First Advisory Committee Meeting
October 24, 2016 at 3.30pm
Sunnyside House at the Kendal Community – Lexington, VA

Attendees: Morris Trimmer (NBSWCD), Sandra Stuart (NBSWCD & RACC), Rosealie (RACC), Deborah Woodcock (landowner), Phyllis Fevrier (Boxerwood & SOS), Peter Gruner (Boxerwood), James Wiley (W&L, USGS Intern), Steve Richards (RACC), Paul Low (W&L) Mike Kennedy & Jeff Martone (City of Lexington Public Works), Gene Yagow & Ebrahim Ahmadisharaf & Wesley Tse (VT-BSE), Tara Sieber & Nesha McRae (VADEQ)

Tara Sieber, the Regional TMDL coordinator for The Virginia Department of Environmental Quality (VADEQ), opened the meeting by welcoming everyone and thanking the Kendal Community, specifically Sandra Stuart, for hosting the meeting. Tara asked participants to introduce themselves and the organization or agency they were representing (or if they were a landowner or interested citizen, as well). Next, Tara reviewed the agenda for the meeting which would include: the review the TMDL process, discuss the bacterial source assessment, feature a brief recap of the research Paul Low has done on Woods Creek, and then address the Benthic Stressor Analysis process.

After Tara recapped the TMDL process and the public meeting that took place on October 5, the group launched into the bacterial source assessment, which is the method by which the model calculates loading, or contributions, of bacteria from different sources to Woods Creek. Wesley Tse, from Virginia Tech's Biological Systems Engineering (VT-BSE) walked the group through a handout which detailed the calculated population numbers. The watershed, which is about 5000 acres total, is primarily "developed" , an aggregate classification which includes urban, suburban and residential landuses. Based on initial estimates, there are no straight pipes in the watershed, which is a good thing! The question was asked how is graywater modeled differently than straight pipes? Wesley answered that greywater systems are sometimes helpful for implementation and to focus on BMP installation, but they contribute little if any bacteria. Also, one pet per household was estimated for the purposes of pet loads. The group thought this would be a good working number to go with. A question regarding the historical sewer overflows and contributions from I&I was asked due to the fact that a sewer line runs right through Woods Creek in portions. The City answered that the mainline had been "slip-lined" which means that an inner liner was applied to reduce Inflow and Infiltration (or I&I), however, manhole overflows were still being combated and remain a priority for the city. A participant asked about the septic numbers and where these would be in the watershed. The group looked at the watershed as Wesley pointed out that the Upper Woods Creek and Sarah's Run subwatersheds would be outside of the sewer connection and those houses would be on septic. The group thought that these numbers were probably pretty close. One attendee recommended reaching out the local Health Department and the County to confirm these estimates. Another question regarding the landuse designation was raised, and Wesley explained that the "residential/developed" use is an aggregate of multiple uses including open space from the National Agricultural Statistics Service (NASS). Next, the discussion turned to how to account for transient/season student populations. The group agreed that the household numbers were probably a bit of an underestimate, but that the vast majority of these populations (for VMI and W&L) were on the sewer. So, with a City Population of about 7300, the CSPDC also accounts for student

populations of about +/- 3000 during the academic year. One participant volunteered that there was one kennel to be found off of Ross Rd.

Next, the discussion turned to livestock and wildlife populations. The group thought that the numbers were a good start, but that hogs should be decreased back to zero and goats should be increased. There may be Emu's out in Sarah's Run as well. Wesley agreed that he would check with Lee Cummings at the NBSWCD. For wildlife populations, skunks, possum, bear, coyotes, turkey buzzards and groundhogs should be added to the list of species that have major contributions to bacteria in Woods Creek.

Paul Low, a Chemical Hydrologist currently associated with W&L University, was next on the agenda with a summary of some his research and analysis. He reviewed his analysis of the concentration of ions in stream and groundwater. Since there is no flow gage on Woods Creek, it is difficult to get a good idea of how much water is coming through the stream channel, but there are 12 springs and 97 seeps on the W&L property, some of which flow to the Maury River as well. He has created an equation from observed discharges of local watersheds and recalculated to fit the watershed area. In addition, the Moores Creek Reservoir Outlet pipe discharges at least 1.0 cfs (cubic feet per second) as per a short-term study by a former W&L undergraduate student. This pipe would be dominating the flow of Woods Creek during dry periods (maybe contributing up to 25%). When trying to calculate flow, the impervious surface of the watershed must be considered because impervious surfaces impact how much water should be infiltrating into the soil versus running off into local drainage pathways and streams. Based on National Land Cover Database (NLCD) data from 2011, Paul has also estimated the amount of canopy cover and the percentage of the watershed that is paved. This is useful to estimate de-icing materials applied, which is of concern when speaking about the amount of specific conductivity and total dissolved solids in the water column. Paul also spoke a bit about Town Branch, which may contribute up to 18% of the total water of Woods Creek at its confluence with the Maury River, and Sarah's run, which provides a large percentage of the specific conductivity and flow and dissolved ions.

At this point in time, the group decided to continue on for about 15 additional minutes in order to allow Gene Yagow to summarize his work on the Benthic Stressor Analysis, or what is stressing out the bugs in Woods Creek. Over all, after looking at all the data available (which is hefty!), there is no "smoking gun" or standout pollutant. Sediment does not seem to be a stressor since there are some good bugs and good habitat available. The Relative Bed Stability analysis done by DEQ in 2014 indicated that the stream is near optimal levels for absorbing energy and movement in the stream. Gene asked the TAC to think and digest the following "possible" stressors:

- Hydrologic modification – the changes and impacts by humans in the watershed
- Ionic Strength – the ions at work in the water column as measured by specific conductivity and total dissolved solids
- Nutrients
- Organic matter – as seen by sewer overflows and indicated by macroinvertebrates that appreciate human sewage.

The group agreed to meet again on November 30 and Tara thanked everyone for their time and contributions! Tara and the VT-BSE team are always available by email or phone. Have a great Thanksgiving!