

**Final Meeting Minutes
Rivanna River Basin Commission**

September 20, 2007
6:00 pm
Thomas Jefferson Planning District Commission
401 East Water Street, Charlottesville

Attendance

Rivanna River Basin Commission (Commission) Members

Present:

Ms. Jeri Allen, Greene County Board of Supervisors
Mr. John E. Easter II, Thomas Jefferson Soil and Water Conservation District Board of Directors
Mr. Kevin Lynch, Charlottesville City Council
Mr. John Martin, Albemarle County Citizen
Mr. Marvin F. Moss, Fluvanna County Board of Supervisors
Mr. Gene F. Ott, Fluvanna County Board of Supervisors
Ms. Sally Thomas, Albemarle County Board of Supervisors
Mr. Andy Wilson, Fluvanna County Citizen

Absent:

Mr. Smith Coleman, Greene County Citizen
Mr. Mickey Cox, Greene County Board of Supervisors
Dr. Paolo D'Odorico, Charlottesville Citizen
Mr. Lindsay Dorrier, Albemarle County Board of Supervisors
Ms. Kendra Hamilton, Charlottesville City Council
Mr. Robert Runkle, Culpeper Soil and Water Conservation District Board of Directors

Speaker

Mr. John Murphy, StreamWatch

1. Call to Order

The meeting was called to order at 6:05 pm by Ms. Thomas.

2. Roll Call

Attendance was taken.

3. Determination of Quorum

It was determined a quorum was present.

4. Approval of the Agenda

Ms. Thomas suggested moving the StreamWatch presentation to after "Reports of Committees."

5. Comments from the Public

There were no comments from the public.

6. Approval of the Minutes of the Preceding Meeting

Ms. Thomas requested the word “NGIC” be replaced with “Army” in the last sentence of the “Report of the Chair.” Mr. Moss moved to approve the minutes with the change, Ms. Allen seconded the motion, and the motion was approved unanimously.

7. Report of the Chair

Ms. Thomas informed the Commission that she recently went on a family trip to the Galapagos and learned a lot about ecology on the trip. She also reminded the group that the Chesapeake Watershed Forum is coming up October 12-14 and she and Mr. Moss will be presenting at the workshop. Ms. Thomas also commented that the Chesapeake Bay Program of EPA is criticized for consuming billions of dollars and not cleaning up the bay. The Chesapeake Bay Program now has a new director, Jeff Lape, who has visited this area and is very interested in the work being done in the Rivanna watershed. Mr. Lape has said that local governments and local groups need to be added to the Chesapeake Bay partnership. Ms. Thomas stated that she is excited that more money and resources will be going to local governments since they are the ones that approve development, implement erosion and sediment controls, etc.

8. Report of the Fiscal Agent

Mr. Ridge Schuyler of The Nature Conservancy (TNC) stated that none of the Commission’s funds have been spent and the funding in hand totals \$297,308.83. Donations are still coming in. Mr. Schuyler reported that the money is earning interest, but the balance he stated does not reflect interest for this year. Ms. Thomas suggested that perhaps we should compare the portfolios of TNC and the Thomas Jefferson Soil and Water Conservation District (TJSWCD) to determine which might earn more interest.

9. Reports of Committees

Mr. Samuel Austin introduced himself and gave a report of the Commission’s Technical Advisory Committee (TAC). Mr. Austin is a hydrologist with the U.S. Geological Survey (USGS), and was appointed Chair of the TAC at the TAC’s August meeting. Mr. Austin stated that he feels very fortunate to be part of the TAC and said that the TAC is a wonderful, bright, energetic group who are working very hard. Mr. Austin said he has been with the USGS for 1 year, and prior to that worked for the Department of Forestry for 17 years as a forest hydrologist. He lives in Earlysville.

Mr. Austin said that the TAC had a very energetic meeting on September 19. He said that the group reviewed a draft mapping proposal presented by John Murphy and continued their substantive discussion of threats to the Rivanna watershed and pathways toward desired future watershed conditions. At their meeting, the TAC resolved to bring the following recommendations to the Commission:

1. The TAC recommends approving and moving forward with the mapping project as proposed by John Murphy. The map will provide an up-to-date baseline characterization

of land cover and land use features at a level of detail essential to facilitating decision making by the Commission.

2. The TAC recommends identifying altered hydrology as a systemic and over-arching threat to the health and sustainability of water resources within the Rivanna River Basin. Such identification will facilitate focused actions to develop tools, guidance, and recommendations that restore naturally occurring hydrologic conditions throughout the watershed.

Mr. Austin explained that alteration of hydrology is linked to many problems in watersheds, and that there is a strong consensus among experts that when the natural hydrology is disrupted, there are effects such as reduced infiltration and accelerated runoff. He stated that there is a myriad of effects of altered hydrology. Mr. Moss asked Mr. Austin if altered hydrology was related to the land cover mapping project. Mr. Austin replied that it was related, since altered hydrology is linked to changes in land use and land cover. Mr. Moss asked if there are existing maps from 10-15 years ago that can be compared to the new map to look at changes in land cover. Mr. John Murphy, a member of the TAC and Director of StreamWatch, replied that the older maps aren't at the same level of detail as the new map the TAC is recommending, so some comparisons are difficult and expensive.

Ms. Allen asked what kinds of recommendations might flow out of the identification of altered hydrology as the threat to focus on. Mr. Austin said that there could be a lot of recommendations that come out of this, and that the TAC is still discussing this. He provided an example that the TAC might look at management strategies to try to capture excess runoff and allow it to infiltrate in a manner similar to the natural hydrology of the forested condition. Mr. Ridge Schuyler added to this that a question they should ask is "what can we do to try to replicate the forested function?" He stated that one idea could be to collect runoff from roofs in cisterns rather than having the runoff directed to gutters and directly into streams. The cistern collects the water and the water can then be infiltrated into the ground as it would have been if the area were forested. He stated there are also other practices, such as raingardens and soil amendments, that can help replicate the unaltered hydrology of the forested condition.

Mr. Schuyler added that we don't know how effective the different management strategies are, how much they cost, and how acceptable they are to consumers. Mr. Austin said that there may be different practices we use in different parts of the watershed. Mr. Murphy stated that at the TAC meeting Mr. Schuyler quoted a recent study and asked him to share it with the Commission. Mr. Schuyler stated that most practices in conventional stormwater management have been focused on pollutant removal, such as nutrients and sediments, but have not focused on the problem of velocity and volume. He quoted a recent report by the EPA Office of the Inspector General entitled "Development Growth Outpacing Progress in Watershed Efforts to Restore the Chesapeake Bay." He quoted an excerpt from the report which states "effective stormwater management in the watershed remains hampered by the lack of adequate research on new management practices." The report also states: "Communities may also be reluctant to invest in practices without further information on effectiveness." Mr. Schuyler added that the stormwater regulations are being rewritten and there is a technical advisory committee that is participating in this. He said that as part of this, they have acknowledged that there is good

information on the effectiveness of management practices for water quality, but the conservation community has not been able to speak with one voice about the effectiveness of practices to address water quantity and about which practices should be recommended.

Mr. Austin said that, now that the TAC has identified altered hydrology as a major threat, the next step will be to think about management strategies to abate the threat. Mr. Ott stated that he thinks having the TAC is a really good thing. He said that we have been talking about sedimentation as an effect and now we have identified the cause. He added that it seems like the Commission really might be able to do something about this issue. He said that at Lake Monticello they have spent a lot of money to deal with some of the problems altered hydrology has caused to the lake. He suggested we talk to the folks that have worked on these issues at Lake Monticello to learn from them as well. He applauded the TAC for their work.

Mr. Lynch said that he was a bit confused about this, because from the City's perspective, they have looked mostly at flow and not at water quality. He said that, for example, the volume of water leaving a development has to be the same as the pre-development condition, and detention and other methods are used to do that. Ms. Thomas replied that these regulations mean that they are controlling the peak rate of flow but not the volume. Ms. Alyson Sappington of the Thomas Jefferson Soil and Water Conservation District (TJSWCD) said that the regulations Mr. Lynch is talking about require that peak rate of flow is the same before and after development of a site. She explained that after developing a site, you have a higher volume of water than before development. As a result, what you end up doing is extending the amount of time that the peak rate of flow occurs since the volume of water is higher. Ms. Allen stated that on her property she has seen the water raging in the streams after storms, and that this has only started happening in the last 15 years and must have resulted from someone altering the hydrology upstream.

Ms. Thomas stated that it seems the TAC has decided that streambank erosion is the major source of the sedimentation problem rather than overland sediment coming from places like Hollymead. Mr. Austin said that he thinks addressing altered hydrology will address both of these sources, because both problems are connected. He said that if we fix altered hydrology, we'll be able to address both sources of sediment.

Ms. Thomas stated that she can see how this will affect Albemarle, Fluvanna, and Greene counties but asked how it will affect Charlottesville. Ms. Sappington replied that we can work to control volumes in the urban areas, and said that collecting rooftop runoff is a great example of how to do that. Ms. Thomas said that this will be harder since you will be retrofitting in these areas. Mr. Lynch said that he thinks the City has a good definition of the problem already. He said that the City has gone from looking at peak flow to looking at quality, and we're talking now about a quantity problem also. He asked where we would get the money to do this, and said that we know what management practices to use, we just don't have the money to implement them in the City. Mr. Austin said there are practices that address multiple aspects of the problem simultaneously and we should look at those. Mr. Moss asked if there are any federal programs that could help underwrite some examples of these practices that could be done in Charlottesville. He said that since Charlottesville is an urban area it has a greater preponderance of the problem. Ms. Thomas replied that the document that Mr. Schuyler cited indicates that there will likely be some funding if we tackle what the report has identified as a major problem.

Mr. Ott disagreed with Mr. Lynch that we know what to do and the problem is a lack of money. He said he thinks we don't know what to do to address the problem.

Mr. Austin added that this is an incredible opportunity to do something that hasn't been done before. Ms. Thomas mentioned a program she saw recently about how to get a house LEED certified. She said the architect told them about cisterns and a purification system in place which has replaced the need for the homeowner to use his well. Ms. Sappington said that there are quite a few systems like this in place in this area, including Mr. Wilson's home. Mr. Wilson said that his system collects 500 gallons of water for each inch of rain. They use the water for their washing machine, toilet, greenhouse, barns and garden. Ms. Allen added that her sister has a similar system in her home.

Ms. Thomas thanked Mr. Austin for his report and said she looks forward to learning more about this. Mr. Lynch said we have to be able to show that these practices are working. Mr. Moss said that it sounds like we could be requiring things in new development and then incentivizing retrofits. Mr. Martin stated that he has attended all of the TAC meetings and has been very impressed. He is glad the environmental staff of the localities are a part of the TAC, and added that the meetings have been very dynamic and the localities should be very happy with their staff.

Presentation by John Murphy, Director, StreamWatch

StreamWatch

Mr. Murphy gave a presentation about StreamWatch. StreamWatch is a program of 8 different organizations, including Albemarle County, the City of Charlottesville, Fluvanna County, The Nature Conservancy, Rivanna Conservation Society, Rivanna Water and Sewer Authority, the Thomas Jefferson Planning District Commission, and the Thomas Jefferson Soil and Water Conservation District. StreamWatch engages many members of the community, including planners, scientists, volunteers, landowners, and the public, as well as governmental and quasi-governmental partners. StreamWatch has a technical advisory committee and a steering committee, many members of which also serve as members of the Commission's TAC. StreamWatch makes reports of its findings to groups such as the Boards of Supervisors and the Commission.

StreamWatch was started in 2002, with a mission to monitor and assess Rivanna basin streams and rivers to help the community maintain and restore healthy waterways. Mr. Murphy said the hope is to get consensus on conditions in the watershed and factors driving the conditions, so that we can identify appropriate management strategies. He said that dovetailing the work of the Commission with the work of StreamWatch will be a great opportunity for collaboration and will ensure that efforts aren't being duplicated. He said that StreamWatch will provide data, and the Commission will work to develop solutions.

Mr. Murphy gave an overview of StreamWatch's 2006 study and report. The Clean Water Act requires states to establish designated uses and standards. The aquatic life standard is proscribed by a numerical biological index that reflects the health of the stream's "bug" community (benthic macroinvertebrates). StreamWatch uses a version of Virginia Department of Environmental Quality's index to determine whether streams are attaining the aquatic life standard.

StreamWatch uses biomonitoring to collect aquatic bugs to assess water quality. A community with several different kinds of bugs, some of which are intolerant, is a healthy community. An unhealthy community is one with fewer types of bugs, many of which may be tolerant species. StreamWatch collects 5-6 samples from each site they sample and calculate a biological index that reflects the health of the bug community. StreamWatch uses five health tiers based on the biological index scores. There are three major categories: *Very good* and *good* meet aquatic life standards, *Fair* fails standards but could recover, and *Poor* and *very poor* are probably persistently impaired. Mr. Murphy said that about half of the streams in the Rivanna watershed meet the aquatic life standard. He said this is mostly in keeping with what has been found nationwide.

Mr. Murphy said that the Commission's TAC is leaning toward using biological indicators to assess stream condition and to measure success of management strategies. Ms. Thomas stated that most people want to know if they can drink, swim in, and eat fish from their streams. She said this is what people care about and asked how bug sampling relates to that. Mr. Murphy replied that the fishable/swimmable standard is the most common set of standards. He said that the fishable standard is measured using the bug method in most states and the swimmable standard is measured by fecal coliform. He said that in this sense, the bug method relates to the concerns Ms. Thomas mentioned, but added that it is up to the scientific community to teach people that if a stream isn't supporting healthy aquatic life it is probably not providing other services either. Ms. Thomas replied that it is not directly comparable; for example, if a stream ranks as very poor with StreamWatch's method that doesn't mean you can't drink it. She added that the TMDL might give us this information. Ms. Sappington stated that she thinks the StreamWatch method is better because it gives you a composite picture of a stream's health. She said the standard tests, such as toxins, don't tell you as much. Ms. Thomas said that it may be up to groups like the Commission to educate the public on this. Mr. Schuyler stated that the bugs are indicators of life. He said people want rivers that are full of life. He added that there is a separate issue of fecal coliform which doesn't affect bugs, but makes people sick. StreamWatch measures aquatic life, and the TMDL is measuring both aquatic life and bacteria. He said that people often conflate the two. There are really two questions: 1) is the stream teeming with life and 2) can we drink the water. Mr. Murphy agreed and added that messaging is very important. He said that it isn't just the bugs that are important, but what they indicate about the health of the system.

Mr. Lynch said that he likes the StreamWatch program because they monitor on a regular basis and he doesn't think bacteria is monitored as often. He asked if it would be possible to put the bacteria data with the StreamWatch data to integrate the two. Ms. Thomas asked how often fecal coliform is measured. Ms. Rochelle Garwood of TJPDC replied that it is measured monthly to quarterly, but sometimes isn't measured for a couple of years at a time. Mr. Murphy stated that DEQ has other data such as nutrients, total suspended sediments, pH, etc., and said that a very comprehensive study would incorporate all of this data and look at it. He added that this may be something that the TAC should think about doing. Ms. Thomas said that she pictures an annual document that presents both sets of data. Ms. Allen asked if the diversity of bugs has an impact on fish or other organisms that people may be better able to relate to. Mr. Murphy replied that there are some relationships, but for example, you may have a stream that the bug data indicates

is not very healthy but the stream might have a lot of smallmouth bass. He wouldn't say the stream is healthy just because the fish are there.

Mr. Murphy went on to explain the analyses StreamWatch conducted for their 2006 report. Biological condition at sites was compared with local habitat and with land use in watersheds draining to sites. Dozens of possible factors relating to stream biological condition were tested. Most of the potential factors fell into 3 major categories: local-scale habitat, landscape-scale natural watershed attributes, and landscape-scale human-driven watershed attributes. Population density, an indicator of landscape-scale disturbance, had the strongest relationship with biological condition. The results of the analysis showed that the Clean Water Act line is crossed at a density of about 55 people per square mile, and the persistent impairment line is crossed at a density of about 210 people per square mile. Mr. Murphy pointed out the following caveats: 1) the model is applicable to 3rd through 5th order warmwater streams, 2) the model assumes current and historical human behaviors, and 3) the Rivanna River (6th order) is expressly excluded. He added that it is essential to pursue further study, but in so doing we should not imply that we can completely escape the density/stream health relationship. Most management strategies are exercised at the local scale, but the strongest determinant of stream health may be land use at the scale of the stream's entire watershed. The effectiveness of localized stream protection efforts may become increasingly limited as landscape disturbance throughout the stream's watershed becomes increasingly intensive.

Next steps for StreamWatch are to add more sites, particularly in suburban watersheds, conduct stream channel and particle size distribution assessments, conduct agricultural and forestal use quantification, and acquire an updated impervious surfaces and land cover map.

Land Cover Mapping Proposal

Mr. Murphy presented a recommendation from the TAC for the Commission to join in the collaborative purchase of a land use map of the Rivanna basin. Mr. Murphy stated that StreamWatch, The Nature Conservancy, Albemarle County Water Resources Division, and Albemarle County Natural Heritage Committee have identified the need for an updated land use/land cover map. The organizations have met five or six times since November 2006, have developed a scope of work, and have identified an approximate cost from estimates given by potential contractors.

The study area for the map would be the Rivanna watershed and Albemarle County. The map would have deciduous forest, coniferous forest, mixed forest, open land, and impervious surfaces. He showed several slides that were examples of what the product would look like. Mr. Murphy stated that effective watershed management and conservation hinges on the ability to accurately characterize land use and land cover. He stated that the map will be essential to any threat assessments the Commission may conduct in the future, including threats posed by altered hydrology and sedimentation. He added that the partners also have identified specific uses of the product, such as more effective targeting of conservation acquisitions, aid in establishment of a stormwater utility, help targeting restoration projects, and help guiding recommendations for the protection of biodiversity.

The cost of the map will be approximately \$65,000. TNC and StreamWatch have each committed \$7,000. Albemarle County has committed to fund half of the remainder, leaving a gap of approximately \$25,500. The Commission's TAC reviewed this proposal at their September 19 meeting and voted to recommend the Commission commit to filling this gap in order to complete the funding of the project. Twelve of 21 TAC members were present at the September TAC meeting and all twelve members supported the recommendation. Another member voiced support by email.

Mr. Moss stated that the map will also be useful to planning staff of the localities. He asked if the map will be made available to all jurisdictions. Mr. Murphy replied that it would be publicly available. Ms. Allen asked if other localities or partners could pitch in. Mr. Murphy said that at the September TAC meeting, they discussed adding all of Greene County and Fluvanna County to the mapping project. He estimated that this would cost about \$10,000 more for Greene and \$15,000 more for Fluvanna. He cautioned that adding the remainder of these two localities could complicate matters and delay the project. He said if Greene and/or Fluvanna elected to join in the project, it would be best if they could jump on board in the next few months. Mr. Moss said it would be very helpful if Mr. Murphy could provide to the counties an estimate from the contractors of what it would cost to add Greene and Fluvanna. Ms. Allen agreed, but added that they don't want to hold up the map project. Ms. Thomas asked why Albemarle County was paying for this if the county is also providing impervious cover data. Mr. Murphy responded that Albemarle County's contribution is for the land cover portion of the map.

Mr. Lynch asked what specifically they will be paying for. Mr. Murphy said that aerial imagery is available but you have to pay for analysis of the imagery to train a computer to look at many pixels and determine what type of land cover they represent. There is also a lot of work to fix the data by hand after the analysis. Mr. Lynch asked if PEC or anyone else already has such data. Mr. Murphy replied that they have scoured all of the available data and none are sufficient for our purposes. He said that last year the Department of Forestry completed a statewide land cover map but the map is at 30-meter resolution. The map the TAC is recommending would be at 1-meter resolution. He said that 30-meter resolution can't give you the level of detail required to do the types of analyses they have been talking about.

Ms. Thomas asked the group if they were willing to spend the first of the Commission's dollars on this. Mr. Lynch replied that he would defer to staff, because from Mr. Murphy's earlier presentation, the streams in the city won't rebound regardless. Mr. Schuyler replied that there is something about what the people are doing on the landscape that is a problem. He said that if all the people were standing there naked they wouldn't be causing a problem. Ms. Thomas said that she wasn't sure about Albemarle County's commitment to the mapping project because she thinks there is a freeze. Ms. Allen asked if the group can agree, if the TAC decided this is something we should do, that we should do it, regardless of whether or not Albemarle County can provide their contribution. Mr. Moss added that if the Commission approves contributing to the map, that could be incentive for Albemarle to contribute. Ms. Allen said that she wouldn't want the Commission's decision to hinge on Albemarle's contribution.

Mr. Moss made a motion to approve contributing \$25,500 toward the purchase of the land use/land cover map. Mr. Martin requested that the Commission's contribution be contingent on

Albemarle, StreamWatch, and The Nature Conservancy making their contributions and if the others are unable to make their contributions, the Commission can discuss this again. Mr. Ott seconded the motion. Mr. Lynch asked if this would go out for bid, and Mr. Murphy replied that it would. Ms. Thomas asked if anyone was planning to vote against this. All members present voted to approve contributing to the map project, and none opposed. Mr. Easter had to leave the meeting before the vote, but he indicated in writing to Ms. Thomas before leaving that he voted in favor of contributing to the mapping project.

Mr. Moss asked what the timeframe was for the map to be completed. Mr. Murphy said that we'll need to secure Albemarle County's funding, finalize the Memorandum of Agreement among the partners, transfer the funding to the TJSWCD, and complete the RFP process. He said that the best case scenario would be to have the contract in two months. He added that timing for the project may be contingent on when the aerial imagery is available. The map itself will probably take 6 weeks – two months to produce once the imagery is available. It will likely take another 6 weeks – two months to complete quality control.

10. Old and Unfinished Business

Organizational Items

1. Discuss field trip ideas

Ms. Thomas asked if the group wanted to do a field trip as the next meeting. Mr. Moss replied that Mr. Easter has active best management practices (BMPs) on his property that they could visit, and added that they could also visit conservation easement properties. Ms. Thomas said they could also visit sites where rainwater harvesting is being done, and perhaps visit Mr. Wilson's house to see his system. The group decided to defer further discussion on this to the next meeting.

2. Review revised letterhead

The group reviewed a revised version of the letterhead and approved it.

3. Discuss website

Ms. Garwood reported that TJPDC was willing to host the website on a trial basis and would tell the Commission if hosting the website got to be unwieldy. The Commission would need to pay for the domain name. She stated that TJPDC may not be able to do the design, depending on the graphics and other content wanted on the site. The group decided to defer further discussion on this to the next meeting.

4. Discuss need and options for legal counsel

This was deferred to the next meeting.

5. TJPDC report on septic ordinance

This was deferred to the next meeting.

6. Set next Commission meeting date

Ms. Thomas asked the group if 6 pm seemed to be a good time for everyone to meet, and noted that there has been low attendance lately. Ms. Allen replied that the Commission has been meeting every month and they originally said they would be meeting quarterly, so the frequency of the meetings may be a problem for folks. She suggested they meet the third Thursday in October, skip November and December, and then try to meet bimonthly after that. Ms. Garwood stated that WQIF proposals will be due in November and if the Commission wants to pursue that funding, they need to meet to talk about it in October. Mr. Moss said that perhaps the group could do something informal such as a field trip in November. Mr. Schuyler suggested that the Commission might want to think of specific tasks they would like the TAC to accomplish during the two months when the Commission doesn't meet. The next meeting was set for October 18 at 6 pm at the Thomas Jefferson Planning District Commission.

Initiating Work Product

1. Discuss and act on TAC recommendations – presentation by John Murphy
See “Presentation” above.

11. New business

Mr. Moss suggested the Commission do another press release about the map proposal when ready. Mr. Martin suggested it would be a good idea to formally introduce the Commission to DEQ using the new letterhead. Ms. Thomas and others agreed this was a good idea. Mr. Lynch asked if the Commission could get on the list of groups who are notified when new permits are given. Ms. Thomas replied that the Commission may be able to do that, and said that TJPDC receives these notifications and may be able to share them with the Commission.

12. Adjournment

The meeting adjourned at 8:10 pm.

Attachments:

- A. RRBC Agenda 07Sep20
- B. RRBC TAC 07Sep19
- C. Letterhead 07Sep13
- D. RRBC StreamWatch Presentation 07Sep20
- E. Map recommendation synopsis 07Sep20
- F. Map recommendation full 07Sep20
- G. Draft map MOA 07Sep20