) 515 5277
5-Year Budget $94 million

- Estimate 360 new AI, A and B requests added per year
- Average 235 requests for service evaluated per year
- Average cost per request is $70,000

Flood Mitigation Results
Cumulative Investment & Benefits in Mitigation

OUTREACH MITIGATED SAVINGS
CREATE A REVIEW BOARD
HAVE SIGNATURE PROJECTS

David Canaan, PE
Water & Land Resources Director
Charlotte-Mecklenburg, NC
Illinois EPA State Revolving Fund Loan Programs

- Water Pollution Control Loan Program
  - grant program in 1972
  - transitioned to loans in 1987
- Public Water Supply Loan Program loan program in 1996

<table>
<thead>
<tr>
<th>Year</th>
<th>Loans</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>32 Loans</td>
<td>$175 M</td>
</tr>
<tr>
<td>2009</td>
<td>150 Loans</td>
<td>$582 M</td>
</tr>
<tr>
<td></td>
<td>(ARRA 16 months)</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>4 Loans</td>
<td>$182 M</td>
</tr>
<tr>
<td></td>
<td>(4 months)</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>15 Loans</td>
<td>$502 M</td>
</tr>
<tr>
<td>2012</td>
<td>6 Loans</td>
<td>$600 M-</td>
</tr>
<tr>
<td>2013</td>
<td>45 Loans</td>
<td>$132 M</td>
</tr>
<tr>
<td>2014</td>
<td>80 Loans</td>
<td>$502 M</td>
</tr>
<tr>
<td>2015</td>
<td>80 Loans</td>
<td>$600 M-</td>
</tr>
</tbody>
</table>

Amy Walkenbach
Illinois EPA, Watershed Management
What are the steps?

- Develop / implement a public outreach program
- Involve stakeholders \{optional\}
- Determine problems, needs, and goals
- Determine level of service to be provided
- Determine cost of service to be provided
- Determine a rate methodology and
- Determine the rate per billing unit
- Enact ordinance
- Create master account file and supporting tools
- Begin the billing and customer service
How VODG Implemented SWU 10 Years in the Making...

- 2003 - Exploratory Committee/Leadership
- 2006 - Master Plan
- 2007 – Watershed Infrastructure Improvement Plan (WIIP)
- 2010 – Long Range Financial
- 2011 – RFP for SWU Study
- 2012 – Study Completed, Co-proceed, Intense public outreach
- 2013 – January 1st implementation

Karen Daulton-Lange, PE, CFM
Village Engineer, Village of Downers Grove
Step 3: Determine the Annual Budget

### SAMPLE STORMWATER MANAGEMENT PROGRAM

<table>
<thead>
<tr>
<th>Task</th>
<th>Annual Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td></td>
</tr>
<tr>
<td>Engineering &amp; Planning</td>
<td></td>
</tr>
<tr>
<td>Operations &amp; Maintenance</td>
<td></td>
</tr>
<tr>
<td>Capital Improvements</td>
<td></td>
</tr>
<tr>
<td>Regulation &amp; Enforcement</td>
<td></td>
</tr>
<tr>
<td>Water Quality</td>
<td>$223,000</td>
</tr>
<tr>
<td>Public Education</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$4,829,750</strong></td>
</tr>
</tbody>
</table>

PLAN AHEAD
NETWORK WITH OTHER MUNICIPALITIES

Maggie Martino
Tri-County Regional Planning Commission
U.S. SWUs
Why do they form easily in some states and not in others?

Annual Revenue = 13 X Monthly Fee X Population

NUMEROUS STORMWATER UTILITIES ARE BEING CREATED NATION-WIDE

Business Argument
You will drive businesses out of town.

2013 or sales in malls - $341 per square foot per year

Average sales from a 100,000 square foot store per month = 341 x 100,000/12 = $2.8M

Fee is $1 for every $7,100 in sales or 1 penny for every $71 in sales.

Dr. Warren Campbell
Western Kentucky University
Paul Kendzior, PE
Public Works Director, Village of Northbrook

TELL YOUR RESIDENTS ABOUT YOUR CAPITAL IMPROVEMENTS
Credit Manual

- Credit Types
  - Direct Discharge
    - Direct Discharge Credit (50%, expanded to 100% in late 2003)
  - Quantity Reduction
    - Rate Reduction Credit (25%)
    - Additional Rate Reduction Credit (10%)
    - Additional Volume Credit (5%)
  - Quality
    - Quality Credit (10%)
    - National Pollution Credit ($200)
  - Unique and Special Cases

- Appeal Process

CREDITS ARE ESSENTIAL
GREEN TECHNOLOGIES SELL WELL

Randy Tweet, PE
Public Works Director, City of Rock Island

Water, Sewer and Stormwater Charges

<table>
<thead>
<tr>
<th>City</th>
<th>Total</th>
<th>Water</th>
<th>Sewer</th>
<th>Stormwater</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rock Island</td>
<td>$140</td>
<td>$80</td>
<td>$60</td>
<td>$20</td>
</tr>
<tr>
<td>Moline</td>
<td>$120</td>
<td>$70</td>
<td>$50</td>
<td>$5</td>
</tr>
<tr>
<td>East Moline</td>
<td>$100</td>
<td>$60</td>
<td>$40</td>
<td>$5</td>
</tr>
<tr>
<td>Bettendorf</td>
<td>$110</td>
<td>$60</td>
<td>$40</td>
<td>$5</td>
</tr>
<tr>
<td>Davenport</td>
<td>$100</td>
<td>$50</td>
<td>$50</td>
<td>$5</td>
</tr>
</tbody>
</table>

Michael Baker International
Are Taxes a more fair Fee Assessment?

PROBLEMS with General Revenue (Tax) Approach

- **Arbitrary**: no relationship between amount paid and service required or provided
- **Unfair**: some property owners subsidize services provided to others
- **Poorly Protects**: owners of property with large impervious surfaces but lower value
- **Penalizes**: owners of more valuable property may contribute less runoff
- **Taxes**: can be diverted to other uses by elected officials

STORMWATER UTILITIES ARE LEGAL IN ILLINOIS, NOT NECESSARILY COUNTY-WIDE
Presentation “Take-Aways”

1. Big **upward trend** for Stormwater Utility Programs

2. Illinois has 25 programs now and **will double in five years**

3. The **ERU is the most popular** fee structure, of four main options

4. Outreach, **outreach, and outreach** and you will be fine.
Questions?