

An adjourned meeting of the Board of Supervisors of Albemarle County, Virginia, and special meetings of the Albemarle County Service Authority Board of Directors (ACSA), the Charlottesville City Council (CCC), and the Rivanna Water & Sewer Authority Board of Directors (RWSA) were held on Tuesday, September 13, 2011, at 3:00 p.m. in "City Space" 100 5th Street NE, Charlottesville, Virginia 22902. The Board of Supervisors meeting was adjourned from September 7, 2011. The purpose of the meeting was to address the comprehensive regional water supply plan for the community.

ALBEMARLE BOARD MEMBERS PRESENT: Mr. Kenneth C. Boyd, Mr. Lindsay G. Dorrier, Jr., Ms. Ann H. Mallek, Mr. Dennis S. Rooker, Mr. Rodney S. Thomas and Mr. Duane E. Snow.

ALSO PRESENT: County Executive, Thomas C. Foely, County Attorney, Larry W. Davis and Clerk, Ella W. Jordan.

ACSA BOARD OF DIRECTORS PRESENT: Mr. Richard E. Carter, Mr. Jim Colbaugh, Mr. Bill Kittrell, Dr. Lizbeth Palmer, Mr. Clarence Roberts and Mr. David Thomas.

CHARLOTTESVILLE CITY COUNCIL MEMBERS PRESENT: Dr. David Brown, Ms. Holly Edwards, Mr. Satyendra Huja, Mr. Dave Norris (arrived after the meeting was called to order) and Ms. Kristin Szakos.

RWSA BOARD OF DIRECTORS PRESENT: Mr. Kenneth Boyd, Dr. David Brown, Mr. Thomas Foley, Mr. Michael Gaffney, Mr. Maurice Jones, Ms. Judith Mueller, and Mr. Gary O'Connell.

RWSA STAFF PRESENT: Darryl Cooper, Tom Frederick, Mary Knowles, Doug March, Thomas Skipper, Robert Wichser, and Jay Young.

ALSO PRESENT: Clerk of Council, Paige Barfield, Mr. Troy Kincer and Ms. Kim Shorter – AECOM; and members of the public and media representatives.

Agenda Item No. 1. Call to Order by Chair of Each Board.

The special meeting of the RWSA Board of Directors was called to order by Mr. Gaffney, Chairman, at 3:00 p.m., and he noted that a quorum was present. Mr. Gaffney noted that this is a meeting of four boards: Rivanna Water & Sewer Authority, the Albemarle County Service Authority, the Albemarle County Board of Supervisors and the Charlottesville City Council. He opened the RWSA Board meeting and asked other boards to open their meetings.

The adjourned meeting of the Board of Supervisors was called to order by Ms. Mallek, Chair, and she noted that a quorum was present.

The special meeting of the Charlottesville City Council was called to order by Ms. Edwards, Vice-Mayor, and she noted that a quorum was present.

The special meeting of the ACSA Board of Directors was called to order by Mr. Roberts, Chairman, and he noted that a quorum was present.

Agenda Item No. 2. Overview of Meeting, Mike Gaffney.

Mr. Gaffney thanked the public for their presence and explained that following the presentation today by RWSA staff and consultants, a public hearing would be convened whereby citizens who wish to speak would have up to three minutes to provide comments. He asked that speakers be limited to one turn at the microphone, noting that anyone who wishes to submit longer written comments may do so – and such comments would be part of the record submitted to DEQ. He asked that if they are not available today that they be sent to the RWSA by September 20. Mr. Gaffney mentioned that the meeting today would be videotaped by Charlottesville Public Access TV and would be aired on local government cable television, with the schedule of airtimes to be available on the RWSA and City of Charlottesville websites in the coming days. Mr. Gaffney noted that Charlottesville Tomorrow is streaming live video of the meeting today and would also provide a link on its website.

Mr. Gaffney reported that today's meeting represents the last of several public meetings scheduled associated with local development of a comprehensive regional water plan, adding that the idea of localities preparing such a plan grew from the severe drought of 2002. In 2004 the General Assembly ratified a bill requiring every locality to present a development plan to manage its water supply and future droughts. He said that the DEQ developed regulations in 2005 to implement the bill, including a provision that allowed two or more localities to form a region and designate an agency to prepare a regional plan. Mr. Gaffney stated that in 2006, the three localities in the region – the City of Charlottesville, County of Albemarle and Town of Scottsville – each adopted a resolution forming a region that designated the RWSA to prepare its regional plan. One of the conditions of the state regulations, he said, was fulfilled by the RWSA in 2006 with the adoption by its Board of Directors following public input of a drought response

and contingency plan. Mr. Gaffney noted that the plan would be summarized again during today's presentation.

He reported that another step was achieved in 2007 with an engineering evaluation of the safe yield of the Beaver Creek and Totier Creek reservoirs, reported to the RWSA. Mr. Gaffney stated that the remainder of the plan was performed in 2011. Earlier this year the RWSA hired a consultant – AECOM Technical Services – to prepare the new 50-year water demand forecast, extending through the year 2060. He said that AECOM representatives are present today and would participate in the presentation. Mr. Gaffney also said that a public meeting was held in July 2011 in Charlottesville, focusing on AECOM's proposed methodology for the demand forecast, with follow-up meetings held in July in Charlottesville, Crozet and Scottsville – where the firm presented its drafted demand forecast. He stated that their findings, along with comments presented at those meetings, would be presented today. Mr. Gaffney noted that state regulations require a public hearing before localities adopt a regional water plan and the Town of Scottsville held their public hearing on September 12, 2011. The meeting today will satisfy these requirements for both Albemarle County and the City of Charlottesville.

Mr. Gaffney stated that the ACSA and RWSA boards are present today and would participate in the discussion after the public hearing, but the two authorities are not required to vote on the plan – yet they may do so if they choose. He reminded attendees that the regional water plan process is separate and apart under the law from the legal process pertaining to the permit for the Ragged Mountain Dam and the process for considering amendment to that permit. Mr. Gaffney stated that DEQ is holding a separate public hearing for the permit in the main Auditorium at 7:00 p.m. on September 29 to receive comments on the permit amendment, and he asked attendees to keep their comments today specific to the regional water supply planning process.

He said that the presenters to explain information contained in the proposed regional water supply plan would be Mr. Tom Frederick and Ms. Kim Shorter, Practice Leader for Water Demand Analysis with AECOM.

Mr. Frederick welcomed attendees and thanked them for coming to the meeting. He said that there is much information included in the water supply plan, noting that all of the documents within have been on the RWSA website since August 26 and would continue to be there during the process of finalizing the plan. Mr. Frederick commented that most of the agenda for today's meeting focuses on the steps in the plan as outlined in the DEQ regulations.

He said that the City of Charlottesville, County of Albemarle and Town of Scottsville came together in 2006 and asked Rivanna to put together a regional plan for the three entities, which ultimately are the entities that approve the plan that is submitted to the DEQ – with a deadline of November 2, 2011. Mr. Frederick stated that the plan would be updated as needed and would be reviewed at least every five years because "no plan that looks at the future that anybody could put together is ever perfect." Within the region, he said, there are water service provided by several means: the urban system, with water supplied by Rivanna but distribution systems and retailing run by the City of Charlottesville for people within the City limits or the ACSA for those in the development area of the County. He stated that there are separate water systems serving Crozet and Scottsville, both of which are operated by ACSA, and some neighborhoods, schools and churches operating with a community water system supplied by wells – as well as citizens in the rural areas of the County who are on individual wells.

Mr. Frederick emphasized that they depend on water by very different means within this region [as denoted on] the map. He then presented the three documents that comprise the entire regional water supply plan proposed for submission to DEQ, adding that they are on the websites previously mentioned.

Mr. Frederick reported that the first thing DEQ asked to be addressed is the existing water sources and uses, with historical and information data gathered from various sources – noting five different categories the agency asks for. He stated that there are 17 community systems that use groundwater, with all being privately operated except for one being operated by the ACSA. Mr. Frederick said that there are three publicly operated water systems – Urban, Crozet and Scottsville – and some non-agricultural, self-supplied surface water such as those for golf courses. He stated that there are two groundwater sources that use more than 300,000 gallons per day – Red Hill Quarry and Cooper Industries – with an estimated population of 39,953 within the County's rural area on individual wells. Mr. Frederick said that Section Four of the report produced by the RWSA identifies examples of numerous sources of data including the County, the City, the U.S. Fish & Wildlife Service, the U.S. Geological Survey, and four departments within the Commonwealth.

He then introduced Ms. Kim Shorter to talk about projected future water demands.

Agenda Item No. 3. Presentation, Mr. Kincer, Ms. Shorter and Mr. Frederick.

Ms. Shorter stated that AECOM started this process with intensive meetings with stakeholders, including two days of meetings with representatives from the ACSA, City of Charlottesville and University of Virginia (UVA) staff. She said that they presented the methodology at a workshop in May and solicited feedback at the presentation and afterwards in office hours where people were invited to have one-on-one meetings to either provide them with additional data to consider or ask additional questions for clarification of methodology. Ms. Shorter indicated that AECOM presented the final water demands report, which brings them to the meeting today.

Ms. Shorter reported that the methodology used follows the American Water Works Association's Aggregated Water Use Model, so it is a "defensible industry standard for water demand forecasting." She said that they looked at aggregated water use data by different customer types and evaluated whether the conditions for the data record were normal and/or appropriate for long-range forecasting over the 50-year planning horizon. Ms. Shorter stated that they next used population and employment forecasts and from that information projected baseline water demands, with baseline assuming that every variable in existence today remains the same for the future – which is essentially just a starting point to consider what adjustments might be made due to the existing water conservation programs that ACSA and the City of Charlottesville already being implemented, along with any potential new conservation measures that might be considered.

She reported that regarding the Urban and Crozet systems' water use profiles, the historical production in the urban area is 8.33 to 8.95 million gallons per day (mgd), with about one-third of an mgd in Crozet – with an even mix of single-family, multi-family and commercial usage in the urban area and single-family customers dominating usage in Crozet. Ms. Shorter stated that indoor use comprises about 88% of total use in the urban area, with the overall per-capita per day water usage at about 99.8 gallons for the urban area and a little less for Crozet. She explained that a good percentage of the community is served by community water or self-supplied systems, with most being single-families, and approximately 81 gallons per capita per day of usage overall. Ms. Shorter reported that toilets comprise the highest percentage of indoor water usage, with clothes washers, showers and faucets being next. She said that when comparing the RWSA to other areas in the U.S. the community ranks just above Seattle, Washington in low usage, at 99.8 gallons per day, which shows that people here are very conservation-minded.

Ms. Shorter said that in their study, AECOM wanted to validate that the data from 2006-2010 was representative enough for use in long-term forecasting, so they considered the potential irregularities during the period with respect to climate conditions, economic conditions, historical water use patterns, and other anomalies during that timeframe. After that review, she said, AECOM determined that the data was appropriate for long-term forecasting so they made no adjustments in the normalization step.

She reported that population and employment numbers for the project were "somewhat challenged" because the University of Virginia splits both into the City and County – but all of the grounds are served by the City. She explained that she would talk about a "water service population," meaning where you get your water from – and just "population," as it would be counted in a census situation. Ms. Shorter reported that there are currently about 21,000 students, expected to grow to 31,000 by 2060 – and of those students approximately 6,600 are currently living on grounds, with about 450 students living in the City limits and the remainder living in the County. She emphasized that all of those students receive water service from the City of Charlottesville. Ms. Shorter said that students living off-grounds are either in the City of Charlottesville or Albemarle County, and UVA was able to provide estimates as to where students lived based on their parking information: 9,300 students in Charlottesville and 5,100 in Albemarle. She stated that what is being addressed today is the water service population, meaning where people are served.

Looking at the City of Charlottesville forecasts, she said, the census data shows a population of 43,475 with 450 on-grounds students and no plans to expand on-ground housing; the off-grounds population is expected to increase along with the planned increase to student population at UVA; City resident increase is based on the past 15 years of growth. Ms. Shorter said that the difference between the City population and the City water service population is essentially those on-ground students who actually live in Albemarle County. Ms. Shorter stated that for Albemarle County, the 2010 census population is 98,970, with the ACSA service area broken into on-ground students, off-ground students, and County residents. She explained that the growth rate for County population was provided by County staff from a recent sewer study, in which they looked at growth and development and build-out potential. Ms. Shorter said it also includes population projects for Crozet, taken from the master plan, and for Scottsville, which is based on master planning information and information provided by the Town of Scottsville. She stated that community water systems data was based on data provided by the state, with self-supplied being those who did not fit into another category. Ms. Shorter stated that when subtracting out those on-grounds students who are served by Charlottesville, you then have the ACSA urban water population.

Ms. Shorter said that AECOM was asked to compare its numbers to those at the state level. Currently the Virginia Employment Commission (VEC) is the provider of state-level forecasts, although they are planning in the future to contract with the Weldon Cooper Center. She stated that in consulting with the VEC, it was determined that they have a policy stating that in a larger community there is a lower tolerance for "error" with a higher tolerance for "error" in a smaller community – so based on population projections for 2030 AECOM was able to establish a 16% "deviation" rate from VEC projections for Charlottesville and a 10% rate for Albemarle County. Ms. Shorter said that VEC's starting point in 2010 was lower than what the census stated the population to be, so AECOM followed the same trend line but bumped everything up to start with those census numbers – and then moved forward to 2030. She stated that when compared to regional water demand numbers, the study is safely within VEC's permitted tolerances. Ms. Shorter reported that employment figures were developed by using the number of employees to household ratio, with UVA numbers provided by them based on a student to faculty ratio and discussion with the hospital administration on future employment.

Regarding projected baseline demands, Ms. Shorter explained that the calculation is fairly straightforward – taking the population and multiplying it by the per-person water demand; taking the employment and multiplying it by the per-employee water demand; and then taking the non-revenue factor and multiplying it by the sum of the population and employment demand. She said they add those up

together to determine the baseline water demand, noting that this would hold true if existing water use patterns remain for the next 50 years. Ms. Shorter stated that for the urban area, there is growth from 9.6 to 17.75 mgd under the baseline conditions, with Crozet going from about 0.4 to about 1.06 mgd, and the total for the region going from about 13.2 to about 22.9 million gallons per day.

Ms. Shorter reported that AECOM gave some consideration to conservation measures and is aware that there is an existing conservation program that would continue into the future, including replacement of toilets over time. She noted that the Federal Energy Act mandates that plumbing fixtures now must be higher efficiency than they have been in the past, so the study contemplated the rate at which older toilet fixtures would be changed out over time – along with what savings that would yield. Ms. Shorter said the implementation of existing programs is looking primarily at toilets swapped out with the rebate programs through ACSA and Charlottesville have, and also looking at the more efficient toilets that will be installed in all new homes and businesses. She stated that they also considered additional conservation measures that were representatives of “best in class,” which yielded an 11% decrease from the baseline demand for the total regional water supply planning area. Ms. Shorter said that there were some discussions during their study of factors that could shift population and employment in one direction or the other, and a 5% increase or decrease would lead to a 4.1% increase or decrease in water demands from the baseline point. She stated that AECOM views the most probable scenario is continuation of existing water conservation programs, adding that officials would have to make decisions about which measures in the future should be implemented. Ms. Shorter said that AECOM recommends that the boards consider adding additional programs and tracking and measuring how effective they are in reducing water demands, which may impact future forecasting. With the most probable water demand scenario, she said, the urban area goes from about 9.76 million gallons per day to just below 17 million gallons per day; Crozet from 0.4 to just under 1 mgd; and the total region going from about 13 to 22 mgd.

Ms. Shorter then turned the presentation back over to Mr. Frederick.

Mr. Frederick stated that following the water demand forecast just presented is new information as required by the plan, as once the forecast is in place DEQ asks that three basic questions be answered. He said the first is “what are you doing in your community about water demand management,” and that is the focus of the discussion now. Mr. Frederick noted that the agencies that provide water to the community work collaboratively, which offers more efficiency, and in doing so the roles of the respective agencies must be defined. With respect to demand management, the agencies providing retail water service take the lead role and set the policy – the City of Charlottesville through its Council and its Public Works Department, and the Albemarle County Service Authority through its Board and staff. Mr. Frederick said that a report jointly sponsored by those agencies was done in 2009 – “The Water Conservation Study Report” – and he presented slides reflecting what was included in that report. He stated that what is presented here are the many promotional activities that the City and ACSA lead in the community to encourage better habits in people on a consistent and continuous basis to conserve water.

The next slide, he said, is from the same report and covers additional water conservation activities both for the City and ACSA – continuing to promote better efforts in water conservation. Mr. Frederick stated that the next slide covers a multitude of issues, which are not specifically addressed in the 2009 study report, including the ACSA’s inclining water rate structure and the City’s seasonal rate structure. He said that the rate structures are the one standout measure because people realize if they are not judicious in conservation they are going to pay more for it, adding that if you are in the County and use more than 3,000 gallons per month your rate will jump by a higher increment because you have reached another tier. Mr. Frederick also reported that AECOM’s five examples to be considered for the future would require official adoption and expenditure of additional funds, but should be contemplated if the community wants to be “best in class” in conservation – including “Water Sense” efficiency in all new homes built.

Mr. Frederick reported that the second question from DEQ is whether the community water supply plan has a plan for a drought, particularly a severe drought, whereby the community would be asked to do just a little bit more in conservation. He said that the DEQ adopted new regulations in 2005 and the RWSA adopted a Drought Response and Contingency Plan in 2006 after collaboration with the City, the ACSA, Albemarle County and input from the community. Mr. Frederick stated that the RWSA determined whether the community was in a severe drought, with the City and ACSA handling the public outreach portion along with enforcement of any mandatory restrictions. He said that the County has direct outreach to self-supplied water users, or well-water users, and also authorizes the ACSA to take emergency measures to enforce restrictions. He added that the Town of Scottsville also plays a role in providing support and feedback as a part of this region.

Mr. Frederick presented information on the three drought stages – watch, warning and emergency – which follow a pattern. In a watch phase, he said, there is a much greater increase in awareness and education of the public with an emphasized call for voluntary conservation beyond normal habits, with strong encouragement for limiting irrigation to evenings and early mornings. Mr. Frederick said that the warning stage is the first phase of mandatory restrictions, impacting things such as irrigation, washing sidewalks, car washes, restaurant use of water and other measures, with the goal to reduce consumption below the already normally low gallons per capita level in order to get through the drought. He noted that this level has occurred once since the plan’s adoption. Mr. Frederick reported that the emergency phase is a really significant ramping up of mandatory restrictions, with everyone asked to reduce usage by 20% or more, with commercial business required to produce a plan as to how they will achieve it. He stated that the retail agencies have the opportunity to pass emergency retail rates to customers to encourage conservation at high levels. Since the plan’s adoption in 2006, Mr. Frederick said, there has not been an emergency – but if the rules had been in place in 2002, there would have been an emergency.

He explained that the RWSA's role is to determine if the area is in a drought and if so at what stage, which is accomplished through a computerized risk assessment tool – a highly statistical tool similar to what insurance companies use to establish actuarial numbers. Mr. Frederick said that the RWSA hired a firm named Hydrologics that specializes in this analysis, noting the “triggers” that should induce a drought stage. He stated that if there is a situation where there is a 20% chance of storage being below 80% for 12 weeks, the community would be in a watch stage. Mr. Frederick noted that the community narrowly missed a watch stage last year, which is the closest it's been since 2007.

Mr. Frederick reported that the third DEQ question is “are the 50-year forecasts for water demand covered by the existing water supply.” He said that for Crozet, the existing water supply is adequate to meet 50-year projections, and the same is true for Scottsville when you compare the safe yield of those two systems – which is significantly greater than the forecasted 2060 demand. Mr. Frederick stated that the urban area does not have adequate safe yield to meet the now-forecasted 2060 demand, and because it does not the DEQ has asked that more corollary questions be addressed in terms of that particular system. He said that the key question they asked the community to identify is “what are the potential water supply alternatives for the future.” He noted that because this issue was already recognized in this community, there was a report done by Gannett Fleming in 2004 that refined alternatives that had been previously done by another consultant in 1999. Mr. Frederick noted a slide presenting a list of the alternatives included in that report.

He emphasized that the regional water supply planning document is not a permitting instrument or selecting a source for a new water supply, as that is a separate process driven by the Clean Water Act. Mr. Frederick stated that if decisions have been made in a historical context, it is appropriate that those decisions be identified in this report. He said that the community is actually ahead of many communities that are just now answering to the fact they don't have enough supply for their future. Mr. Frederick said that the last slide captures the decision made jointly by the City Council and Board of Supervisors earlier this year – to build an earthen dam and raise the Ragged Mountain Reservoir by 30 feet, to build a future South Fork to Ragged Mountain pipeline, to make further decisions to enhance water conservation efforts, to seek and implement opportunities for dredging, and to raise Ragged Mountain an additional 12 feet only if necessary as a last resort.

Mr. Frederick concluded his portion of the presentation.

Mr. Gaffney asked if any members of the four boards had any questions for clarification.

Agenda Item No. 4. Questions for Clarity from Board Members.

Ms. Mallek asked if there is an analysis of cost of some of the best management practice improvements in the report. Ms. Shorter replied that AECOM did just some “rough analysis” because they thought decision-makers might want to know the magnitude of the costs.

Mr. Rodney Thomas asked if the research and development increase that UVA has in their plans is included in the population increase figures. Ms. Shorter replied that it is reflected in the employment category, as most of the research and development positions are in staff and faculty numbers.

Mr. Rodney Thomas asked what the reasons are for “possible problems” moving forward, as mentioned in the “Drought Response and Contingency Plan.” Mr. Frederick clarified that his comment was that there would certainly be drought situations again, so they must have a plan moving forward. He said that the Hydrologics firm was driven by a couple of goals, one being that Rivanna not invoke drought stages more than necessary and the other being that it never misses a drought either.

Mr. Gaffney opened the hearing for public comment.

Agenda Item No. 5. Public Hearing.

Mr. John Cruickshank, a City resident, said he was here speaking for the Sierra Club. The Piedmont Group of the Sierra Club believes that our community must take steps now to live more sustainably. He said that they must recognize the limits of our landscape to support us and work to live within those limits. They need to contain our demands for natural resources and destruction of open spaces by development. They must fully use and reuse our infrastructure. Given these points, the Piedmont Group continues to believe that future water supply for the Albemarle/Charlottesville community can best be provided by a water supply plan in which key elements are capacity-restoring dredging of the South Fork Rivanna Reservoir, and a strong program of water conservation. They doubt that a new earthen dam at Ragged Mountain is needed, if we pursue sustainability seriously. They support phased raising of the existing concrete dam, construction of a new water transmission pipeline should begin only if and when facts indicate a new transmission line will be needed. They have always considered protection of the Moorman's River a high priority. They are skeptical that the existing water plan will maintain the natural seasonal low and high flows in that river. Clearing much of the existing forest at Ragged Mountain will be a serious loss to local biological resources. It will devastate the Ragged Mountain Natural Area, which many of us utilize for outdoor recreation and nature study. Mr. Cruickshank pointed out there are some wonderful pictures in the lobby here of children in the City Parks & Rec program using and learning at Ragged Mountain. Finally, water planning should give full consideration to the latest data on available ground water.

Ms. Rebecca Quinn, a City resident, said she takes issue with the assertion that this regional water supply plan is entirely separate from the project planning for the Ragged Mountain Dam. This plan refers to the proposed dam and pipeline as providing 18.7 million gallons per day safe yield and states the project "will meet the need recommended by AECOM to provide for 16.96 million gallons per day by 2060." This is a bald-face statement of what they already know – the dam and pipeline will grossly overbuild for what they need, even if that need is based on a 50-year population projection that as the City staff reported, no demographer believes can be done with confidence. She said that in her opinion it is unconscionable for the City and County to adopt this regional water supply plan that continues to put forth a scheme to provide significantly more water than they are projected to need. Four specific points about the City's part of the water demand analysis prepared for this plan: population projection, they have heard about. She said that she believes that within that 16% deviation that VEC looks at as being acceptable they should be at the middle – not at 11% but at 8%. Doing that would drop the 2030 projection by 1,860 which of course would reduce population over the rest of the period.

Regarding residential gallons per capita per day, Ms. Quinn said that in the draft report, AECOM used a constant for that factor; in the final report they removed that line so it is a little easier for anyone to see you have to actually do the math they did reduce the residential gallons per capita per day between 2010 – which is 15.6 – and 2015. They dropped it down to 45.3 but they used that same number for the ensuing 45 years. Every single new residential unit that is built to accommodate all that projected growth must meet permit building and plumbing codes. Thus they believe, every occupant then will use considerably less water than today or even average from five years from now. Residential gallons per capita per day must be further reduced, even marginally over the entire planning period. Similarly, employment gallons per capita per day – AECOM uses 66.4 for every single period during the 60 years. If the community is going to build new commercial buildings, new industrial buildings, they will have to meet the code as well. In terms of the City's part, if you adjust the employment per capita just equivalent to the residential per capita, then they use less water – and I'm talking just the City part. And what that would do is the City's demand in 2055 would be 7 million gallons rather than 7.45 million gallons, and which of course brings down the whole total.

Ms. Quinn added that in terms of shower faucets and washing machines, they find that AECOM's rationale for not accounting for change out of showers and faucets in older buildings [and] not accounting for washing machines to be suspicious. They should not accept that no reduction for showers and faucets should be given simply because some people will find ways around the low-flow fixtures. The community should not accept that no reduction for washing machines is allowed simply because some washers are reused. The appliance industry reports a growing shift to efficient washers. Ms. Quinn said that AECOM cites the Energy Act. The prime way energy manufacturers lower their energy use is by lowering their water use – especially hot water use. This must be revised to show a larger savings associated with the natural change out of fixtures and appliances. It is patently obvious that the water demand is still over-estimated. The state does not require any shortfall identified in the regional plan to be addressed by building now – the community is only required to look at 30 years, not 50 years, and they are certainly not expected to look 70 to 80 years – which is what the current dam proposal would do.

Ms. Joanna Salidis, a City resident, said that as she sees it, there are two essential components to the water supply plan: how much water the community needs and what are our options for getting it. She said that she thinks on both of these points this plan needs some work. She said that it is essential that the record be held open for at least four weeks so that interested parties can submit written comments. This is a very long document and the public was given not that much notice of this meeting. Regarding future water needs, the plan assumes the community needs 16.96 million gallons per day by 2060. She said that she thinks this number is too high because it underestimates the effect of currently in place conservation measures in three ways: first, AECOM didn't consider any conservation due to shower heads and faucets although the National Energy Policy Act (NEPA) limits the sales of these fixtures to higher-efficiency models. AECOM uses anecdotal evidence to discount the effective increased efficiency in shower heads. For example, they say there are a number of shower heads sold today that are non-conforming and there is an increasing trend to install multiple shower heads in single-shower stalls. She said that observations like these should be backed up with data. No doubt, some people get around the regulations, but how does the community know that this number is significant enough to entirely discount the new regulations. Furthermore, AECOM says that flow rates less than the NEPA-required 2.5 gallons per minute are not recommended due to safety concerns. They give a quote from the alliance for water efficiency website that is intended to support this claim; however, that same website recommends replacing shower heads with EPA "Water Sense" labeled showerheads that use a maximum of 2 gallons per day. Similarly, AECOM discounts conservation from faucets because of unquantified trends using hands-free faucets – which do not save water – so it's believable that people are using more of these hands-free faucets in commercial buildings, but she does not think that is true in private homes and no data was presented about that.

Ms. Salidis said the second way the current report underestimates conservation is that it does not appear to account for the effect of replacing higher-flow toilets in places of business with lower-flow toilets over time. AECOM assumes that currently existing toilets would be replaced over time at a rate of 2% a year, plus an additional number would be replaced due to rebate programs – but they seemed to have applied these savings only to residential water use and not to employee water use. Employee water use should decrease over time, as fixtures are replaced in commercial and industrial buildings. The third way the current report underestimates conservation over time is that it does not account for the effect of a growing population moving into more homes or business places, all of which will conform to current plumbing code – at least. In addition to the reduction in water use associated with the changeover of existing toilets there needs to be a reduction in water use per person for each decade associated with the number of buildings using new toilets.

Regarding the community's options for meeting water demand, this plan appears to be stuck in a time warp. On page 80, it says that a 2006 permit support document identified expanding the Ragged Mountain Reservoir as the least environmentally damaging and most practicable alternative. Ms. Salidis said that she thinks this report is misleading in its omission of findings since 2006 – notably the HDR report on the practicability of dredging and the Black & Veatch report on the potential for repairing the current dam at Ragged Mountain. Finally, she said that she finds the language – again on page 80 – regarding the stream flow releases described in the 2008 permits, extremely misleading. The report says, “it should be further noted that the added safe yield for these 18 components is based upon the downstream flow releases from dams that were affected under the RWSA policy in 2004, not the required and more aggressive flow releases described in the 2008 state and federal permits”. Ms. Salidis said this language should be amended so that it is clear that these stream flow releases are required by the permit, because of the way the permit is written and applied for rather than required by the regulatory bodies.

Mr. Kirk Bowers, a County resident, said that he has a couple of requests. First, this is a public hearing for the regional water supply plan pursuant to Code Section 9-VAC-25-780. Please note that the plan must be adopted by the pertinent local jurisdictions – and he would emphasize that it is not the RWSA or the ACSA. The plan and supporting documents are more than 150 pages long, which makes it impossible for most of the residents to provide a meaningful review of these documents – so with that in mind he would like to request that an extension of four weeks be gathered for written comments based upon several reasons: the length of the documents and reference materials; the published notice for the hearing was silent on the fact that written comments could be submitted and must be addressed in the final document and third; the hearing is being held during normal work hours – which precludes a lot of people from coming to this meeting; and the Hydrologics report, which was done in April 2011 has some errors in it: they are using 2,051 million gallons a day instead of 1,549, and the scenarios for the expanded reservoir without the new pipeline and with the new pipeline. This needs to be corrected before going to construction to make sure that the safe yields are correct.

Mr. Bowers said that another issue is that the release rates for Sugar Hollow appear to be voluntary for use for currently released 400,000 million gallons today, which converts to 0.62 cubic feet per second. The permit states possible release of 10 million gallons a day, which converts to 15.46 cubic feet per second. You're creating a flood. Nobody has looked at the river mechanics or the hydrology of the Moorman's River – if you do this, you're going to have to dredge the South Fork because the greater the mass combined with the acceleration gives you a greater force, pushing more sediment down the creek as you go along. So you're going to have to dredge if you really set many gallons per minute. He said that he would like to see this issue resolved so they do not have to talk about it anymore. He added that this is all getting tiresome. They also need to take the special interest groups out of it. He does not think it's appropriate to bring in a nonprofit agency to spend this region's tax dollars nor does he believe that they need a \$63 million pipeline. It needs to be included in the overall cost comparison – which it is not at this point in time.

Ms. Dede Smith, a City resident, said she has three requests for revisions to the regional water plan today and she would also provide them in written form. My first request is for Section 4.0 – Existing Resource Information – and it is a request to report the most current information on the availability of groundwater. A discussion of groundwater in Albemarle County in this report cites a 30-year-old study but fails to recognize that there's been a series of more recent studies – many actually, quite a few – since that time. Most notably in 2009-10, a Virginia Groundwater LLC under contract to ASAP [Advocates for a Sustainable Albemarle Population], identified two potential high groundwater zones – the Eastern Blue Ridge Flank and the Mountain Run Fault Zone, with the potential of sustainable extraction in the four to eight million gallons per day. So this is a significant resource that is unaccounted for in this report and she would request that that be considered.

She said that her second request is for Section 8.0 – Statement of Need and Alternatives – 8.1 specifically, and that is the use of the bathymetric information is from the 2002 Gannett Fleming report when in fact they have had a much more comprehensive and updated bathymetric survey since that time, just in 2009 by HDR. In fact there is no mention of HDR in this report, so her request is to replace the information, which is at this point inaccurate, with the updated HDR information. One of the reasons this is so important is because there are other calculations and other numbers that come out of that data, and so to have outdated information is dominoes. Ms. Smith said that she understands that Rivanna doesn't have to update the information provided in the permit – which was 2002 – this is all a new document, and she thinks it is really imperative that they have the most up-to-date and current information.

Ms. Smith said that her last request is that when they are talking about the future projected demand that they make it very clear when they are talking about 2055 and when they are talking about 2060 because they get kind of mushed together.

Mr. Sam Freilich, a County resident, commented that without the pipeline the ability to use the excess water in the expanded Ragged Mountain Reservoir is negated. The RWSA has neither mapped the pipeline out nor has a current price for the construction and operation of the pipeline been established by a pipeline contractor, other than estimated by a consultant. Second, the previous estimate of \$63 million was submitted by a consultant, not a contractor. The price presumed using the Western Bypass for the pipeline was \$63 million. In the Wiley-Wilson pipeline study they mention that if the bypass can't be utilized there will be a need to acquire 80 easements – significantly increasing the costs as well as the time required to establish a pipeline route. He said that he thinks it is prudent that this line be established and there actually be two studies – one study utilizing the Western Bypass, should that come to fruition,

and second, how are they going to use these easements in order to create an effective, inefficient, reasonably inexpensive pipeline. He said that he assumes that the AECOM projection of need is due to population expansion. Over the last nine years, the combined population expansion for the City of Charlottesville and Albemarle County has been approximately 17.5%. A recent chart from the Albemarle County Service Authority noted that water use during that period decreased by 26%. Population increase does not assure a straight-line projection, as the previous nine years have demonstrated.

Mr. Freilich said that in the studies that he has seen it seems clear that the dredging of the South Fork Rivanna Reservoir – restoring approximately 260 million gallons of water – at a fraction of the cost of the proposed water plan and without the environmental damage – should supply all of the water our community needs for the next 30 years.

Mr. Freilich said that his final comments are to the Board of Supervisors relative to cost to water rate payers. He said that he is concerned that this proposed plan is being pushed forward at an accelerated pace without a clear understanding of what this plan will cost them, as well as the increase to the water rate payers of our community. The estimated cost of the plan is \$143 million. Conservatively, if that amount is financed over a period of 20 years at 3% annual interest, the monthly payment is \$793,102 – and that doesn't take into account the operation of a pipeline. Albemarle County residents are paying more of the debt based on the presumed greater increase in population in the County than in the City. The Board of Supervisors and the RWSA – but mostly the Board of Supervisors – has the obligation to inform the County residents of the increased cost of service that is their fiduciary responsibility.

Mr. Richard Collins, a City resident, asked if anyone noticed that the word 'need' and the word 'demand' are separately figured in these two documents? If you look on page 11 of the forecasted demand, you'll see that the most probable demand for our time is now 9.76 million gallons. If you switch to the other document and look at what is needed it jumps up by 3 million gallons a day. He then asked what does demand mean. It does not mean in the usual sense of economic analysis where supply and demand are continually in equilibrium or will find equilibrium because they must join in price. This word demand is forecasted as kind of a 'this is how much we need.' But when you look at demand you will see that it is quite a bit lower than what they call need – a 3 million gallon difference should be accounted for. Mr. Collins said that he thinks that the accounting can probably be found in the term "safe yield".

Mr. Collins then asked that the records be opened because he wasn't able to examine all the documents in the time that was available. He added that he has also taught a class in water supply planning. He said that many people think this should only be done by engineers rather than planners, but one of the best things that has happened in additional water supply planning is that the engineers have had to take a back seat to other issues of the environment, for example in-stream flow. Mr. Collins said that if people do not know what safe yield means, then they need to find out, find out how it relates to demand, and find out how one can meet needs. Needs for the river of the Moormans, the Rivanna, and for water supply safety is available to everyone in tough times, but if you do not understand that you should not be approving this water supply plan.

Mr. Brandon Collins, a City resident said he would like to ask that the period for public comment be extended for at least another four weeks. There is a ton of information that needs to be processed. The speakers here tonight have brought up a lot of information and he thinks if this is a public hearing in the true sense of the word then there is a lot more information that needs to be considered. He added that if the requirement is to meet a 30-year demand, the community can dredge. They can dredge and have that water supply done and done with, and then when they have to revisit the supply they go back and do it. They got another five years or even another ten years. Conservation needs to be at the forefront of everything they do. He added that if he is being told that in 50 years, when his daughter is approaching retirement age, that they are not going to improve water conservation, she has no hope for our future – and that is really what they need to be thinking about. He said that he thinks Mr. Bowers brought up a great point about money, nonprofits, and particularly the Monticello Business Alliance, has no business telling them what to do with their taxpayer dollars. The mailings that have gone out have been full of disinformation, and he would like all of the officials to publicly acknowledge that those mailings are not the truth and separate themselves from those, particularly those who are mentioned and endorsed by that group before the primary in the City. There is also the issue of how this community is going to pay for this, the cost-sharing for all of this; none of this stuff is straight. There is no reason to make a decision right now. What everyone knows is there's a lot of interest out there for dredging – so he suggests going ahead and getting it done; that is the 30-year water supply plan. The officials need to revisit it, then start talking about do we need a new dam. It will be tough; they will have to go through a lot of this all over again, but he thinks it is totally worth it that they do not make a big mistake now.

Mr. Andrew Williams, a City resident, said that sometimes there's no right or wrong answer. He said that he applauds the efforts of everyone involved regardless of what standpoint they take. While they have to define their future state, perform a gap analysis and develop a plan, he said there needs to be some adjustment as far as this gap analysis is concerned. They cannot underestimate the ingenuity of small businesses and the communities, especially over a 50-year period. There's going to be a number of good technologies brought about in the next few decades and they need to consider that. He asked that the officials extend the public comment and public opinion period a little longer, because it is the residents that they are trying to serve – it's the business owners and all the stakeholders that are involved, and while it's good to execute and move forward on initiatives it's better to take a little more time and make sure that they do not make the wrong decisions.

Mr. Williams reiterated that whatever decisions are made, he applauds their efforts and it is difficult. He said that eventually they can close this particular discussion and move forward on other things that are important, not only for the City but for the region. If any region in this state is able to conserve, or that's able to move forward on progressive green initiatives, that needs to be this community – and they are more than capable to do so.

Mr. John Martin, a County resident, said that he has been involved as a citizen with water supply planning issues in this community since 1998. He said that he thinks the public should be aware that the planning process established by the state is an outstanding state action that applies statewide. It really gets everything together and it involves a tremendous amount of work at the state level so that future planning can be done by communities statewide. He said that he attended the last two quarterly meetings of the citizens' advisory committee for this planning process. It is tremendously complicated and this is just a start. He added that he has read the report and thinks Rivanna's effort in putting this report together has been outstanding, and the public should be assured that this is an outstanding effort. He said that he is quite confident, that this community will be viewed, in Richmond, as leaders in this state in this area. He thanked Rivanna for their hard work.

There being no further public comment, Mr. Gaffney closed the public hearing and opened the meeting up to comments from Board members.

Agenda Item No. 6. Open Discussion by Joint Board Members.

Mr. Colbaugh said that in AECOM's table of water use the local community is near the bottom, and asked if the comparable agencies were "fixed" and if this is normal.

Ms. Shorter responded that per-capita water use is very specific to a community and is one of those metrics that is difficult to use. Communities like Las Vegas are near the top because they are an arid community that uses a lot of water in order to keep grass growing. She said that looking at overall per-capita, Scottsville is one of the largest users but when looking at single-family per-capita theirs is actually among the lowest. She stated that there were community members who asked AECOM to use Virginia communities that were closer to being peers and so the study used comparison communities out of the five recommended. Ms. Shorter emphasized that the community here is just an "environmentally-focused and environmentally-minded community."

Mr. Norris commented that one of the speakers today has said AECOM "hadn't adequately adjusted residential per capita," and asked her to explain why she was "shaking her head" as if to disagree with this assertion.

Ms. Shorter responded that there has been "a misunderstanding as to how the calculations were done," stating that the per-capita numbers in the draft report were consistent over the planning horizon – held constant because they represent baseline water demands. She explained that AECOM did the baseline calculation and for each individual year calculated what the water conservation potential was for that specific year and subtracted that mgd from the baseline. Ms. Shorter said that they show an increase in conservation over time, especially because all new toilets would be low-flow and almost all existing toilets would be replaced by 2060. They let the calculation drive the number instead of doing it in a reverse order.

Mr. Boyd asked if there was anything said during the public comment period that Ms. Shorter did agree with as being new information, or that she felt was correct versus what she presented.

Ms. Shorter replied that AECOM did a comprehensive job at looking at all of the information, although there are some differences of opinion with some views. She added that some of the points mentioned today are good opportunities for study, such as the ongoing sustainability plan for the region – which might yield new data that can be used in five years when the numbers are revised.

Mr. Rodney Thomas asked why Winchester's water usage was more than double that of the local community.

Ms. Mallek responded that they have White House Apple Products there, which consumes a lot of water as industrial use versus residential.

Ms. Shorter added that AECOM asked them that question and confirmed that it is the commercial apple production that drives that number up.

Dr. Brown asked how long this kind of historical planning has been done, and what the ability is to determine whether past projections have proved accurate when compared to current numbers. He said that the plan shows a variance of just under three million gallons projected out to 2060, or a 15% variance from the expected overall demand, and asked if that figure is fairly accurate over time.

Ms. Shorter stated that the technology that informs forecasting is getting better and better over time, and the last set of water demand forecast used an overall per-capita method – with just one per-capita number applied to the population not considering water demands for the employment sector separately – and in 2006 there was a conversion to the billing systems for both ACSA and the City whereby they are now tracking water use by smaller customer categories. Because they had all this great data, they felt compelled to use that great data that was available – but that data in that level of detail was

not available prior to 2006, so the previous studies could not have done the disaggregated water use calculation because they didn't have the data to do it with. She added that in five years, she hopes there would be even more information about things such as how many high-efficiency washing machines are being used in the community.

Dr. Palmer said that Winchester does sell water to a smaller community further down I-81 and to a sewer authority.

Ms. Shorter explained that AECOM removed those numbers before doing its calculations.

Mr. Norris stated that one of the speakers mentioned that the language on Page 80 regarding required stream releases needs to be clarified, as those are requirements set by the permit and not by law. He also asked Ms. Shorter to comment on the question about whether AECOM had considered the 2009-10 study commissioned by ASAP on current availability of groundwater resources and whether or not that should be appropriated, and also the 2009 HDR bathymetric analysis of the South Fork Reservoir. Mr. Norris also asked her to clarify whether "future demand" is referring to 2055 or 2060.

Mr. Boyd asked what the bathymetric studies have to do with demand, as that is just a methodology.

Mr. Norris responded that it relates to viability of resources and changes the availability of water to meet the new demand as part of this analysis.

Mr. Colbaugh asked Mr. Frederick when the notice of this meeting was put forth, as he had only had an email in July, and when the report was put on the website.

Mr. Frederick responded that he doesn't have an exact date, but it was near the beginning of the study, in the spring, and there was a notice in July that the meeting time had changed from 6:00 p.m. to 3:00 p.m. He stated that all of the reports being discussed today were posted to the website on August 26, and on that same date Rivanna set an email out to everyone on the distribution list – which is the date the reports were finalized. Mr. Frederick also said that there were announcements at previous meetings for this one.

Mr. Huja noted that the reports have been available for the last two and a half weeks.

Ms. Szakos asked if there was a notice for people to submit written comments.

Mr. Frederick responded that there is no requirement for the RWSA to receive written comments, as DEQ instructed them that the public hearing should follow the normal local requirements for ordinances, budgets, etc. He said that the RWSA's attorney consulted with attorneys for the City and the County to ensure that the process was adequate, and noted that there is no requirement by DEQ to take written comments. Mr. Frederick stated that the RWSA was aware that some people might want to submit written comments, so Mr. Gaffney did agree to address that as an opportunity in this meeting – although there was no identification of that in public notices.

Ms. Rebecca Quinn stated that the record needs to be corrected regarding state regulations and written public comment.

Mr. Gaffney reminded Ms. Quinn that the present discussion is among the four boards members, then said that the RWSA would send something out if there is a change.

Mr. Huja asked how the process would proceed going forward, and whether there would be more than two weeks for comments as there was this time.

Mr. Gaffney stated that this would be approved separately by the City and the County, and asked if there are changes that could be made by those bodies before it moves forward.

Mr. Frederick explained that the framework the DEQ establishes for a regional plan is that it be collaborative, and changes all localities agree upon could certainly be made, but he is not sure how this would move forward if one locality withdrew from the regional approach.

Mr. Colbaugh asked how a two-week timeline would affect getting the item to City Council and the Board of Supervisors, and also whether it would give staff enough time to respond to written comments.

Mr. Frederick responded that the RWSA and AECOM need a week and a half to address any comments, and they should not be developing a schedule that confines their time more than 10 days after the comment period ends. He said that if they receive their comments next week they should be addressed by October 1 – which gives the Board of Supervisors and Council time to adopt any resolution – but if it extends any longer than that it cuts into the time for elected officials to consider at up to two meetings. Mr. Frederick stated that the question the Board of Supervisors and Council may have to face is whether they want to comply with the November 2 DEQ deadline or whether they want to delay it. He said that if comments are extended for two weeks and the RWSA and AECOM has time to answer them, the Board and Council will not get the information until after their first October meeting.

Mr. Huja asked what the deadline for written comments is now. Mr. Frederick replied that there is no DEQ deadline, adding that the RWSA has asked people to submit their comments by next Tuesday.

Dr. Palmer stated that the regional water supply plan is separate from the community water supply plan, and extending the time period for written comments isn't going to affect the decisions associated with the community water supply plan. She said that this is something that would be updated every five years, and as the data comes out within the next few years on other projects, more specificity will be possible.

Mr. Norris said that if both boards are willing to expedite the review in their meetings, extra time could be given for public comments. He proposed extending the deadline with a commitment to expedite the review.

Dr. Brown stated that meeting the deadline doesn't give either board the chance to express any significant concerns.

Mr. Gaffney asked what effort might be required based on the City and County's reaction to the public comment.

Mr. Frederick responded that to answer this question requires some speculation as it depends on how extensive the issues to be addressed are. He said that they have made a good faith effort to respond to comments, but he hasn't heard anything today that would require significant changes to the document. Mr. Frederick noted that it took months to put this document together and if it is extensively rewritten it will take several more months, adding that the employee who did most of the writing is no longer employed with RWSA so the work might have to be contracted out.

Mr. Boyd noted that the RWSA had preliminary meetings, additional office hours and opportunities for comments earlier, and asked if there have been significant changes in the document that would necessitate further review.

Ms. Shorter indicated that she agrees the comments being received now are similar to those provided in the past.

Mr. Boyd stated that he doesn't think it would be necessary to increase the review time, as both the Board and Council need time for review.

Mr. Huja pointed out that there is still another week for comments.

Mr. Rooker said that he agrees with Dr. Brown that the Board and Council don't want to be in a situation where they receive comments and have to act that night, adding that he thinks they should meet the state deadline.

Board and Council members also indicated that comments could be provided directly to them.

Ms. Mallek asked if there was a provision in the demand analysis for former manufacturing facilities that have not been in operation, as they may begin manufacturing again and return to their earlier water needs.

Ms. Shorter responded that AECOM did factor that in for Scottsville because of the tire plant, but for Crozet and Albemarle they did not consider those industries specifically given the 2006-10 timeframe used. She said that if those industries were to begin operation within five years, the number would need to be revised to include that usage.

Agenda Item No. 7. Discussion of Next Steps.

With no further comments or questions from attendees, Mr. Gaffney thanked the four boards, City and County staff, AECOM and members of the public. He stated that Rivanna staff with the consultant would review today's comments and consider them, noting that the regional planning process would conclude with the adoption of resolutions by the Board of Supervisors and City Council and submittal of documents to DEQ by November 2, 2011.

Agenda Item No. 8. Adjournment by Chair of Each Board.

There being no further business, Mr. Gaffney adjourned the RWSA Board of Directors meeting at 4:49 p.m.

Mr. Norris adjourned the City Council meeting.

Ms. Mallek **moved** to adjourn the Board of Supervisors meeting until September 14, 2011, 4:00 p.m. in Room 241 of the Albemarle County Office Building. Mr. Rooker **seconded** the motion. Roll was called and the motion passed by the following recorded vote:

AYES: Mr. Boyd, Mr. Dorrier, Ms. Mallek, Mr. Rooker, Mr. Thomas and Mr. Snow.
NAYS: None.

Mr. Roberts adjourned the ACSA Board of Directors meeting.

Chairman

Approved by Board

Date: 01/04/2012 Initials: EWJ
