



**R**aw

**W**ater

**S**upply

**M**anagement

**P**lan

**UPDATE FY2019**



**City of Harrisonburg, VA**  
**Public Utilities Department (HPU)**

**Raw Water Supply Management  
Plan  
(RWSMP)**

**December 31, 2015**

**Revised: April 26, 2019**

Available on line @ [www,harrisonburgva.gov](http://www.harrisonburgva.gov)



# RWSMP FOCUS

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## Focus

- Reliability
- Sustainability
- Risk Management

## Mode

- Drought
- Asset & Energy Optimization
- Contingency

# Harrisonburg Raw Water Supply



## DRY RIVER SOURCE

DRY RIVER  
ELEV = 1688'

Cooper's Mountain Road

30" Pipe (1.5 Miles)

30" Pipe Incomplete  
(6.8 Miles)

30" Pipe (2.2 Miles)

Bellevue Road

WTP  
ELEV = 1545'

SILVER LAKE  
ELEV = 1218'

## NORTH RIVER SOURCE

24" Pipe (1.3 Miles)

24" Pipe (2.4 Miles)

20" Pipe (2.9 Miles)

NORTH RIVER  
ELEV = 1160'

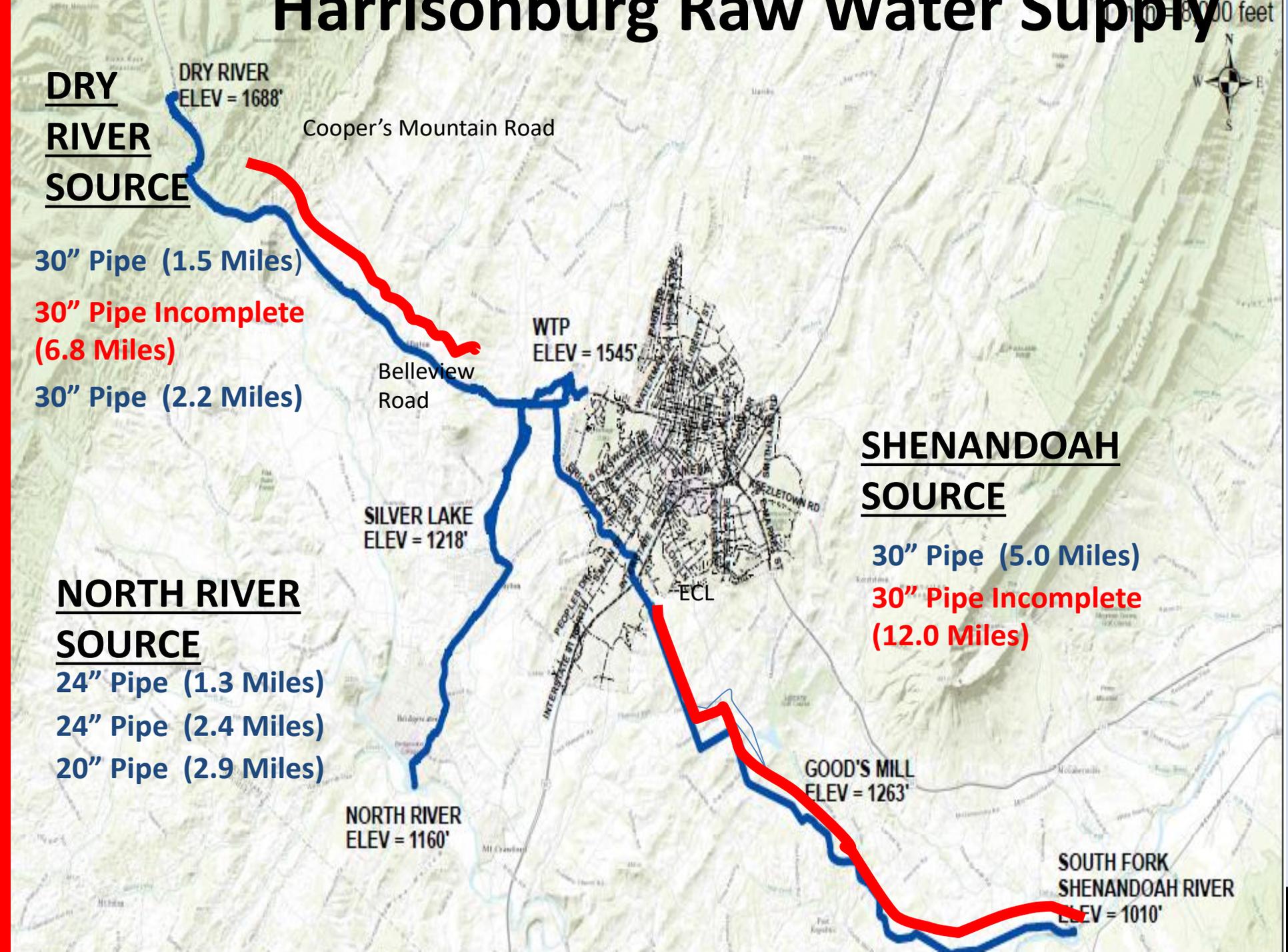
## SHENANDOAH SOURCE

30" Pipe (5.0 Miles)

30" Pipe Incomplete  
(12.0 Miles)

GOOD'S MILL  
ELEV = 1263'

SOUTH FORK  
SHENANDOAH RIVER  
ELEV = 1010'

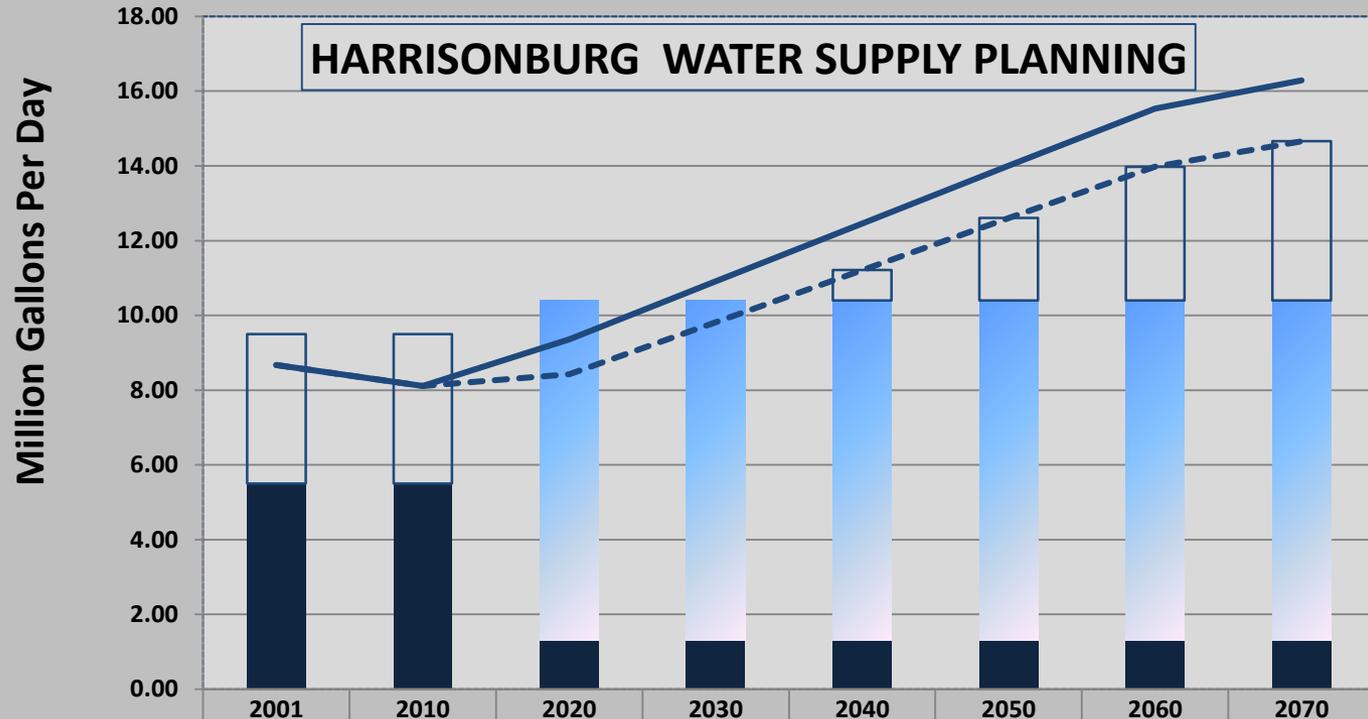




# RWSMP: DROUGHT SUSTAINABILITY

*The underlying principle to the RWSMP is to provide a roadmap to a reliable 14.63 MGD raw water supply that will meet a 12.60 MGD average annual water demand.*

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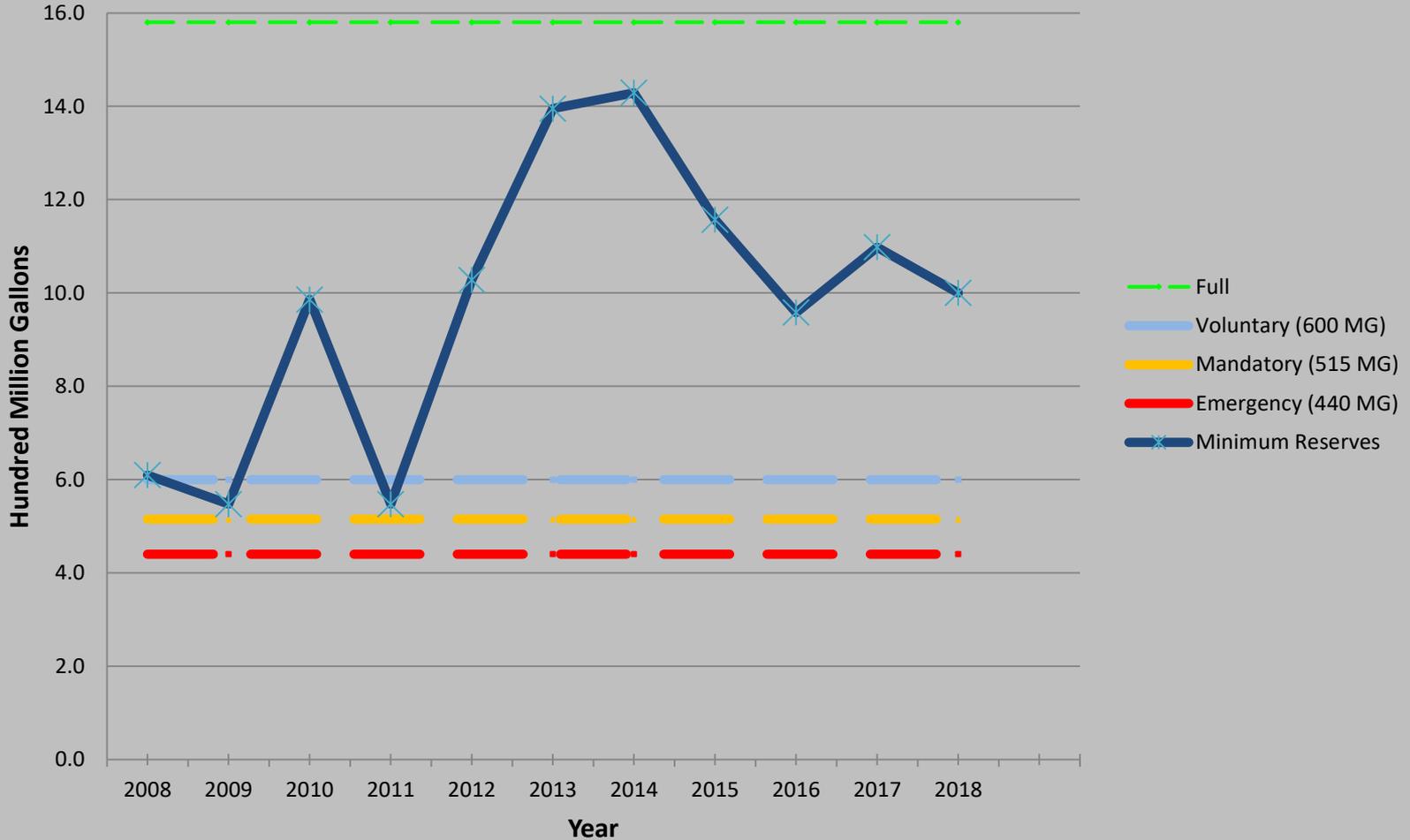
	2001	2010	2020	2030	2040	2050	2060	2070
Switzer Augmentation or other (MGD)	4.00	4.00	0.00	0.00	0.81	2.20	3.58	4.26
SF Shenandoah River Drought Capacity (MGD)	0.00	0.00	9.10	9.10	9.10	9.10	9.10	9.10
North River Drought Capacity (MGD)	5.50	5.50	1.30	1.30	1.30	1.30	1.30	1.30
Required Supply	8.67	8.11	9.36	10.91	12.46	14.00	15.53	16.29
Required Supply with 10% conservation	8.67	8.11	8.43	9.82	11.21	12.60	13.98	14.66



# RWSMP: DROUGHT SUSTAINABILITY

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## Switzer Dam Water Storage Volume





# VAC LOCAL AND REGIONAL WATER SUPPLY PLAN

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## Plan Recommendation #1

- Maintain compliance with Virginia Administrative Code requirements for a regional and local water supply plan.

## Goals

- ✓ 2013: Original plan approval by DEQ and adopted by resolution of City Council.
- ✓
  - 2018: DEQ re-approval
  - 2023: Next review.



# VWWP #16-0730

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## Plan Recommendation #2

- Renew Virginia Water Withdrawal Permit # 98-1672
- Comply with requirements of re-issued permit

## Permit #16-0730

- ✓ 2016 permit re-issued ; expires 2031
- ✓ Permit requirements
  - Conservation Ordinance adopted
  - Install aquatic protection screens at all intakes \$4M-2025 CIP
  - Comply with maximum withdrawals at all sources



# DRY RIVER

## Plan Recommendation

### #3

- Install new 55,000' raw water pipe.
- Transition 1959 pipe
- Decommission 1929 pipe
- Decommission 1898 pipe

## FY 2019 Status

- ✓ 22,000 feet complete
- 11,400 feet 2025 CIP \$4.3M
- 21,600 feet 2045 CIP \$8.2M

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# NORTH RIVER

## Plan Recommendation #4

- Upgrade BWPS:
  - 1) Variable output
  - 2) power and energy efficiency
  - 3) Retire critical assets
  - 4) Add power loss response
  - 5) Model for

## FY 2019 Status

- ✓
  - Project 100 % complete \$1.6M

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# SILVER LAKE

#5

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- 99 year lease with Town of Dayton.
- Configure intake for temporary connection
- Understand long term need to Silver Lake water

- ✓ Lease renewed.
- FY2020 CIP Intake Project
- Potential need included in RWSMP; await growth of City



# SOUTH FORK SHENANDOAH RIVER

## Plan Recommendation

## FY 2019 Status

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### #6

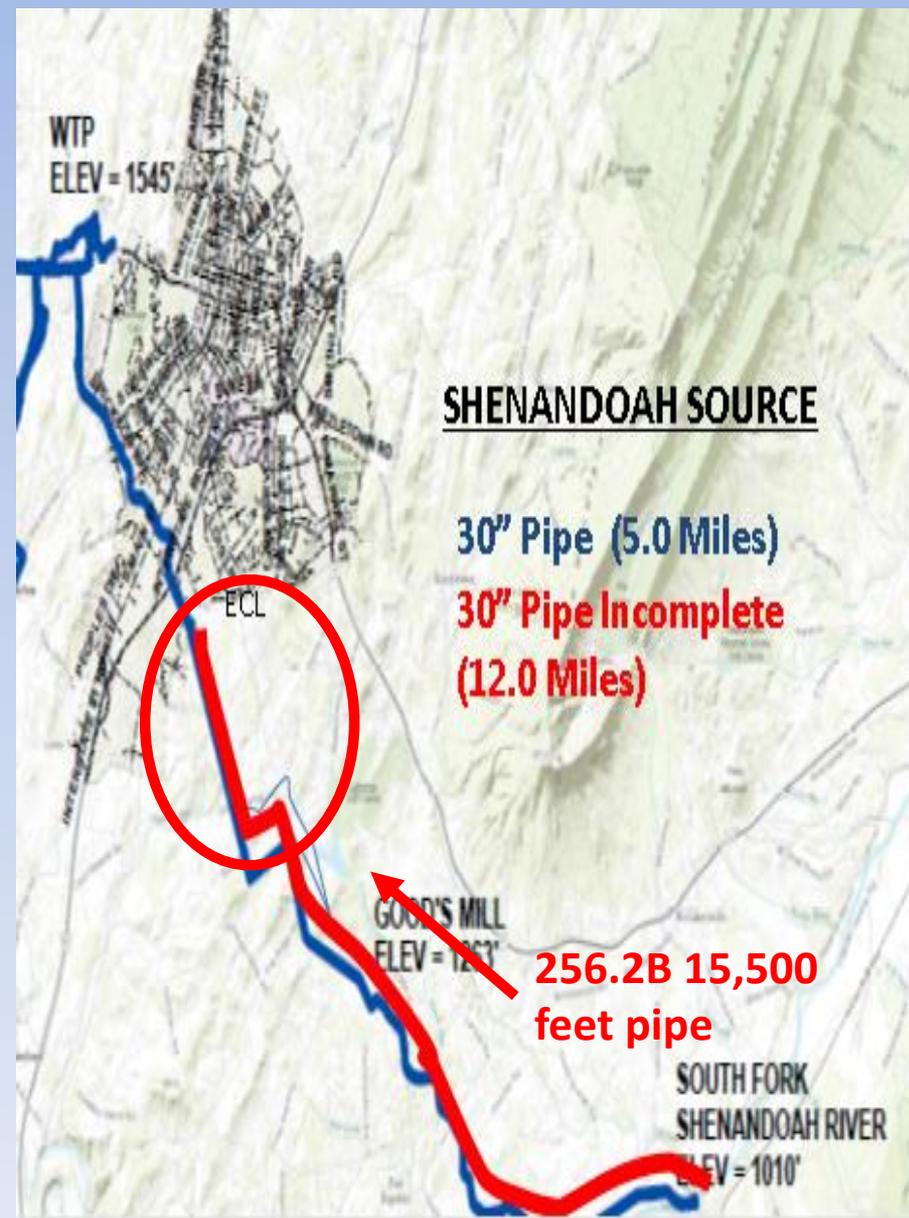
Finalize scope, cost, schedule and completion of the South Fork Shenandoah River Raw Water Project

90,000 feet pipe  
\$37M—50% funded

- PD & GM PS...2021-2022
- 256.1.....2020-2022
- 256.2A.....2020-2022
- 256.2B.....2019-2020
- ✓ 256.3A-E.....Complete
- ✓ 256.4.....Complete
- ✓ 256.5 A&B.....Complete
- 25,000 feet completed
- 65,000 feet 2020-2022

# SHENANDOAH PROJECT 256.2B

Bid Date; June 6, 2019



- 1) Stakeholder Team:
  - 13 easement grantors
- 2) Compartmentalized:
  - .....a) tree removal
  - .....b) pipe supply contract
  - .....c) 830' high risk pipe install
- 3) Collaborated an encroachment agreement with Dominion Energy
- 4) Pre-permitted all VDOT road crossings as open cut
- 5) Pre-permitted erosion & sediment requirements
- 6) Pre-permitted wetlands delineations
- 7) Utility conflicts resolutions