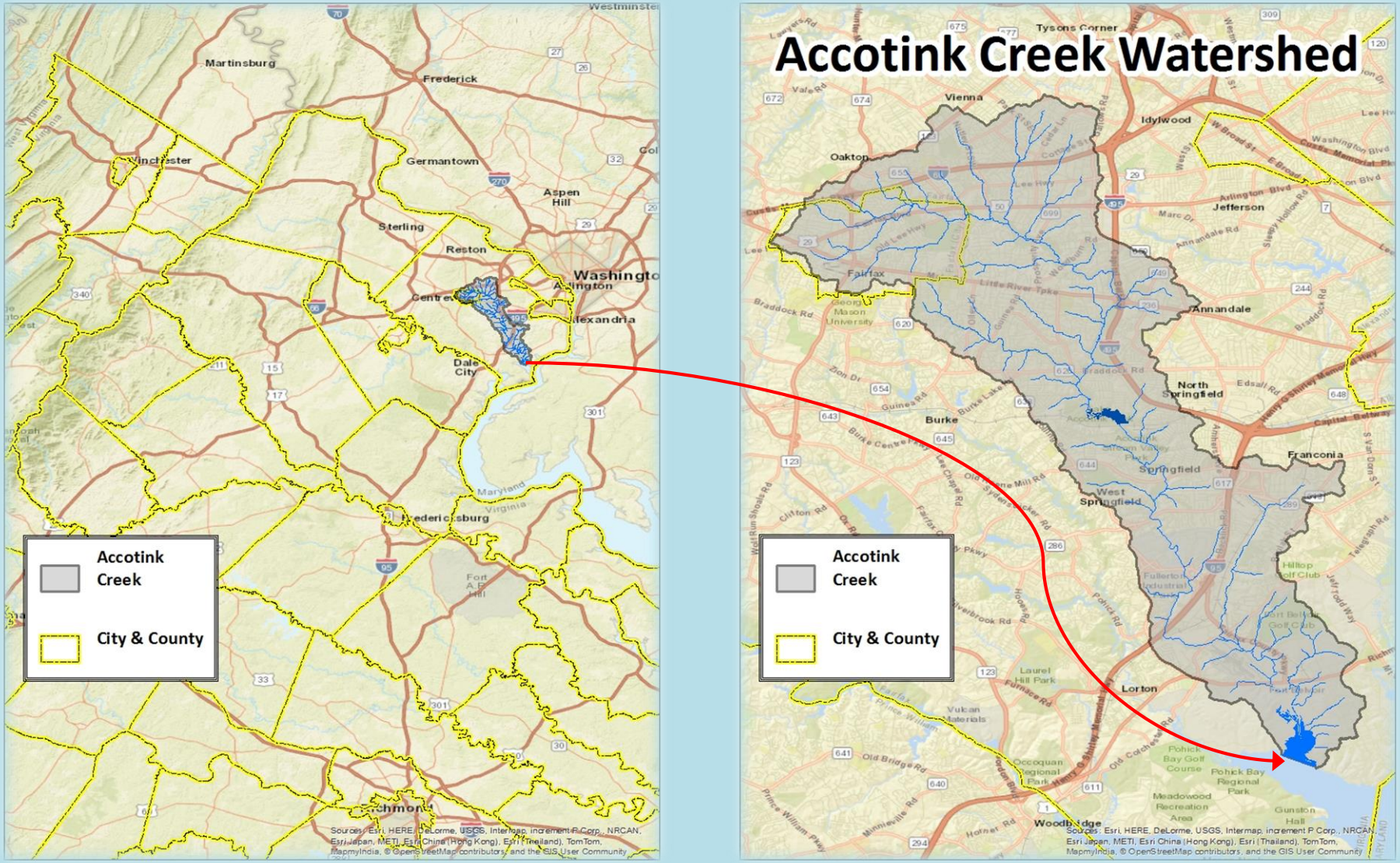
Accotink Creek
Sediment & Chloride TMDLs

Public Comment Period: June 21, 2017 – July 21, 2017

Draft TMDL reports are located at:

http://bit.do/VADEQdraftTMDL

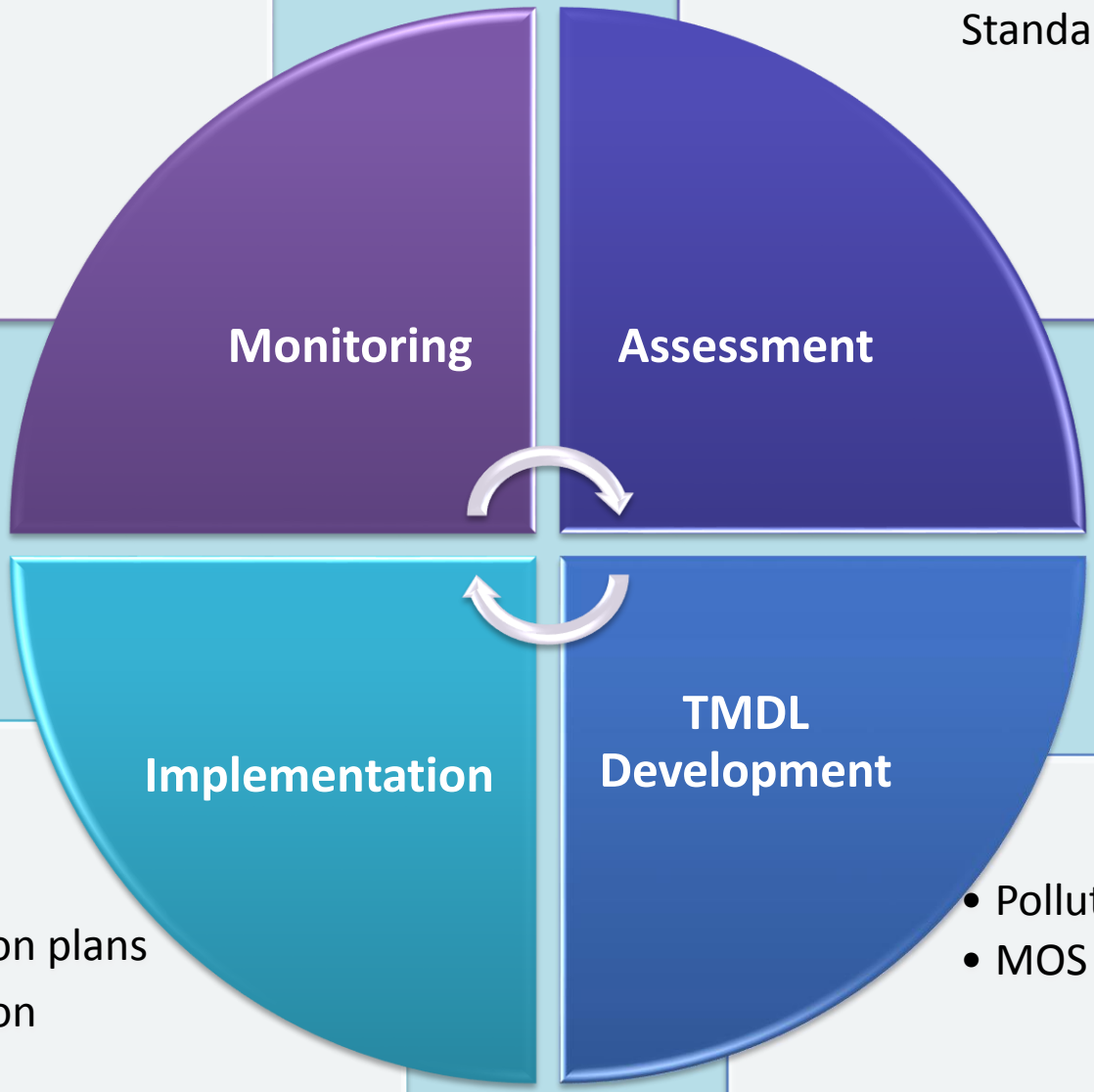
The Accotink Creek Watershed



Water Quality Process

- Physical
- Biological
- Chemical

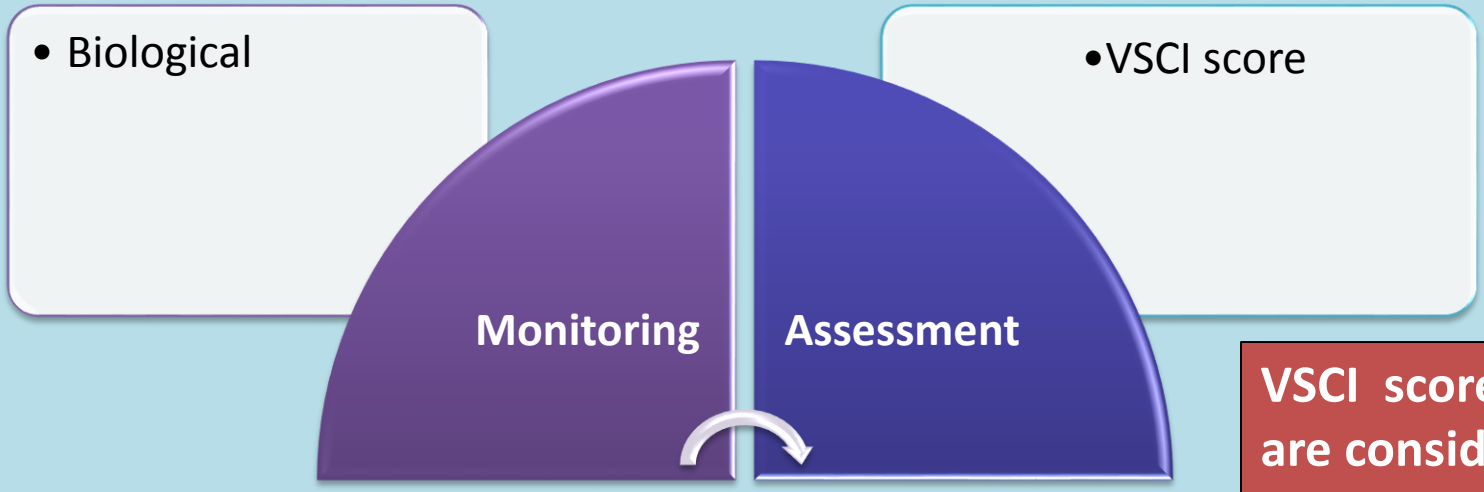
- Water Quality Standards



- Permitting
- Implementation plans
- Implementation projects

- Pollutant Diet
- MOS + WLA + LA

Accotink Creek Benthic TMDL Development



VSCI scores > 60 are considered not impaired

	Upper Accotink (2005-2007)	Long Branch (2007)	Lower Accotink (1994-2008)
Minimum VSCI	21	25	23
Maximum VSCI	32	30	42
Average VSCI	**26**	**27**	**32**
Number of Samples	14	2	17

Accotink Creek Benthic TMDL Development:

Accotink Creek Benthic Stressor Identification Analysis Results

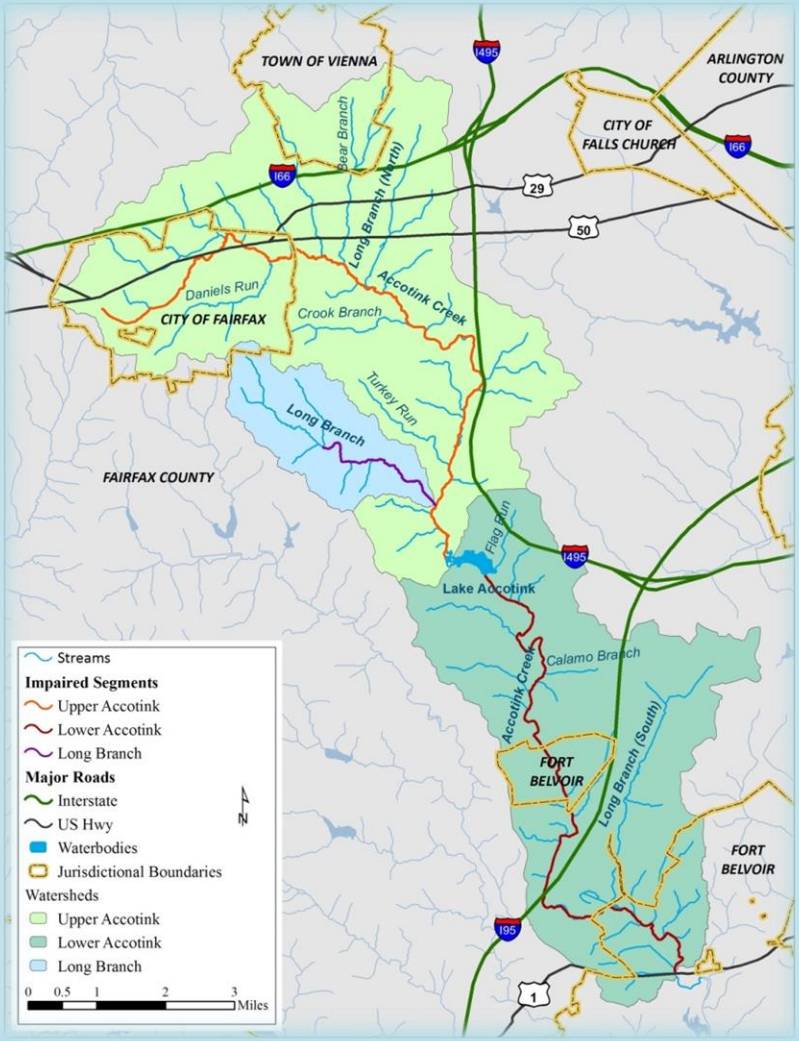
Category	Stressor	
Least Probable Stressors	Temperature	pH
	Dissolved Oxygen	Metals
Possible Stressors	Nutrients	Toxics
Most Probable Stressors	**Chloride**	Hydromodification*
	Sediment	Habitat Modification*

*Not pollutants – not suitable for TMDL development


Sediment TMDL
Photo Credit: Friends of Accotink Creek

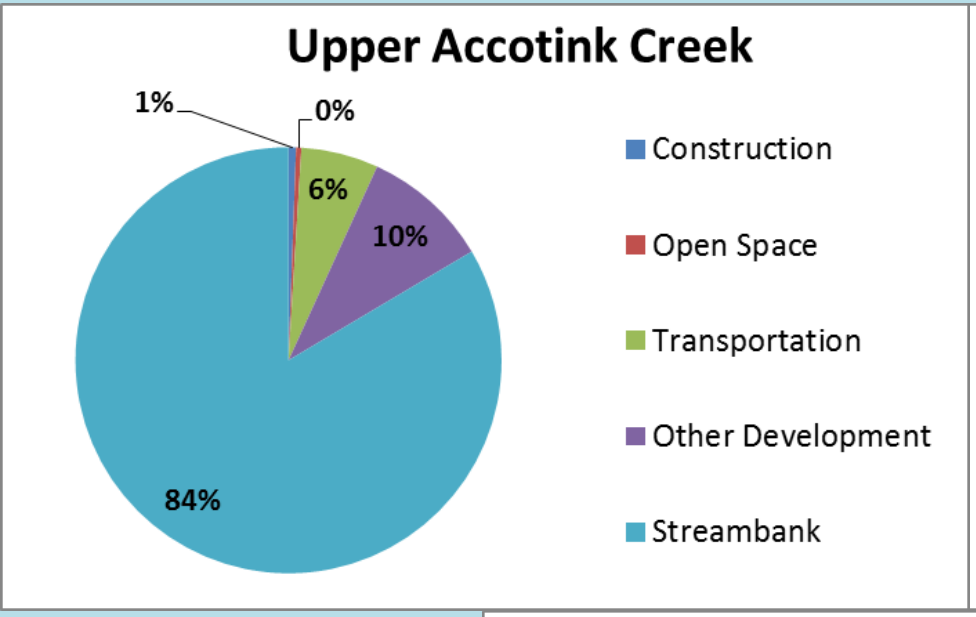
Sediment TMDL Development

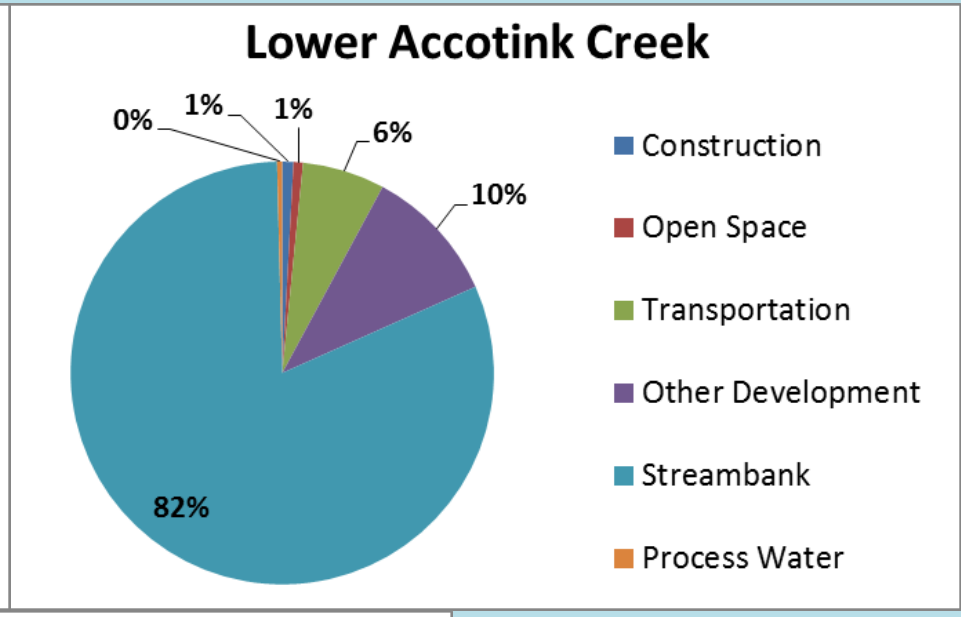
- Watershed split into 3 TMDL watersheds
  - Upper Accotink Creek
  - Lower Accotink Creek
  - Long Branch (central)
- TMDLs developed for each watershed
- No sediment water quality standard
  - Needed to identify an acceptable load
  - This requires simulating sediment loads

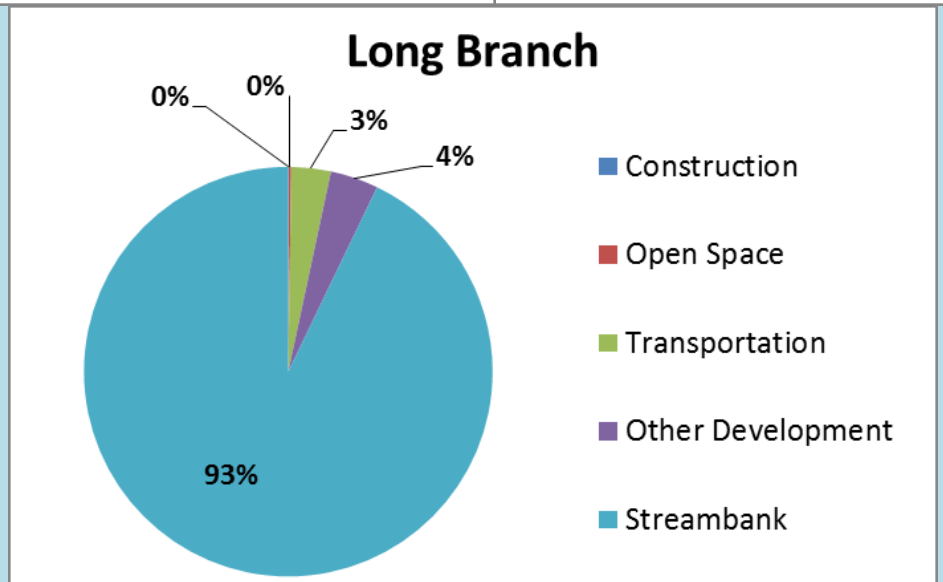


Sediment TMDLs:

Existing Loads







Sediment TMDL Development:

Watershed	TMDL (tons/yr)	Percent Reduction on Sources in TMDL Watershed
Upper Accotink Creek	2,969	73%
Lower Accotink Creek	4,113	39%
Long Branch	1,148	70%

Upper Accotink Creek TMDL

Source	Load (tons/yr)	Percent of TMDL
Total WLA	2,339	79%
City of Fairfax Aggregate MS4 WLA	633	21%
Fairfax County Aggregate MS4 WLA	1,281	43%
Town of Vienna Aggregate MS4 WLA	174	6%
Total Process Water WLA	<1	<1%
Total Industrial Stormwater WLA	16	1%
Construction	85	3%
Future Growth	148	5%
LA	333	11%
MOS	297	10%
TMDL	2,969	100%

Lower Accotink Creek TMDL

Source	Load (tons/yr)	Percent of TMDL
Total WLA	3,072	75%
Fairfax County Aggregate MS4 WLA	2,458	60%
Fort Belvoir Aggregate MS4 WLA	235	6%
Total Process Water WLA	1	<1%
Total Industrial Stormwater WLA	94	3%
Construction	79	2%
Future Growth	206	5%
LA	629	15%
MOS	411	10%
TMDL	4,113	100%

Long Branch TMDL

Source	Load (tons/yr)	Percent of TMDL
Total WLA	936	82%
City of Fairfax Aggregate MS4 WLA	42	4%
Fairfax County Aggregate MS4 WLA	880	77%
Total Industrial Stormwater WLA	Not Applicable	Not Applicable
Total Process Water WLA	<1	<1%
Construction	2	<1%
Future Growth	11	1%
LA	97	8%
MOS	115	10%
TMDL	1,148	100%

Chloride TMDL

Photo Credit: Virginia Department of Transportation

Chloride TMDLs and Public Safety

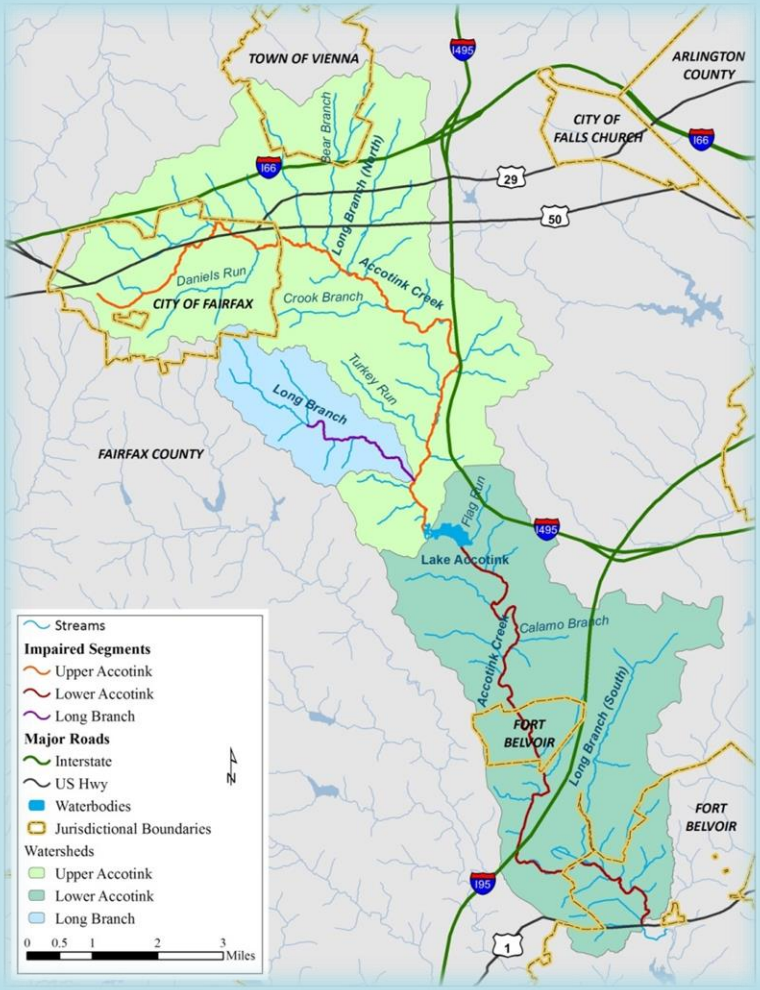
- Public safety is a top priority for winter weather management, and will not be compromised by the implementation of this TMDL

- The TMDL will be implemented through best management practices
  - Safe but more efficient and effective

- Opportunity to improve water quality while saving costs and maintaining public safety

Chloride TMDLs

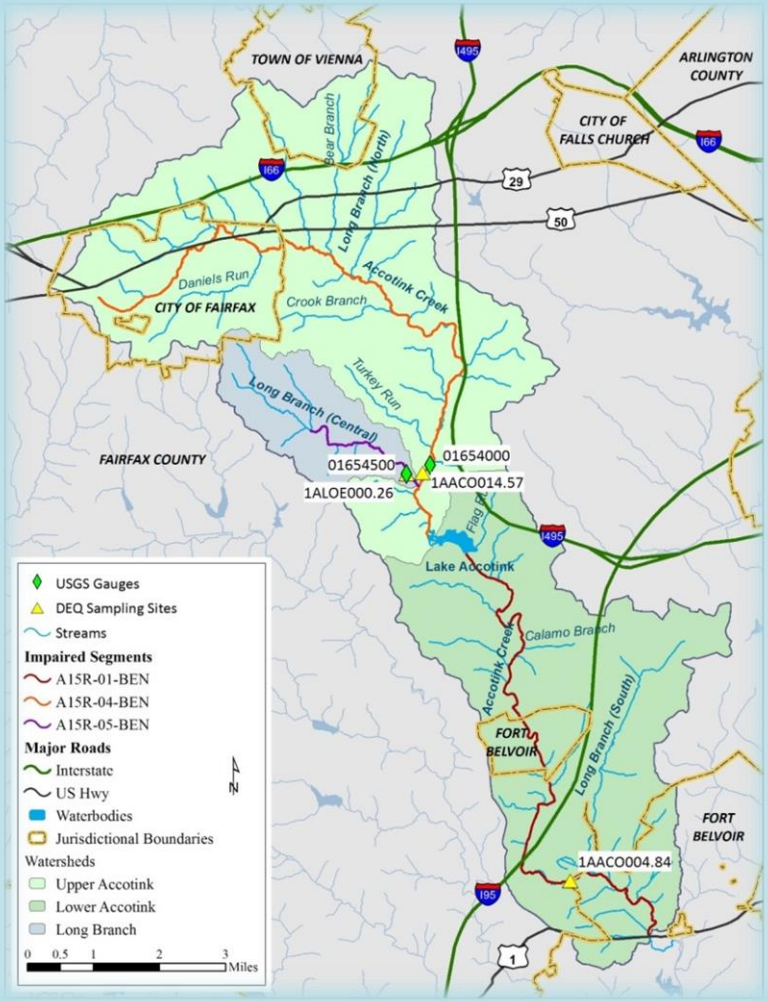
- Watershed split into 3 TMDL watersheds
  - Upper Accotink Creek
  - Lower Accotink Creek
  - Long Branch (central)
- TMDLs developed for each watershed
- Two chloride water quality criteria:
  - Chronic = 4 day average of 230 mg/L
  - Acute = 1 hour average of 860 mg/L



Chloride TMDLs:
The Load Duration Curve Approach

- Load Duration Approach:
  - Calculates loading capacity of a waterbody
  - Uses measured flows at USGS gauges and water quality criterion

- The four-day average chronic chloride criterion was used (230 mg/L)
  - Monitoring data showed it is exceeded the most
  - Therefore it is the most protective



Upper Accotink Creek Chloride TMDL

Source	Load (lbs/yr)	Percent of TMDL
Total WLA	5,444,279	66%
Aggregate MS4 WLA	4,972,399	61%
Aggregate Industrial Stormwater WLA	61,028	<1%
Future Growth	410,852	5%
LA	1,951,048	24%
MOS	821,703	10%
TMDL (not including Long Branch)	8,217,030	100%

Lower Accotink Creek Chloride TMDL

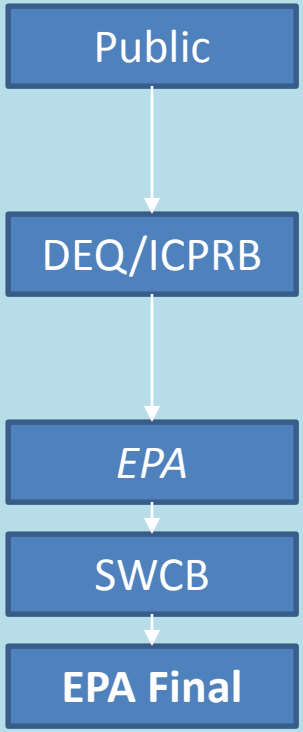
Source	Load (lbs/yr)	Percent of TMDL
Total WLA	3,723,479	60%
Aggregate MS4 WLA	3,294,323	53%
Aggregate Industrial Stormwater WLA	117,071	2%
Future Growth	312,084	5%
LA	1,894,040	30%
MOS	624,169	10%
TMDL (not including upper Accotink Creek)	6,241,688	100%

Long Branch Creek Chloride TMDL

Source	Load (lbs/yr)	Percent of TMDL
Total WLA	873,049	68%
Aggregate MS4 WLA	860,119	67%
Aggregate Industrial Stormwater WLA	NA[1]	NA[1]
Future Growth	12,930	1%
LA	290,648	22%
MOS	129,300	10%
TMDL	1,292,997	100%

Next Steps

- Public Comment Process
  - **Public meeting: 6/28, 6:30 PM at Kings Park Library ✓**
  - **Comment period: 6/21 to 7/21**
- DEQ and ICPRB address Comments
- State Water Control Board (SWCB) & EPA approval process
  - EPA provisional review
  - Present to SWCB (Dec. 2017/Mar. 2018 meeting)
  - EPA final review after SWCB approval



- Incorporate into permits, as appropriate with the next permit cycle
- ***Planned development of the Accotink Creek Salt Management Strategy (SaMS)***

Accotink Creek Salt Management Strategy (SaMS)

Stakeholder Involvement

- SaMS public participation will aim to achieve a "stakeholder driven" process
- Potential Advisory Committee membership:
  - Water quality permit holders with Chloride wasteload allocations in the Accotink Watershed
  - Local municipalities
  - Local environmental groups
  - Commercial Property Owners
  - Snow Plow operators
  - Water Authorities
  - Public Safety Entities
  - VDH and VDACS
  - Others TBD
- Planning a large/inclusive Stakeholder Advisory Committee, with smaller working groups.
  - Educ. & Outreach, Inter-Agency, Technical Actions, Monitoring, etc.

Salt Management Strategy (SaMS) Project Concept

1. Summarize salt impacts on water quality and infrastructure
2. Identify economic benefits of proper salt management
3. Convene diverse partners with shared interests and complementary skills/resources
4. Draw upon the best applicable work by other jurisdictions and industry associations
5. Offer regulated and non-regulated entities technical resources that identify BMPs and environmentally preferred products
6. Establish a suite of best practices applicable to water quality permits
7. Identify additional actions and measures to more fully address program goals, such as potential legislation, certification programs, and enhanced regional coordination
8. Organize a process for reporting and tracking salt usage
9. Frame monitoring recommendations to evaluate the effectiveness of the strategy over time

Contact

Will Isenberg
Virginia DEQ
William.Isenberg@DEQ.Virginia.gov
804-698-4228