Lynchburg's Stormwater Utility

Governor's Infrastructure Financing Conference

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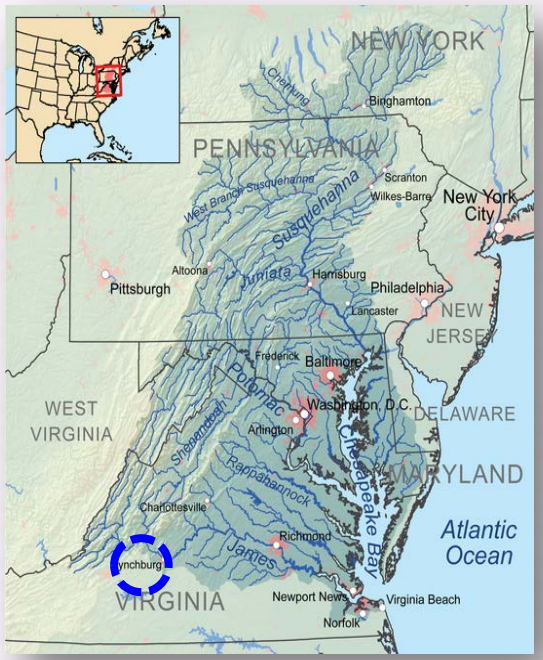
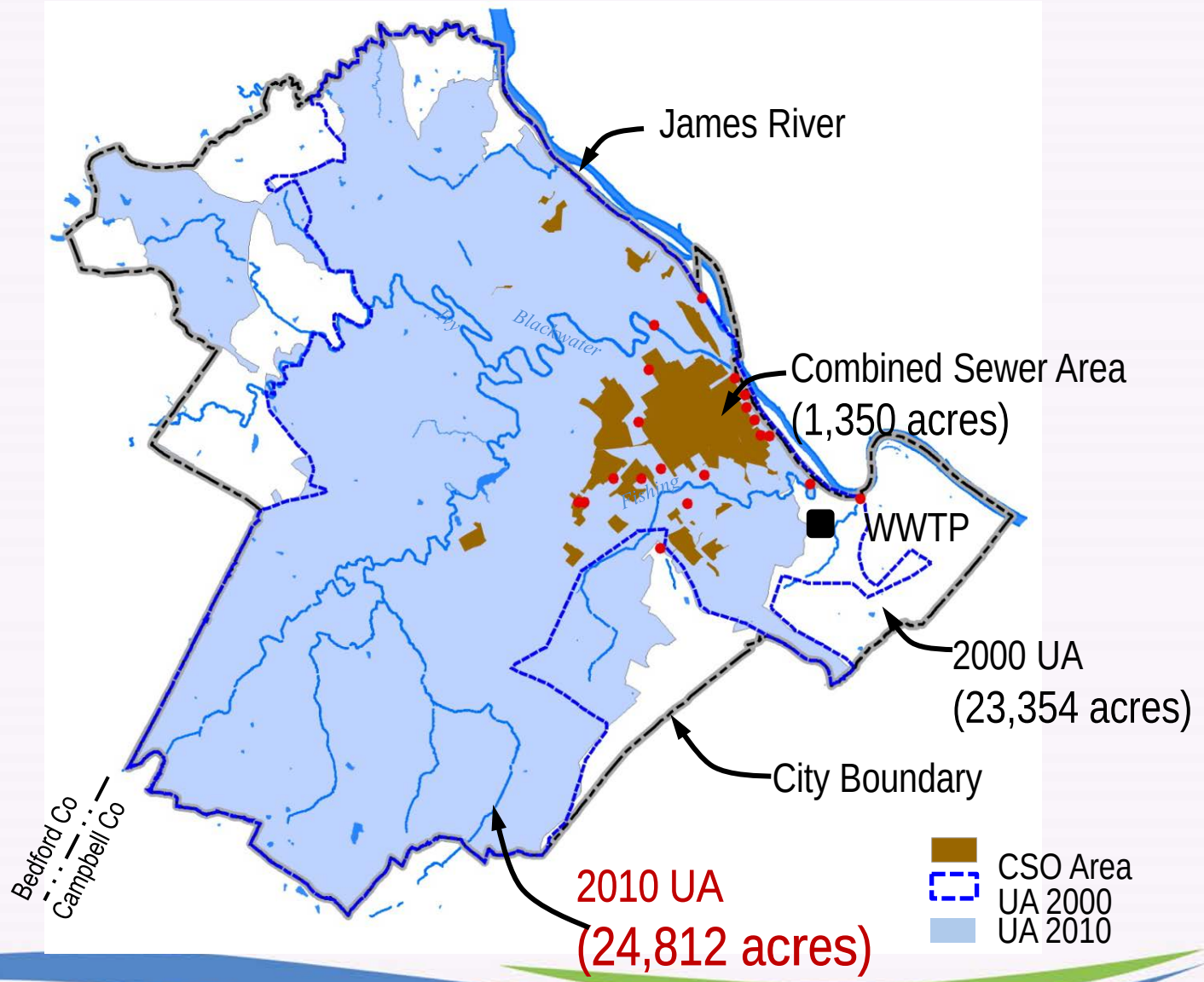
City of Lynchburg, VA



- Stormwater Utility (2012)
- 50 Square Miles
- Population ~80,000
- Phase II MS4
- CSO Area ~1,350 Acres



Stormwater Utility

- Implemented in FY 2013 (July 1, 2012)
- Prior funding through general fund but no dedicated funding
- Multiple drivers
  - MS4 Permit
  - Chesapeake Bay TMDL
  - Infrastructure needs
- Being proactive saves money
- Knew we would have to develop dedicated funding strategies to meet regulatory and infrastructure needs

Created a Stormwater Advisory Committee

- To represent a wide cross-section of interest groups.
- To engage public participation.
- To make recommendations on the following:
  - **Stormwater management priorities;**
  - **Appropriate and affordable level of service;**
  - **Level of interest in public participation in stormwater management program activities;**
  - **Recommendations of various stormwater management needs assessments, regulations and policies, financial requirements, and funding mechanisms.**

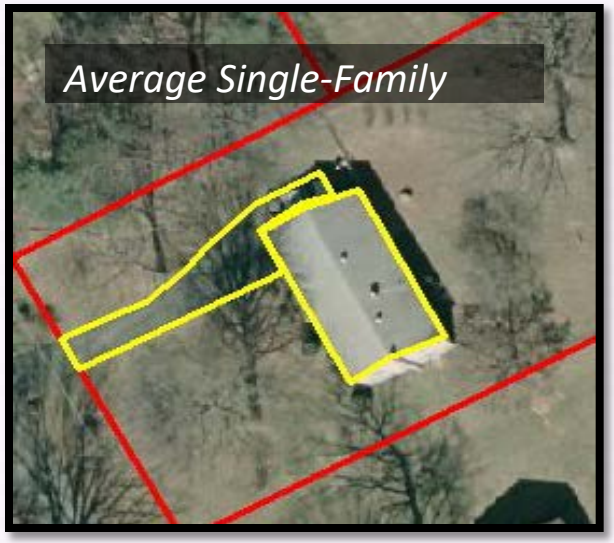
- Large Industry
- Large Business
- Small Business
- Realtors
- Developers
- Residents
- Institutional
- Non-Profits
- Churches
- Hospitals

Timeline to Utility Adoption

- **December 2011**
  - User fee would apply to ALL properties within the City based on the amount of impervious area on the property and would appear on customer's utility bill
  - Initially set the stormwater rate at $0
  - Provide staff time to develop billing information in anticipation of Council decision
  - Provide additional time during FY13 budget hearings to discuss rate
- **April 2012**
  - Council set a $4/SFU stormwater rate
- **July 2012**
  - Utility was implemented

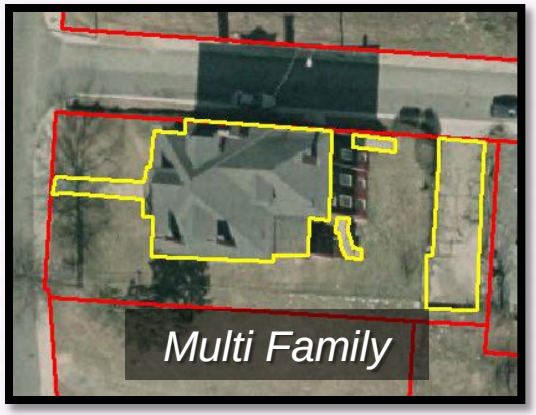
Fees Must Be Equitable

< 1,300 Sq. Ft. = 0.5 SFU



1,301 to 4,300 Sq. Ft. = 1.0 SFU

> 4,301 Sq. Ft. = 1.6 SFU



1 Dwelling Unit = 0.33- 0.7 SFU depending on type

SFU = Non-Residential Impervious Area / SFU (2,672 sq. ft.)

Considerations for Billing

- How to bill?
- Collection enforcement?
- Data management? Updates to billing?

- Options include:
  - Add to tax bill
  - Separate Stormwater bill
  - Add to water and sewer bill

Billing on Tax Bill

- Advantages:
  - Bills property owner
  - Implementation less complex and easier to implement
  - Possibly paid through escrow

- Disadvantages:
  - More likely perceived as a tax
  - Separate bill needed for tax exempts
  - Collection challenges
  - Larger bill – due to less frequent billing

Billing – Separate Stormwater Bill

- Advantages:
  - Bills property owner
  - Easy to implement
- Disadvantages:
  - Collection challenges
  - Costs associated with generating and mailing a separate bill

Billing – Add to Utility Bill

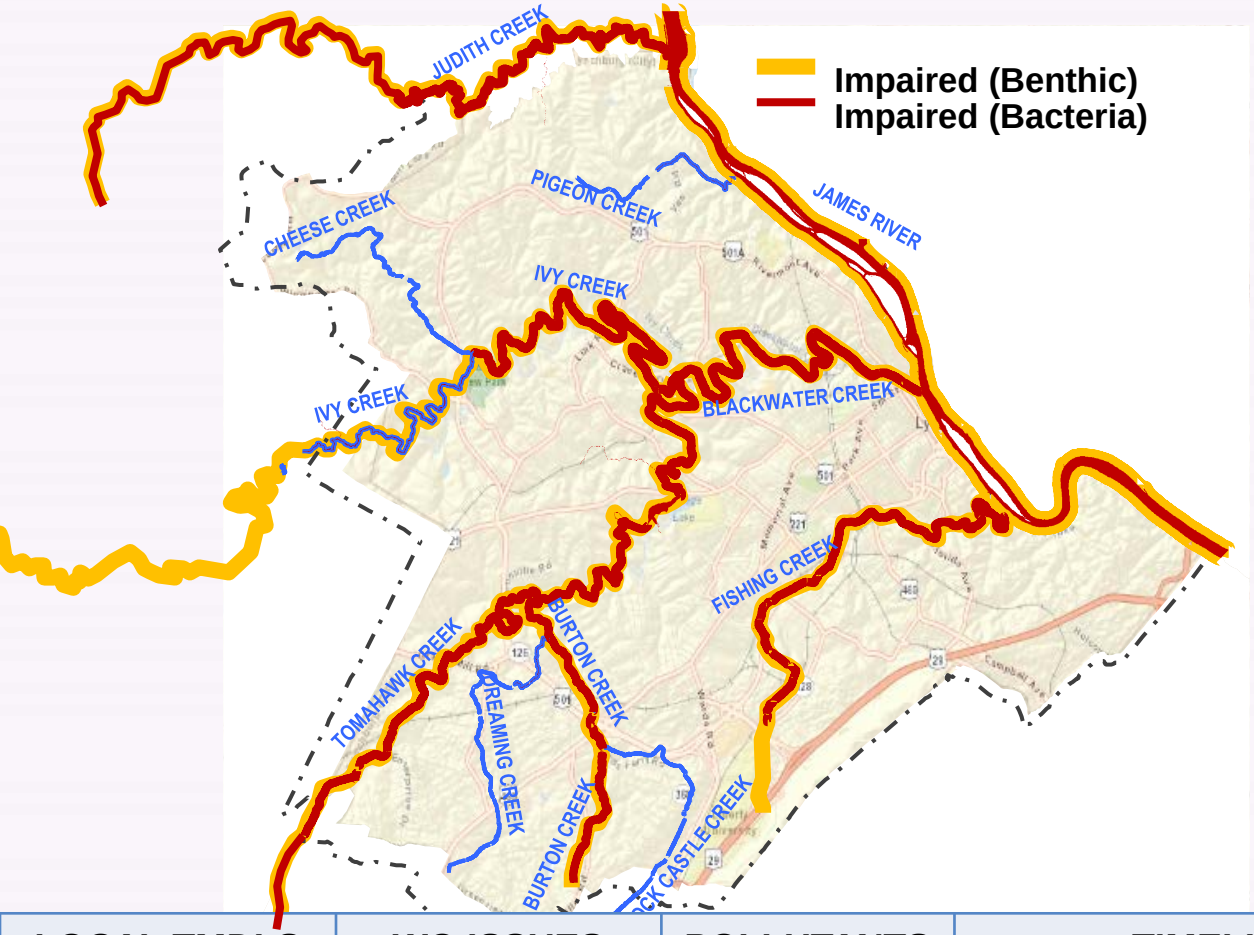
- Advantages:
  - More likely to be recognized as a fee not a tax
  - Associated with the Department that provides the service
  - More efficient to collect – set payment to pay water bill last
  - Spreads out payment over 12 months

- Disadvantages:
  - More complex billing system
  - Owner / tenant billing issues
  - Properties with multiple meters
  - Owners with multiple properties
  - No utility service on some properties resulting in some individual stormwater bills.

Chesapeake Bay TMDL

- Evaluate existing BMPs, streams
- Develop TN, TP, TSS reduction strategies
- Consider CSO Program
- Look at septic systems

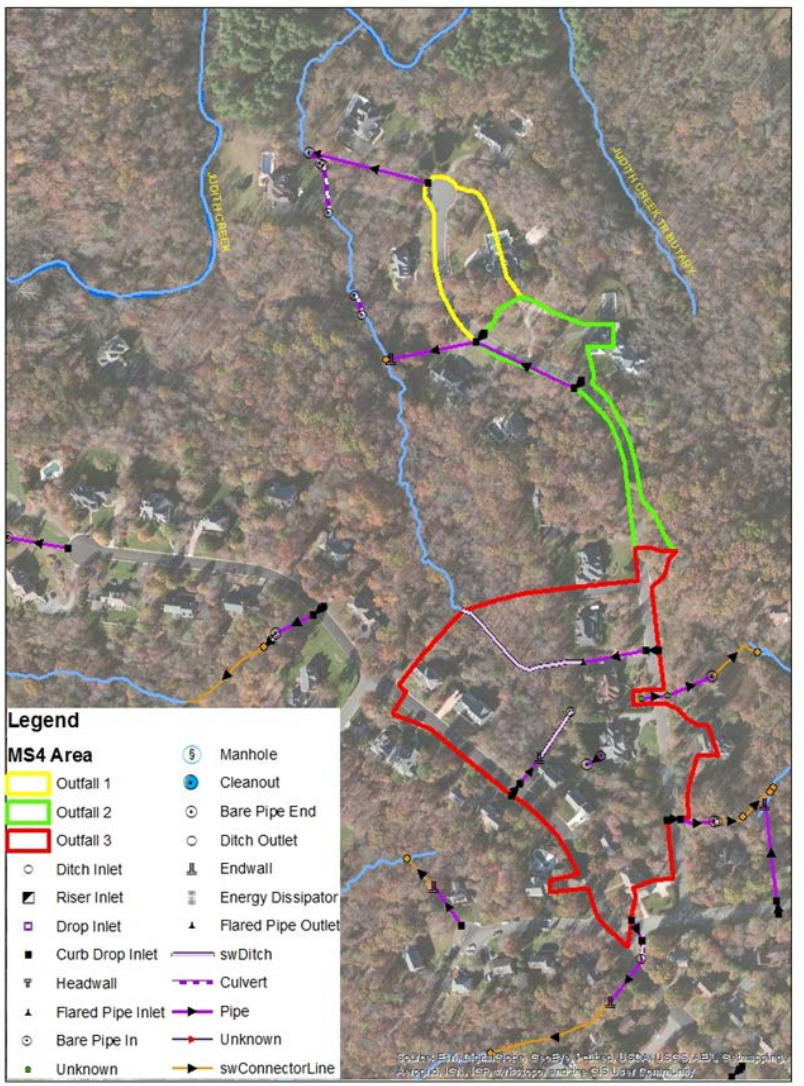
Local TMDLs



WATERBODY	IMPAIRMENT
James River	Bacteria, PCB
Blackwater Creek	Bacteria, Benthic
Fishing Creek	Bacteria, Benthic
Ivy Creek	Bacteria, Benthic
Burton Creek	Bacteria, Benthic
Judith Creek	Bacteria, Benthic
Tomahawk Creek	Bacteria, Benthic

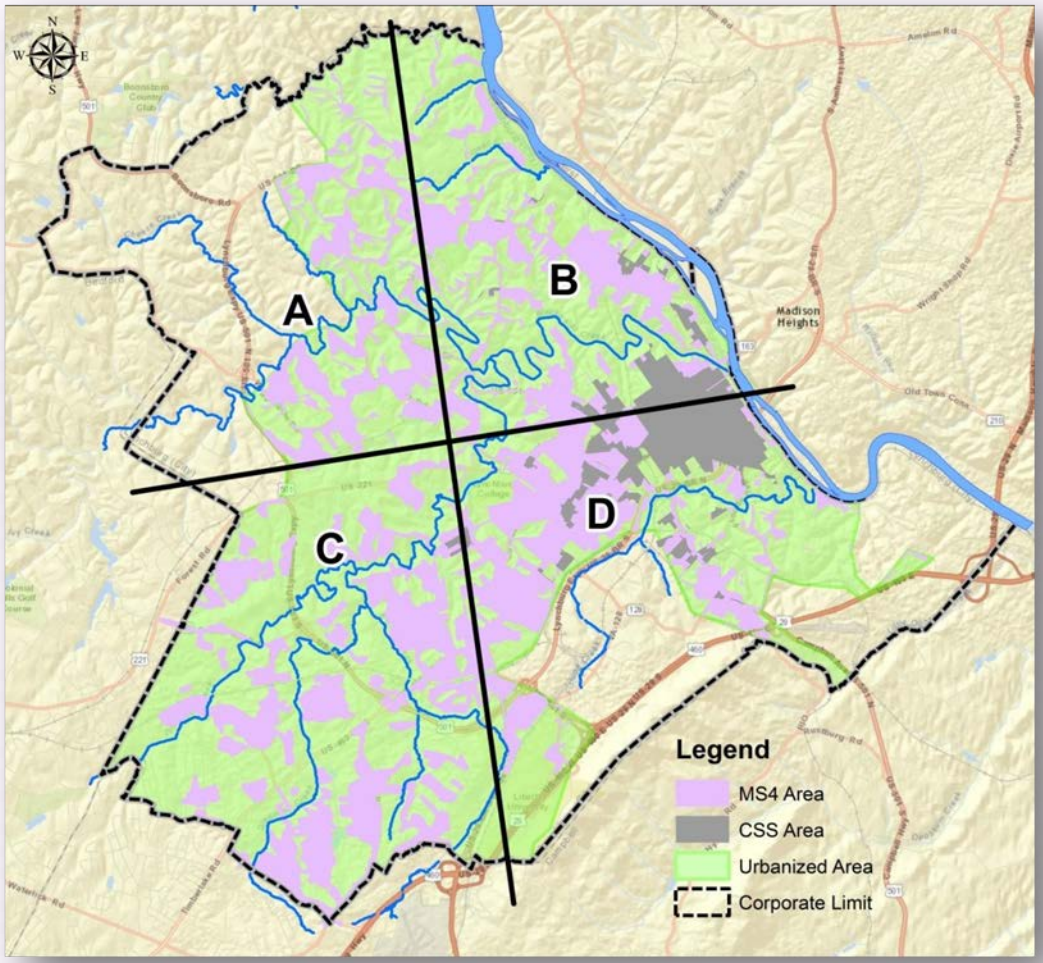
LOCAL TMDLS	WQ ISSUES	POLLUTANTS	TIMELINE	BENEFICIARY
Bacteria TMDL	Recreational use	E. coli	TMDL redevelopment complete, pending public comment period; IP TBD	Lynchburg Local Streams and Community
Benthic TMDL (Future)	Aquatic life	Stressor	2022	Lynchburg Local Streams
PCB (Future)	Human Life	PCB	TBD	Lynchburg Local Community

Inventory and Mapping



- Inventory of Assets
- MS4 Outfalls and delineation
- Condition Assessment
- Capital Improvement Needs

Delineation of the MS4 Area

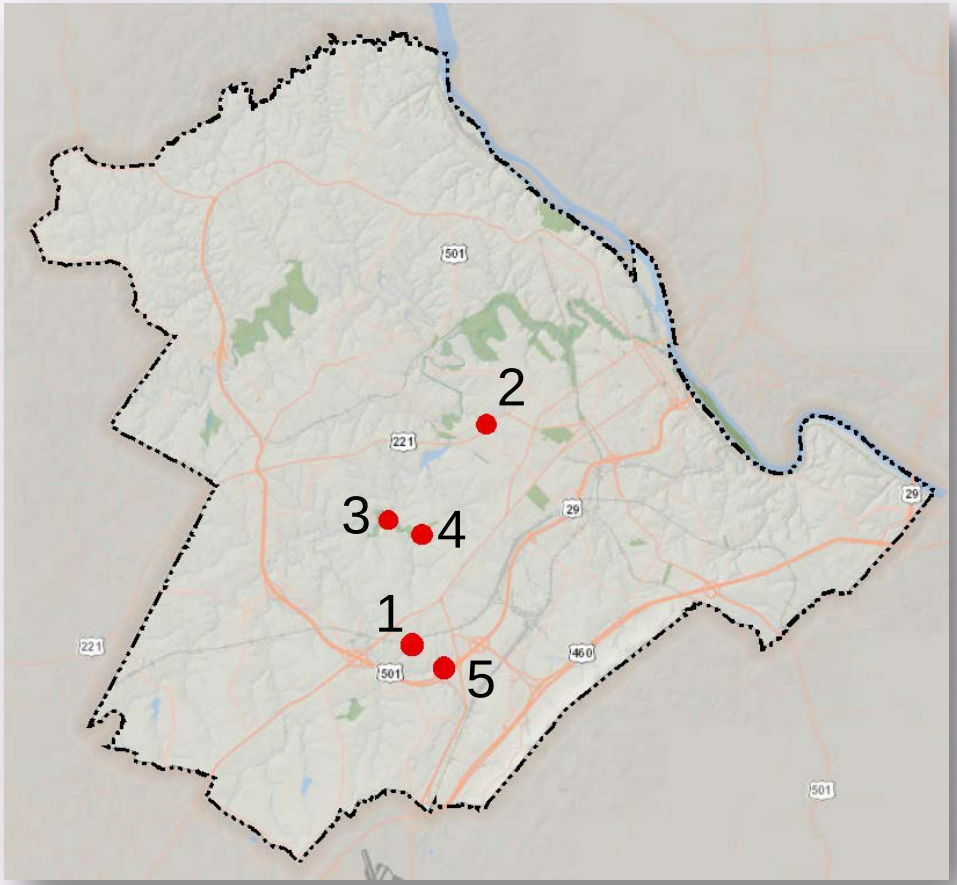


Parameter		Bay Model 5.3.2	Based on MS4 Mapping	Reduction of Obligation	
Regulated Area (acres)		12,444	9,000	-3,444	-28%
Required Reduction	*TN (lbs)	10,556	5,200	-5,356	-51%
	*TP (lbs)	2,904	1,000	-1,904	-66%
	*TSS (lbs)	1,348,894	578,000	-770,894	-57%

Stormwater Local Assistance Fund (SLAF) Projects

- Water Quality Projects
  1. Sheffield Elementary Dry Swale
  2. LAUREL School Bioretention
  3. Greenwood Constructed Wetlands
  4. Blackwater Creek Stream Restoration
  5. Rock Castle Creek Stream Restoration
- Funding
  - SLAF Funded (50%)
  - VCWRLF (50%)

Project Locations



Impacts of SLAF Funding

With SLAF Grant								
	Stormwater Fees:	Actual	Actual	Actual	Actual	Estimated	Estimated	Estimated
		FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
	SFU's Billed	69,584	65,095	65,300	65,565	65,300	65,300	65,300
	Annual SFR Rate	$ 48.00	$ 48.00	$ 48.00	$ 48.00	$ 48.00	$ 52.00	$ 52.00
	Annual Billed	$ 3,340,032.00	$ 3,124,560.00	$ 3,134,400.00	$ 3,147,120.00	$ 3,134,400.00	$ 3,395,600.00	$ 3,395,600.00
No SLAF Grant								
	SFU's Billed	69,584	65,095	65,300	65,565	65,300	65,300	65,300
	Annual SFR Rate	$ 48.00	$ 49.00	$ 50.00	$ 52.00	$ 54.00	$ 56.00	$ 62.00
	Annual Billed	$ 3,340,032.00	$ 3,189,655.00	$ 3,265,000.00	$ 3,409,380.00	$ 3,526,200.00	$ 3,656,800.00	$ 4,048,600.00
Annual Billed Rate Difference in Dollars		$ -	$ 1.00	$ 2.00	$ 4.00	$ 6.00	$ 4.00	$ 10.00
Accumulated Average Household Saved		$ -	$ 1.00	$ 3.00	$ 7.00	$ 13.00	$ 17.00	$ 27.00

- With SLAF funding, we have been able to maintain funding levels at same rate since utility started.

- Without SLAF funding, a 30% rate increase over 5 years would have been needed to cover cost.

Sheffield Elementary School

- Conversion from a Detention pond to Dry Swale with forebay.

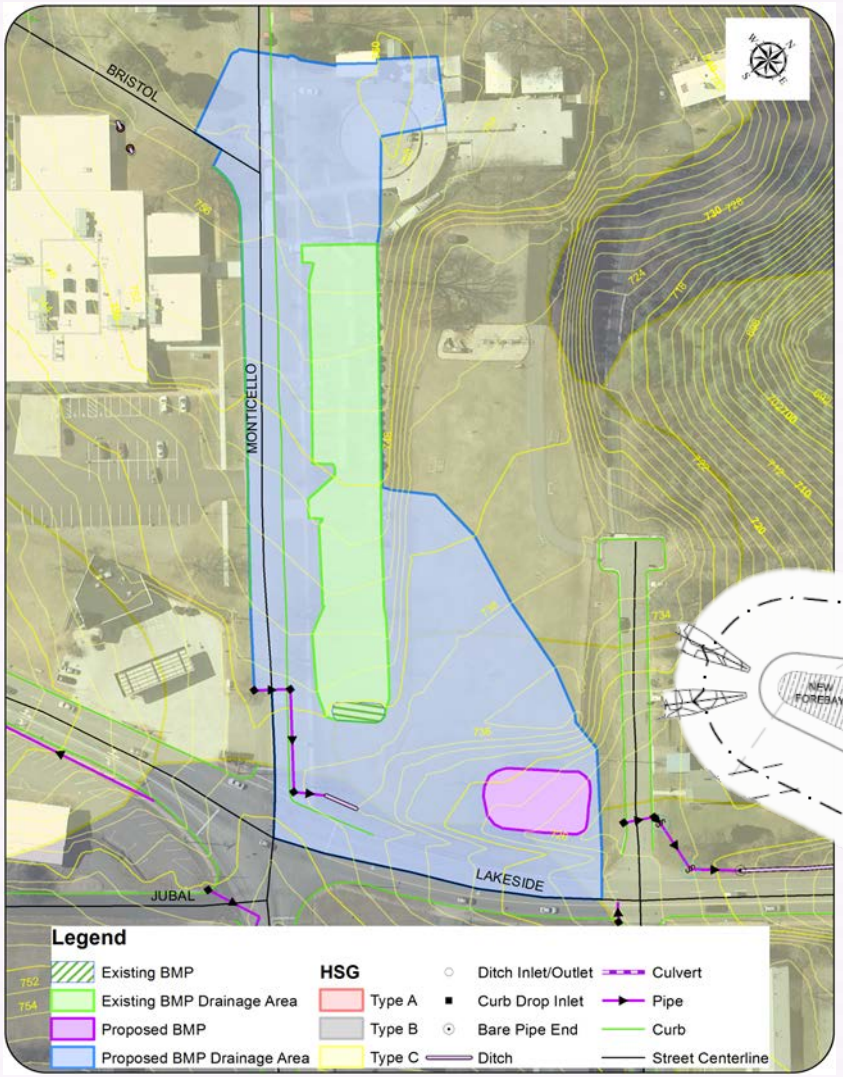
Pollutant	Reduction Estimate
TP	2.86 lbs/yr
TN	21.17 lbs/yr
TSS	1,073 lbs/yr
Budget	$97,605

Sheffield Elementary School

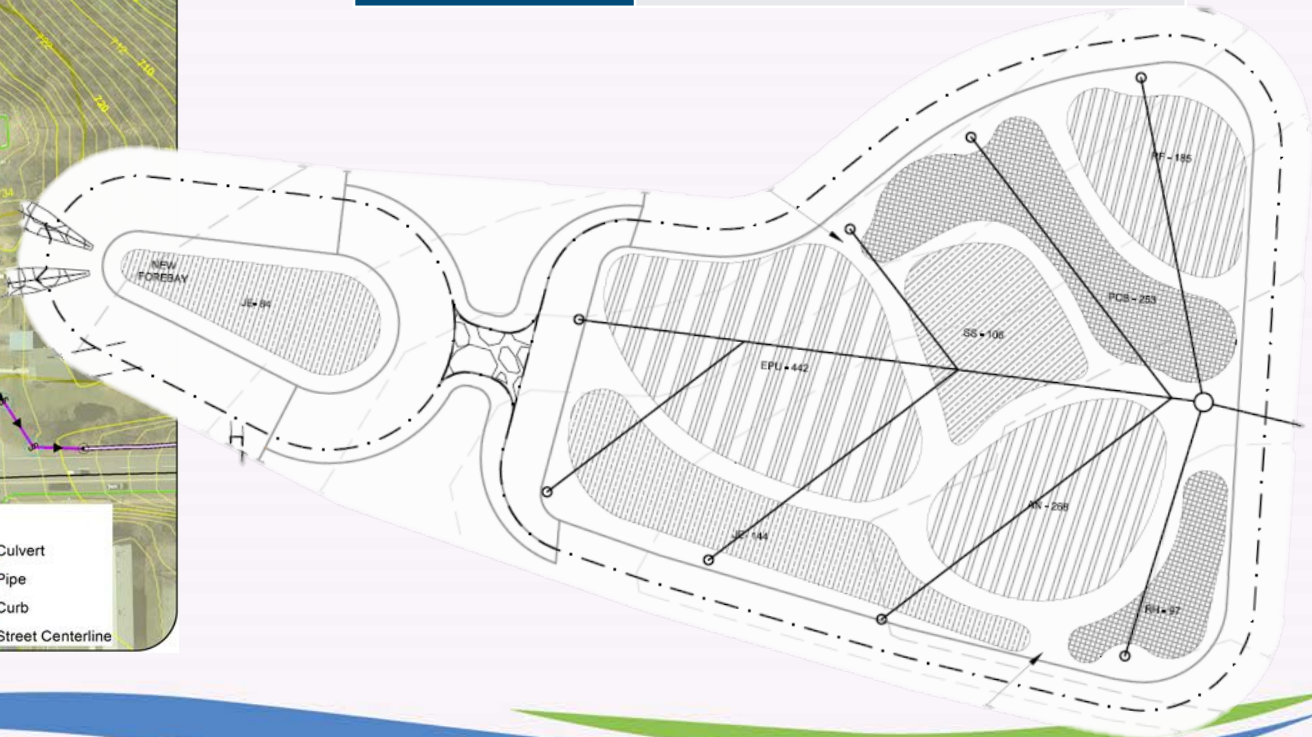
Additional Benefits:

- Reuse of site materials
- Outdoor Classroom for teachers/students

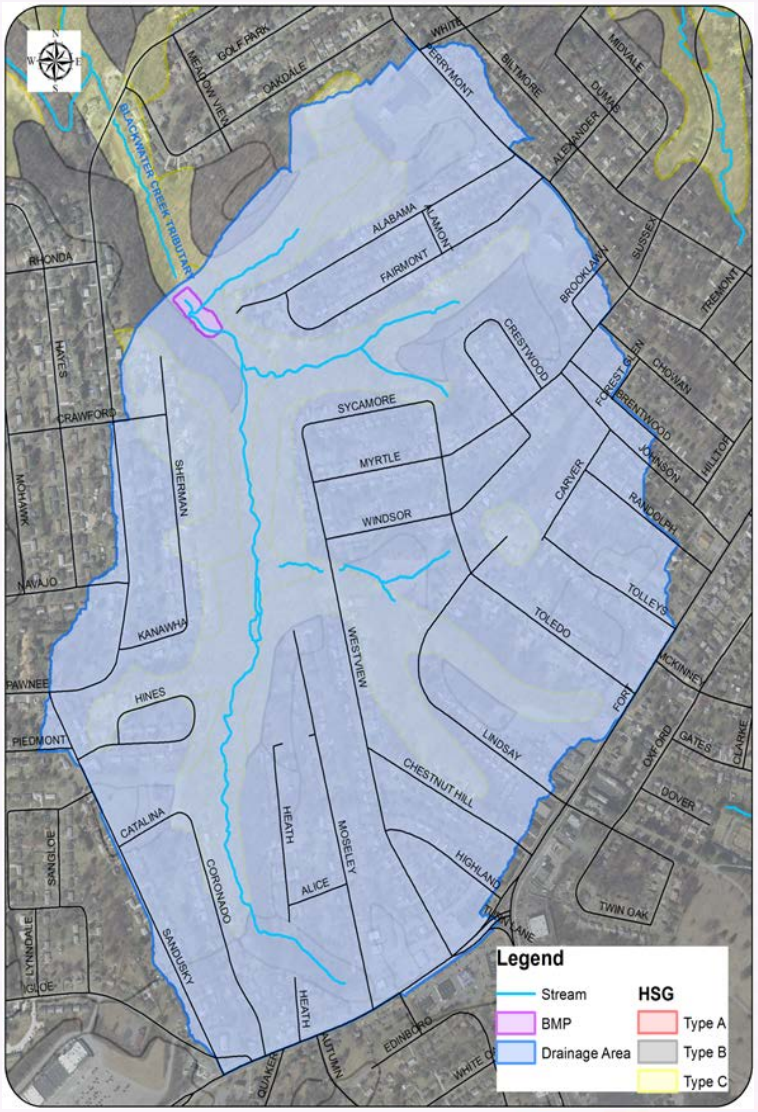
LAUREL School Bioretention

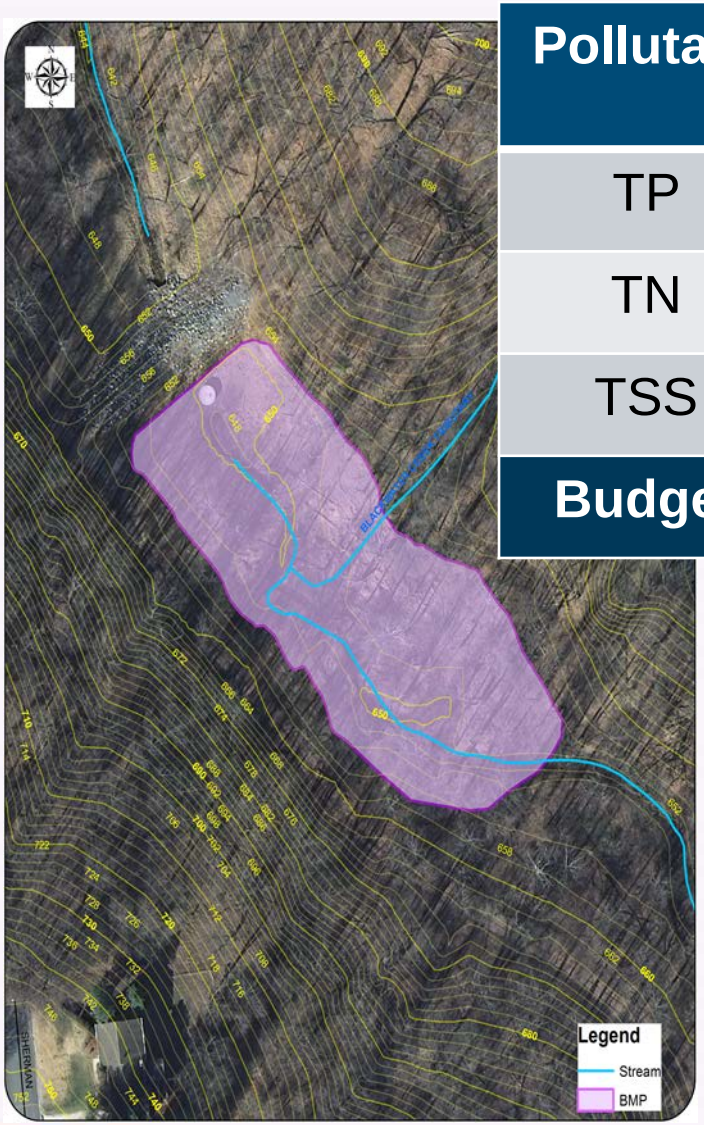


Pollutant	Reduction Estimate
TP	3.24lbs/yr
TN	23.76 lbs/yr
TSS	1,186 lbs/yr
Budget	$141,885



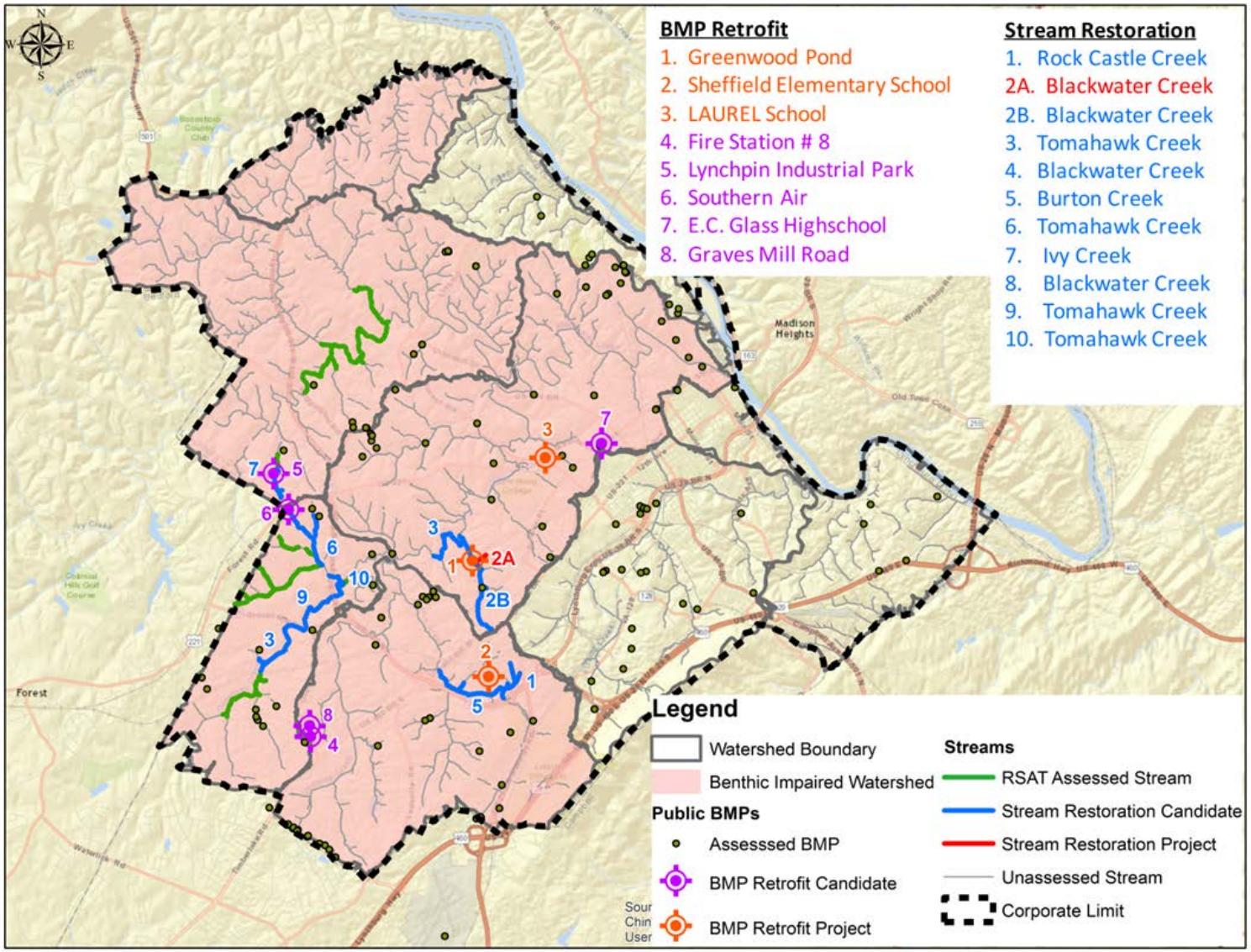
Greenwood Constructed Wetland





Pollutant	Reduction Estimate
TP	72.79 lbs/yr
TN	226.99 lbs/yr
TSS	42,422 lbs/yr
Budget	$330,797

Stream Restoration



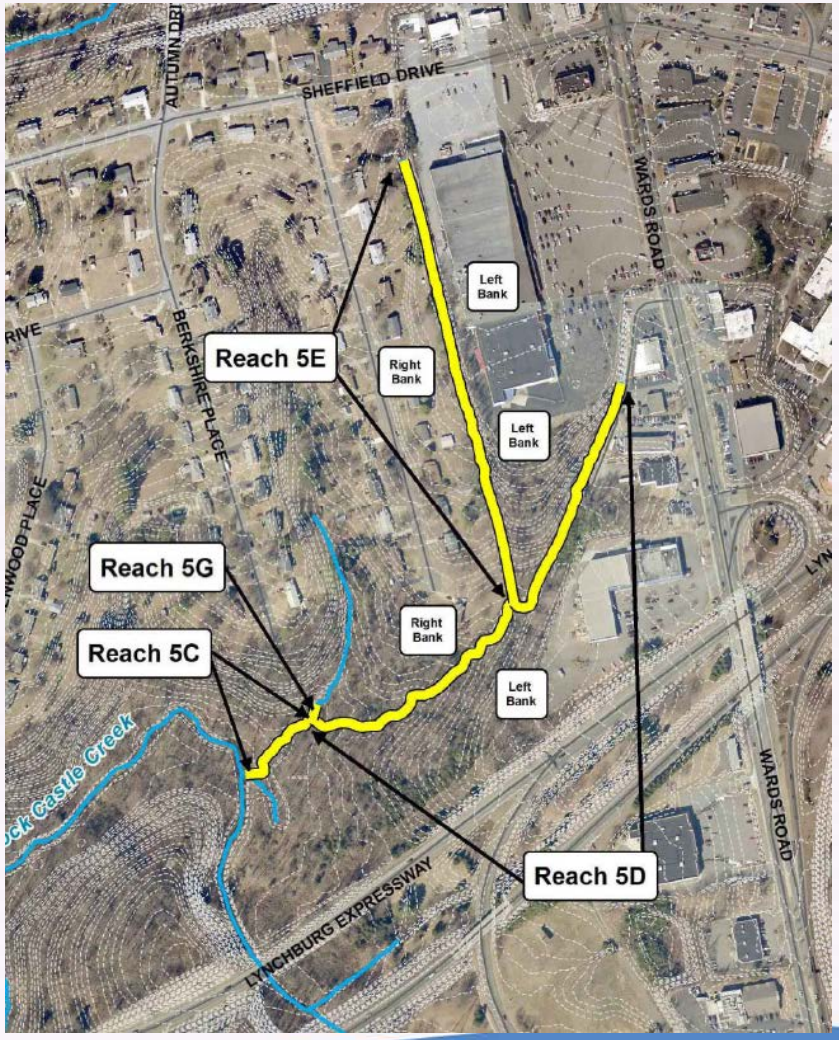
Stream Restoration

Blackwater Creek Trib

Pollutant	Reduction Estimate
TP	59.33 lbs/yr
TN	52.77 lbs/yr
TSS	39,743 lbs/yr
Budget	$834,590

Stream Restoration

Rock Castle Creek Trib

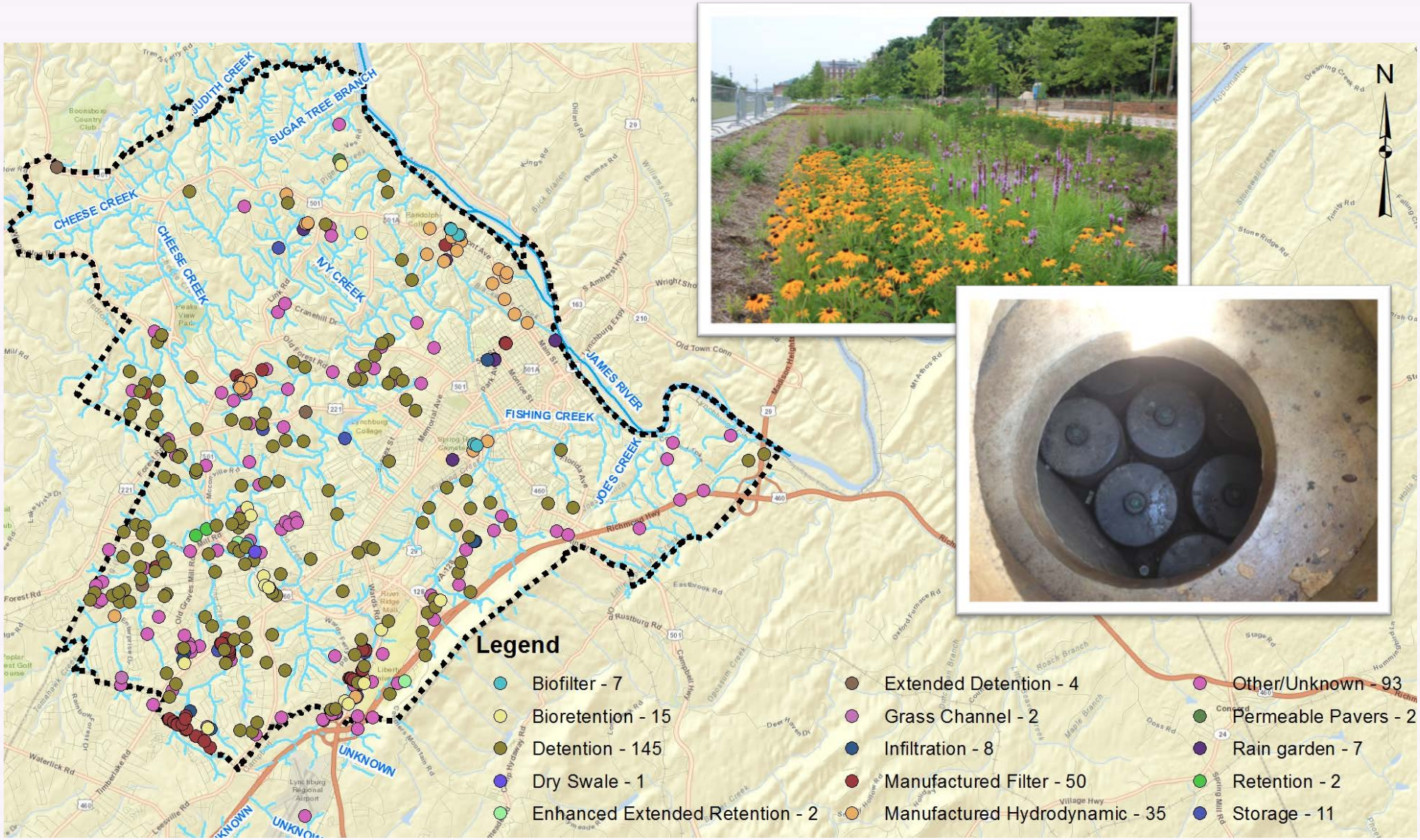


Pollutant	Reduction Estimate
TP	172.09 lbs/yr
TN	180.13 lbs/yr
TSS	114,184 lbs/yr
Budget	$2,037,050

BMP Assessment

- Is it there?
- Condition, Access?
- Opportunity to improve water quality treatment
- Public: Current practice, opportunity for efficiency, level of service decisions
- Private: Strategy for long-term maintenance

City Owned BMPs



Existing BMP Credit

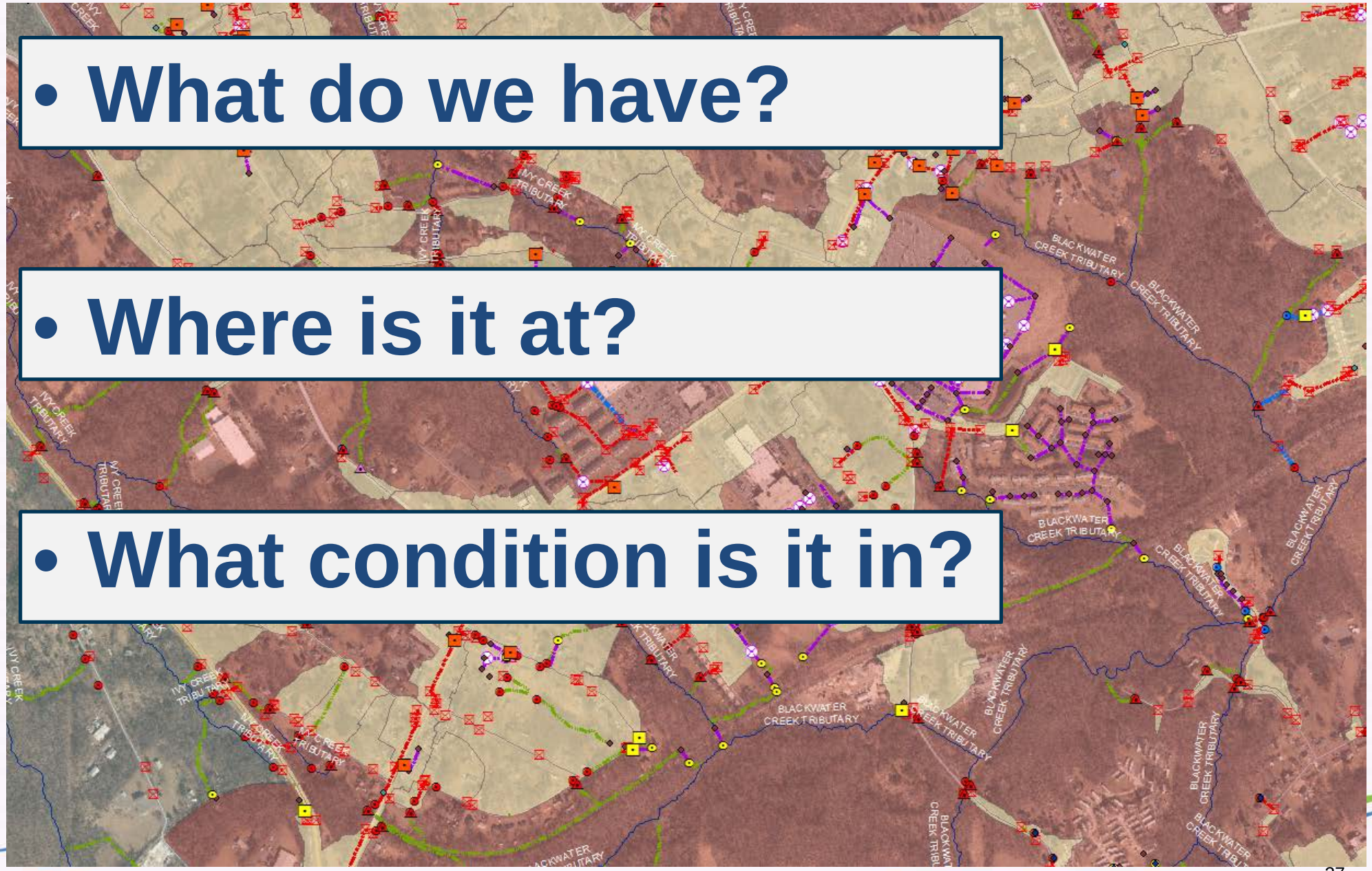
Table 4-1
TMDL Credit for Newly Installed BMPs

Location	BMP Type	BMP Classification (1)	Drainage Area			Pollutant Load (lb/yr)			WQ Depth	BMP Efficiency (%)			Poll		
			Total	Impervious	Pervious	TN	TP	TSS		TN	TP	TSS	TN		
City Stadium	Bio-filter	RR	1.6	0.71	0.89	12.89	1.69	571	1"	60%	70%	75%	7.70		
2103 Columbia Ave	Bio-filter	RR	1.08	0.21	0.87	8.05	0.80	230	1"	60%	70%	75%	4.81		
Parkland Ave. / Quarry Rd Intx.	Rain Garden	RR	1.15	0.3	0.85	8.76	0.95	289	1"	60%	70%	75%	5.23		
400 Block Elmwood Ave	Rain Garden	RR	1.45	0.55	0.9	11.46	1.42	463	1"	60%	70%	75%	6.84		
1147 Ardmore Drive	Bioretention	RR	0.77	0.77	0	7.23	1.36	521	1"	60%	70%	75%	4.32		
1 Ivy Crescent	Extended Detention	-	1.19	0.77	0.42	10.17	1.57	564	-	20%	20%	60%	2.03		
1667 Shaffer Street	Filterra (MTD)	ST	0.09	0.09	0	0.85	0.16	61	1"	35%	55%	70%	0.30		
1741 Shaffer Street	Filterra (MTD)	ST	0.07	0.07	0	0.66	0.12	47	1"	35%	55%	70%	0.23		
1808 Shaffer Street	Filterra (MTD)	ST	0.13	0.11	0.02	1.17	0.20	76	1"	35%	55%	70%	0.41		
2132 Rivermont Ave	Filterra (MTD)	ST	1.1	0.34	0.76	8.51	0.98	307	1"	35%	55%	70%	2.97	0.54	215
2131 Rivermont Ave	Filterra (MTD)	ST	0.56	0.26	0.3	4.54	0.61	206	1"	35%	55%	70%	1.59		
2214 Rivermont Avenue	Filterra (MTD)	ST	0.64	0.25	0.39	5.07	0.64	209	1"	35%	55%	70%	1.77		
2212 Rivermont Ave	Filterra (MTD)	ST	0.52	0.2	0.32	4.11	0.51	168	1"	35%	55%	70%	1.44		
Wythe Road (Banker Steel)	CDS (MTD)	ST	4.35	2.44	1.91	36.26	5.25	1,845	½"	26%	41%	52%	9.48		
James Street @ Expressway Ramp	CDS (MTD)	ST	11.64	3.00	8.64	88.56	9.60	2,904	½"	26%	41%	52%	23.14		
Gordon Street & Aragon Street Intx.	CDS (MTD)	ST	13.77	3.05	10.72	103.57	10.73	3,148	½"	26%	41%	52%	27.06		
2255 Carroll Ave	CDS (MTD)	ST	3.83	1.28	2.55	29.84	3.53	1,124	½"	26%	41%	52%	7.80		
Loudon St & Columbia Avenue Intx.	CDS (MTD)	ST	4.68	1.1	3.58	35.35	3.73	1,107	½"	26%	41%	52%	9.24		
2301 Columbia Avenue	CDS (MTD)	ST	5.85	1.49	4.36	44.47	4.80	1,449	½"	26%	41%	52%	11.62		
2101 Bedford Avenue	CDS (MTD)	ST	7.01	2.29	4.72	54.50	6.39	2,027	½"	26%	41%	52%	14.24		
3900 Block Royal Blvd	CDS (MTD)	ST	4.76	0.81	3.95	35.22	3.40	948	½"	26%	41%	52%	9.20		
3900 Block Royal Blvd	CDS (MTD)	ST	0.85	0.14	0.71	6.28	0.60	167	½"	26%	41%	52%	1.64		
1800 Parkland Dr	CDS (MTD)	ST	0.57	0.1	0.47	4.22	0.41	115	½"	26%	41%	52%	1.10		
100 Block Norfolk Ave	CDS (MTD)	ST	11.52	3.46	8.06	88.83	10.12	3,157	½"	26%	41%	52%	23.21		
100 Block Norfolk Ave	CDS (MTD)	ST	0.75	0.23	0.52	5.79	0.66	208	½"	26%	41%	52%	1.51		
400 Block Elmwood Ave	CDS (MTD)	ST	4.56	2.1	2.46	36.91	4.93	1,670	½"	26%	41%	52%	9.65		
Kensington Ave	CDS (MTD)	ST	10.14	3.24	6.9	78.65	9.15	2,891	½"	26%	41%	52%	20.55		
480 Rivermont Ave	CDS (MTD)	ST	7.88	3.86	4.02	64.35	8.80	3,019	½"	26%	41%	52%	16.81		
300 Block Blackford St	CDS (MTD)	ST	7.88	3.75	4.13	64.08	8.67	2,956	½"	26%	41%	52%	16.74	3.56	1,545
706 Byrd	CDS (MTD)	ST	2.55	1.15	1.4	20.58	2.72	920	½"	26%	41%	52%	5.38		
400 Botetourt St	CDS (MTD)	ST	11.34	2.27	9.07	84.71	8.53	2,453	½"	26%	41%	52%	22.14		
300 Block Willow St	CDS (MTD)	ST	3.14	0.63	2.51	23.46	2.36	680	½"	26%	41%	52%	6.13		
300 Block Willow St	CDS (MTD)	ST	5.69	1.14	4.55	42.51	4.28	1,232	½"	26%	41%	52%	11.11		
400 Main St.	CDS (MTD)	ST	12.07	3.62	8.45	93.06	10.60	3,305	½"	26%	41%	52%	24.32		
2300 Block Bedford Ave	Storm Filter (MTD)	ST	5	4.75	0.25	46.35	8.49	3,241	½"	26%	41%	52%	12.11		
Total			**150.18**	**50.53**	**99.65**	**1,171.03**	**138.76**	**44,278**	-	-	-	-	**323.8**		

(1) RR = Runoff Reduction; ST = Stormwater Treatment (refer to Expert Panel Report on Retrofit Projects)

Infrastructure Needs

LYNCHBURG WATER RESOURCES
Our Job is Clear!



- **What do we have?**
- **Where is it at?**
- **What condition is it in?**

Infrastructure Needs

- Performed condition assessment of surface assets
- CCTV of piped system
- The more we look, the more issues we find

Infrastructure – Next steps

- Compile Condition Assessment data
- Develop strategy for inspection of pipe
- Prioritize repair, replacement, rehabilitation work
- Inform Capital needs for future budgets

- > 200 miles of pipe

Summary

- A holistic approach is beneficial
  - Consider all needs and potential benefits: water quality, infrastructure, regulatory compliance, quality of life
- Involve stakeholders in the process
- Fees must be equitable
- Take advantage of other funding opportunities such as SLAF and VCWRLF

Questions?

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