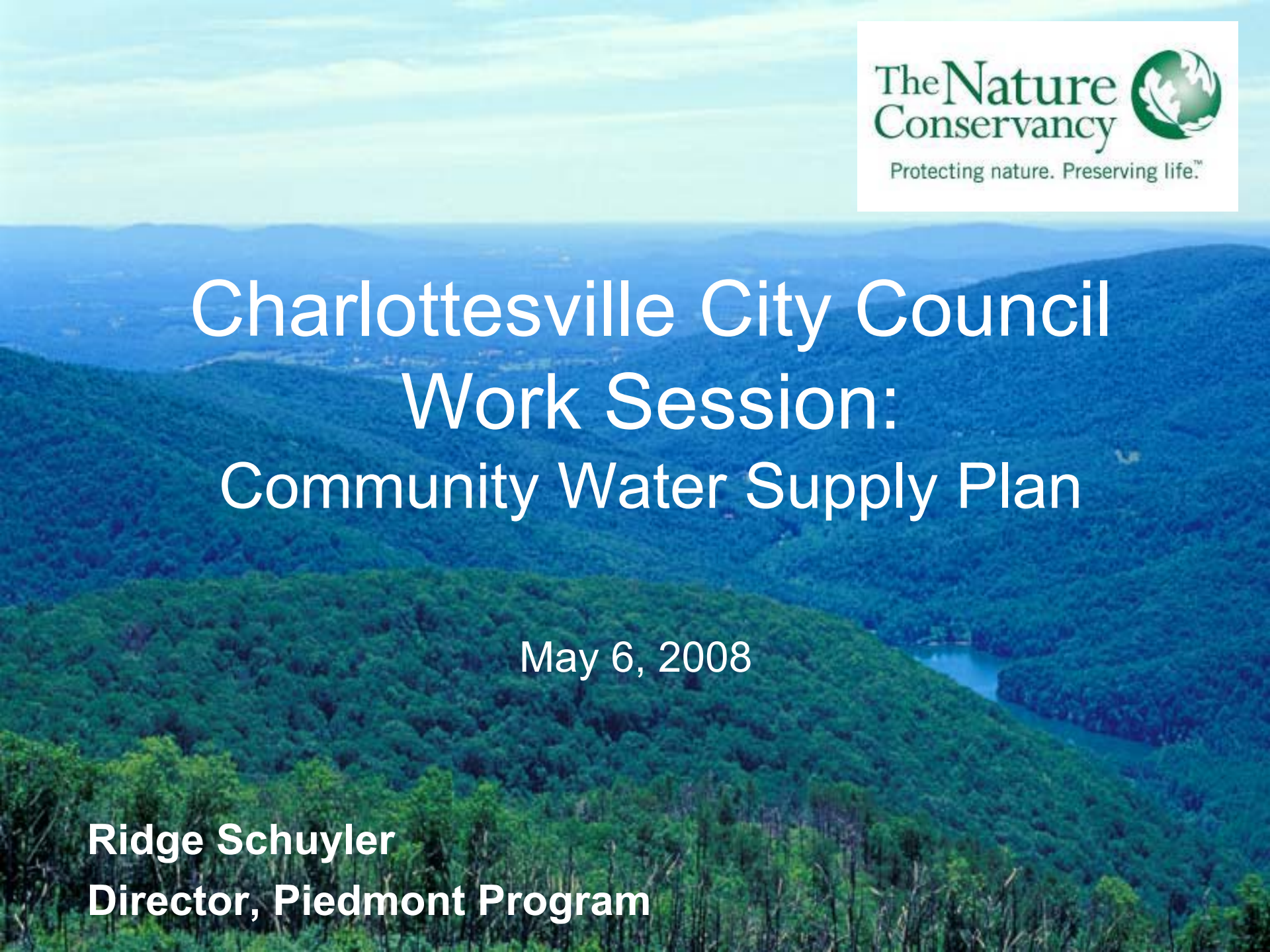
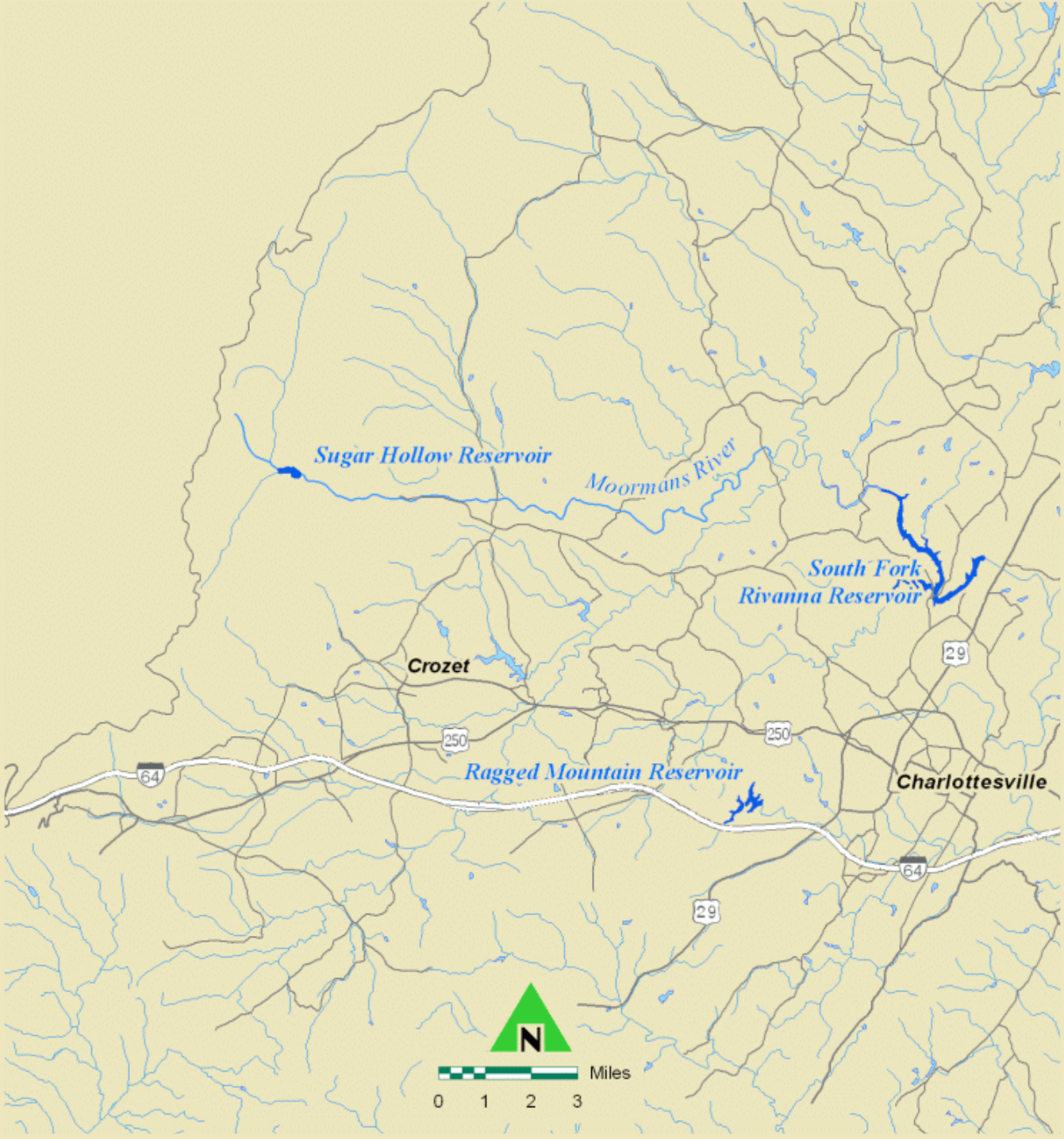
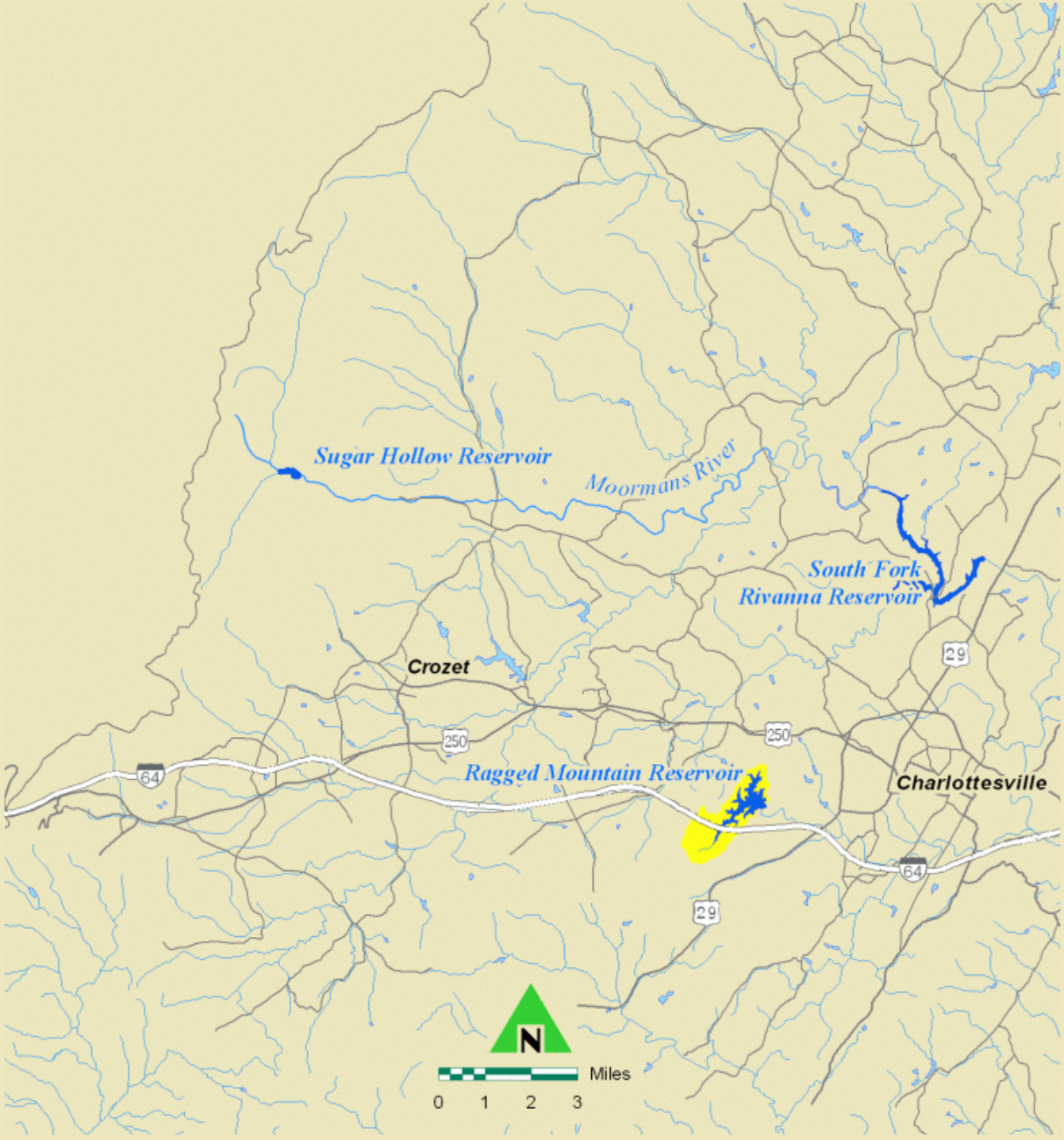


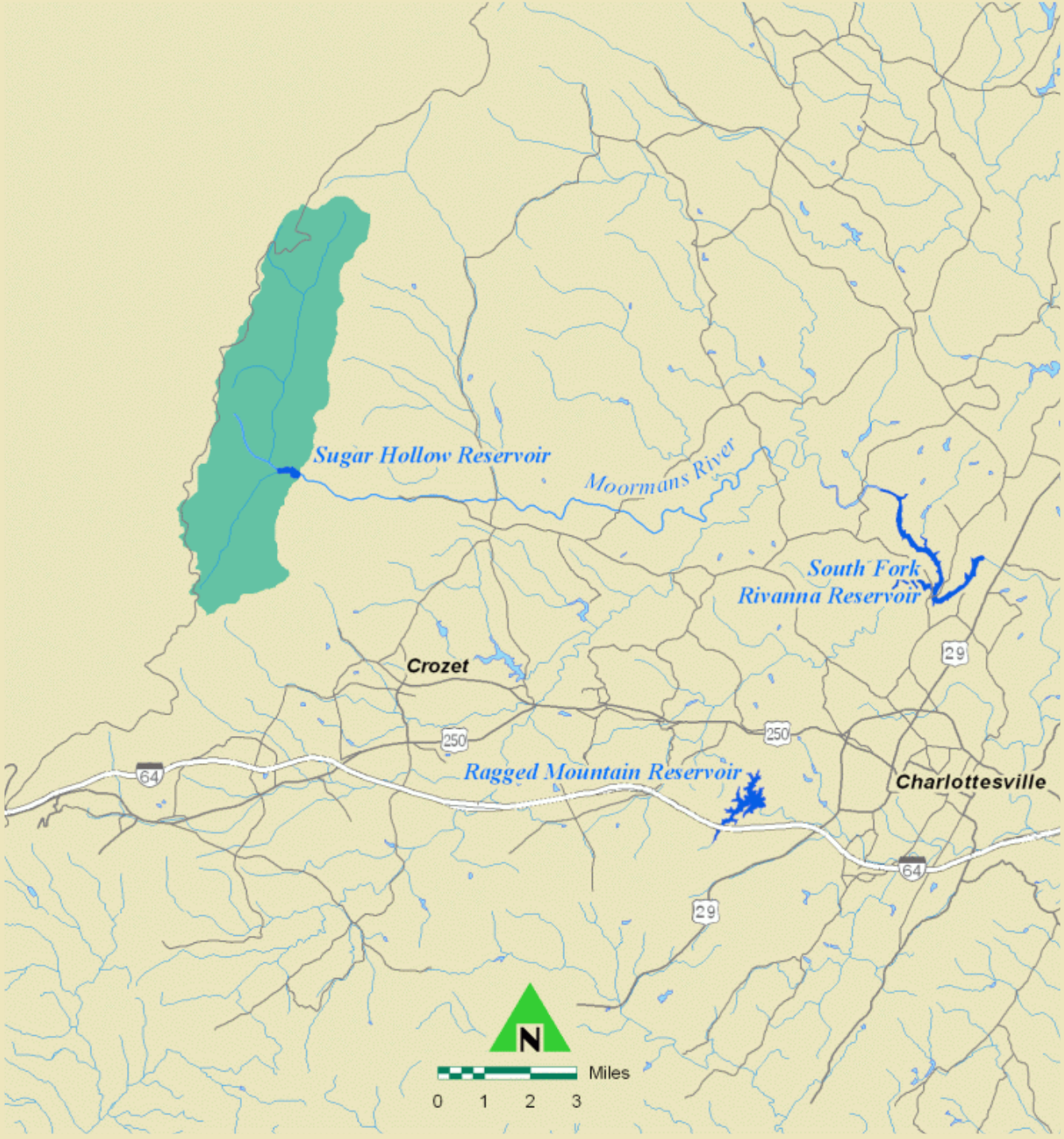
Charlottesville City Council Work Session:
Community Water Supply Plan

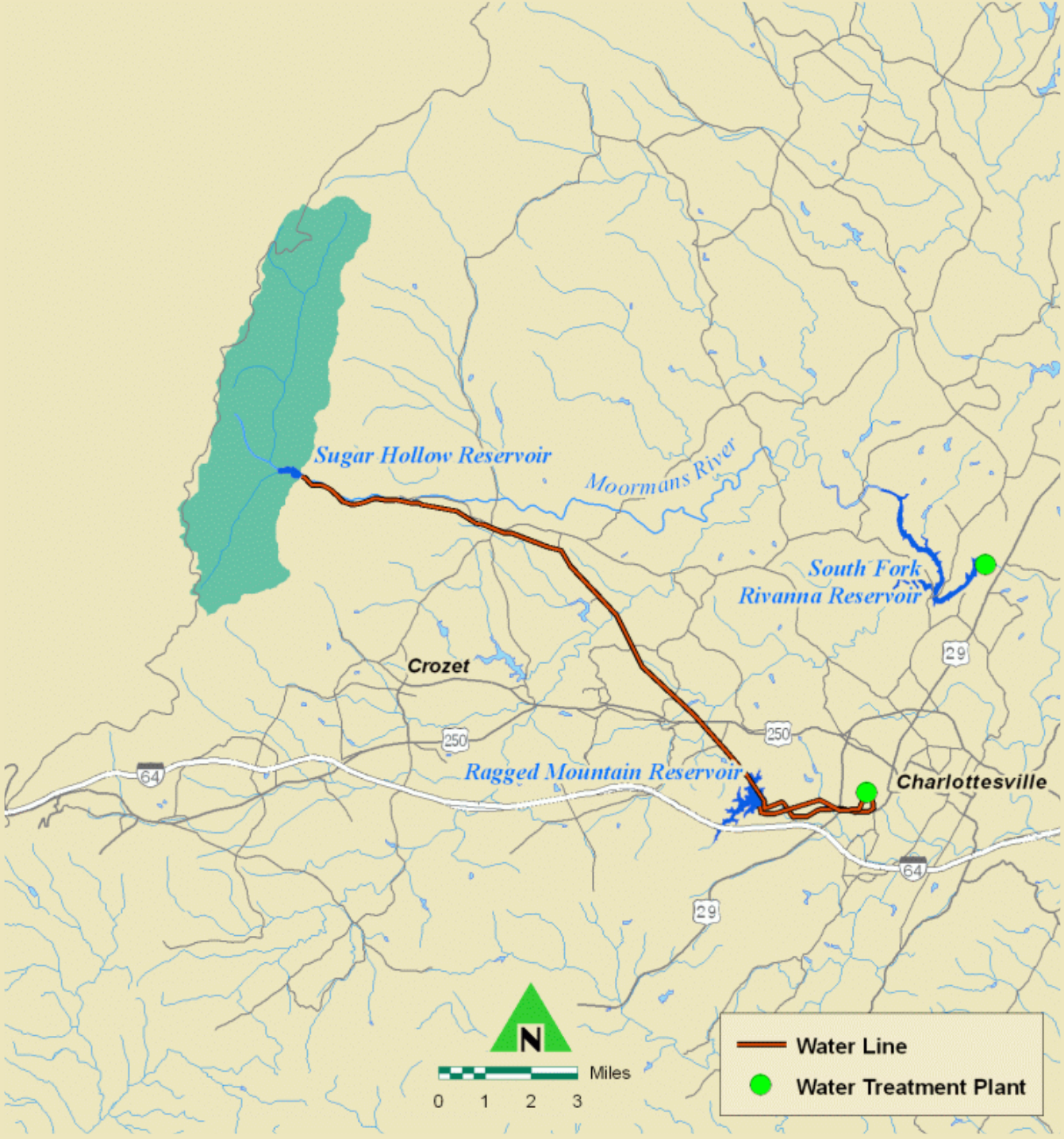
May 6, 2008

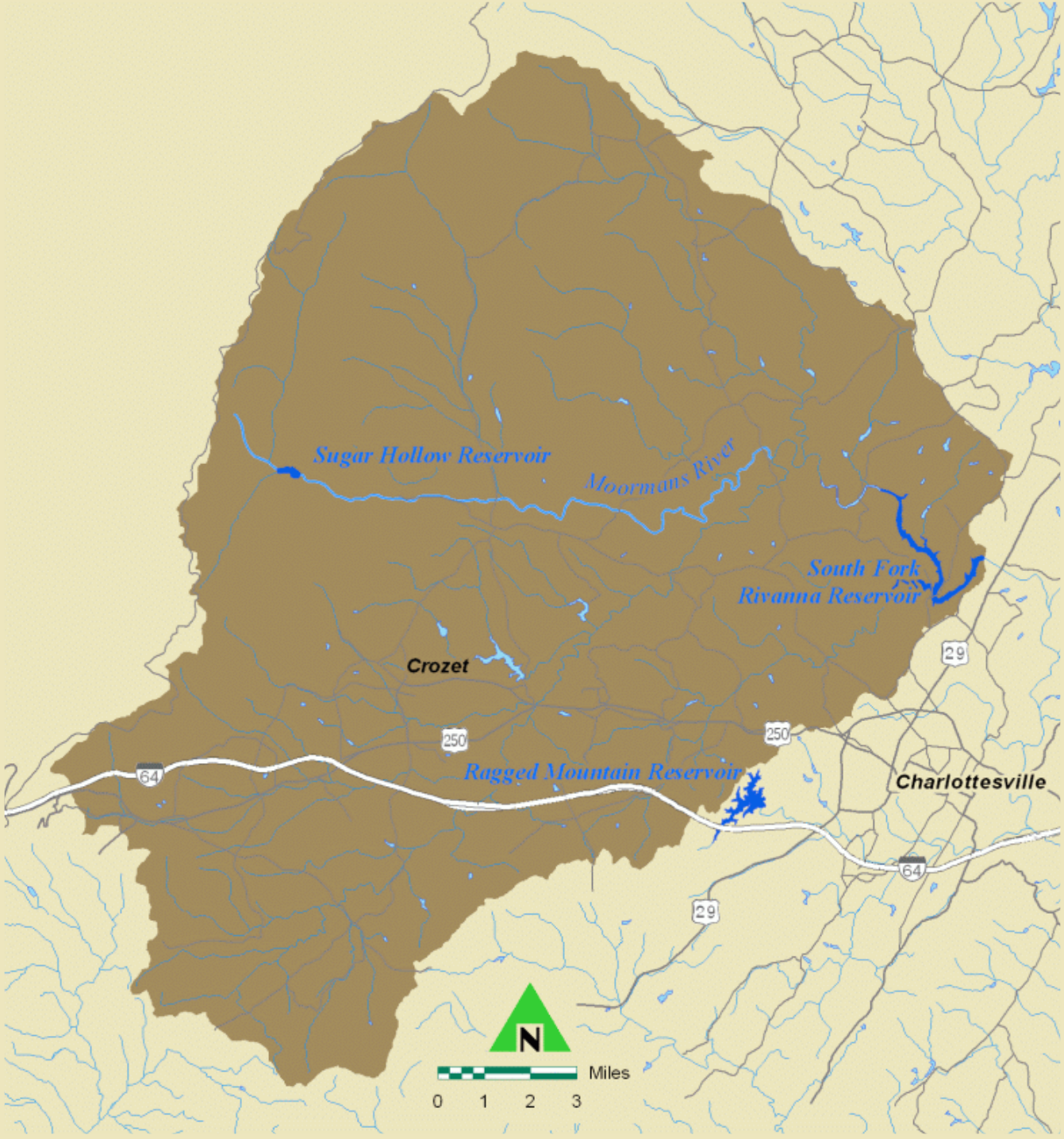
Ridge Schuyler
Director, Piedmont Program


Sugar Hollow Reservoir
Moormans River
South Fork
Rivanna Reservoir
Crozet
Ragged Mountain Reservoir
Charlottesville
64
250
29
N
Miles
0 1 2 3


Sugar Hollow Reservoir
Moormans River
South Fork
Rivanna Reservoir
Crozet
Ragged Mountain Reservoir
Charlottesville
64
250
29
N
Miles
0 1 2 3


Sugar Hollow Reservoir
Moormans River
South Fork
Rivanna Reservoir
Crozet
Ragged Mountain Reservoir
Charlottesville
64
250
29
N
Miles
0 1 2 3


Sugar Hollow Reservoir
Moormans River
South Fork
Rivanna Reservoir
Crozet
Ragged Mountain Reservoir
Charlottesville
250
250
64
64
29
29
N
Miles
0 1 2 3
Water Line
Water Treatment Plant


Sugar Hollow Reservoir
Moormans River
South Fork
Rivanna Reservoir
Crozet
250
250
64
Ragged Mountain Reservoir
Charlottesville
29
64
29
N
Miles
0 1 2 3

The Daily Progress

SUNDAY, SEPTEMBER 9, 2007

$1.50

Lack of action on water plan at issue

Area group attempts to save Moormans from

WHAT'S NEXT

5 years after severe drought, supply unchanged

See WATER on A8

Water

Continued from A1

"They've known about this since 2002," said Chris Chapman, a farmer who manages the property adjacent to land that would be flooded as a part of officials' solution to provide more water. "Instead of doing anything, they continue to talk. They talk about it and talk about it."

Officials have been aware of the problem for decades. They've known that the community's water supply wasn't going to last forever.

After years of planning and whittling down the options, they finalized this plan:

Build a new dam and enlarge the reservoir at Ragged Mountain; then construct a pipeline from another area reservoir to fill it. The new system would provide for the area's water needs through 2055. The cost, though, is huge — an estimated $142 million for the entire project, which might require steep increases in water and sewer bills to finance.

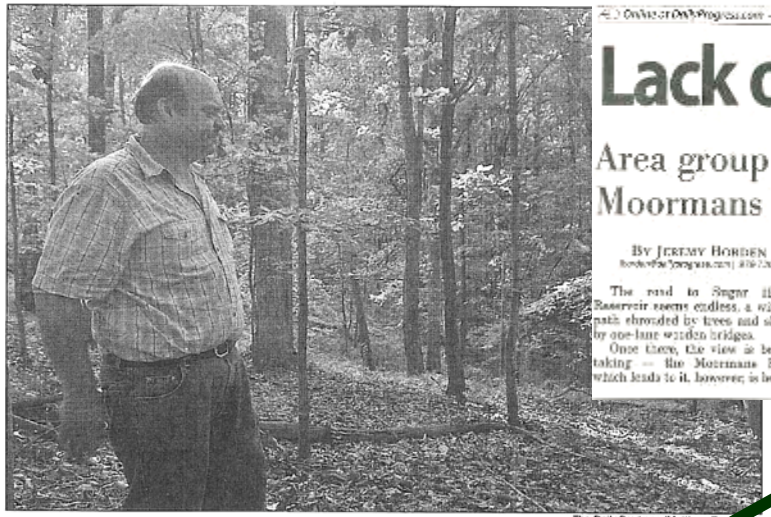
The solution is also years away. The reservoir is supposed to be completed until 2011, but the pipeline may not be completed until 2021. That leaves residents relying on an aging system that could pose significant risks during a drought.

There are two dams at Ragged Mountain, for example — one was built in 1885 and the other in 1908. The pipeline that feeds the reservoir was built in 1922. Age means vulnerability, officials say.

Thomas L. Frederick Jr., executive director of the Rivanna Water and Sewer Authority, in charge of the central water and sewer needs for Charlottesville and Albemarle, says he recognizes those risks and that officials have been working on a solution.

"We've been working tremendously hard," Frederick said.

The plan put into place has gained widespread support, is considered the best alternative environmentally, and the authority has been praised for keeping Charlottesville-Albemarle water here instead of piping it in from elsewhere. Now, officials are required to go through myriad state and federal agencies, and the cumbersome red tape takes money, time and patience, he said. The hoops, he said, are "tremendous."



The Daily Progress/Matthew Ro...

Chris Chapman, manager of Windsor Hill Farm in Ivy, shows land that Rivanna Water and Sewer Authority officials are planning to flood [illegible] Ragged Mountain Reservoir. Windsor Hill Farm is adjacent to the planned reservoir expansion.

The process could move along quicker — but the authority would need an additional $127 million to pay for key parts of the project.

"That's what we've got to discuss as a community — where's the money going to come from?" Frederick said.

Leaders know that a dwindling water supply, old infrastructure and a burgeoning population pose significant challenges.

"It should make us all worry," says Albemarle Supervisor Sally H. Thomas, "and make us all recognize that our water and sewer bills will rise steeply."

Worst-case scenario

If the region were to receive no additional rainfall, and if conservation efforts failed, the area would be out of water in approximately 140 days in the current drought situation. That's about the same as in 2002.

What's different, officials said, is an emergency plan that would take water from Crozet's reservoir, in western Albemarle, and release it for use by Charlottesville and Albemarle residents. The Beaver Creek Reservoir, which serves just Crozet, has more water than is needed for area residents. The option is critical. Without it, 2006 would mark the year that Charlottesville-Albemarle would run out of water in a severe drought. Beaver Creek extends that time period theoretically to 2017 when the area would run out of water in a severe drought.

Still, it's not foolproof.

"Even if we use Beaver Creek to try to extend our supply, it's fair to say that our system and our supply capability is very close to what our demand is in a severe drought," Frederick said. "We need to build additional supply facilities as soon as we possibly can."

There are other risks. The system relies on the Sugar Hollow pipeline, an aging, corroded and leaking pipe that carries water 13 miles from the Sugar Hollow Reservoir to the Ragged Mountain Reservoir. The pipe has broken 17 times in the last five years, with one major break coming in 2005 that took weeks to repair.

Frederick said there is a possibility for a massive break — and in a drought, such an event could be catastrophic.

The only solution to that problem is the water supply plan. But the new pipeline, under current estimates, may not be completed until 2021 because of its expense. The estimate for the pipeline is $52 million.

The water authority is holding a meeting Thursday to discuss whether the water supply plan should be moved along more quickly, which could mean higher water rates for residents.

If water rates are bumped up at only a modest rate, Frederick said, "they need to know there are risks."

For now, Rivanna officials are trying to be cautious. Water in the dam is lowered slightly during the summer, even when it's dry, because officials fear that if tropical conditions were to hit the area the dam structure could be damaged.

Frederick said that even though plans have not yet come to fruition, the community has the water supply to meet growing demand and can sustain a drought like 2002 with severe conservation measures.

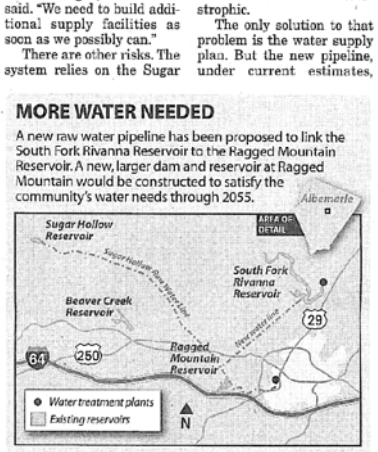
Not a new problem

Officials have known for decades that the area would run into a water crisis.

When J.W. "Bill" Brent started working at the Albemarle County Service Authority in 1980, plans were already in the works to deal with the area's water supply. Brent left the author-

MORE WATER NEEDED

A new raw water pipeline has been proposed to link the South Fork Rivanna Reservoir to the Ragged Mountain Reservoir. A new, larger dam and reservoir at Ragged Mountain would be constructed to satisfy the community's water needs through 2055.



The Daily Progress/Michael Ivey

There are other risks. The system relies on the Sugar Hollow pipeline, an aging, corroded and leaking pipe that carries water 13 miles from the Sugar Hollow Reservoir to the Ragged Mountain Reservoir. The pipe has broken 17 times in the last five years, with one major break coming in 2005 that took weeks to repair.

Frederick said there is a possibility for a massive break — and in a drought, such an event could be catastrophic.

The only solution to that problem is the water supply plan. But the new pipeline, under current estimates,

ground water outside the service areas of community water systems.

D. A water plan shall include an estimate of the amount of water used on an average annual basis by self-supplied agricultural users of more than 300,000 gallons per month of surface and ground water outside the service areas of community water systems.

E. A water plan shall include an estimate of the number of self-supplied users of less than 300,000 gallons per month of ground water and an estimate of the total amount of water used by them on an annual average basis outside the service areas of community water systems.

9 VAC 25-780-90. Existing resource information.

A. A program shall include a description of existing geologic, hydrologic, and meteorological conditions within the planning area, and in proximity to the point of withdrawal if it is outside the planning area.

B. A program shall include a description of existing environmental [illegible] that could impact or may affect in stream

curr

prov

part

purs

deri

addi

desc

they

1.

or

2.

3.

in

4.

5.

6.

7. Riparian buffers and conservation easements;

8. Land use and land coverage including items such as percentage of impervious cover within a watershed and areas where new development may impact water quality of the source;

9. The presence of impaired streams and the type of impairment;

10. The location of point source discharges; and

11. Potential threats to the existing water quantity and quality, other than those from above.

9 VAC 25-780-100. Projected water demand information.

A. A water plan shall include projections of future water demand as listed below. Population in aggregate and disaggregate formulations should be estimated according to information from the U.S. Census Bureau, Bureau of Economic Analysis, the Virginia Employment Commission, or other accepted source of population information, including but not limited to, local or regional sources. Demand projection methodologies should be consistent with those outlined in the American Water Works Association or American Society of Civil Engineers manuals. Sources of information and methodologies used in projecting future water demand shall be documented.

B. A water plan shall estimate water demand within the planning area for a minimum of 30 to a maximum of 50 years into the future. While not required, localities are encouraged to plan for the maximum planning period to ensure that the most appropriate and sustainable alternatives are identified.

C. A water plan shall include an estimated future water use projected at [illegible] beginning of each decade (2010, 2020, 2030, etc.) within the planning period.

D. A water plan shall include the following projections for community water systems:

1. An estimate of population within the planning area

g. Sales to other community water systems and the names of such systems; or

h. Subtotals of the above categories for all community water systems; and

5. Total projected water demand for all existing or proposed community water systems disaggregated into the categories used in subdivision 4 of this subsection.

E. A water plan shall include a projection of water demand within the planning area on an annual average basis for each existing and any proposed self-supplied nonagricultural user of more than 300,000 gallons per month of surface and ground water located outside the service areas of community water systems.

F. A water plan shall include a projection of the amount of water use on an annual average basis for each existing and any projected self-supplied agricultural user of more than

B. A water plan shall estimate water demand within the planning area for a minimum of 30 to a maximum of 50 years into the future. While not required, localities are encouraged to plan for the maximum planning period to ensure that the most appropriate and sustainable alternatives are identified.

The Daily Progress

Tuesday | Charlottesville, Virginia | 6.20.06 | DailyProgress.com | 50 Cen

6.20.06

Bowers files suit over UVa firing

By Aaron Kessler
Daily Progress staff writer

Dena Bowers, a former University of Virginia employee, filed a $1 million civil lawsuit against UVa and four university officials Monday claiming she was wrongly terminated.

Bowers was fired from her job Nov. 22. The lawsuit claims Bowers was denied due process and that her First Amendment rights were violated when she was fired for refusing to "divulge private information concerning the local NAACP organization."

UVa officials declined to comment on the matter. Spokesman Jeff Hanna said it "wouldn't be appropriate" for UVa to comment on pending litigation.

On Oct. 11, Bowers, then a recruiter in UVa's human resources department, sent a document from the NAACP as an e-mail attachment from her work account to another coworker. The document criticized the university's "charter" proposal. That

See **BOWERS** on A11

DENA BOWERS

Rivanna issues drought watch

By Jessica Kitchin
Daily Progress staff writer

In light of exceptionally dry conditions, the Rivanna Water and Sewer Authority board on Monday wasted no time in issuing a drought watch for the region, something RWSA director Thomas L. Frederick Jr. said was an important proactive step.

"The idea is to step in and keep the public informed," he said. "I am convinced that we are, today, in a drought."

The board's vote came at a meeting that also included a landmark move for the county's long-term water needs.

The National Weather Service reports that the area has received only 10.3 inches of rain this year, nearly a foot below normal. And in Frederick's report to the board, he pointed to severely low stream flow at Mechums River, which is flowing at only 17 percent of the seasonal average. The Ragged Mountain

On the Web

Have you started conserving water? Go to **DailyProgress.com** and let us know.

A Closer Look

Drought Watch: Alerts the public that drought conditions are emerging, calls for voluntary efforts to conserve water and informs the public that mandatory

TUESDAY, OCTOBER 23, 2007

The Daily Progress

Online at DailyProgress.com

TUESDAY, OCTOBER 23, 2007

50¢

Charlottesville Virginia

Water authority says area drought still a concern

By Jeremy Borden
jborden@dailyprogress.com | 978-7263

While 80-degree, cloudless weather in October might be a welcome sight for Charlottesville-area outdoor enthusiasts, it isn't good for the area's water supply.

Thomas L. Frederick Jr., executive director of the Rivanna Water and Sewer Authority, which serves Albemarle County and Charlottesville, said Monday that Friday's rain amounted to only about a half-inch and did little to help an area drought that is getting worse every week. Mandatory water restrictions were enacted in August — which prohibit the washing of cars except in commercial facilities, limit the watering of plants and bars restaurants from serving water except upon request, among other restrictions — and will stay in place for the foreseeable future, officials said. Breaking the rules can mean hefty fines.

Daily Progress .COM

Have an opinion on this issue? Click on this story online to post your thoughts.

The Albemarle County Service Authority recently amended the restrictions so that athletic fields and courts can be watered from 8 p.m. to 10 a.m. Home gardens and established plants can now be watered with a non-leaking hose with an automatic shut-off nozzle only to preserve plant life. A number of concessions also were made for landscapers to allow them to care for newly seeded lawns and plants.

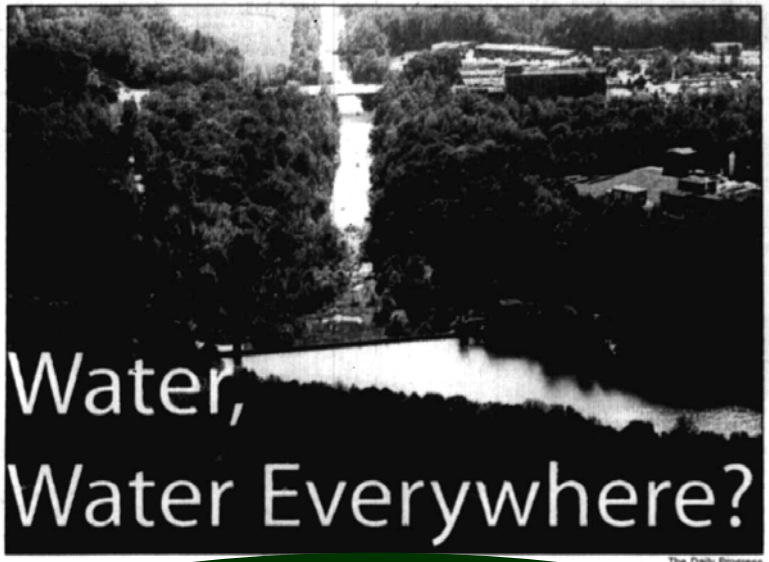
"The drought is already trending very closely with the worst winter drought in our area in recent history," Frederick wrote in a memo, referring to the 2002 drought, one of the worst in Virginia's history.

Frederick said area reservoirs are about 80 percent full. But the reservoir causing the most concern is Sugar Hollow, which serves south Charlottesville and areas around Avon Street in Albemarle.

See WATER on A8

The Daily Progress

Sunday | Charlottesville, Virginia | 2.13.05 | www.DailyProgress.com | $1.50



The Daily Progress

Expanding the South Fork Rivanna Reservoir is among the options being considered to meet the area's future water needs.

Three years after drought, area still awaits new plan

By Julie Stavitski
Daily Progress staff writer

2005: Water, water, everywhere, with reservoirs filled to the brim and the drought of 2002 history.

2055: Much less water everywhere, with a significant increase in thirsty customers in Albemarle County's urban areas and more than half of the South Fork Rivanna Reservoir's water capacity lost to silt.

The Rivanna Water and Sewer Authority has evaluated the doomsday options, and is trying to narrow in on a Community Water Supply Plan that would expand water capacity and meet demand

This, however, is hardly a new idea. After the drought of 2002, which forced several water restrictions in the area, the authority put together a two-step, 50-year water supply strategy, approved by both the county and the city of Charlottesville, which included adding crest gates to the South Fork Rivanna Reservoir and "maintenance dredging" of the South Fork.

Part 1 of 4

According to the 2002

See WATER on A10

About the series

Although the drought of 2002 has receded into history, a water shortage looms in the Charlottesville area's future. This four-part series examines the history of the area's water supply, the plans to meet the growing need and the costs of action — and inaction.

Today: Three years after the big drought, there are options, but each has its pluses and minuses.

Monday: The Ragged Mountain option, a lesson in tradeoffs.

Tuesday: Saving the capacity of the South Fork Rivanna Reservoir.

Wednesday: Thinking big: A pipeline from Scottsville to Charlottesville to bring water from the James River.

About the series

Although the drought of 2002 has receded into history, a water shortage looms in the Charlottesville area's future. This four-part series examines the history of the area's water supply, the plans to meet the growing need and the costs of action — and inaction.

Today: Three years after the big drought, there are options, but each has its pluses and minuses.

Monday: The Ragged Mountain option, a lesson in tradeoffs.

Tuesday: Saving the capacity of the South Fork Rivanna Reservoir.

Wednesday: Thinking big: A pipeline from Scottsville to Charlottesville to bring water from the James River.

March 18, 2008

To: Ridge Schuyler, The Nature Conservancy
From: Steven Nebiker, HydroLogics
Re: Impact of Dredging on Sizing of Ragged Mountain

You asked me to investigate the implications of dredging South Fork Rivanna Reservoir on the sizing of Ragged Mountain Reservoir. I conducted a safe yield model run of the future demand and build-out scenario for year 2055, using the proposed facilities, operating rules, and instream flow requirements under RWSA's existing permit. Dredging South Fork to restore usable capacity to near its original design volume [1] would require raising Ragged Mountain approximately 30 feet from its current height. (The proposed increase in the absence of dredging is 45 feet.) [2]

You also asked me to investigate a scenario in which the Charlottesville-Albemarle Airport would use South Fork sediment to build a new runway. The amount of dredge material apparently needed at the airport could be 1.7 million cubic yards, or about 350 MG. The dredging would be a one-time event, and so the 2055 scenario includes a projected rate of sedimentation of 15 MG per year. [3] Under these conditions, the required raise for Ragged Mountain would be 40 feet from its current height to meet the future demand.

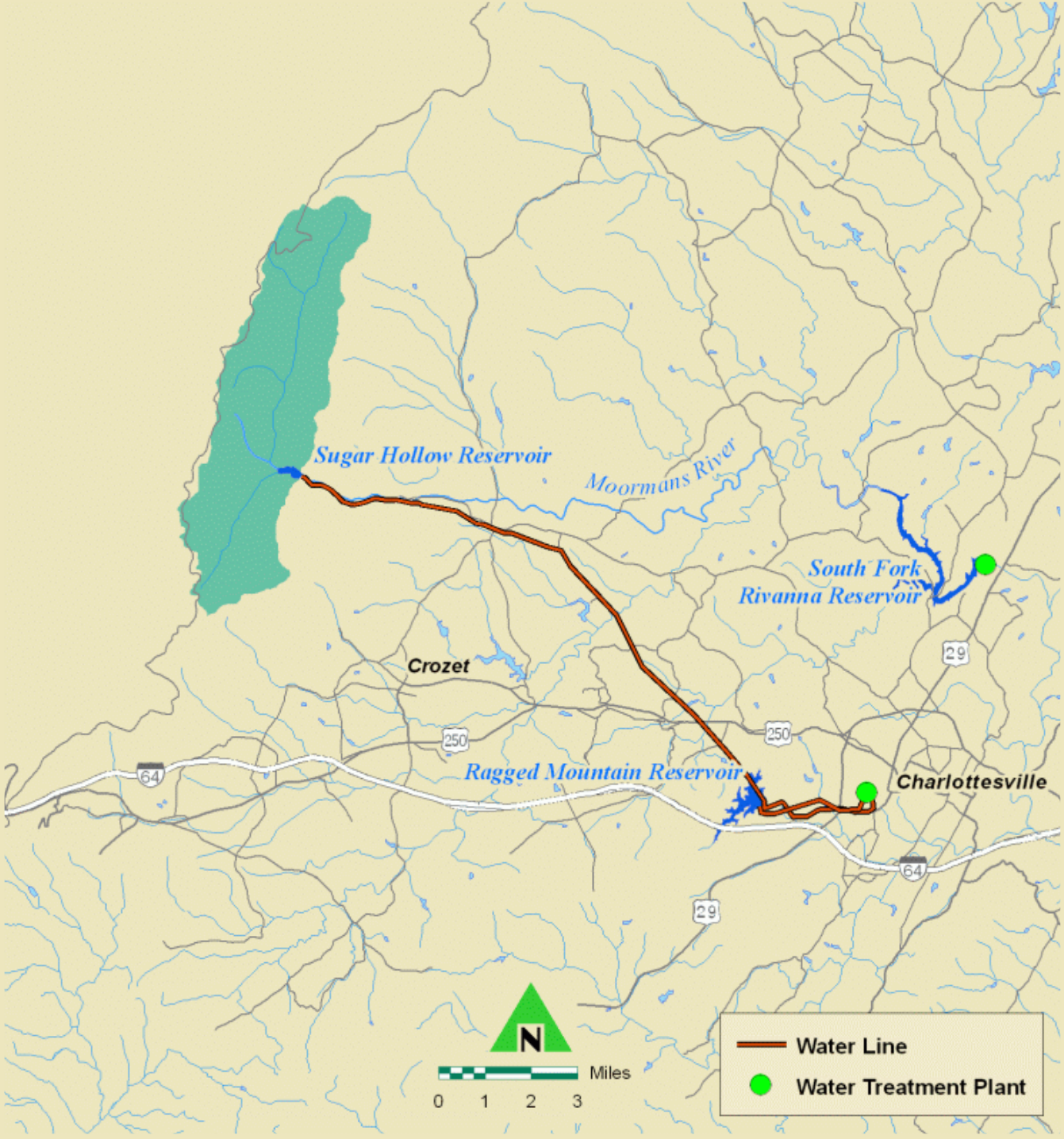
Dredging South Fork to restore usable capacity to near its original design volume [1] would require raising Ragged Mountain approximately 30 feet from its current height.

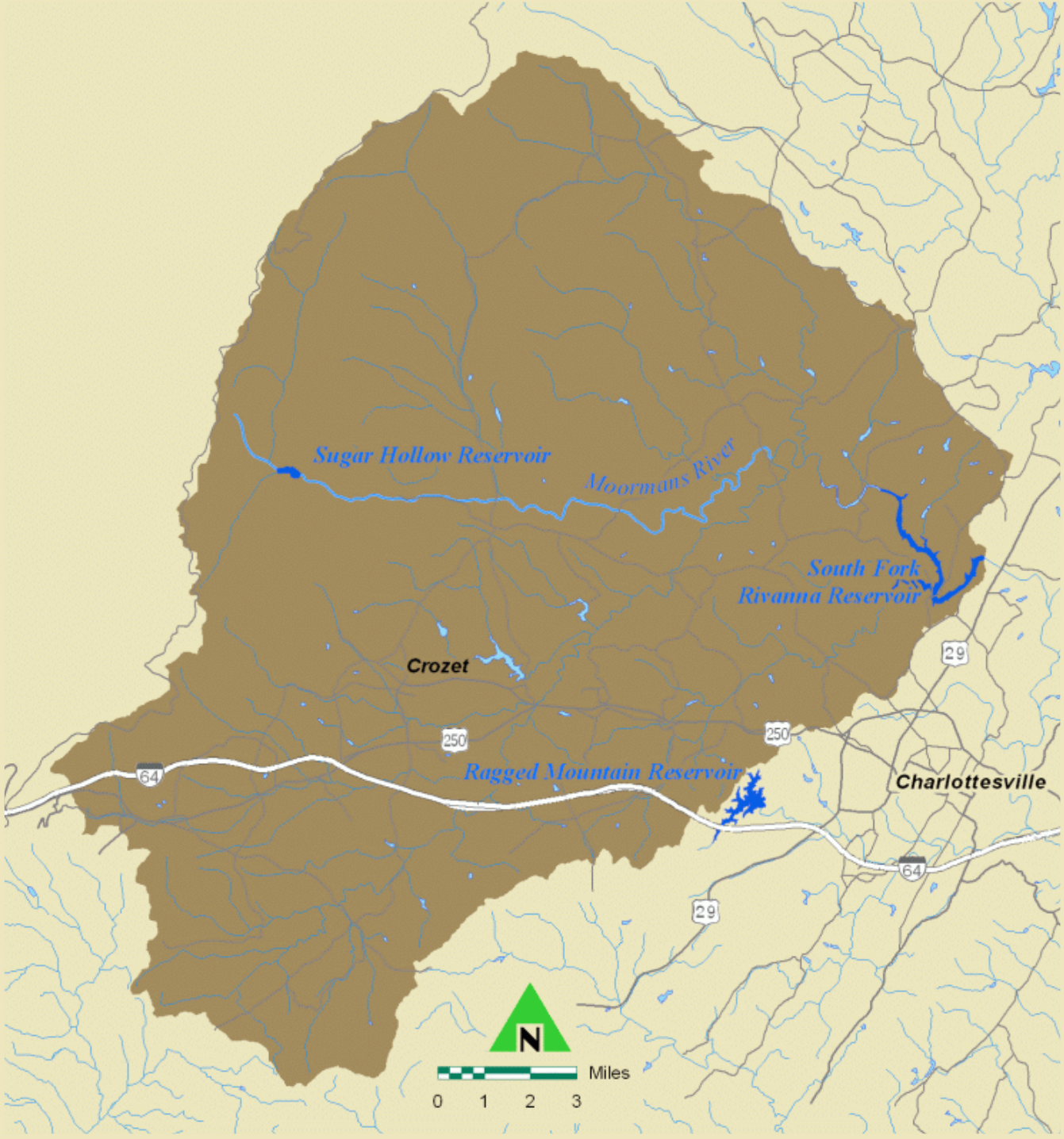
- South Fork to Ragged Mountain transfers through pipeline
- No treatment plant capacity constraints at South Fork and Ragged Mountain
- 19 mgd system demand

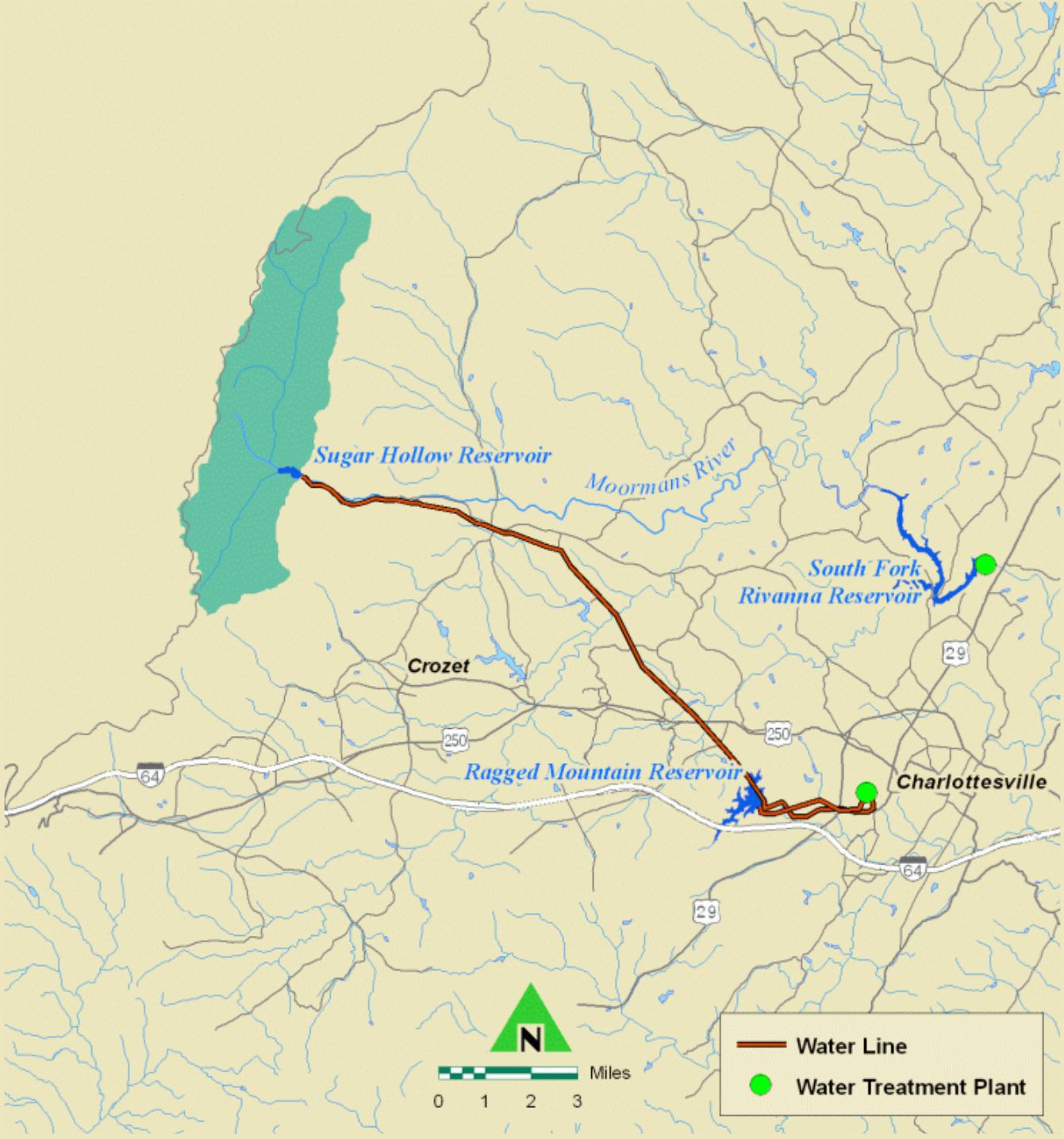
[1] From the Gannett Fleming memo on dredging options dated Dec.1, 2004. Current usable storage is 800 MG. Design storage at project inception was 1250 MG, meaning 450 MG of usable storage has been lost to sedimentation. Based on 85% removal rate of sediment from the usable storage pool, Gannett Fleming estimates the resulting usable storage would be 1100 MG.

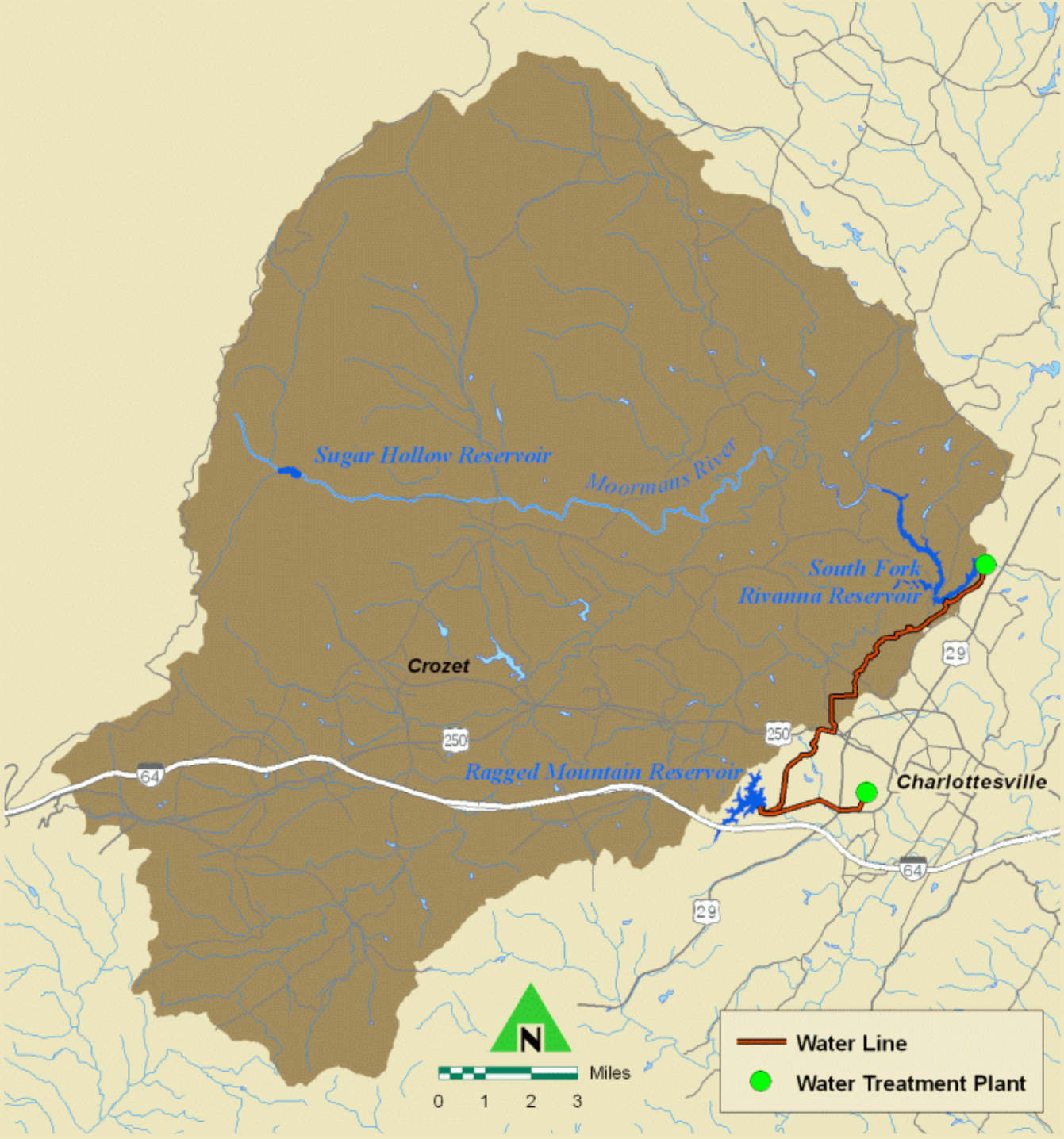
[2] Gannett Fleming assumed dead storage to be 15% of total storage in the 2055 condition (rather than 10% today) to account for transfers of sediment-laden water from South Fork. I used the same assumption for the 2055 scenario. The lowest Ragged Mountain intake is located well below the top of the dead storage zone.

[3] From the Gannett Fleming Report, *Safe Yield Study Supplement No. 1*, July 2004.


Sugar Hollow Reservoir
Moormans River
South Fork
Rivanna Reservoir
Crozet
Ragged Mountain Reservoir
Charlottesville
250
250
64
64
29
29
N
Miles
0 1 2 3
Water Line
Water Treatment Plant


Sugar Hollow Reservoir
Moormans River
South Fork
Rivanna Reservoir
Crozet
250
250
64
Ragged Mountain Reservoir
Charlottesville
29
64
29
N
Miles
0 1 2 3


Sugar Hollow Reservoir
Moormans River
South Fork
Rivanna Reservoir
Crozet
Ragged Mountain Reservoir
Charlottesville
250
250
64
64
29
29
N
Miles
0 1 2 3
Water Line
Water Treatment Plant


Sugar Hollow Reservoir
Moormans River
South Fork
Rivanna Reservoir
Crozet
Ragged Mountain Reservoir
Charlottesville
250
250
64
64
29
29
N
Miles
0 1 2 3
Water Line
Water Treatment Plant

The Daily Progress

Thursday | Charlottesville, Virginia | 6.9.05 | www.DailyProgress.com | 50 Cents

Water pipeline gains ground

"We believe this combination of components will be found cost-effective, adequate for our community's water-supply needs and practicable," states the letter, which was signed by a coalition of local residents and environmental groups.

By Annie Johnson

An idea to build a 6- to 10-mile pipeline to link the Ragged Mountain Reservoir to the South Fork Rivanna Reservoir has been quietly gaining momentum among key local officials and environmentalists.

The option could help to alle- [illegible] water storage probl[illegible] in the local watershed, said Dennis S. Rooker, chairman of the Albemarle County Board of Supervisors. "By connecting the two you have a more versatile system with redundancy in water del[illegible]

More

Monticello

Ridge Schuyler, director of Piedmont programs at the Virginia Nature Conservancy, said the pipeline could be the solution to raising the reservoir pool at Ragged Mountain without using the Rivanna's headwaters.

A pipeline from South Fork would allow the full recreational and environmental usage of the water, he said.

Officials have not calculated the cost of such a pipeline, Rooker said, however, that the [illegible] Environmental Council said he sent a letter to county officials citing the option's advantages.

The letter suggests that a short pipeline would be less environmentally damaging and cost about [illegible] as a 24-mile pipeline from Scottsville to Charlottesville.

"We believe this combination of components will be found cost-effective, adequate for our community's water-supply needs and practicable," states the letter, which was signed by a coalition of local residents and [illegible] of the details of the meeting, he noted that research for the water supply plan is ongoing.

"We are continuously evaluating the comments that we get from the public and if we get ideas that, through some additional research, might be productive and an even better way of doing things, we are more than willing to research them and release what we find," he said.

Contact Annie Johnson at (434) 9[illegible]-7237 or ajohnson@dailyprogress.com.

An idea to build a 6- to 10-mile pipeline to link the Ragged Mountain Reservoir to the South Fork Rivanna Reservoir has been quietly gaining momentum among key local officials and environmentalists.

Drinklocalwater.org

A Coalition of Groups and Citizens Working to Protect the Future of Charlottesville/Albemarle's Water Supply

May 27, 2005

The Honorable Dennis Rooker, Chair
Albemarle County Board of Supervisors

The Honorable David Brown, Mayor
City of Charlottesville City Council

Subject: A Local Solution for the Urban Service Area Community Water Supply Plan

Dear Chairman Rooker and Mayor Brown,

We, the undersigned, wish to offer a solution that we believe will provide adequate water resources for humans for the next 25 to 50 years as well as for beneficial in-stream uses. We are encouraged by what we've heard about the RWSA's current planning direction and that there is growing momentum for a solution within our local watershed. Since we don't know the details of these discussions, we make the following suggestions with the intent of being helpful. We believe that these proposed components will support the current planning effort and, most importantly, will meet the regulatory requirements of "practicable and least environmentally damaging."[i]

This multi-faceted and incremental approach includes water conservation measures, watershed protection measures to decrease siltation, and a planning horizon that allows for phased solutions and time for new technologies to become available. Such an approach is consistent with proposed revisions to state regulations, which include a requirement for more frequent review of water supply plans.[ii]

We have used information gleaned from RWSA memoranda, Gannett-Fleming analyses and projections, previous studies, community-based experts and our own collective knowledge from public participation. We have applied the principles of Integrated Resource Management as a guide in developing this plan.[iii] We believe this combination of components will be found cost-effective, adequate for our community's water supply needs, and practicable.

It is our belief that this plan is also the least environmentally damaging. It offers a model of sustainability and local source water protection that can become an object of community pride. Furthermore, this plan is consistent with the adopted objective in the previously approved Community Water Supply Plan: "A multi-step, integrated water supply strategy."

We strongly encourage you to evaluate this combination of components as you prepare for the pre-application meeting with regulatory officials. We welcome the opportunity to work with you to come to agreement on population projections and safe yield analyses, upon which any plan must be based.

On behalf of the undersigned, and very truly yours,

Jeffrey B. Werner, AICP
Charlottesville-Albemarle Land Use Field Officer
Piedmont Environmental Council
410 East Water Street
Charlottesville, Va. 22902

Drinklocalwater.org
A Coalition of Groups and Citizens Working to Protect the Future of Charlottesville/Albemarle's Water Supply

Ma

The
Alb

A properly designed system (two-way) will allow water to be transported for storage at Ragged Mountain but also allow ready return of water to the SFRR system for treatment at the SFRR WTP.

Subject: A Local Solution for the Urban Service Area Community Water Supply Plan

Dear Chairman Rooker and Mayor Brown,

We, the undersigned, wish to offer a solution that we believe will provide adequate water resources for humans for the next 25 to 50 years as well as for beneficial in-stream uses. We are encouraged by what we've heard about the RWSA's current planning direction and that there is growing momentum for a solution within our local watershed. Since we don't know the details of these discussions, we make the following suggestions with the intent of being helpful. We believe that these proposed components will support the current planning effort and, most importantly, will meet the regulatory requirements of "practicable and least environmentally damaging."[i]

This multi-faceted and incremental approach includes water conservation measures, watershed protection measures to decrease siltation, and a planning horizon that allows for phased solutions and time for new technologies to become available. Such an approach is consistent with proposed revisions to state regulations, which include a requirement for more frequent review of water supply plans.[ii]

We have used information gleaned from RWSA memoranda, Gannett-Fleming analyses and projections, previous studies, community-based experts and our own collective knowledge from public participation. We have applied the principles of Integrated Resource Management as a guide in developing this plan.[iii] We believe this combination of components will be found cost-effective, adequate for our community's water supply needs, and practicable.

It is our belief that this plan is also the least environmentally damaging. It offers a model of sustainability and local source water protection that can become an object of community pride. Furthermore, this plan is consistent with the adopted objective in the previously approved Community Water Supply Plan: "A multi-step, integrated water supply strategy."

We strongly encourage you to evaluate this combination of components as you prepare for the pre-application meeting with regulatory officials. We welcome the opportunity to work with you to come to agreement on population projections and safe yield analyses, upon which any plan must be based.

On behalf of the undersigned, and very truly yours,

Jeffrey B. Werner, AICP
Charlottesville-Albemarle Land Use Field Officer
Piedmont Environmental Council
410 East Water Street
Charlottesville, Va. 22902

s.

- Keeps and improves existing, local infrastructure: all reservoirs, dams and treatment plants.
- Incorporates dam safety improvements at RM, which are already required. Permit for required spillway work can be a component of the larger plan.
- Keeps water resources within our jurisdictional control and within our own watershed. The James R[illegible] pipeline alternative comes with the attendant and increasing risk of withdrawals being limited by the needs of other localities, especially during droughts. Eliminates concern for existing and emerging pollutants in the James River.
- Allows for versatility and redundancy in water delivery and treatment options by linking the SFRR and the RM by pipeline.
- A properly designed system (two-way) will allow water to be transported for storage at Ragged Mountain but also allow ready return of water to the SFRR system for treatment at the SFRR WTP. (Ne[illegible] In lieu of pumping or to limit pumping, gravity could facilitate the transportation of [illegible] water back to the SFRR. Current pool elevation at RM is 99.7 feet, at SFRR it is 382 feet.) This could eliminate the need for an expanded WTP at OH. While repairs and upgrades may be in order at OH, the costs for expansion may be avoided.

Cost variables to consider when comparing this plan with others:

- This plan includes a recommendation to design and build the foundation necessary to support a future increase in dam height at RM.
- This plan eliminates the need to increase capacity at OH WTP.
- Eliminates need to replace the Sugar Hollow-RM pipeline and the need to refurbish the Mechums River pump station.
- Costs for the approximately 10-mile SFRR-RM pipeline could conservatively be estimated at one-half the cost of pipeline from the James River to RM.
- Water treatment costs could be impacted by use of higher quality raw water. According to RWSA data, compared to the James River, raw water from the Rivanna watershed is less alkaline, has a lower level of TOC, and is lower in hardness and pH.[v]

Drinklocalwater.org

A Coalition of Groups and Citizens Working to Protect the Future of Charlottesville/Albemarle's Water Supply

May 27, 2005

The Honorable Dennis Rooker, Chair
Albemarle County Board of Supervisors

The Honorable David Brown, Mayor
City of Charlottesville City Council

Subject: A Local Solution for the Urban Service Area Community Water Supply Plan

Dear Chairman Rooker and Mayor Brown,

We, the undersigned, wish to offer a solution that we believe will provide adequate water resources for humans for the next 25 to 50 years as well as for beneficial in-stream uses. We are encouraged by what we've heard about the RWSA's current planning direction and that there is growing momentum for a solution within our local watershed. Since we don't know the details of these discussions, we make the following suggestions with the intent of being helpful. We believe that these proposed components will support the curren
"practicable and l

This multi-faceted
measures to decre
technologies to be
regulations, which

We have used info
previous studies, c
We have applied t
We believe this co
water supply needs, and practicable.

It is our belief that this plan is also the least environmentally damaging. It offers a model of sustainability and local source water protection that can become an object of community pride. Furthermore, this plan is consistent with the adopted objective in the previously approved Community Water Supply Plan: "A multi-step, integrated water supply strategy."

We strongly encourage you to evaluate this combination of components as you prepare for the pre-application meeting with regulatory officials. We welcome the opportunity to work with you to come to agreement on population projections and safe yield analyses, upon which any plan must be based.

On behalf of the undersigned, and very truly yours,

Jeffrey B. Werner, AICP
Charlottesville-Albemarle Land Use Field Officer
Piedmont Environmental Council
410 East Water Street
Charlottesville, Va. 22902

This plan eliminates the need to increase capacity at OH WTP.

Eliminates need to replace the Sugar Hollow-RM pipeline and the need to refurbish the Mechums River pump station.

Drinklocalwater.org
May 27, 205

Practicability of the Proposal

- Increases the storage capacity at RM and utilizes the larger watershed of the SFRR to keep it full. With other components of the plan and in lieu of a James River pipeline, this pumped storage potentially eliminates the need for crest controls at the SFRR and the resultant environmental impacts.
- Keeps and improves existing, local infrastructure: all reservoirs, dams and treatment plants.
- Incorporates dam safety improvements at RM, which are already required. Permit for required spillway work can be a component of the larger plan.
- Keeps water resources within our jurisdictional control and within our own watershed. The James River pipeline alternative comes with the attendant and increasing risk of withdrawals being limited by the needs of other localities, especially during droughts. Eliminates concern for existing and

SFRR

ed
WTP.
M water
ould
at OH,

st variables to consider when comparing this plan with others:

- This plan includes a recommendation to design and build the foundation necessary to support a future increase in dam height at RM.
- This plan eliminates the need to increase capacity at OH WTP.
- Eliminates need to replace the Sugar Hollow-RM pipeline and the need to refurbish the Mechums River pump station.
- Costs for the approximately 10-mile SFRR-RM pipeline could conservatively be estimated at one-half the cost of pipeline from the James River to RM.
- Water treatment costs could be impacted by use of higher quality raw water. According to RWSA data, compared to the James River, raw water from the Rivanna watershed is less alkaline, has a lower level of TOC, and is lower in hardness and pH.[v]

the Weel

The plan also seems
dle path between environmenta
ness groups that have square
how to expand the supply.

Ironically, after spending millions on engineering consultants over the years, the RWSA, under the direction of Tom Frederick (below), actually got its latest idea from a citizen at a public meeting.

found a solution to the hotly debated [illegible] that actually will satisfy everyone?

That's the way it seems. The RWSA is currently acting on plans to build a pipeline from the South Fork Rivanna Reservoir, just north of Charlottesville, to the Ragged Mountain Reservoir southwest of the city. So far, the idea has received applause from RWSA engineers as well as government regulators. The plan also seems to be a middle path between environmental and business groups that have squared off over how to expand the supply.

The RWSA has predicted that by 2050 the local water demand will outpace supply by about 9.9 million gallons per day. Since the late 1970s the RWSA has considered building new reservoirs or expanding existing ones, but the Authority could never figure out how to both satisfy demand and meet the approval of myriad State and federal regulators who have say over the project. Ironically, after spending millions on engineering consultants over the years (about $1.1 million since 2003), the RWSA actually got the idea from a citizen at a public meeting.

In March, RWSA Director Tom Frederick spoke about the water supply plan to members of Ivy Creek Foun-

reservoir by four feet; building a pipeline from the James River at Scottsville to Charlottesville; or raising the dam at the Ragged Mountain Reservoir.

None of the options was perfect. Each option either was too expensive, opposed

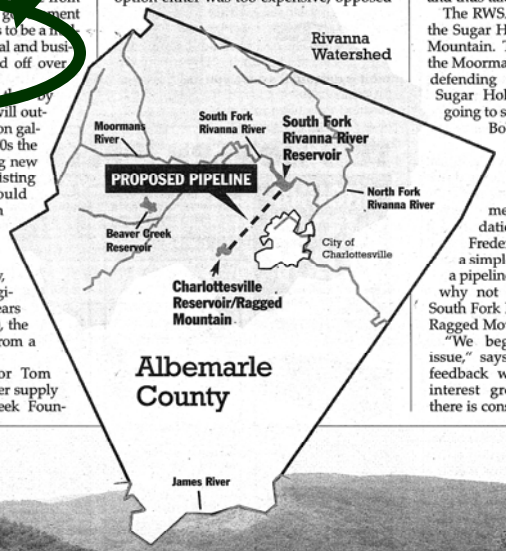
Development

Ragged Mountain Reservoir happens to be situated high in the foothills near the intersection of Fontaine Avenue Extended and 29N. The reservoir's elevation means that it has a relatively small drainage area, and thus takes many rains to fill.

The RWSA planned to pipe water from the Sugar Hollow reservoir to fill Ragged Mountain. That offended The Friends of the Moormans River, a group dedicated to defending the scenic waterway fed by Sugar Hollow's overflow. "They were going to steal water from the river," says Bob Gilges, a Friend of the Moormans. "We'd never get water over the dam. It would have been a dead river."

Gilges also happens to be a member of the Ivy Creek Foundation. He went to hear Frederick speak, and to ask a simple question: Instead of a pipeline from Sugar Hollow, why not build one from the South Fork Rivanna Reservoir to Ragged Mountain instead?

"We began exploring that issue," says Frederick. "All the feedback we've received from interest groups suggests that there is considerable support for



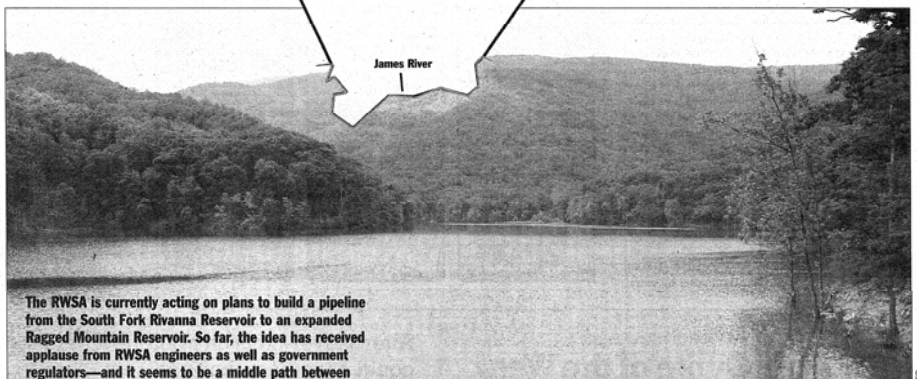
FILE PHOTO

Gilges says the idea originated from Ridge Schuyler, a member of the Nature Conservancy who is leading an effort to study how much water local streams need to thrive. "In the process of doing that, the idea just hit us," Schuyler says.

The idea has also united two groups that have been at odds throughout the planning process —the Piedmont Environmental Council and the developer-friendly Free Enterprise Forum. Environmentalists didn't want the RWSA to pull water from outside the local area, while developers wanted a plan that satisfied those 50-year demand projections.

Gilges chuckles at the idea that the solution came from the public instead of big-bucks consultants. "The RWSA has been getting bad advice for years," he says.

Frederick, though, says this is an example of planning gone right. "It points to the success of our public outreach," Frederick says. "We work better when the public is involved."—*John Borgmeyer*



The RWSA is currently acting on plans to build a pipeline from the South Fork Rivanna Reservoir to an expanded Ragged Mountain Reservoir. So far, the idea has received applause from RWSA engineers as well as government regulators—and it seems to be a middle path between

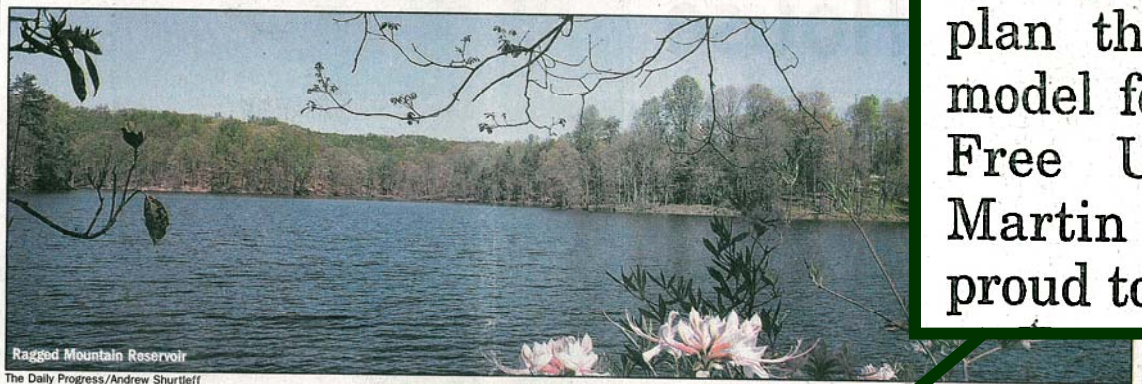
Where is You Are Where?

Find C-VILLE's visual trivia contest on the first page of

The Daily Progress

Wednesday Charlottesville, Virginia 4.19.06 www.DailyProgres

Residents cheer water so



Ragged Mountain Reservoir

The Daily Progress/Andrew Shurtleff

"I just want to say I think this plan is an outstanding plan that can be used as a model for other communities," Free Union resident John Martin said. "It makes me proud to say that I live here."

"I just want to say I [illegible] this plan is an outstanding plan that can be used as a model for other communities," Free Union resident John Martin said. "It makes me proud to say that I live here." [illegible] address project[illegible] water needs in the Charlottesville area through 2055, local authorities have been trying for years to come up with a water supply solution. The RWSA announced late last year that it had narrowed more than 30 water supply options to two: the South Fork Rivanna Reservoir pipeline and a more controversial 24-mile pipeline to the James River.

See WATER on A5

Area input called key to plan's selection

By Jessica Kitchin
Daily Progress staff writer

The positive vibes were endless at the Rivanna Water and Sewer Authority meeting Tuesday night, to the point that RWSA board Chairman Michael Gaffney joked, "We should be serving champagne at this thing."

Though word was already out on the authority's chosen water supply option, a large crowd turned out to learn about the specifics of the plan, which would connect the South Fork Rivanna Reservoir to the Ragged Mountain Reservoir with an underground pipeline. Nearly all of those who spoke expressed their satisfaction with the decision.

[illegible] provide an [illegible] million gallons

Existing South Fork dam

800 million gallons

Media General News Service

[illegible] Director Thomas L. Frederick Jr. explained the details to the 70 or so residents who came to Monticello High School. "It's been a lot of work to get where we are tonight," he said. "But we heard your voices ... and we want to be a partner in achieving the aims and goals of this community."

Frederick

The plan is expected to pass through a few remaining local approval hoops before going to state regulators for the final OK. Within five years, RWSA officials hope to build a new dam at the Ragged Mountain Reservoir, which will eventually increase the reservoir's height by 45 feet and add about 1.86 billion gallons to its capacity.

After that, the focus will be on mitigating some of the effects of the change by preserving and/or restoring local wetlands and streams — a step that will continue to be discussed by local authorities in the coming months. "This mitigation is an opportunity for the community to look at streams and wetlands we can improve" in the urban areas, Charlottesville Councilor Kevin Lynch said. "[Many] creeks are pretty seriously impaired."

Lynch

During the next 15 years, officials plan to upgrade the water treatment plant at Observatory Hill, which is connected via a pipeline to the Ragged Mountain Reservoir, and build the pipeline connecting Ragged Mountain to South Fork Rivanna. The 9.5-mile, 36-inch pipe will run underground and the water will be able to flow either way.

Ninety-seven percent of precipitation at the South Fork Rivanna Reservoir goes over the dam, but connecting the two reservoirs will allow the authorities to capture more of it. In addition, Frederick pointed out that the South Fork option has fewer private property effects, is the least environmentally damaging alternative, uses existing assets and retrieves most of its water from the local watershed. "You told us many ways and many times that you wanted to stay in the watershed," Frederick said. "That's what this option does for you."

The project is estimated to cost $130.5 million, and Frederick said much of that money would likely come from local sources.

About a dozen residents and local group representatives thanked the authority for its decision, and many drew attention to the public input that went into the process. "This really has brought a broad group of folks together," Jeff Werner of the Piedmont Environmental Council said.

Though the process isn't over, Gaffney said he couldn't be happier with the decision. "I can honestly say ... we have the best alternative," he said.

Contact Jessica Kitchin at (434) 978-7263 or jkitchin@dailyprogress.com.

America's On[illegible] Clog Fre

ENGLERT LeafGu[illegible] Of Greater R[illegible]

(434)296-

The Daily Progress

SUNDAY, SEPTEMBER 9, 2007

$1.50

Lack of action on water plan at issue

Area group attempts to save Moormans from drying up

By Jeremy Borden

The road to Sugar Hollow Reservoir seems endless, a winding path shrouded by trees and slowed by one-lane wooden bridges.

Once there, the view is breathtaking — the Moormans River, which leads to it, however, is less so.

Water barely trickles in spots as rocks with little water around them are bare. Some of the river, especially during these hot, dry months, can easily be walked in with just toes and ankles getting wet.

Ever since the Moormans was originally tapped for the water supply in

See RIVER on A8

WHAT'S NEXT

The Rivanna Water and Sewer Authority will have a meeting from 6 to 8 p.m. Thursday at Lane Auditorium in the County Office Building to discuss the community's long-term water supply plan. The authority is seeking feedback from the public and will update residents on the plan.

5 years after severe drought, long-term supply unchanged

By Jeremy Borden

Farmers lost money and crops, restaurants served food on paper plates and the area water supply dwindled throughout the summer of 2002, one of the worst droughts in Virginia history.

It had the devastating effect local officials had known was all but inevitable, and which they vowed they were working to keep from happening again.

Five years later, near the end of another perilously dry summer, some residents say they're not seeing the action officials promised.

See WATER on A8

Water

Continued from A1

"They've known about this since 2002," said Chris Chapman, a farmer who manages the property adjacent to land that would be flooded as a part of officials' solution to provide more water. "Instead of doing anything, they continue to talk. They talk about it and talk about it."

Officials have been aware of the problem for decades. They've known that the community's water supply wasn't going to last forever.

After years of planning and whittling down the options, they finalized this plan:

Build a new dam and enlarge the reservoir at Ragged Mountain; then construct a pipeline from another area reservoir to fill it. The new system would provide for the area's water needs through 2055. The cost, though, is huge — an estimated $142 million for the entire project, which might require steep increases in water and sewer bills to finance.

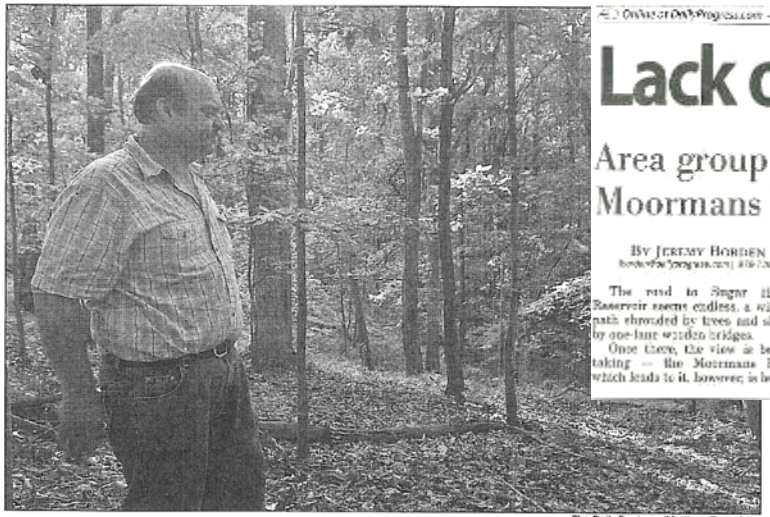
The solution is also years away. The reservoir is supposed to be completed in 2011, but the pipeline may not be completed until 2021. That leaves residents relying on an aging system that could pose significant risks during a drought.

There are two dams at Ragged Mountain, for example — one was built in 1885 and the other in 1908. The pipeline that feeds the reservoir was built in 1922. Age means vulnerability, officials say.

Thomas L. Frederick Jr., executive director of the Rivanna Water and Sewer Authority, in charge of the central water and sewer needs for Charlottesville and Albemarle, says he recognizes those risks and that officials have been working on a solution.

"We've been working tremendously hard," Frederick said.

The plan put into place has gained widespread support, is considered the best alternative environmentally, and the authority has been praised for keeping Charlottesville-Albemarle water here instead of piping it in from elsewhere. Now, officials are required to go through myriad state and federal agencies, and the cumbersome red tape takes money, time and patience, he said. The hoops, he said, are "tremendous."



The Daily Progress/Matthew Rosenberg

Chris Chapman, manager of Windsor Hill Farm in Ivy, shows land that Rivanna Water and Sewer Authority officials are planning to flood to expand the Ragged Mountain Reservoir. Windsor Hill Farm is adjacent to the planned reservoir expansion.

The process could move along quicker — but the authority would need an additional $127 million to pay for key parts of the project.

"That's what we've got to discuss as a community — where's the money going to come from?" Frederick said.

Leaders know that a dwindling water supply, old infrastructure and a burgeoning population pose significant challenges.

"It should make us all worry," says Albemarle Supervisor Sally H. Thomas, "and make us all recognize that our water and sewer bills will rise steeply."

Worst-case scenario

If the region were to receive no additional rainfall, and if conservation efforts failed, the area would be out of water in approximately 140 days in the current drought situation. That's about the same as in 2002.

What's different, officials said, is an emergency plan that would take water from Crozet's reservoir, in western Albemarle, and release it for use by Charlottesville and Albemarle residents. The Beaver Creek Reservoir, which serves just Crozet, has more water than is needed for area residents. The option is critical. Without it, 2006 would mark the year that Charlottesville-Albemarle would run out of water in a severe drought. Beaver Creek extends that time period theoretically to 2017 when the area would run out of water in a severe drought.

Still, it's not foolproof.

"Even if we use Beaver Creek to try to extend our supply, it's fair to say that our system and our supply capability is very close to what our demand is in a severe drought," Frederick said. "We need to build additional supply facilities as soon as we possibly can."

There are other risks. The system relies on the Sugar Hollow pipeline, an aging, corroded and leaking pipe that carries water 13 miles from the Sugar Hollow Reservoir to the Ragged Mountain Reservoir. The pipe has broken 17 times in the last five years, with one major break coming in 2005 that took weeks to repair.

Frederick said there is a possibility for a massive break — and in a drought, such an event could be catastrophic.

The only solution to that problem is the water supply plan. But the new pipeline, under current estimates, may not be completed until 2021 because of its expense. The estimate for the pipeline is $52 million.

The water authority is holding a meeting Thursday to discuss whether the water supply plan should be moved along more quickly, which could mean higher water rates for residents.

If water rates are bumped up at only a modest rate, Frederick said, "they need to know there are risks."

For now, Rivanna officials are trying to be cautious. Water in the dam is lowered slightly during the summer, even when it's dry, because officials fear that if tropical conditions were to hit the area the dam structure could be damaged.

Frederick said that even though plans have not yet come to fruition, the community has the water supply to meet growing demand and can sustain a drought like 2002 with severe conservation measures.

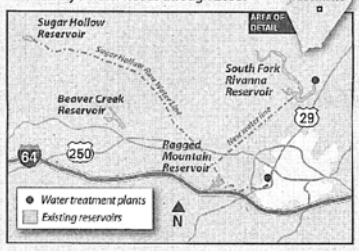
Not a new problem

Officials have known for decades that the area would run into a water crisis.

When J.W. "Bill" Brent started working at the Albemarle County Service Authority in 1980, plans were already in the works to deal with the area's water supply. Brent left the author-

MORE WATER NEEDED

A new raw water pipeline has been proposed to link the South Fork Rivanna Reservoir to the Ragged Mountain Reservoir. A new, larger dam and reservoir at Ragged Mountain would be constructed to satisfy the community's water needs through 2055.



The Daily Progress/Michael Ivey

DILBERT

DILBERT reprinted by permission of United Feature Syndicate, Inc.