



Review of Fluvanna County Water Options

August 6, 2013



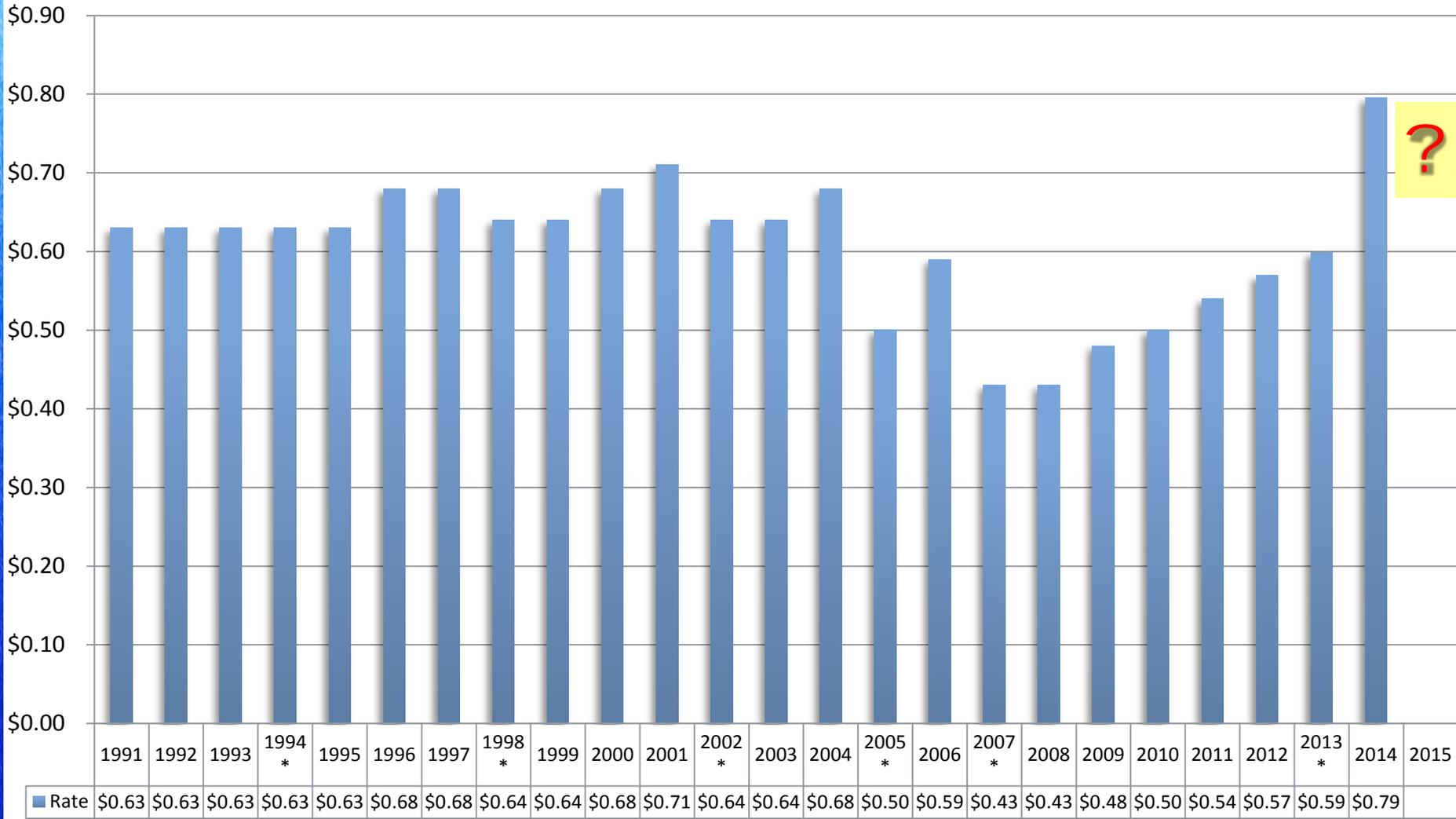
Potential Fluvanna Budget Pressures

- **Water Solutions (JRWA, Aqua, DOC, Groundwater)**
- **School Funding / CTE**
- **VRS and VLDP**
- **Affordable Care Act**
- **FUSD**
- **Continuation of EMS Contract Services**
- **Chesapeake Area Watershed and TMDL**
- **Increasing law enforcement requirements**
- **Unfunded deferred maintenance**

Our current County debt has reduced our flexibility



Real Estate Tax Rates over 20+ Years



* Reassessment Year



Water Goals for Fluvanna County

- **Working to change the current tax base** *(Excludes Utilities)*
 - **Current: 93% residential and 7% commercial/business**
 - Optimal: 70% residential and 30% commercial/business
- **Boost economic development opportunities by adding necessary water and sewer infrastructure**
 - Add water and sewer infrastructure to Zion Crossroads Community Planning Area
 - Support Fork Union Sanitary District (FUSD) with additional water sources
 - Expand water/sewer infrastructure into other county growth areas, when feasible and resources available



Water Planning History

- **Numerous studies, committees, and proposals over the last several decades**
- **Options have been studied and re-studied**
- **The only recent, substantive actions to date:**
 - Creation of the James River Water Authority with Louisa County in 2009 (No action exercising James River permit since JRWA creation)
 - Elevated Storage Tanks for FUSD
 - Palmyra Sewer Treatment Plant

Citizen's Water Committee

Thirteen (13) alternatives reviewed in 2010

Reduced to 3 options

[Link - HISTORICAL WATER REVIEWS](#)



Where are we now...?



Water Source Review

- **We are surface water “rich”**
 - Multiple surface water sources
 - James, Rivanna, Hardware, and Mechunk
 - JRWA (3,000,000 GPD permit – shared with Louisa)
 - Aqua Virginia PPEA (500,000 GPD available)
 - DOC (75,000 GPD available plus 125, 000 GPD sewer)
- **What groundwater sources are possible?**
 - Investigating ground water sources
 - Hydrogeological analysis planned in FY14 that can typically increase the reliability of ground water sources
 - Good quality, high yield wells are less expensive to develop, treat, and operate than surface water systems



Water Sources

500,000 GPD

Aqua PPEA

75,000 GPD

DOC Line

Possible Louisa County Connection

Airline Railroad

Unknown GPD

ECTI Raw Water

Ground Water?

250,000 GPD

Thomasville Water

250,000 GPD

Existing Unused Intake

FUSD

JRWA Intake

3,000,000 GPD

- 2009 Planning Areas**
- Community Planning Areas
 - Rural Preservation
 - Rural Residential
 - Town Boundaries

- Aqua Virginia Proposal (May 4, 2012)
- Department of Corrections
- Historic Airline Railroad
- Existing ECTI Raw Water Line
- Fork Union Sanitary District (FUSD)



Louisa County Water Authority Water Usage at Zion Crossroads

Year	Average GPD
2001	0
2002	23,840
2003	25,620
2004	49,480
2005	52,960
2006	59,180
2007	98,160
2008	108,100
2009	113,200
2010	133,400
2011	110,950
2012	126,700
2013	137,500

Louisa-Zion Crossroads Development	
Business or Business Type	Year Opened
Bank	Existing
BP Service Station	Existing
Burger King	Existing
Exxon Service Station	Existing
McDonald's Restaurant	Existing
Shell Service Station	Existing
WalMart Distribution Center	Existing
Church	Existing
UVa Dialysis Office	Existing
Spring Creek (Housing & Golf Course)	2002
Best Western	2007
iHop Restaurant	2008
Lowe's	2009
UVa Credit Union	2009
WalMart	2010
Dental Clinic	2010/11
Martha Jefferson Medical Office	2010/11
Vet Clinic	2010/11
Arby's Restaurant	2012
Sheetz Service Station	2012
UVa Medical Office	2012
Advance Auto	2013
Car Wash	2013



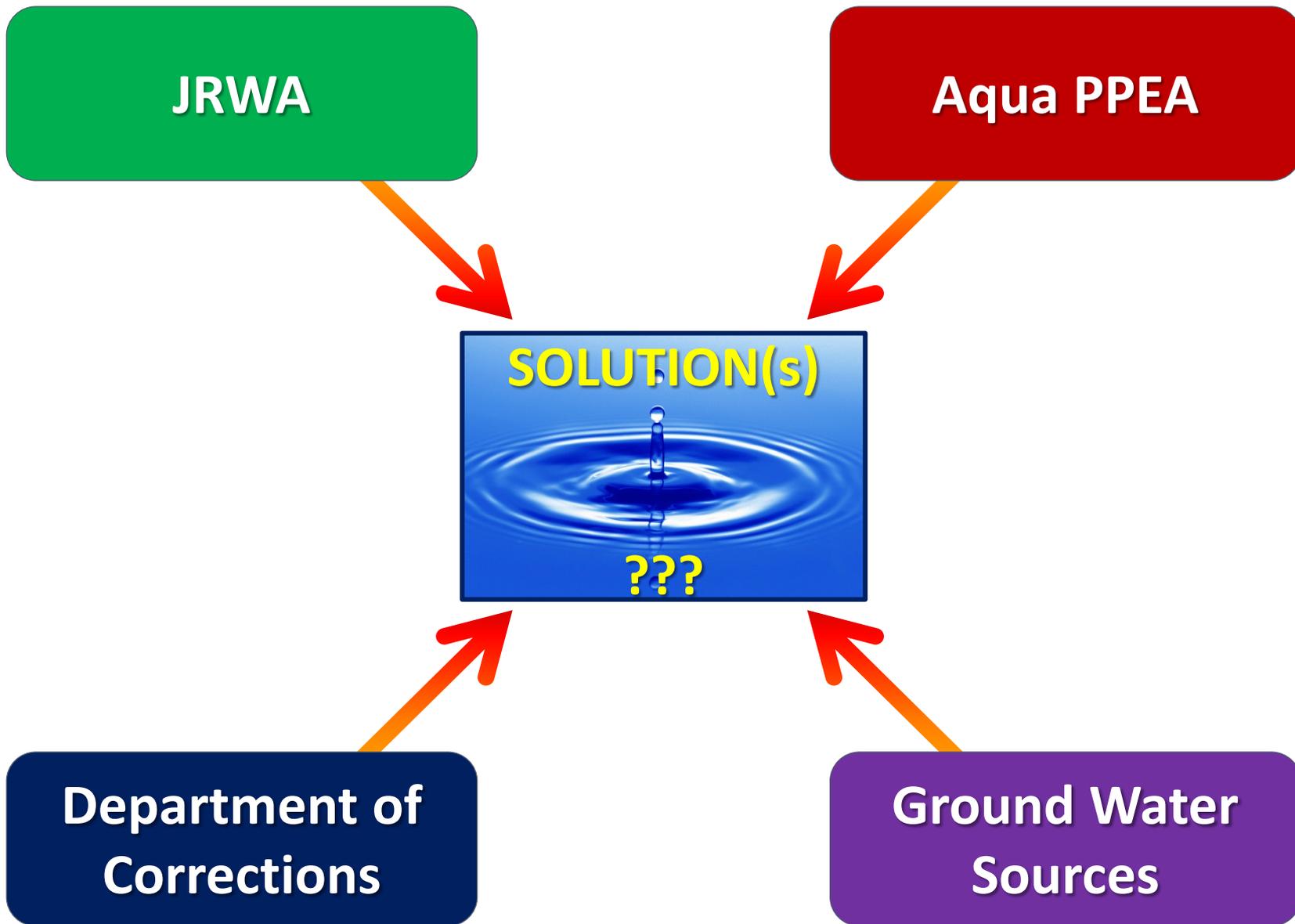
Available GPD for Various Water Options

Water Source	Gallons Per Day
James River Water Authority	3,000,000 (Shared)
Aqua Virginia Proposal	500,000
Department of Corrections	75,000+
“Thomasville” Wells	250,000?
Other Groundwater Sources	???
Existing FUSD Intake (James)	250,000?
ECTI Raw Water	Full GPD Unknown

Sewer Source	Gallons Per Day
Department of Corrections	125,000
Private Sewer Capacity	???



Current Water Options Under Review

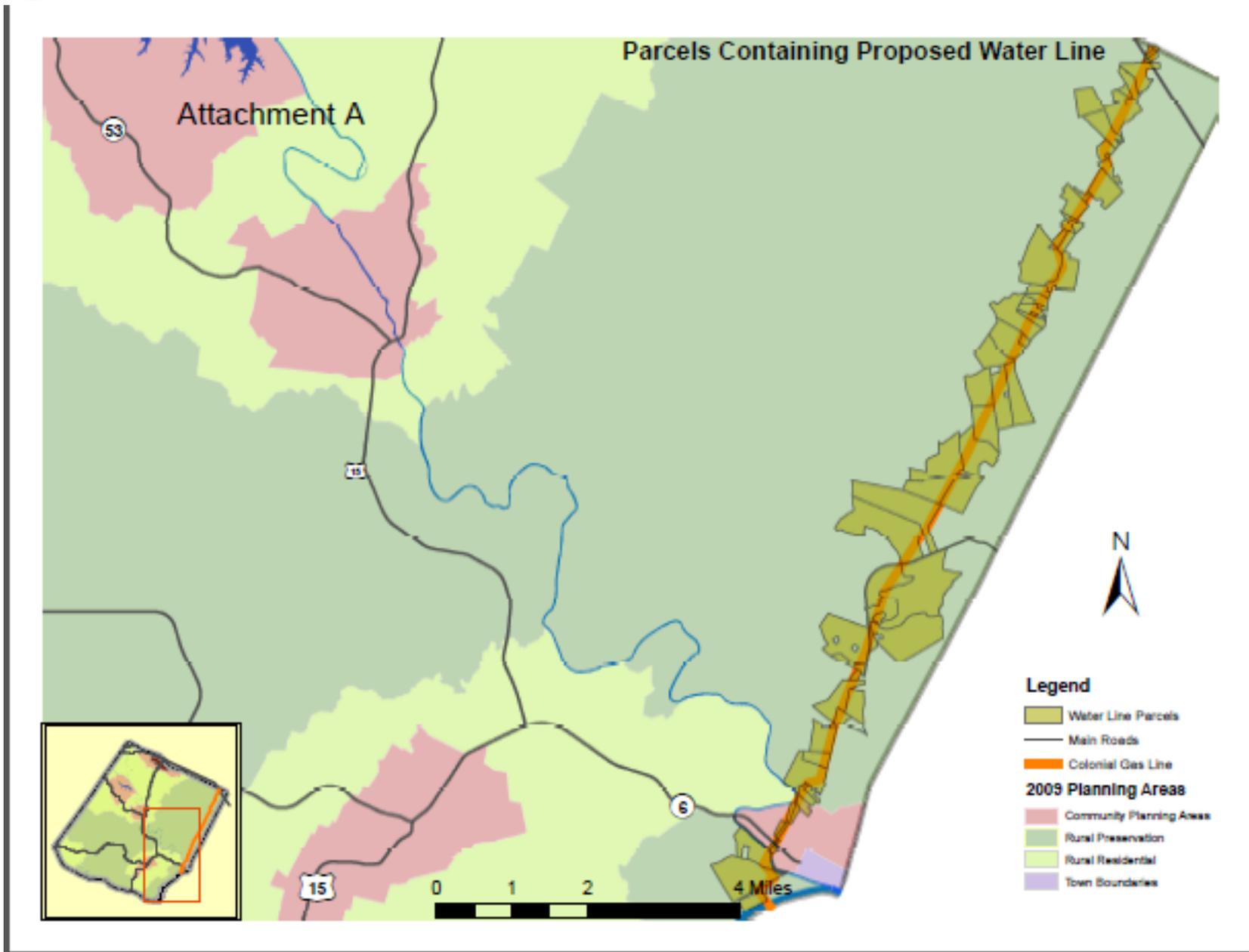




- **“Big Straw” water source**
 - Total of 3,000,000 GPD for Fluvanna/Louisa
- **Potential County-wide service area in coming years**
- **Louisa ready to move forward**
- **~\$3.5M shared cost**
 - Annual - ~\$160K to 295K
 - 20 Year - ~\$2.6 to 3.0M

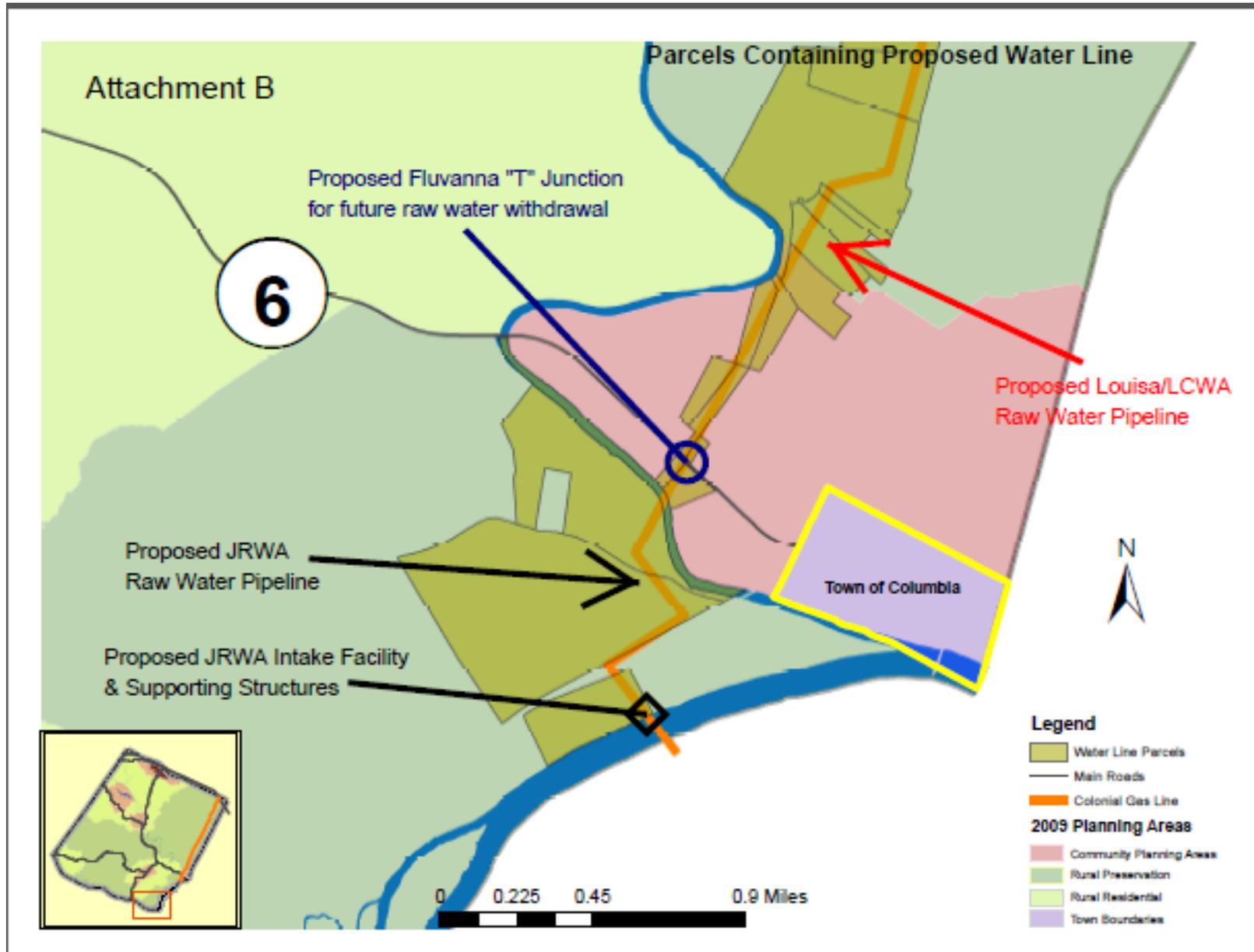


JRWA Option





JRWA Option (cont.)





JRWA Initial Costs (July 2013 Estimate)

Estimate of Total Project Costs for 3.0 MGD Raw Water Uptake near Columbia and Associated Water Line to a point North of Route 6 in Fluvanna County

Description/Source	Original Estimate	Original FY Estimate	Current FY	Avg. Inflation	Adjusted Cost Estimate (2) (Current FY \$)
3 MGD Raw Water Intake Facility (1)	\$ 1,150,000	2003	2014	3.50%	\$ 1,678,965
8,500 LF Raw Water Line	\$ 1,126,240	2003			\$ 1,644,276
Estimated Cost of Pipeline Easements					???
Estimated Cost of Permit Modification (to move Raw Water Uptake from vicinity of Brems Bluff to vicinity of Columbia)					\$ 25,000
Estimated JRWA Costs					\$ 3,348,241

NOTES:

- (1) The cost estimate for the 3.0 mgd raw water uptake structure is taken from the 2003 Water Study performed by Anderson & Associates, adjusted for inflation.
- (2) The cost estimate for the raw water line was computed in 2003 dollars using the methodology from the 2003 Anderson & Associates study, then adjusted for inflation (see Work Sheet titled "Raw Water Line" for details of this computed estimate).



Current JRWA Proposal

PROS

- The “Big Straw” option
- Need to exercise permit to avoid risk of loss
- Helps ensure Fluvanna can access JRWA water on our timeline
- Low initial capital cost
- Enhances long-term relationship with Louisa

CONS

- Permit will need to move from Bremono to Columbia area
- Cost of intake facility and +/-18” pipeline
- Process and costs for obtaining easements for uptake facility and pipeline
- Substantial additional costs for running and treating the water, when needed



JRWA

Aqua Virginia PPEA

Aqua PPEA

- **To serve Zion Crossroads Community Planning Area**
- **Provides up to 500,000 GPD of treated water**
 - Requires agreement with DOC for connection to sewer service (100K GPD available)
- **Min. \$18.3M Cost over 20 years**
 - Annual payments of at least **\$912K plus 10% escrow**
- **Water Cost - \$2.94 per thousand gallons**
- **Sewer Cost - \$1.60 per thousand gallons**

Department
of Corrections

Ground Water
Sources



Current Aqua Virginia Proposals

PROS

- Given the existing infrastructure, service delivery to Zion Crossroads can occur on a quick timeline.
- AquaVirginia is a public utility and this is their primary business. There would be less additional management or labor necessary for the operations of this system.
- Partner will design, build, manage, and operate the facilities.
- Meets the County's longer term water needs for Zion Crossroads
- Fluvanna sets water/sewer rates and manages "our" system
- No adverse rate impacts expected for Lake Monticello AquaVirginia customers
- Large, up front capital outlay from AquaVirginia, rather than Fluvanna

CONS

- Requires initial deposit payment of ~\$912K within 45 days of signing the agreement.
- Requires minimum of \$18+ million payments from Fluvanna over the initial 20 year term
- Requires ODPC-approved, written, customer commitments for 120,000 GPD
- Do not own system at the end of initial 20 year term
- Additional costs in Aqua Proposal above the estimated \$912K per year
 - 10% Escrow payment for the first 18 years
 - Potential increase in construction costs
 - Possible costs from capital upgrades/repairs
 - Water in excess of 90K GPD
- Fluvanna is locked into the agreement unless the project costs exceed the Estimated Costs by more than 20%.
- May not need 500K GPD in 20 years, even at high growth rates.
- Estimated total annual costs for the first 18 years of the agreement is at least \$1.03M. At current budget levels, the Real Property tax rate would have to be raised by \$0.04-0.05 to meet the payment requirements.
- May add growth pressure to area between LM and Correctional Facility
- Limited to 100K GPD of sewer capacity, unless other sources identified
- Significant penalties if Fluvanna terminates agreements



JRWA

DOC

Aqua PPEA

- To serve Zion Crossroads Community Planning Area
- Excess capacity under existing withdrawal permit
 - Water – 75,000 GPD
 - Sewer – 100,000 GPD
- **~\$4.65M Build-out and County 3-year operating costs estimate (20 yr Financing - ~\$7.5M)**
 - FY14 CIP - \$575,000, FY15 CIP - \$3,100,000, FY16 CIP - \$975,000
- Water Cost - \$1.50 per thousand gallons
- Sewer Cost - \$1.50 per thousand gallons

Department
of CorrectionsGround Water
Sources



Current DOC Proposals

PROS

- With existing DOC infrastructure, service delivery to Zion Crossroads can occur on a quick timeline.
- DOC has other County partnerships across the Commonwealth
- Extremely low cost of water and sewer per 1,000 gal (Expenses charged by DOC are at cost)
- Short distribution line
- Meets the County's initial water needs; could be augmented with other water sources
- County owns the system
- Operating costs built-in to the system cost estimate
- Additional DOC Water Treatment Plant Capacity available for possible expansion (if additional water source available)

CONS

- Limited amount of water; may only meet needs for 5-8 years depending upon growth
- Cost for additional water source(s) if needed
- Estimated annual costs of ~\$270K to 480K for 20 year financing. At current budget levels, the Real Property tax rate would have to be raised by \$0.01-0.02 to meet the payment requirements.
- Limited to 100K GPD of sewer capacity (add'l 25K may be available upon request)



Ground Water

- **FY14 CIP funding for first phase Hydrogeologic studies in growth areas**
- **“Thomasville” wells under review**
 - Potential 250K GPD
- **Additional existing FUSD well under review**
- **Costs unknown, but generally lower than surface water options**



Ground Water

PROS

- Shorter timeframe access to water
- Generally lower capital investment cost
- Generally lower need for water treatment

CONS

- Sources and water quality still unknown
- Water quantities historically limited in the Piedmont Region
- Costs unknown



What if No Substantial Zion Crossroads Growth in First 5 Years of Water System...?

- **Aqua PPEA Cost**

- ~\$1.0 million x 5 = **\$5.0 million**

- **DOC Cost**

- ~\$465 thousand x 5 = **\$2.33 million**



Cost of Water Options

JRWA

Project Costs

Annual - ~\$91K to 170K

20 Year - ~\$2.6 to 3.0M

Aqua PPEA

Project Costs

Annual - ~\$1.0M

20 Year - ~\$18.3 to 20.0M



Project Costs

Annual - ~\$270K to 480K

20 Year - ~\$7.5M

Department of Corrections

Project Costs

Annual - Unknown

20 Year - Unknown

Ground Water Sources



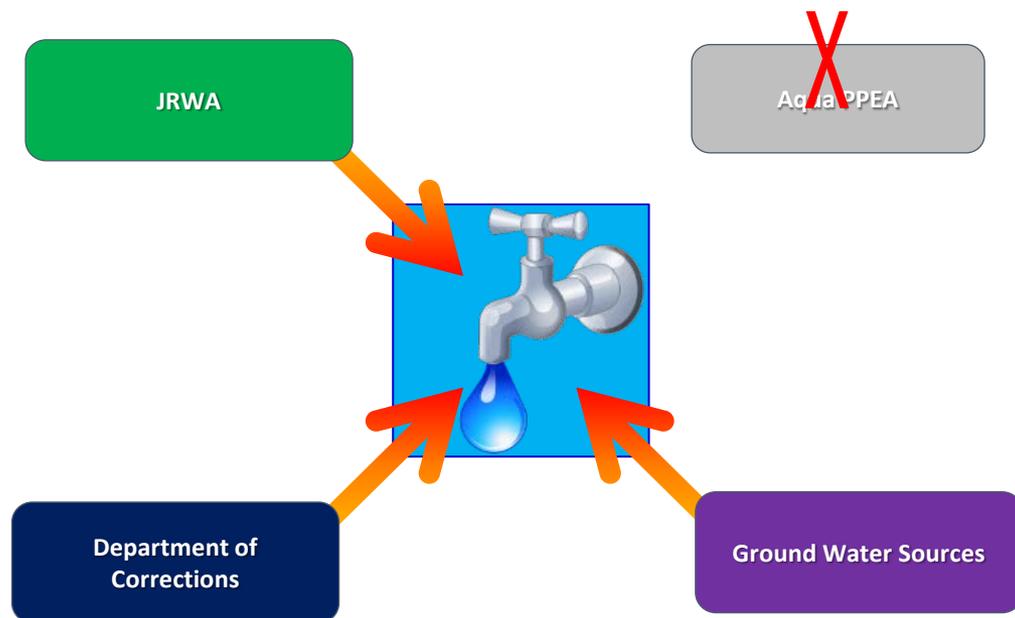
ROI Model Comparisons

- **Pending**



Staff Recommendation

- **Proceed with a combination plan**
 - DOC for short-term
 - Groundwater for short-term and intermediate
 - JRWA for long term needs
- **Affordable now**
- **Scalable over time**





Board Considerations

- **Possible budget pressures**
- **Immediate investment costs**
- **Long-term payback**
- **Water sources**
- **Control of the system**



Questions?