EPA Region 1 MS4 Stormwater General Permits and LID Training Clinic

Track A: Planning & Budget

Funding Stormwater Programs

MWRA

Chelsea, MA

April 27, 2011

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Drivers of a Sustainable Stormwater Funding Source

- Flooding;
- Aging/failing infrastructure;
- Development pressures;
- Water/environmental quality;
- Regulatory Mandates
- Quality of Life;
- Property values;
- Drinking water protection/replenishment;
- Recreation (fishing, boating, swimming);
- Erosion of stream/creeks;
- Lawsuits

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Three Funding Truths

(and one strongly held opinion)

- It is cheaper to protect than to restore;
- Taking action today is cheaper than taking action tomorrow;
- There is not, has never been, and never will be enough grants - public or private - to fund water resources protection and restoration;
- *Local problems require local solutions*

"Courtesy Dan Nees Environmental Finance Center
University of Maryland"

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So, What's the Problem?

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Stormwater Management is Complex

- Multiple regulations:
  - MS4 - Zoning
  - RDA - Subdivision
  - TMDL - WPA
  - CSO
- And regulators:
  - Federal
  - State
  - Local

City's Stormwater Regulations May Be In For Rough Weather

By MICHAEL FINN
Free Press Staff Writer

NASHVILLE — Another storm may be brewing over the city's compliance with federal and state stormwater regulations.

State Rep. Brenda Turner wants Chattanooga city officials to explain why they haven't complied with some provisions of the state law on stormwater fees that the Legislature passed two years ago.

She said she's also concerned about some of the "heavy-handed" tactics that Chattanooga is using to collect the fee from citizens

al report for the Legislature on actions it is taking pertaining to the stormwater fee and its efforts to comply with the federal Clean Water Act that mandated action from cities with a population of 100,000 or more.

The provision requiring cities to report was added to the state law through an amendment sponsored by Rep. Turner.

The city is supposed to make an annual report to the federal government on its stormwater compliance, said Rep. Turner, adding, "It would not be an additional burden to the city to give the Legislature the same report that they

"On the tax notice the city tries to say that Congress mandated that tax," Rep. Turner said. "But Congress enacted the Clean Water Act. It was the city that placed a tax burden on its citizens and businesses to do what city officials thought was needed to do to clean up the water.

"People are confused about who did what.

"The city wants to say that Congress placed a tax on them. But they (Congress) didn't. It was the city that established the rate. It was the city that chose to put it on property tax bills," Rep. Turner said.

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Stormwater is Complex

- Multiple issues:
  - Flooding and drainage
  - Water quality
  - Groundwater recharge
  - Habitat/resource protection
  - Drinking water protection

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Stormwater Management Costs Money

- Capital infrastructure;
- Operations and maintenance;
- Administration and enforcement; and
- Education and outreach.

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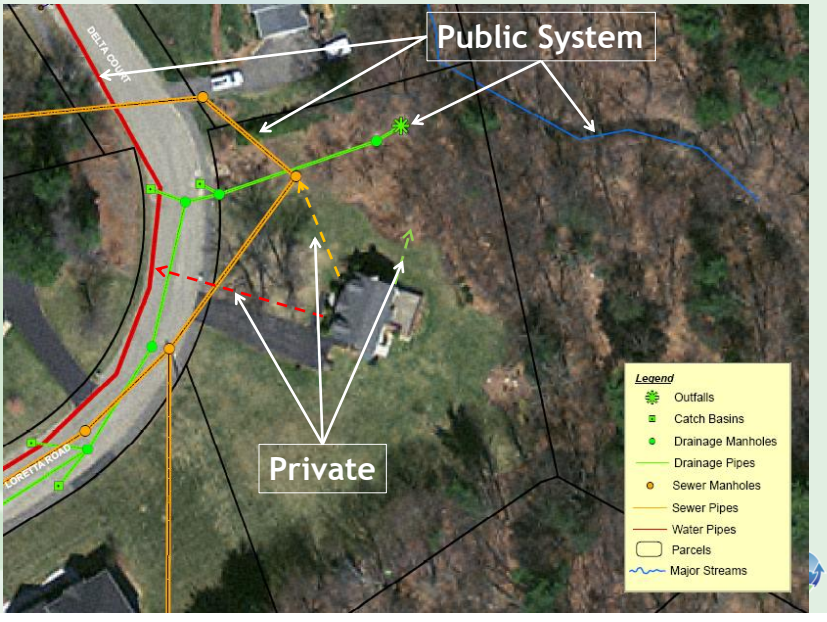
Is Stormwater so Different?



In MA Current Stormwater Requirements
Under the Wetlands Protection Act and 2008 Stormwater Standards

NOI with Stormwater Form (Checklist) – 10 Standards:

- No untreated discharges to wetlands;
- Peak Rate Attenuation (2, 10 & 100);
- Recharge;
- Water Quality (80% TSS removal game);
- LUHPPLs, Critical Areas…
- Redevelopment
- E & SC
- O & M
- No Illicit Discharges exist on site

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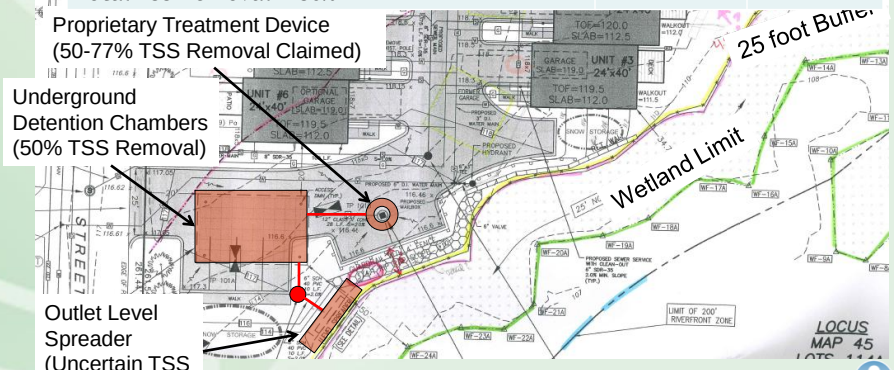
A Typical Application?

BMP	TSS Removal Rate	Starting TSS Load	Amount Removed	Remaining Load
Proprietary Widget	60%	1.0	0.60	0.40
Underground Ext Det.	50%	0.4	0.20	0.20
Total TSS Removal = 80%				



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Range of Stormwater Management Services

- Flood reduction/protection;
- Stream channel erosion protection/restoration;
- Street sweeping;
- Catch basin cleaning;
- Culvert repair/replacements;
- Improved stormwater planning/watershed management;
- Leaf litter pick-up/disposal
- Public education, outreach and engagements;
- Maintenance of drainage systems;
- Construction and post construction inspections;
- Construction of new capital facilities;
- Maintenance of existing and new stormwater practices

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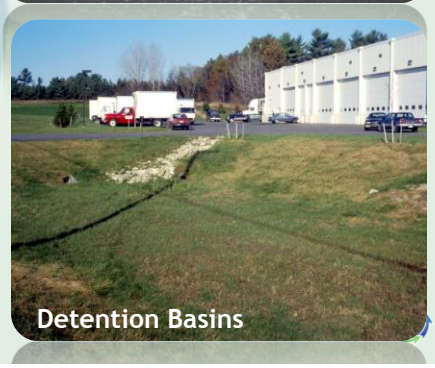


Phosphorus Free Fertilizers

In the spring of 2005, nearly all homeowners in Madison and Dane County had to purchase phosphorus-free yard fertilizers like this from area stores.

2008 Grand Rapids MI ,

Spokane WA Detergent Phosphorus ban

Enhanced Non-Structural Controls


Leaf/Lawn Litter Control

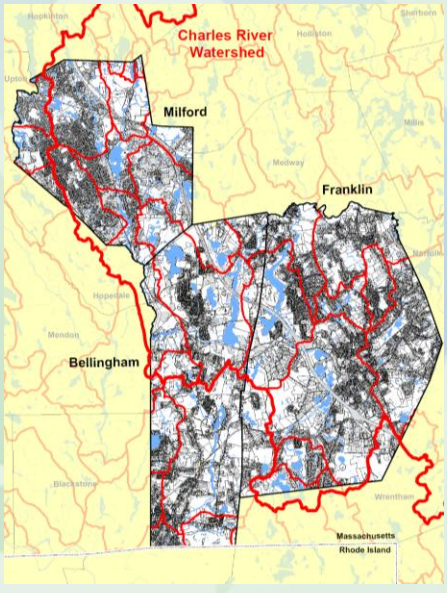

More Freq. CB Cleaning

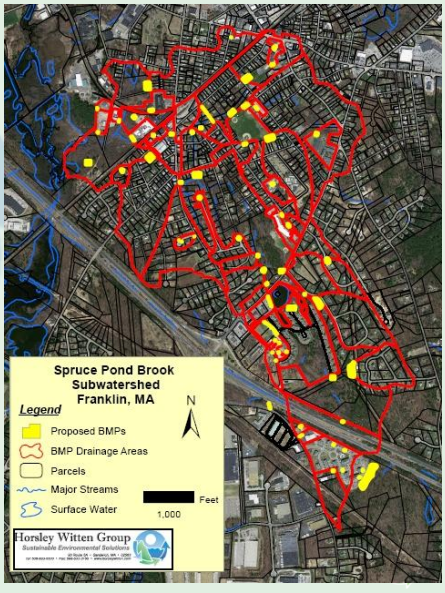

Enhanced Street Sweeping


Animal Waste Reduction

Boston Public Library, Print Department

Watershed Planning
(subwatershed prioritization and practice identification)





Failed Sand Filter

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Construction of new sand filter completed

Before Maintenance

After Maintenance

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Typical Public Maintenance Program

- Includes maintenance of both public and private stormwater facilities
- Public facilities - parks, libraries, fire stations, DPW facilities, schools and others
- Private facilities - Municipality typically performs structural maintenance, property owners will perform aesthetic maintenance

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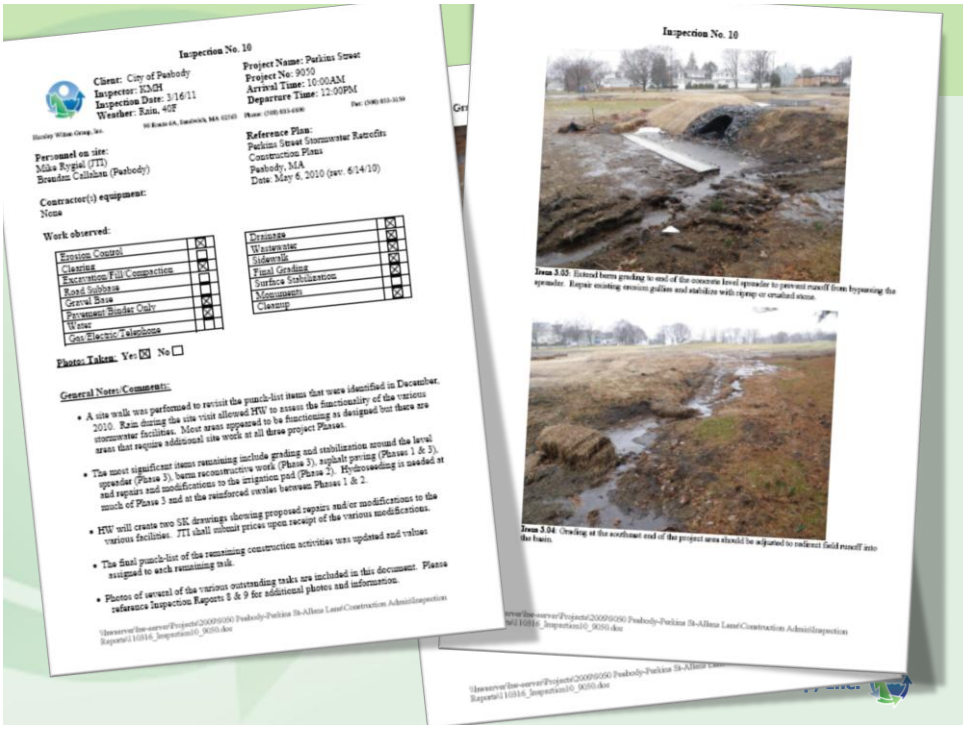

Example of Future Cost Items

- Update written Stormwater Mgmt Plan;
- Increased reporting/record keeping on annual reports;
- Targeted public education (2 messages to 4 audiences) and report results;
- Illicit discharge priority catchment assessments (including SSOs);
- Detailed outfall monitoring for both dry and wet weather;
- Written IDDE program with mapping and prioritization of problem catchments;
- Complete stormwater system mapping (all pipes/manholes/inlets/structures. Catch basin inspection/cleaning/inspection data;

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Future Cost Items
(continued)

- Track # of site plan reviews, inspections, enforcement actions;
- ID/rank retrofit opportunities for municipally owned facilities;
- Develop a SWPPP for municipally owned facilities;
- Complete a code review and update/report;
- Impervious cover/DCIA tracking;
- Street sweeping optimization(2 times/yr);
- Written O&M procedures for municipal activities for trash, pet wastes, leaf litter control, fertilizer use & yard wastes;
- Pet waste & waterfowl mgmt plans.

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Resources, Funds & Revenue

- Resources are generally free such as volunteer labor or goods; technical information available for no cost;
- Funds are one-time $, not dependable, not predictable, likely limited;
- Revenue is regular, predictable, dependable, provide cash flow (can be borrowed against)

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The Universe of "Funding" Methods

- Modify local programs (fees/changes);
- Share Resources with other entities;
- Partner with non-profit organizations;
- Federal Programs
  - FEMA, COE, USGS, NRCS
  - FHWA (TEA 21)
- Corporate Sponsorship
  - Corp Wetland Partnership
  - Advertising
- State/Regional Programs;
  - Clean Water State Revolving Loan Fund Programs (SRF);
  - 319 Nonpoint Source;
  - 604(B) WQ Planning;
  - 104(b)3
  - NOAA Coastal Pollution Remediation
- Fees for Service
- General Fund (sales/income tax)
- Stormwater Utility Fees

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Massachusetts State Revolving Fund

- SRF money is not free, but it is affordable.
- SRF loans have low interest rates and cover up to 100% of a project's costs with no matching requirement on behalf of the borrower (grants, typically require the grantee to provide matching funds that must be available at the start of a project).

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MA SRF Eligible Projects

"planning and construction of projects, including CSO mitigation, new wastewater treatment facilities and upgrades of existing facilities, infiltration/inflow correction, wastewater collection systems, and nonpoint source pollution abatement projects, such as landfill capping, community programs for upgrading septic systems (Title 5), brownfield remediation, pollution prevention, and stormwater remediation"

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MA SRF Eligible Projects

"non-structural projects are eligible for SRF funding; e.g., planning projects for nonpoint source problems which are consistent with the MassDEP's Nonpoint Source Management Plan and that identify pollution sources and suggest potential remediation strategies.

http://www.mass.gov/dep/water/wastewater/cwsrffs.htm

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Tenets of a Stormwater Utility

Flexible

- Primary source for the whole program;
- Other fees still exist provide equity;
- Credits to encourage/promote desired behavior;
- Geographically based?
- Can take into account variable environmental costs

Equitable

- Costs a function of:
  - Runoff volume
  - Runoff rate
  - Pollutant loading
- Each of the above are directly related to amount of impervious cover.

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Massachusetts Legal Considerations

- Clear provisions in MGL 83 Sec. 1A and 16
  - Construct drains or sewers to reduce nutrient impacts;
  - Charge for the use of sewers and main drains.
- But not fully vetted in wide-spread application
  - What are "drains" and "sewers"?
  - What is the definition of "use" of these systems?
  - There is a "due diligence" process required by local government to establish the fee.
- Regulatory Fees:
  - Needed to regulate activities for the public good;
  - Not related to the cost of providing the service;
  - Typically a secondary funding method for specific purpose (e.g., peer review fees).
- User Fees requirements:
  - Be able to be identified separately from other services (not general funds);
  - Be "voluntary" in that there is a way to reduce or avoid the fee (through credits);
  - Be related to the level of "use" of the services (rational nexus).

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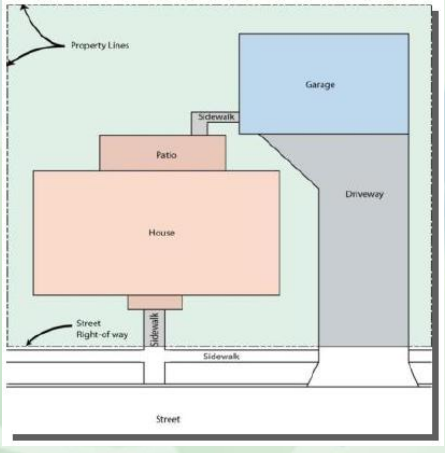
How are Fees Typically Calculated?
Equivalent Residential Unit (ERU)



Graphic courtesy AECOM
Pewaukee Feasibility Study

- Average single-family residential impervious cover (based on best GIS or statistical sample) = 1 ERU
- Impervious area = house, patio, garage, driveway, and on-lot sidewalk
- Typical value = 2,700 sq ft to 3,500 sq ft

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Residential Tiers

- Allows for variations in ERU fee structure for the range of development patterns and demand on municipal stormwater service;
- Tier analysis required (assessor's data, zoning info, review required services/cost);
- Typically no more than 3 tiers (high, medium, low density residential) – for example.
  - HDR = 1.5 ERU
  - MDR = 1.0 ERU
  - LDR = 0.75 ERU

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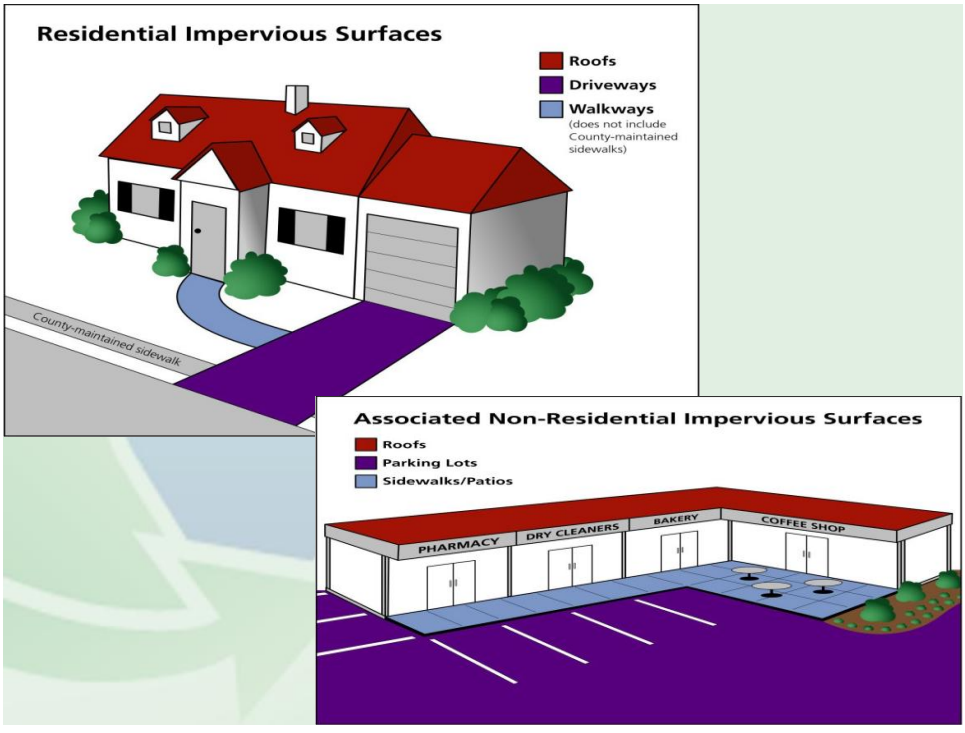
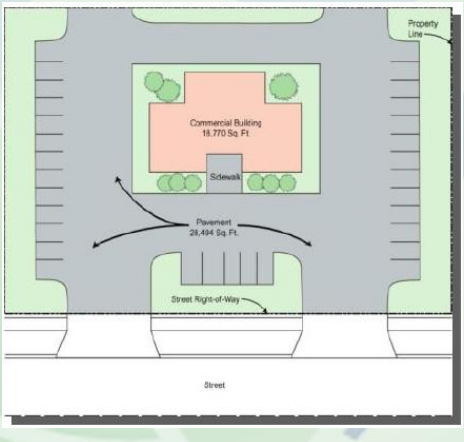


Non-Residential Properties Billed as Multiples of the ERU



Graphic courtesy AECOM
Pewaukee Feasibility Study

- Total site impervious area/ERU = # of ERUs

Example:
Total commercial site IA = 47,260 sf/3,500 sf = 13.5 use 14 ERUs.

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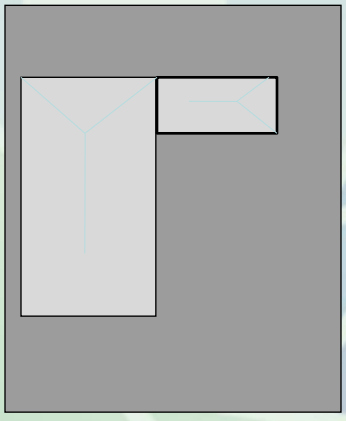
Or Graphically
Non Single Family Residential ERU Calculation



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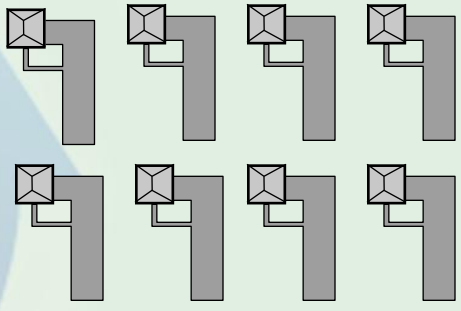

Building Footprint = 10,000 sq ft
Parking Lot = 14,000 sq ft
Total Impervious Area = 24,060 sq ft
ERU = 3,000 sq ft
Total = 24,060/3,000 = 8 ERUs

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Adjustments and Credits

- Adjustments:
  - For added or removed impervious cover
  - To correct data (where better/more accurate information is provided)
- Credits:
  - Required per state law (legal challenges);
  - Properties that don't drain to the MS4;
  - For created/mitigative conditions
    - On-site water quality treatment systems;
    - On-site flood controls
    - On-site operation & maintenance is occurring

Establishing the Fees

ERU rate ($/ERU) = $\frac{\text{Total \$ Needed for Services}}{\text{Total ERUs in Municipality}}$

For Example: Assume annual service requirements = $1.25M, and community has 11,000 ERUs;

ERU = $1,250,000/11,000 = $113/yr or approx. $10/month

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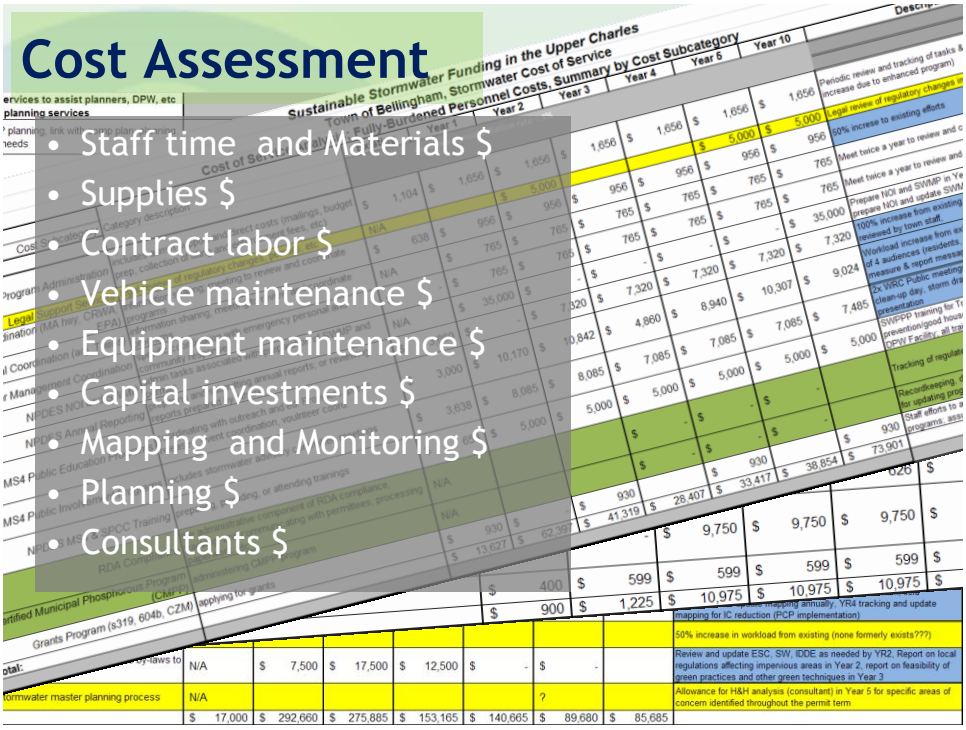
Cost Assessment



- Staff time and Materials $
- Supplies $
- Contract labor $
- Vehicle maintenance $
- Equipment maintenance $
- Capital investments $
- Mapping and Monitoring $
- Planning $
- Consultants $

What are the potential revenues?

In General:

- For every $1 dollar per month per ERU
- A utility can typically generate about $20 to $35 per developed acre per year.
- The National “Average” ≈ $4.00/mo

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Stormwater Utility Options

Obviously there are lots of them:

- Add-on to an existing entity (e.g., Wastewater Management District)
- Entirely new entity in each municipality;
- Entirely new regional entity.

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Advantages of a Regional Approach

- Some things have no geographic boundaries (e.g. education);
- Some things will benefit from more opportunities to do them (e.g. potential phosphorous reduction sites);
- Some things have administrative fixed costs which could be spread across a bigger base.

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A Case for a Regional Entity

- Economies of scale;
- Better able to gain outside funding;
- Watershed consistency – cross jurisdictional;
- Less local politics;
- Better access to talent;
- Local governments perhaps not as much resources;
- Can undertake bigger projects;
- Would match regulatory programs' geography

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Who might not like a stormwater utility?

- Tax exempt property owners;
- Properties with very large impervious surfaces;
- Those on fixed incomes;
- Some developers;

- And as my colleague Andy Reese likes to say: "Maybe Everyone"

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Implementation Details

Setting up a successful utility will require the community to pay particular attention to the details.

- Governance and consensus across municipal departments;
- The "Program" is clearly defined and a strong argument is made;
- Public and Political Education and Support;
- Financial procedures and policies; and
- Accurate and complete database and customer service is provided

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Process for Utility Implementation

- Advisability Study (background-case-cost/revenue);
- Feasibility Study (business plan);
- Implementation
  - Public outreach
  - Develop/adopt utility ordinance
  - Adopt rate and credit resolutions
  - Incorporate into billing process

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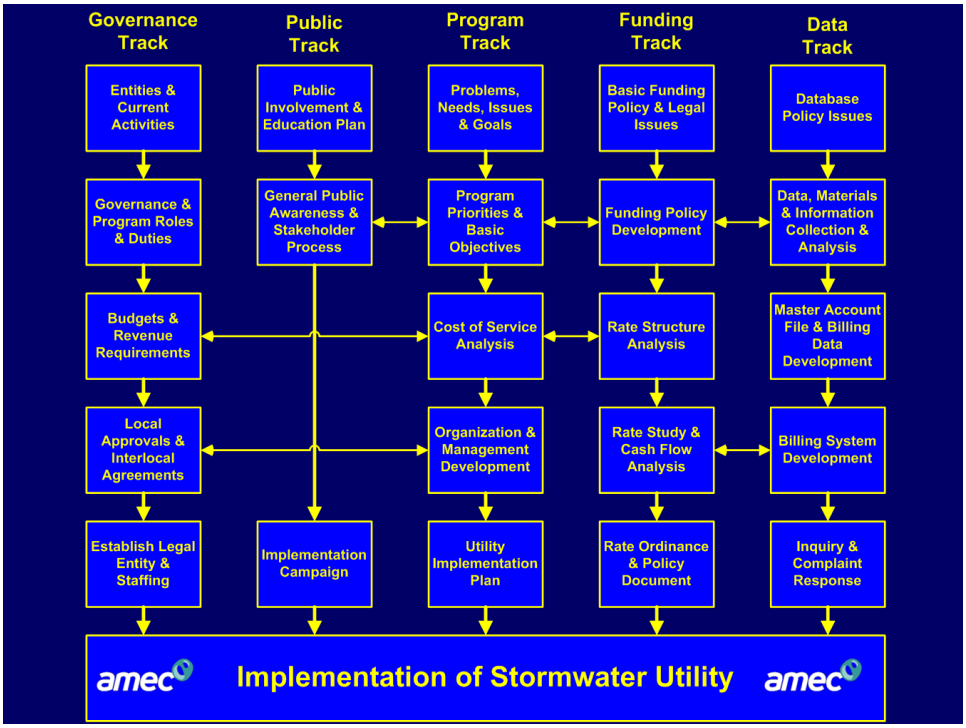

Additional Resources

- **Black and Veatch 2010 Stormwater Utility Survey:** http://www.bv.com/markets/management_consulting/Stormwater_Survey.aspx
- **EPA Fact Sheet: Funding Stormwater Programs:** http://www.epa.gov/region1/npdes/stormwater/assets/pdfs/FundingStormwater.pdf
- **Charles River Watershed Association: Assessment of Stormwater Financing Mechanisms in New England:** http://www.crwa.org/projects/stormwater/swutility.html
- **New England Environmental Finance Center: Stormwater Utility Fees: Considerations and Options:** 2005 http://efc.muskie.usm.maine.edu/docs/StormwaterUtilityFeeReport.pdf
- **U.S. Environmental Protection Agency, Watershed Academy. Catalog of Federal Funding Sources for Watershed Protection** http://cfpub.epa.gov/fedfund
- **2011 Rhode Island LID Site Planning and Design Guidance Document** http://www.dem.ri.gov/programs/benviron/water/permits/ripdes/stwater/t4guide/lidplan.pdf