

# Decision Matrix for the Future of Charlottesville Water Resources

	RWSA Plan - Schnabel		RWSA Plan - Black&Veatch		13 feet RMR + Dredging (Norris Plan)		HDR dredging + Maintenance Dredge		Continuous Dredging (Small Bites)	
	Cost	Cost+interest*	Cost	Cost+interest*	Cost	Cost+interest*	Cost	Cost+interest*	Cost	Cost+interest*
<b>Components</b>										
New RMR dam	\$ 35,571,000.00	\$ 70,000,000.00								
Expand existing RMR dam 45 feet			\$ 21,800,000.00	\$ 54,000,000.00						
Mitigation for stream and wetland loss	\$ 3,400,000.00	\$ 7,500,000.00	\$ 3,400,000.00	\$ 7,500,000.00						
I-64 Hazardous risk management	\$ 1,800,000.00	\$ 3,500,000.00	\$ 1,800,000.00	\$ 3,500,000.00						
Expand existing RMR dam 13 feet					\$ 12,000,000.00	\$ 23,328,000.00				
Repair existing RMR spillway							\$ 7,400,000.00	\$ 14,386,000.00	\$ 7,400,000.00	\$ 14,386,000.00
New SFRR-RMR pipeline	\$ 62,952,500.00	\$ 122,379,000.00	\$ 62,952,500.00	\$ 122,379,000.00	\$ 62,952,500.00	\$ 122,379,000.00				
Operating costs for new pipeline	unknown		unknown		unknown					
Replace-repair SHR pipeline							\$ 12,900,000.00	\$ 24,000,000.00	\$ 12,900,000.00	\$ 24,000,000.00
Rehabilitate O-Hill WTP	\$ 16,800,000.00	\$ 32,659,000.00	\$ 16,800,000.00	\$ 32,659,000.00	\$ 16,800,000.00	\$ 32,659,000.00	\$ 16,800,000.00	\$ 32,659,000.00	\$ 16,800,000.00	\$ 32,659,000.00
Expand SF WTP and O-Hill WTP	\$ 13,500,000.00	\$ 26,244,000.00	\$ 13,500,000.00	\$ 26,244,000.00						
Replace RMR-Ohill WTP pipeline	\$ 8,600,000.00	\$ 16,718,000.00	\$ 8,600,000.00	\$ 16,718,000.00	\$ 8,600,000.00	\$ 16,718.00	\$ 8,600,000.00	\$ 16,718,000.00	\$ 8,600,000.00	\$ 16,718,000.00
One-time dredging (HDR 2-phase)							\$ 35,595,959.00	\$ 72,000,000.00		
Maintenance dredging *					\$ 15,000,000.00	\$ 15,000,000.00	\$ 22,000,000.00	\$ 22,000,000.00	\$ 22,000,000.00	\$ 22,000,000.00
COST SHARE	unknown		unknown		unknown		unknown		unknown	
<b>TOTAL</b>	<b>\$ 142,623,500.00</b>	<b>\$ 279,000,000.00</b>	<b>\$ 128,852,500.00</b>	<b>\$ 263,000,000.00</b>	<b>\$ 115,352,500.00</b>	<b>\$ 193,382,718.00</b>	<b>\$ 103,295,959.00</b>	<b>\$ 181,763,000.00</b>	<b>\$ 67,700,000.00</b>	<b>\$ 109,763,000.00</b>
<b>Storage</b>										
Total water storage 2055 - piped	2,300 MG	SFRR+RMR	2,300 MG	SFRR+RMR	2,484 MG	SFRR+RMR+SHR	2,000 MG	SFRR+RMR+SHR	2,000 MG	SFRR+RMR+SHR
Additional flow thru storage	1,113 MG	SHR+BC+CGL+LA	1,113 MG	SHR+BC+CGL+LA	750 MG	BC+CGL+LA	750 MG	BC+CGL+LA	750 MG	BC+CGL+LA
	\$ 3,413.00		\$ 3,413.00		3,234 MG		2,750 MG			2,750 MG
Total available for drought 2055	3,413 MG		3,413 MG	3,413 MG	3,234 MG		2,727 MG		2,727 MG	
<b>Environmental cost</b>										
Streams lost	14,435 feet		14,435 feet		none		none		none	
Wetlands lost	3.5 acres		3.5 acres		none		none		none	
Trees Lost	\$ 60,000.00		\$ 60,000.00		TBD		none		none	
Water Storage lost	600-1,000 MG		600-1,000 MG		none		none		none	
Natural resources lost	SFRR / RMNA		SFRR / RMNA		none		none		none	
I-64 Hazardous risk	impacted		impacted		not impacted		not impacted		not impacted	
Resiliency	1 reservoir		1 reservoir		3 reservoirs		3 reservoirs		3 reservoirs	
Drought recovery	25 MG/day RMR		RMR/25 MG/day		SFRR/rapid		SFRR/rapid		SFRR/rapid	

Most \$\$ figures used were the same as in the matrix provided by Charlottesville Tomorrow. Some figures were disaggregated further. Continuous Dredging figures were estimated from a recent visit from Ellicott Dredging representatives

### ABBREVIATIONS

RWSA = Rivanna Water & Sewer Authority  
 SF = South Fork  
 SFRR = South Fork Rivanna Reservoir  
 RMR = Ragged Mountain Reservoir  
 SHR = Sugar Hollow Reservoir  
 BCR = Beaver Creek Reservoir  
 CGL = Chris Greene Lake  
 LA = Lake Albemarle  
 WTP = Water Treatment Plant

### NOTES

\* paid in cash / no bonds  
 Terms of cost + interest according to RWSA  
 10% cash  
 5.25% interest for 30 years  
 no early payment schedule

prepared by:  
 Citizens for a Sustainable Water Plan September 20, 2010

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Probably reliable data  
Studies needed