

LEAGUE NOTES ON APPROVED COMMUNITY WATER SUPPLY PLAN

KEY ELEMENTS OF THE PLAN:

1. Replace the existing unsafe Ragged Mountain dam with a new dam and raise the reservoir pool level initially by 30 ft and to a total of 42 feet as demand requires.
2. Replace the 85-year-old Sugar Hollow pipeline with a newer, shorter pipeline connecting the South Fork Rivanna Reservoir with the Ragged Mountain Reservoir and the two corresponding treatment plants. Can be used to transfer water from South Fork to Ragged Mountain during wet periods or from Ragged Mountain back the larger South Fork Treatment Plant during dry periods.
3. Upgrade and expand water treatment plants.
4. Provides enough water storage to get us through drought for the next 50 years

WHY DOES THE LEAGUE SUPPORT THE ADOPTED COMMUNITY WATER SUPPLY PLAN?

1. WE NEED MORE WATER STORAGE

We have a water storage problem, not a water quantity problem. Our average annual rainfall is adequate but we are subject to droughts. More storage is needed to provide water for people and rivers during dry times. The expanded reservoir at Ragged Mountain will store an additional 1.1 billion gallons of water allowing us to draw water from the reservoir instead of rivers during dry times when river flows are down. With the expanded reservoir, we won't have to sacrifice our rivers for people.

Dredge the South Fork Reservoir-Only Option supported by many opponents of the dam calls for dredging the South Fork Rivanna Reservoir back to storage levels of 1966, and simply repairing the unsafe 100 year old Ragged Mountain dam. This produces only 151 million gallons of water storage. This is not enough to meet our water needs.

2. THE OLD RAGGED MOUNTAIN DAM POSES SAFETY CONCERNS

We have a serious safety issue at Ragged Mountain Dam. The 100 year old dam must be replaced, and soon. Fixing the dam adds no new storage. Replacing the dam and raising the pool level 30 ft provides our community water needs for the next 20 years.

3. WE NEED TO CARE FOR THE ENVIRONMENT

a. RESTORE AND PROTECT RIVER FLOWS

For many years we have been withdrawing too much water from our rivers during dry seasons. This damages not only the depleted river but the entire river system (watershed). The Approved Plan produces enough water storage so that we can rely on reservoir water rather than rivers during dry times.

Under the Approved Plan, life sustaining flows will be restored to the Moormans River allowing it to flow naturally 97% of the time. The plan sets in place withdrawal limits for South Fork River which together with increased flows from the Moormans will increase the level of the Rivanna River through the City of Charlottesville during dry summer months.



Figure1. The water from this small spigot is what we share with the Moormans River during dry times

b. IMPACT ON RAGGED MOUNTAIN AREA

Approximately 150 acres of trees will be cut and small streams coming into the reservoir will be inundated. Approximately 50 acres of these trees will be replanted. To offset these impacts, a mitigation plan has been developed which provides permanent riparian protection to 75,000 linear feet of streams in the South Fork Rivanna watershed, provides for 200 acres of new riparian forest and wildlife habitat, relocates and lengthens existing walking trails around the reservoir, and provides for four acres of new wetlands adjacent to the southeastern boundary of

the City along Moore's Creek. The new lake will provide 142 acres of new water surface for additional lacustrine aquatic habitat and passive recreation.

The reservoir expansion will change the ratio of forest to lake at the Ragged Mountain Area with surrounding conservation easements from **95% forest : 5% lake** to **90% forest : 10% lake**.



Figure 2. Aerial view of the Ragged Mountain Area showing extent of future inundation. Note that there is no river entering this small watershed. The majority of the water in this pool is presently piped from the Moormans River 14 miles to the west.

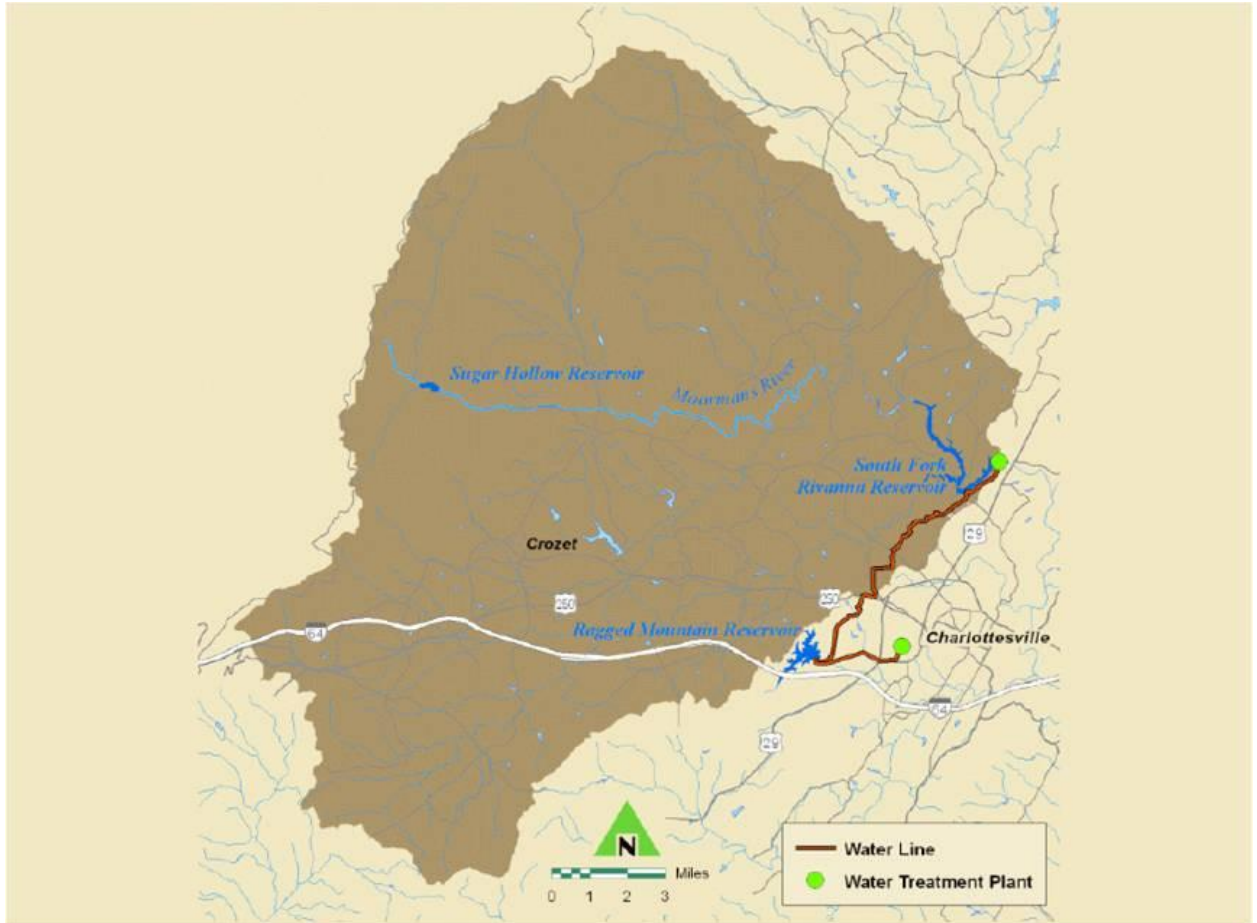


Figure 3. The shaded area shows the 260 square mile drainage area of the South Fork Rivanna River, the South Fork Treatment Plant, the Observatory Hill Treatment Plant and the new pipeline connecting the South Fork with Ragged Mountain Reservoirs.

4. THE ADOPTED PLAN COSTS LESS THAN ALTERNATIVES

Phase I of the approved plan: \$23 million for the new dam gives 1.1 billion gallons storage. The Ragged Mountain Reservoir will not need to be dredged because of its small drainage area and wooded landscape.

Dredge the South Fork Reservoir-only option supported by some opponents of the dam: \$36 million for 151 million gallons storage and no additional water supply for river protection. Storage is temporary as sediment continues to flow into this long shallow river reservoir due to its large drainage area and agricultural and suburban landscapes.

Phase 2 of the approved plan: Replacement of the 85 year old Sugar Hollow Pipeline with the shorter pipeline from the South Fork to the Ragged Mountain Reservoir is tentatively scheduled for 2021 and is estimated to cost \$53 million. This will allow us to skim high flows during the rainy season from South Fork Rivanna River to fill the Ragged Mountain Reservoir. The new pipeline adds efficiency and value to the system by establishing a two way connection between our major reservoirs and two water treatment plants. Because of this, the first phase of the new reservoir with the pipeline is expected to supply adequate water during drought to the year 2050.

Opponents of the plan have pushed for replacing the Sugar Hollow Pipeline instead. This option is estimated to cost \$43 million (as per 2011 ACSA estimate). Because it takes water from one small tributary of the Rivanna, it provides no new capacity. It also does not provide back-and-forth integration of the reservoirs and treatment plants.

Phase 3 of the approved plan: \$1.6 million (2011 dollars) to put the additional 12 ft on the new Ragged Mountain Dam. This is predicted to provide needed water until at least 2060.

Phasing makes the plan financially feasible. The plan approved by City and County in 2006 phased the 2 key components of the plan, the expansion of Ragged Mountain Reservoir and the replacement of the 85 year old, unreliable Sugar Hollow pipeline with a shorter South Fork to Ragged Mountain Reservoir pipeline. The new dam is to be built first followed with the pipeline by 2021. This 2006 phasing decision was done for financial reasons. It is more cost effective to build the dam to its full height in one construction project and the dam and the pipeline were too expensive to build at the same time. The City later asked that the dam be built in two phases because not all the storage would be needed in the first few decades. In 2011 the County agreed to this change. There is no financial incentive for this additional phase.