



*City of Lynchburg*

# Stormwater Management

## **Stormwater Advisory Committee**

*September 16, 2010*

*Meeting #4*



**CDM**

# Tonight's Agenda



- **Summary of Last Meeting**
- **Costs for Alternative Levels of Service & Regulatory Compliance**
- **Stormwater Program Funding Options**

# Stormwater Field Trip



- Trip held Saturday, August 28<sup>th</sup>
- Attended by several committee members
- Locations visited:
  - Jefferson St Rain Gardens
  - Randolph College Rain Garden
  - CSO project with a Rain Garden
  - Private BMP at new Walmart
  - Blue Ridge Farms
- Link to Field Trip video



<http://www.lynchburgva.gov/Index.aspx?page=5004>

# How is Level of Service (LOS) Defined for Stormwater?



- Erosion
- Water Quality
- Flood protection
- Safety
- Aesthetics

## Important Questions Regarding Stormwater Level of Service

1. Citizens' choice, but how much \$\$?
2. Regulations define the minimum, but should we do more?

- VPDES Rules
- VA Impaired Waters
- TMDLs
- FEMA Floodplain

# Level of Service Evaluation: Summary



<i>Level of Service</i>	<i>Program Management</i>	<i>Regulatory Compliance</i>	<i>Operation and Maintenance</i>	<i>Capital Improvement Projects</i>
5	Comprehensive Planning & Full Implementation Capabilities	Exemplary Permit Compliance	Fully Preventative/ 100% Routine	Prioritized / Fully-Funded
4	Pro-Active Planning & Systematic CIP Implementation Capabilities	Pro-Active Permit Compliance	Mixture of Routine and Inspection Based	Phased Implementation / Allocated Budgets
3	Priority Planning & Partial CIP Implementation Capabilities	Minimal Permit Compliance	Mixture of Inspection and Responsive Based	Complaint, Inspection-Based / Moderate Budget
2	Reactionary Planning & Minimal CIP Implementation Capabilities	Below Minimum Permit Compliance	Responsive Only	Critical Needs Only / Minimum Budget
1	No Planning & No CIP Implementation Capabilities	Non-Compliance	Non-Responsive	No Planning / No Budget

Note:  denotes CDM level of service determination for given program area

# Summary of Estimated Annual Program Cost for Stormwater Management (based on FY11)



Primary Stormwater Program Costs	Program Management	Regulatory Services	Operation & Maintenance	Capital Improvements	Totals
<b>Utilities</b>					
<i>Non-Departmental</i>	\$19,000				\$19,000
<i>Stormwater System Maintenance</i>	\$162,000		\$234,000		\$396,000
<b>Public Works</b>					
<i>Streets</i>		\$30,000	\$642,000		\$672,000
<i>Engineering</i>	\$139,000	\$4,000			\$143,000
<i>Parks / Grounds</i>		\$4,000	\$96,000		\$100,000
<i>Refuse</i>		\$5,000	\$174,000		\$179,000
<b>Community Development</b>					
<i>Zoning and Natural Resources</i>		\$166,000			\$166,000
<i>Inspections/Code Enforcement</i>		\$26,000			\$26,000
<i>GIS</i>	\$22,000				\$22,000
<b>Parks &amp; Recreation</b>		\$45,000			\$45,000
<b>Soil and Water Conservation District</b>		\$10,000			\$10,000
<b>Capital Improvements</b>				\$554,000	\$554,000
<b>SUBTOTALS</b>	<b>\$342,000</b>	<b>\$290,000</b>	<b>\$1,146,000</b>	<b>\$554,000</b>	<b>\$2,332,000</b>
<b>Other Storm-Related Program Costs</b>	<b>Program Management</b>	<b>Regulatory Services</b>	<b>Operation &amp; Maintenance</b>	<b>Capital Improvements</b>	<b>Totals</b>
<i>Loose Leaf Collection</i>			\$319,000		\$319,000
<i>Transportation Capital Projects</i>				\$1,340,000	\$1,340,000
<b>SUBTOTALS</b>	<b>\$0</b>	<b>\$0</b>	<b>\$319,000</b>	<b>\$1,340,000</b>	<b>\$1,659,000</b>

# SWAC Process and Schedule



Stormwater Management Overview: May 20 – 6:00 p.m.

Program Components & Expenditures: June 24 - 6:00 p.m.

Level of Service Analysis & Alternatives: July 15 – 6:00 p.m.

**Future Cost and Stormwater Funding Options: September 16 - 6:00 p.m.**

Revenue Scenarios: October 21 - 6:00 p.m.

Review Recommendations: November 18 - 6:00 p.m.

Evaluate/Modify Recommendations for Council: December 16 - 6:00 p.m.

Finalize Recommendations for Council: January 20, 2011 - 6:00 p.m.

# Tonight's Agenda



- Summary of Last Meeting
- **Costs for Alternative Levels of Service & Regulatory Compliance**
- Stormwater Program Funding Options

# Existing LOS (2.5) – Annual Program Cost



<b>Existing Level of Service</b>	<b>\$ 2,332,000</b>
<b>Program Management</b> <b>\$ 342,000</b>	
Minimal Planning/Priorities Limited Information on Needs & System Conditions	
<b>Regulatory Services</b>	<b>\$ 290,000</b>
Minimum Compliance with Existing Permit Requirements Dedicated Engineer for Permit Compliance Activities No Violations for NPDES Activities	
<b>Operations &amp; Maintenance</b>	<b>\$ 1,146,000</b>
Routine Maintenance of Known Problem Areas Routine Street Sweeping Program (2 crews) Day-to-Day Maintenance is Mostly Reactive	
<b>Capital Improvement Projects</b>	<b>\$ 554,000</b>
Annual Allocation for Small Projects/Repairs Implement Critical / Emergency Improvements Only	

# How Can the City Improve Its Level of Service for Stormwater Management?



- **Increase knowledge base of system** with inventory, condition assessment, and basin planning
- **Routine and preventative maintenance** of the stormwater collection and conveyance system
- **Prioritize capital improvements** based on projected need and goals for stormwater level of service

# Program Management Improvements



# Program Management – Annual Cost

## *Enhancements to Existing LOS*



<b>Level of Service 5</b>	<b>\$1,137,000</b>
Prioritize Master Planning (3-year cycle)	
Complete GIS Inventory and Condition Assessment (50% of System Annually)	
<b>Level of Service 4</b>	<b>\$ 790,000</b>
Accelerated Master Planning Program (5-year cycle)	
Pro-active GIS Inventory and Condition Assessment (25% of system annually)	
<b>Level of Service 3</b>	<b>\$ 551,000</b>
Implement Master Planning Program (10-year cycle)	
Implement Inventory and Condition Assessment (10% of system annually)	
<b>Existing Level of Service</b>	<b>\$ 342,000</b>
Minimal Planning/Priorities	
Limited Information on Needs & System Conditions	

# Regulatory Program Improvements



**BMP Inspection & Maintenance**



**Increased Oversight and Enforcement  
of NPDES Requirements**

# Regulatory (w/o Ches Bay) – Annual Cost

## *Enhancements to Existing LOS*



<b>Level of Service 5</b>	<b>\$ 828,000</b>
Full Implementation of All Phase II Services	
Provide 1 Full FTE for NPDES Regulatory Program Support (same as LOS 4)	
Enhanced Education Program for Citizens	
Routine Maintenance of BMPs to Ensure Permit Compliance	
<b>Level of Service 4</b>	<b>\$ 530,000</b>
Provide 1 Full FTE for NPDES Regulatory Program Support	
Enhanced Education Program for Citizens	
Non-Routine Maintenance of BMPs	
<b>Level of Service 3</b>	<b>\$ 384,000</b>
Perform Inspections of All BMPs Annually	
Enhanced Education Program for Citizens	
Add 1/2 FTE to Administer and Enforce Regulatory Programs	
<b>Existing Level of Service</b>	<b>\$ 290,000</b>
Minimum Compliance with Existing Permit Requirements	
Dedicated Engineer for Permit Compliance Activities	
No Violations for NPDES Activities	

# O&M Program Improvements



- **Routine Maintenance Schedules**
  - Inspect and clean
    - Inlets
    - Storm sewers
    - Culverts
    - Ditches
    - BMPs
  - Routine street sweeping

# Operation & Maintenance – Annual Cost

## *Enhancements to Existing LOS*



<b>Level of Service 5</b>	<b>\$1,712,000</b>
Implement a Fully Preventative Maintenance Program	
Add 1 FTE to Restore Street Sweeping Program to Past Levels	
Increase Funds by \$200,000 Annually to Address Repairs Identified Through Inspection	
<b>Level of Service 4</b>	<b>\$1,487,000</b>
Develop and Implement a Routine Inspection/Maintenance Program	
Add 1 FTE to Restore Street Sweeping Program to Past Levels	
Increase Funds by \$125,000 Annually to Address Repairs Identified Through Inspection	
<b>Level of Service 3</b>	<b>\$1,262,000</b>
Maintain Current Maintenance Productivity Level	
Add 1 FTE to Restore Street Sweeping Program to Past Levels	
Increase Funds by \$50,000 Annually to Address Repairs Identified Through Inspection	
<b>Existing Level of Service</b>	<b>\$1,146,000</b>
Routine Maintenance of Known Problem Areas	
Routine Street Sweeping Program (2 FTEs)	
Day-to-Day Maintenance is Mostly Reactive	

# Capital Program Improvements



- Identify projects through master planning and develop priority system
- Repair/replace infrastructure at scheduled intervals per condition assessment and increased inspections
- Consider a public/private partnership with defined criteria for eligibility

# Capital Improvements – Annual Program Cost

## *Enhancements to Existing LOS*



<b>Level of Service 5</b>	<b>\$ 854,000</b>
<p>Increase Funds by \$200,000 Annually to Address Repairs</p> <p>Consider Funding at Increased Levels for a Private/Property Partnership Program</p> <p>Perform Pro-Active Repairs Based on Condition Assessment</p>	
<b>Level of Service 4</b>	<b>\$ 754,000</b>
<p>Increase Funds by \$125,000 Annually to Address Repairs</p> <p>Consider Funding at Increased Levels for a Private/Property Partnership Program</p> <p>Systematically Address Priority Repairs</p>	
<b>Level of Service 3</b>	<b>\$ 654,000</b>
<p>Increase Funds by \$50,000 Annually to Address Repairs</p> <p>Consider Funding for a Private/Property Partnership Program</p> <p>Develop Prioritization Criteria and Rank for Existing Needs</p>	
<b>Existing Level of Service</b>	<b>\$ 554,000</b>
<p>Annual Allocation for Small Projects/Repairs</p> <p>Implement Critical / Emergency Improvements Only</p>	

# Future Level of Service Cost Summary

## Example Costs for Various Levels of Service



<i>Level of Service</i>	<i>Program Management</i>	<i>Regulatory Compliance</i>	<i>Operation and Maintenance</i>	<i>Capital Improvement Projects</i>	<i>Total Program Cost</i>
5	\$1,137,000	\$828,000	\$1,712,000	\$854,000	\$4,531,000
	Comprehensive Planning & Full Implementation Capabilities	Exemplary Permit Compliance	Fully Preventative/ 100% Routine	Prioritized / Fully-Funded	
4	\$790,000	\$530,000	\$1,487,000	\$754,000	\$3,561,000
	Pro-Active Planning & Systematic CIP Implementation Capabilities	Pro-Active Permit Compliance	Mixture of Routine and Inspection Based	Phased Implementation / Allocated Budgets	
3	\$551,000	\$384,000	\$1,262,000	\$654,000	\$2,851,000
	Priority Planning & Partial CIP Implementation Capabilities	Full Permit Compliance	Mixture of Inspection and Responsive Based	Complaint, Inspection-Based / Moderate Budget	
Existing LOS (2.5)	\$342,000	\$290,000	\$1,146,000	\$554,000	\$2,332,000
	Well-Trained, In-House Staff Minimal Long Range Planning	Minimum Permit Compliance Resources At Capacity	Limited Routine Activities Lack of Dedicated Resources	Critical Needs Only / Minimum Budget	

# General Notes about Costs for Example Levels of Service



- Costs presented represent a “typical” year for the stormwater management program.
- Stakeholders / Citizen Advisory Group may desire to fund different functions (O&M, PM, or CIP) at unique Levels of Service.
- Program priorities may be re-evaluated on an annual basis.
- Funding for functions may be used to address specific immediate needs in another function

# Update on Pending Chesapeake Bay TMDL



**Virginia has presented DRAFT plan to EPA:**

- **Initial Urban Stormwater sector focus on expansion of Nutrient Trading Program and Nutrient Management Plan through 2017**
- **Meet target pollutant reductions for Urban Stormwater sector by 2025**
  - Will require significant urban retrofits to achieve more stringent 2025 levels
  - Target reductions contingent upon study of James River

# Current Estimate of Total Costs for TMDL Compliance for Lynchburg



- Multiple Cities Working on Cost Impacts
- Range of Total Capital Cost:  
\$300 million to \$900 million by 2025

***Break Out Session on  
Future Services and Costs***



# Suggested Discussion Questions



1. What is the most appropriate level of service for the City of Lynchburg?
2. How would you prioritize the areas of the City's stormwater management program?

# Tonight's Agenda



- Summary of Last Meeting
- Costs for Alternative Levels of Service & Regulatory Compliance
- **Stormwater Program Funding Options**

# Funding Options Discussion Items



- Funding options in Virginia
- What other Municipalities are doing with stormwater



# Existing Revenues by Fund Type

City of Lynchburg – Adopted 2011 Budget



- **Total City Revenues and Expenditures**  
– \$314,000,000 for FY 2011

## Existing Stormwater Program Funding Sources

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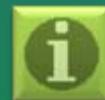
• General property taxes	\$ 1,261,000
• VDOT State Funds	\$ 656,000
• Charges for Services (utility)	<u>\$ 415,000</u>
• Total	\$ 2,332,000

# Potential Program Funding Options w/ Existing Sources of Funding



	Existing	LOS 4	Minimum TMDL
General property taxes	\$ 1,261,000	\$ 2,490,000	\$ TBD
VDOT State Funds	\$ 656,000	\$ 656,000	\$ 0
Charges for Services (utility)	<u>\$ 415,000</u>	<u>\$ 415,000</u>	<u>\$ 0</u>
Total	\$ 2,332,000	\$ 3,561,000	\$ TBD

•Equivalent tax rate	\$0.025 per \$100	\$0.048 per \$100	
•Equivalent tax rate increase over existing rate (\$1.05)	0%	2.2%	TBD%



LOS 3



LOS 5

# Funding Mechanisms



## Primary Funding

1. Fund with General Fund dollars. (Current funding source for most City operations)
2. Make the program user funded.

## Secondary Funding

1. Use Grants and Loans.
2. Issue Bonds.
3. Levy Special Assessments.
4. Assess Development/ Impact Fees.
5. Others.

# Primary Funding Options for Consideration

## – A First Cut



### *Tax-Based Systems*

- #1 – Status Quo – (i.e. reallocation of existing revenue)
- #2 – Increase Tax Rate

### *Dedicated Stormwater User Fee*

- #3 – Equivalent Residential Unit Basis [ERU]
- #4 – Single Family Unit Basis [Tiered Residential - SFU]
- #5 – Equivalent Hydraulic Area Basis [EHA]

### *Combinations*

- #6 – Property Tax + General Budget
- #7 – User Fee + General Budget

# Status Quo (reallocation of existing revenue)



- **Advantages**

- No additional financial impact on citizens

- **Disadvantages**

- Potential loss of other services
- Long-term deterioration of storm sewer system and impaired performance of existing system
- Major capital investment requirements would not be accomplished
- Increased risk of US EPA/VDCR fine City for non-compliance

# Increase Tax Rate



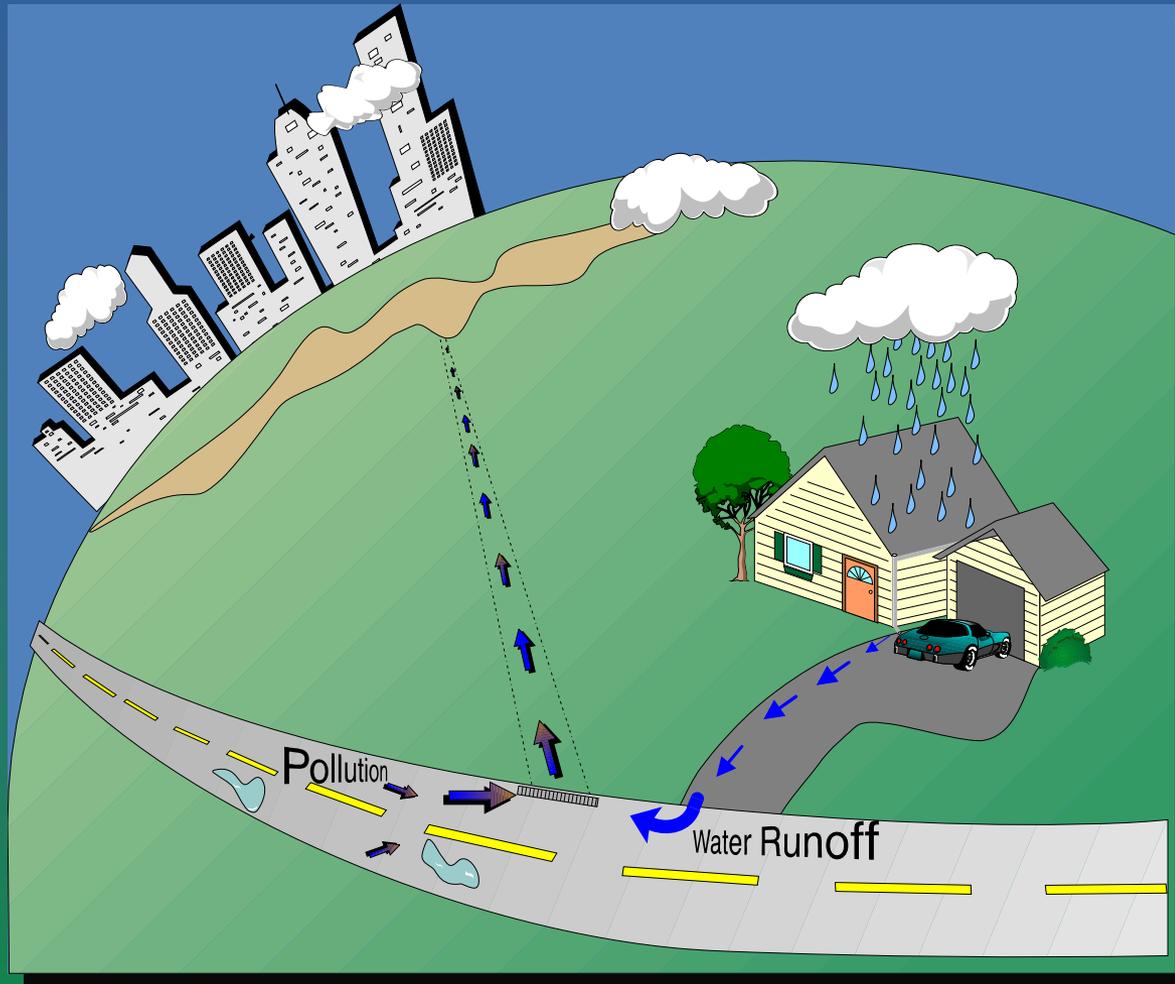
- **Advantages**

- Provides additional revenue for stormwater program
- Stable source of revenue
- Maintain existing billing/collection process

- **Disadvantages**

- Only taxable properties pay
- Not linked to stormwater needs/requirements
- Equity concern between residential and non-residential properties
- Potential financial impact to citizens
- Would represent a significant change in City policy

# Stormwater User Fee Approach



# What is a Stormwater User Fee?



- Enterprise Fund Similar to Water, Wastewater, Electric Utilities
- Dedicated Funding through User Fee
- Fee Related to Needs or Services Provided

# Stormwater User Fee Basis



$$\text{Charge} = \frac{\text{\$Expense}}{\text{Units}} = \text{\$/Month/Unit}$$

$$\text{Units (ERU)} = \text{Dwelling Units} + \frac{\text{Non Residential Impervious Area}}{\text{Sq. Ft./ ERU}}$$

ERU = Equivalent Residential Unit

# Dedicated Stormwater User Fee



- **Advantages**

- Equitable – charge to payer is in proportion to the contribution to stormwater runoff burden
- Stable source of revenue
- Linked to stormwater needs/requirements

- **Disadvantages**

- New source of funding
- Potential financial impact to citizens including traditionally tax-exempt properties

# Service Need = Charge



- **Management of Runoff Serves Owners and Tenants**
- **Service Related to Property's Contribution to the Problem (Runoff Burden)**
- **Fee Relates to Runoff**
- **Common Proxy for Runoff is Impervious Area**

**Customer receives services from the utility  
in direct measure to the runoff burden**

# Impervious Area As A Proxy



Service Need = Fair Share = Runoff

Runoff = Function of

**Impervious**/Pervious Areas

Soils

Vegetative Cover

Antecedent Moisture

Connectivity

Topography

Rainfall

# How is the Fee Calculated?

Residential Customers



Single Family Units

Multi-Family Units

Condominiums

Mobile Homes



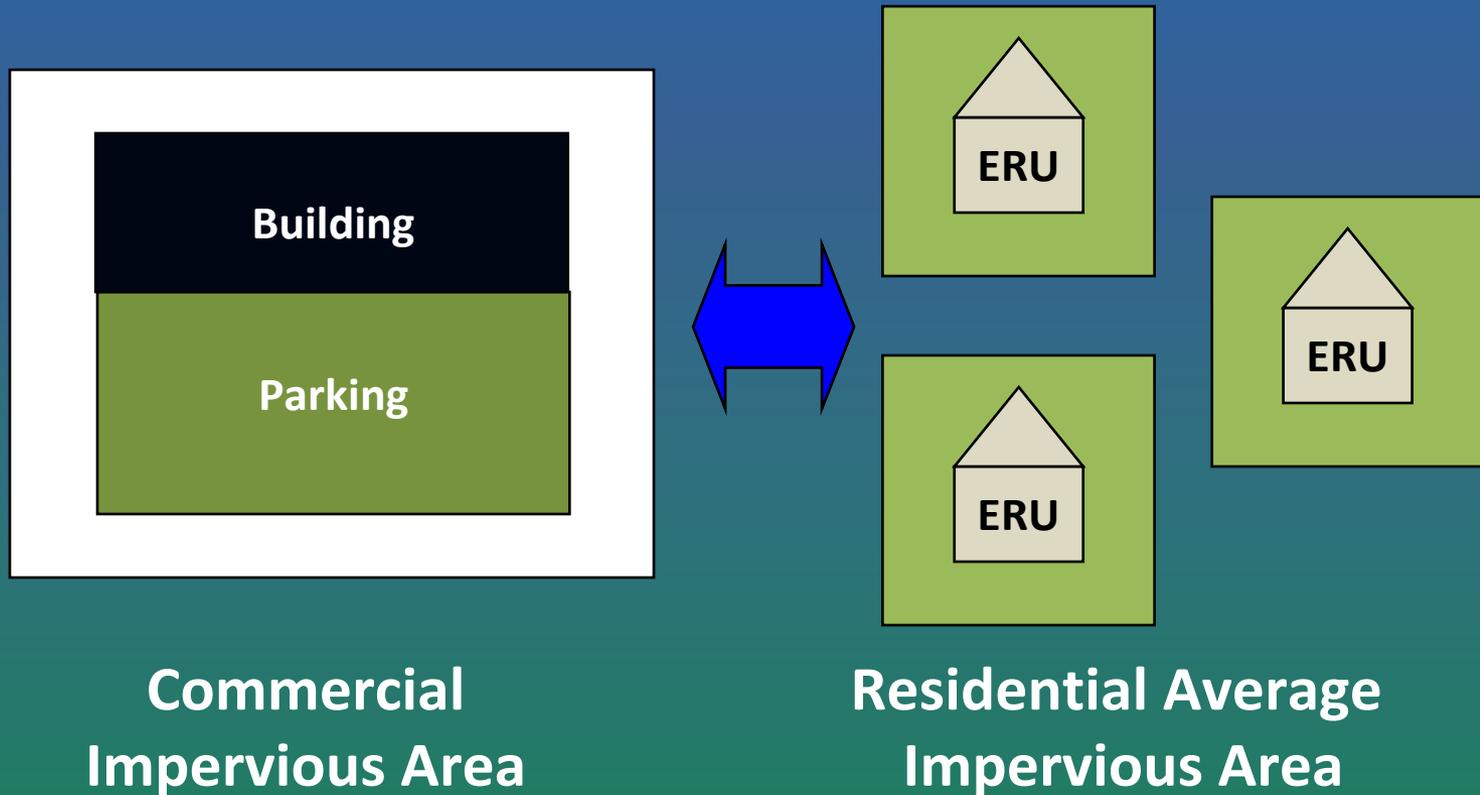
Each is assigned 1 or less ERU depending on type and number of dwelling units.

**Fee = ERU x Rate (\$ per ERU per month)**

*ERU = Equivalent Residential Unit (Billing Unit)*

# How is the Fee Calculated?

Commercial Customers



In this example, the commercial customer pays three times the amount as the residential customer.

# Sample Impervious Surface Measurements



- **Single Family Dwelling**

- Imp. Area = 2,176 sq. ft.
- ERUs = 1

- **Non-Residential**

- Imp. Area = 681,000 sq. ft.
- ERUs = 313





# SECONDARY FUNDING SOURCES

# Other Available Funding Options Typically Only Support a Portion of the Program



- **Grants**
  - Used principally for specific, eligible capital projects (ex. 319(h) Non Point Source)
- **State Revolving Loan**
  - Restricted to planning, mapping, construction or equipment.
- **Municipal Bonds**
  - Generally used to fund capital measures that far exceed existing revenues



# Secondary Funding Options (continued)



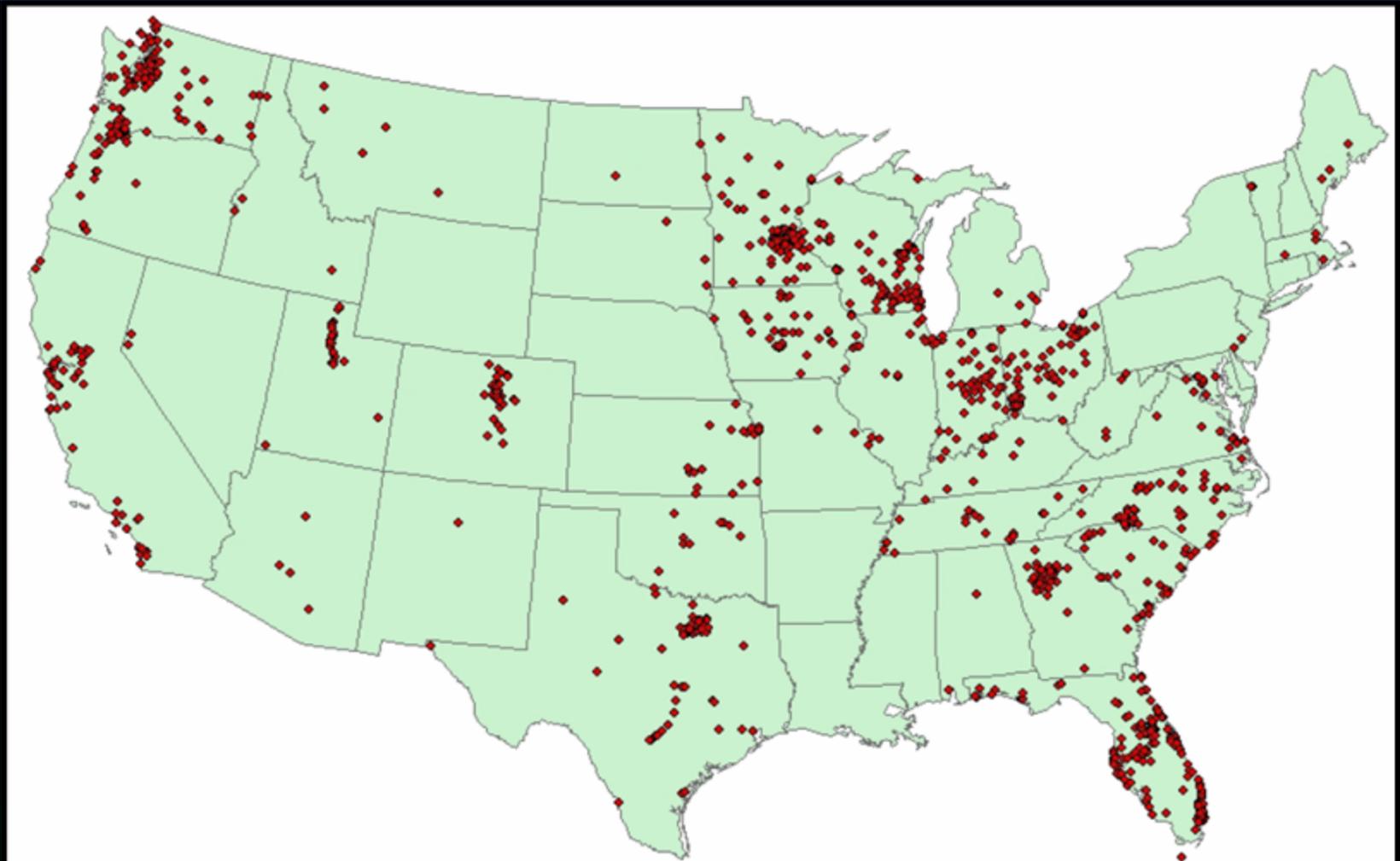
- **Special Assessments**
  - Used for capital improvements and operations expenses and only for those directly impacted
- **Development/Impact Fees**
  - May be used for capital improvements or operational cost recovery.





# **HOW OTHER MUNICIPALITIES ARE FUNDING STORMWATER**

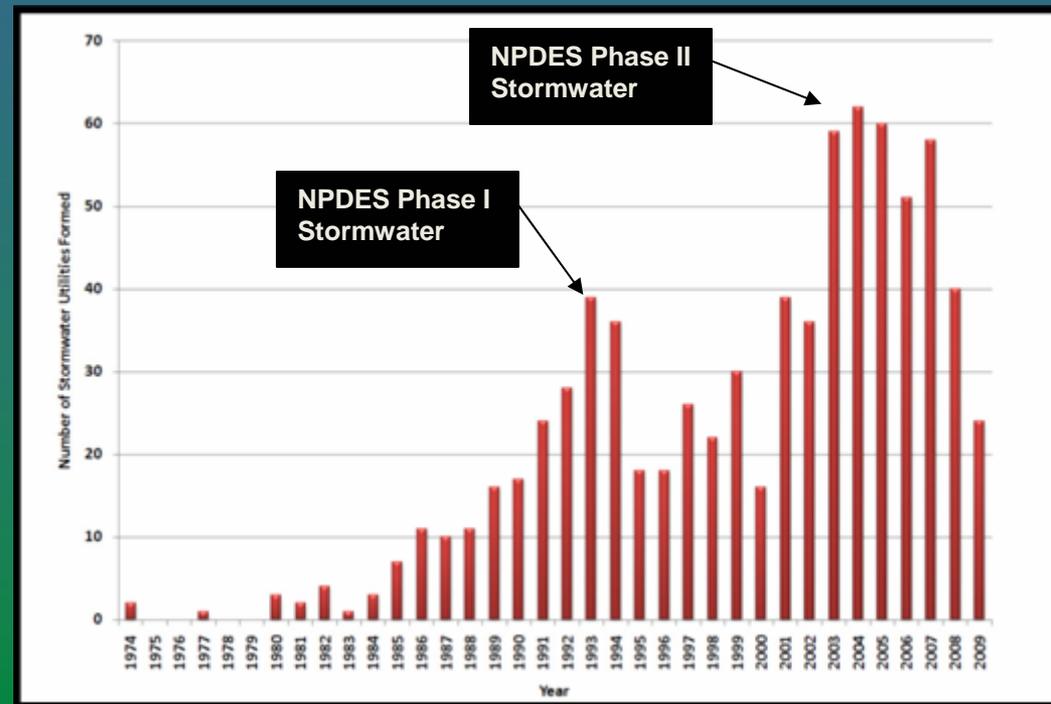
# Over 1,000 Communities Have Implemented a Stormwater User Fee



Source: Western Kentucky University – 2010 Stormwater Utility Survey

# More Stringent Stormwater Regulations have Caused an Upward Trend in Utility Development

- Introduction of the NPDES Program triggered previous implementation of user fee programs (13 formed in Virginia)
- Virginia WIP recommends implementation of a user fee to fund pending regulatory requirements



# Dedicated Stormwater Funding Programs in Virginia



- 15 programs in the State have dedicated funding (tax or fee)
- 3 programs have pending user fee programs
- 2 programs are currently evaluating funding options

City/County	Population	Funding
Fairfax County	1,015,302	Implemented
Virginia Beach	435,619	Implemented
Prince William County	379,166	Implemented
Loudoun County	301,171	Implemented
Henrico County	296,415	Feasibility
Norfolk	229,112	Implemented
Chesapeake	220,560	Implemented
Arlington County	217,483	Implemented
Richmond	192,913	Implemented
Newport News	178,281	Implemented
Hampton	145,017	Implemented
Alexandria	143,885	Implemented
Portsmouth	101,377	Implemented
Roanoke	91,552	Pending
Suffolk	81,071	Implemented
Lynchburg	72,000	Feasibility
James City County	63,735	Implemented
Charlottesville	41,487	Pending
Staunton	23,853	Implemented
Colonial Heights	17,768	Pending

# Summary of Primary Funding Sources



- **General Fund:**
  - Already in place.
  - Funding levels less predictable.
  - Negligible overhead involved in taxing and collection.
- **Stormwater User Fee:**
  - Dedicated revenue stream (i.e., no competition for general fund).
  - Equitable (i.e., Fee Related to Service Provided).
  - New overhead associated with implementing and administering new funding program.



# Summary of Secondary Funding Sources



- **Grants & Loans:**
  - Grants unpredictable.
  - Loans (including bonds) must be repaid.
  - Neither good for O&M costs.
- **Special Assessments**
  - Used for CIP and O&M cost and only for those directly impacted
- **Development/impact fees:**
  - Not a reliable long-term solution
  - Good secondary source of funding.



***Break Out Session on  
Program Funding & Alternatives***



# Discussion Question



- **What are your thoughts on the available funding options to support existing and future stormwater needs?**

## **Primary Options:**

- Status Quo (reallocation)
- Increase Property Tax
- Stormwater User Fee
- Others

# Next Meeting



- **Topics**
  - Typical Rate Structures and Concepts
  - Revenue Scenarios
- **Time and Location**
  - Thursday, October 21, 2010 (6pm to 8pm)
  - Location: James River Conference Center



*City of Lynchburg*

# Stormwater Management

**Stormwater Advisory Committee**

***QUESTIONS?***



**CDM**