Second Technical Advisory Committee Meeting
November 30, 2016 at 3 pm
City Hall Community Room – Lexington, VA

Attendees: Morris Trimmer (NBSWCD), Sandra Stuart (NBSWCD & RACC), Barbara Walsh (RACC), Phyllis Fevrier (Boxerwood & SOS), Elise Sheffield (Boxerwood), David Agnor, Chuck Smith (City Council), Steve Richards (RACC), James Willey (W&L), Jeff Karlstrand (Lexington Golf Course), Mike Kennedy & Jeff Martone (City of Lexington Public Works), Lee Cummings (NBSWCD staff), Becky Edmundson (Kendal at Lexington), Gene Yagow & Ebrahim Ahmadisharaf & Wesley Tse (VT-BSE), Tara Sieber & Bill Van Wart (VADEQ)

Tara Sieber, the Regional TMDL coordinator for The Virginia Department of Environmental Quality (VADEQ), opened the meeting by welcoming everyone and thanking the City of Lexington 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 Benthic Stressor Analysis process and draft conclusions, and then review the changes made to the bacteria source assessment after the last TAC meeting on October 24, 2016.

Gene Yagow from Virginia Tech's Biological Systems Engineering (VT-BSE) Department reviewed the Stressor Analysis of the biological impairment on Woods Creek. His presentation focused on Upper and Middle Woods Creek where the stream runs along the city boundary. When looking at the last decade of data collected, there is a trend for poorer VSCI scores in the Spring at the DEQ sites in the upper section of Woods Creek. Gene broke up the biological issues into a "Old" or historical impairment from the mid-2000's and the "New" or most recent impairment.

- OLD IMPAIRMENT: Visual observations of algae in stream but no clear nutrient overloads. Sediment loads are in optimal range, so not contributing to the problem. Algal mats in off-stream shallow pond on Lex Golf Course property. Hypothesis: algae washing into stream from pond, feeding detritus worms
- NEW IMPAIRMENT: Detritus worms less than optimal… organic matter indices can influence and elevate macroinvertebrates that are indicative of poorer water quality. Specific conductivity progressively raises through watershed from upstream to downstream (as Paul Low discussed at the 10/24/16 TAC meeting). Geologic influence vs. human influence is a consideration as both are impacting water quality as Woods Creek flows from upstream to the Maury River.

A participant who is a USGS Intern offered to share two water years with of Woods Creek flow data. This stream is very flashy during precipitation events. When looking at the DEQ flow data collected on November 21, 2016, the group agreed that this was probably low, considering the normal flow both on average and at this time of year. The question was asked if more monitoring is needed to determine the base flow's influence on specific conductivity. Gene responded that based on Paul Low's data, a

background of 750 for specific conductivity was probably more normal. Attendees wondered if there was a control stretch of Woods that was undeveloped to compare the mainstem as it runs through downtown Lexington. The USGS intern sampled Woods Creek above the Moores Creek reservoir inflow and all parameters were a little high over this summer (would have been interesting to calculate drainage area to each monitoring point). Conductivity was high, overall, during the monitoring period of that project. Next, the group had a discussion about the components of Conductivity (Chlorine, salt, Nitrogen, Sulfate, potassium, total dissolved solids) plus Carbonate. Gene presented data that suggests that there isn't too much difference from upstream to downstream if dilution factors are taken into account. In addition, current research suggests aquatic life is resilient to specific conductivity. Regression trend line shows no relationship. In Gene's opinion, based on this data and research, there is not enough evidence that specific conductivity is causing the benthic impairment on Woods Creek. Gene's suggestion for the benthic impairment is to develop a narrative TMDL for to address the golf course impacts upstream, including the algae pond (most logical stressors).

Bill Van Wart, DEQ Biologist with the Valley Regional Office, offered the observation that VSCI scores (stream health) is worse at downstream monitoring station and algae impacts to upstream station are more logical. There are lots of potential impacts in between these two locations. The staff at the Lexington Golf Course made the observation that the outflow pipe from the shallow pond is very small and contributed little flow in comparison to total volume of Woods Creek. A former volunteer monitor who is familiar with the Ross Road benthic monitoring station said that in his term as monitor, the Woods Creek stream water carried huge amounts of algae during regularly scheduled monitoring in the Spring. This was carried down to the confluence with the Maury. Another monitor voiced concerns that school field trips had oversampled different sections of the stream.

The question was asked- how do we differentiate between possible stressors, such as de-icing materials, sediment, sewer overflows? Gene replied that there isn't a "smoking gun" or one pollutant causing undue stress. Another attendee asked about the old public works dam impoundment and whether that was having an influence on sediment and impacting the streams? The group reviewed some of the data that shows that sediment is not causing undue stress, including data from the Relative Bed stability Analysis (RBS) which attempts to model the movement and transport of different sizes of sediment. One participant asked if special storm monitors would be helpful to collect water samples during times of high flow. Tara responded that this could be helpful but would need to be staffed by volunteer monitors and sent to a local lab. Another participant raised the issue of riparian buffers, and Bill and Tara both reflected that Woods Creek has a great riparian cover as well as a

Next, the group turned to the bacteria issue, which was led by Ebrahim Ahmadisharaf and Wesley Tse from VT-BSE. They reviewed the updates to the watershed population numbers from the TAC meeting in October.

WILDLIFE - DGIF inputs to wildlife populations included. Peak season Goose should be increased, beaver decreased, deer increased, turkey vultures (W&L law school). Calibrating and factored into the process.

LIVESTOCK - USDA Ag Census. One participant had a question about the turkey operation in Woods Creek, and Tara said that this permitted facility exports all of its manure/litter off-farm and out of the watershed

HUMANS - Pets #s decreased, TAC numbers used, VDH updates to septic numbers - 5% substandard rate. Feral cat populations will be included in the pet numbers. One participant asked whether the human populations include university students? Ebrahim responded that the overall households were too high when including the total student population, and because many of these are in dorms, it was inaccurate. One City Council member told the group that the Weldon Cooper Center (UVA) gave a population estimate presentation recently which said Lexington has a population of 7500 with 4800 year round residents and 2700 students (also – the city sold 570 dog licenses this year!). Another participant asked how visitor populations impacted bacteria contributions and Wesley responded that the majority of these people would be staying in sewered hotels and so their waste would be treated as part of the overall sewer population.

I&I – The next topic of conversation was Inflow and Infiltration. This accounts for when stream water is coming into the sewer pipe which is actually taking water out of the stream and transporting it to the wastewater treatment plant (WWTP) out of the watershed (a bacteria reduction!). By contrast, manhole overflows are contributing bacteria to the stream because the water from the sewerpipe is exiting into the stream itself. Both of these, I&I and overflows, influence water quality and bacteria counts and will be included in the model. VT-BSE will be using a study that the City of Lexington paid Anderson Associates to develop about the sewer lines and lateral lines in 2013. This information will be helpful in hydrology model because it provides measurements for I&I from three subwatersheds. Wesley also presented the Pollution Response records of overflow events reported to DEQ in the Woods Creek watershed. One participant asked why there was an eight year gap in the reporting data. Tara said she would look into it.

As the last item of the evening, Tara asked the group to schedule the next TAC meeting. The group decided that Thursday, January 12 would be the best date. W&L University offered to host at their Community Meeting Room at 2 South Main Street. Tara would work to post the VT-BSE presentations and Stressor Analysis Report on the DEQ website for everyone and would let the group know when the next meeting was scheduled. Tara thanked everyone for attending and asked everyone to have a great and safe holiday season!