

FINAL

Thursday, January 17, 2008

To: The Rivanna River Basin Commission

From: The RRBC Technical Advisory Committee

Subject: TAC January 11 meeting summary

The agenda for Friday's Technical Advisory Committee meeting contained five main items: 1) developing a report on management practices, 2) testing management practices, 3) field trip ideas, 4) developing a better phrase and definition for altered hydrology, and 5) discussing the need for grant funding.

Developing Report on Management Practices

Greg Harper gave a report summarizing the research he completed on stormwater management practices since the last TAC meeting. Greg said that the last comprehensive literature review on this topic was done by EPA in 2000. Since then, there has not been a large effort to synthesize the literature on stormwater management practices. There are three major databases that include information on the effectiveness of practices:

- International Stormwater BMP Database (<http://www.bmpdatabase.org/>) – over 300 studies
- EPA, Urban BMP Performance Tool (<http://cfpub.epa.gov/npdes/stormwater/urbanbmp/bmpeffectiveness.cfm>) – 220 studies
- Center for Watershed Protection, National Pollutant Removal Performance Database – 166 studies

There are also pilot projects and case studies assessing the effectiveness of various practices. In addition, there are websites dedicated to stormwater management, such as the Low Impact Development Center (<http://www.lowimpactdevelopment.org/>), Center for Watershed Protection Stormwater Manager's Resource Center (<http://www.stormwatercenter.net/>), and the EPA website. Greg mentioned some other groups as well, such as the Etowah group affiliated with the University of Georgia. This group is similar to the Rivanna River Basin Commission, and is comprised of representatives from each of the counties and municipalities in the watershed. The Etowah group has proposed a runoff limits program to control the volume of runoff from new developments. This is in addition to the stormwater quality and quantity controls already required. Greg added that Pennsylvania has also produced a stormwater manual that has volume limits. He mentioned that the local governments in the Rivanna watershed don't have regulations for volume control and said that is something they may consider doing. Dave Hirschman added that the trend in stormwater right now is for states to go toward volume controls. Greg said there are also some reports on the economics of these practices, such as the report EPA recently released that compares the cost of LID to conventional stormwater management. This report showed that LID was less expensive than conventional practices.

Greg concluded from his review that there is enough information available on this topic that it would take a significant effort (about 100-200 hours of work) to gather and synthesize it. However, he does not think synthesizing the information would necessitate hiring a consultant and spending a lot of money. He proposed two options: 1) a subcommittee of the TAC could complete the literature review, or 2) an intern could do the work at a rate of about \$12/h which would be much cheaper than hiring a consultant. Greg added that whoever does the work needs to have very clear instructions on the goal and outcome of the review.

The TAC also had a discussion about looking into management practices to address stormwater quantity on non-developed land uses (such as reforestation and riparian buffers in agricultural areas) in addition to practices designed for developed sites. Ridge Schuyler suggested that the TAC may be able to do a basic modeling exercise to determine how close to the forested condition they can get with practices to control quantity on development sites. The model could use growth predictions to determine the extent of future development, and use data on effectiveness of practices to determine how much volume reduction would be possible in the watershed if all future developments have these practices in place. If the model shows that they can't get all the way to replication of the forested condition with practices on new development sites, they can determine what other practices need to be done in the watershed to get to the forested condition. Dave mentioned that the Center for Watershed Protection is working on a tool that will tell them how effective various practices are at reducing stormwater quantity. With this tool, they could calculate how much runoff would be on a site if it were forested and how much would be there after the site was developed. They could then subtract the difference to determine how much volume would need to be reduced on the site to return the hydrology to that of the forested condition. Dave added that they can get to watershed protection if development gets as close as it can to the forested condition and a credit system is in place which requires developers to contribute to reforestation/protection elsewhere in the watershed. Ridge said that if they determine from the modeling exercise that new practices on development sites won't get them all the way to the forested condition, the model would give them actual numbers for practices that would be required on non-development sites (such as planting X acres of trees). They would need this specific data to go to the localities and tell them exactly what is required to protect the watershed. Several members felt that the modeling exercise does not need to be too complicated, it just has to give them enough information to be confident about what is required and ensure that others are comfortable with their credibility.

Dave mentioned that Tom Schueler of the Chesapeake Stormwater Network is working on a literature review of BMPs for stormwater quantity and this report should be finalized next month. After some discussion, the TAC decided to wait until this report is finished to make a decision about how the group should proceed with a literature review/synthesis document. Dave will report back at the February TAC meeting with a summary of this report, and the TAC will decide at that point if there are gaps that need to be filled and how to proceed.

Dave also mentioned that the Chesapeake Stormwater Network report will only look at practices associated with development and won't include practices on non-development sites. To account for this gap, the TAC decided to form a subcommittee to do a literature review of practices to control stormwater quantity that aren't development-related (e.g., riparian buffers in agricultural fields). Alyson Sappington was appointed the Chair of this subcommittee, and other members of

the subcommittee include Ridge, Louise, Andrea, and Roger. This subcommittee will report back on the results of their review at the February TAC meeting.

Testing Management Practices

The group also had a discussion of monitoring stormwater management practices locally. Monitoring will provide information on effectiveness of practices taking into account the characteristics of this region and will serve as demonstration sites for the community. The TAC discussed several potential places to test management practices, including Biscuit Run and the National Ground Intelligence Center (NGIC). New rules require all federal facilities to control stormwater volume, so the expansion of the NGIC may be an opportunity to monitor practices put in place to comply with the new rules. The group also talked about the need for caution when testing practices, since effectiveness may vary in different parts of the watershed. The time frame for installing and monitoring practices is also something that needs to be considered, since it may be 10 years before a new development such as Biscuit Run is in place. Also, effectiveness of practices involving vegetation may be best measured on practices that were installed 5 or 6 years ago, since the vegetation should be fully established by now.

Discussion of Field Trip Ideas

The TAC brainstormed about ideas for field trips for Commission members. The group talked about the Commission taking two field trips: 1) to see healthy streams and manifestations of altered hydrology and 2) to see management practices. Ideas brought up by the group included:

Field Trip 1: Healthy Streams

Carroll Creek above Glenmore subdivision
Moormans River

Field Trip 1: Manifestations of Altered Hydrology

Carroll Creek below Glenmore subdivision
Ivy Creek at Verulam Farm (located at Ivy Creek exit of I-64)
Creek near Church of the Incarnation
Meadow Creek in Greenbrier Park

Field Trip 2: Management Practices

Residence near Stony Point – rainwater harvesting supplies all water use for the home
Albemarle County Office Building
 Rainwater harvesting supplies landscaping water
 Green roof
 Pervious pavement
John Paul Jones Arena
 Pervious pavement
 Biofiltration
River Bluff development in Woolen Mills
 Green roof
 Swales
Glen Oaks near airport
 Biofiltration

Riparian restoration
Greenleaf Park rain garden

Development of a Better Phrase and Definition of Altered Hydrology

The Commission has asked the TAC to develop a better phrase and a definition for altered hydrology that are easy for the public to understand. The TAC discussed a few options, and decided to use the TAC webtool for further discussion of this and to come up with some options to provide the Commission at their next meeting.

Discussion of Grant Funding

The group talked about the need for grant funding in light of some grants that are due in February. In particular the group talked about the NFWF Small Watershed Grant. This grant could perhaps be used to implement a practice the TAC wants to monitor. The group thought that while they really are in the early phases of locating a site and putting practices in place to monitor them, there may be some opportunities that are worthwhile to consider. One idea was to use funds to encourage the Biscuit Run developer or another developer to draw up a plan/design that incorporates some innovative practices. The grant funds could cover the costs of drafting the design. Another idea the group discussed was using grant funds to implement rainwater harvesting at Fluvanna High School. They might consider including some bioretention on the site along with the rainwater harvesting. Roger Black said that they have already planted the seed with the architect for rainwater harvesting at the high school but that some funding could really help to make it happen. Kate Cooper agreed, adding that if some aspects of the project are being paid for, the School Board is much more likely to do it. She suggested an appropriate next step would be for the TAC to speak to the School Board about this, with very specific information on what will be done and how it will be paid for. Rochelle Garwood said the TJPDC could pay for her time spent writing the grant if the grant would include funding to cover her time spent on grant administration. Ridge suggested Rochelle talk to Ben Sojka with Rainwater Management Solutions to get an estimate of what the project might cost. The TAC would pitch this as an alternative stormwater management practice for nutrients and sediment.

The TAC decided to form a subcommittee to look into applying for a NFWF Small Watershed Grant for implementation of rainwater harvesting and perhaps bioretention at Fluvanna High School. Rochelle Garwood was appointed the Chair of this subcommittee and other members include Alyson, Roger, and Kate.

The next TAC meeting was scheduled for February 29 at 9:30 am.

Compiled by Diane Frisbee and respectfully submitted by Samuel H. Austin, TAC Chair.