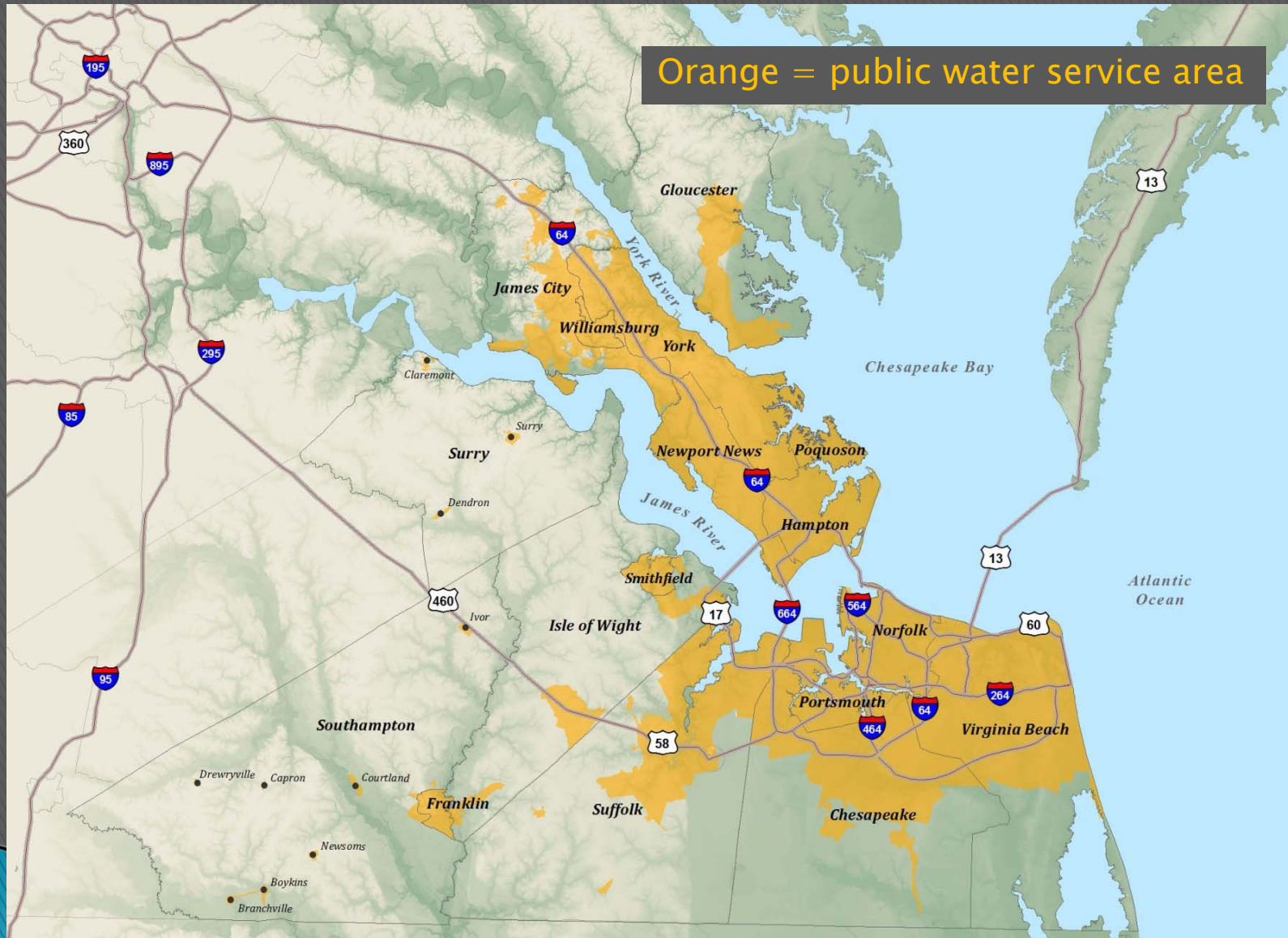


# Groundwater Management and Regional Water Supply Impacts

Groundwater Forum  
November 13, 2018  
Whitney S. Katchmark

# *Groundwater management impacts both our public water systems & areas that rely on individual wells*



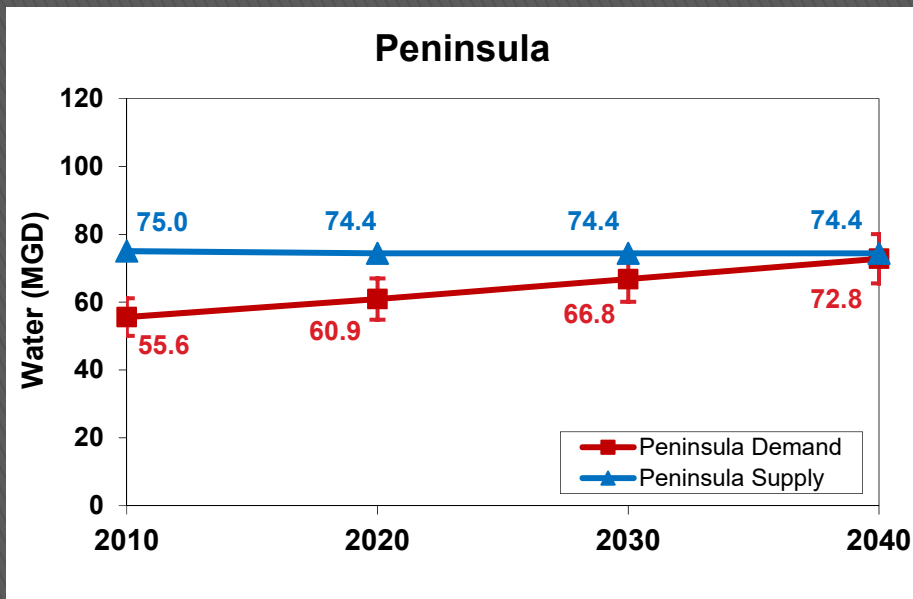
# 14 largest permits



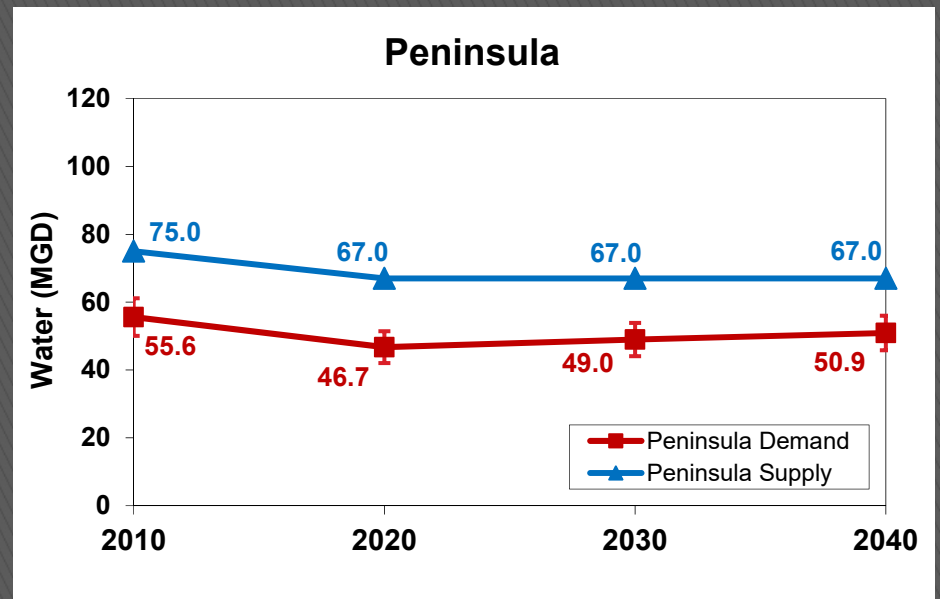
Permit Holder	2017 Permits		2014 or earlier		
	Permitted Withdrawal (MGD)	% Cut Below Previous Permit	Previous Permitted Withdrawal (MGD)	DEQ Target (MGD)	Reported Use (MGD)
City of Franklin	1.4	51%	2.88	.93 – 1.3	0.93
City of Chesapeake	3.51	68%	11	3.5	3.5
International Paper - Franklin Mill	16.0 (Y1) to 14.0 (Y10)	56% (Y1) to 62% (Y10)	36.68	10.0 – 12.0	13.71
WestRock - West Point Mill	20.0 (Y1) to 16.0 (Y10)	13% (Y1) to 31% (Y10)	23.03	9.0 – 10.0	17.79
City of Portsmouth	5.0	67%	15.42	3.49	2.91
Solenis - formerly Hercules Inc	3.2	52%	6.67	3	2.74
Western Tidewater Water Authority (Suffolk & Isle of Wight)	4.2	50%	8.34	3.5 – 3.9	3.51
Virginia Renewable Power - formerly Cogentrix	1.2	53%	2.60	1.0 – 1.2	0.18
James City Service Authority	6.0	32%	8.83	3.8 - 4.0	5.41
Newport News Waterworks	2.96	58%	7.00	1.53	1.53
Colonial Williamsburg	1.12	39%	1.84	1.2	1.4
Smithfield Farmland Corp	2.60	35%	4.01	2.6	1.65
Town of Smithfield	1.28	8%	1.4	1.27	0.86
City of Norfolk	3.74	77%	15.94	3.74	0.06
<b>Totals</b>	<b>72.3 to 66.3</b>	<b>50%</b>	<b>145.6</b>	<b>48.6 to 52.7</b>	<b>56.2</b>

# Public Systems Water Supply & Demand

## 2011 Projections

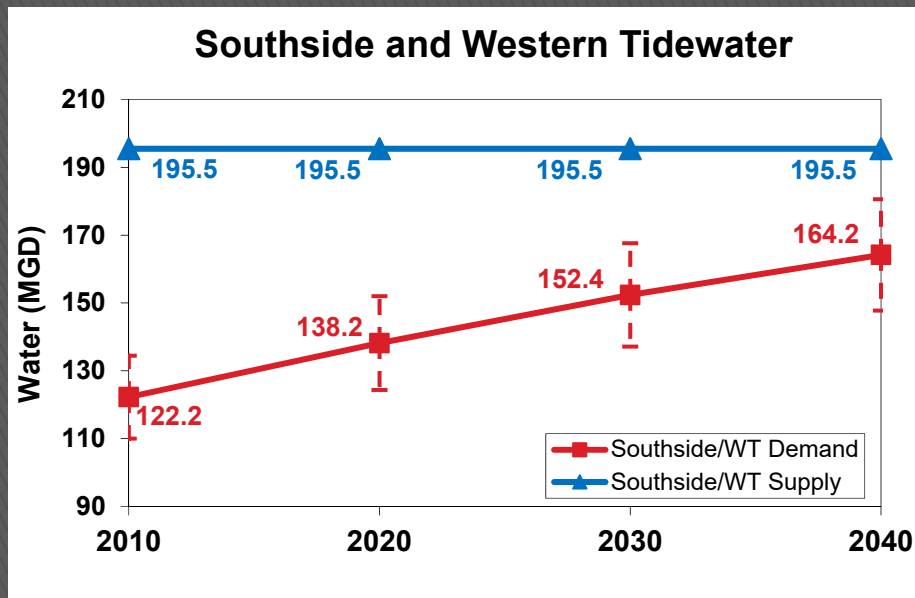


## 2018 Draft Projections

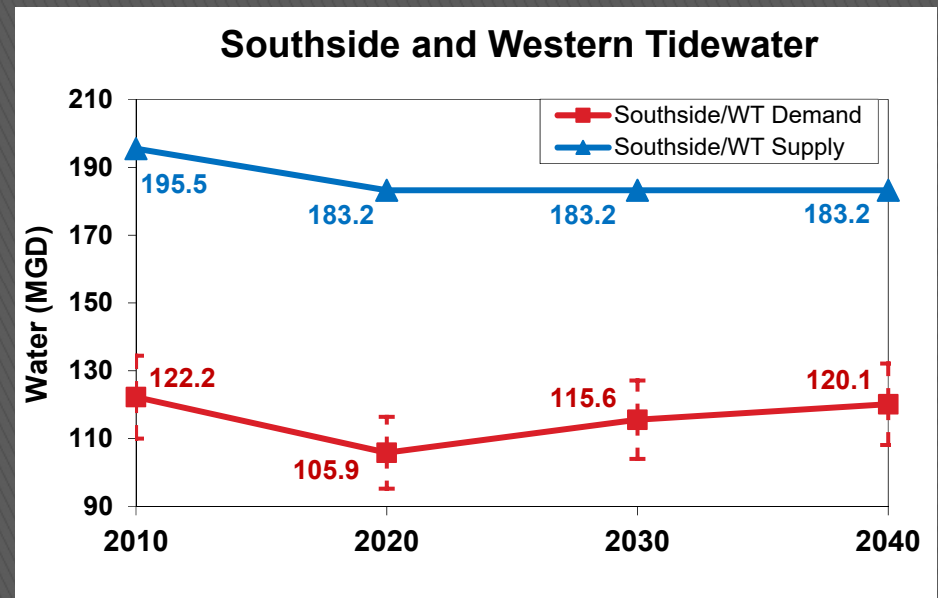


# Public Systems Water Supply & Demand

## 2011 Projections

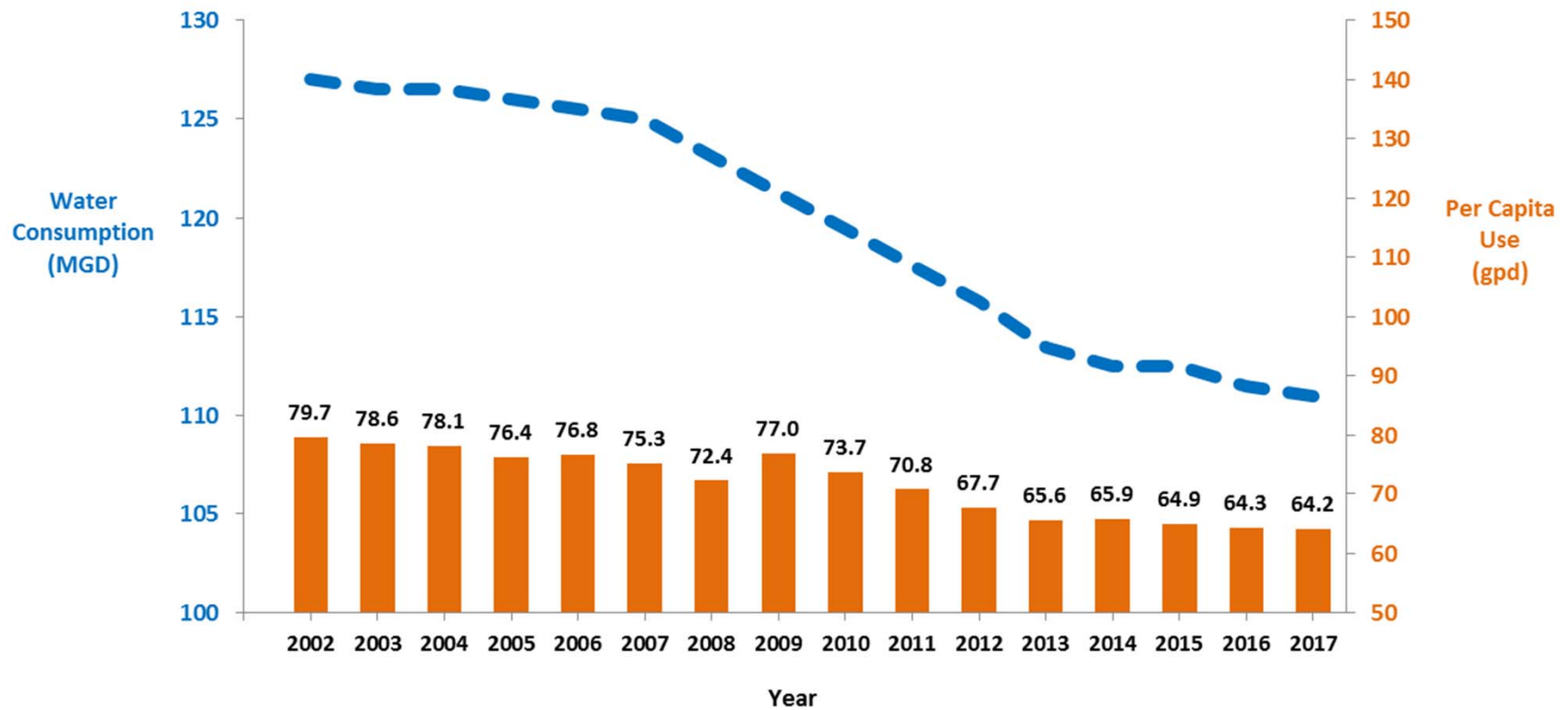


## 2018 Draft Projections

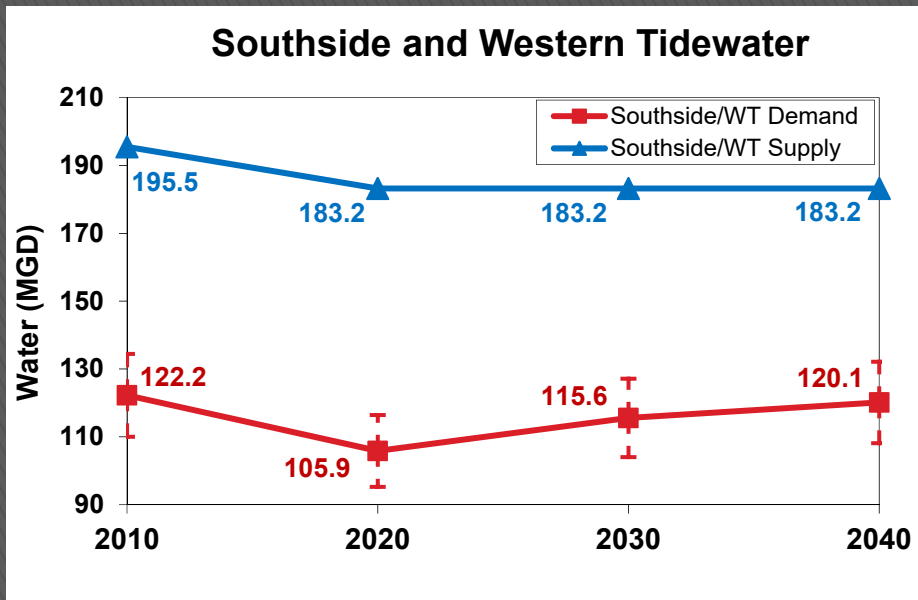


# *Region is using less water*

## Regional Water Consumption (2002-2016)



# How much water is enough?



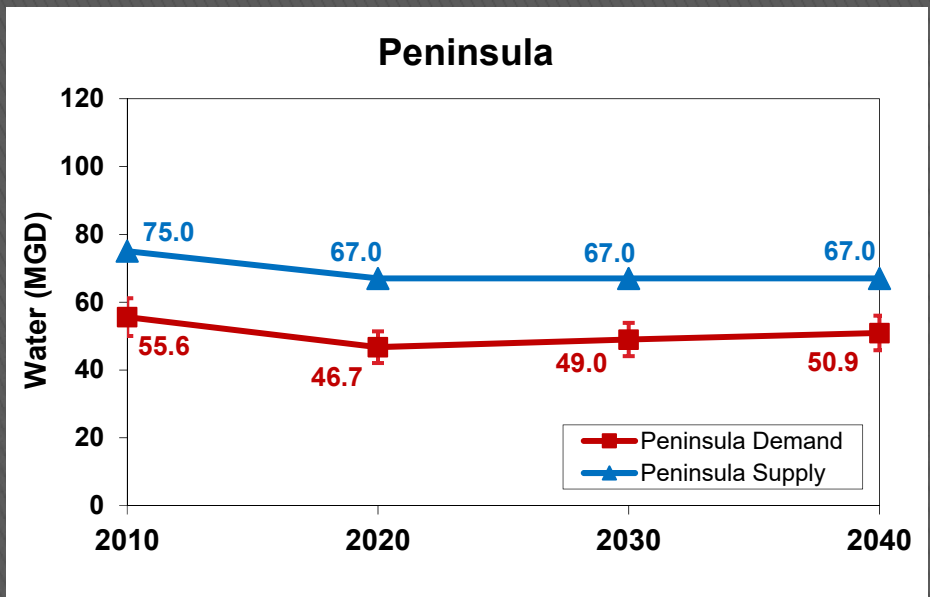
Industrial Groundwater Users = 41 MGD

Anheuser Busch = 1.8 MGD

Ford Plant = 1.8 MGD

Google data center, SC = 4 MGD

*Can we make better use of our water resources?*





***Unresolved Issue: Need aquifer replenishment for groundwater use to be sustainable at current permitted level and to allow rural development.***

SWIFT is unique – only replenishment project where entity injecting water doesn't want to use or sell the water.

***Virginia needs regulations that provide the legal framework to incentivize aquifer replenishment.***

Workgroup to develop banking / trading system by July 1, 2020 has had first meeting.



### Map 1-10 Southside Sub-Region Community Water Systems Service Areas and Sources

**Public Purveyor Service Areas \***

- City of Chesapeake
- City of Norfolk
- City of Portsmouth
- City of Suffolk
- City of Virginia Beach
- Future Public Service Areas
- Purchase Water from Public Systems

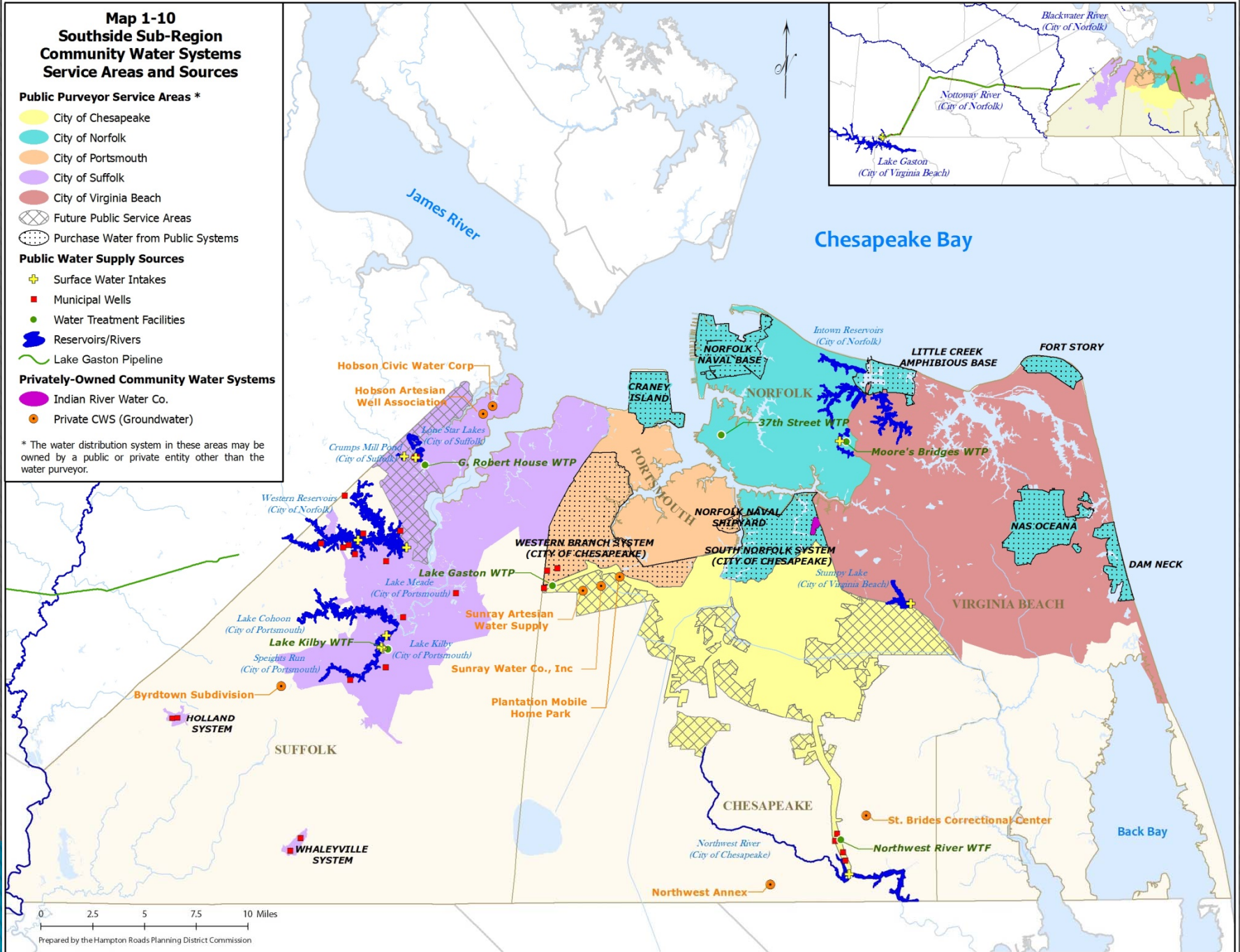
**Public Water Supply Sources**

- Surface Water Intakes
- Municipal Wells
- Water Treatment Facilities
- Reservoirs/Rivers
- Lake Gaston Pipeline

**Privately-Owned Community Water Systems**

- Indian River Water Co.
- Private CWS (Groundwater)

\* The water distribution system in these areas may be owned by a public or private entity other than the water purveyor.



0 2.5 5 7.5 10 Miles  
Prepared by the Hampton Roads Planning District Commission

### Map 1-20 Western Tidewater Sub-Region Community Water Systems Service Areas and Sources

#### Public Purveyor Service Areas \*

- Town of Capron
- Town of Claremont
- Town of Courtland
- Town of Dendron
- City of Franklin
- Isle of Wight County
- Town of Ivor
- Town of Smithfield
- Southampton County
- Town of Surry
- Town of Windsor

- Isle of Wight CWS (Groundwater)
- Future Public Service Areas
- Purchase Water from Public Systems

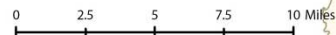
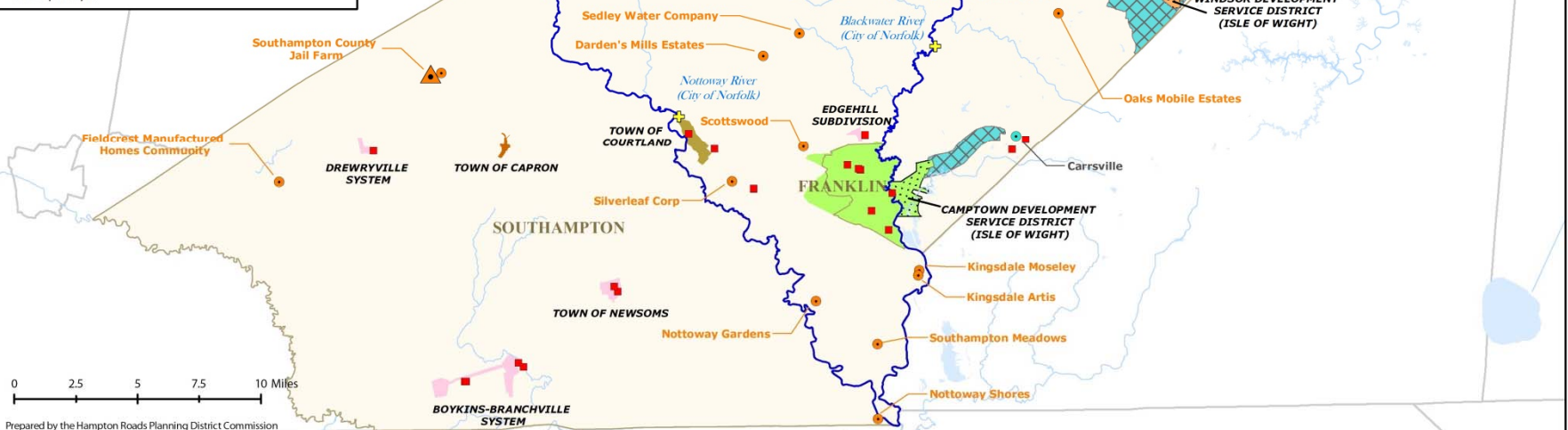
#### Public Water Supply Sources

- + Surface Water Intakes
- Municipal Wells
- Water Treatment Facilities
- Rivers/Reservoirs

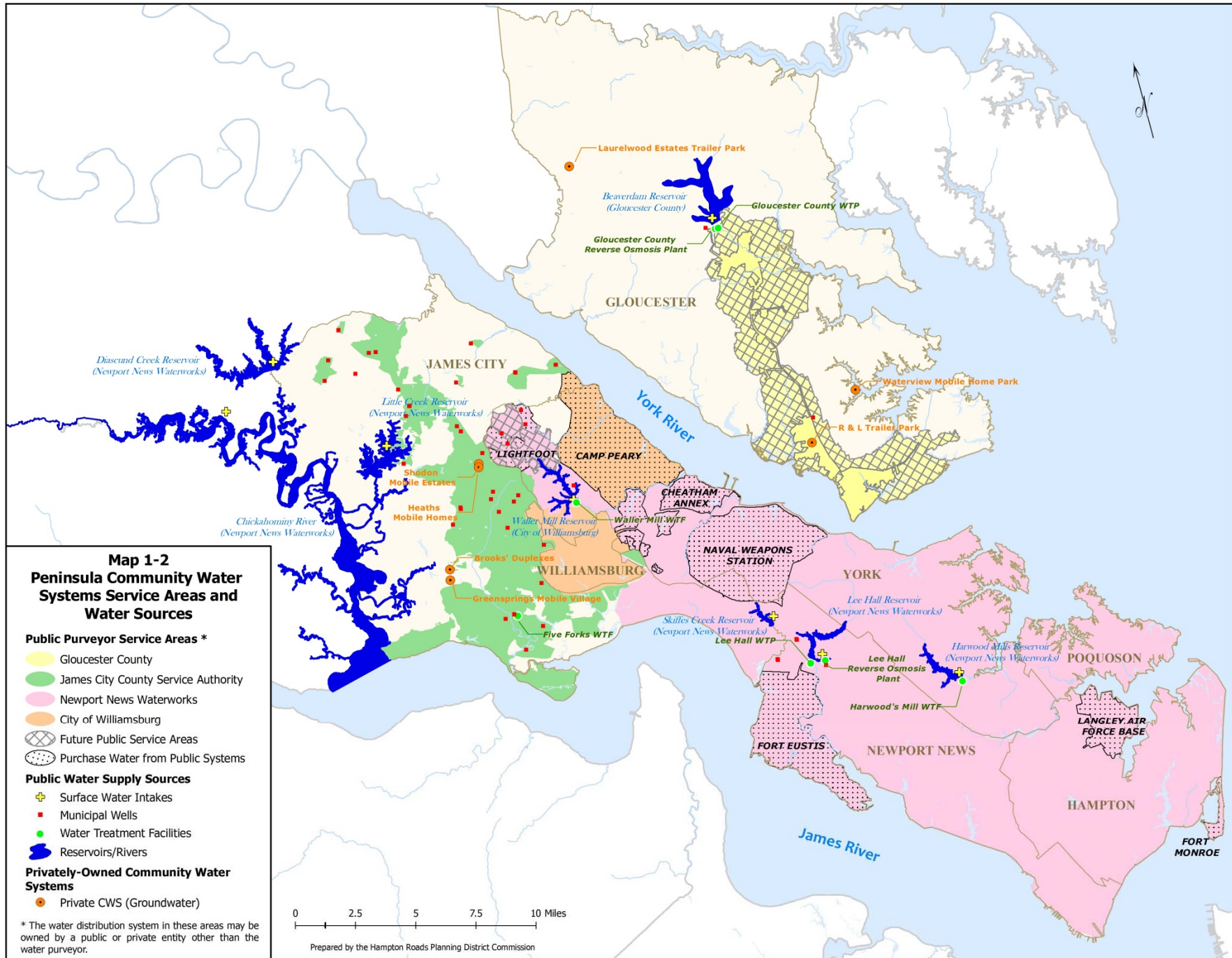
#### Privately-Owned Community Water Systems

- Private CWS (Groundwater)
- ▲ Private CWS (Surface Water)

\* The water distribution system in these areas may be owned by a public or private entity other than the water purveyor.



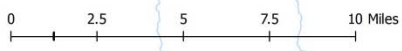
Prepared by the Hampton Roads Planning District Commission



**Map 1-2  
Peninsula Community Water  
Systems Service Areas and  
Water Sources**

- Public Purveyor Service Areas \***
- Gloucester County
  - James City County Service Authority
  - Newport News Waterworks
  - City of Williamsburg
  - Future Public Service Areas
  - Purchase Water from Public Systems
- Public Water Supply Sources**
- Surface Water Intakes
  - Municipal Wells
  - Water Treatment Facilities
  - Reservoirs/Rivers
- Privately-Owned Community Water Systems**
- Private CWS (Groundwater)

\* The water distribution system in these areas may be owned by a public or private entity other than the water purveyor.



Prepared by the Hampton Roads Planning District Commission