

# UTILITY SYSTEM OVERVIEW

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Water Source

Water Distribution

Wastewater Collection

Wastewater Treatment



# AGENDA

- Overview of the Utility System (building on the Council tours)
  - ARWA
  - Petersburg
  - SCWWA
- Infrastructure and Financial Challenges Ahead
- PPEA Opportunity/Implications/Process



# Water Source

Lake Chesdin



ARWA



**Water Distribution**  
**WW Collection**  
**Customer Billing**  
**Rainwater**

City of Petersburg

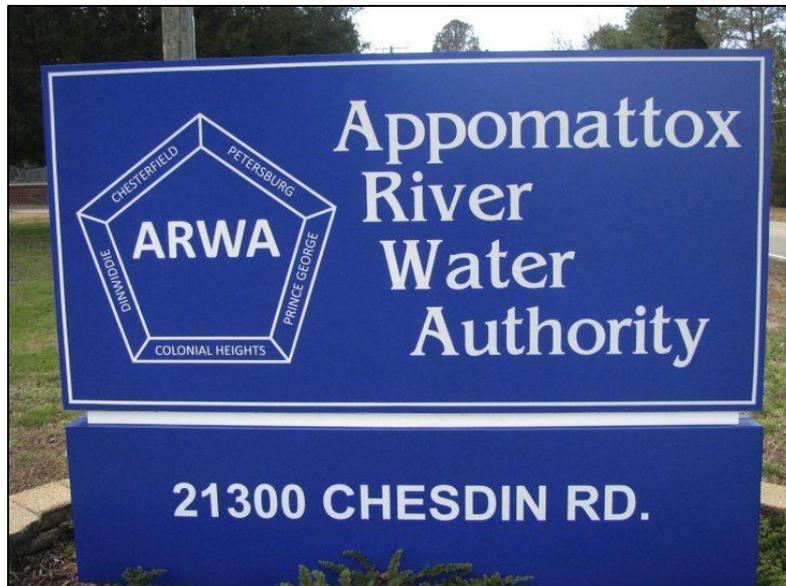


**Wastewater Treatment**

SCWWA



# Appomattox River Water Authority (ARWA)



# ARWA



Well maintained  
Very Reliable  
High Quality Water  
Very low rates



# ARWA: 2016 Water Production (10.1 Billion Gallons)

Locality	Amount (Gallons)
<b>Chesterfield</b>	7,119,520,000
<b>Petersburg</b>	1,749,510,000
<b>Colonial Heights</b>	619,752,000
<b>Dinwiddie</b>	400,569, 000
<b>Prince George</b>	258,686,000



# ARWA: Rates

ARWA charges Petersburg \$0.9017 per 1000 gallons.

The cost to  
producing a  
gallon of  
water  
(ARWA  
Rates)



Cost to  
deliver  
through our  
water  
distribution



CIP



Reserves



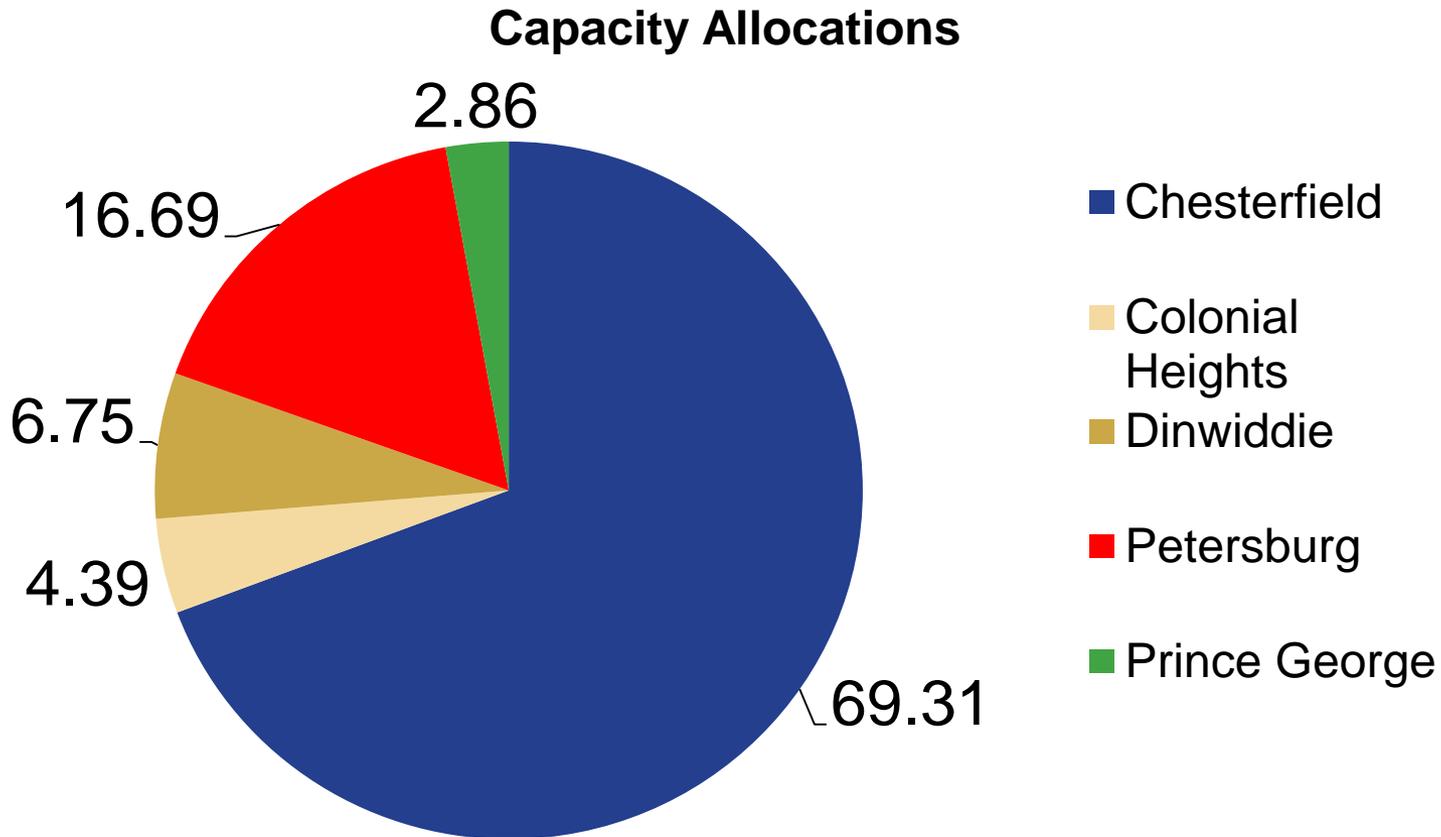
City of Petersburg Water  
Rates

**CURRENT RATES  
DO NOT INCLUDE  
NECESSARY  
COST  
IMPROVEMENTS!**



# ARWA: Current % Capacity Allocations

(Each Jurisdiction Has One Vote)



Petersburg owns **16.7%** of ARWA

Petersburg can claim **16.7%** of  
ARWA's available water

Petersburg must pay **16.7%** of  
ARWA's operating and capital costs



# ARWA: Raw Water Allocation Per Member

Jurisdiction	Plant Allocation	Maximum Daily MGD	Maximum Annual Average Withdrawal
Chesterfield	69.31%	58.4	34.0
Colonial Heights	4.39%	3.7	2.2
Dinwiddie	6.75%	5.7	3.3
<b>Petersburg</b>	<b>16.69%</b>	<b>14.1</b>	<b>8.2</b>
Prince George	2.86%	2.4	49.1
<b>Total</b>	<b>100.00%</b>	<b>84.3</b>	<b>49.1</b>

Petersburg has rights to a maximum of **14.1 MGD** of raw water per day



# ARWA: Potential Capital Project

- Raise Lake Chesdin Dam by 18 inches
- Water storage would increase from 9.3 billion gallons to 11.2 billion gallons
- If the project goes forward, Petersburg's water allocation will increase (which is unneeded) and so will its costs



# ARWA: Purpose for Raising Lake Chesdin Dam

Fewer water use restrictions and more water for growing localities

(Note: Approximately 35% of ARWA summer production is for lawn watering)

Conservation Trigger	Current Frequency	Frequency if Lake Chesdin Raised 18 Inches
<b>Stage 1 Voluntary Restrictions</b>	1 out of 5 years	1 out of 7 years
<b>Stage 2 Mandatory Restrictions</b>	1 out of 21 years	1 out of 42 years
<b>Stage 3 Emergency Restrictions</b>	1 out of 84 years	1 out of 84 years



# ARWA: Petersburg's Share of Potential Lake Chesdin Dam Raise Costs

Lake Chesdin Dam Raise Project	
Estimated Total Cost	\$28.5 million
State Grant	(\$5.0 million)
Net Cost	\$23.5 million
<b>Petersburg's Share (16.7%)</b>	<b>\$3.9 million*</b>

\*Does not include debt service



# Petersburg's Share of ARWA's Lake Chesdin Reservoir Project

**\$3.9 Million**



# Water Source

Lake Chesdin



ARWA



# Water Distribution WW Collection Customer Billing Rainwater

City of Petersburg

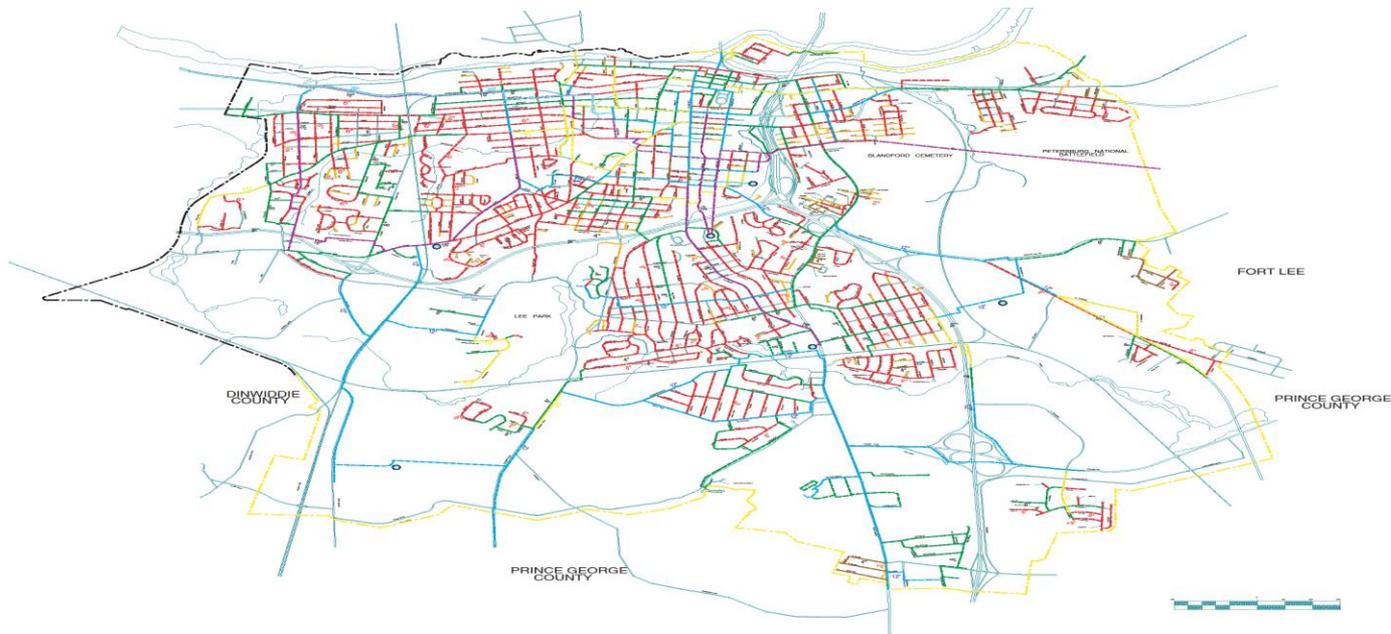


# Wastewater Treatment

SCWWA



# City of Petersburg – Water System Map



# Petersburg Utilities: Water Statistics

## Infrastructure

- 260 Miles of water mains
- 6 Water storage tanks
- 2 Water pump stations
- 1,378 City owned fire hydrants

## Constituents Served

- 11,900 Active water accounts
- 38,429 Estimated drinking water customers



# Petersburg Utilities: Waste Water Statistics

## Infrastructure

- 195 Miles of sanitary sewer lines
- 19 Waste water pump stations

## Usage & Capacity

- 7.6 million gallons of average daily waste water
- 17 million gallons maximum daily waste water treated



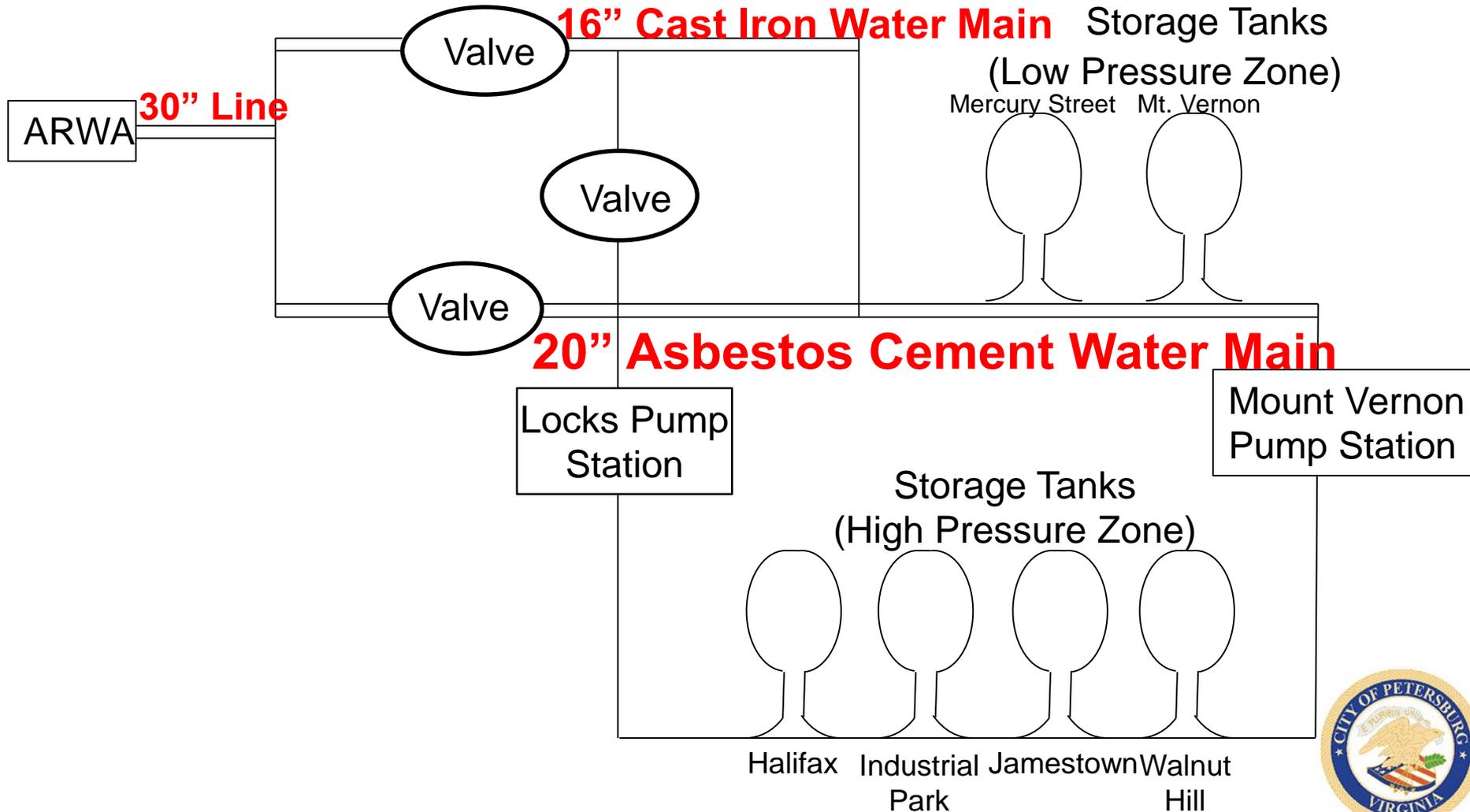
# The Petersburg Utility System has suffered from neglect and mismanagement

- The Petersburg system requires a massive investment due to aging infrastructure
- Rates are artificially low because of past disinvestment
- Large rate increases are inevitable
- Water meter reading issues and failure to issue water bills



# Petersburg Water System

Our main water supply lines should be replaced



# Main Supply Lines from ARWA Must Be Replaced with New Ductile Iron Pipes

16 inch cast iron pipe  
20 inch concrete asbestos pipe

Water line breaks in July 2016 and October 2016 disrupted flow from ARWA

**Petersburg lost all incoming water for 16 hours in July 2016**

Petersburg sometimes has four water main breaks a week, other cities typically have four breaks a year



# Rain Water Infiltration is Extremely Costly to Treat

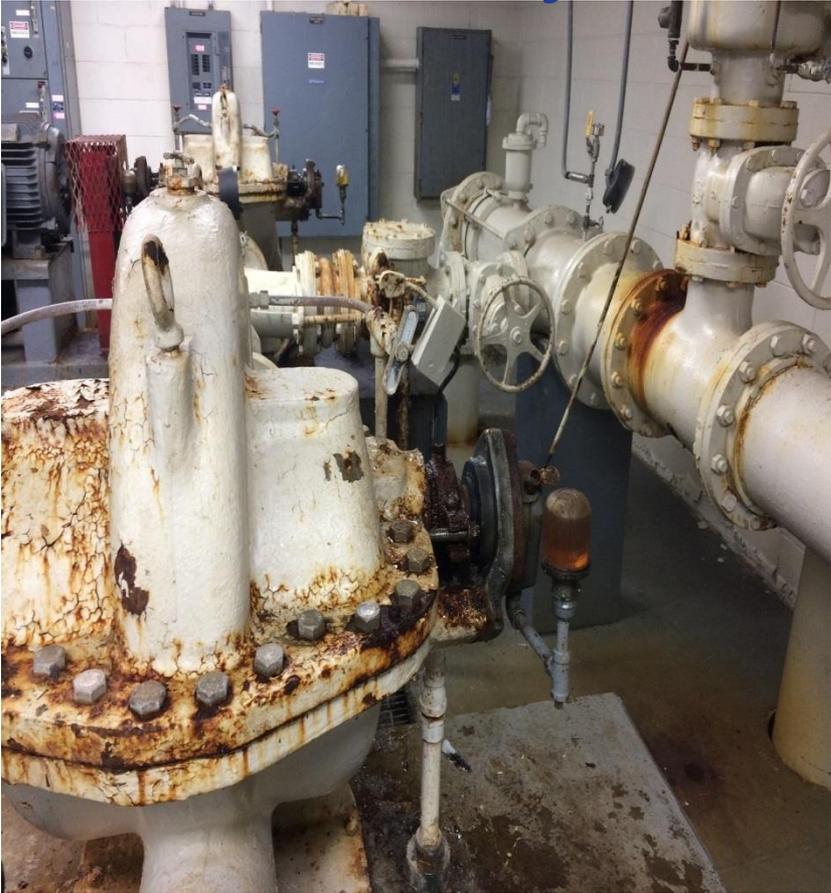


# Rain Water Infiltration

- Petersburg purchased **1.7 billion** gallons of water from ARWA (FY16)
- Petersburg treated **2.7 billion** gallons of wastewater through SCWWA (FY16)
- Additional water (and treatment cost) is due to rain water infiltrating the waste water system



# Pump Stations Have Been Poorly Maintained and Are Subject to Failure



**City of Petersburg Water  
Pump Station**



**Industry Standard (Waste Water)**





25



Pipes don't last forever



# CIP: Timmons Engineering Study

Fiscal Year	Project	Cost (millions)
<b>FY16</b>	Poor Creek Force Main	\$3.8
	Water and Sewer Master Plan (Phase 1-3)	\$0.3
	Locks Booster Station Rehab	\$1.1
	Main Pump Station Backup Generator	\$3.3
	Water & Sewage GPS Mapping	\$0.1
	Water Meter Performance Contract	\$1.2
	24" Water Line Rehabilitation	\$2.2
	Replace Distribution Mains	\$0.5
<b>FY17</b>	Poor Creek Force Main	\$0.4
	Interceptors Upgrade (Blackwater Creek & South Crater)	\$1.6
	Water Lines (Rives Water, Wagner Road, Lt. Run Creek)	\$3.9
	Mt. Vernon Pump Station Upgrade	\$0.4
	SCADA Assessment and Implementation	\$0.7
	I&I Study and Implementation	\$4.2
<b>FY18</b>	New Public Works/Operations Facility	\$1.7
	Water Tank Rehabilitation (Walnut Hill, Mt. Vernon, Mercury St.)	\$1.3
	I&I Implementation	\$4
	Replace Water Transmission Mains and Distribution Mains	\$3.5
<b>FY19</b>	New Water Tanks	\$0.9
	Water Tank Rehabilitation (Jamestown, Halifax)	\$1.1
	Pump Station Rehabilitation	\$0.6
	I&I Implementation	\$4.0
	Replace Water Transmission Mains and Distribution Mains	\$3.5
<b>FY20</b>	I&I Implementation	\$4.0
	Replace Water Transmission Mains and Distribution Mains	\$3.0
<b>FY16-FY20</b>	<b>Total</b>	<b>\$51.3 Million</b>



# Petersburg 5-Year Utility Capital Needs

**\$51.3 Million**



# Water Source

Lake Chesdin



ARWA



**Water Distribution**  
**WW Collection**  
**Customer Billing**  
**Rainwater**

City of Petersburg



# Wastewater Treatment

SCWWA



# South Central Wastewater Authority



# SCWWA: Timeline

- 1955 – facility constructed by Petersburg
- 1970s – facility upgraded and expanded
- 1990s – capacity expanded to 20 MGD
- 1996 – system sold to SCWWA



# SCWWA Treatment Capacity (23.0 MGD)

Locality	MGD
Chesterfield	2.30
<b>Petersburg</b>	<b>12.08</b>
Colonial Heights	4.60
Dinwiddie	2.30
Prince George	1.72



# SCWWA Allocation of Plant Capacity Per Member

Jurisdiction	Plant Allocation	MGD	Share of Budget
Chesterfield	10.0%	2.3	\$745,000
Colonial Heights	20.0%	4.6	\$1,709,000
Dinwiddie	10.0%	2.3	\$684,000
<b>Petersburg</b>	<b>52.5%</b>	<b>12.1</b>	<b>\$4,514,000</b>
Prince George	7.5%	1.7	\$551,000
<b>Total</b>	<b>100.00%</b>	<b>23.0</b>	<b>\$8,202,000</b>

Petersburg is 52.5% of the SCWA plant.

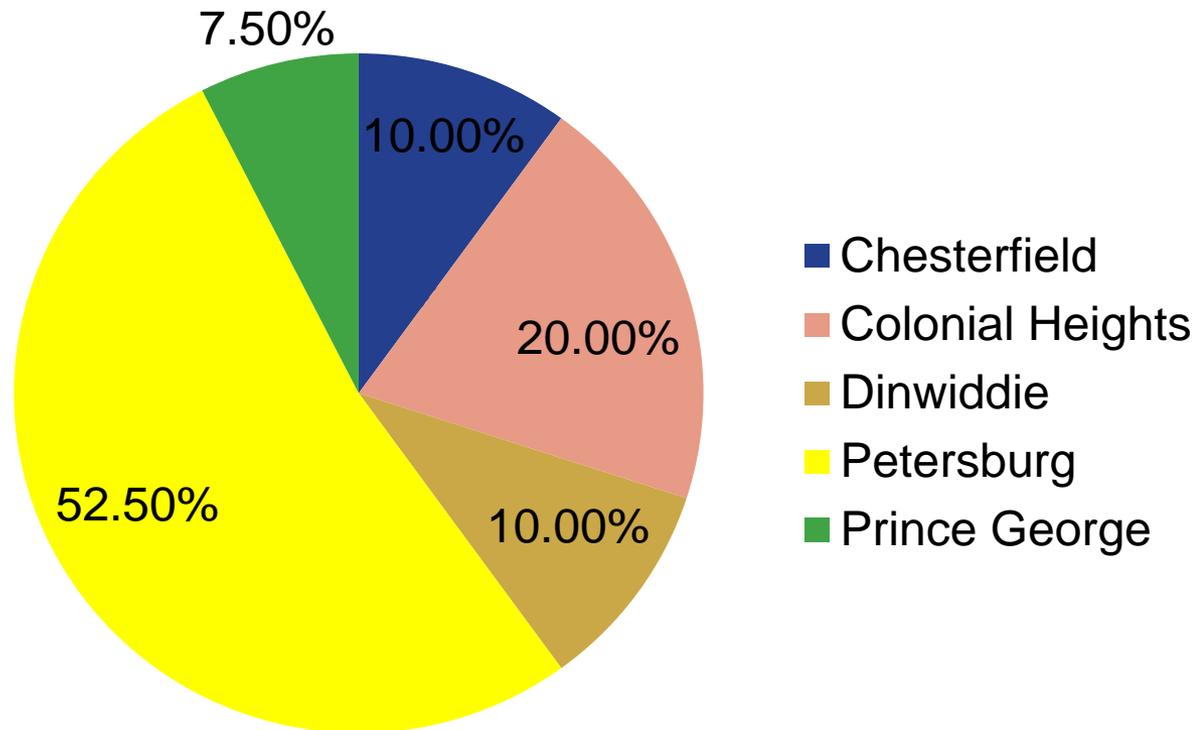


- Petersburg owns **52.5%** of SCWWA
- Petersburg can claim **52.5%** of SCWWA's available capacity
- Petersburg must pay **52.5%** of SCWWA's operating and capital costs



# SCWWA Plant Capacity Allocation

(Each Jurisdiction Has One Vote)



# SCWWA: Infrastructure Improvement Needs

	2020 Total Costs (million)	Petersburg Total (million)
<b>Aging Infrastructure</b> (ex. pumps, solids handling, headworks, clarifiers, etc.)	\$20.3	\$10.9
<b>Wet Weather Improvements</b> (ex. pumps, disinfection, clarifiers, etc.)	\$17.3	\$9.3
<b>Denitrification</b> (ex. filters, post aeration improvements)	\$40.4	\$21.8
<b>Total</b>	<b>\$78.0 million</b>	<b>\$42.0 million</b>



# Petersburg's Share of SCWWA's Capital Needs to Meet Regulatory Requirements

**\$ 42.0 Million**



# Summary of Petersburg Utilities' Major Infrastructure Needs

Type of Infrastructure	Total Cost	Petersburg Share
ARWA Lake Chesdin Dam Raise	\$23.5 million	\$3.9 million
SCWWA <ul style="list-style-type: none"> <li>• Aging infrastructure</li> <li>• Wet Weather Improvement</li> <li>• Denitrification</li> </ul>	<ul style="list-style-type: none"> <li>• \$20.3 million</li> <li>• \$17.3 million</li> <li>• \$40.4 million</li> </ul>	<ul style="list-style-type: none"> <li>• \$10.9 million</li> <li>• \$ 9.3 million</li> <li>• \$21.8 million</li> </ul>
Petersburg Infrastructure	\$51.3 million	\$51.3 million
<b>Total</b>	<b>\$152.8 million</b>	<b>\$97.2 million</b>



# Why do we have these needs?

- ARWA Chesdin Dam                      \$3.9 Million                      **CAPACITY**
- Petersburg Infrastructure                      \$51.3 Million                      **NEGLECT**
- SCWWA                      \$42.0 Million                      **REGULATORY**



# Total Price Tag for Petersburg

**\$ 97.2 Million**



# How will these needs be funded?

## Significant rate Increases



# Can we borrow the money?

- ARWA will issue debt and costs will be reflected in rates
- SCWWA will issue debt and costs will be reflected in rates
- Petersburg has limited access to credit markets due to financial condition



# Petersburg Rates are Artificially Low

- Due to chronic under funding of maintenance
- Failure to implement approved rate increases



# 2012 Draper Aden Associates Annual Water and Wastewater Report

Rank	Locality	Residential Water and Wastewater Rate (5,000 gal/month)
1	Middleburg	\$158.37
15	Fluvanna	\$92.55
37	Richmond	\$78.91
75	Botetourt	\$63.25
118	Dinwiddie	\$50.87
131	Prince George	\$48.00
143	Chesterfield	\$42.52
154	Petersburg	\$32.72
155	Altavista	\$20.71

**Petersburg rates are very low compared to our neighbors.**

Note: 2012 is most recent report that included data from Petersburg



# Petersburg Rate Increase History

	<u>Actual</u>	<u>Approved Plan*</u>
• FY 2013	14.3%	
• FY 2014	11.9%	
• FY 2015	-	
• FY16	-	14.1%
• FY17	-	13.4%**
• FY18	TBD	3.2%

**Petersburg is behind due to failure to implement planned increases totaling 27.5%**

\*Adopted by City Council 4/21/2015    \*\*Tabled on rec. of City Manager



# Conclusion

- ARWA (\$3.9 million) and SCWWA (\$42.0 million) capital plans will result in rate increases for Petersburg
- The cost (\$53.1 million) to repair Petersburg's neglected infrastructure will result in significant rate increases
- ARWA, SCWWA, and Petersburg capital plans will add an estimated \$9.7 million to debt servicing costs (using a 10% estimate)
- Petersburg lacks the financial capacity to address its needs
- Petersburg will need recruit the managerial capacity to execute these plans



# PPEA UPDATE

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Public Private Education and Infrastructure Act



# PPEA UPDATE

- Petersburg received an unsolicited proposal to privatize the utility system on December 7, 2016
- Petersburg City Council voted on December 13, 2016, to receive the proposal and begin the formal PPEA process
- On February 7, 2017, Petersburg received detailed proposals from two national utility companies
- Both proposals can be found on the city's website:  
<http://www.petersburg-va.org/index.aspx?NID=562>





AQUA<sup>SM</sup>





- In business 130 years
- Own and operate 1,400 public water systems
- Operate 187 wastewater treatment plants
- Serve nearly 3 million people in 8 states
- Employ approximately 1,700 people
- Publicly traded company on the New York Stock Exchange





- Been in business 131 years
- Serve approximately 15 million people in more than 1,600 communities in 45 states
- Employ approximately 6,800 people
- Publicly traded company on the New York Stock Exchange



# Proposal Review Team

- Petersburg Team
  - Tangela Innis
  - Tom Tyrrell
  - Robert Bobb
  - Nelsie Birch
  - Jack Berry
- Technical Team
  - Timmons Group
- Financial Team
  - Davenport
- Legal Team
  - Sands Anderson



# PPEA Advisory Committee

- Citizens Advisory Committee
- 7 persons appointed by City Council
- Independent evaluation
- Recommendations to the Proposal Review Team



# PPEA Process

- 2/21 City Council Holds Public Hearing on Conceptual Proposals and **decides whether to proceed** with detailed review phase
- 3/16 Deadline for submitting detailed proposals
- 3/21 City Council Holds Public Hearing on Detailed Proposals and **decides whether to proceed** with negotiations
- 4/14 City posts final form of negotiated agreement on City website
- 4/25 Special Called Meeting of City Council to consider Comprehensive Agreement and conveyance of city property



# Utility System Options



	City			Private
	Current	Better Management	Better Management w/investment	Private Ownership
Performance	Low	High	High	High
Infrastructure Investment	No	No	Yes	Yes
Rates	Low	Moderate	Higher	Higher
Regulatory Control	City	City	City	SCC
Money to General Fund (Annually)	No	No	Maybe	Yes
Money to General Fund (One-Time)	No	No	No	Yes
Eliminate Deficit	No	No	No	Yes
Reserve Fund Higher Bond Rating	No	No	No	Yes
Time Frame	Current	2017	2020	2017



# Recommendation to Proceed

- Allows us to see detailed proposals
- Keeps all options open, including termination of PPEA process
  - No matter which direction the city chooses water and wastewater rates will increase
- Community meeting to discuss the current state of our water and wastewater system hosted by City Manager
- March 1<sup>st</sup> Aqua Virginia's presentation to the community 6:30-8:30pm; venue TBD
- March 2<sup>nd</sup> American Water Works Virginia presentation to the community 6:30-8:30pm; venue TBD

