# Technical Advisory Committee Meeting #4
# Accotink Creek Benthic TMDL Study

Thursday, July 28, 2016 – 9:00 am
Kings Park Library – Meeting Room
7250 Commerce Street
Springfield, VA 22150

Meeting Attendees:

Buckeye Partners (Melinda Schwartz, Carl Pires, Mike Younce, Krista Snyder)
Chesapeake Bay Foundation (Kristin Burton)
Fairfax County (Kate Bennett)
Fairfax County Department of Vehicle Services (Daniel Omohundro)
Fairfax County Park Authority (Gayle Hooper)
Fort Belvoir DPW (Pamela Couch, Sybille Vega)
Friends of Accotink Creek (Philip Latasa, Kris Unger)
Interstate Commission on the Potomac River Basin (Ross Mandel, Heidi Moltz)
Northern Virginia Community College (David Trimble)
Northern Virginia Regional Commission (Normand Goulet)
Resident (Tina L. Moore)
Stantec (Ashley Hall)
Virginia Department of Environmental Quality (Bryant Thomas, Will Isenberg, Rebecca Shoemaker, Sarah Marsala)
Virginia Department of Transportation (Tracey Harmon)
Wetland Studies (Alison Robinson, Dillon Conner)

Meeting Minutes:

The purpose of this meeting was to provide an update on the status of both the sediment and chloride Total Maximum Daily Load (TMDL) development. The meeting started with introductions of the meeting attendees. The Interstate Commission on the Potomac River Basin (ICPRB) presented the status of the sediment TMDLs development by first outlining all of the model calibration targets. An attendee asked whether or not the calibration target for sediment concentrations from the transportation sector was a national value. ICPRB responded that it is from EPA rainfall zone 2, which includes Virginia, Maryland, West Virginia, Kentucky, Tennessee, and North Carolina. ICPRB described the process for estimating sediment loads to validate the calibrated sediment model, and then showed the results of that validation in comparison to similar load estimates generated by Fairfax County. While the model estimated loads well in the Upper Accotink Creek watershed, adjustments needed to be made to the Long Branch Central watershed in order for the model results to match the empirical load estimates. ICPRB noted that the dominant source of sediment was determined to be streambank erosion (84-93%) in all three TMDL watersheds. DEQ asked the TAC whether or not it makes sense that streambank erosion is a major source, and none of the attendees disagreed.

ICPRB continued the sediment TMDL presentation by reviewing the AllForX method, which is used to identify the sediment TMDL endpoint. ICPRB described the comparison watershed selection process, noting that the comparison watersheds were calibrated and included a number of observed data in the modeling of the sediment loads. Two attendees asked about the outlier comparison watersheds and ICPRB explained that out of the nine original comparison watersheds selected, six were used in the final AllForX regression. One of the three outliers was in a different ecoregion and therefore had a different and uncomplimentary aquatic life score metric, and the other two had anomalous AllForX values. ICPRB then described the AllForX regression and the resulting AllForX value of 5.54, which will be multiplied by the modeled forested load for all three impaired watersheds to derive each watershed's TMDL. An attendee then asked what the regression line would look like if the outliers were included, and ICPRB explained that it would not be a strong significant relationship anymore. Another attendee asked why the title to the AllForX regression read "with Construction, Point Sources, and Updated Forest C Factor (0.001)." ICPRB explained that it is a title lingering from iterations where each of the elements in that title were added and that the presented AllForX accounts for all sources. Given that one of the outlier comparison watersheds was in the coastal plain ecoregion, an attendee asked what part of the Accotink Creek watershed is in the coastal plain. ICPRB explained that most of Long Branch South is in the coastal plain, but the mainstem of Accotink Creek is primarily in the piedmont ecoregion. DEQ further explained that the Lower Accotink Creek monitoring station at which the Lower Accotink Creek benthic impairment was identified is in the piedmont ecoregion. ICPRB then continued to the last slide of the sediment TMDL presentation to show the load reductions necessary to meet the TMDLs for the three watersheds ranged from 68% to 74%.

Following the presentation of the load reductions necessary to meet the TMDLs, the floor was opened for questions. An attendee asked about the sediment trapping efficiency of Lake Accotink and whether or not that was accounted for in the TMDL reductions. ICPRB explained that the 54% reduction in sediment loads that Lake Accotink provides is considered within the model, however the effect of the lake was included in the all forested load as part of calculating the AllForX. Another attendee asked if the comparison watersheds have the same level of development as Accotink, and ICPRB explained that they are not as developed as Accotink. DEQ added that these are comparison watersheds, not reference watersheds, so they only help set the context for deriving the TMDL endpoint. The attendee then asked if the outlier comparison watersheds were as developed as the Accotink Creek watershed, and DEQ said that they were not. Another attendee then stated that the load reductions were very high and wondered how they would be implemented. DEQ stated that the numbers are not surprising based on other sediment TMDLs. The plan to address these load reductions will be through permits for regulated entities. The issue is stormwater and implementation will need to include stormwater controls and will be a long-term effort. Another attendee then stated that changes to stormwater permitting over the last few years is not reflected in the TMDL development, and asked if the controls will get even tighter. DEQ explained that some time will be needed to see how the current controls are working, and that each subsequent permit cycle may call for more requirements. An attendee asked if they could see more information on the sediment validation regression and if they could see seasonal and monthly average loads. ICPRB agreed

to meet that request. Another attendee stated that more recent data need to be reviewed in order to determine what needs to be done. DEQ explained that implementing reductions is challenging and that actually the data used in the study are robust. Following this an attendee asked if there would be phased implementation to the sediment TMDLs. DEQ explained that it will probably occur in phases, and the attendee expressed preference for implementation to be phased so that current efforts can be taken into consideration. DEQ further explained that other local sediment TMDL action plans have included actions that are already required for the Chesapeake Bay TMDL, with the idea that the plans can be re-assessed at the next permit renewal cycle. Finally, an attendee asked if sediment is a seasonal pollutant like chloride. ICPRB stated that there is lower sediment during drier times such as summer, but high sediment levels correlate to high precipitation events, which can happen during the summer.

To begin the presentation on the status of the Chloride TMDL development, DEQ stated that 1) public safety will not be compromised by the implementation of these TMDLs, 2) the TMDLs will be implemented through best management practices that include training and use of better technologies to more efficiently, safely, and effectively apply chlorides, and 3) this form of implementation will improve water quality while saving costs and maintaining public safety. DEQ noted that ICPRB and DEQ had evaluated the potential for using different modeling approaches, including the chosen HSPF model and the alternative flow*standard approach. DEQ explained that the flow*standard approach involves multiplying the water quality standard (230 mg/L chloride) by the modeled flow of a watershed to derive the TMDL, but is better utilized in watersheds that have less data than the extensively studied Accotink Creek Watershed. Thus, DEQ is moving forward with the development of the chloride TMDLs using the HSPF model.

Following this introduction to the status of the chloride model, ICPRB described the use of chloride grab samples in relation to specific conductivity in order to estimate in-stream chloride concentrations at 15 minute intervals. ICPRB showed load reductions necessary to meet the water quality criteria for chloride, with values in the Upper Accotink Creek and Long Branch watersheds ranging from 72-87% reductions. In Lower Accotink Creek the estimated load reduction is 64%; however, ICPRB explained that this is probably biased low because the load estimates were based on a small record of observation (50 days), and likely would be larger if the period of record included more than one winter. ICPRB described the process for estimating chloride application rates based on data submitted to DEQ. Chlorides are applied on an event basis triggered by winter storm events; ICPRB explained that the threshold used for those events is 0.05 inches of water, which equates to 0.5 inches of snow. Furthermore, ICPRB explained that chlorides applied to parking lots, driveways, and sidewalks in commercial, industrial, and high density residential lands were 75% that of the rate applied to roads. The road application rates were weighted by primary, secondary, and local road miles per watershed because application frequency varies by road type. When the model was calibrated to best match estimated loads of chloride, the division of the application rate had to be adjusted. The resulting division of application rates that gave the best match of estimated chloride loads involved 60% of the application rate on impervious surfaces, 15% of application rate on pervious surfaces through bounce and spray, and 25% of the application rate being

unaccounted for. ICPRB assumed that this unaccounted for application either went into deep groundwater and/or came from uncertainty in the estimates. ICPRB showed the results of the calibration in terms of the distribution of modeled and estimated chloride concentrations and pointed out that the model did a good job of matching the estimated concentrations, particularly in the higher end of the concentrations. ICPRB explained that the goal was not to match each event, but instead to match the distribution of concentrations. The distribution of concentrations determines the extent to which water quality criteria are exceeded and therefore how much chloride loads must be reduced to meet the criteria. Finally, ICPRB showed the modeled load reductions using two model periods and compared them to the estimated chloride concentrations. All of the modeled load reductions ranged from 70-86%, which roughly matched that of the estimated load reductions.

After showing these load reductions, the floor was opened for questions. An attendee explained that the Minneapolis-St. Paul, MN, chloride TMDLs had in-stream data available, but were lacking in chloride application data. Therefore, this attendee was in support of the flow*standard approach used in Minneapolis since there are a lot of assumptions related to the sources of chlorides in the presented HSPF model. This attendee was concerned that the allocations and permit requirements would be based on those assumptions that were influenced by what groups submitted data and what groups did not. ICPRB disagreed, stating that there are more data in Accotink Creek's case, and how much chloride is applied by whom is more relevant to allocations. DEQ then asked the attendee how the allocations would be different if based on in-stream data. Another attendee then asked to go back to the slide about the period of record for the estimated chloride loads that was used for model calibration and asked if the chloride models were based on two snow events. ICPRB responded that they were not based on two events and that even if the allocations were based on data instead of the model, there would still need to be an exercise in splitting up the load and assigning/aggregating the allocations. ICPRB then stated that the model is representative of what the empirical data show. Another attendee asked, why use the model if you are not using it to allocate loads? ICPRB and DEQ responded that we haven't looked at allocations in detail yet. Regardless of application rates, we have confidence in the load reduction values. When it comes to allocations, we may use another set of assumptions. The model was useful because it could be used in Lower Accotink Creek where there were less data. The attendee then responded that the TMDL action plans will need to meet the assumptions of the TMDL. Using the model requires a lot of assumptions. What if some entities provide application data and others do not? Will the reductions be assigned differently? DEQ responded by stating that application rates can actually vary widely from one entity to another. At this point another attendee contributed that a number in a permit leaves the permittee open to a lawsuit, regardless of DEQ's stance that public safety will not be compromised through reduction requirements. The attendee with the original series of questions then stated that they would like to focus more on BMP implementation rather than who applies what and how much they need to reduce. At this point, another permittee asked how these chloride reductions will be enforced, stating that multiple entities near each other applying salt makes it hard to know which one is causing the issue. DEQ replied that if an entity can show that they are implementing BMPs, they will be in compliance with their permit. Finally, another attendee

asked whether or not the acute or chronic criteria are more impactful. DEQ clarified that from a regulatory standpoint there is no difference. However, aquatic life with different life cycles may be affected differently. DEQ continued that even if salt application stopped today, the impairment would still be there for some time because other factors, such as sediment, are also contributing to the impairment.

Following this discussion, DEQ continued the presentation by asking the TAC for their thoughts on how to set the MS4 wasteload allocations. DEQ explained that MS4 service areas are delineated within the boundaries of the MS4 by the MS4. Previously, delineated service areas for MS4s have not been available, and therefore TMDL wasteload allocations for MS4s had been estimated using surrogate land uses within the MS4 boundaries. However, given that DEQ's MS4 program has recently requested delineated service areas from MS4s, the potential exists to use actual service areas in lieu of a surrogate to set the MS4 wasteload allocations. Accordingly, DEQ asked the TAC if using the delineated service areas would work better for setting the MS4 wasteload allocations for these TMDLs, and the TAC agreed. DEQ described its intent to aggregate MS4 wasteload allocations due to their connected nature and that the aggregation will be at the level of municipality (Fairfax County, Fairfax City, and the Town of Vienna) with VDOT, public schools, colleges/universities, and Ft. Belvoir included in the aggregation. However, the level of aggregation may change upon further data evaluation.

Finally, DEQ outlined the next steps in the process, which includes finalizing the allocations, drafting the report, and presenting the draft report to the TAC and then to the public. It was noted that the schedule has been extended by about 1-2 months, and that DEQ and ICPRB are on track to take the TMDLs to the public sometime around November.

Meeting Presentation:
A copy of the presentation can be found at DEQ's website below:
http://www.deq.virginia.gov/Portals/0/DEQ/Water/TMDL/TMDLDocumentation/Accotink/AccotinkTAC4presentation.pdf