

**James River bacterial TMDL Implementation Plan Third Government/Urban
Working Group Meeting Summary**

Henrico Co. Administration Building

Wednesday, January 26, 2011, 10:00 AM – 12:00 PM

1. Attending:

Mike Callahan, Henrico Co. Health Dept.
Ed Cronin, Greeley and Hanson
Kemper Loyd, VDH
Mark Alling, DEQ
Craig Lott, DEQ
Margaret Smigo, DEQ
Debbie Byrd, Goochland County
Keith Burgess, Monacan SWCD
Rick Thomas, Timmins Group
Becky Zeckoski, Timmins Group
Shaun Reynolds, Powhatan County
Mark Bittner, Crater PDC
Kenneth W. Smith, Richmond City Health Dept.
John Woodburn, Henrico Co. DPW
Carter Teague, EEE
Bill Mawyer, HCDPU
John Fowler, HCDPW
Grace LeRose, CoR
Scott Flanigan, Chesterfield Co.
Sarah Stewart, RRPDC
Lorne Field, Chesterfield Co/MJRT
Megan Sommers Bascone, DCR/VCU
Megan Maggard, MapTech, by phone

Mr. Lott introduced rules for the meeting. The group will address issues at hand on the agenda. Other issues will be discussed at the end of the meeting as time allows. Ms. LeRose stated she would address other issues by email after the meeting.

Mr. Lott introduced maps from the handout on PowerPoint. He stated there are still information gaps that need to be filled.

The group discussed whether the James River tidal failed septic systems and costs should be included in the IP. Mr. French stated that they should be included. Mr. Perry asked what commitment would there be to correct them if in the IP. Mr. Lott stated the TMDL required NO reductions from failed septic systems in the tidal segment. Mr. Burgess stated that all failed septic systems within the landuse on Figure 6 should be included. The group voted to include all James River tidal segment failed septic systems in the IP.

Henrico DPU stated they have a code that requires anyone within 300' to connect if new construction or a failed septic. Beyond that there is no requirement to connect. There is a special program in code with cost reduction for existing homes to connect (i.e. 50% of normal fee) that they must pay and stated this might try to move us in that direction. Henrico looks to tax funds to pay rather than existing customers to pay. For folks miles away from sewer (who would have septic in the first place), it is difficult to ask them to connect and pay the fee. Mr. Lott stated it is group intent to delineate where hookups should be. Subdivisions or commercial areas pay for extension of sewer lines. If a subdivision has many failed septic systems, then Henrico Co. estimates the costs and the subdivision pays.

Mr. Flanigan stated Chesterfield Co. requires a 50% hookup in a neighborhood to put in a sewer line, but cannot make homes hook up. He thinks there is a 20yr loan program in which the county fronts the costs, which is then added to county resident's tax bills.

From the handout "Questions for the Group", Mr. Lott asked do any municipalities have information or estimates that would help determine which areas would be feasible for sewer hook-up?

Chesterfield has this information. Henrico Co. Utilities does not know but says that is Henrico health Dept responsibility. Ms. Smigo stated that when this question was asked in the residential work group meeting, Henrico County said they did not have such information but Richmond said they working on it and Goochland was interested. Mr. Burgess stated that Powhatan Co. does not have such information.

Mr. Lott asked question 2 – Do any municipalities have estimates for the number of composting toilets or other "alternative" residential waste treatment systems already installed in each watershed? Chesterfield Co. has 507 alternative systems. Powhatan Co. has 116 alternative systems county wide and said they could try to parcel these out by subwatershed. DEQ stated we could make shapefiles available on the FTP site for counties. Henrico does not have this information, but group should ask Henrico Health dept. Henrico says they have septic failures county wide but not by watershed. Ms. Maggard said these estimates will give localities credit for what has been put into watershed, what's already been done. Henrico stated they have 425 failing septic county wide. Ms. Maggard said as long as we can get estimates these can be put in the IP.

Mr. Lott asked question 3 – Is the City and VDH looking into the differences in homes with septic systems in VDH data (140) and homes with only water connections in City data (1300)? VDH said thinks there are some errors between reporting, that there may be more than what they have and less than what CoR reports. They are working together. Mr. Smith of the City HD stated the problem occurred in the 60s and 70s when Richmond annexed part of Chesterfield. A lot of that information was lost due to changes in infrastructure. The information they have is there are 130 homes in annexed area on septic systems. The City sends them pumpout letters every year. Utilities might say 1300 but City HD has no idea where that number comes from. Ms. LeRose says they

are not just in the annexed portion; some are in the City portion of the Falling Creek watershed.

Mr. Lott moved to next agenda item, Potential measures to address urban sources of bacteria and/or stormwater volume. MapTech added columns describing difficulty of installation and how to include in IP. Quantify vs. Promote – to be able to quantify we must have efficiency values to include the BMPs in the model. Promoted practices do not have efficiency data but are deemed to be beneficial. Ms. LeRose wanted to clarify...when you say “quantify” you mean you have efficiencies and Ms. Maggard agreed, either efficiencies or we can model the storage/removal of rainfall/runoff and get an amount of removal of bacteria in the HSPF model. Table footnotes will be rectified. In table 3, which does not include all the footnotes because modeling is not finished yet, there are some estimates in a table that are tentative and mostly ranges. Ms. LeRose noted that there is a big leap from volume retention to pathogen removal. Mr. Lott agreed and said there are effects in both directions between the two.

Mr. Lott stated Table 2 shows specific bmps and how they might be described in IP. Again, for SW and will go into the modeling portion of the IP, affecting the volume retention and dilution capacity.

Table 3 – Potential control measure efficiencies – will used to calculate removal where special information is not available or included in the model in some way. If there is other information we need to include it. The list continues to grow. Mr. Cronin brought handouts for what G&H have so far for the group, to be discussed if there is time. Mr. Cronin and Ms. LeRose also have some items that could be discussed in the next steering committee meeting.

Mr. French sought better references for Appendix 7. Ms. Maggard stated that those references came from the ACB by email from study summaries, from which she found bacteria and range. Ms. Maggard will rectify and provide all references.

Mr. Perry asked how loads factored into volumes. Ms. Maggard said she will calculate the relative load reduction benefits of say residential pet waste vs. vegetative filters. She asked the group not to get stuck on how she does the percentages, although the group needs to understand that. Mr. Perry asked for example if Henrico gives Ms. Maggard a specific number of BMPs, she will respond if that resulted in a sufficient reduction. Ms. Maggard said yes that is how it will work. From the practices in the table, she will tell us how we’ll include each in the project. For example tree planting is a great idea in any landscape but not a specific bacteria removal BMP – that’s why it’s in the “PROMOTE” category. To specify the number of trees we need to plant is hard to quantify. So, trees planted will not get a quantifiable reduction, but will benefit above and beyond the estimated BMP load reductions.

Ms. Maggard gave a brief description of how the reductions and loads are determined: We have a bacteria load reduction required by the TMDL (by source/land use). Any direct source like removing cattle from the stream takes load out of the system. She has

bacteria removal efficiency, direct load efficiency, land use efficiency, which is how well the BMP removes bacteria from the land use type, and buffer efficiency. A pet waste program on residential land and fencing cows out on pasture land are different types of bacteria removal. She makes sure her BMPs are based on where she puts in land use. She models what if I get rid of all straight pipes, fence out all cattle and take away 75% pet waste; what percent reduction does that equal. For SW BMPs like raingardens, she puts in acreage total treated by each BMP. She tries to put in as few BMPs as she can to get the TMDL load for that impairment. Bernard's Creek has its own model. As long as she has correct land use and loads from the TMDL and she has relatively reasonable bacteria removal efficiencies, we can get to scenarios that make sense.

Mr. Perry asked one more question on quantity control for storms and runoff of different sizes, like a 10 yr storm when we get surges to system. Rain barrel efficiencies impact a 1 year storm but not as much for a 10 year storm. How will we quantify that? Mr. Lott said we will work on that, but that question makes sense. Ms. Maggard said we have to use the efficiencies in Table 3. There are other SW BMPs that are less about bacteria and more about runoff. She puts those into a model and that will tell us based on the volume retention what kind of a reduction we get.

Moving to "questions for the group" on page 4 of the handout, Mr. Lott asked of the SW BMPs in Table 3, are any more likely to be installed than others? He recognized that it could be a very detailed answer – a response might be more appropriate in an email, but he wanted to present this to the work group as a whole. Ms. Maggard needs to know as a whole – what is preferred by the GUWG for SW BMPs?

Ms. LeRose stated this answer returns to efficiencies. She said first it must be decided which are the most efficient BMPs. She stated that rainbarrels do not remove bacteria, so cannot start with them. If the group makes the assumption that phosphorus removal equates to bacteria removal, she thinks that is a slippery slope. She wants a defensible path forward, for example, the group prefers BMPs xyz because they remove bacteria, and here is the proof. She can take that to ratepayers and justify large expenditures.

Mr. Burgess stated his email of yesterday expressed his concerns. He asked if it was better to remove flow.

Mr. Cronin stated that the group cannot rely on one efficiency either, that there is a range.

Mr. Lott replied that the IP is a model to provide us with an estimate. He asked if the group would like to be conservative in expressing efficiencies and have more BMPs required. There are a lot of factors (placement, engineering capacity, and maintenance), etc...which we can't address in the IP. The IP will address model description (like Lynchburg did), and describe drawbacks/difficulties in model assumptions, which could relate to calculations, which could result in poor decision making – but we will state that that the goal is to minimize the chance of that happening. So WG – do you want conservative estimates on the "ranges" of BMPs, or not? We have to plug one efficiency

number for each BMP into the model, so do you agree that we should use the most conservative number in the BMP range?

Mr. Cronin repeated the idea that with high reductions required by the TMDL, are we being truthful we will get to an endpoint. So can group give a range?

Mr. Lott replied that the literature efficiencies are the best we have, and asked the group to please provide better ones if anyone has them. We are soliciting for additional information to get a better technical document than we've done in the past.

Mr. Cronin agreed, saying that Ms. LeRose is right that we need good understanding of efficiency of the BMPs because of wide ranges in the literature. Today might not be right place for this discussion.

Mr. Lott repeated the question; which BMPs does the group want to install, how do we select the most likely things to install? And if the group is not ready to answer today, that is OK.

Mr. Perry stated that it is easy to eliminate the ones we won't use, like green roofs which are too expensive. The choice may come to whether there is the occasional grant, but the question comes back to the quantity. Let's say we have a green roof and pet waste on yard below it. He can calculate the reduction of bacteria removal from the buffer...but has a hard time configuring what the green roof gives based on volume reduction. So what is the better reduction – green roof or the pet waste program? He said unless there was a great reduction in volume going to sanitary sewer overflows, he has a hard time recommending volume control.

Mr. Lott stated that volume control is specifically for CSO watersheds in the TMDL. If considering a non-CSO watershed, we just consider including them. Henrico staff stated they do have sewer system overflows (SSOs) which come from groundwater through I&I, so a connection to rainbarrels is a jump.

Mr. French mentioned it's a good thing if the IP includes LID practices because it opens up options for NGOs to work within their toolbox to help with these things. He doesn't want to see limitations in the document. The ACB wants to help localities that want to see these implemented. Ms. LeRose stated that is a nice goal but it is more important to keep bacteria out of the James River, that LID does not give a large bacteria reduction. Mr. French disagreed with this premise due to the existence of literature that shows LID BMPs do have an effect on reducing bacteria levels.

Mr. Lott stated his understanding is that governments wouldn't want to direct money for reducing bacteria to be spent reducing volume (Ms. LeRose said correct) but he understands the reasons to not limit ourselves in the IP.

Ms. Maggard stated that half of these questions are answered later in the handout.

Mr. Lott referenced group to Table 4 – MapTech hasn't done the analysis for all streams – this is for green roofs and rainbarrels? Ms. Maggard had information on their water

holding capacities and their hydrologic functions to include in the model. This was done as an exercise to see where these reductions would get us. Mr. Lott said the benefit of including SW BMPS, that we will get limited reductions of bacteria to get us to goal but potentially have better access to funding of things we'd like to see (but less efficient in addressing our problem).

Mr. Lott asked the second question for the group about SW BMPS tables 2 and 3 – any BMPs missing from the list that the group wants to use? MapTech did calculations on green roofs and rainbarrels. Any others you'd like to see in the IP that might get us to bacteria reductions? MapTech asked if any other BMPs besides those in the tables have been installed.

Henrico staff asked if there is any way to have some pet waste collection system? Ms. Maggard replied yes, as a non-structural BMP. Ms. Maggard stated that Table 2 does not include not ALL SW BMPs technically, but that she pulled table 3 out of table 2 because she has efficiencies for those. Mr. Alling said we would add BMPs from Table 3 back into Table 2. The group stated that a sand filter is not a SW reduction but probably it could be added. Mr. Burgess asked how does a sand filter benefit bacteria loading? Ms. Maggard replied that they filter solids to get to reduce bacteria.

The group asked where would we include stream restoration? Ms. Maggard said she considers that would more likely benefit sediment removal, but she does not have a bacteria efficiency for that.

Mr. Flanigan asked the group to add stream restoration and stream stabilization, the goal being to improve substrate and to get the flow more into the floodplain. Mr. Flanigan offered to submit a description of the problem and how this would remove bacteria, working with Ms. LeRose. Ms. Maggard said she cannot quantify efficiency for stream restoration/stabilization. Mr. Lott said if it includes a stream buffer that could be included as an extension of a vegetative buffer BMP. Mr. French thought this a good idea but people would have sticker shock over the cost (average of \$300+ per linear foot of stream bank restored). Mr. Flanigan added it may open up other funding sources.

Mr. Lott asked for costs on SW BMPS from the group, to be submitted via email. This would be very important. Mr. Burgess said most costs would be in the blue book or online data clearinghouse. Mr. French said the Stormwater BMP Clearinghouse hosted by the VA Water Resources Research Center at Virginia Tech has the latest information regarding available stormwater BMPs and the DCR "blue book" while still in use is largely considered outdated. Mr. Lott asked group to include sources to the costs.

Mr. Perry asked if there is a bacterial benefit to street sweeping? Ms. Maggard said that is an excellent question, this has been used with pervious pavers and there have been studies but she doesn't have any reference. This can be included in the plan. She thought there may be a 30% reduction involved. Mr. French said there was a lot of work with this in the Baltimore area. He will consult with them to try to get that information. Ms. Maggard said this was included in sediment TMDLs in the past. The city stated they may

have the average lane/mile they sweep. Mr. Perry said Henrico also has this information, and that VDOT probably has a number for that too. Ms. Maggard stated that if the group has an efficiency for this she can include it. Mr. Lott asked when did this start? Mr. Perry thought in 2004.

Mr. Lott asked question 4 – Are there are any BMPs in the watershed listed in the tables (or others) can you look up and provide? The stakeholders said they would provide this information. These do count toward the overall reduction goal. They might not contribute equally but the group would want an inventory in the IP.

Mr. Lott asked the last question - what counties/cities have mandatory pet waste pickup programs? Richmond does. Mr. Lott said he was unsure how to include the question of parks/highways/rest stops pet waste collection, but does anyone have specific programs for pet waste collection watershed wide?

Goose control is applicable but its unsure sure if that falls within pet waste collection. Mr. Burgess stated its not known how to measure the amount and reduction, but it's a valid number and just as heavy as pet waste (Ms. Smigo notes that pet waste is a heavier load) but goose waste is something we cannot control. Ms. Bascone stated that was something JRAC was trying to control. It is a special issue those folks are trying to address. It is also being addressed in the Park system by some direct means and some indirect (education program) they want non-controversial methods, such as dogs and landscaping which can help. Mr. French stated that goose egg oiling programs have been effective at reducing populations in some urban areas. Simply removing eggs is bad because geese will lay more. Mr. Cronin stated goose control was written into the Hunting Creek TMDL. Ms. Maggard said the DGIF is involved too. Mr. Lott and Ms. Maggard discussed this on Monday, consulting DGIF to try and pull that into the plan. Mr. Lott volunteered to check on nuisance level; Mr. Cronin questioned what would be a nuisance level, so we can see what would be reduction? Ms. Maggard said we can write a wildlife management plan into the IP. Mr. Lott said this would contribute to the overall reduction goal. Ms. Maggard can include this in all sectors, agricultural, residential and urban. Mr. Lott said that if localities put in ordinances to discourage feeding geese this can help in reducing the fecal from wildlife, as was done in Virginia Beach. This was included in other plans. Mr. French said there is a 6 month archery season for deer in the city.

Mr. Flanigan presented a Chesterfield Co. project counting failed septic systems using GIS tools in the Powhite Creek watershed, trying to identify where to make repairs for the least expense (biggest bang for the buck) for removing failed septics and hooking them up to county sewerage. He first showed a layer with the Powhite watershed and 3 DEQ bacteria stations. The entire creek is impaired for E.coli but there may be variations (hotspots). He added a GIS layer with septic systems installed between 1930-1990, there were 671 of these. Most were in the southern half of the watershed in the older lots. Older septic systems have more problems. He also had newer septic systems (1991-2011) on the layer to differentiate between older and newer septic systems. He added a layer for 105 septic repairs between 2000 – 2010. There are clusters of septic lots and

failures on the map. There could be other important layers to add, such as soil level, distance to water table, etc. He next added a layer with a 1000 ft setback from creeks, showing that most of the lots and repairs are outside the 1000 ft setbacks, farther from the creeks, which is good. Next he added a layer for sanitary sewer lines. It is unknown if I&I contribute to Powhite bacteria load. He believes the county should not automatically assume that bacteria load comes mostly from storm water in Powhite Creek, that the large number of failed septic systems may be more of a problem. All lots are less than 1 acre. Lots colored yellow are close to sanitary sewer lines, where there would be an approximate \$5-6000 hook-up fee (actually \$3200 hookup plus \$1500-5000 Installation fee). Of the 671 septic systems, 522 lots < 1 ac and 151 are within 100 ft of the sanitary sewer line. The Chesterfield Health Dept. says the hook-up fee is \$6-8000 whereas a repair might cost \$1500, therefore a homeowner is most likely to make a septic repair rather than hook up to the county line. There are large areas/neighborhoods with septic problems not close to the sewer lines, and Chesterfield Co. is working with the utilities dept. on how to work on that problem. If there was a way to bring that sewer connection cost DOWN – to make that more favorable, maybe the county could encourage folks to connect to sewer lines.

Mr. Gregory stated that the five or six areas at the bottom need sewer assessment district to come in and assign a dollar figure which may be more like \$35K each to connect for example). Even an alternative system would be less costly than connecting these homes.

Mr. Lott asked how the other localities deal with this. Lynchburg has failing infrastructure, so they asked for the IP to include a white paper on this to take to funding sources. Mr. Lott asked the group localities to think about this, are we facing the same problem? Do we want to describe it in detail in the IP (within the confines of our mapping)? The IP might not make a specific recommendation (i.e. this locality must do this and that); rather, it could define the problem in more detail. He asked that localities state their status.

. Henrico Co. stated that as localities develop SW utilities to address the Bay TMDL – it will be interesting how to address the issue. Henrico will collect \$\$ to reduce N, P, and sediment load. They think failing septic systems may be creating a larger load than anyone else, citing studies in Maryland. Should those on septic systems get a bigger charge because they have septic systems – even if operating properly? Could this encourage them to connect to public sewer? VDH said there is a 4% nitrogen load from onsite estimate in the Ches. Bay TMDL.

Ms. LeRose brought up shifting of costs. If on septic – families do not have utility bills. Churches don't think they should pay the stormwater fee. How do we charge and how do we spend it?

Mr. Flanigan said the bottom line is to improve water quality of Powhite Creek. He wants to address each station to see where are the hotspots, to correct areas where connections would be prudent. He wants to see if pollution problems are from septic systems or public sewer connections (infrastructure failure).

Mr. French agrees that human health issues should come before LID concerns.

Craig says we answered all the questions for the group, with 5 minutes left in the meeting. There are some action items:

He would like to get feedback from the group, especially to the items they stated in this meeting they would provide.

Mr. Lott proposed another meeting of this work group, however Ms. Smigo said that will be difficult to do with the tight timeline to have a draft IP by the deadline. Mr. Lott didn't want to discount any suggestions.

Ms. LeRose said we could do the IP fast or do it good, and she would rather it be late. The group does not have an option to be late because of the stimulus funding return deadline. The group must have a draft IP. If there are considerations we ignored because of time or cannot address resulting in significant change, we can come back and withdraw the report to the SWCB and fix it. Mr. Perry asked if we can ask EPA for an extension. Mr. Lott stated it is not EPA actually; they are just the conduit for the stimulus funds. Stimulus funding extensions are usually not granted. If we have no draft report at end of the timeline, we must give back the money we accepted.

Mr. Burgess asked what happens if the IP is drafted, but it's not the best it can be?

Mr. Lott said the Lynchburg had a 20 yr schedule w/ 5 year Phased evaluations, the first time a 20 yr schedule was used, because of the CSO situation. The IP is not a permit or regulation. We will evaluate the post implementation monitoring and what practices are put into place (and try to play into the Bay TMDL) during the first 5 yr period (and subsequent periods). Gov't. urban group members are welcome to make recommendations to the steering committee or provide emails.

Mr. Lott asked if this group would like a similar 20 year timeline? Ms. LeRose stated the City wants no timeline.

Mr. Burgess said the Bay TMDL will achieve what we're trying to do because it will also require the same things. The same BMPs in urban will address same BMP reductions.

Ms. LeRose stated the difference is the endpoints in bacteria load in this IP and nutrients and sediment in the Bay IP. If asking for 99.5% reduction in bacteria load, how do we get there?

Mr. Burgess said that if we check back in 5 yrs, are we achieving what we are supposed to?

Mr. French said that is a reasonable timeline and can guide us.

Ms. Maggard said that the standard timeline is 15 years, with 5 year checkpoints. Lynchburg was first to have a 20yr long timeline.

Ms. Byrd stated that in this economy, for the first 5 years you won't see typical development, people are doing less because of the economy, so we should not do evaluations like we normally would. And there will be less investment in retrofitting. The first phase should be extended because of this.

Mr. French said we could rather interpret this as a challenge. For example, state ag BMP got started in 1985 and took a while to become commonplace. Timelines for reviewing progress of this effort are necessary, otherwise the funds used for the Implementation Plan would be wasted by producing a document that does nothing more than sit of a shelf and gather dust. The concerns stakeholders have are understandable. However, if the information DEQ is providing is correct, no one's wrists will be slapped if interim goals are not met. The process is established so that we can check on progress of the implementation effort if it is extended over a long time period. Checkups every 5 years would be a reasonable timeline.

Mr. Burgess said we will forget about this because of personnel changes, we will have many new people at the table in 5 years.

Mr. Flanigan believes the MS4s will somehow be tied to TMDL BMPs. Mr. Fritz (not attending today) said this in the first meeting. The group asked if localities can use the IP to help achieve permit requirements.

Mr. Lott said yes, localities should use the recommendations in the IP as a planning tool in MS4 permits.

Mr. Lott asked that members email additional questions to him.

The meeting adjourned at 12:08.