BACKGROUND: The Water Supply Agreement (Ragged Mountain Dam and new Pipeline) was approved in January, 2012 as the Regional Plan to meet long-term future water supply needs. A copy of the approved project agreement for cost allocation, and a copy of the Ragged Mountain Dam Agreement are attached as background.

As you know the first phase of the Water Supply Plan was the construction of the new earthen dam at Ragged Mountain. That project is complete with the new reservoir nearly full.

Another part of the agreement is the filling of the Ragged Mountain Reservoir to full height (another 12 feet); the adopted agreement for Ragged Mountain (Section 3, page 6, “Increase to Additional Pool Level”) provides an automatic “trigger” that when the average daily demand over a year (from all sources in the Urban System) reaches 85% of the safe yield, RWSA is authorized upon either ACSA or City request to increase the Ragged Mountain pool level by the additional 12 feet. The timing of the 12 foot raise is subject to changes in the actual growth in water demand and/or the sedimentation rate at the South Fork Rivanna Reservoir (which affects safe-yield) and may vary from what was predicted. A Water Demand Study will be done in 2020 to confirm the status of the water supply capacity at that time and projected demand in the future.

And the last part of the Water Supply Plan is the construction of a new pipeline to replace the existing Sugar Hollow Reservoir to Ragged Mountain pipeline by constructing a pipeline from the South Rivanna Reservoir to the Ragged Mountain Reservoir. It was estimated at the time of the agreement that this project would cost $60 million. ACSA, by agreement, is responsible for 80% of the cost, and is allocated 80% of the new water capacity. At the time of the agreement it was estimated that the pipeline may not be needed until 2030. The construction of the new pipeline actually significantly increases effective safe-yield, which could delay when the 85% trigger (for the Ragged Mountain Reservoir 12 foot pool increase) might be reached based on the higher safe-yield. The proposed RWSA Capital Improvements Program has in FY 2018 and FY 2019, $2.295 million for initial design and routing feasibility to be completed for a proposed alignment for future acquisition of pipeline right of way.
ALBEMARLE COUNTY SERVICE AUTHORITY
AGENDA ITEM EXECUTIVE SUMMARY

As a summary of the agreements adopted in 2012, the narrative below highlights the agreements for the Water Supply Plan for the Ragged Mountain Dam and Reservoir, and the Pipeline:

- Meets the long term water needs of the community for 50+ years; likely much longer;
- Authorized the construction of a new earthen dam at Ragged Mountain, which has been completed;
- Authorized the future replacement pipeline from the Ragged Mountain Reservoir to the South Fork Rivanna Reservoir;
- Improves in-stream flow releases to the Moorman’s and the Rivanna River;
- There are two documents as part of the Water Agreement (RWSA-CITY-ACSA):
  1) A “Ragged Mountain Dam Project Agreement” that allows the Rivanna Water and Sewer Authority (RWSA) in early 2012 to construct a new earthen dam at Ragged Mountain (construction completed in 2014), and to construct a future pipeline from the Ragged Mountain Reservoir to the South Fork Rivanna Reservoir;
  2) A “Water Cost Allocation Agreement” that will determine the percentage of funding that the City and the ACSA will be responsible for, in both the near and long term for the new dam and pipeline.

The RWSA is the “wholesale” water provider for the area, and sells drinking water to the City (& UVa) and the ACSA for their 35,000 customers.

RWSA is responsible under the proposed terms of the agreement for (1) constructing the new earthen dam and reservoir at Ragged Mountain, (2) increasing the Ragged Mountain Reservoir’s pool level raise by an additional 12 feet, (3) constructing the future replacement pipeline, (4) the proposed dredging project and (5) the Wholesale Water Metering Project.

The proposed agreements also provided for the following:

- Cost allocation/cost sharing for the new Ragged Mountain Dam at an 85% share for the ACSA, and a 15% share for the City;
- A new earthen dam that is 42 feet higher than was the old dam, with an initial 30 foot reservoir pool level raise; and a data based “Trigger” for the additional 12 foot reservoir pool level raise at a future date;
- A cost allocation for the future replacement pipeline at an 80% share for the ACSA and a 20% share for the City;
- ACSA allocation of 80% of the new water supply, City at 20%;
Future purchase of water (so called “True Up”) – sharing of the new water supply that is being added by the new dam and future pipeline, at an allocation of 80% for the ACSA, and 20% for the City. The proposal also addresses the circumstances by which the City or the ACSA would have to “purchase” additional water if it exceeds the agreed upon allocation of new water. If the City’s future water use ever exceeds its 20% allocation it would purchase that additional capacity by an additional payment method provided for in the agreement. Similarly if the ACSA exceeds its 80% allocation, it must then purchase the additional supply;

A 50% ACSA share, and a 50% City share for a maintenance dredging project up to $3.5 million at the South Fork Rivanna Reservoir (bid, but single proposer withdrew);

Payment by the ACSA of $765,000 to the City for the value for the increased area at the Ragged Mountain property that will be used for the new earthen dam and larger reservoir, this payment has been made;

Joint City and ACSA aggressive water conservation initiatives to make the best use of our future water supply, and annual reporting;

Property Use Agreement from the City to RWSA for construction of the dam and reservoir at Ragged Mountain and pipeline and facilities at South Fork Rivanna Reservoir; agreement was recorded at the Clerk’s office;

RWSA Master Water Metering Project to determine more accurate City and ACSA water use for future cost allocations per the agreement “True Up.” As part of the 2012 Water Supply Agreement, the Rivanna Water and Sewer Authority (RWSA) was to complete within 36 months a new Water Metering Program. These meters to be installed are to measure City and ACSA water usage to help determine the water cost allocations provided for under the agreement. Under the approved agreement, the RWSA is responsible for implementation and management of the new Water Metering Program. Under the agreement, the RWSA “shall install, maintain, read and routinely test and calibrate metering devices to record the quantities of water delivered by RWSA through such meters to the retail systems of the City, ACSA and the University of Virginia not less frequently than monthly and otherwise as agreed to by the City and the ACSA” (Section 7 of the Water Supply Agreement). The 27 meters in the current plan under contract to be installed, will be regularly read by RWSA monthly. In addition, new metering is being installed at the water treatment plants. The Master (Wholesale) Water Metering Project has an approved contract for construction, approval was in late October. The contract for the metering is 395 days to substantial completion, so early 2017 is the planned timeframe.
ALBEMARLE COUNTY SERVICE AUTHORITY

AGENDA ITEM EXECUTIVE SUMMARY

Water Supply Plan Summary:

- **Ragged Mountain Dam Construction** completed; reservoir filling to full 30 foot pool level, estimated to be full late spring 2016.
- Reservoir at Ragged Mountain 12 foot increase in reservoir pool level is provided for by an automatic trigger in the agreement when demand reaches 85% of the safe yield.
- Construction of a new **Pipeline from the South Rivanna Reservoir to Ragged Mountain**. Routing feasibility and initial design work to begin July, 2017 as part of FY 2018 RWSA CIP.
- **South Fork Rivanna Reservoir Dredging Project** envisioned in the agreement was bid and the single proposer dropped out, with no current activity; $3.5 million was budgeted for this project. A Reservoir Management Study is underway to look at reservoir raw water quality improvements; sediment removal is one option under consideration. This study is due spring 2016.
- **Wholesale Metering Project** underway with installation of new water treatment plant meters, and 27 wholesale meters on the boundaries to determine City and ACSA water use for water cost allocation purposes. Planned completion is early 2017.
- **Water Demand Study Update** to be conducted in 2020.

BOARD ACTION REQUESTED: Informational.

ATTACHMENTS:

- Water Cost Allocation Agreement;
- Ragged Mountain Dam Project Agreement.
WATER COST ALLOCATION AGREEMENT
Between The
CITY OF CHARLOTTESVILLE, VIRGINIA,
ALBEMARLE COUNTY SERVICE AUTHORITY,
And The
RIVANNA WATER AND SEWER AUTHORITY.

This Agreement made for purposes of identification this 1st day of January, 2012, by and between the CITY OF CHARLOTTESVILLE, VIRGINIA, a municipal corporation (the "City"), the ALBEMARLE COUNTY SERVICE AUTHORITY, a public body politic and corporate ("ACSA"), and the RIVANNA WATER AND SEWER AUTHORITY, a public body politic and corporate ("RWSA").

WITNESSETH:

A. RWSA owns and/or operates facilities for the treatment of potable water pursuant to the terms of a Four-Party Agreement dated June 12, 1973, among the City, RWSA, ACSA and the Board of Supervisors of Albemarle County (the "Four-Party Agreement") and several supplementary agreements.

B. The urban water system consists of all water-related facilities within or serving the City of Charlottesville and the urban growth area of Albemarle County surrounding the City of Charlottesville, including water treatment plants and all reservoirs, dams, pipelines, pump stations, storage tanks and other appurtenances connected to the water treatment plants and operated by RWSA (the "Urban Water System").

C. RWSA, in order to increase the available water supply and safe-yield of that water supply, has undertaken a Community Water Supply Plan described in the Permit Support Document dated May 17, 2006 (the "CWS Plan")
approved by the Virginia Department of Environmental Quality by issuance of Virginia Water Protection Permit No. 06-1574 effective February 11, 2008, and last modified December 20, 2011. The CWS Plan estimates the increase in safe-yield at 9.9 million gallons per day (MGD). In addition to providing additional safe-yield to meet an anticipated increase in future demand of 5.9 MGD, the CWS Plan provides additional safe-yield to offset anticipated future losses of safe-yield from siltation of the South Fork Rivanna Reservoir of 4.0 MGD. While the CWS Plan includes other projects forecasted to be constructed in the future, this Agreement only addresses the sharing and allocation of costs for the Project, as such term is defined in Paragraph 1 of the Agreement dated of even date herewith between the City, ASCA and RWSA and recorded in the Clerk’s Office of the County of Albemarle, Virginia (the “Project Agreement”), a copy of which is attached hereto.

D. ACSA and the City reached an agreement dated December 1, 2003 (the “December 1, 2003 Agreement”), concerning the allocation of expenses to increase the safe-yield provided by the Urban Water System, by raising the elevation of the South Fork Rivanna Reservoir. RWSA never constructed this project. However, since 2003 RWSA has allocated costs to the City and ACSA for water supply related project costs based upon the December 1, 2003 Agreement’s agreed-upon percentages of 27% to the City and 73% to ACSA. The City and ACSA now want to more accurately reflect future cost allocation for the Project to be undertaken by RWSA.
NOW THEREFORE, for and in consideration of the premises and other good and valuable consideration, the receipt of all of which is hereby acknowledged, the City, ACSA and RWSA agree as follows:

1. **Allocation of Previously Incurred Costs.** Except as may have otherwise been previously agreed among the City, ACSA and RWSA, all costs directly incurred by the City and ACSA related to the Project for work performed prior to the date of this Agreement, irrespective of when invoiced or paid, shall be the responsibility of the party incurring such costs. Except as may have otherwise been previously agreed to among the City, ACSA and RWSA, all costs incurred by RWSA related to the Project for work performed or debt service owed for periods prior to the date of this Agreement, irrespective of when invoiced or paid, have been allocated to the City and ACSA through the setting of water rates for each of the City and ACSA using the allocation percentages set forth in the December 1, 2003 Agreement. Costs for work performed and debt service owed related to the Project include the costs of engineering, construction, legal and land costs, administrative, debt service, establishment of reserves and related expenses (hereinafter collectively referred to as the "Debt Service Charges"). RWSA's water rates have been determined and calculated, and shall continue to be determined and calculated, as provided in Article VII of the Four-Party Agreement and the Working Agreement on Urban Area Wholesale Flow Allocation and Billing Methodology dated January 24, 1983 by and among RWSA, ACSA and the City (the "Working Agreement"), as the same may be amended from time to time.
2. **Allocation of Future Project Debt Service Charges Related to New Ragged Mountain Dam.** Except as otherwise provided in Section 3 below with respect to allocation of Debt Service Charges for the SRR-RMR Pipeline (as defined in Paragraph 1(d) of the Project Agreement), RWSA shall allocate all other Project Debt Service Charges for work performed or debt service owed for periods on or after the date of this Agreement, irrespective of when invoiced or paid, by setting water rates in such a manner as to allocate 15% of such Debt Service Charges to the City, and the remaining 85% of such Debt Service Charges to ACSA, subject to adjustment as provided in Section 5 below. Such Debt Service Charges shall include future debt service on RWSA’s 2005B Bond, which funded the alternatives analysis and the permitting process for the CWS Plan, which debt service prior to the date hereof was allocated pursuant to the percentages set forth in the December 1, 2003 Agreement.

3. **Allocation of Future Costs Related to SRR-RMR Pipeline.** RWSA shall allocate all Project Debt Service Charges related to the SRR-RMR Pipeline for work performed or debt service owed for periods on or after the date of this Agreement, irrespective of when invoiced or paid, by setting water rates in such a manner as to allocate 20% of such Debt Service Charges to the City and the remaining 80% of such Debt Service Charges to ACSA, subject to adjustment as provided in Section 5 below.

4. **True-Up Reimbursements for Previously Allocated Debt Service Charges Based Upon Increased Future Use.** In the event the actual water use of either the City or ACSA exceeds its allocation of the agreed-upon total safe-yield
of the Urban Water System set forth in Section 6 below, the party exceeding its allocation shall make a true-up reimbursement payment (a "True-Up Payment") directly to the other party for a portion of the previously allocated Debt Service Charges related to the Project, to be calculated as set forth below. The amount of such True-Up Payment shall be the sum of (a) the True-Up Payment calculated for the Project excluding the SRR-RMR Pipeline (hereinafter, the "RMR Dam Portion"), plus (b) the True-Up Payment calculated for the SRR-RMR Pipeline (hereinafter, the "SRR-RMR Pipeline Portion"), in each case calculated as provided below. Actual water use shall be measured pursuant to the metering plan provided in Section 7 below and determined based upon the actual annual average daily water demand of the City and ASCA over a trailing twelve (12) consecutive month period. The first such period shall begin on July 1, 2015 and end on June 30, 2016, and continuing for each fiscal year thereafter. The last day of any such period shall be the "True-Up Effective Date" for such period. Each of the RMR Dam Portion and the SRR-RMR Pipeline Portion of the True-Up Payment shall be calculated by multiplying the sum of (a) all Debt Service Charges for such Portion allocated to both the City and ASCA for all periods on and after the date of this Agreement through the current True-Up Effective Date plus (b) the RWSA budgeted amount of all Debt Service Charges for such Portion allocated to both the City and ASCA for the fiscal year immediately following the True-Up Effective Date by a fraction, the numerator of which shall be equal to the amount by which such party's actual water use, expressed as MGD, exceeds its current allocated share of the 18.7 MGD agreed-upon total
safe-yield of the Urban Water System from the Project (initially 6.71 MGD for the City and 11.99 MGD for ACSA), and the denominator of which shall be the 9.9 MGD agreed-upon additional safe yield of the Urban Water System from the Project, and then multiplying such amount by a fraction, the numerator of which is the Debt Service Charges allocation percentage for such Portion initially agreed to for such party pursuant to Section 2 or Section 3 above, as applicable, as may have been previously adjusted pursuant to the second sentence of Section 5 below, and the denominator of which is such party's initial percentage of agree-upon additional safe-yield pursuant to Section 6 below, as may have been previously adjusted by any increase or decrease to its allocated share of the agreed-upon total safe yield pursuant to the first sentence of Section 5 below. The total cumulative True-Up Payments, if any, owed by either party shall be limited to the sum of (i) fifteen percent (15%) of the total Debt Service Charges for the Project excluding the Debt Service Charges for the SRR-RMR Pipeline and (ii) twenty percent (20%) of the total Debt Service Charges for the SRR-RMR Pipeline. Each True-Up Payment shall be made within twelve (12) months of the True-Up Effective Date for which it was calculated. An example of a True-Up Payment calculation is attached hereto as Exhibit A.

5. Adjustment of Allocation Base On Increased Future Use. The increase in actual water use used to make each True-Up Payment calculation will be added to then current allocated share of the agreed-upon total safe-yield of such party and subtracted from then current allocated share of the agreed-upon total safe-yield of the other party for purposes of determining future True-Up
Payments and for purposes of allocating any future Debt Service Charges for the Project. The allocations of future Debt Service Charges set forth in Sections 2 and 3 above for each of the City and ACSA shall be adjusted to a percentage equal to such party's newly adjusted percentage of agreed-upon total safe-yield multiplied by a fraction, the numerator of which shall be equal to such party's then current percentage of Debt Service Charges and the denominator of which shall be equal to such party's then current percentage of agreed-upon additional safe-yield. Such adjusted percentages shall be used by RWSA to determine and calculate water rates for its first full fiscal year beginning one year after the day following such True-Up Effective Date and for each fiscal year thereafter, until subsequently adjusted following any subsequent True-Up Payment. No further True-Up Payments under Section 4 above or adjustments to safe-yield allocations under this Section 5 shall be made if the result of such adjustments would reduce the allocated safe-yield of any party below such party's actual water use as measured by average daily demand under the second sentence of Section 4 above.

6. Allocation of Safe-Yield For Purpose of True-Up Reimbursements.

For the purpose of calculation of the True-Up Payments required by Section 4 of this Agreement and the adjustments of allocations required by Section 5 of this Agreement, the agreed-upon additional safe-yield and agreed-upon total safe-yield of the Urban Water System anticipated from the Project and initially allocated to the City and ACSA shall be fixed at the numbers set forth in the following chart, irrespective of the actual safe-yield resulting from the Project or
any increase or decrease in actual safe-yield as a result of the passage of time or
due to any other circumstance:

<table>
<thead>
<tr>
<th>A (AECOM 2010)</th>
<th>B Current Supply Split</th>
<th>C Discounted Supply in 2055 (8.8 mgd)</th>
<th>D Agreed-upon Additional Safe Yield Split</th>
<th>E Agreed-upon Additional Safe Yield by Share (9.9 mgd)</th>
<th>F Agreed-upon Total Safe Yield Allocated</th>
</tr>
</thead>
<tbody>
<tr>
<td>City</td>
<td>5.13 53.70%</td>
<td>4.73 20%</td>
<td>1.98</td>
<td>6.71</td>
<td></td>
</tr>
<tr>
<td>County</td>
<td>4.62 46.30%</td>
<td>4.07 80%</td>
<td>7.92</td>
<td>11.99</td>
<td></td>
</tr>
<tr>
<td>Total MGD</td>
<td>9.75 8.80%</td>
<td></td>
<td>9.90</td>
<td>18.70</td>
<td></td>
</tr>
</tbody>
</table>

| City %         | 52.56% 53.70%          | 20%                                    | 35.88%                                   |
| County %       | 47.36% 46.30%          | 80%                                    | 64.12%                                   |

In accordance with the chart, the City's initial percentage of agreed-upon additional safe-yield is twenty percent (20%) and its initial allocation of agreed-upon total safe yield is 6.71 MGD; and ACSA's initial percentage of agreed-upon additional safe-yield is eighty percent (80%) and its initial allocation of agreed-upon total safe yield is 11.99 MGD.

7. **Data Acquisition (Metering) Plan.** Within 36 months of the date of this Agreement, RWISA shall complete a metering program to measure the City, ACSA and University of Virginia water usage the cost of which shall be allocated using the same allocation method used for operational costs as set forth in Section 11 below. RWISA shall install, maintain, read and routinely test and calibrate metering devices to record the quantities of water delivered by RWISA through such meters to the retail distribution systems of the City, ACSA and the University of Virginia not less frequently than monthly and otherwise as agreed to by the City and ACSA.
8. **Water Conservation.** The City and ACSA shall engage in aggressive conservation methods, including system-wide water audits meeting AWWA standards; residential home water audits and annual reports on conservation status; outdoor incentives including drought resistant landscapes; irrigation certification; car wash certification; and other incentives for innovative water conservation programs.

9. **Dredging South Fork Rivanna Reservoir.** The City and ACSA agree to carry out a maintenance dredging project at the South Fork Reservoir to "target dredge" for Part I (segments 1, 2, 3 as identified in the HDR Engineering Inc. dredging study dated February 17, 2010). This dredging project will be outside the DEQ VWP Permit No: 06-1574. The specific details of the dredging project will be determined by the Board of Directors of RWSA taking into account the City and ACSA's desire that it be market driven, cost effective and opportunistic. The City and ACSA shall share equally the cost and related debt service charges of this dredging, up to a maximum project cost (excluding debt service charges) of $3.5 million. This dredging is a joint maintenance project. RWSA shall issue a Request for Proposals as the next step in implementation.

10. **Value of the Ragged Mountain Property.** The City and ACSA agree that the value of the City property required for construction of the New Ragged Mountain Dam and which will be inundated by the expansion of the Ragged Mountain Reservoir at the Initial Pool Level and the Additional Pool Level (as those terms are defined in Paragraph 1(a) of the Project Agreement) is
$765,000.00, which value shall be paid by ACSA to the City, upon commencement of construction of the New Ragged Mountain Dam.

11. Except as otherwise specifically provided herein, the City and ACSA will continue to pay for routine labor, chemicals, supplies, power, and all other operational costs associated with water production for the Urban Water System on the basis of their percentage volume use as set out in the Four-Party Agreement, as supplemented by (i) Joint Resolution adopted in January 1983 (as such resolution was clarified by Resolution of ACSA dated March 17, 1983, and by Resolution of the City Council dated May 2, 1983, and modified by Joint Resolution adopted in December, 1983), (ii) the Working Agreement; (iii) Agreement dated October 26, 1987, and (iv) the December 1, 2003 Agreement, relating to the operation of RWSA's Urban Water System and the division of RWSA's operational costs between the City and ACSA.

WITNESS the following duly authorized signatures and seals:

[SIGNATURES ON FOLLOWING PAGES]
CITY OF CHARLOTTESVILLE

By: [Signature]
Mayor

COMMONWEALTH OF VIRGINIA
CITY/COUNTY OF ALBEMARLE

The foregoing instrument was acknowledged before me this 24th day
of JANUARY, 2012, by SATYENDRA SINGH HSIA

MARY G. KNOWLES
Notary Public

My commission expires: JULY 31, 2014
ID No. 205978

ALBEMARLE COUNTY SERVICE AUTHORITY

By: [Signature]
Chairman

COMMONWEALTH OF VIRGINIA
CITY/COUNTY OF ALBEMARLE

The foregoing instrument was acknowledged before me this 24th day
of JANUARY, 2012, by CLARENCE ROBERTS

MARY G. KNOWLES
Notary Public

My commission expires: JULY 31, 2014
ID No. 205978
RIVANNA WATER AND SEWER AUTHORITY

By: [Signature]
Chairman

COMMONWEALTH OF VIRGINIA
CITY/COUNTY OF ALBEMARLE

The foregoing instrument was acknowledged before me this 24th day
of JANUARY, 2012, by MICHAELA GAFFNEY

[Signature]
Notary Public

My commission expires: JULY 31, 2014
ID No. 205978

MARY G. KNOWLES
NOTARY PUBLIC
Commonwealth of Virginia
Reg. #205978
My Commission Expires 7-31-14
*The following examples assume that 1) baseline allocations have been exceeded in Year XXXX, that 2) the earthen dam has been constructed and $1 million in debt service charges have been collected, and that 3) the pipeline has been constructed and $1 million in debt service charges have been collected.

**Initial Agreed-upon Terms:**

<table>
<thead>
<tr>
<th></th>
<th>Total Estimated Debt Service Charges (Millions of $)</th>
<th>ACA Share (Millions of $)</th>
<th>City Share (Millions of $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dam Debt Service Charges</td>
<td>$1.00</td>
<td>85%</td>
<td>35%</td>
</tr>
<tr>
<td>Pipeline Debt Service Charges</td>
<td>$2.00</td>
<td>80%</td>
<td>20%</td>
</tr>
<tr>
<td>Total Project Debt Service Charges</td>
<td>$3.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agreed-upon Additional Safe Yield</td>
<td>$9.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>City</td>
<td>1.38</td>
<td>90.00%</td>
<td></td>
</tr>
<tr>
<td>ACA</td>
<td>7.92</td>
<td>80.00%</td>
<td></td>
</tr>
</tbody>
</table>

**Cost Allocation Formulas:**

\[
\text{Agreed-upon Initial percentage of debt service charges / Agreed-upon Initial percentage of new capacity} = (\text{Adjusted percentage of debt service charges / Adjusted percentage of new capacity})
\]

**Example #1 — the City exceeds baseline amount in Year XXXX:**

If, for example, the City’s average daily demand in Year XXXX equals 6.81 mgd, the "true-up" payment will be calculated by multiplying the sum of the debt service charges for the pipeline and the dam by a fraction, the numerator of which shall be equal to the amount by which such party’s actual water use, expressed as MGD, exceeds its allocated share of the estimated total safe-yield of the Urban Water System from the project, initially at 6.71 MGD for the City and 11.99 for the ACA, and the denominator of which shall be the agreed-upon additional safe yield of the Urban Water System from the Project of 9.9 MGD.

\[
(6.81 \text{ MGD} - 6.71 \text{ MGD}) / 9.9 \text{ MGD} = 1.01\%
\]

\[
1.01\% \times (20%/20%) = 1.01\%
\]

$1 million * 1.01% = $10,101 per each million in debt service charges for the pipeline

\[
(6.81 \text{ MGD} - 6.71 \text{ MGD}) / 9.9 \text{ MGD} = 1.01\%
\]

\[
1.01\% \times (35%/20%) = 0.766
\]

$1 million * 0.766 = $7,576 per each million in debt service charges for the dam

True-up payment to ACA:

$10,101 for the pipeline + $7,576 for the dam = $17,677 for the project

The City’s new agreed-upon safe yield is 6.81 MGD, their adjusted pipeline cost allocation is 21.01%, and their adjusted dam cost allocation is 15.76%. The "true-up" is satisfied until there is 1) an increase in the average daily demand, or 2) the baseline cap is reached.

**Example #2 — the ACA exceeds baseline amount in Year XXXX:**

If, for example, the ACA’s average daily demand in Year XXXX equals 12.09 mgd, the "true-up" payment will be calculated by multiplying the sum of the debt service charges for the pipeline and the dam by a fraction, the numerator of which shall be equal to the amount by which such party’s actual water use, expressed as MGD, exceeds its allocated share of the estimated total safe-yield of the Urban Water System from the project, initially at 11.99 MGD for the City and 11.99 for the ACA, and the denominator of which shall be the agreed-upon additional safe yield of the Urban Water System from the Project of 9.9 MGD.

\[
(12.09 \text{ MGD} - 11.99 \text{ MGD}) / 9.9 \text{ MGD} = 1.01\%
\]

\[
1.01\% \times (80%/80%) = 1.01\%
\]

$1 million * 1.01% = $10,101 per each million in debt service charges for the pipeline

\[
(12.09 \text{ MGD} - 11.99 \text{ MGD}) / 9.9 \text{ MGD} = 1.01\%
\]

\[
1.01\% \times (85%/80%) = 0.766
\]

$1 million * 0.766 = $7,572 per each million in debt service charges for the dam

True-up payment to City:

$10,101 for the pipeline + $7,572 for the dam = $17,673 for the project

The ACA’s new agreed-upon safe yield is 12.09 MGD, their adjusted pipeline cost allocation is 81.01%, and their adjusted dam cost allocation is 88.02%. The "true-up" is satisfied until there is 1) an increase in the average daily demand, or 2) the baseline cap is reached.
Ragged Mountain Dam Project Agreement

This RAGGED MOUNTAIN DAM PROJECT AGREEMENT (this "Agreement") made for purposes of identification this 1st day of January, 2012, by and between the CITY OF CHARLOTTESVILLE, VIRGINIA, a municipal corporation (the "City"), Grantor for indexing purposes; the ALBEMARLE COUNTY SERVICE AUTHORITY, a public body politic and corporate ("ACSA"), Grantor and Grantee for indexing purposes; and the RIVANNA WATER AND SEWER AUTHORITY, a public body politic and corporate ("RWSA"), Grantee for indexing purposes.

WITNESSETH:

A. RWSA owns and/or operates facilities for the receipt and treatment of potable water pursuant to the terms of a Four-Party Agreement dated June 12, 1973, among the City, RWSA, ACSA and the Board of Supervisors of Albemarle County (the "Four-Party Agreement") and several supplementary agreements.

B. The facilities operated by RWSA include the Lower and Upper Ragged Mountain Reservoir Dams located on a parcel of land designated as Albemarle County Tax Map 75, Parcel 1, and the South Rivanna Reservoir Dam, located on a parcel of land designated as...
Albemarle County Tax Map 45, Parcel 67A, as more particularly described in the Deed referenced in Recital B below.

C. Pursuant to Article IV of the Four-Party Agreement, the City and ACSA have agreed upon a project, not contemplated by their previous agreements, for the construction by RWSA of an earthen dam at the current site of the Ragged Mountain Reservoir to replace the existing dams at the Ragged Mountain Reservoir and increase the pool elevation of the existing Ragged Mountain Reservoir. The new earthen dam will increase the safe yield of the urban water system consisting of all water-related facilities within or serving the City of Charlottesville and the urban growth area of Albemarle County surrounding the City of Charlottesville and includes the areas served by public community water supply from the South Fork Rivanna Water Treatment Plant, the Observatory Water Treatment Plant, and the North Fork Rivanna Water Treatment Plant, as well as all reservoirs, dams, pipelines, pumping stations, storage tanks and other appurtenances connected to water plants and operated by RWSA (the "Urban Water System").

D. ACSA and the City have reached an agreement concerning the sharing of costs for construction of the new earthen dam and related improvements and the amount of compensation for the increased area required to construct the dam and which will be inundated by the reservoir pool supported by the new dam; all as more particularly set forth in the Water Cost Allocation Agreement, dated January 1, 2012 (the "Cost Allocation Agreement").

E. ACSA, the City and RWSA desire to set forth their understandings with respect to the construction of the dam and improvements in phases and the rights of RWSA to build the dam and related improvements upon the land where the existing Ragged Mountain Reservoir is located, which land is owned by the City subject to certain rights conveyed by the City to RWSA
pursuant to the Four-Party Agreement as set forth in the Deed and Bill of Sale dated June 13, 1983, recorded in the Clerk’s Office of the City of Charlottesville in Deed Book 438 at page 854 and in the Clerk’s Office of the County of Albemarle in Deed Book 768 at page 277 (the “Deed”).

NOW, THEREFORE, for and in consideration of the premises, the cost allocations and other expense reimbursements set forth in the Cost Allocation Agreement, and other good and valuable consideration, the receipt of all of which is hereby acknowledged, the City, ACSA and RWSA agree as follows:

AGREEMENT

1. Specification of the Project. Pursuant to Article IV of the Four-Party Agreement, ACSA and the City agree to and direct RWSA, and RWSA agrees, to proceed to construct and perform the following (hereinafter referred to as the “Project”):

   (a) New earthen dam on the site of and downstream of the existing Lower and Upper Ragged Mountain Dams sufficient to impound and raise the existing maximum normal operating reservoir pool level (641’ above mean sea level) an additional forty-two feet (42’) (683’ above mean sea level) utilizing soil from certain borrow areas on the site to the extent feasible (the “New Ragged Mountain Dam”); provided, however, that until satisfaction of the conditions set forth in Paragraph 3 below, the normal operating reservoir pool level shall be limited to an additional thirty feet (30’) (671’ above mean sea level) above the existing normal operating reservoir pool level (the “Initial Pool Level”), and only upon satisfaction of such conditions shall the normal operating reservoir pool level be raised an additional twelve feet (12’) above the Initial Pool Level (the “Additional Pool Level”).
(b) Separate rock-lined spillway for the New Ragged Mountain Dam.

(c) Intake tower for the New Ragged Mountain Dam, with intake gates and a normal spillway at heights necessary to support the Initial Pool Level, constructed in such a manner as to allow the operation of an additional intake gate and spillway to support the Additional Pool Level upon satisfaction of the conditions set forth in Paragraph 3 of this Agreement.

(d) A proposed pipeline, including tunnel, pumping facilities and related infrastructure, connecting the reservoir formed by the New Ragged Mountain Dam (such reservoir, including any expansion as provided in Paragraph 3 of this Agreement, hereinafter referred to as the “Ragged Mountain Reservoir”) to the existing South Rivanna Reservoir and connecting to an existing pipeline serving the Observatory Water Treatment Plant (such pipeline, tunnel, pumping facilities and related infrastructure hereinafter referred to as the “SRR-RMR Pipeline”).

(e) A floating pedestrian trail bridge and spill boom across the Ragged Mountain Reservoir to be located north of Interstate 64 with truck access to construct and maintain such improvements, including periodic removal of debris from the spill boom (hereinafter referred to as the “Floating Bridge and Spill Boom”).

(f) Removal of trees and other vegetation in the areas necessary to construct the improvements described in clauses (a) through (e) above and in the area which will be inundated by the Initial Pool Level and, upon satisfaction of the conditions set forth in Paragraph 3 of this Agreement, in the area which will be inundated by the Additional Pool Level.

(g) Breach of the existing Lower and Upper Ragged Mountain Dams.
(h) Other construction and work necessary or desirable for the purposes set forth in this Agreement to construct and complete the improvements or to satisfy federal, state or local regulations applicable to the activities described in clauses (a) through (g) above, including all mitigation and restoration required by such permits.

The portion of the Project to be constructed on the Ragged Mountain Reservoir site shall be located substantially as shown on the “Land Use Map for the New Ragged Mountain Dam”, prepared by Schnabel Engineering dated July 19, 2011, Sheets 1 – 7, a copy of which is attached hereto and recorded herewith, with the exception of the Floating Bridge and Spill Boom, which shall be constructed in coordination with the City’s design and development of a trail system within the Ragged Mountain Reservoir site. RWSA shall be responsible for all aspects of the design, right-of-way and easement acquisition, and construction of the Project. RWSA shall require and verify that all individuals and entities under contract with RWSA to perform construction activities pursuant to this Agreement on any property owned by the City of Charlottesville agree to indemnify and hold harmless the City and its officers, officials and employees, and to include the City of Charlottesville as an additional insured on any applicable general liability insurance policies.

2. Confirmation and Grant of Water Rights, Leases, Easements and Rights of Access for the Project. Pursuant to Section 6.1 of the Four Party Agreement RWSA is the sole producer and seller of potable water to the City and ACSA. Further, pursuant to Section 3.2(c) of the Four-Party Agreement and Paragraph V of the Deed, the City leased to RWSA, for so long as the Four-Party Agreement remains in effect, “all water rights in and to...the two Ragged Mountain Reservoirs and the South Rivanna Reservoir, including the rights to maintain and operate all impoundment and pumping facilities, and to withdraw all water that may be available.” To the
extent not already provided in the Four-Party Agreement, the City hereby leases to RWSA, for so long as the Four-Party Agreement remains in effect, but not to exceed forty (40) years from the date hereof, all water rights in and to the Ragged Mountain Reservoir, including the rights to maintain and operate all impoundment and pumping facilities, and to withdraw all water that may be available, all as provided in Article V of the Four Party Agreement. The City further grants to RWSA a temporary construction easement and right of access necessary to construct, and install the Project to inundate and support a reservoir pool to the Initial Pool Level and, subject to satisfaction of the conditions set forth in Paragraph 3 of this Agreement, to increase the normal operating reservoir pool to the Additional Pool Level and to construct that portion of the SRR-RMR Pipeline to be constructed on the Ragged Mountain Reservoir site and the South Rivanna Reservoir site.

The City further leases to RWSA, commencing upon the date RWSA begins construction of the SRR-RMR Pipeline and continuing for so long as the Four-Party Agreement remains in effect, but not to exceed a period of forty (40) years from the commencement date, the parcel of land adjacent to the South Rivanna Reservoir consisting of approximately 5.45 acres, more or less, designated in the Albemarle County land records as Tax Map 45, Parcel 69A, and more particularly described in Exhibit A attached hereto and recorded herewith to construct, install, operate, maintain, repair, replace, relocate and extend that portion of the SRR-RMR Pipeline to be located in and adjacent to the South Rivanna Reservoir.

3. **Increase to Additional Pool Level.** RWSA shall perform bathymetric surveys of the South Rivanna Reservoir and current water demand analyses and water demand projections in accordance with, and at intervals governed by, approved state and federal permits and the Commonwealth of Virginia’s Local and Regional Water Supply Planning regulations (9VAC 25-
780), but at least every ten (10) years after the date of this Agreement, with the first such survey to be performed not later than the year 2020. RWSA shall update the analysis of safe yield of the Urban Water System following each new bathymetric survey of the South Rivanna Reservoir performed after the date of this Agreement using the latest available data on useable storage in the South Rivanna Reservoir, the Ragged Mountain Reservoir, and the Sugar Hollow Reservoir. All such bathymetric surveys, water demand projections and safe yield analyses will be performed by an outside consultant selected by RWSA. The method for determining safe yield shall be as set forth in the regulations of the Virginia Department of Health. At any such time that (i) the actual Urban Area water demand (measured as combined flow of treated water entering the Urban Water System from water treatment plants) as an average daily demand over a trailing twelve (12) consecutive month period or (ii) the average daily demand over a period of twelve (12) consecutive months projected out ten (10) years reaches eighty-five percent (85%) or more of the safe yield determined from the most recent safe yield analysis, RWSA, upon the written request of ACSA or the City and without further authorization or approval from the other party, shall modify the intake towers and remove trees and other vegetation necessary to allow the New Ragged Mountain Dam to impound and support a reservoir pool to the Additional Pool Level, and shall raise the reservoir pool to the Additional Pool Level.

4. **Permits.** The City, as the landowner of record of the parcels referenced in Recital B and Paragraph 2 above hereby authorize RWSA to apply for and secure all permits and approvals necessary for or mandated by the Project and the Project’s expansion pursuant to Paragraph 3 of this Agreement.

5. **Dredging.** Pursuant to Article IV of the Four-Party Agreement, the City and ACSA agree to and direct RWSA, and RWSA agrees, to perform such dredging projects at the
South Rivanna Reservoir as may be specified jointly by the City and ACSA pursuant to the Water Cost Allocation Agreement.

6. **Miscellaneous.** In the event any one or more of the terms or provisions contained in this Agreement should be held invalid or unenforceable in any respect, the validity and enforceability of the remaining terms and provisions will not in any way be affected or impaired. Any invalid or unenforceable term or provision will be deemed to be void and of no force and effect only to the minimum extent necessary to cause such term or provision to become valid and enforceable, and the balance of this Agreement will be fully enforceable.

IN WITNESS WHEREOF, the duly authorized officers of the City of Charlottesville, Virginia, the Albemarle County Service Authority and the Rivanna Water and Sewer Authority have executed this Agreement as of the date first above written.

[SIGNATURES ON FOLLOWING PAGE]
CITY OF CHARLOTTESVILLE, VIRGINIA

By: Maurice Jones, City Manager

(CITY OF CHARLOTTESVILLE, VIRGINIA)

APPROVED AS TO FORM:

By: Craig Brown, City Attorney

COMMONWEALTH OF VIRGINIA

CITY OF CHARLOTTESVILLE, to wit:

The foregoing instrument was acknowledged before me this 24th day of
January, 2012, by Maurice Jones as City Manager of the City of Charlottesville,
Virginia.

Mary M. Knowles
Notary Public
Registration No.: 205975

My Commission Expires: July 31, 2014

ALBEMARLE COUNTY SERVICE AUTHORITY

By: Gary B. O'Connell, Executive Director

COMMONWEALTH OF VIRGINIA

COUNTY OF ALBEMARLE, to wit:

The foregoing instrument was acknowledged before me this 24th day of
January, 2012, by Gary B. O'Connell as Executive Director of the Albemarle
County Service Authority.

Mary M. Knowles
Notary Public
Registration No.: 205975

My Commission Expires: July 31, 2014
RIVANNA WATER AND SEWER AUTHORITY

By: [Signature] (SEAL)
Thomas L. Frederick, Jr., Executive Director

COMMONWEALTH OF VIRGINIA
COUNTY OF ALBEMARLE, to wit:

The foregoing instrument was acknowledged before me this 24th day of January, 2013, by Thomas L. Frederick, Jr. as Executive Director of the Rivanna Water and Sewer Authority.

Mary G. Knowles
Notary Public
Registration No.: 805978

My Commission Expires: July 31, 2014