



# Stormwater Webinar October, 2011

# Stormwater Regulatory Issues

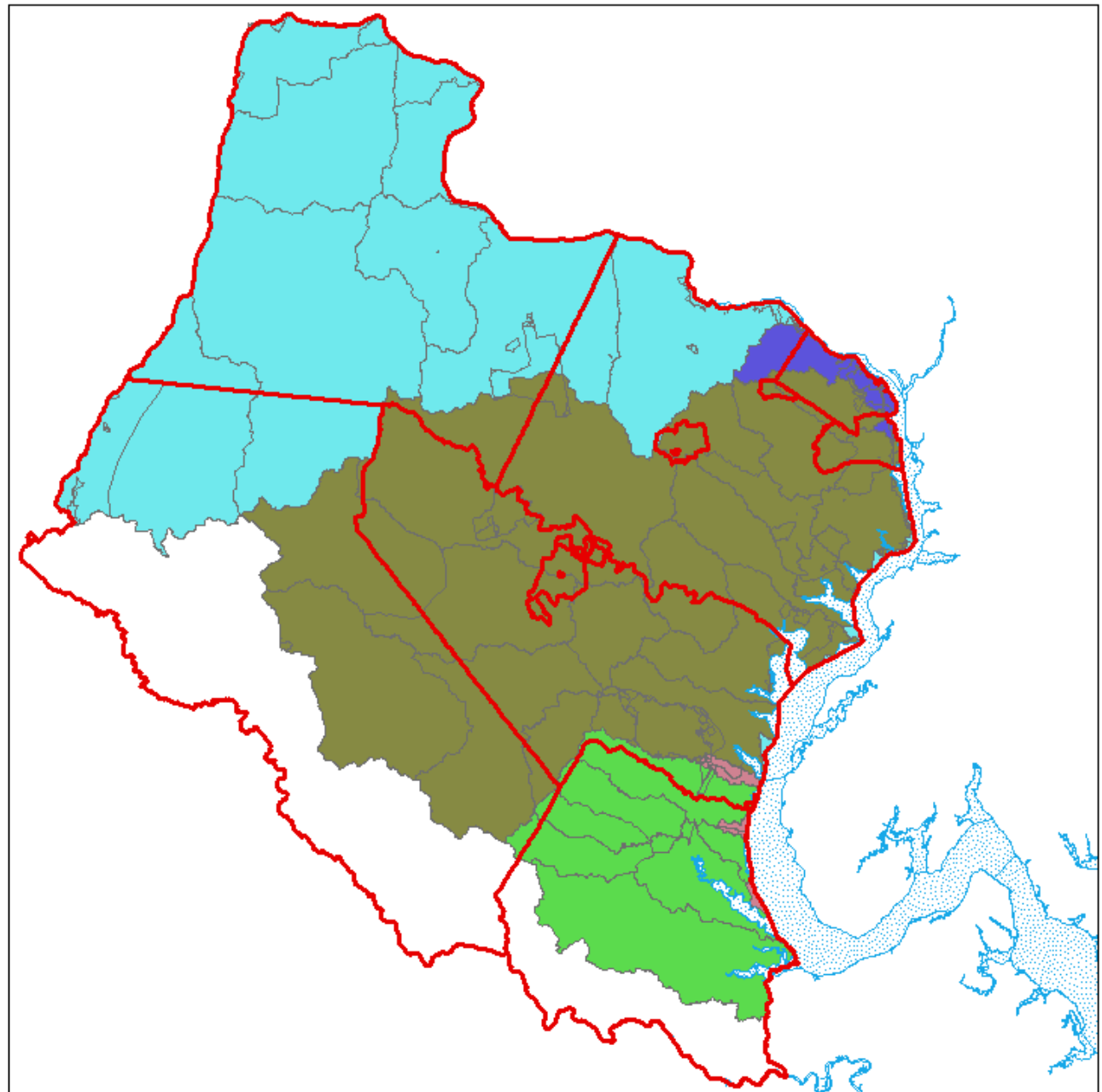
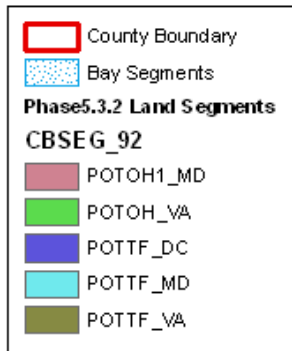
- Renewing MS<sub>4</sub> Permit – Municipal Separate Storm Sewer System
- Bay TMDL – Total Maximum Daily Load
- Accotink Flow TMDL
- MS<sub>4</sub> –EPA Field Review/ Audit
- Proposed Legislative Actions
- Federal Rule Making
- State Stormwater Regulations
- Dam Regulations
- Flooding and FEMA

# Social Stormwater Issues

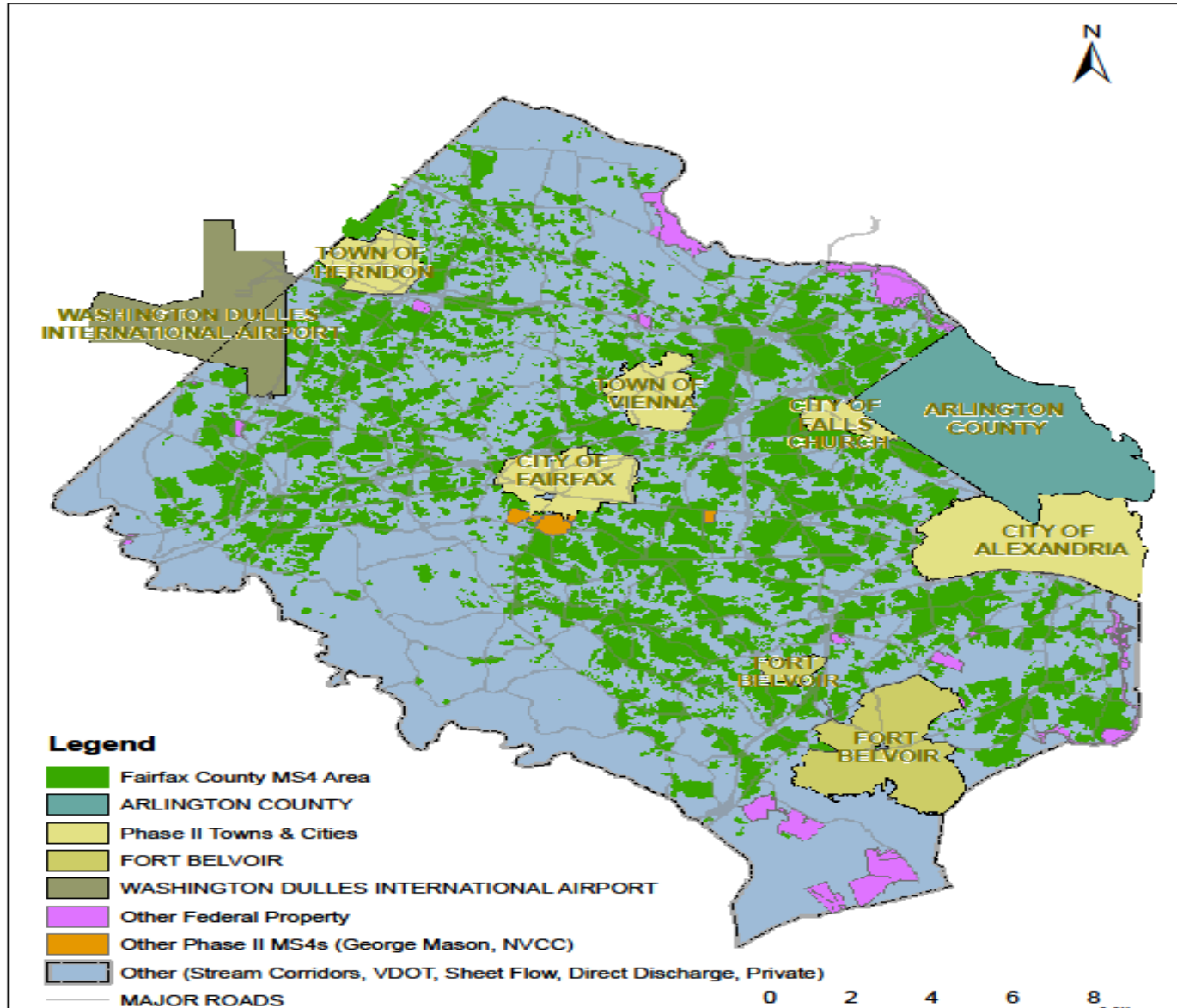
- Science and funding are lagging behind regulations
- Stormwater revenues must rise significantly >100%
- Does this protect me from Flooding?
- This is About Cultural Change -
  - Clear Tasks - What do I have to do?
  - Understood Benefits - Why is it important to me?
  - Financial Plan - What will it cost me?
  - Personal Stake - What is in it for me?
- Honest/Open/Intelligent Discussion

# Chesapeake Bay

## Potomac Watershed Segments



# Fairfax County's MS4

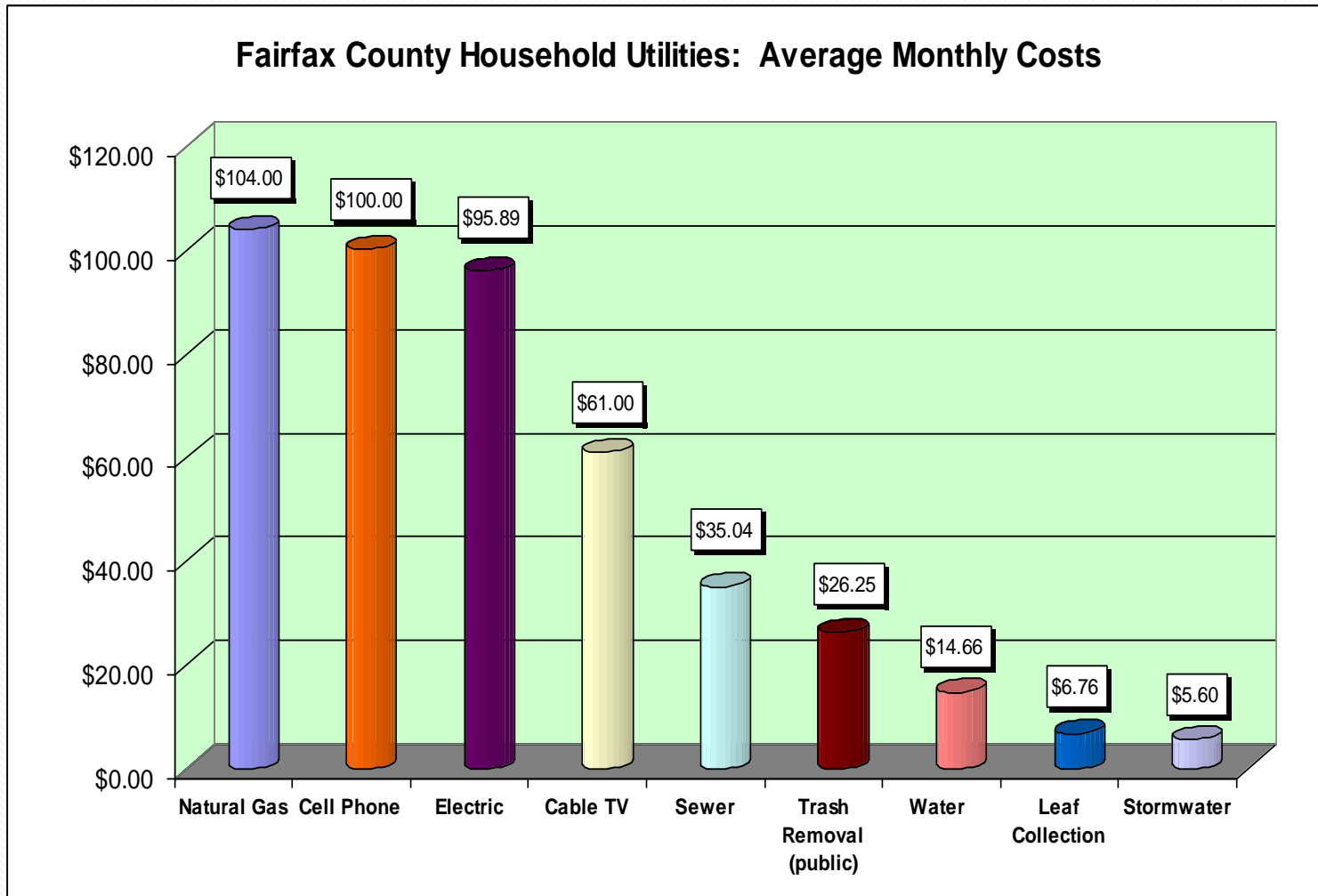


# Potential Costs

Category	Row	Item	DEQ WIP Assumptions in Table 6-4.1 <sup>(1)</sup>	Reductions to Meet WLA in WIP Table 2.2 (Without Non-Structural BMPs)
Estimated Costs	A	Estimated Capital Cost (Millions)	\$651	\$845
	B	Estimated Annual Cost (Millions per year)	\$70	\$91
Estimated Average Annual Stormwater Bills	C	Residential House (\$/yr)	\$160	\$200
	D	Convenience Store/ Gas Station (\$/yr)	\$1,400	\$1,800
	E	Neighborhood Shopping Center (\$/yr)	\$9,600	\$12,000
	F	Church (\$/yr)	\$3,200	\$4,000
	G	Regional Mall (\$/yr)	\$145,000	\$181,000

Note: (1) Include performance of urban nutrient management

# What the Customer Sees



# Stream Restoration

Poplar Springs - Before & After



Area Treated (acres)	Phosphorous Removal (lbs/yr)	Nitrogen Removal (lbs/yr)	Sediment Removal (tons/yr)
230.4	7.5	141	1.25



# Stream Restoration

## Bridle Path - Before & After



Area Treated (acres)	Phosphorous Removal (lbs/yr)	Nitrogen Removal (lbs/yr)	Sediment Removal (tons/yr)
123	18	333	3

# Outfall Restoration

Dolly Madison Library – Before



# Outfall Restoration

Dolly Madison Library – During & After



Drainage Area (acres)	Phosphorous Removal (lbs/yr)	Nitrogen Removal (lbs/yr)	Sediment Removal (tons/yr)
5.4	7.5	68.6	1.2

# Detention Basin Retrofits

Sycamore Ridge - Before & During



Area Treated (acres)	Phosphorous Removal (lbs/yr)	Nitrogen Removal (lbs/yr)	Sediment Removal (tons/yr)
78.4	38	202	9.4

# Low Impact Development

## Fort Hunt Elementary – Rain Garden



Area Treated (acres)	Phosphorous Removal (lbs/yr)	Nitrogen Removal (lbs/yr)	Sediment Removal (tons/yr)
0.7	1	6	0.3

# Project Benefits

	Area Treated	P		N		TSS	
	\$/acre	lbs/lf	\$/lbs	lbs/lf	\$/lbs	lbs/lf	\$/lbs
<b>Stream Restoration</b>							
Poplar Springs	1,300	0.01	40,000	0.2	2,000	3.6	119
Bridal Path	9,400	0.01	64,000	0.2	3,500	3.6	192
Dead Run (Includes Outfall)	1,400	0.02	26,000	0.3	1,700	6	71
Big Rocky Tributary	2,000	0.01	48,000	0.2	2,800	6	96
<b>Average</b>	<b>3,500</b>		<b>45,000</b>		<b>2,500</b>		<b>120</b>
<b>Outfall Restoration</b>							
Seven Woods	4,200		16,500		800		25
<b>Detention Basin Retrofit</b>							
Foxfield Section 13	2,500		5,500		700		10
Sequoia	800		3,200		400		6
Sycamore Ridge	5,900		12,000		2,300		25
Cinnamon Oaks	16,000		19,500		2,600		42
<b>Average</b>	<b>6,300</b>		<b>10,000</b>		<b>1,500</b>		<b>21</b>
<b>LID</b>							
McLean Community Center	8,600		10,000		1,100		15
Sherwood Library	118,000		67,000		17,000		167
Pinecrest	123,000		172,000		172,000		N/A
Walt Whitman	163,000		96,000		45,000		175
<b>Average</b>	<b>103,000</b>		<b>86,000</b>		<b>59,000</b>		<b>119</b>

# Trying to Change the Culture

- Trying to help Develop the Science
- Steadily Increasing Stormwater revenues
- Cultural Change - Managing Expectations
  - Reaching Out to Community Groups
  - Providing Programs in the Schools
  - Explaining the Condition of our Streams
  - Trying to Provide Realistic Cost & Time Estimates
  - Trying to Explain Benefits of LID Techniques
- Honest/Open/Intelligent Discussion

# Thank you



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