



Phasing of Water Supply Plan

***Presented to:
Charlottesville City Council
The Design Center Conference Room
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Criteria for Phasing Options

- DEQ Permit Valid Only 15 Years
- Projects with Environmental Impacts Not Assured of Permit Extension
 - Ragged Mountain Dam
 - Possibly South Fork Pipeline
- Meet Stream Flow Requirements in All Phases

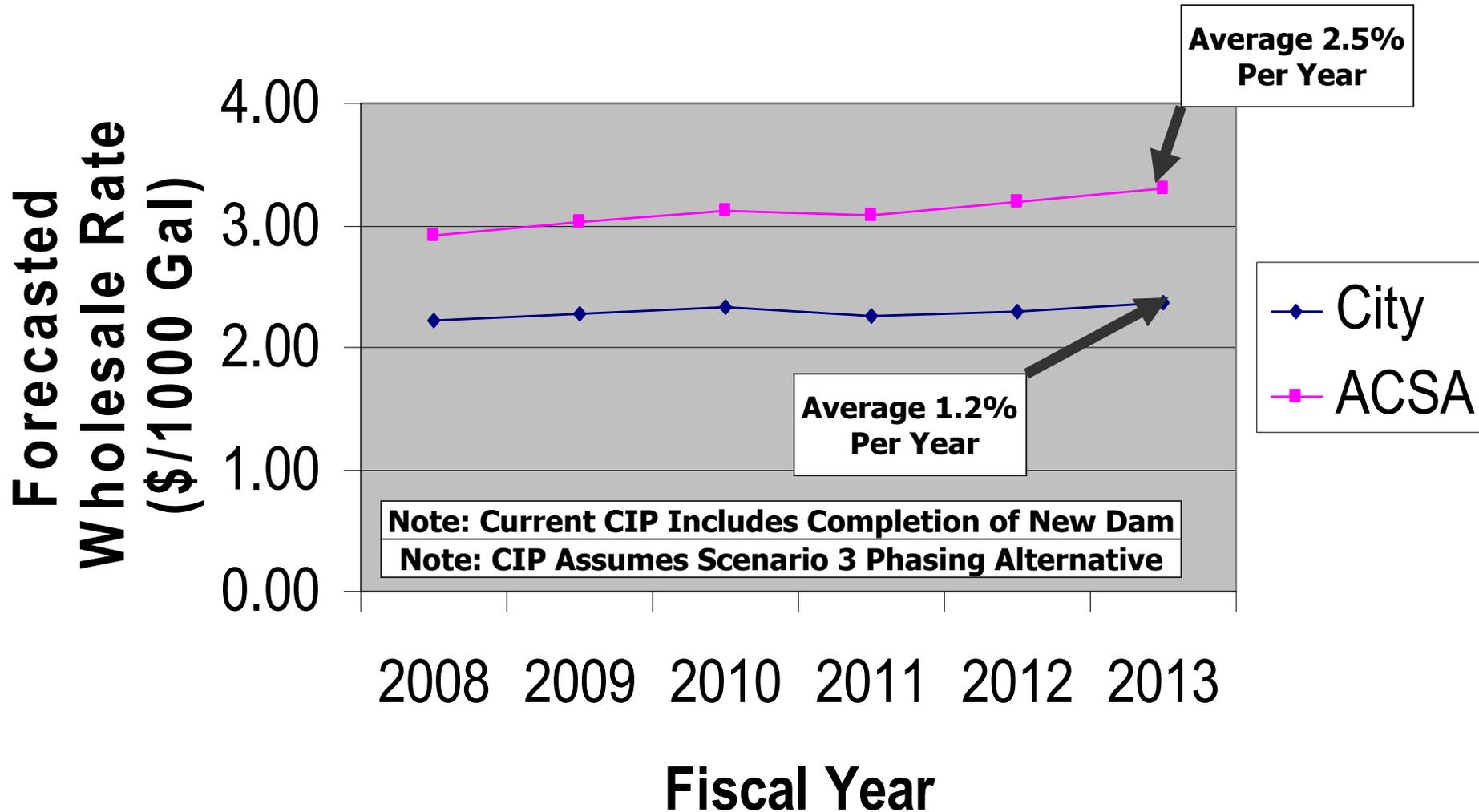
Stream Flow Requirements

- Three Sets of DEQ Permit Conditions
 - Before New RMR Dam Built
 - After Dam But Before SFRR Pipeline
 - After SFRR Pipeline Built
- Under Second Condition, Storage Equal to Raising RMR 42 Feet Needed to Maintain Moormans Flow Under Drought of Record with 2020 Projected Water Demand

Scenarios That Achieve Criteria

- Scenario 1: Build Full Dam and SFRR Pipeline Now
- Scenario 2: Phase Dam and Build SFRR Pipeline Now
- Scenario 3: Build Full Dam Now and Phase SFRR Pipeline

Forecasted Impact of Urban Water CIP on RWSA Wholesale Charges

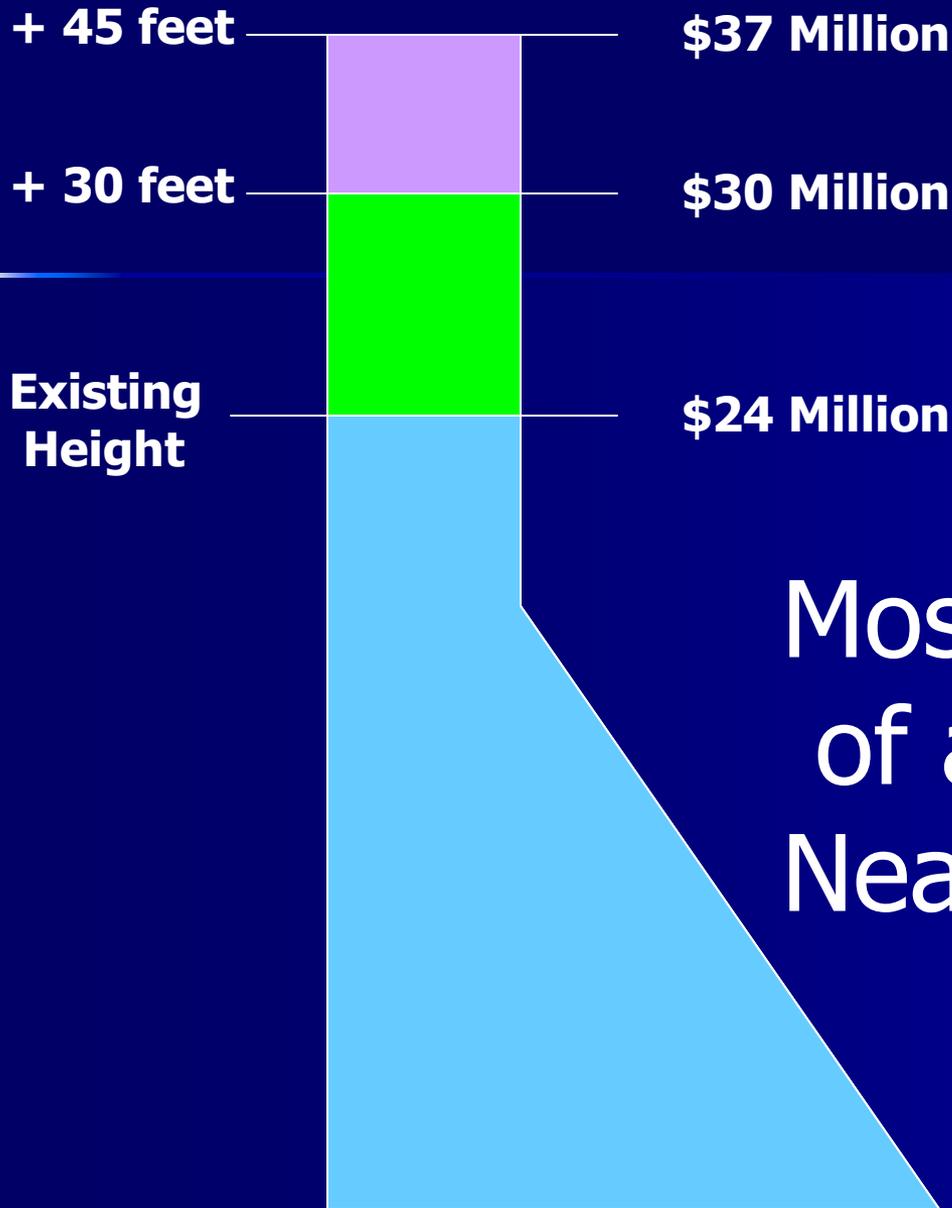


Advantages of Building Dam in One Phase

- Construction Staging, Disturbance, Management, and Risks Only Once
- Reservoir Road as Construction Access Only Once
- Spillway Must be Re-Built with Each Phase; One Phase Only Leads to Lower Overall Cost
Less Long-Term Seepage; Increased Likelihood of Extended Useful Life
- Walking Trails Moved Only Once

Advantages of Building Dam in One Phase

- DEQ Permit Only 15 years
- Bond Financing Can Be Long-Term (e.g., 30 Years)
- Current Bond Interest Rate Favorable; Future Uncertain
- Full Storage Helps Insure Maintenance of Water Supply Against Risk of Sugar Hollow Pipeline Failure Before New Pipeline Built



Most of the Cost
of a Dam is
Near the Base

...Most of the Storage Volume in a Reservoir is at the Top



Note: Figure Shows How High the Ragged Mountain Reservoir Would Need to Be Raised in Combination with Various Dredging Volumes to Achieve 18.7 mgd Safe Yield in 2055.

Much of the Estimated Cost in the 50-year Plan Not Directly Related to Adding Storage

Projects in the Plan	Cost Raising RMR 45 Feet (Adds 9.9 MGD)	Cost Raising RMR 30 Feet (Adds 4.4 MGD)
New Dam & Mitigation	\$37 Million	\$30 Million
South Fork Pipeline	\$56 Million (36")	\$47 Million (30")
Other Projects for System Rehab and Treatment Plant Expansions	\$49 Million	\$49 Million
	<hr/> <hr/> \$142 Million	<hr/> <hr/> \$126 Million

The Difference Between a 4.4 MGD Solution and a 9.9 MGD Solution at Ragged Mountain = \$16 Million