# Appendix D: Snapshots of Water Resources by Locality

Accomack County and the Towns of Accomac, Belle Haven, Bloxom, Chincoteague, Hallwood, Keller, Melfa, Onancock, Onley, Painter, Parksley, Saxis, Tangier, and Wachapreague

### Water Source Overview

Major sources are groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Accomack County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.423 | 0.784 |
| Small Self-Supplied Users (under 300,000 gal/month) | 3.090 | 2.861 |
| Large Self-Supplied Users (over 300,000 gal/month) | 2.878 | 3.142 |
| Agricultural Self-Supplied Users | 3.899 | 3.899 |

### Water Use by System Type

Approximately 30,006 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

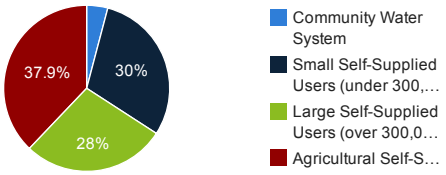



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Accomack County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 7.39 | 2.90 | 7.79 | 2.90 |

***Figure 3:** Accomack County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources in the County and most towns are expected to meet projected demands. The Town of Chincoteague may experience a summertime water deficit of approximately 0.10 MGD in 2015. Alternatives considered include development of up to three new wells in the Town's easement area at NASA, the purchase of water from NASA or another mainland source, and construction of a desalination facility to treat a well drilled on the Island.

***Table 3:** Accomack County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 33,164 | 33,432 | 33,568 | 33,661 | 0.0% |

***Figure 4:** Accomack County population projections by decade for 2010, 2020, 2030 & 2040

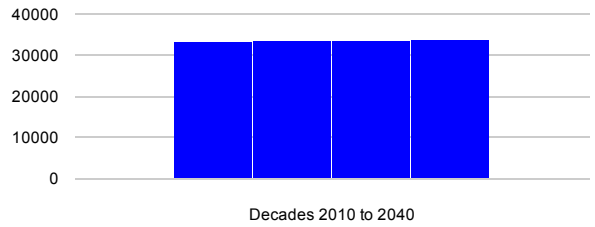
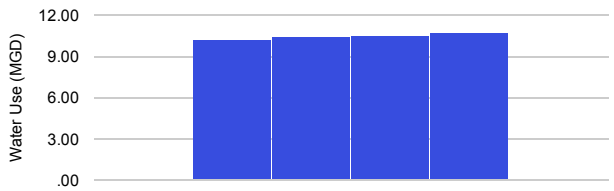



***Table 4 & Figure 5:** Accomack County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 10.29 | 10.42 | 10.55 | 10.69 | 3.8% |




### Drought Management Practices

The County and all Towns adopted the Drought Response and Contingency Plan (DRCP). The Town of Chincoteague adopted an ordinance to implement and enforce the DRCP. The status of implementation and enforcement of the DRCP in Accomack County and the remaining towns is pending, but will be resolved by the five-year update of the water supply plan. [Accomack County Regional WSP and the Town of Chincoteague Local WSP]

Albemarle County and the Town of Scottsville

### Water Source Overview

Major sources include the Rivanna River, groundwater wells, Ragged Mountain Reservoir, and Sugar Hollow Reservoir.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Albemarle County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 4.724 | 8.016 |
| Small Self-Supplied Users (under 300,000 gal/month) | 3.236 | 3.965 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.607 | 0.607 |

### Water Use by System Type

Approximately 39,953 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

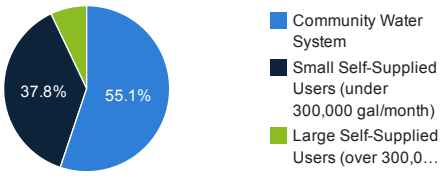



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

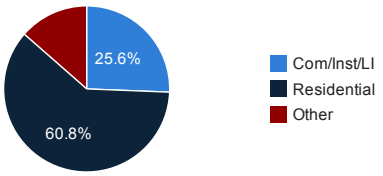



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Albemarle County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 3.41 | 5.16 | 4.14 | 8.45 |

***Figure 3:** Albemarle County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. A deficit of 0.41 MGD is estimated by 2035 in the urban areas. A two-phase expansion of the existing Ragged Mountain Reservoir is planned to meet the demand.

***Table 3:** Albemarle County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 98,970 | 115,642 | 134,196 | 154,814 | 57.1% |

***Figure 4:** Albemarle County population projections by decade for 2010, 2020, 2030 & 2040

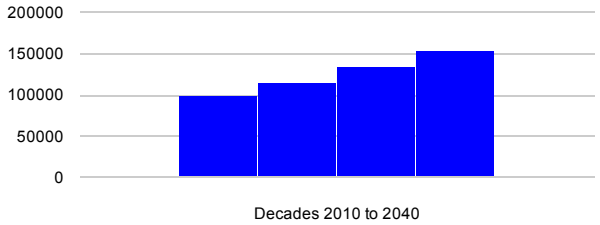
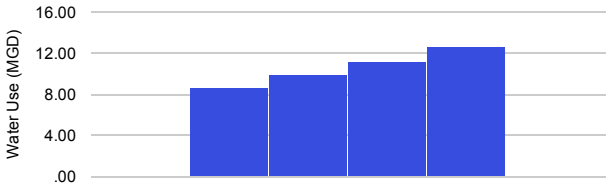



***Table 4 & Figure 5:** Albemarle County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 8.57 | 9.91 | 11.25 | 12.59 | 46.9% |




### Drought Management Practices

Albemarle County and the City of Charlottesville adopted ordinances to implement and enforce the Drought Response and Contingency Plans. The Town of Scottsville is covered by the County's ordinance. [Charlottesville, Albemarle County, and the Town of Scottsville Regional WSP].

City of Alexandria

### Water Source Overview

The major water source is purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Alexandria in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 16.710 | 21.301 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

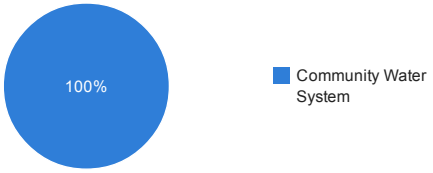



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

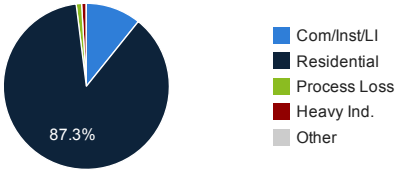



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Alexandria in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.00 | 16.71 | 0.00 | 21.30 |

***Figure 3:** Alexandria highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Alexandria population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 139,966 | 145,116 | 147,706 | 149,195 | 7.2% |

***Figure 4:** Alexandria population projections by decade for 2010, 2020, 2030 & 2040

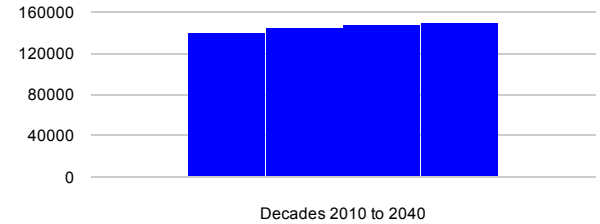
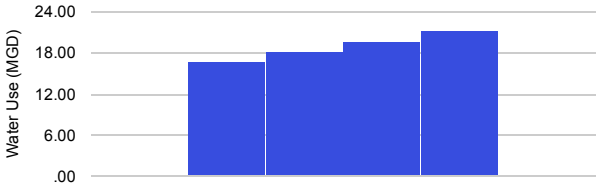



***Table 4 & Figure 5:** Alexandria water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 16.71 | 18.24 | 19.77 | 21.30 | 27.5% |




### Drought Management Practices

The City follows the drought declarations of the Metropolitan Washington Water Supply and Drought Awareness Plan, which is complimentary to the Low Flow Allocation Agreement and the Water Supply Coordination Agreement. [Northern Virginia Regional WSP]

Alleghany County and the Towns of Clifton Forge and Iron Gate

### Water Source Overview

Major sources include the Smith Creek Reservoirs, groundwater wells, and purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Alleghany County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 2.511 | 2.439 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.175 | 0.183 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.281 | 0.281 |

### Water Use by System Type

Approximately 4,054 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

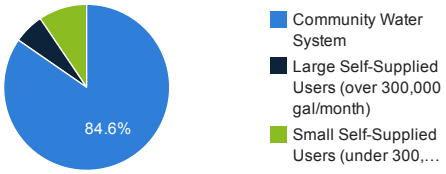



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

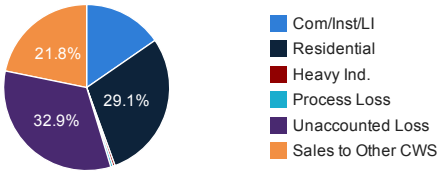



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Alleghany County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.46 | 2.51 | 0.46 | 2.44 |

***Figure 3:** Alleghany County highlighted in the Commonwealth of Virginia

### Projected Water Demand

No increase in population or demand is projected through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Alleghany County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 16,250 | 15,742 | 15,394 | 15,121 | -6.3% |

***Figure 4:** Alleghany County population projections by decade for 2010, 2020, 2030 & 2040

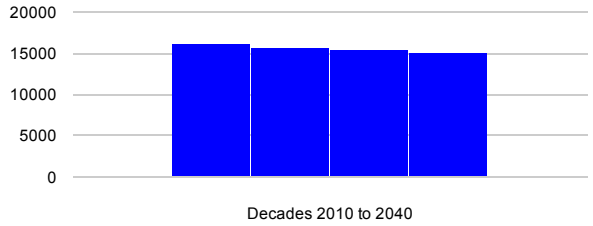
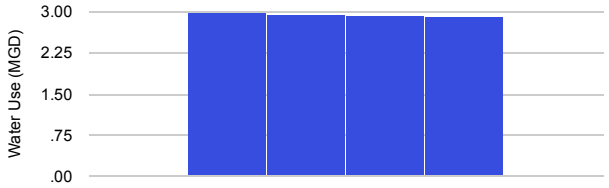



***Table 4 & Figure 5:** Alleghany County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 2.97 | 2.95 | 2.92 | 2.90 | -2.1% |




### Drought Management Practices

The County and Towns adopted ordinances for the implementation and enforcement of the regional Drought Response and Contingency Plan. [Upper James Regional WSP]

Amelia County

### Water Source Overview

Major sources are groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Amelia County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Agricultural Self-Supplied Users | 0.037 | 0.037 |
| Community Water System | 0.104 | 0.176 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.984 | 1.863 |

### Water Use by System Type

Approximately 9,586 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

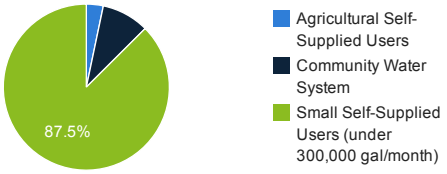



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

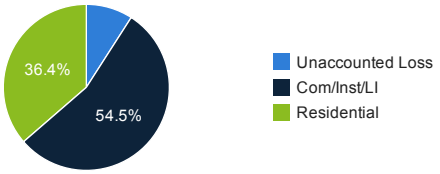
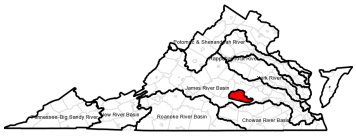



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Amelia County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.10 | 0.03 | 2.05 | 0.03 |

***Figure 3:** Amelia County highlighted in the Commonwealth of Virginia



### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Amelia County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 12,690 | 13,413 | 13,968 | 14,449 | 16.7% |

***Figure 4:** Amelia County population projections by decade for 2010, 2020, 2030 & 2040

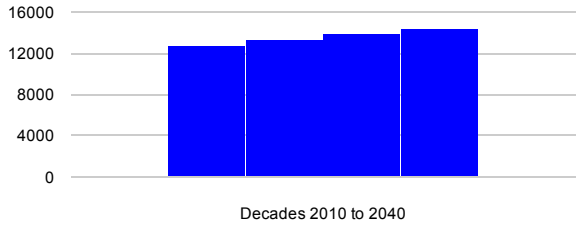
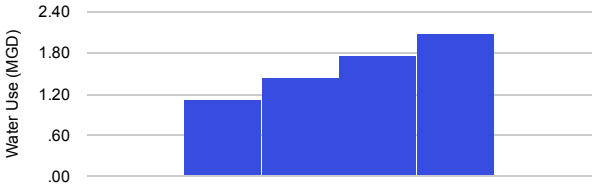



***Table 4 & Figure 5:** Amelia County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 1.12 | 1.44 | 1.76 | 2.08 | 84.7% |




### Drought Management Practices

Amelia County adopted a Drought Response and Contingency Plan and retains the right to adopt a local emergency ordinance for enforcement during a drought emergency. [Amelia County WSP]

Amherst County and the Town of Amherst

### Water Source Overview

Major sources include the James River, Harris Creek, Graham Creek Reservoir, and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Amherst County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 1.720 | 3.239 |
| Large Self-Supplied Users (over 300,000 gal/month) | 6.506 | 23.980 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.034 | 3.810 |
| Agricultural Self-Supplied Users | 0.138 | 0.138 |

### Water Use by System Type

Approximately 13,744 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

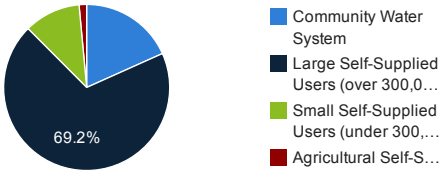



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

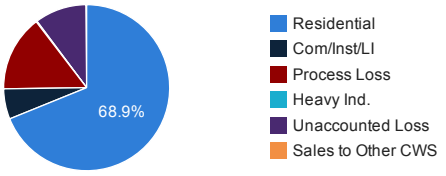



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Amherst County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.14 | 8.26 | 3.95 | 27.22 |

***Figure 3:** Amherst County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. The County may experience a deficit of 0.019 MGD in 2019. To meet future demands, the County plans an expansion of the Lanum Water Filtration Plant and is considering the replacement of interconnecting mains with the City of Lynchburg.

***Table 3:** Amherst County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 32,353 | 33,353 | 34,386 | 35,340 | 9.4% |

***Figure 4:** Amherst County population projections by decade for 2010, 2020, 2030 & 2040

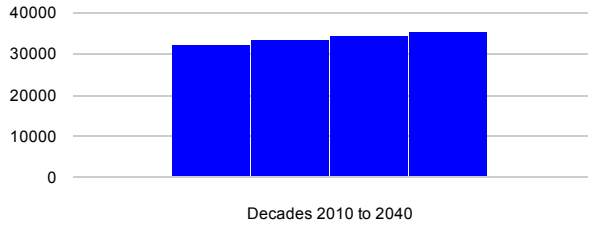
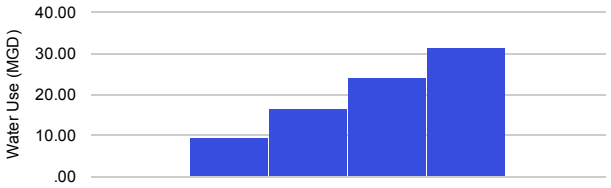



***Table 4 & Figure 5:** Amherst County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 9.40 | 16.65 | 23.91 | 31.17 | 231.6% |




### Drought Management Practices

The County and Town adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. [Region 2000 Regional WSP]

Appomattox County and Towns of Appomattox and Pamplin

### Water Source Overview

Major sources are groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Appomattox County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.239 | 0.290 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.880 | 0.880 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.026 | 0.031 |
| Agricultural Self-Supplied Users | 0.169 | 0.169 |

### Water Use by System Type

Approximately 11,725 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

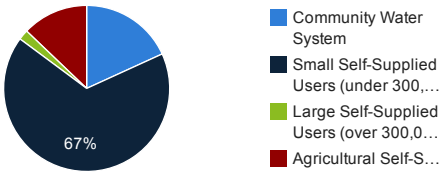



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

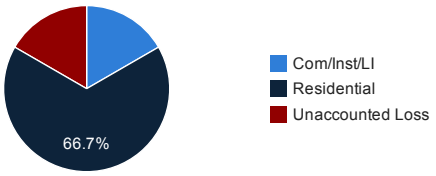



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Appomattox County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.22 | 0.09 | 1.28 | 0.10 |

***Figure 3:** Appomattox County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through 2040. The existing water sources for the County and the Towns are expected to meet projected demands through the planning period.

***Table 3:** Appomattox County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 14,973 | 15,833 | 16,551 | 17,191 | 21.4% |

***Figure 4:** Appomattox County population projections by decade for 2010, 2020, 2030 & 2040

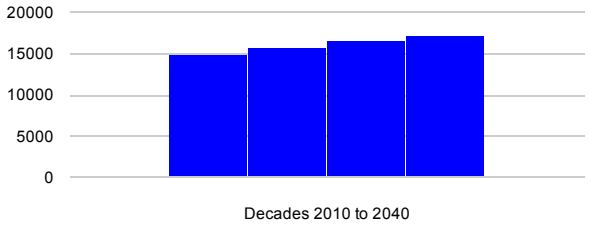
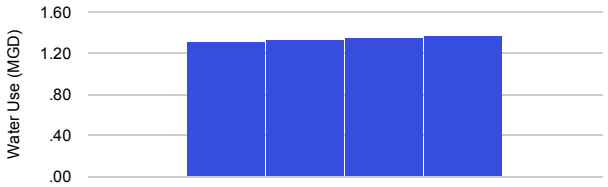



***Table 4 & Figure 5:** Appomattox County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 1.31 | 1.33 | 1.35 | 1.37 | 4.3% |




### Drought Management Practices

The County and Towns adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. [Region 2000 Regional WSP]

Arlington County

### Water Source Overview

The major source is purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Arlington County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Large Self-Supplied Users (over 300,000 gal/month) | 0.003 | 0.004 |
| Community Water System | 24.914 | 28.502 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

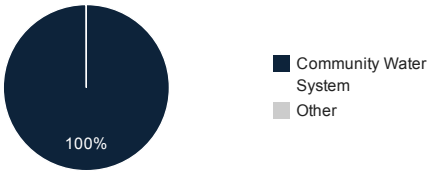



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

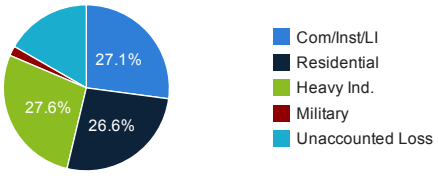



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Arlington County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.00 | 24.92 | 0.00 | 28.51 |

***Figure 3:** Arlington County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to decrease while demands are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Arlington County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 207,627 | 206,896 | 201,699 | 197,065 | -4.8% |

***Figure 4:** Arlington County population projections by decade for 2010, 2020, 2030 & 2040

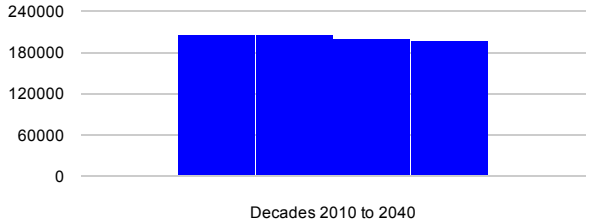
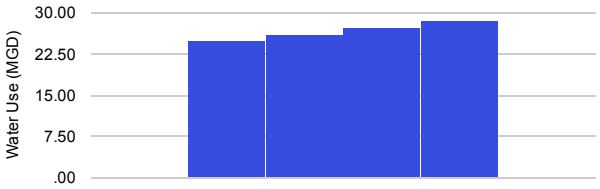



***Table 4 & Figure 5:** Arlington County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 24.92 | 26.11 | 27.31 | 28.51 | 14.4% |




### Drought Management Practices

Arlington County adopted a Drought Awareness and Response Plan and a water conservation ordinance for the implementation and enforcement of drought response. [Northern Virginia Regional WSP]

Augusta County and Town of Craigsville

### Water Source Overview

Major sources include groundwater wells, purchased water, and the Coles Run Reservoir.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Augusta County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 4.368 | 7.864 |
| Large Self-Supplied Users (over 300,000 gal/month) | 1.362 | 1.362 |
| Small Self-Supplied Users (under 300,000 gal/month) | 2.887 | 3.190 |
| Agricultural Self-Supplied Users | 0.617 | 0.793 |

### Water Use by System Type

Approximately 38,497 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

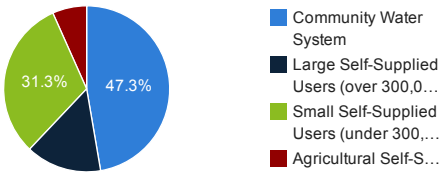



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

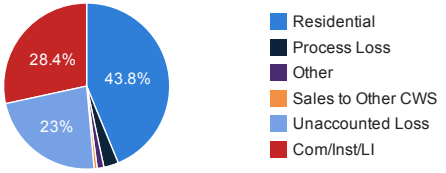



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Augusta County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 5.15 | 4.08 | 6.00 | 7.21 |

***Figure 3:** Augusta County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Augusta County is predicted to have a water supply deficit of 0.83 MGD by 2027. Possible alternatives include development of new wells and treatment facilities; plant upgrades; development of new stream intakes, pump stations, and pipelines; development of purchase water agreements; and inter-jurisdictional collaboration on new infrastructure projects.

***Table 3:** Augusta County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 73,750 | 80,655 | 87,580 | 94,713 | 28.8% |

***Figure 4:** Augusta County population projections by decade for 2010, 2020, 2030 & 2040

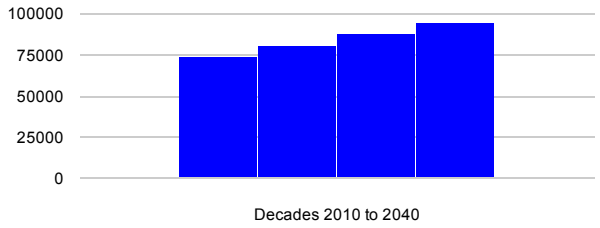
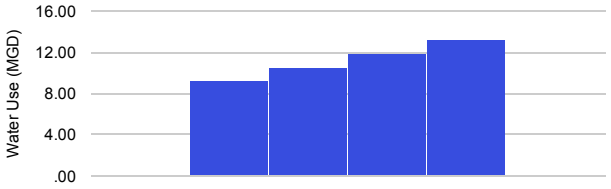



***Table 4 & Figure 5:** Augusta County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 9.23 | 10.56 | 11.88 | 13.21 | 43.0% |




### Drought Management Practices

Augusta County and the Town adopted ordinances implementing the Drought Response and Contingency Plan. [Upper Shenandoah Regional WSP]

Bath County

### Water Source Overview

Major sources include groundwater wells, springs, and Back Creek.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Bath County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 1.195 | 1.101 |
| Large Self-Supplied Users (over 300,000 gal/month) | 1.246 | 1.138 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.171 | 0.171 |
| Agricultural Self-Supplied Users | 11.916 | 11.916 |

### Water Use by System Type

Approximately 2,280 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

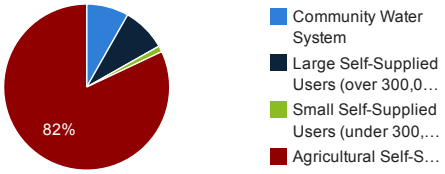



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

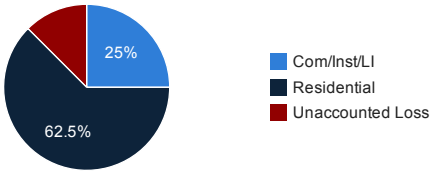



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Bath County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.08 | 13.44 | 1.01 | 13.32 |

***Figure 3:** Bath County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to increase slightly through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Bath County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 4,731 | 4,714 | 4,760 | 4,816 | 0.0% |

***Figure 4:** Bath County population projections by decade for 2010, 2020, 2030 & 2040

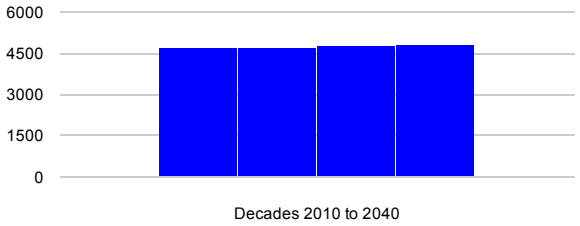
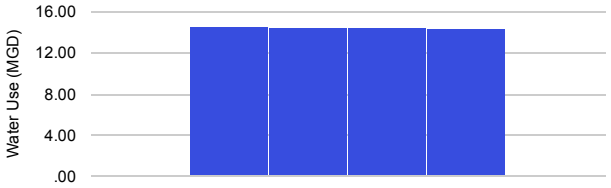



***Table 4 & Figure 5:** Bath County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 14.53 | 14.46 | 14.39 | 14.33 | -1.4% |




### Drought Management Practices

The County adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. [Upper James River Basin Regional WSP]

Bedford County and the Town of Bedford

### Water Source Overview

Major sources include the James River, groundwater wells, and purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Bedford County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 3.115 | 4.568 |
| Large Self-Supplied Users (over 300,000 gal/month) | 9.547 | 14.591 |
| Small Self-Supplied Users (under 300,000 gal/month) | 2.934 | 4.484 |
| Agricultural Self-Supplied Users | 1.505 | 1.505 |

### Water Use by System Type

Approximately 38,636 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

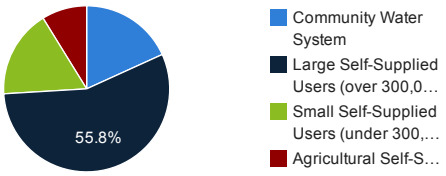



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

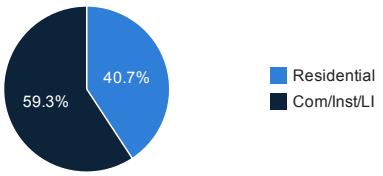



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Bedford County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 8.13 | 8.97 | 11.99 | 13.16 |

***Figure 3:** Bedford County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Bedford County may experience a deficit of 0.004 MGD by 2015. Alternative water sources include the Lakes Regional Water Treatment Plant (Smith Mountain Lake) and an increased purchase from the City of Lynchburg.

***Table 3:** Bedford County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 74,898 | 83,882 | 93,426 | 103,502 | 39.2% |

***Figure 4:** Bedford County population projections by decade for 2010, 2020, 2030 & 2040

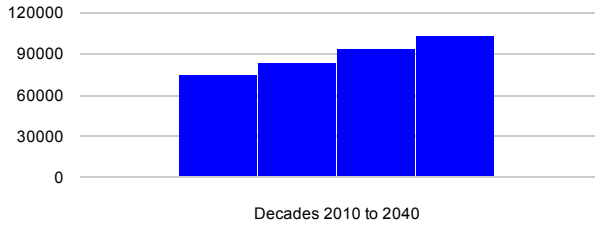
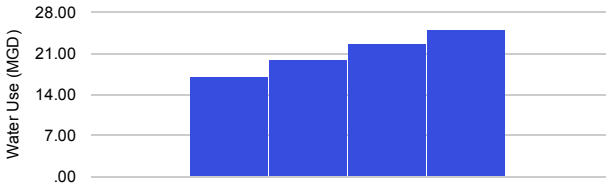



***Table 4 & Figure 5:** Bedford County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 17.10 | 19.78 | 22.47 | 25.15 | 47.1% |




### Drought Management Practices

The County and Town adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. [Region 2000 Regional WSP and the Roanoke Valley Alleghany Regional Commission Regional WSP]

Bland County

### Water Source Overview

Major water sources include groundwater wells, Kimberling Creek, and purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Bland County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Agricultural Self-Supplied Users | 0.323 | 0.323 |
| Community Water System | 0.260 | 0.260 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.132 | 0.132 |

### Water Use by System Type

Approximately 1,551 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

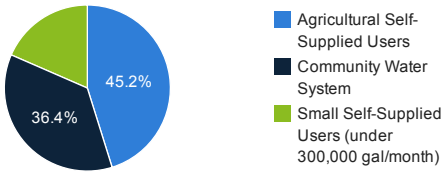



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

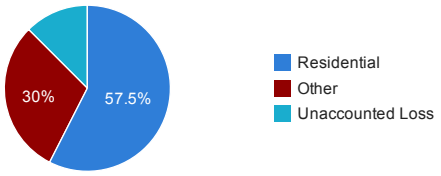



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Bland County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.44 | 0.27 | 0.44 | 0.27 |

***Figure 3:** Bland County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Bland County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 6,824 | 7,001 | 7,212 | 7,415 | 16.7% |

***Figure 4:** Bland County population projections by decade for 2010, 2020, 2030 & 2040

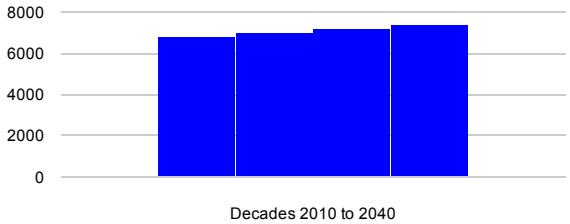



***Table 4 & Figure 5:** Bland County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 0.72 | 0.72 | 0.72 | 0.72 | 0.0% |

### Drought Management Practices

The County adopted an ordinance to implement and enforce the Drought Response and Contingency Plan. [Southwest Virginia Regional WSP]

Botetourt County and the Towns of Buchanan, Fincastle, and Troutville

### Water Source Overview

Major sources are groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Botetourt County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 1.626 | 2.453 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.077 | 0.136 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.099 | 2.426 |
| Agricultural Self-Supplied Users | 0.559 | 0.559 |

### Water Use by System Type

Approximately 14,643 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

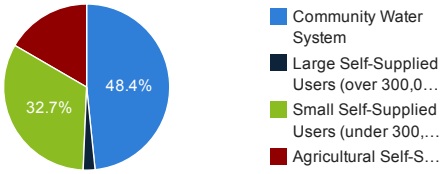



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

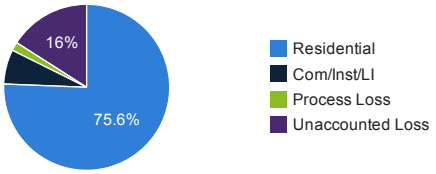



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Botetourt County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 2.99 | 0.38 | 5.13 | 0.44 |

***Figure 3:** Botetourt County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. The County anticipates a water supply deficit of 0.09 MGD by 2020. The County will likely development new groundwater sources to address water supply deficits.

***Table 3:** Botetourt County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 33,148 | 35,235 | 37,121 | 38,885 | 15.2% |

***Figure 4:** Botetourt County population projections by decade for 2010, 2020, 2030 & 2040

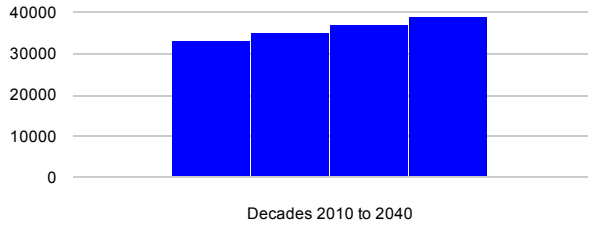
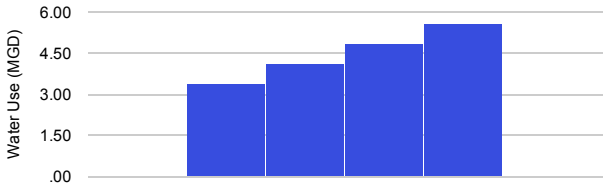



***Table 4 & Figure 5:** Botetourt County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 3.36 | 4.10 | 4.84 | 5.57 | 65.8% |




### Drought Management Practices

The County and Towns adopted ordinancea to implement and enforce the Drought Response and Contingency Plan. [Roanoke Valley Alleghany Regional Commission WSP]

City of Bristol

### Water Source Overview

Major sources include South Holston Lake and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Bristol in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Small Self-Supplied Users (under 300,000 gal/month) | 0.002 | 0.002 |
| Community Water System | 3.640 | 3.640 |

### Water Use by System Type

Approximately 20 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

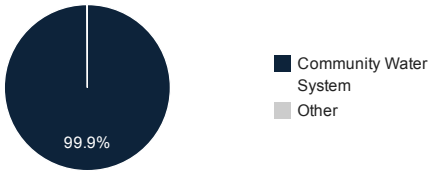



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

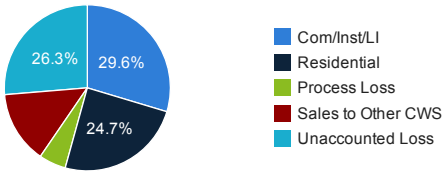



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Bristol in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.00 | 3.64 | 0.00 | 3.64 |

***Figure 3:** Bristol highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Bristol population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 17,835 | 18,746 | 19,645 | 20,431 | 17.6% |

***Figure 4:** Bristol population projections by decade for 2010, 2020, 2030 & 2040

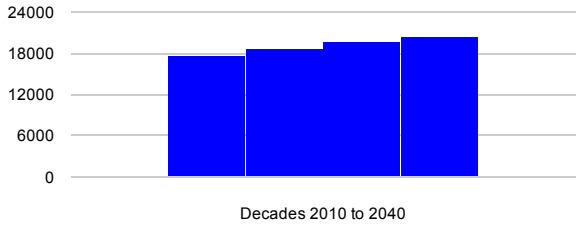
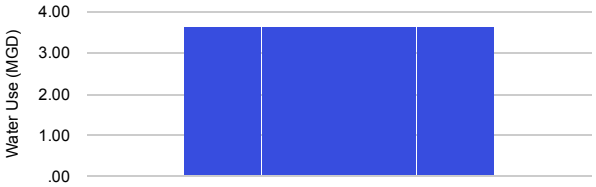



***Table 4 & Figure 5:** Bristol water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 3.64 | 3.64 | 3.64 | 3.64 | -0.0% |




### Drought Management Practices

The City adopted an ordinance to implement and enforce the Drought Response and Contingency Plan. [Southwest Virginia Regional WSP]

Brunswick County and the towns of Alberta, Brodnax, and Lawrenceville

### Water Source Overview

Major sources include groundwater wells, Great Creek, and purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Brunswick County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.812 | 0.829 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.010 | 1.035 |
| Large Self-Supplied Users (over 300,000 gal/month) | 2.044 | 2.092 |

### Water Use by System Type

Approximately 11,934 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

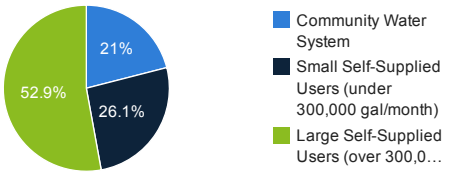



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

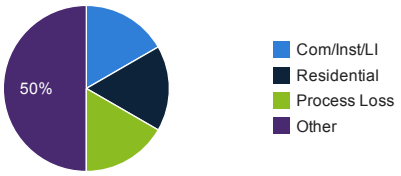
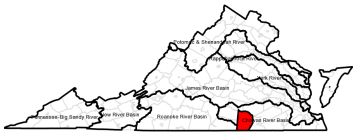



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Brunswick County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 3.08 | 0.79 | 3.15 | 0.80 |

***Figure 3:** Brunswick County highlighted in the Commonwealth of Virginia



### Projected Water Demand

Demands are projected to increase slightly through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Brunswick County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 17,434 | 17,191 | 17,137 | 17,129 | 0.0% |

***Figure 4:** Brunswick County population projections by decade for 2010, 2020, 2030 & 2040

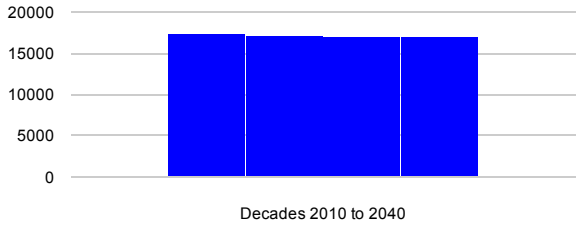
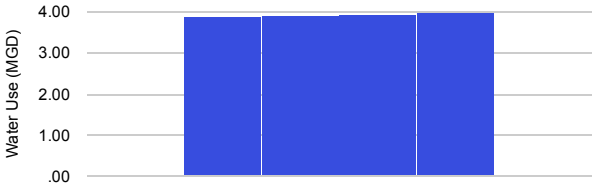



***Table 4 & Figure 5:** Brunswick County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 3.87 | 3.90 | 3.93 | 3.96 | 2.3% |




### Drought Management Practices

The County and the towns adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. [Lake Country Regional WSP]

Buchanan County and the Town of Grundy

### Water Source Overview

Major water sources include purchased water, the Dismal River, and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Buchanan County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 3.578 | 0.000 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.864 | 0.864 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.520 | 0.010 |

### Water Use by System Type

Approximately 7,703 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

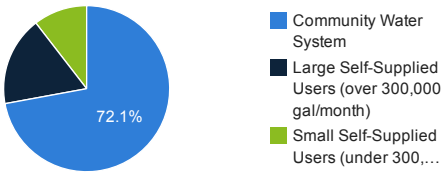



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

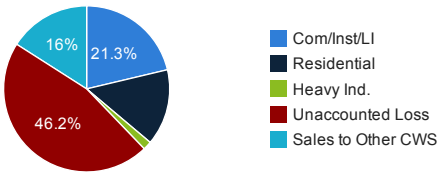



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Buchanan County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 4.13 | 0.83 | 3.62 | 0.83 |

***Figure 3:** Buchanan County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to decrease through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Buchanan County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 24,098 | 23,383 | 23,263 | 23,296 | -4.2% |

***Figure 4:** Buchanan County population projections by decade for 2010, 2020, 2030 & 2040

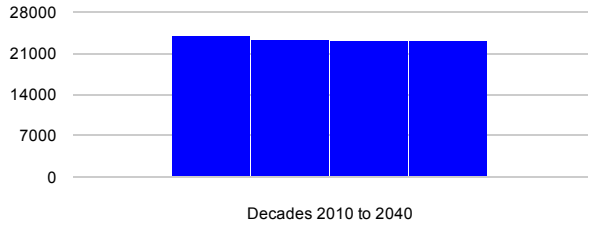
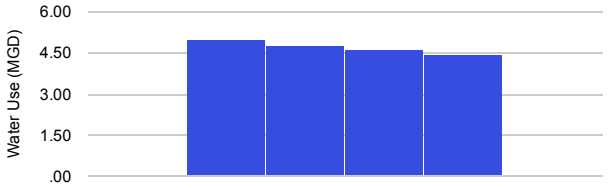



***Table 4 & Figure 5:** Buchanan County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 4.96 | 4.79 | 4.62 | 4.45 | -10.3% |




### Drought Management Practices

The County and Town adopted ordinances to implement and enforce the Drought Response and Contingency Plan. [Southwest Regional WSP]

Buckingham County and the Town of Dillwyn

### Water Source Overview

Major sources include the James River, Troublesome Creek Reservoir, and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Buckingham County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.311 | 0.638 |
| Large Self-Supplied Users (over 300,000 gal/month) | 3.202 | 6.928 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.722 | 0.862 |
| Agricultural Self-Supplied Users | 0.020 | 0.020 |

### Water Use by System Type

Approximately 9,762 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

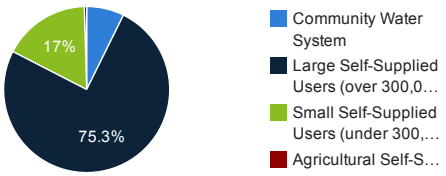



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

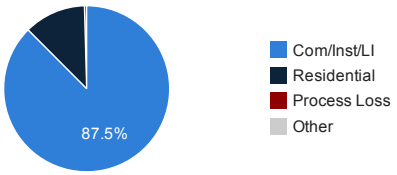



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Buckingham County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.74 | 3.51 | 0.88 | 7.57 |

***Figure 3:** Buckingham County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Buckingham County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 17,146 | 17,761 | 18,131 | 18,419 | 5.9% |

***Figure 4:** Buckingham County population projections by decade for 2010, 2020, 2030 & 2040

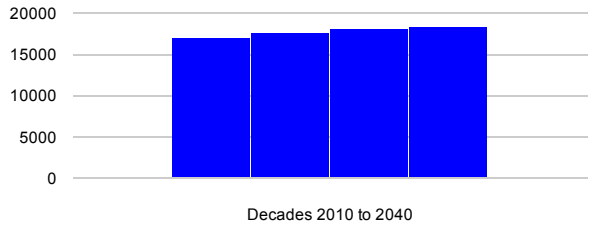
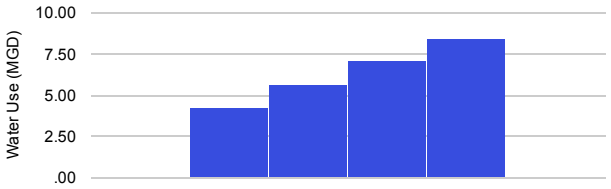



***Table 4 & Figure 5:** Buckingham County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 4.25 | 5.65 | 7.05 | 8.45 | 98.6% |




### Drought Management Practices

The County adopted an ordinance for implementation and enforcement of the Drought Response and Contingency Plan. [Buckingham County and Town of Dillwyn WSP]

City of Buena Vista

### Water Source Overview

Major sources include groundwater wells, the Maury River, and springs.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Buena Vista in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 1.030 | 1.030 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.327 | 0.327 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.004 | 0.004 |

### Water Use by System Type

Approximately 36 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

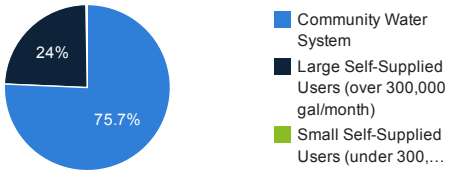



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

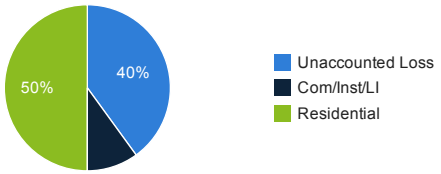



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Buena Vista in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.10 | 0.26 | 1.10 | 0.26 |

***Figure 3:** Buena Vista highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Buena Vista population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 6,650 | 7,149 | 7,655 | 8,128 | 33.3% |

***Figure 4:** Buena Vista population projections by decade for 2010, 2020, 2030 & 2040

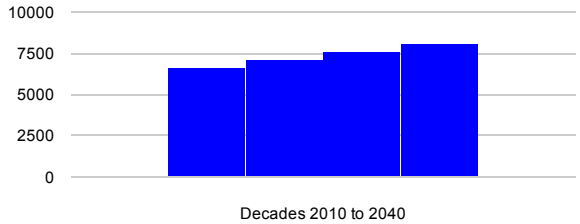



***Table 4 & Figure 5:** Buena Vista water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 1.36 | 1.36 | 1.36 | 1.36 | 0.0% |

### Drought Management Practices

The City adopted an ordinance for implementation and enforcement of the Drought Response and Contingency Plan. [Upper James River Basin Regional WSP]

Campbell County and the Towns of Altavista and Brookneal

### Water Source Overview

Major sources include Big Otter River, groundwater wells, and the Roanoke River.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Campbell County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 4.223 | 5.235 |
| Large Self-Supplied Users (over 300,000 gal/month) | 1.105 | 2.136 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.932 | 3.765 |
| Agricultural Self-Supplied Users | 0.319 | 0.319 |

### Water Use by System Type

Approximately 25,176 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

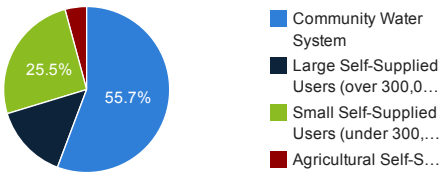



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Campbell County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 2.65 | 4.93 | 4.79 | 6.67 |

***Figure 3:** Campbell County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period of 2040.

***Table 3:** Campbell County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 54,842 | 57,834 | 60,459 | 62,825 | 14.8% |

***Figure 4:** Campbell County population projections by decade for 2010, 2020, 2030 & 2040

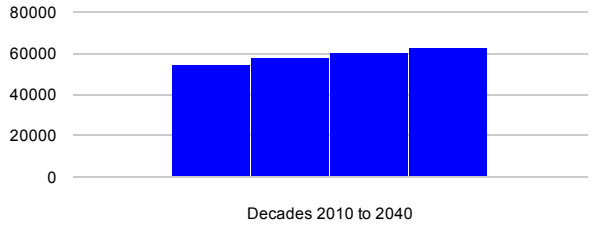
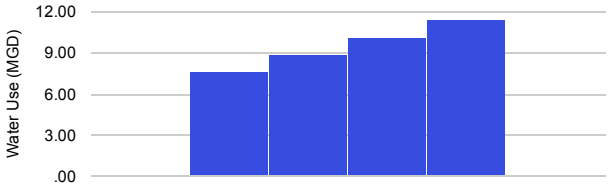



***Table 4 & Figure 5:** Campbell County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 7.58 | 8.87 | 10.16 | 11.46 | 51.1% |




### Drought Management Practices

The County and Towns adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. [Region 2000 WSP]

Caroline County and the Towns of Bowling Green and Port Royal

### Water Source Overview

Major water sources include groundwater wells, the Rappahannock River, the Pamunkey River, and Lake Caroline.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Caroline County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 1.180 | 2.834 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.251 | 0.456 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.088 | 1.196 |
| Agricultural Self-Supplied Users | 1.660 | 2.236 |

### Water Use by System Type

Approximately 11,290 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

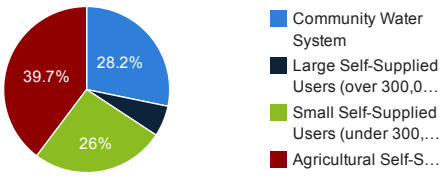



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

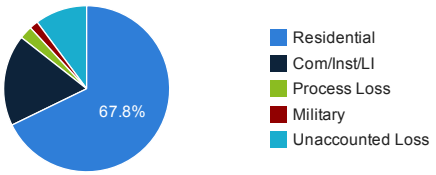



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Caroline County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 2.34 | 1.84 | 4.27 | 2.46 |

***Figure 3:** Caroline County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. The County and Town of Bowling Green may experience a combined average daily deficit of 0.256 MGD by the year 2030. Alternative water supply sources listed in the plan include groundwater development, interconnection with other localities, and an intake on the Rappahannock River. For the Town of Port Royal, average annual demand can be met through the planning period; however, there are concerns over meeting peak demand as early as 2030. Peak demand is estimated at 0.049 MGD in 2030. Alternatives presented include improvements to existing wells, a cooperative agreement with Caroline County to increase the town's customer base, or taking over the operation of two small community water supplies outside of the town limits to increase their customer base.

***Table 3:** Caroline County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 28,545 | 31,400 | 33,447 | 35,259 | 25.0% |

***Figure 4:** Caroline County population projections by decade for 2010, 2020, 2030 & 2040

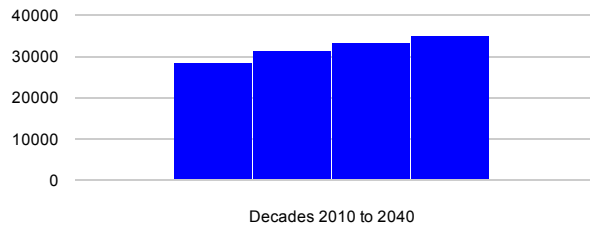
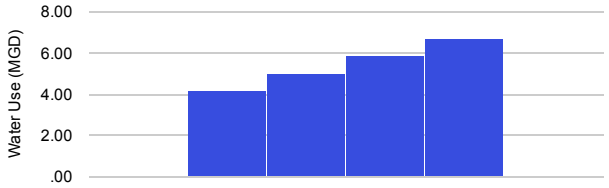



***Table 4 & Figure 5:** Caroline County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 4.18 | 5.03 | 5.87 | 6.72 | 60.9% |




### Drought Management Practices

The Town of Bowling Green adopted an ordinance to enforce drought emergency measures. Caroline County adopted an ordinance to enforce emergency restrictions due to water shortage or other cause. The Town of Port Royal will adopt an emergency ordinance to enforce the Drought Response and Contingency Plan. [Caroline County and Town of Bowling Green Regional Water Supply Plan; Town of Port Royal Local Water Supply Plan]

Carroll County and the Town of Hillsville

### Water Source Overview

Major sources include groundwater wells and Little Reed Island Creek.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Carroll County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.842 | 0.842 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.293 | 1.293 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.045 | 0.045 |
| Agricultural Self-Supplied Users | 1.140 | 1.140 |

### Water Use by System Type

Approximately 16,668 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

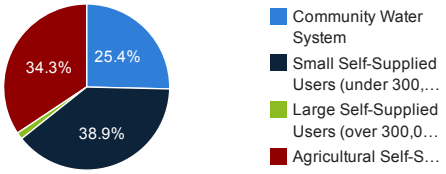



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

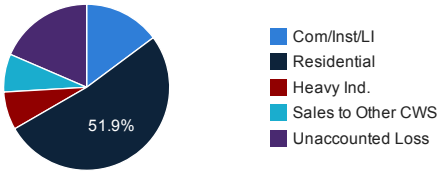



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Carroll County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 2.45 | 0.87 | 2.45 | 0.87 |

***Figure 3:** Carroll County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Carroll County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 30,042 | 30,514 | 30,877 | 31,187 | 3.3% |

***Figure 4:** Carroll County population projections by decade for 2010, 2020, 2030 & 2040

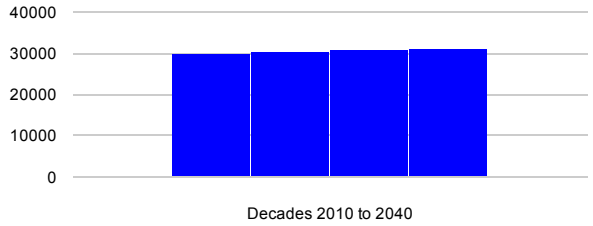
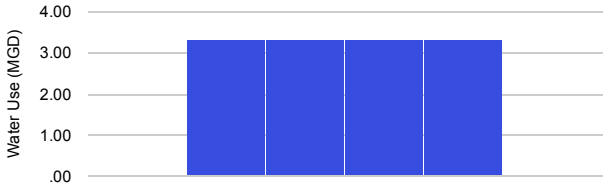



***Table 4 & Figure 5:** Carroll County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 3.32 | 3.32 | 3.32 | 3.32 | 0.0% |




### Drought Management Practices

The County and Town adopted ordinances for implementation and enforcement of the Drought Response and Contingency Plan. [Southwest Virginia Regional WSP]

Charles City County

## Water Source Overview

Major water sources include groundwater wells and the James River.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Charles City County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.081 | 2.310 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.039 | 0.039 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.162 | 1.414 |
| Agricultural Self-Supplied Users | 0.357 | 0.357 |

## Water Use by System Type

Approximately 6,326 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

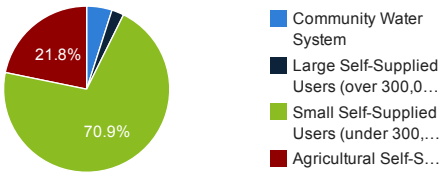



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

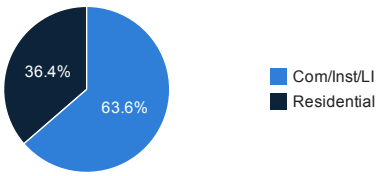



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Charles City County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.27 | 0.37 | 2.54 | 1.58 |

***Figure 3:** Charles City County highlighted in the Commonwealth of Virginia

## Projected Water Demand

Population and demand are projected to increase through the planning period. Demand is expected to exceed well capacity by 2040 in certain service areas. Additional groundwater sources are expected to meet demands in neighborhood service areas. Deficits in planned industrial areas (with no current source) may be met with interconnection to adjacent localities.

***Table 3:** Charles City County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 7,256 | 7,811 | 8,376 | 8,905 | 14.3% |

***Figure 4:** Charles City County population projections by decade for 2010, 2020, 2030 & 2040

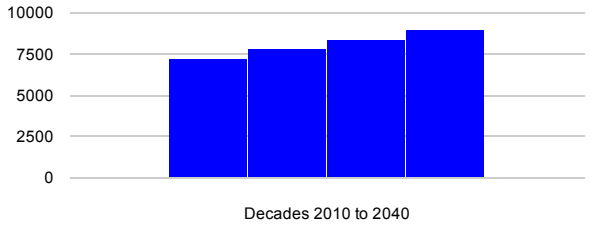
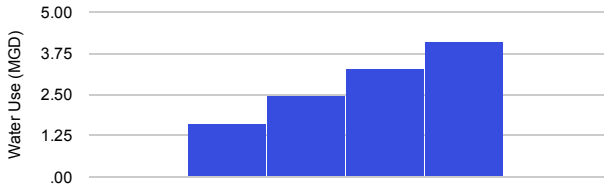



***Table 4 & Figure 5:** Charles City County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 1.64 | 2.47 | 3.29 | 4.12 | 151.3% |




## Drought Management Practices

Enforcement of the Drought Response and Contingency Plan will be through an emergency ordinance. (Charles City County 2013 Water Supply Management Plan)

Charlotte County Towns of Charlotte Court House, Drakes Branch, Keysville, and Phenix

### Water Source Overview

Major sources include groundwater wells and the Keysville Reservoir.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Charlotte County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Agricultural Self-Supplied Users | 2.096 | 2.096 |
| Community Water System | 0.271 | 0.798 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.071 | 1.083 |

### Water Use by System Type

Approximately 10,698 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

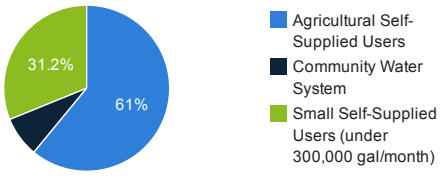



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

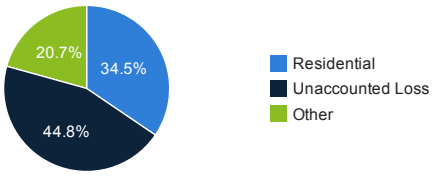



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Charlotte County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 2.26 | 1.18 | 2.49 | 1.49 |

***Figure 3:** Charlotte County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Future deficits in water supply through the planning period of 2040 may be anticipated as follows: Drakes Branch deficit of 0.153 MGD by 2020; Phenix deficit of 0.0002 MGD by 2010; Charlotte Court House deficit of 0.008 MGD by 2020. The water supply plan recommends several alternatives for meeting this additional demand in the future: clarification of the safe yield for Keysville Reservoir; development of additional groundwater supply in the towns of Drakes Branch, Charlotte Court House, and Phenix; development of a water treatment plan at the Drakes Branch Lake; and system interconnections between towns.

***Table 3:** Charlotte County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 12,586 | 12,523 | 12,427 | 12,332 | 0.0% |

***Figure 4:** Charlotte County population projections by decade for 2010, 2020, 2030 & 2040

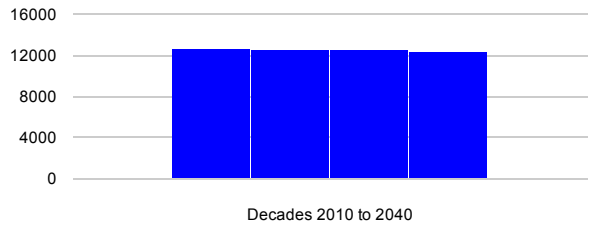
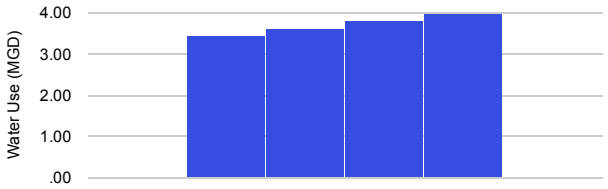



***Table 4 & Figure 5:** Charlotte County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 3.44 | 3.62 | 3.80 | 3.98 | 15.7% |




### Drought Management Practices

The Towns of Drakes Branch and Phenix have adopted ordinances to implement and enforce the Drought Response and Contingency Plan. The other localities will adopt an emergency ordinance should the need arise. [Charlotte County and Towns Regional WSP]

City of Charlottesville

### Water Source Overview

The major source is purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Charlottesville in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 4.991 | 6.278 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

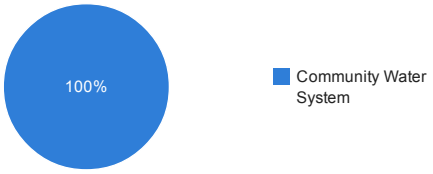



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

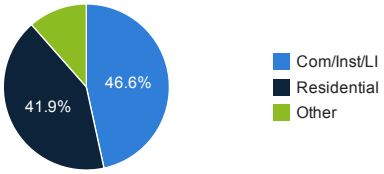



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Charlottesville in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.00 | 4.99 | 0.00 | 6.28 |

***Figure 3:** Charlottesville highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. A deficit of 0.41 MGD is estimated by 2035 in the urban areas. To increase supply, the plan is a two-phase expansion of the existing Ragged Mountain Reservoir.

***Table 3:** Charlottesville population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 43,475 | 45,636 | 47,252 | 48,545 | 11.6% |

***Figure 4:** Charlottesville population projections by decade for 2010, 2020, 2030 & 2040

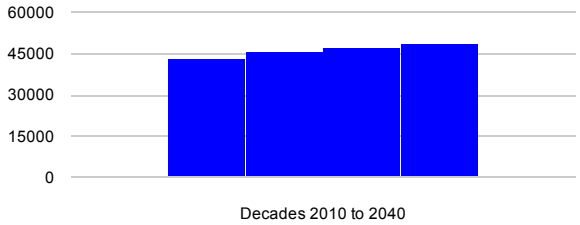
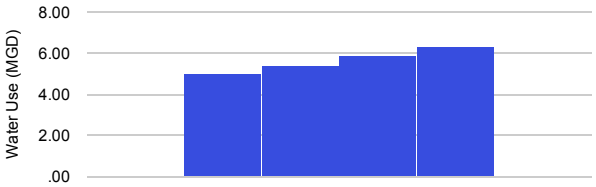



***Table 4 & Figure 5:** Charlottesville water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 4.99 | 5.42 | 5.85 | 6.28 | 25.8% |




### Drought Management Practices

The City adopted an ordinance for implementation and enforcement of the Drought Response and Contingency Plan. [Albemarle County, City of Charlottesville and Town of Scottsville Regional WSP]

City of Chesapeake

### Water Source Overview

Major sources in the City include purchased water, the Northwest River, groundwater wells, and the Elizabeth River.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Chesapeake in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 11.643 | 19.268 |
| Large Self-Supplied Users (over 300,000 gal/month) | 1.491 | 1.491 |
| Small Self-Supplied Users (under 300,000 gal/month) | 2.552 | 2.472 |
| Agricultural Self-Supplied Users | 0.285 | 0.471 |

### Water Use by System Type

Approximately 33,600 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

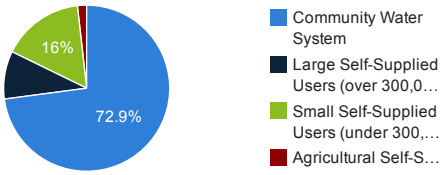



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

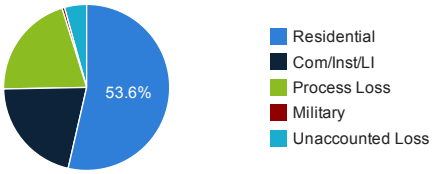



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Chesapeake in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 11.48 | 4.49 | 17.20 | 6.50 |

***Figure 3:** Chesapeake highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Chesapeake population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 222,209 | 253,813 | 285,153 | 318,488 | 43.2% |

***Figure 4:** Chesapeake population projections by decade for 2010, 2020, 2030 & 2040

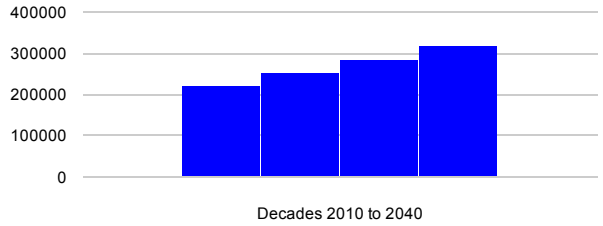
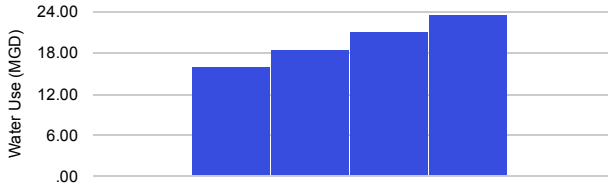



***Table 4 & Figure 5:** Chesapeake water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 15.97 | 18.55 | 21.12 | 23.70 | 48.4% |




### Drought Management Practices

The City adopted an ordinance for implementation and enforcement of the Drought Response and Contingency Plan. [Hampton Roads Regional WSP]

Chesterfield County

### Water Source Overview

Major water sources include the Lake Chesdin Reservoir, James River, Swift Creek Reservoir and purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Chesterfield County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 69.502 | 112.569 |
| Large Self-Supplied Users (over 300,000 gal/month) | 65.464 | 109.497 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.000 | 1.673 |
| Agricultural Self-Supplied Users | 0.082 | 0.137 |

### Water Use by System Type

Approximately 14,289 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

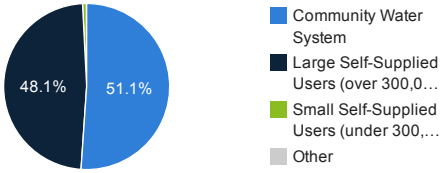



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

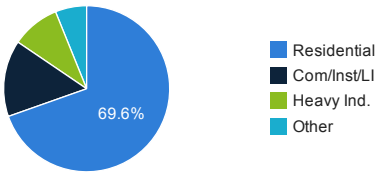



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Chesterfield County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 15.72 | 120.33 | 26.29 | 197.58 |

***Figure 3:** Chesterfield County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Chesterfield County anticipates a peak day deficit of 1.0 MGD by 2040 and the Appomattox River Water Authority (main supplier of water to Chesterfield County) anticipates a system wide deficit of 9.4 MGD by the year 2040. Possible alternatives recommended: increases in current water supply allocations and the development of additional supplies (groundwater sources, new intake on the Appomattox River, and a new surface water reservoir).

***Table 3:** Chesterfield County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 316,236 | 388,894 | 473,841 | 572,693 | 81.0% |

***Figure 4:** Chesterfield County population projections by decade for 2010, 2020, 2030 & 2040

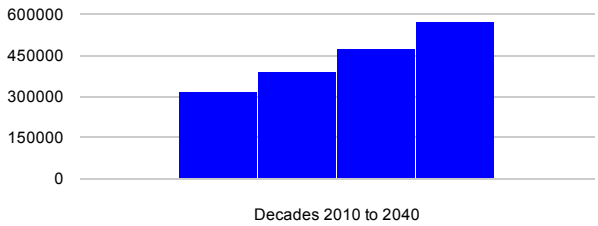
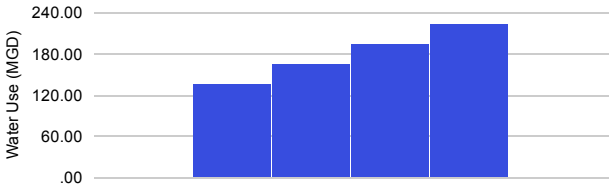



***Table 4 & Figure 5:** Chesterfield County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 136.05 | 165.32 | 194.60 | 223.88 | 64.6% |




### Drought Management Practices

The County adopted an ordinance for the implementation and enforcement of drought response. (Appomattox River Water Authority Regional WSP)

Clarke County and the Towns of Berryville and Boyce

### Water Source Overview

Major sources include the Shenandoah River, Prospect Hill Spring, and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Clarke County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.470 | 0.830 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.074 | 0.112 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.642 | 0.980 |
| Agricultural Self-Supplied Users | 0.121 | 0.121 |

### Water Use by System Type

Approximately 8,556 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

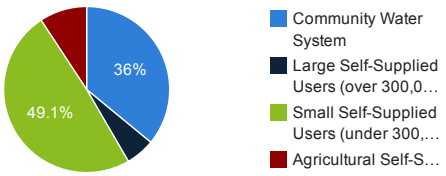



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Clarke County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.75 | 0.56 | 1.10 | 0.94 |

***Figure 3:** Clarke County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Clarke County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 14,034 | 15,025 | 15,871 | 16,631 | 14.3% |

***Figure 4:** Clarke County population projections by decade for 2010, 2020, 2030 & 2040

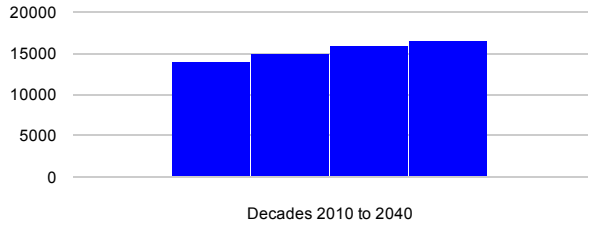
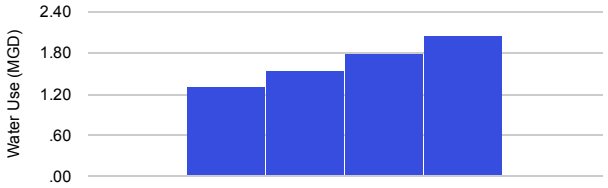



***Table 4 & Figure 5:** Clarke County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 1.31 | 1.55 | 1.80 | 2.04 | 56.4% |




### Drought Management Practices

The localities adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Northern Shenandoah Regional WSP)

Colonial Heights

### Water Source Overview

The major water source is purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Colonial Heights in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 2.110 | 2.462 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

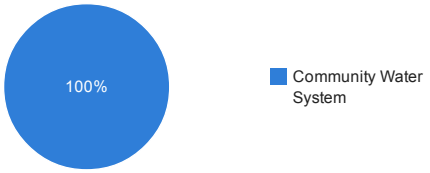



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Colonial Heights in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.00 | 2.11 | 0.00 | 2.46 |

***Figure 3:** Colonial Heights highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. The City anticipates a peak day deficit of 0.1 MGD by 2020 and the Appomattox River Water Authority (main supplier of water to the City of Colonial Heights) anticipates a system-wide deficit of 9.4 MGD by the year 2040. Possible alternatives listed in the water supply plan include: increases in current water supply allocations and the development of additional supplies (groundwater sources, new intake on the Appomattox River, and a new surface water reservoir).

***Table 3:** Colonial Heights population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 17,411 | 18,620 | 19,855 | 20,960 | 17.6% |

***Figure 4:** Colonial Heights population projections by decade for 2010, 2020, 2030 & 2040

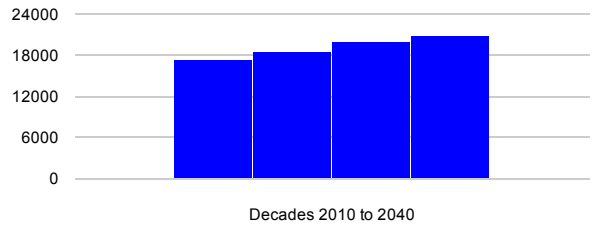
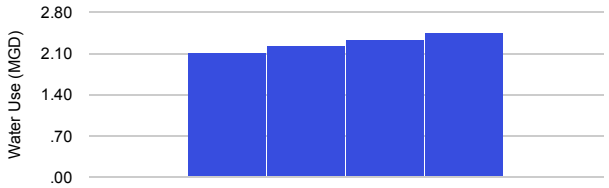



***Table 4 & Figure 5:** Colonial Heights water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 2.11 | 2.23 | 2.34 | 2.46 | 16.7% |




### Drought Management Practices

The city adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Appomattox River Water Authority and the City of Hopewell Regional WSP)

City of Covington

### Water Source Overview

Major sources include the Jackson River and Potts Creek.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Covington in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Large Self-Supplied Users (over 300,000 gal/month) | 40.138 | 39.248 |
| Community Water System | 2.140 | 2.068 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

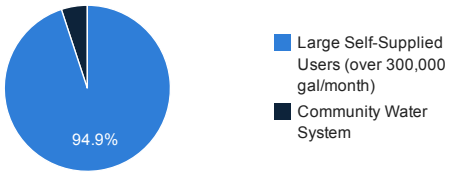



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

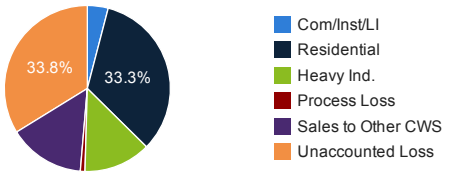



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Covington in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.32 | 40.96 | 1.29 | 40.03 |

***Figure 3:** Covington highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Covington population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 5,961 | 6,250 | 6,649 | 7,036 | 40.0% |

***Figure 4:** Covington population projections by decade for 2010, 2020, 2030 & 2040

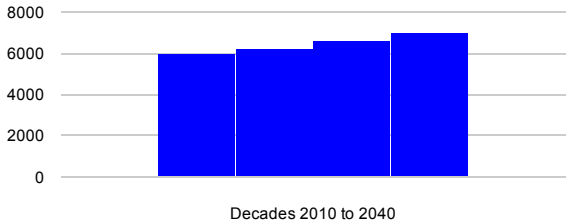
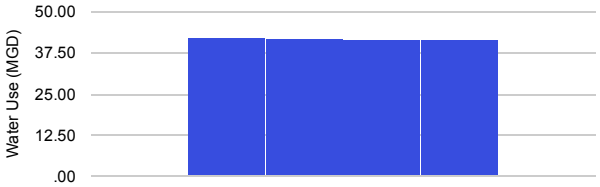



***Table 4 & Figure 5:** Covington water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 42.28 | 41.96 | 41.64 | 41.32 | -2.3% |




### Drought Management Practices

The City adopted an ordinance for implementation and enforcement of the Drought Response and Contingency Plan. (Upper James River Basin WSP)

Craig County and the Town of New Castle

### Water Source Overview

Major sources include Paint Bank Branch and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Craig County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Agricultural Self-Supplied Users | 2.336 | 2.336 |
| Community Water System | 0.075 | 0.120 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.327 | 0.327 |

### Water Use by System Type

Approximately 3,960 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

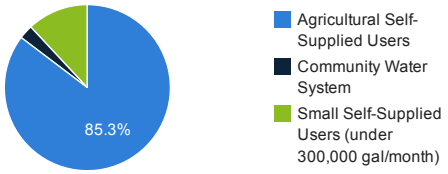



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

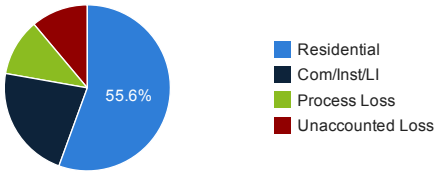



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Craig County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.40 | 2.34 | 0.45 | 2.34 |

***Figure 3:** Craig County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Craig County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 5,190 | 5,523 | 5,884 | 6,228 | 20.0% |

***Figure 4:** Craig County population projections by decade for 2010, 2020, 2030 & 2040

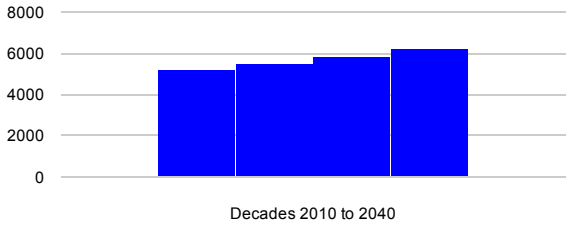
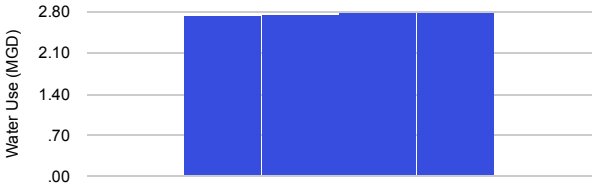



***Table 4 & Figure 5:** Craig County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 2.74 | 2.75 | 2.77 | 2.78 | 1.6% |




### Drought Management Practices

Both localities adopted an ordinance for the implementation and enforcement of the Craig-New Castle Drought Assessment and Response Plan. (Craig County and Town of Newcastle Regional WSP)

Culpeper County and the Town of Culpeper

### Water Source Overview

Major sources include Lake Pelham and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Culpeper County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Small Self-Supplied Users (under 300,000 gal/month) | 3.866 | 3.886 |
| Community Water System | 2.181 | 5.036 |

### Water Use by System Type

Approximately 32,050 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

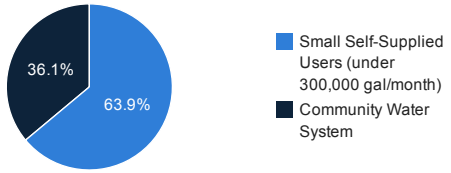



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

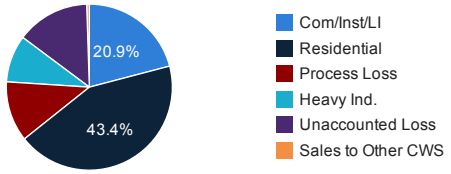



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Culpeper County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 4.09 | 1.96 | 4.29 | 4.63 |

***Figure 3:** Culpeper County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period of 2040. Existing water sources are expected to meet projected water demand.

***Table 3:** Culpeper County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 46,689 | 55,102 | 63,614 | 72,835 | 56.5% |

***Figure 4:** Culpeper County population projections by decade for 2010, 2020, 2030 & 2040

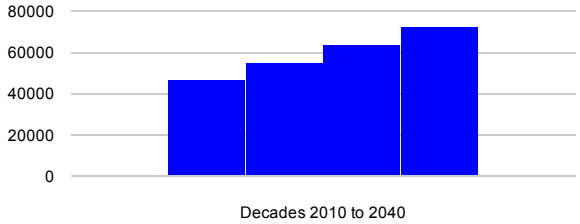
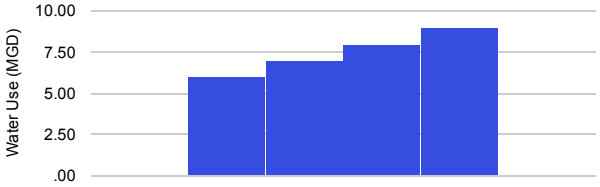



***Table 4 & Figure 5:** Culpeper County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 6.05 | 7.00 | 7.96 | 8.92 | 47.6% |




### Drought Management Practices

The County of Culpepper indicates that they will adopt an emergency ordinance to enforce the Drought Response and Contingency Plan. The Town of Culpeper intends to adopt an emergency ordinance to enforce the water conservation policy. (Culpeper County and Town Regional WSP)

Cumberland County

### Water Source Overview

Major sources are groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Cumberland County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.024 | 0.085 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.040 | 1.040 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.014 | 0.014 |
| Agricultural Self-Supplied Users | 0.520 | 0.520 |

### Water Use by System Type

Approximately 9,834 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

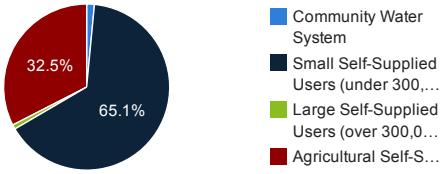



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

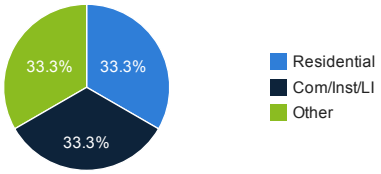



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Cumberland County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.07 | 0.53 | 1.13 | 0.53 |

***Figure 3:** Cumberland County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are estimated to meet projected demands.

***Table 3:** Cumberland County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 10,052 | 10,623 | 11,057 | 11,434 | 10.0% |

***Figure 4:** Cumberland County population projections by decade for 2010, 2020, 2030 & 2040

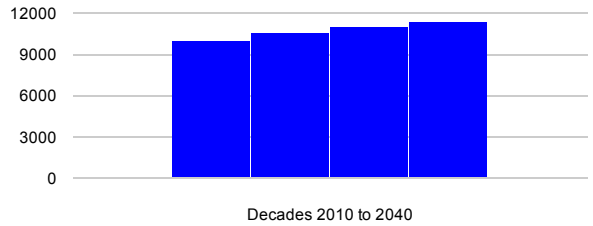
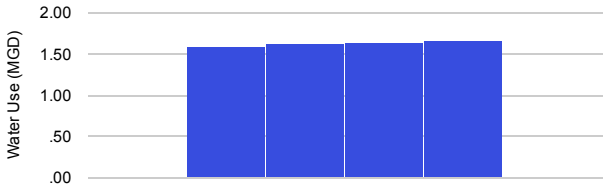



***Table 4 & Figure 5:** Cumberland County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 1.60 | 1.62 | 1.64 | 1.66 | 3.8% |




### Drought Management Practices

The County adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Henrico-Goochland-Powhatan-Cumberland Counties Regional WSP)

City of Danville

### Water Source Overview

Major water sources include the Dan River and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Danville in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 6.367 | 6.367 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.107 | 0.107 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.732 | 1.203 |

### Water Use by System Type

Approximately 1,423 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

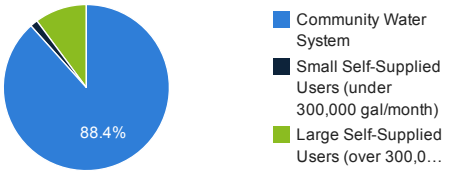



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

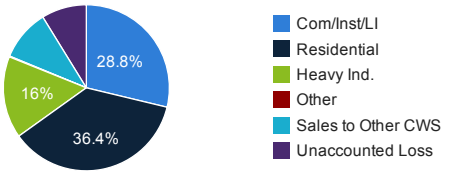
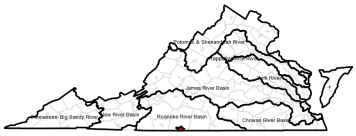



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Danville in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.11 | 7.10 | 0.11 | 7.57 |

***Figure 3:** Danville highlighted in the Commonwealth of Virginia



### Projected Water Demand

Population and demand are projected to increase slightly through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Danville population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 43,055 | 42,555 | 43,249 | 44,106 | 2.3% |

***Figure 4:** Danville population projections by decade for 2010, 2020, 2030 & 2040

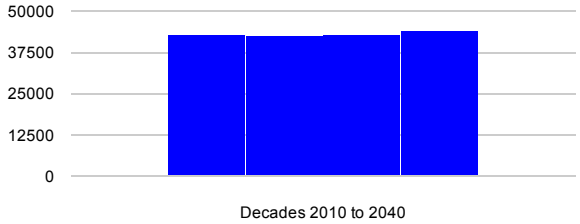
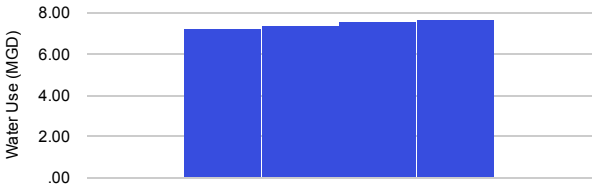



***Table 4 & Figure 5:** Danville water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 7.21 | 7.36 | 7.52 | 7.68 | 6.5% |




### Drought Management Practices

The City adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (West Piedmont Regional WSP)

Dickenson County and the Towns of Clinchco, Clintwood, and Haysi

### Water Source Overview

Major water sources include the John Flannagan Reservoir, Caney Creek, and purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Dickenson County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 5.687 | 5.687 |
| Large Self-Supplied Users (over 300,000 gal/month) | 1.063 | 1.063 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.120 | 0.101 |

### Water Use by System Type

Approximately 2,300 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

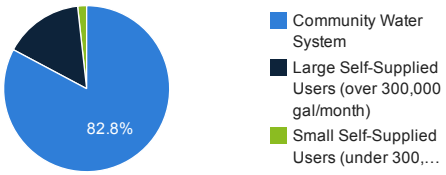



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

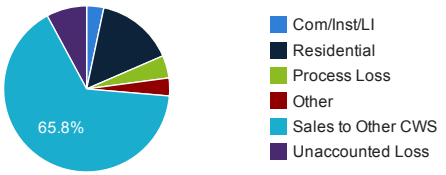



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Dickenson County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.15 | 6.72 | 0.13 | 6.72 |

***Figure 3:** Dickenson County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to decrease through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Dickenson County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 15,903 | 15,600 | 15,375 | 15,193 | 0.0% |

***Figure 4:** Dickenson County population projections by decade for 2010, 2020, 2030 & 2040

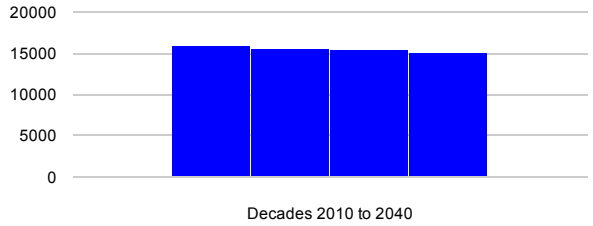



***Table 4 & Figure 5:** Dickenson County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 6.87 | 6.86 | 6.86 | 6.85 | -0.3% |

### Drought Management Practices

All localities adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Southwest Virginia Regional WSP)

Dinwiddie County and the Town of McKenney

### Water Source Overview

Major water sources include agricultural ponds, Booth Run, purchased water, and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Dinwiddie County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.102 | 0.204 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.777 | 0.902 |
| Large Self-Supplied Users (over 300,000 gal/month) | 1.746 | 3.216 |
| Agricultural Self-Supplied Users | 2.028 | 3.736 |

### Water Use by System Type

Approximately 13,570 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

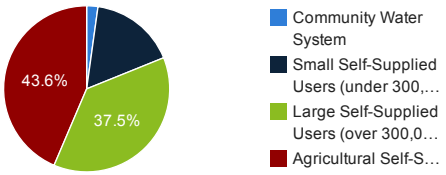



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Dinwiddie County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.38 | 3.27 | 2.02 | 6.04 |

***Figure 3:** Dinwiddie County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period of 2040. The Appomattox River Water Authority (main supplier of water to Dinwiddie County) anticipates a system wide deficit of 9.4 MGD by the year 2040. Possible alternatives recommended: increases in current water supply allocations and the development of additional supplies (groundwater sources, new intake on the Appomattox River, and a new surface water reservoir).

***Table 3:** Dinwiddie County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 28,001 | 29,542 | 30,516 | 31,276 | 10.7% |

***Figure 4:** Dinwiddie County population projections by decade for 2010, 2020, 2030 & 2040

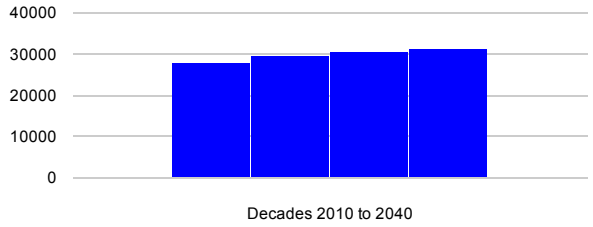
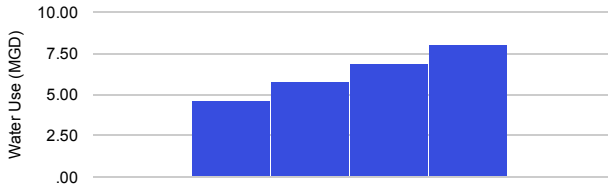



***Table 4 & Figure 5:** Dinwiddie County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 4.65 | 5.79 | 6.92 | 8.06 | 73.2% |




### Drought Management Practices

Both the County and the Town have adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Appomattox River Water Authority and the City of Hopewell Regional WSP)

City of Emporia

### Water Source Overview

The major water source is the Emporia Reservoir.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Emporia in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 1.013 | 1.001 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

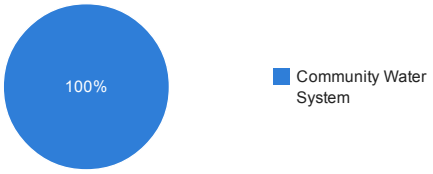



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

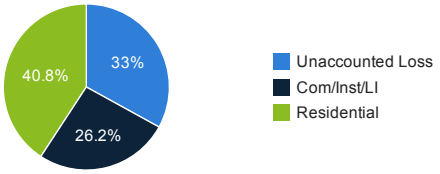



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Emporia in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.00 | 1.01 | 0.00 | 1.00 |

***Figure 3:** Emporia highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to increase through the planning period. Existing water supply may not be adequate to meet projected demands through the year 2040. Plans are to dredge/refurbish the Emporia Reservoir if the storage capacity is reduced to 500 acre feet.

***Table 3:** Emporia population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 5,927 | 6,490 | 7,075 | 7,622 | 40.0% |

***Figure 4:** Emporia population projections by decade for 2010, 2020, 2030 & 2040

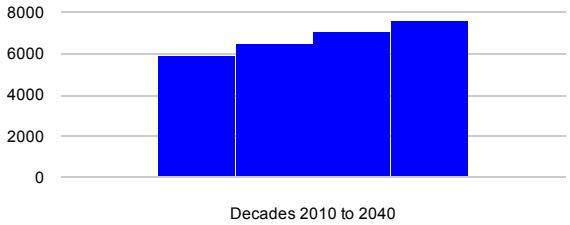
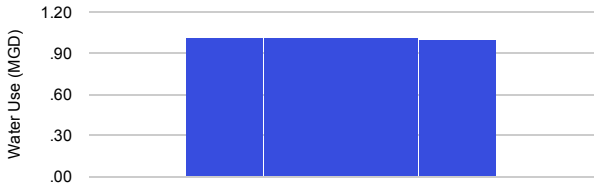



***Table 4 & Figure 5:** Emporia water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 1.01 | 1.01 | 1.01 | 1.00 | -1.2% |




### Drought Management Practices

The City adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Greensville-Sussex-Empora Regional WSP)

Essex County and the Town of Tappahannock

### Water Source Overview

Major water sources are groundwater wells, the Rappahannock River, and agricultural ponds.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Essex County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Agricultural Self-Supplied Users | 0.430 | 0.430 |
| Community Water System | 0.456 | 0.649 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.892 | 0.992 |

### Water Use by System Type

Approximately 7,532 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

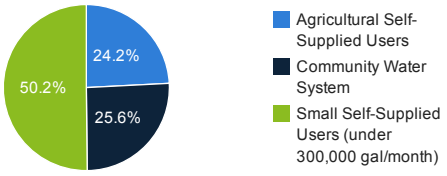



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

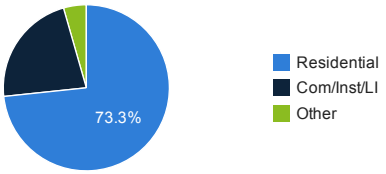



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Essex County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.35 | 0.43 | 1.64 | 0.43 |

***Figure 3:** Essex County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Essex County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 11,151 | 11,884 | 12,479 | 13,007 | 18.2% |

***Figure 4:** Essex County population projections by decade for 2010, 2020, 2030 & 2040

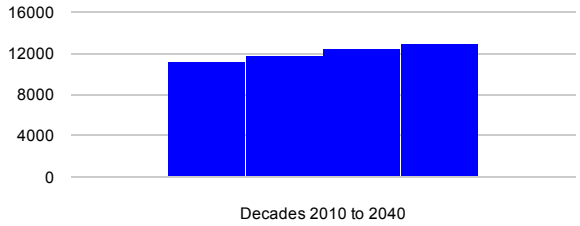
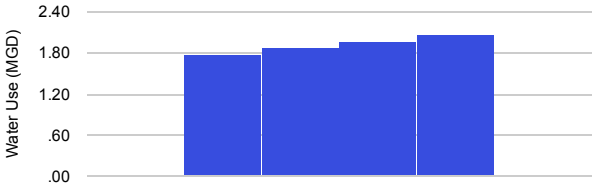



***Table 4 & Figure 5:** Essex County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 1.78 | 1.88 | 1.97 | 2.07 | 16.5% |




### Drought Management Practices

Both the County and the Town have adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Middle Peninsula Regional WSP)

City of Fairfax

### Water Source Overview

Major water sources include Beaverdam Creek Reservoir, Goose Creek, and purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Fairfax City in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 9.100 | 12.176 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

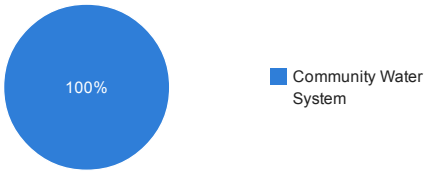



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

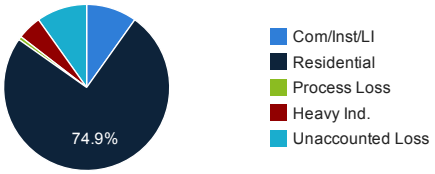



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Fairfax City in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.00 | 9.10 | 0.00 | 12.18 |

***Figure 3:** Fairfax City highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. The City of Fairfax may experience a water deficit in 2038, with a total deficit of almost 0.20 MGD by 2040. The region's plan to address the projected shortfall of municipal supply includes constructing a stream intake/pumping station on the Potomac estuary below Little Falls (recently permitted by DEQ); utilizing a reverse osmosis membrane treatment plant on the Occoquan estuary, using quarries located in Fairfax County to augment Fairfax Water storage, and using Loudoun County quarries to augment system storage (recently permitted by DEQ).

***Table 3:** Fairfax City population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 22,565 | 23,751 | 24,758 | 25,543 | 13.6% |

***Figure 4:** Fairfax City population projections by decade for 2010, 2020, 2030 & 2040

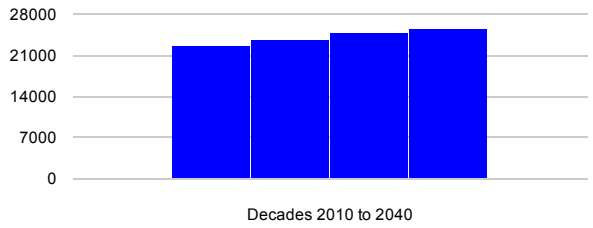
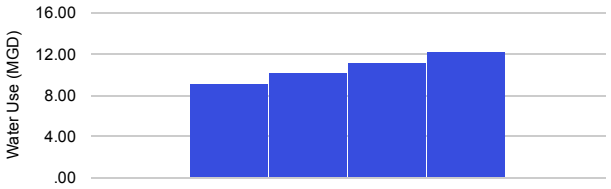



***Table 4 & Figure 5:** Fairfax City water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 9.10 | 10.13 | 11.15 | 12.18 | 33.8% |




### Drought Management Practices

The City follows the declarations of the Metropolitan Washington Water Supply and Drought Awareness Response Plan. Drought enforcement is addressed through an ordinance adopted by the City. (Northern Virginia Regional WSP)

Fairfax County and the Towns of Clifton, Herndon, and Vienna

### Water Source Overview

Major water sources include the Potomac River, the Occoquan Reservoir, and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Fairfax County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 261.176 | 310.799 |
| Large Self-Supplied Users (over 300,000 gal/month) | 17.456 | 20.772 |
| Small Self-Supplied Users (under 300,000 gal/month) | 8.158 | 8.159 |
| Agricultural Self-Supplied Users | 0.066 | 0.066 |

### Water Use by System Type

Approximately 108,652 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

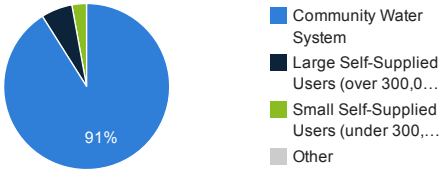



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

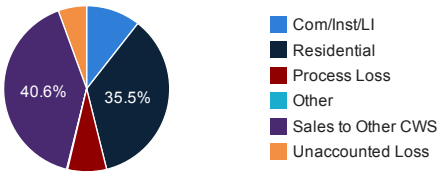



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Fairfax County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 22.83 | 264.03 | 25.61 | 314.19 |

***Figure 3:** Fairfax County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Fairfax County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 1,081,726 | 1,182,609 | 1,271,995 | 1,350,245 | 0.0% |

***Figure 4:** Fairfax County population projections by decade for 2010, 2020, 2030 & 2040

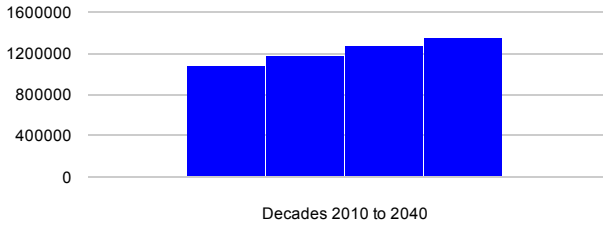
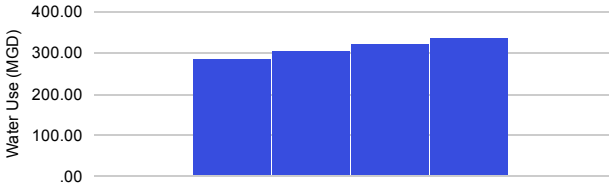



***Table 4 & Figure 5:** Fairfax County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 286.85 | 304.50 | 322.15 | 339.80 | 18.5% |




### Drought Management Practices

The County and Towns follow the declarations of the Metropolitan Washington Water Supply and Drought Awareness Response Plan. Drought enforcement is addressed through ordinances adopted by the County and Towns. (Northern Virginia Regional WSP)

City of Falls Church

### Water Source Overview

The major water source is purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Falls Church in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 17.538 | 21.023 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

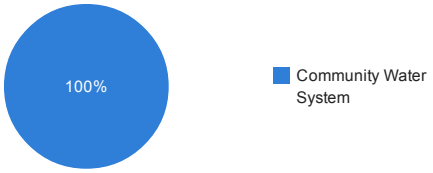



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

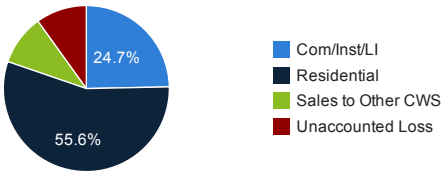



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Falls Church in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.00 | 17.54 | 0.00 | 21.02 |

***Figure 3:** Falls Church highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are estimated to meet projected demands.

***Table 3:** Falls Church population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 12,332 | 13,673 | 14,738 | 15,632 | 25.0% |

***Figure 4:** Falls Church population projections by decade for 2010, 2020, 2030 & 2040

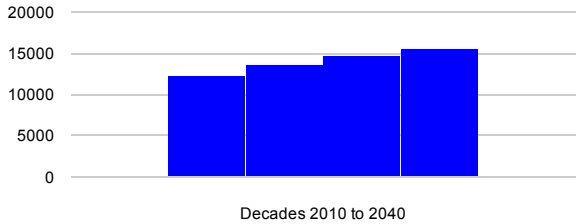
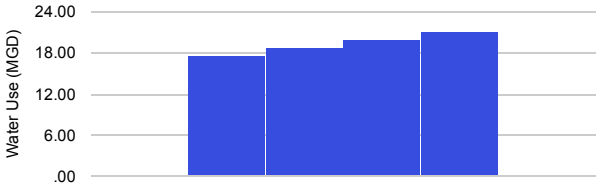



***Table 4 & Figure 5:** Falls Church water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 17.54 | 18.70 | 19.86 | 21.02 | 19.9% |




### Drought Management Practices

The City will follow the declarations of the Metropolitan Washington Water Supply and Drought Awareness Response Plan. Drought enforcement is addressed through an ordinance adopted by the City. (Northern Virginia Regional WSP)

Fauquier County and the Towns of Remington and The Plains, and Warrenton

### Water Source Overview

Major water sources include groundwater wells and the Warrenton and Airlie Reservoirs.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Fauquier County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 2.872 | 5.571 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.158 | 0.158 |
| Small Self-Supplied Users (under 300,000 gal/month) | 4.214 | 6.098 |
| Agricultural Self-Supplied Users | 0.209 | 0.209 |

### Water Use by System Type

Approximately 40,229 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

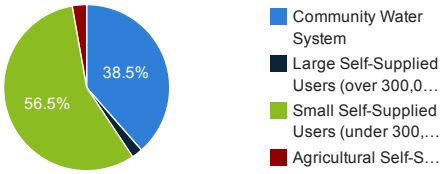



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

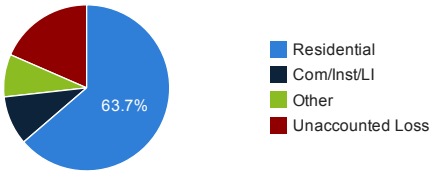



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Fauquier County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 6.15 | 1.31 | 10.05 | 1.99 |

***Figure 3:** Fauquier County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Fauquier County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 65,203 | 74,118 | 83,312 | 93,028 | 43.1% |

***Figure 4:** Fauquier County population projections by decade for 2010, 2020, 2030 & 2040

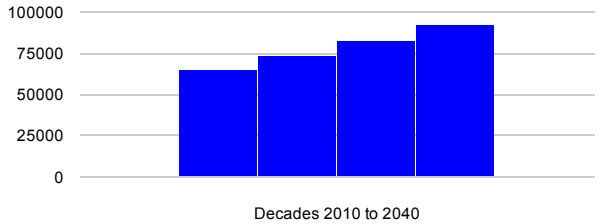
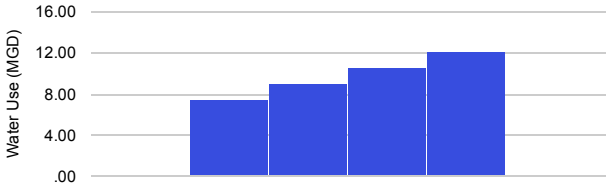



***Table 4 & Figure 5:** Fauquier County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 7.45 | 8.98 | 10.51 | 12.04 | 61.5% |




### Drought Management Practices

Fauquier County Water and Sanitation Authority (FCWSA) adopted a Water Preservation Program for the implementation and enforcement of the regional Drought Response and Contingency Plan. The Town of Remington and areas not served by the FCWSA are working towards the adoption of drought enforcement measures to be submitted by the five-year water supply plan update. The Town of Warrenton adopted an ordinance for the implementation and enforcement of the Town's Drought Response and Contingency Plan. (Fauquier County and Town WSP; Town of Warrenton WSP)

Floyd County and the Town of Floyd

### Water Source Overview

Major water sources are groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Floyd County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.110 | 0.147 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.168 | 1.560 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.027 | 0.037 |
| Agricultural Self-Supplied Users | 2.777 | 2.777 |

### Water Use by System Type

Approximately 11,527 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

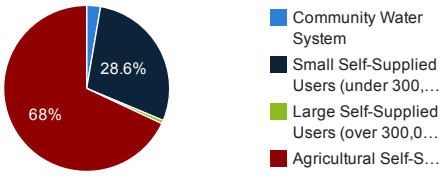



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

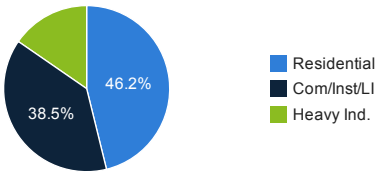



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Floyd County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 2.68 | 1.40 | 3.12 | 1.40 |

***Figure 3:** Floyd County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Floyd County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 15,279 | 15,902 | 16,311 | 16,645 | 6.7% |

***Figure 4:** Floyd County population projections by decade for 2010, 2020, 2030 & 2040

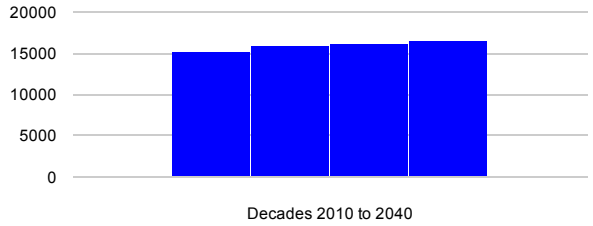



***Table 4 & Figure 5:** Floyd County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 4.08 | 4.23 | 4.37 | 4.52 | 10.7% |

### Drought Management Practices

The County and Town defer to the Floyd County-Floyd County PSA for drought enforcement through its Waterworks Rules and Regulations, adopted by both the County and Town. (New River Valley Regional WSP)

Fluvanna County and the Town of Columbia

### Water Source Overview

Major water sources include the James River, Rivanna River, and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Fluvanna County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.940 | 3.888 |
| Large Self-Supplied Users (over 300,000 gal/month) | 53.624 | 53.624 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.368 | 2.839 |
| Agricultural Self-Supplied Users | 1.033 | 1.033 |

### Water Use by System Type

Approximately 12,743 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

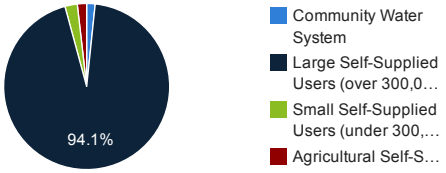



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

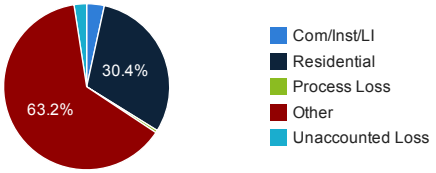



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Fluvanna County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 2.12 | 54.85 | 3.77 | 57.61 |

***Figure 3:** Fluvanna County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands with the exception of the Palmyra Community Water System. The James River Water Authority is listed as an option to meet this anticipated increased demand.

***Table 3:** Fluvanna County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 25,691 | 29,009 | 31,839 | 34,537 | 36.0% |

***Figure 4:** Fluvanna County population projections by decade for 2010, 2020, 2030 & 2040

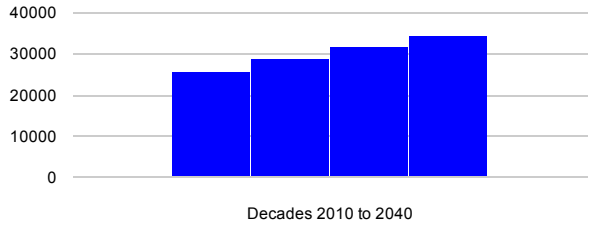



***Table 4 & Figure 5:** Fluvanna County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 56.97 | 58.44 | 59.91 | 61.38 | 7.8% |

### Drought Management Practices

The County and Town plan to enforce the Drought Response and Contingency Plan through the adoption of emergency ordinances. (Fluvanna County and the Town of Columbia Regional WSP)

City of Franklin

### Water Source Overview

Major water sources are groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Franklin City in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Small Self-Supplied Users (under 300,000 gal/month) | 0.040 | 0.056 |
| Community Water System | 1.164 | 1.855 |

### Water Use by System Type

There are five reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

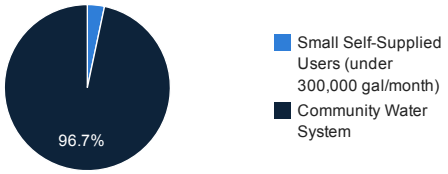



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

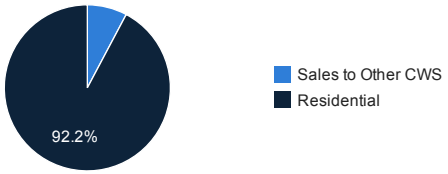



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Franklin City in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.20 | 0.00 | 1.91 | 0.00 |

***Figure 3:** Franklin City highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Franklin City population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 8,582 | 9,261 | 9,983 | 10,661 | 25.0% |

***Figure 4:** Franklin City population projections by decade for 2010, 2020, 2030 & 2040

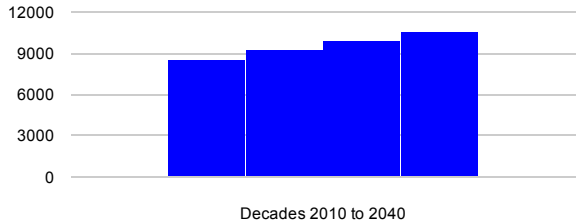
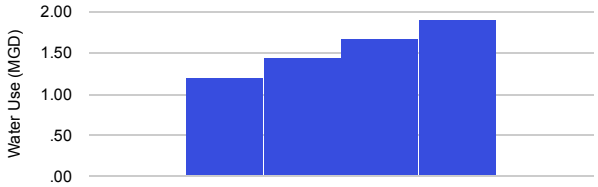



***Table 4 & Figure 5:** Franklin City water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 1.20 | 1.44 | 1.68 | 1.91 | 58.7% |




### Drought Management Practices

The City adopted a “water supply emergency ordinance” for the implementation and enforcement of the Drought Response and Contingency Plan. (Hampton Roads Regional WSP)

Franklin County and the Towns of Boones Mill and Rocky Mount

### Water Source Overview

Major water sources are the Blackwater River, groundwater wells, and purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Franklin County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 2.046 | 3.260 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.331 | 0.700 |
| Small Self-Supplied Users (under 300,000 gal/month) | 2.503 | 5.291 |
| Agricultural Self-Supplied Users | 2.313 | 2.313 |

### Water Use by System Type

Approximately 33,349 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

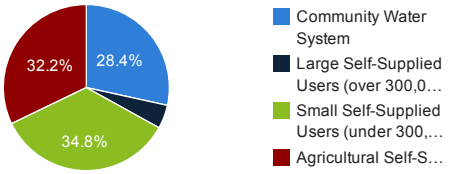



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

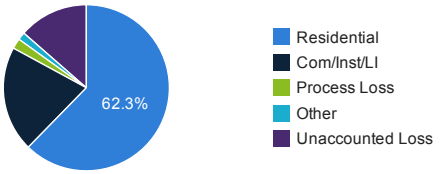



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Franklin County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 4.43 | 2.77 | 7.76 | 3.80 |

***Figure 3:** Franklin County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. The County anticipates a deficit of 0.03 MGD by 2020; the Town of Boones Mill anticipates a deficit of 0.03 MGD by 2020. Alternatives presented for both the County and the Town include the development of new groundwater wells and purchased water from Western Virginia Water Authority.

***Table 3:** Franklin County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 56,159 | 62,412 | 68,461 | 74,695 | 32.1% |

***Figure 4:** Franklin County population projections by decade for 2010, 2020, 2030 & 2040

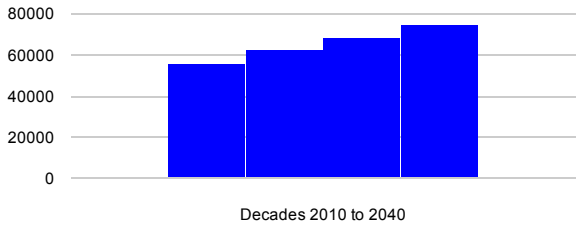
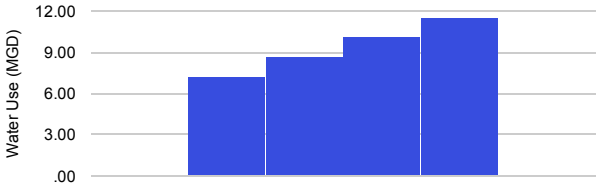



***Table 4 & Figure 5:** Franklin County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 7.19 | 8.65 | 10.11 | 11.56 | 60.8% |




### Drought Management Practices

The County and Town adopted ordinances to enforce the Drought Response and Contingency Plan. (Roanoke Valley Alleghany Regional WSP)

Frederick County and the Towns of Middletown and Stephens City

### Water Source Overview

Major water sources include groundwater wells and quarries.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Frederick County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 6.642 | 20.897 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.104 | 0.104 |
| Small Self-Supplied Users (under 300,000 gal/month) | 2.347 | 2.347 |
| Agricultural Self-Supplied Users | 0.049 | 0.049 |

### Water Use by System Type

Approximately 31,299 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

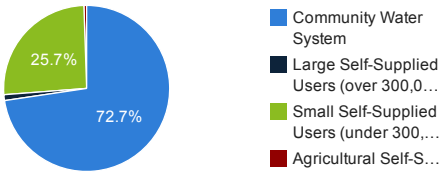



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

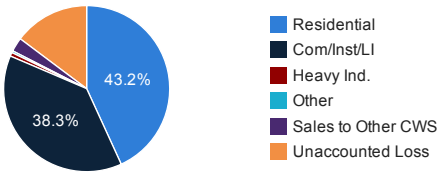



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Frederick County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 5.66 | 3.48 | 12.66 | 10.73 |

***Figure 3:** Frederick County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Frederick County Sanitation Authority (serving Frederick County and Stephens City) and the Town of Middletown acknowledge their demand will exceed their supply in the planning period. Frederick County Sanitation Authority alternatives include quarry expansion and groundwater well improvements. Middletown will implement conservation to stay within their purchase agreement limitations with Winchester.

***Table 3:** Frederick County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 78,305 | 97,192 | 119,419 | 145,938 | 85.9% |

***Figure 4:** Frederick County population projections by decade for 2010, 2020, 2030 & 2040

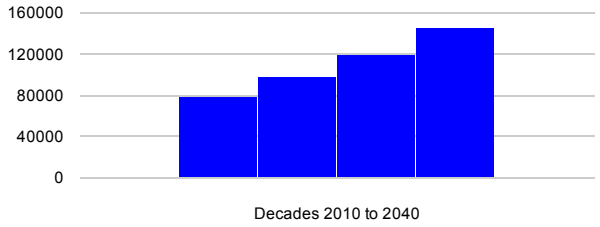
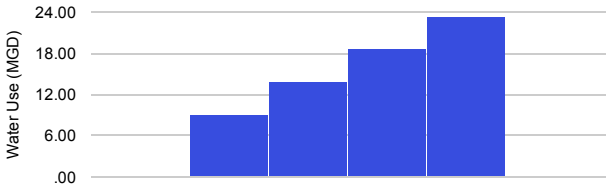



***Table 4 & Figure 5:** Frederick County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 9.14 | 13.89 | 18.65 | 23.40 | 155.9% |




### Drought Management Practices

Frederick County and the Town of Stephens City each adopted an ordinance for the implementation and enforcement of the regional Drought Response and Contingency Plan (DRCP). The Town of Middletown is subject to the drought provisions established by the City of Winchester; the Town will issue an emergency ordinance to restrict water use and enforce the DRCP in accordance with the agreement with Winchester. (Northern Shenandoah Valley Regional WSP)

City of Fredericksburg

### Water Source Overview

The major source of water is purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Fredericksburg in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.007 | 0.014 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.070 | 0.175 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.022 | 0.042 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

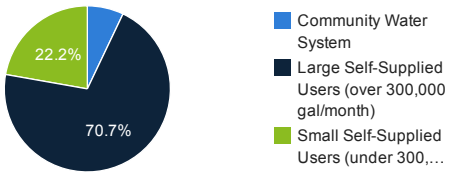



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

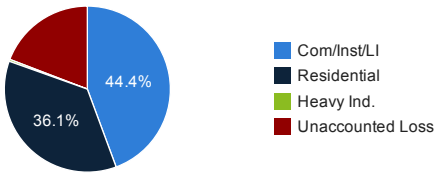



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Fredericksburg in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.02 | 0.08 | 0.04 | 0.19 |

***Figure 3:** Fredericksburg highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Fredericksburg population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 24,286 | 26,647 | 28,383 | 29,917 | 20.8% |

***Figure 4:** Fredericksburg population projections by decade for 2010, 2020, 2030 & 2040

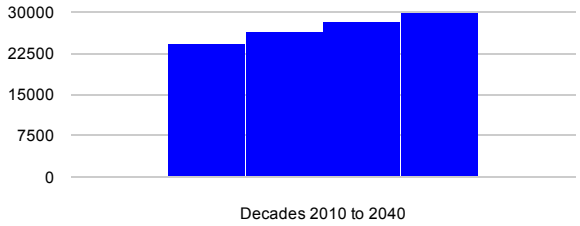
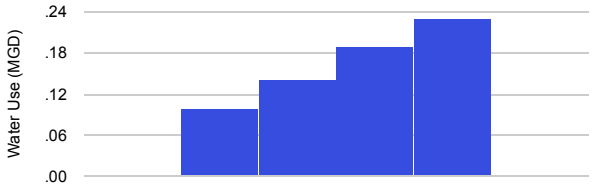



***Table 4 & Figure 5:** Fredericksburg water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 0.10 | 0.14 | 0.19 | 0.23 | 132.9% |




### Drought Management Practices

The City adopted an ordinance for the implementation and enforcement of the regional Drought Response and Contingency Plan. (Spotsylvania County and the City of Fredericksburg Regional WSP)

City of Galax

### Water Source Overview

The major source of water is Chestnut Creek.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Galax in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Small Self-Supplied Users (under 300,000 gal/month) | 0.010 | 0.010 |
| Community Water System | 1.840 | 1.840 |

### Water Use by System Type

There are approximately 137 reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

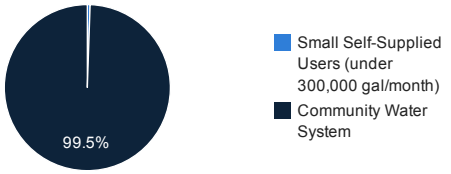



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

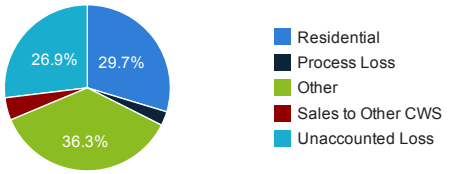



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Galax in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.01 | 1.84 | 0.01 | 1.84 |

***Figure 3:** Galax highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to increase through the planning period. Demand is not expected to increase. Existing water sources are expected to meet projected demands.

***Table 3:** Galax population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 7,042 | 7,632 | 8,261 | 8,854 | 14.3% |

***Figure 4:** Galax population projections by decade for 2010, 2020, 2030 & 2040

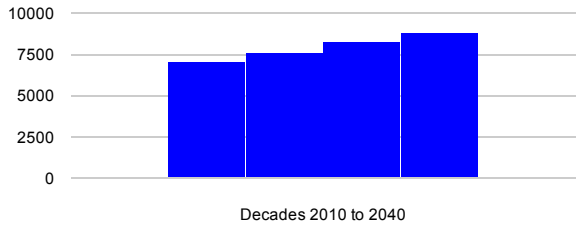
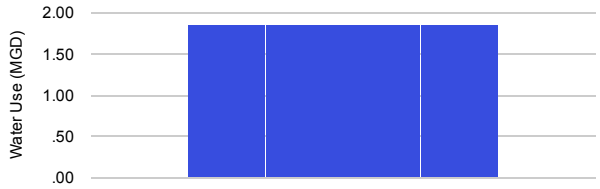



***Table 4 & Figure 5:** Galax water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 1.85 | 1.85 | 1.85 | 1.85 | -0.0% |




### Drought Management Practices

The City adopted an ordinance for the implementation and enforcement of the regional Drought Response and Contingency Plan. (Southwest Virginia Regional WSP)

Giles County and the Towns of Glen Lyn, Narrows, Pearisburg, Pembroke, and Rich Creek

### Water Source Overview

Major water sources are the New River and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Giles County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 1.282 | 1.374 |
| Large Self-Supplied Users (over 300,000 gal/month) | 35.614 | 38.173 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.635 | 0.681 |
| Agricultural Self-Supplied Users | 0.618 | 0.618 |

### Water Use by System Type

Approximately 6,348 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

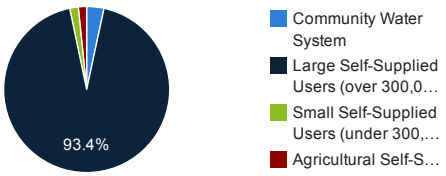



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

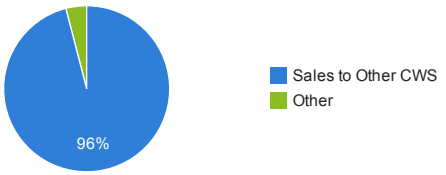



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Giles County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 11.17 | 26.98 | 11.95 | 28.90 |

***Figure 3:** Giles County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase slightly through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Giles County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 17,286 | 17,821 | 18,283 | 18,683 | 5.9% |

***Figure 4:** Giles County population projections by decade for 2010, 2020, 2030 & 2040

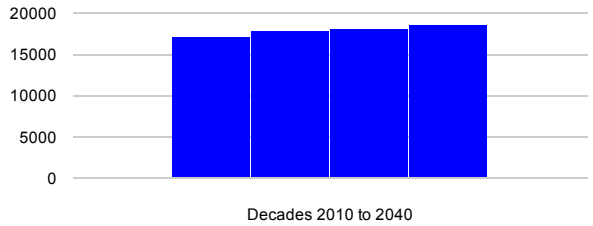
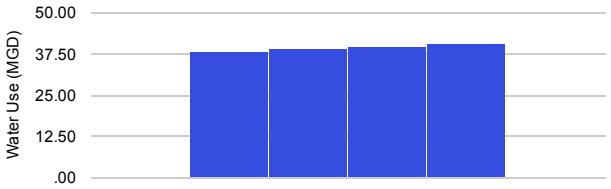



***Table 4 & Figure 5:** Giles County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 38.15 | 39.05 | 39.95 | 40.85 | 7.1% |




### Drought Management Practices

The County and Towns adopted an ordinance for the implementation and enforcement of the regional Drought Response and Contingency Plan. (New River Valley Regional WSP)

Gloucester County

### Water Source Overview

Major water sources are the Beaverdam Reservoir and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Gloucester County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Small Self-Supplied Users (under 300,000 gal/month) | 1.837 | 2.321 |
| Community Water System | 1.398 | 2.796 |

### Water Use by System Type

Approximately 22,960 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

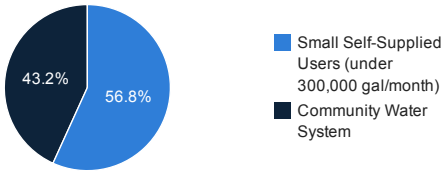



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

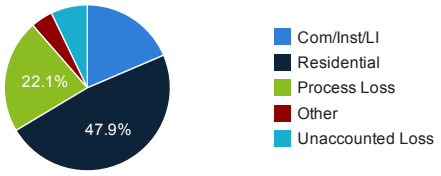
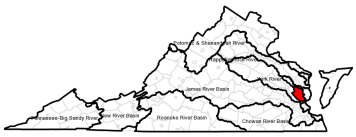



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Gloucester County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 2.81 | 0.42 | 4.27 | 0.84 |

***Figure 3:** Gloucester County highlighted in the Commonwealth of Virginia



### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Gloucester County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 36,858 | 39,681 | 42,520 | 45,222 | 25.0% |

***Figure 4:** Gloucester County population projections by decade for 2010, 2020, 2030 & 2040

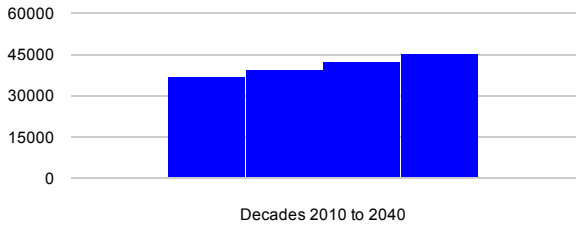
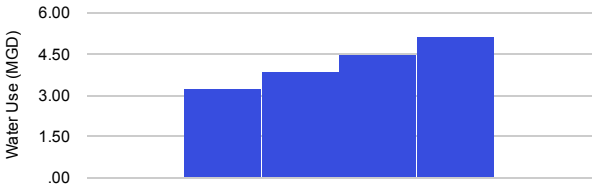



***Table 4 & Figure 5:** Gloucester County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 3.24 | 3.86 | 4.49 | 5.12 | 58.2% |




### Drought Management Practices

The County adopted a water supply emergency ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Hampton Roads Regional WSP)

Goochland County

## Water Source Overview

Major water sources are Little Tuckahoe Creek, groundwater wells, and purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Goochland County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.893 | 3.263 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.708 | 1.720 |
| Large Self-Supplied Users (over 300,000 gal/month) | 2.490 | 2.490 |
| Agricultural Self-Supplied Users | 0.219 | 0.219 |

## Water Use by System Type

Approximately 16,842 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

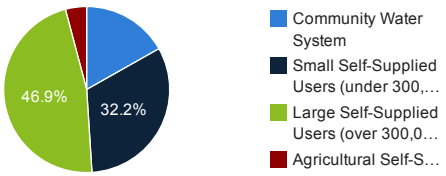



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

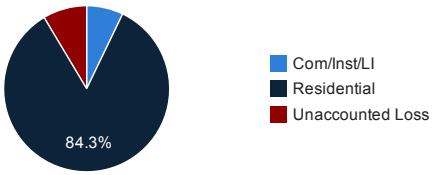



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Goochland County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 2.28 | 3.03 | 3.14 | 4.55 |

***Figure 3:** Goochland County highlighted in the Commonwealth of Virginia

## Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Goochland County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 21,717 | 24,088 | 25,886 | 27,505 | 28.6% |

***Figure 4:** Goochland County population projections by decade for 2010, 2020, 2030 & 2040

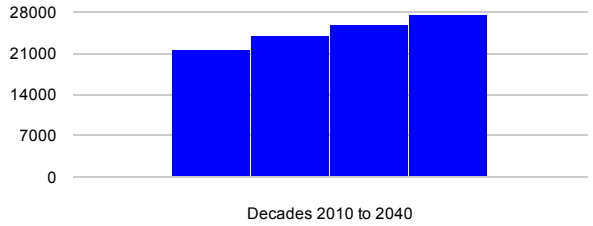
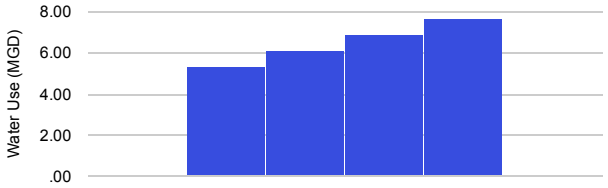



***Table 4 & Figure 5:** Goochland County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 5.31 | 6.10 | 6.90 | 7.69 | 44.9% |




## Drought Management Practices

Goochland County receives a majority of its water from Henrico County and has adopted a Water Shortage Ordinance giving the County Administrator the authority to declare a drought emergency and limit the use of water in all areas supplied by Goochland County, as well as referencing the Henrico County authority for those areas of Goochland County that receive water from Henrico County. (Henrico-Goochland-Powhatan-Cumberland Counties Regional WSP)

Grayson County and the Towns of Fries, Independence, and Troutdale

### Water Source Overview

Major water sources are Eagle Bottom Creek, groundwater wells, and purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Grayson County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.314 | 0.314 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.141 | 1.141 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.011 | 0.011 |
| Agricultural Self-Supplied Users | 1.208 | 1.208 |

### Water Use by System Type

Approximately 15,015 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

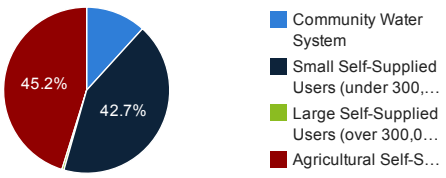



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

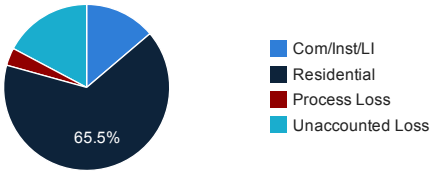



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Grayson County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.96 | 0.72 | 1.96 | 0.72 |

***Figure 3:** Grayson County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to decrease through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Grayson County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 15,533 | 15,014 | 14,727 | 14,520 | -6.7% |

***Figure 4:** Grayson County population projections by decade for 2010, 2020, 2030 & 2040

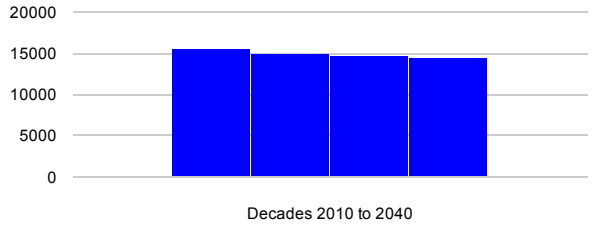
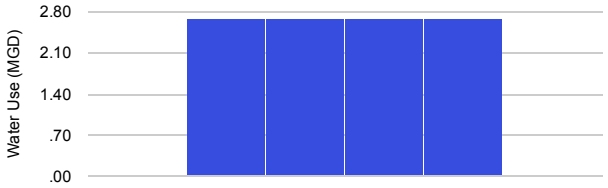



***Table 4 & Figure 5:** Grayson County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 2.68 | 2.68 | 2.68 | 2.68 | -0.0% |




### Drought Management Practices

The County and Towns each adopted an ordinance for the implementation and enforcement of the regional Drought Response and Contingency Plan. (Southwest Virginia Regional WSP)

Greene County and the Town of Stanardsville

### Water Source Overview

Major water sources are the Rapidan River and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Greene County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.735 | 3.285 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.052 | 0.078 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.002 | 1.239 |

### Water Use by System Type

Approximately 9,851 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

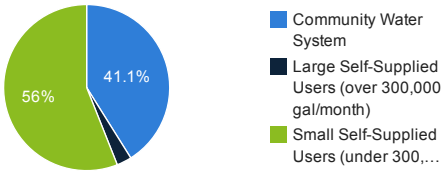



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

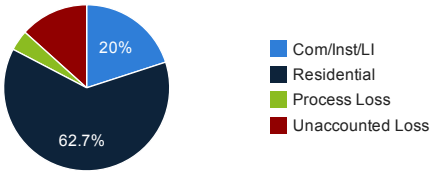



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Greene County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.16 | 0.63 | 1.55 | 3.05 |

***Figure 3:** Greene County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Deficits are anticipated for the Greene County municipal CWS (average day deficit of 0.54 MGD by 2030). Short-term alternatives for additional supply include implementation of water conservation measures and development of new groundwater sources. Reservoir development is anticipated to meet long-term supply needs.

***Table 3:** Greene County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 18,403 | 20,397 | 22,082 | 23,638 | 27.8% |

***Figure 4:** Greene County population projections by decade for 2010, 2020, 2030 & 2040

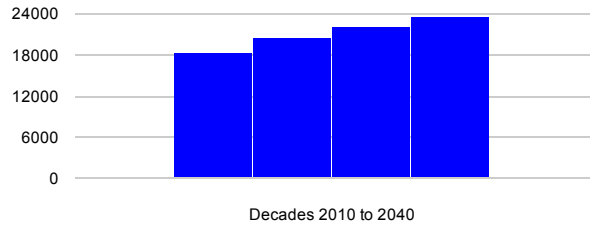
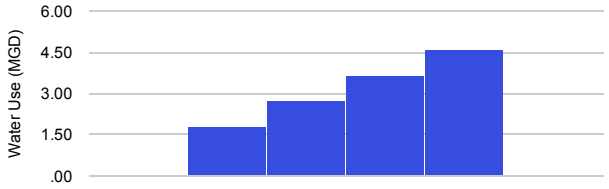



***Table 4 & Figure 5:** Greene County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 1.79 | 2.73 | 3.66 | 4.60 | 157.2% |




### Drought Management Practices

Greene County adopted a Drought Management Ordinance which addresses implementation and enforcement of the Drought Response and Contingency Plan for both the County and the Town of Stanardsville. (Greene County and the Town of Stanardsville Regional WSP)

Greensville County and the Town of Jarratt

### Water Source Overview

Major water sources are the Nottoway River, Fontaine Creek, groundwater wells, and purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Greensville County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 1.080 | 1.133 |
| Large Self-Supplied Users (over 300,000 gal/month) | 2.729 | 2.729 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.555 | 0.716 |
| Agricultural Self-Supplied Users | 0.125 | 0.125 |

### Water Use by System Type

Approximately 1,306 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

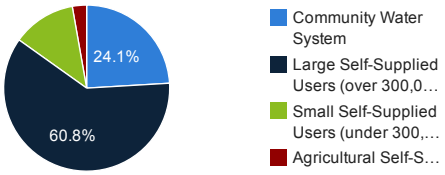



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

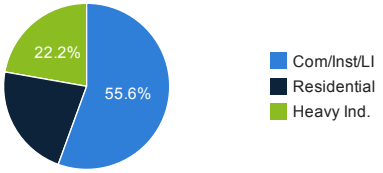



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Greensville County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.59 | 3.90 | 0.78 | 3.92 |

***Figure 3:** Greensville County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase slightly through the planning period. To address concerns over the reliability of their source water (purchased water from Georgia Pacific), Greensville County Water and Sewer Authority submitted a VWP permit to improve their existing system through installation of a new raw water intake on the Nottoway River and construction of a pumped storage reservoir (JPA No. 13-0957).

***Table 3:** Greensville County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 12,243 | 12,473 | 12,589 | 12,672 | 0.0% |

***Figure 4:** Greensville County population projections by decade for 2010, 2020, 2030 & 2040

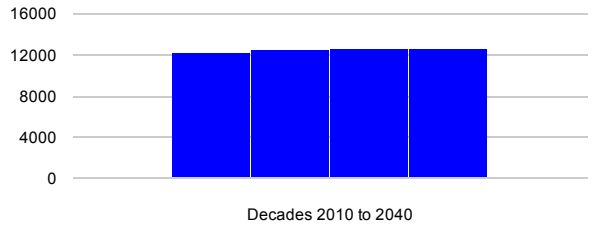
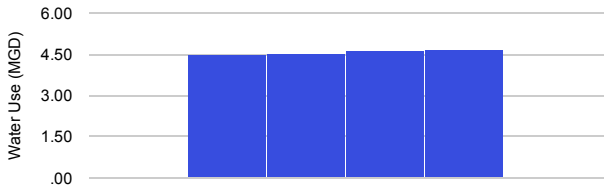



***Table 4 & Figure 5:** Greensville County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 4.49 | 4.56 | 4.63 | 4.70 | 4.8% |




### Drought Management Practices

The County and Town each adopted ordinances to implement and enforce the Drought Response and Contingency Plan. (Greensville-Sussex-Emporia Regional WSP)

Halifax County and the Towns of Halifax, Scottsburg, South Boston, and Virgilina.

### Water Source Overview

Major water sources are the Dan River, Roanoke River, and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Halifax County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 1.869 | 2.683 |
| Large Self-Supplied Users (over 300,000 gal/month) | 11.592 | 11.592 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.942 | 1.272 |

### Water Use by System Type

Approximately 25,541 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

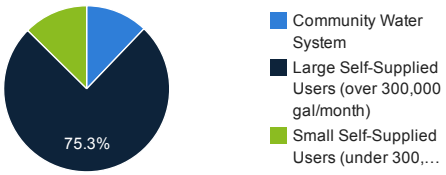



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

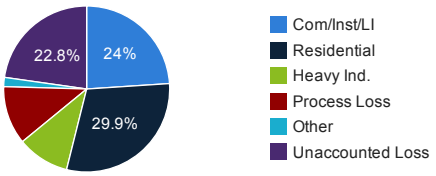



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Halifax County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 2.11 | 13.29 | 1.49 | 14.06 |

***Figure 3:** Halifax County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to decline and demand is projected to increase less than one percent through the planning period of 2040. Existing water sources are expected to meet projected water demand.

***Table 3:** Halifax County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 36,241 | 35,770 | 35,489 | 35,281 | -2.8% |

***Figure 4:** Halifax County population projections by decade for 2010, 2020, 2030 & 2040

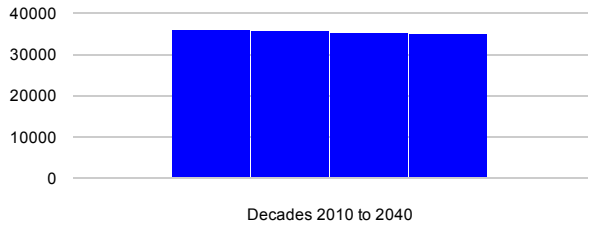



***Table 4 & Figure 5:** Halifax County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 15.40 | 15.45 | 15.50 | 15.55 | 0.9% |

### Drought Management Practices

The County and Towns, with the exception of the Town of Scottsburg, adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. Enforcement by the Town of Scottsburg is unknown and will be addressed by the five-year update of the water supply plan. (Halifax County and Towns Regional WSP)

City of Hampton

### Water Source Overview

Major water sources include groundwater wells and purchased water. Newport News Waterworks (NNW) provides water service to approximately 400,000 people in the Peninsula sub-region of Hampton Roads, including the City of Hampton. Water use and projected demand data for the City of Hampton is included in the totals for NNW.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Hampton in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Large Self-Supplied Users (over 300,000 gal/month) | 0.094 | 0.094 |
| Community Water System | 0.000 | 0.000 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

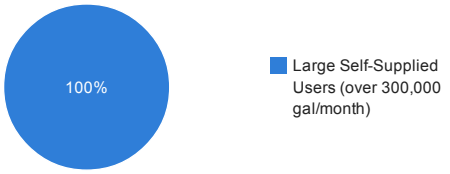



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Hampton in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.09 | 0.00 | 0.09 | 0.00 |

***Figure 3:** Hampton highlighted in the Commonwealth of Virginia

### Projected Water Demand

Demand is expected to increase as population continues to grow. Existing water sources are expected to meet projected demands.

***Table 3:** Hampton population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 137,436 | 136,417 | 137,838 | 139,663 | 1.5% |

***Figure 4:** Hampton population projections by decade for 2010, 2020, 2030 & 2040

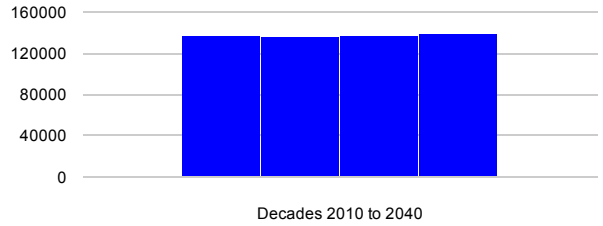



***Table 4 & Figure 5:** Hampton water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 0.09 | 0.09 | 0.09 | 0.09 | -0.0% |

### Drought Management Practices

The City adopted a “water supply emergency ordinance” for the implementation and enforcement of the Drought Response and Contingency Plan. (Hampton Roads Regional WSP)

Hanover County and the Town of Ashland

### Water Source Overview

Major water sources are the North Anna River, groundwater wells, a quarry, and purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Hanover County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 4.835 | 9.808 |
| Large Self-Supplied Users (over 300,000 gal/month) | 2.212 | 2.212 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.719 | 0.719 |
| Agricultural Self-Supplied Users | 1.760 | 1.760 |

### Water Use by System Type

Approximately 5,946 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

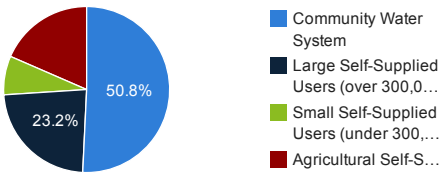



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

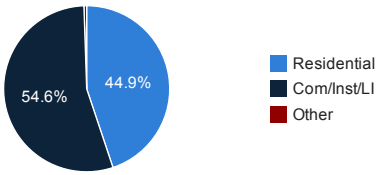



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Hanover County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.43 | 8.10 | 2.01 | 12.49 |

***Figure 3:** Hanover County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are expected to increase through the planning period. Community water systems may experience a deficit of 0.34 MGD by the year 2032. An alternative is the Verdon Quarry side storage reservoir project which includes river intakes and raw water pumping stations on North Anna and Little Rivers and a reservoir intake and raw water pumping station on Verdon Quarry.

***Table 3:** Hanover County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 99,863 | 118,135 | 139,000 | 162,475 | 63.6% |

***Figure 4:** Hanover County population projections by decade for 2010, 2020, 2030 & 2040

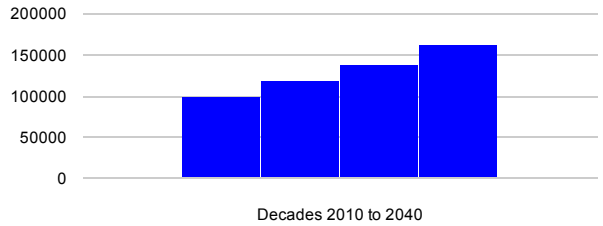
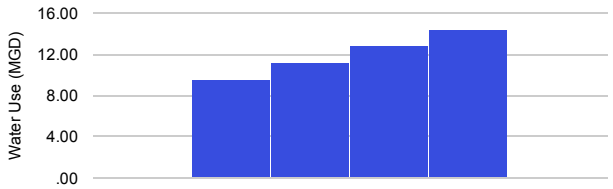



***Table 4 & Figure 5:** Hanover County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 9.53 | 11.18 | 12.84 | 14.50 | 52.2% |




### Drought Management Practices

The County and Town each adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Hanover County and the Town of Ashland Long Range Water Resources Plan)

City of Harrisonburg

### Water Source Overview

Major water sources include Dry River and North River.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Harrisonburg in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 6.479 | 10.773 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

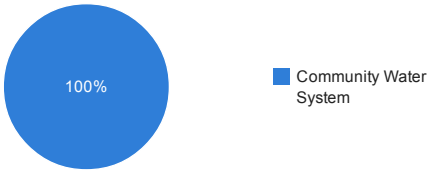



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

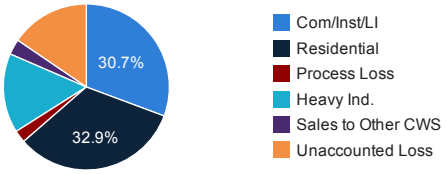



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Harrisonburg in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.00 | 6.48 | 0.00 | 10.77 |

***Figure 3:** Harrisonburg highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase throughout the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Harrisonburg population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 48,914 | 57,114 | 65,768 | 75,015 | 56.3% |

***Figure 4:** Harrisonburg population projections by decade for 2010, 2020, 2030 & 2040

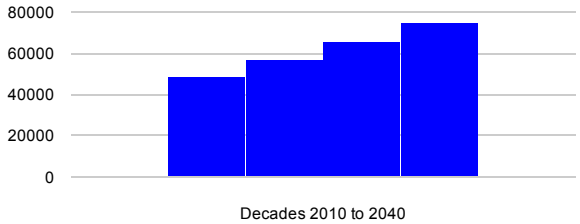
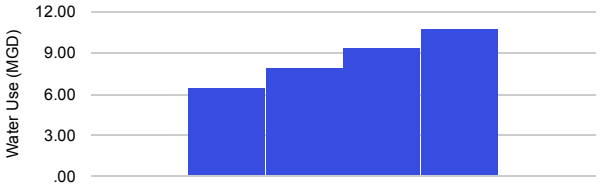



***Table 4 & Figure 5:** Harrisonburg water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 6.48 | 7.91 | 9.34 | 10.77 | 66.3% |




### Drought Management Practices

The City adopted an ordinance to implement and enforce the Drought Response and Contingency Plan. (Upper Shenandoah River Basin WSP)

Henrico County

### Water Source Overview

Major water sources include the James River and purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Henrico County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 42.900 | 64.165 |
| Large Self-Supplied Users (over 300,000 gal/month) | 2.187 | 2.187 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.287 | 1.284 |
| Agricultural Self-Supplied Users | 0.012 | 0.012 |

### Water Use by System Type

Approximately 16,023 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

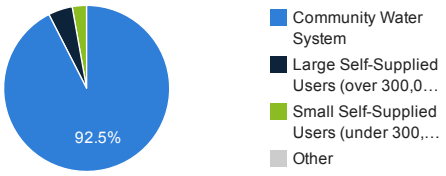



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

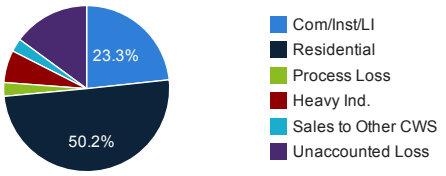



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Henrico County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 7.12 | 39.26 | 9.50 | 58.15 |

***Figure 3:** Henrico County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period of 2040. Cobbs Creek Reservoir is being developed to meet increased demands.

***Table 3:** Henrico County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 306,935 | 352,577 | 400,396 | 450,630 | 47.1% |

***Figure 4:** Henrico County population projections by decade for 2010, 2020, 2030 & 2040

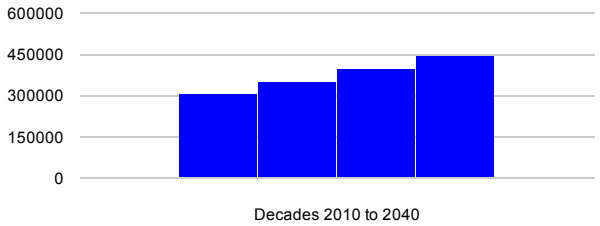
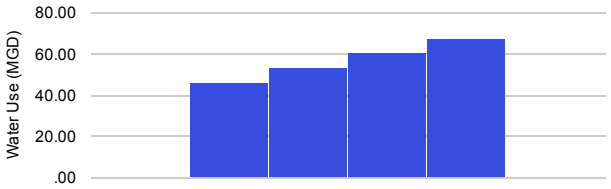



***Table 4 & Figure 5:** Henrico County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 46.39 | 53.47 | 60.56 | 67.65 | 45.8% |




### Drought Management Practices

The County adopted an ordinance to implement and enforce the Drought Response and Contingency Plan. (Henrico-Goochland-Powhatan-Cumberland Counties Regional WSP)

Henry County and the Town of Ridgeway

### Water Source Overview

Major water sources are the Smith River and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Henry County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 3.496 | 3.496 |
| Large Self-Supplied Users (over 300,000 gal/month) | 1.353 | 1.357 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.888 | 1.888 |
| Agricultural Self-Supplied Users | 1.238 | 1.238 |

### Water Use by System Type

Approximately 31,501 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

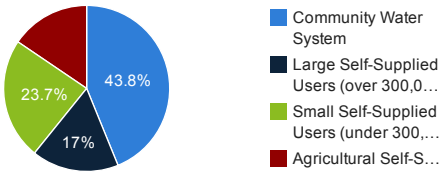



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Henry County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 3.00 | 4.97 | 3.00 | 4.98 |

***Figure 3:** Henry County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are expected to increase through the planning period of 2040. Increasing the County's withdrawal from the Smith River is mentioned as an alternative to meet future demands.

***Table 3:** Henry County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 54,151 | 54,182 | 55,233 | 56,387 | 3.7% |

***Figure 4:** Henry County population projections by decade for 2010, 2020, 2030 & 2040

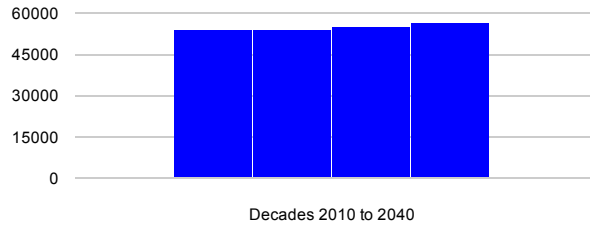
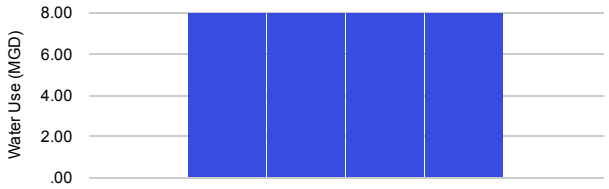



***Table 4 & Figure 5:** Henry County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 7.97 | 7.98 | 7.98 | 7.98 | 0.1% |




### Drought Management Practices

The County and Town adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (West Piedmont PDC Regional WSP)

Highland County and the Town of Monterey

### Water Source Overview

Major water sources include groundwater wells and springs.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Highland County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Agricultural Self-Supplied Users | 5.780 | 5.780 |
| Community Water System | 0.085 | 0.085 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.143 | 0.143 |

### Water Use by System Type

Approximately 1,911 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

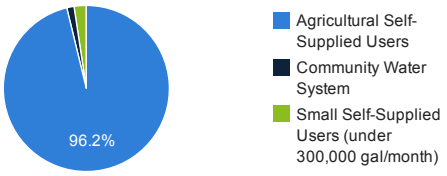



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

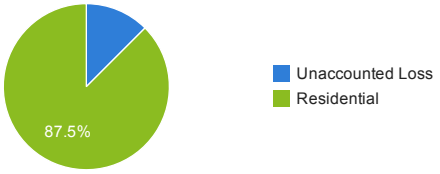



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Highland County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.22 | 5.79 | 0.22 | 5.79 |

***Figure 3:** Highland County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are expected to remain constant through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Highland County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 2,321 | 2,282 | 2,281 | 2,288 | 0.0% |

***Figure 4:** Highland County population projections by decade for 2010, 2020, 2030 & 2040

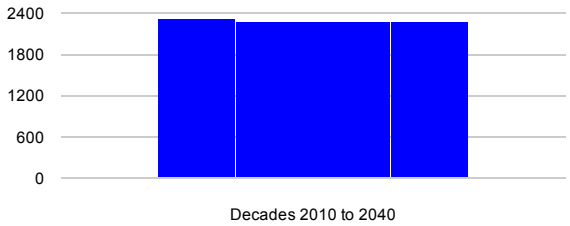



***Table 4 & Figure 5:** Highland County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 6.01 | 6.01 | 6.01 | 6.01 | -0.0% |

### Drought Management Practices

The County and town each adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Upper James River Basin WSP)

City of Hopewell

### Water Source Overview

The major water source is the Appomattox River.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Hopewell in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 22.100 | 24.690 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

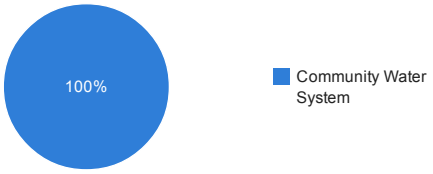



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

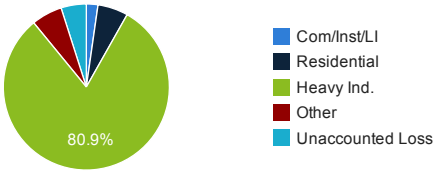



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Hopewell in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.00 | 22.10 | 0.00 | 24.69 |

***Figure 3:** Hopewell highlighted in the Commonwealth of Virginia

### Projected Water Demand

The City of Hopewell projects population to increase during the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Hopewell population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 22,591 | 23,702 | 24,844 | 25,818 | 13.6% |

***Figure 4:** Hopewell population projections by decade for 2010, 2020, 2030 & 2040

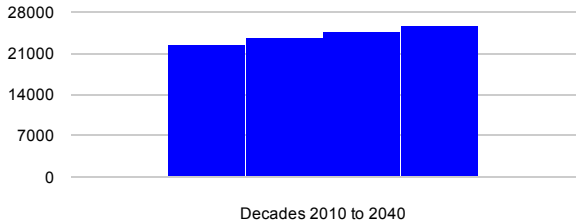
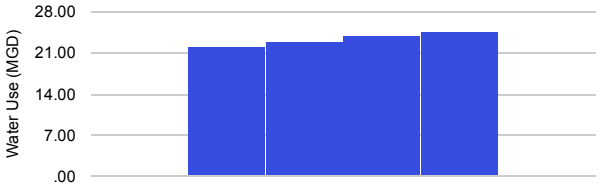



***Table 4 & Figure 5:** Hopewell water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 22.10 | 22.96 | 23.83 | 24.69 | 11.7% |




### Drought Management Practices

The Virginia American Water Company, which provides potable water to the City of Hopewell, has prepared a water conservation plan to implement responses to water shortages or emergencies. (Appomattox River Water Authority and the City of Hopewell Regional WSP)

Isle of Wight County and the Towns of Smithfield and Windsor

### Water Source Overview

Major water sources are groundwater wells and purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Isle of Wight County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 2.999 | 10.295 |
| Large Self-Supplied Users (over 300,000 gal/month) | 38.477 | 38.477 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.369 | 1.900 |
| Agricultural Self-Supplied Users | 0.950 | 4.328 |

### Water Use by System Type

Approximately 16,509 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

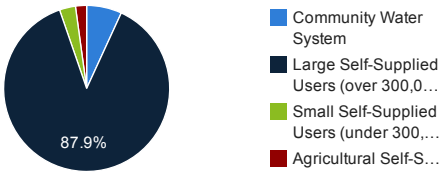



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

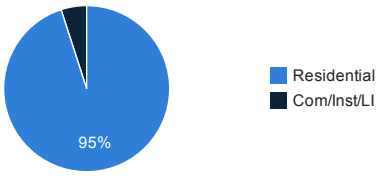



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Isle of Wight County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 42.75 | 1.04 | 51.16 | 3.84 |

***Figure 3:** Isle of Wight County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Isle of Wight County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 35,270 | 38,828 | 41,946 | 44,922 | 25.7% |

***Figure 4:** Isle of Wight County population projections by decade for 2010, 2020, 2030 & 2040

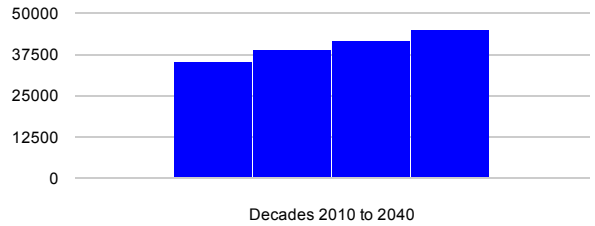
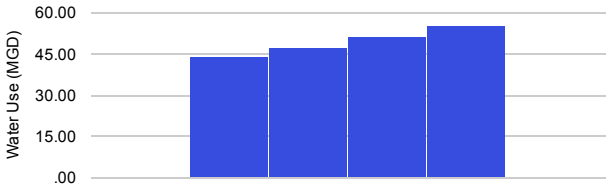



***Table 4 & Figure 5:** Isle of Wight County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 43.79 | 47.53 | 51.26 | 55.00 | 25.6% |




### Drought Management Practices

The County and Towns each adopted “water supply emergency ordinances” for the implementation and enforcement of the Drought Response and Contingency Plan. (Hampton Roads Regional WSP)

James City County

### Water Source Overview

Major water sources are groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for James City County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 5.139 | 10.862 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.496 | 0.496 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.826 | 0.991 |

### Water Use by System Type

Approximately 7,224 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

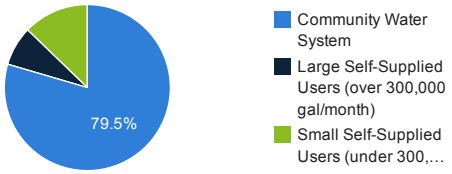



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

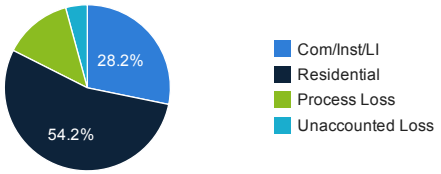
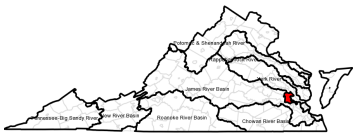



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for James City County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 6.13 | 0.33 | 12.02 | 0.33 |

***Figure 3:** James City County highlighted in the Commonwealth of Virginia



### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** James City County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 67,009 | 86,142 | 109,030 | 136,736 | 103.0% |

***Figure 4:** James City County population projections by decade for 2010, 2020, 2030 & 2040

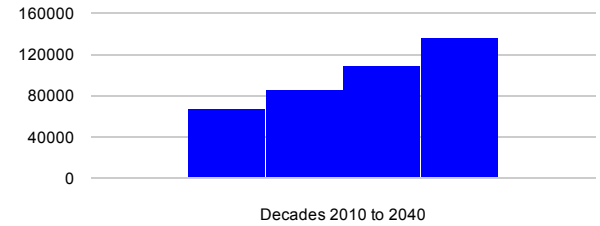
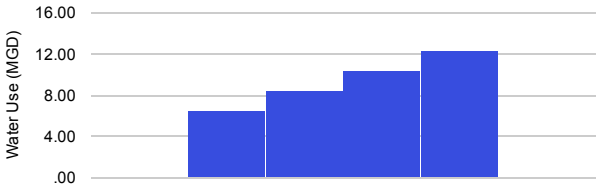



***Table 4 & Figure 5:** James City County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 6.46 | 8.42 | 10.39 | 12.35 | 91.1% |




### Drought Management Practices

The City adopted a “water supply emergency ordinance” for the implementation and enforcement of the Drought Response and Contingency Plan. (Hampton Roads Regional WSP)

King and Queen County

### Water Source Overview

Major water sources are the Mattaponi River and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for King and Queen County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Agricultural Self-Supplied Users | 1.131 | 1.131 |
| Community Water System | 0.036 | 0.040 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.819 | 0.919 |

### Water Use by System Type

Approximately 6,581 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

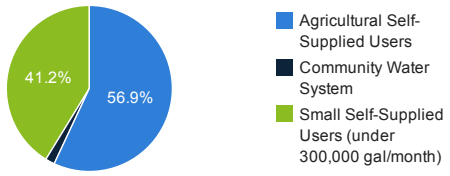



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

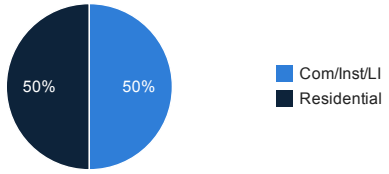
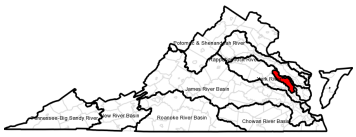



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for King and Queen County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.92 | 1.07 | 1.02 | 1.07 |

***Figure 3:** King and Queen County highlighted in the Commonwealth of Virginia



### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** King and Queen County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 6,945 | 7,219 | 7,466 | 7,690 | 16.7% |

***Figure 4:** King and Queen County population projections by decade for 2010, 2020, 2030 & 2040

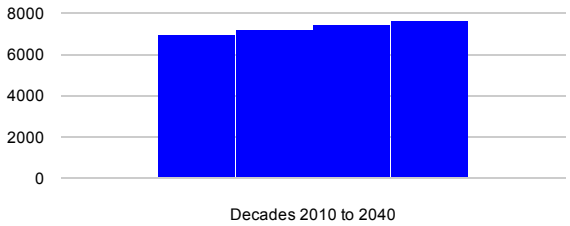
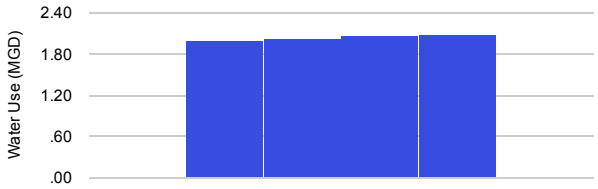



***Table 4 & Figure 5:** King and Queen County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 1.99 | 2.02 | 2.06 | 2.09 | 5.2% |




### Drought Management Practices

The County adopted a “water supply emergency ordinance” for the implementation and enforcement of the Drought Response and Contingency Plan. (Middle Peninsula Regional WSP)

King George County

### Water Source Overview

Major water sources are the Rappahannock River and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for King George County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 1.297 | 2.995 |
| Large Self-Supplied Users (over 300,000 gal/month) | 3.478 | 3.478 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.893 | 2.359 |
| Agricultural Self-Supplied Users | 0.315 | 0.315 |

### Water Use by System Type

Approximately 9,000 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

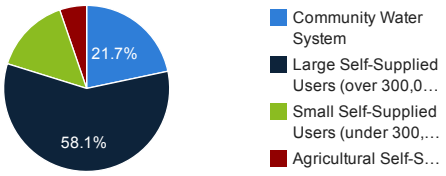



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

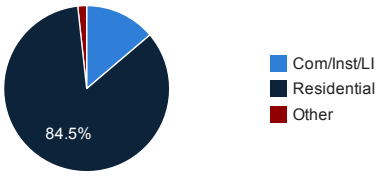



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for King George County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 2.49 | 3.49 | 5.66 | 3.49 |

***Figure 3:** King George County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. A water supply deficit of 1.5 to 2.0 MGD is estimated in the year 2030 for King George County community water systems. A water supply deficit of 1.0 to 1.5 MGD is estimated in the year 2030 for self-supplied residential users in King George County. Alternative water sources identified include wastewater reuse, interconnection with a neighboring locality, reservoir development, and an intake on the Rappahannock River.

***Table 3:** King George County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 23,584 | 27,109 | 29,997 | 32,734 | 39.1% |

***Figure 4:** King George County population projections by decade for 2010, 2020, 2030 & 2040

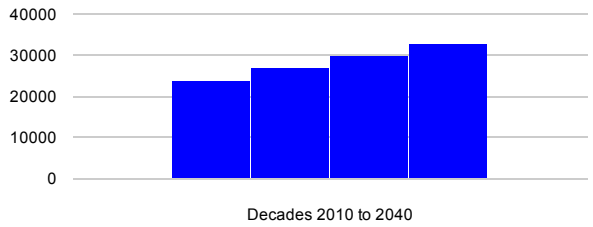
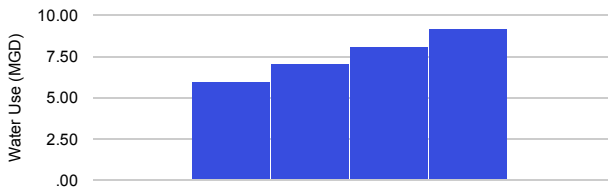



***Table 4 & Figure 5:** King George County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 5.98 | 7.04 | 8.09 | 9.15 | 52.9% |




### Drought Management Practices

King George County adopted a Drought Management Ordinance for the implementation and enforcement of the Drought Assessment and Response Plan. (King George County WSP)

King William County and the Town of West Point

### Water Source Overview

Major water sources are groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for King William County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.219 | 4.111 |
| Large Self-Supplied Users (over 300,000 gal/month) | 17.972 | 17.972 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.118 | 1.218 |
| Agricultural Self-Supplied Users | 0.477 | 0.477 |

### Water Use by System Type

Approximately 6,581 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

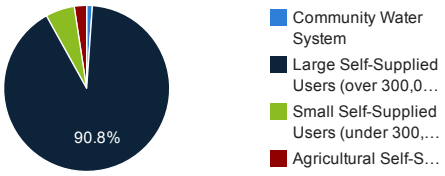



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

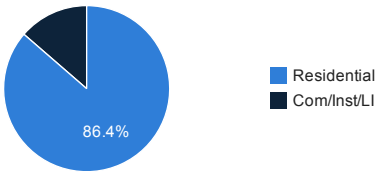



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for King William County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 19.31 | 0.47 | 23.31 | 0.47 |

***Figure 3:** King William County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Rapid growth predicted for King William County and the Town of West Point result in projections that exceed current community water system supplies by 2020 for King William (deficit of 0.925 MGD) and 2030 for West Point (deficit of 0.036 MGD). New well development and an intake on the Pamunkey River are the County's preferred alternatives for source water. Alternative sources listed for the Town include system upgrades and groundwater permit modifications that allow for greater use of existing wells.

***Table 3:** King William County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 15,935 | 17,308 | 18,316 | 19,191 | 26.7% |

***Figure 4:** King William County population projections by decade for 2010, 2020, 2030 & 2040

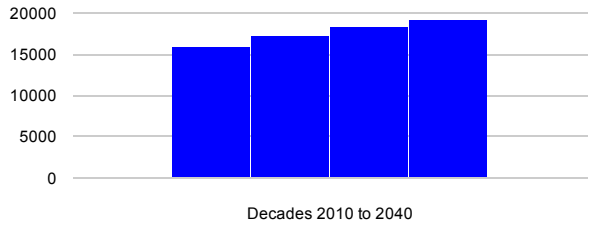
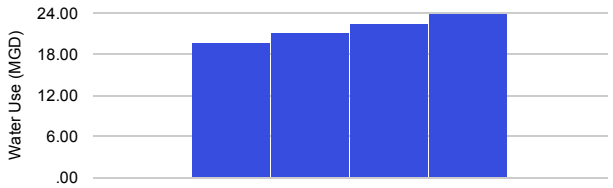



***Table 4 & Figure 5:** King William County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 19.79 | 21.12 | 22.45 | 23.78 | 20.2% |




### Drought Management Practices

The County and Town each adopted a "water supply emergency ordinance" for the implementation and enforcement of the Drought Response and Contingency Plan. (Middle Peninsula Regional WSP)

Lancaster County and the Towns of Irvington, Kilmarnock, and White Stone

### Water Source Overview

Major water sources include groundwater wells and Lake Irvington.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Lancaster County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.637 | 0.764 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.525 | 0.525 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.379 | 0.365 |

### Water Use by System Type

Approximately 5,056 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

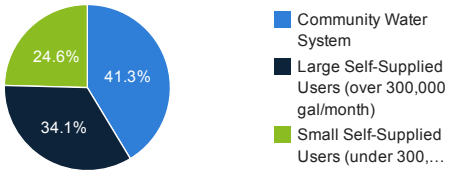



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Lancaster County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.39 | 0.15 | 1.50 | 0.15 |

***Figure 3:** Lancaster County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Lancaster County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 11,391 | 11,736 | 12,166 | 12,581 | 9.1% |

***Figure 4:** Lancaster County population projections by decade for 2010, 2020, 2030 & 2040

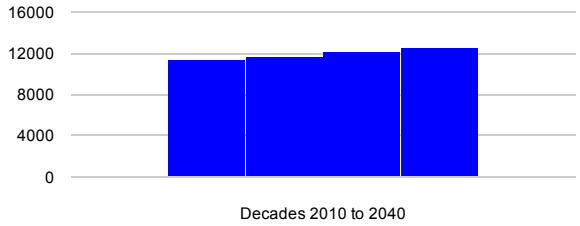
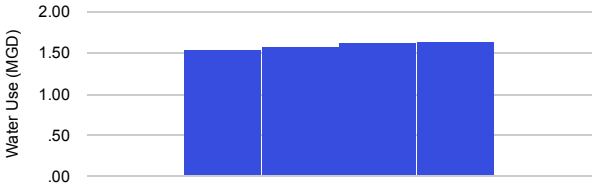



***Table 4 & Figure 5:** Lancaster County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 1.54 | 1.58 | 1.62 | 1.65 | 7.4% |




### Drought Management Practices

The County and Towns each adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Northern Neck Regional WSP)

Lee County and the Towns of Jonesville, Pennington Gap, and St. Charles

### Water Source Overview

Major water sources include the Powell River, Wynn Spring, and the KVS Quarry Pond.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Lee County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Small Self-Supplied Users (under 300,000 gal/month) | 0.265 | 0.265 |
| Community Water System | 2.712 | 2.668 |

### Water Use by System Type

Approximately 5,800 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

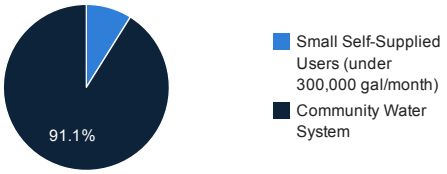



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

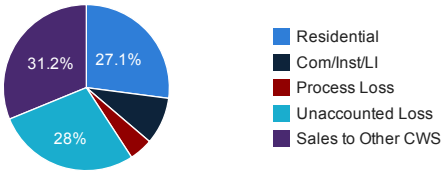



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Lee County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.27 | 2.71 | 0.27 | 2.67 |

***Figure 3:** Lee County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to decrease through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Lee County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 25,587 | 25,063 | 23,961 | 22,951 | -12.0% |

***Figure 4:** Lee County population projections by decade for 2010, 2020, 2030 & 2040

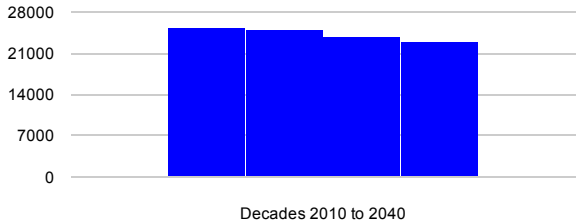
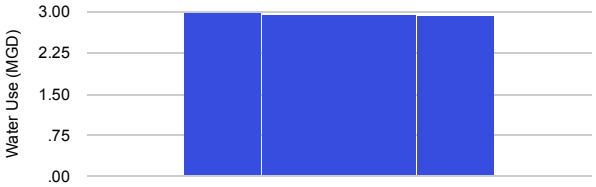



***Table 4 & Figure 5:** Lee County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 2.98 | 2.96 | 2.95 | 2.93 | -1.5% |




### Drought Management Practices

The Town of St. Charles adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. The status of drought enforcement in Lee County and the Towns of Pennington Gap and Jonesville is pending and will be resolved by the five-year update of the water supply plan. (Southwest Virginia Regional Water Supply Plan)

City of Lexington

### Water Source Overview

Major sources are purchased water and Coe Springs.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Lexington in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Agricultural Self-Supplied Users | 0.036 | 0.036 |
| Community Water System | 0.901 | 0.903 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.025 | 0.025 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

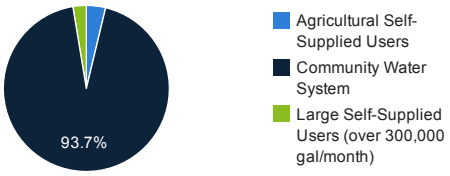



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

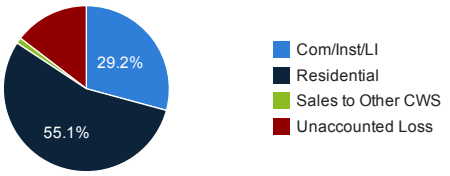



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Lexington in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.03 | 0.94 | 0.02 | 0.94 |

***Figure 3:** Lexington highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Lexington population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 7,042 | 7,613 | 8,225 | 8,799 | 14.3% |

***Figure 4:** Lexington population projections by decade for 2010, 2020, 2030 & 2040

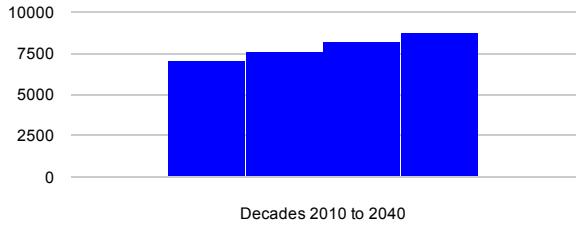
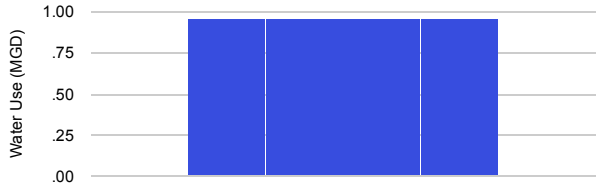



***Table 4 & Figure 5:** Lexington water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 0.96 | 0.96 | 0.96 | 0.96 | 0.1% |




### Drought Management Practices

The City adopted an ordinance for the implementation and enforcement of the Regional Drought Response and Contingency Plan. (Upper James Regional WSP)

Loudoun County and the Towns of Hamilton, Hillsboro, Leesburg, Lovettsville, Middleburg, Purcellville, and Round Hill

### Water Source Overview

Major water sources include purchased water, groundwater wells, and the Hirst Reservoir.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Loudoun County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 23.604 | 38.239 |
| Large Self-Supplied Users (over 300,000 gal/month) | 1.825 | 2.914 |
| Small Self-Supplied Users (under 300,000 gal/month) | 4.121 | 4.133 |
| Agricultural Self-Supplied Users | 5.399 | 5.399 |

### Water Use by System Type

Approximately 54,696 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

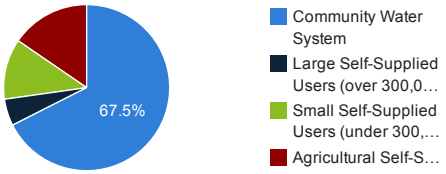



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

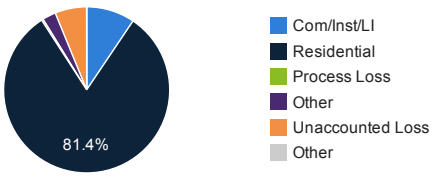



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Loudoun County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 9.27 | 25.68 | 10.94 | 39.75 |

***Figure 3:** Loudoun County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Loudoun County and five of the towns are not expected to experience a water deficit by the year 2040. The well and spring used by the Town of Hillsboro are inadequate and the Town plans to construct a new well and provide additional storage and infrastructure upgrades. The Town of Purcellville is estimated to experience a water supply deficit of approximately 0.07 MGD by 2040. The Northern Virginia WSP Region's plan to address the projected shortfall of municipal supply includes constructing a stream intake/pumping station on the Potomac estuary below Little Falls (recently permitted by DEQ); utilizing a reverse osmosis membrane treatment plant on the Occoquan estuary, using quarries located in Fairfax County to augment Fairfax Water storage, and using Loudoun County quarries to augment system storage (recently permitted by DEQ).

***Table 3:** Loudoun County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 312,311 | 397,272 | 482,234 | 567,195 | 81.7% |

***Figure 4:** Loudoun County population projections by decade for 2010, 2020, 2030 & 2040

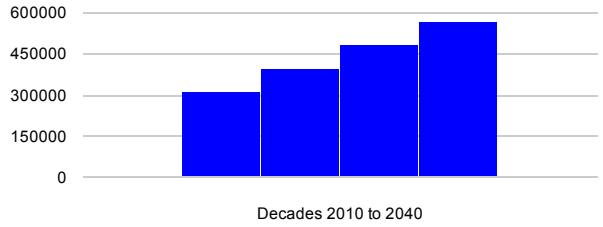
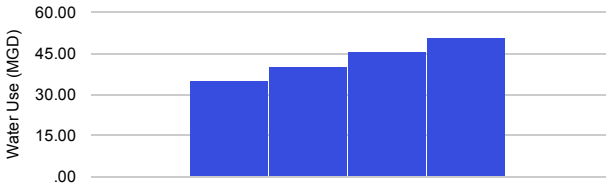



***Table 4 & Figure 5:** Loudoun County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 34.95 | 40.19 | 45.44 | 50.69 | 45.0% |




### Drought Management Practices

The County and Towns each adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Northern Virginia Regional WSP and the Town of Hillsboro WSP)

Louisa County and the Towns of Louisa and Mineral

### Water Source Overview

Major sources include Lake Anna, groundwater wells, an irrigation lake on Spring Branch, and the Northeast Creek Reservoir.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Louisa County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.618 | 1.918 |
| Large Self-Supplied Users (over 300,000 gal/month) | 25.276 | 40.264 |
| Small Self-Supplied Users (under 300,000 gal/month) | 2.231 | 3.149 |
| Agricultural Self-Supplied Users | 0.312 | 0.312 |

### Water Use by System Type

Approximately 25,590 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

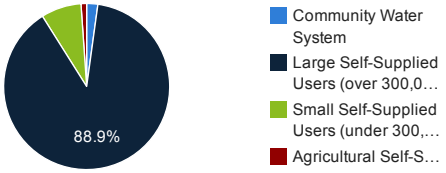



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

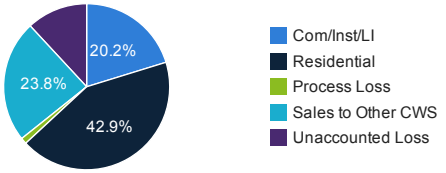



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Louisa County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 2.90 | 25.54 | 4.77 | 40.87 |

***Figure 3:** Louisa County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Future water demands in the County may exceed current supply by the year 2025. Louisa County partnered with Fluvanna County to create the James River Water Authority, which has a Virginia Water Protection (VWP) permit for a withdrawal from the James River.

***Table 3:** Louisa County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 33,153 | 37,092 | 40,338 | 43,436 | 30.3% |

***Figure 4:** Louisa County population projections by decade for 2010, 2020, 2030 & 2040

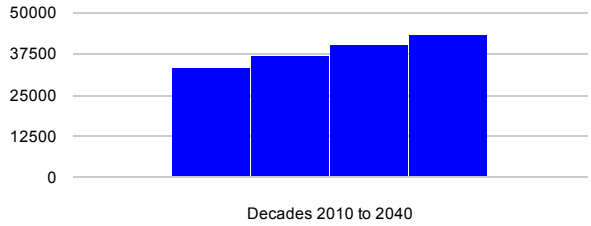
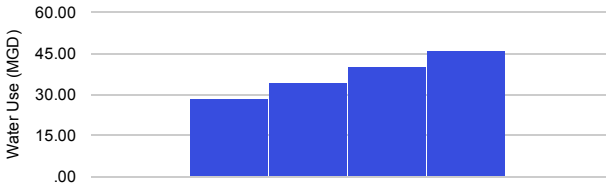



***Table 4 & Figure 5:** Louisa County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 28.44 | 34.17 | 39.91 | 45.64 | 60.5% |




### Drought Management Practices

The County and Towns adopted ordinances for the implementation and enforcement of the regional Drought Response and Contingency Plan. (Louisa County and Towns Regional WSP)

Lunenburg County and the Towns of Kenbridge and Victoria

### Water Source Overview

Major sources include groundwater wells, Nottoway Falls Reservoir, and Flat Rock Creek.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Lunenburg County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Agricultural Self-Supplied Users | 0.023 | 0.023 |
| Community Water System | 0.452 | 0.462 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.759 | 0.782 |

### Water Use by System Type

Approximately 9,747 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

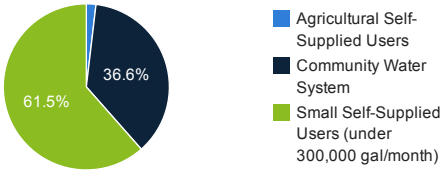



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

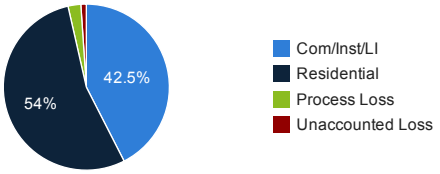
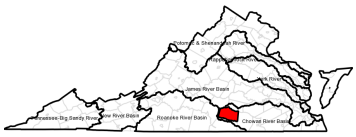



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Lunenburg County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.76 | 0.48 | 0.78 | 0.48 |

***Figure 3:** Lunenburg County highlighted in the Commonwealth of Virginia



### Projected Water Demand

Population and demand are projected to increase slightly through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Lunenburg County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 12,914 | 12,953 | 13,047 | 13,144 | 8.3% |

***Figure 4:** Lunenburg County population projections by decade for 2010, 2020, 2030 & 2040

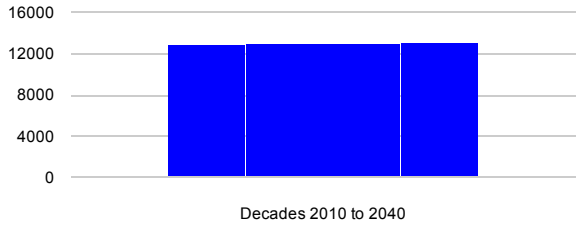



***Table 4 & Figure 5:** Lunenburg County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 1.23 | 1.25 | 1.26 | 1.27 | 2.6% |

### Drought Management Practices

The County will support the conservation efforts of the two Towns by entering or maintaining a watch stage when either Town enters into a watch, warning, or emergency drought stage. The Towns each adopted ordinances for implementation and enforcement of the Drought Response and Contingency Plan. (Lunenburg County Regional Water Supply Plan)

City of Lynchburg

### Water Source Overview

Major sources include the James River and the Pedlar Reservoir.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Lynchburg in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Large Self-Supplied Users (over 300,000 gal/month) | 0.067 | 0.131 |
| Community Water System | 11.800 | 15.695 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

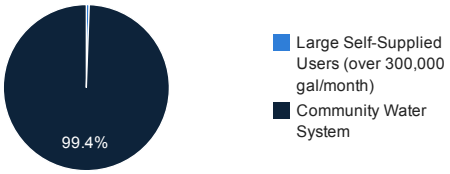



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

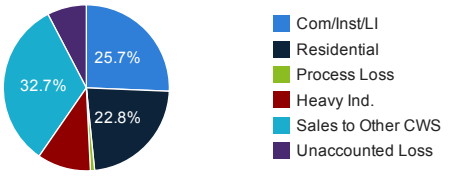



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Lynchburg in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.00 | 11.87 | 0.00 | 15.83 |

***Figure 3:** Lynchburg highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Lynchburg population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 75,568 | 80,229 | 83,840 | 87,137 | 16.0% |

***Figure 4:** Lynchburg population projections by decade for 2010, 2020, 2030 & 2040

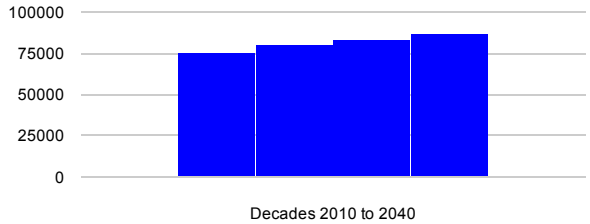
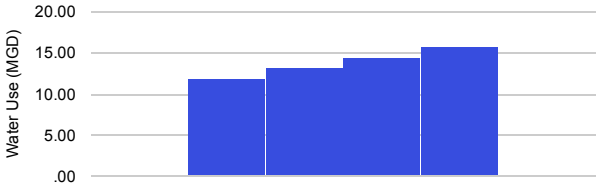



***Table 4 & Figure 5:** Lynchburg water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 11.87 | 13.19 | 14.51 | 15.83 | 33.4% |




### Drought Management Practices

The City adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Region 2000 WSP)

Madison County and the Town of Madison

### Water Source Overview

Major sources include White Oak Lake and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Madison County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Small Self-Supplied Users (under 300,000 gal/month) | 1.620 | 2.298 |
| Community Water System | 0.124 | 0.157 |

### Water Use by System Type

Approximately 12,925 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

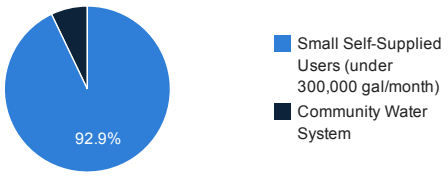



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

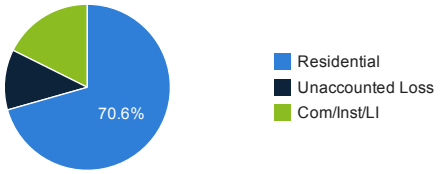



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Madison County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.67 | 0.08 | 2.34 | 0.11 |

***Figure 3:** Madison County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Madison County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 13,308 | 14,008 | 14,640 | 15,214 | 15.4% |

***Figure 4:** Madison County population projections by decade for 2010, 2020, 2030 & 2040

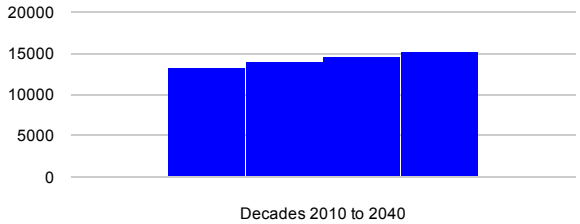
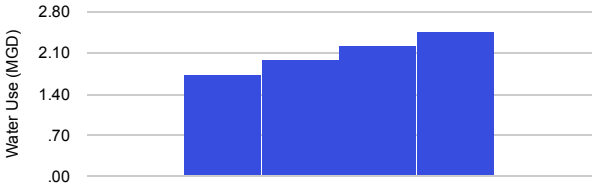



***Table 4 & Figure 5:** Madison County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 1.74 | 1.98 | 2.22 | 2.45 | 40.8% |




### Drought Management Practices

The County will adopt an emergency ordinance to enforce the Drought Response and Contingency Plan in the event of a drought. The Town intends to follow the County's lead on drought declaration. (Madison County and Town Regional WSP)

City of Manassas

### Water Source Overview

The major source is Lake Manassas.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Manassas in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Small Self-Supplied Users (under 300,000 gal/month) | 0.001 | 0.002 |
| Community Water System | 12.000 | 21.062 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

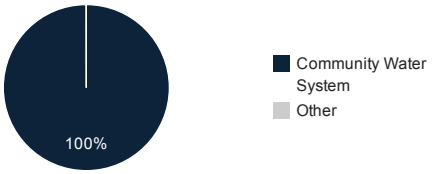



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

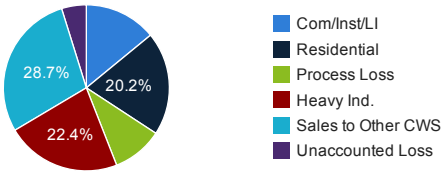



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Manassas in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.00 | 12.00 | 0.00 | 21.06 |

***Figure 3:** Manassas highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Manassas population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 37,821 | 42,105 | 46,591 | 51,005 | 37.8% |

***Figure 4:** Manassas population projections by decade for 2010, 2020, 2030 & 2040

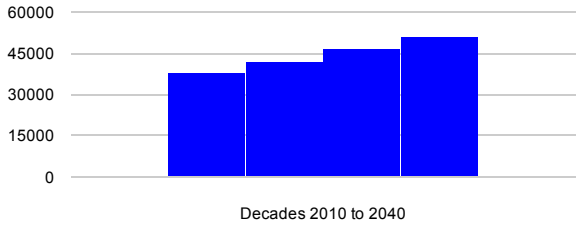
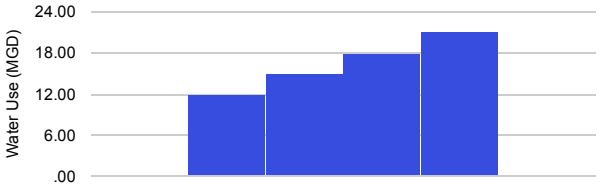



***Table 4 & Figure 5:** Manassas water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 12.00 | 15.02 | 18.04 | 21.06 | 75.5% |




### Drought Management Practices

The City has adopted a water conservation ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Northern Virginia Regional WSP)

City of Manassas Park

### Water Source Overview

Major sources are purchased water and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Manassas Park in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.790 | 1.426 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

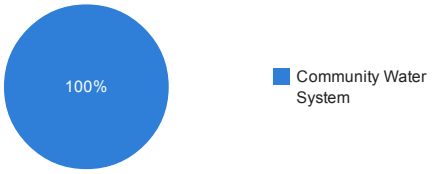



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

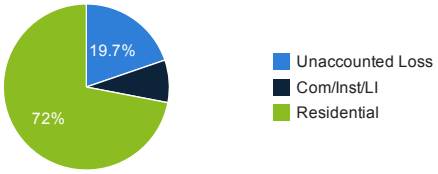



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Manassas Park in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.79 | 0.00 | 1.43 | 0.00 |

***Figure 3:** Manassas Park highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Manassas Park population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 14,273 | 16,591 | 18,436 | 20,076 | 42.9% |

***Figure 4:** Manassas Park population projections by decade for 2010, 2020, 2030 & 2040

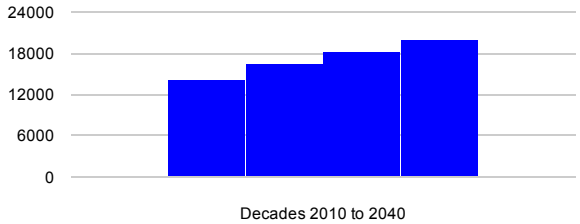
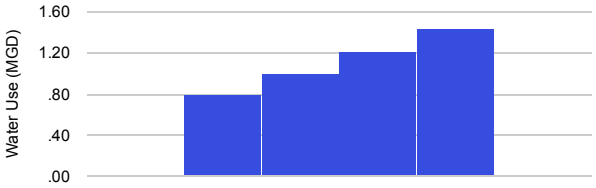



***Table 4 & Figure 5:** Manassas Park water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 0.79 | 1.00 | 1.21 | 1.43 | 80.6% |




### Drought Management Practices

The City adopted a water conservation ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Northern Virginia Regional Water Supply Plan)

City of Martinsville

### Water Source Overview

Major sources are Beaver Creek Reservoir, Leatherwood Creek, and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Martinsville in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 1.937 | 1.937 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.200 | 1.972 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.026 | 0.026 |

### Water Use by System Type

Approximately 16,000 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

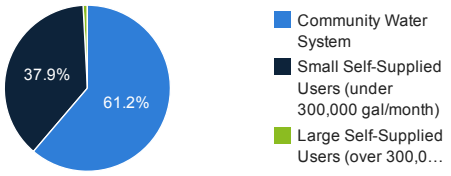



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

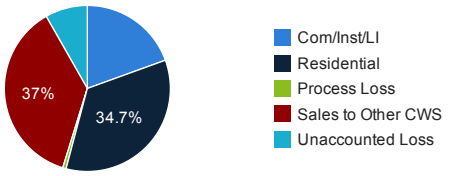



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Martinsville in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.20 | 1.96 | 1.97 | 1.96 |

***Figure 3:** Martinsville highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Martinsville population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 13,821 | 14,217 | 15,052 | 15,878 | 15.4% |

***Figure 4:** Martinsville population projections by decade for 2010, 2020, 2030 & 2040

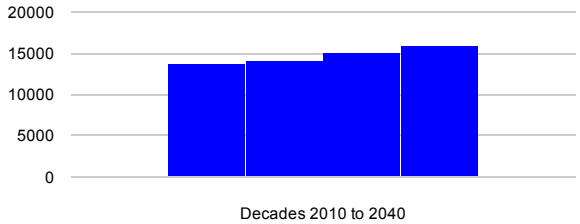
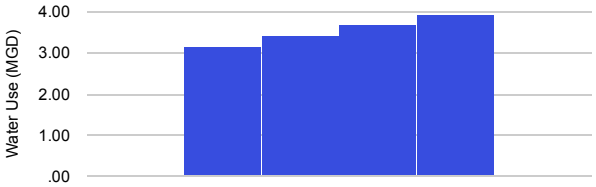



***Table 4 & Figure 5:** Martinsville water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 3.16 | 3.42 | 3.68 | 3.93 | 24.4% |




### Drought Management Practices

The City adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (West Piedmont PDC Regional WSP)

Mathews County

### Water Source Overview

Major sources are groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Mathews County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Agricultural Self-Supplied Users | 0.000 | 0.000 |
| Community Water System | 0.041 | 0.041 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.940 | 1.040 |

### Water Use by System Type

Approximately 8,539 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

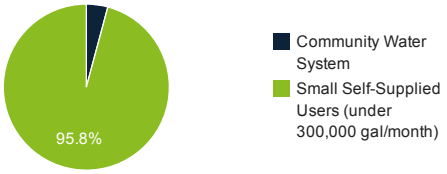



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

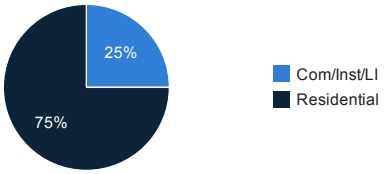



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Mathews County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.98 | 0.00 | 1.08 | 0.00 |

***Figure 3:** Mathews County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Mathews County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 8,978 | 9,284 | 9,680 | 10,067 | 25.0% |

***Figure 4:** Mathews County population projections by decade for 2010, 2020, 2030 & 2040

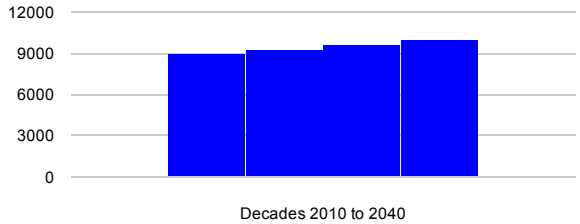
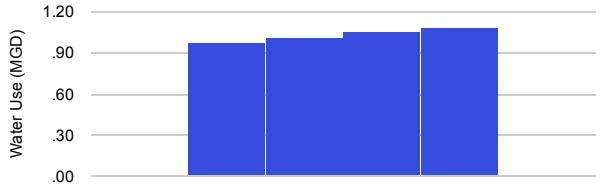



***Table 4 & Figure 5:** Mathews County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 0.98 | 1.01 | 1.05 | 1.08 | 10.2% |




### Drought Management Practices

The County adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Middle Peninsula Regional WSP)

Mecklenburg County and the Towns of Boydton, Chase City, Clarksville, La Crosse, and South Hill

### Water Source Overview

Major sources are the John H. Kerr Reservoir, Lake Gaston, groundwater wells, and purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Mecklenburg County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 2.822 | 2.889 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.601 | 1.641 |
| Large Self-Supplied Users (over 300,000 gal/month) | 2.414 | 2.472 |

### Water Use by System Type

Approximately 18,857 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

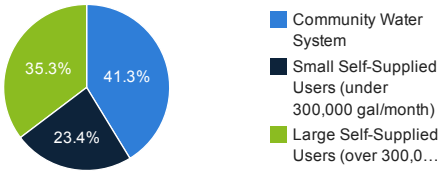



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

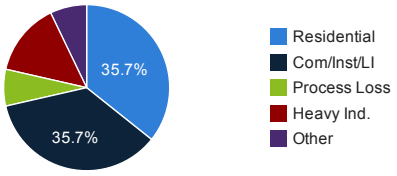
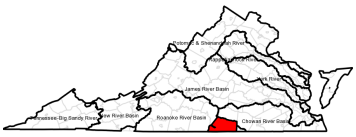



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Mecklenburg County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.95 | 4.88 | 2.00 | 5.00 |

***Figure 3:** Mecklenburg County highlighted in the Commonwealth of Virginia



### Projected Water Demand

Population and demands are projected to increase only slightly during the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Mecklenburg County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 32,727 | 32,877 | 32,968 | 33,037 | 3.1% |

***Figure 4:** Mecklenburg County population projections by decade for 2010, 2020, 2030 & 2040

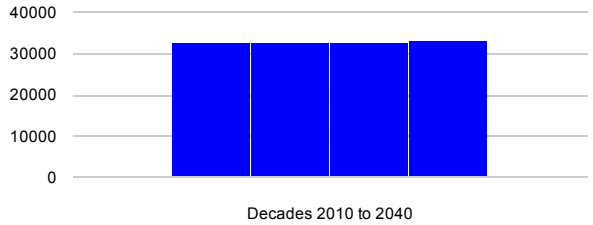
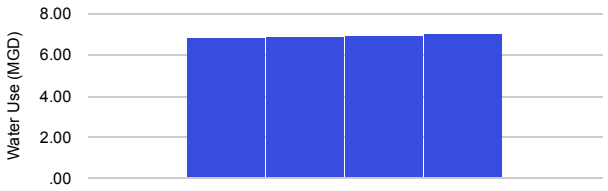



***Table 4 & Figure 5:** Mecklenburg County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 6.84 | 6.89 | 6.95 | 7.00 | 2.4% |




### Drought Management Practices

The County and Towns adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Lake Country Regional WSP)

Middlesex County and the Town of Urbanna

### Water Source Overview

Major sources are groundwater wells and agricultural ponds.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Middlesex County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.312 | 0.339 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.017 | 0.017 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.936 | 1.036 |
| Agricultural Self-Supplied Users | 0.050 | 0.050 |

### Water Use by System Type

Approximately 8,114 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

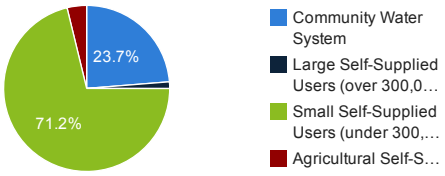



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

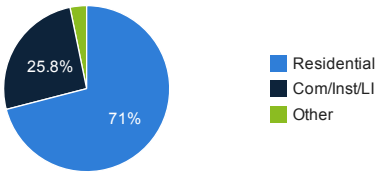



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Middlesex County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.27 | 0.05 | 1.39 | 0.05 |

***Figure 3:** Middlesex County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Middlesex County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 10,959 | 11,684 | 12,300 | 12,851 | 20.0% |

***Figure 4:** Middlesex County population projections by decade for 2010, 2020, 2030 & 2040

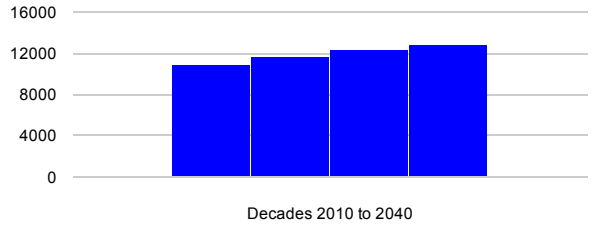
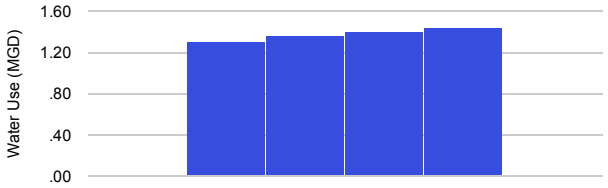



***Table 4 & Figure 5:** Middlesex County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 1.32 | 1.36 | 1.40 | 1.44 | 9.7% |




### Drought Management Practices

The County and Town adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Middle Peninsula Regional WSP)

Montgomery County and the Towns of Blacksburg and Christiansburg

### Water Source Overview

Major sources are the New River, purchased water, and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Montgomery County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 5.935 | 8.592 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.960 | 1.440 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.013 | 0.019 |
| Agricultural Self-Supplied Users | 1.512 | 1.512 |

### Water Use by System Type

Approximately 9,342 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

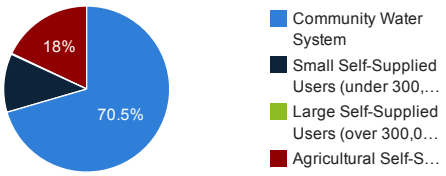



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

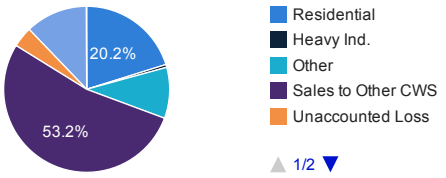



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Montgomery County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.97 | 6.45 | 2.56 | 9.01 |

***Figure 3:** Montgomery County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Montgomery County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 94,392 | 105,293 | 116,278 | 127,338 | 35.1% |

***Figure 4:** Montgomery County population projections by decade for 2010, 2020, 2030 & 2040

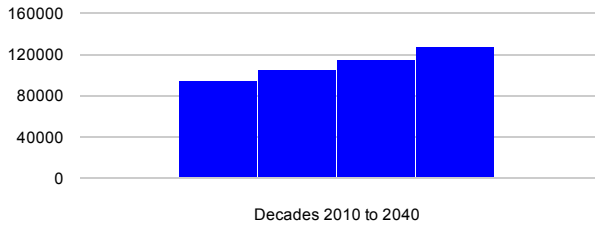
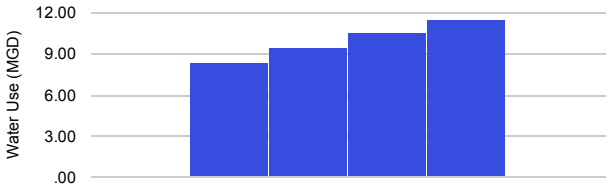



***Table 4 & Figure 5:** Montgomery County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 8.42 | 9.47 | 10.51 | 11.56 | 37.3% |




### Drought Management Practices

The County and Towns adopted ordinances for the implementation and enforcement of Drought Response and Contingency Plans. (New River Valley Regional WSP and the Blacksburg/Christiansburg Regional WSP)

Nelson County

### Water Source Overview

Major sources are the Tye River, Hat Creek, Lake Monacan, and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Nelson County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.284 | 0.414 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.066 | 0.097 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.731 | 1.424 |
| Agricultural Self-Supplied Users | 1.185 | 1.185 |

### Water Use by System Type

Approximately 9,028 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

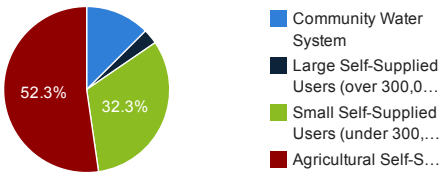



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

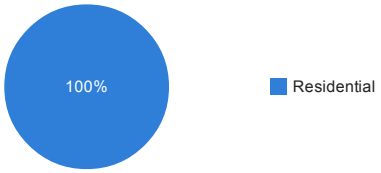



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Nelson County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.16 | 1.11 | 1.94 | 1.18 |

***Figure 3:** Nelson County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Demand is projected to increase through the planning period. The highest rated alternative for municipal water supply is a Tye River withdrawal.

***Table 3:** Nelson County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 15,020 | 15,091 | 15,044 | 14,976 | -6.7% |

***Figure 4:** Nelson County population projections by decade for 2010, 2020, 2030 & 2040

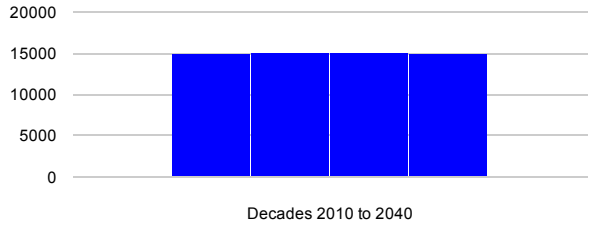
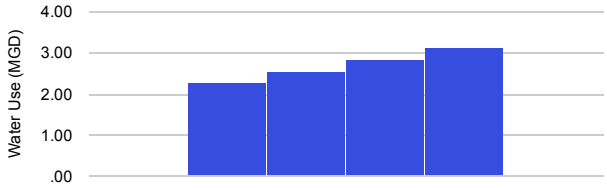



***Table 4 & Figure 5:** Nelson County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 2.27 | 2.55 | 2.84 | 3.12 | 37.7% |




### Drought Management Practices

The County adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Region 2000 Regional WSP)

New Kent County

### Water Source Overview

Major sources are groundwater wells and the Pamunkey River.

***Table 1:** Reported (2010) and projected (2040) water use by system type for New Kent County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.807 | 2.396 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.058 | 0.058 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.754 | 0.754 |
| Agricultural Self-Supplied Users | 0.243 | 0.243 |

### Water Use by System Type

Approximately 9,106 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

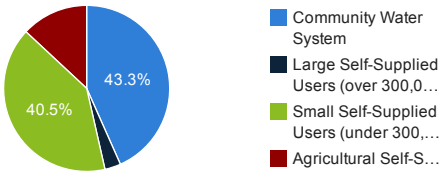



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

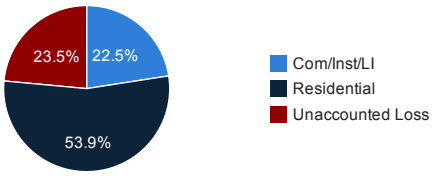



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for New Kent County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.57 | 0.29 | 3.16 | 0.29 |

***Figure 3:** New Kent County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Two top ranked alternatives for future water supply are an intake on the Pamunkey River (reverse osmosis water treatment) and the purchase of water from the City of Richmond.

***Table 3:** New Kent County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 18,429 | 21,031 | 23,112 | 25,036 | 38.9% |

***Figure 4:** New Kent County population projections by decade for 2010, 2020, 2030 & 2040

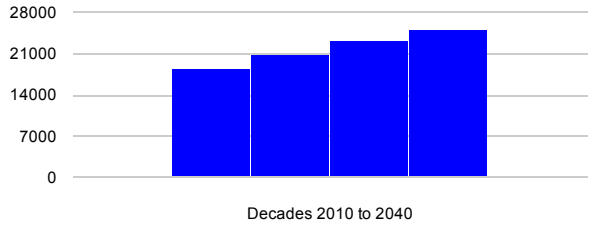
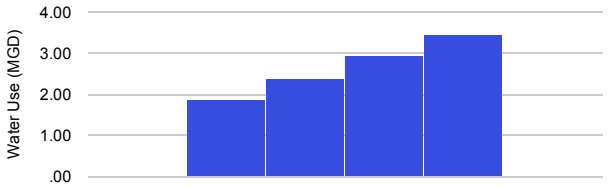



***Table 4 & Figure 5:** New Kent County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 1.86 | 2.39 | 2.92 | 3.45 | 85.3% |




### Drought Management Practices

The County adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (New Kent County Local WSP)

City of Newport News

### Water Source Overview

Major sources are the Chickahominy River and the Lee Hall, Harwood's Mill, and Diascund Reservoirs. Newport News Waterworks (NNW) provides water service to approximately 400,000 people in the Peninsula sub-region of Hampton Roads, including the cities of Hampton, Poquoson, and Newport News. Water use and projected demand data for the City of Newport News snapshot also includes use and demand data for the cities of Hampton and Poquoson.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Newport News in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 51.625 | 61.510 |
| Large Self-Supplied Users (over 300,000 gal/month) | 8.557 | 8.557 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.008 | 0.010 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

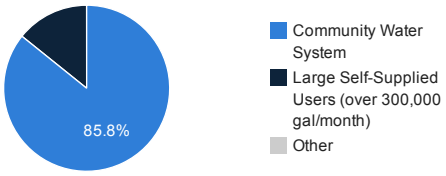



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

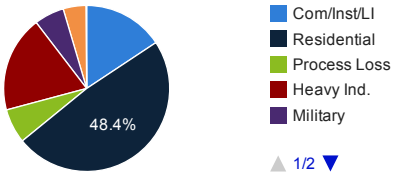



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Newport News in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 5.93 | 54.26 | 7.00 | 63.07 |

***Figure 3:** Newport News highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Supplies are anticipated to meet projected demand for the HRPDC region.

***Table 3:** Newport News population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 180,719 | 185,196 | 189,890 | 193,838 | 7.2% |

***Figure 4:** Newport News population projections by decade for 2010, 2020, 2030 & 2040

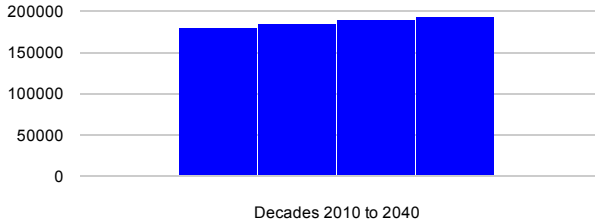
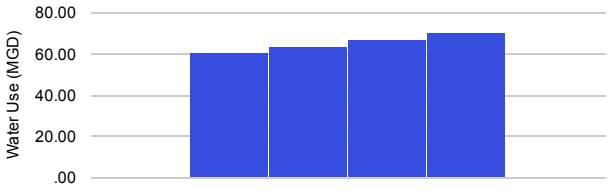



***Table 4 & Figure 5:** Newport News water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 60.19 | 63.49 | 66.78 | 70.08 | 16.4% |




### Drought Management Practices

The City adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Hampton Roads PDC Regional WSP)

City of Norfolk

### Water Source Overview

Major sources include the Western and Intown Reservoir Systems, the Blackwater and Nottoway Rivers, groundwater wells, and purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Norfolk in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Large Self-Supplied Users (over 300,000 gal/month) | 0.355 | 0.355 |
| Community Water System | 19.435 | 19.435 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

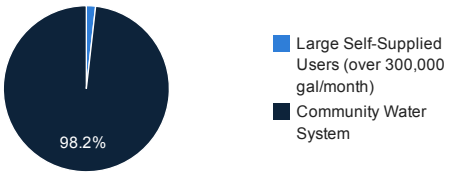



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

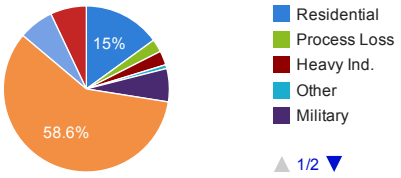



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Norfolk in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 3.38 | 16.41 | 3.38 | 16.41 |

***Figure 3:** Norfolk highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Norfolk population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 242,803 | 252,128 | 258,323 | 260,689 | 7.4% |

***Figure 4:** Norfolk population projections by decade for 2010, 2020, 2030 & 2040

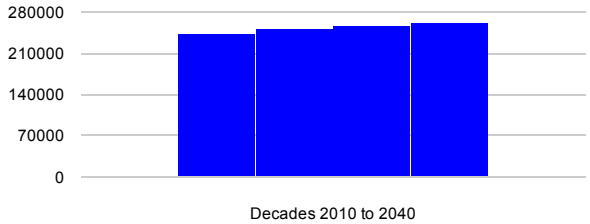
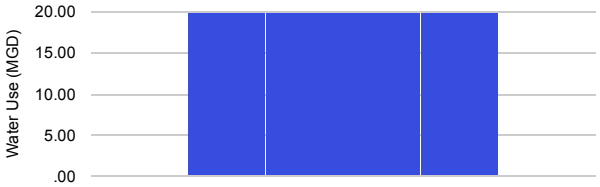



***Table 4 & Figure 5:** Norfolk water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 19.79 | 19.79 | 19.79 | 19.79 | -0.0% |




### Drought Management Practices

The City adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Hampton Roads PDC Regional WSP)

Northampton County and the Towns of Belle Haven, Cape Charles, Cheriton, Eastville, Exmore, and Nassawadox

### Water Source Overview

The major sources are groundwater wells and agricultural ponds.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Northampton County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.347 | 0.693 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.041 | 0.063 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.940 | 0.783 |
| Agricultural Self-Supplied Users | 1.647 | 1.647 |

### Water Use by System Type

Approximately 9,189 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

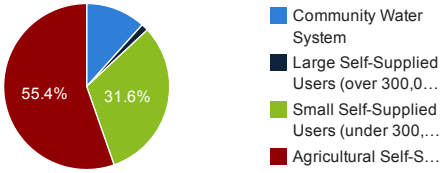



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

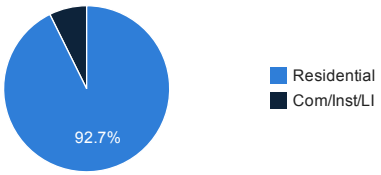



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Northampton County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.93 | 1.05 | 2.14 | 1.05 |

***Figure 3:** Northampton County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Demands are projected to increase slightly through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Northampton County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 12,389 | 12,133 | 11,996 | 11,896 | -8.3% |

***Figure 4:** Northampton County population projections by decade for 2010, 2020, 2030 & 2040

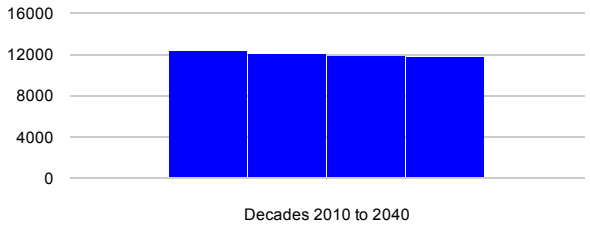
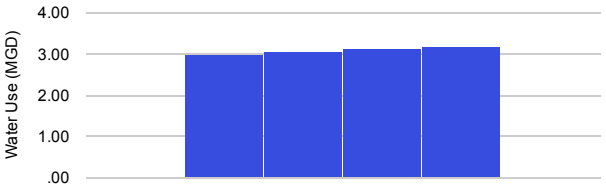



***Table 4 & Figure 5:** Northampton County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 2.98 | 3.05 | 3.12 | 3.19 | 7.1% |




### Drought Management Practices

The County and Towns will adopt emergency ordinances when the need arises to implement and enforce the Drought Response and Contingency Plan. (Northampton Regional WSP)

Northumberland County

### Water Source Overview

Major sources are groundwater wells and Cockrell Creek.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Northumberland County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.393 | 0.474 |
| Large Self-Supplied Users (over 300,000 gal/month) | 1.629 | 1.629 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.608 | 0.814 |
| Agricultural Self-Supplied Users | 0.033 | 0.033 |

### Water Use by System Type

Approximately 8,101 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

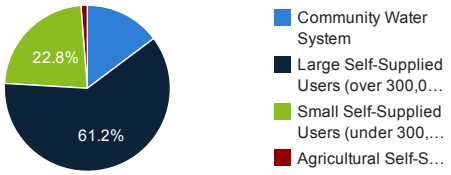



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

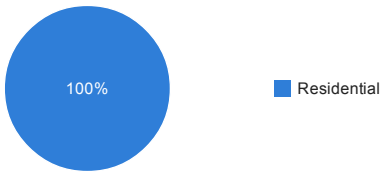
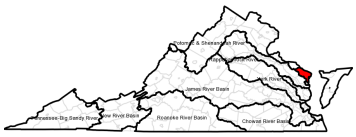



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Northumberland County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.56 | 1.11 | 1.84 | 1.11 |

***Figure 3:** Northumberland County highlighted in the Commonwealth of Virginia



### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Northumberland County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 12,330 | 12,636 | 12,968 | 13,281 | 8.3% |

***Figure 4:** Northumberland County population projections by decade for 2010, 2020, 2030 & 2040

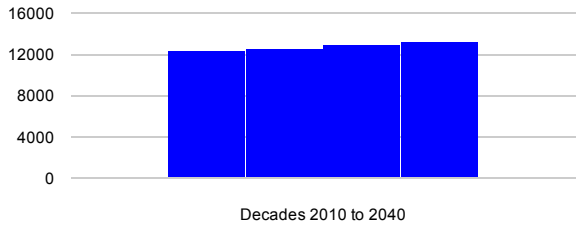
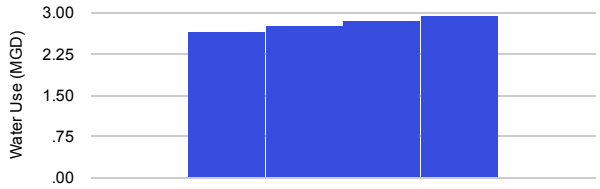



***Table 4 & Figure 5:** Northumberland County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 2.66 | 2.76 | 2.85 | 2.95 | 10.8% |




### Drought Management Practices

The County adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Northern Neck Regional WSP)

City of Norton

### Water Source Overview

Major sources are the Upper and Lower Reservoirs, Benges Branch, and Robinette Branch.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Norton in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 1.130 | 0.821 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

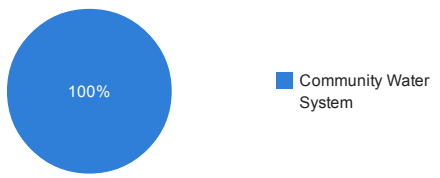



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

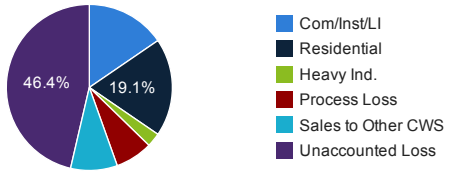



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Norton in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.00 | 1.13 | 0.00 | 0.82 |

***Figure 3:** Norton highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Norton population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 3,958 | 4,201 | 4,468 | 4,722 | 33.3% |

***Figure 4:** Norton population projections by decade for 2010, 2020, 2030 & 2040

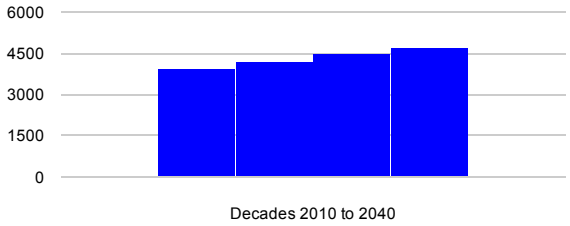
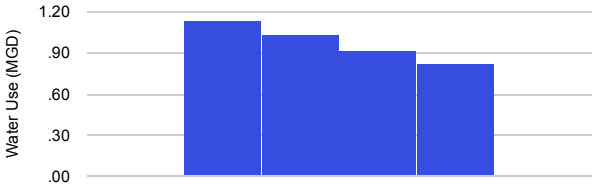



***Table 4 & Figure 5:** Norton water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 1.13 | 1.03 | 0.92 | 0.82 | -27.3% |




### Drought Management Practices

The City of Norton adopted a Drought Response and Contingency Plan; status of drought enforcement in the city is pending and will be resolved by the five-year update of the water supply plan. (Southwest Virginia Regional WSP)

Nottoway County and the Towns of Blackstone, Burkeville, and Crewe

### Water Source Overview

Major sources include the Fort Pickett Reservoir, Crystal Lake, and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Nottoway County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 1.338 | 1.113 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.689 | 1.105 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.023 | 0.053 |
| Agricultural Self-Supplied Users | 0.326 | 0.757 |

### Water Use by System Type

Approximately 9,148 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

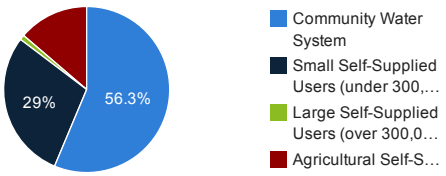



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

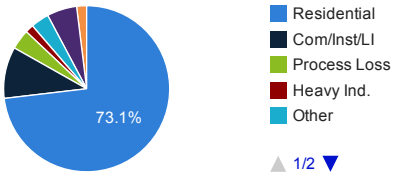



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Nottoway County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.92 | 1.46 | 1.58 | 1.45 |

***Figure 3:** Nottoway County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Nottoway County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 15,853 | 16,035 | 16,212 | 16,374 | 6.7% |

***Figure 4:** Nottoway County population projections by decade for 2010, 2020, 2030 & 2040

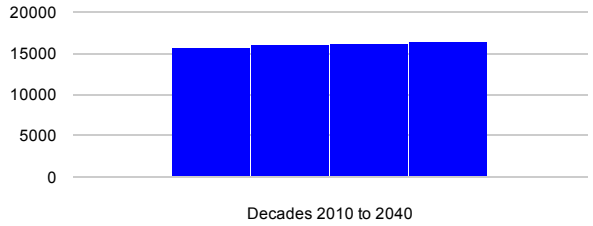



***Table 4 & Figure 5:** Nottoway County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 2.38 | 2.59 | 2.81 | 3.03 | 27.5% |

### Drought Management Practices

The County and Towns adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Nottoway County and Towns Regional WSP)

Orange County and the Towns of Gordonsville and Orange

### Water Source Overview

Major sources include the Rapidan River, purchased water, and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Orange County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 1.363 | 3.697 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.294 | 0.506 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.044 | 0.077 |
| Agricultural Self-Supplied Users | 0.135 | 0.191 |

### Water Use by System Type

Approximately 17,280 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

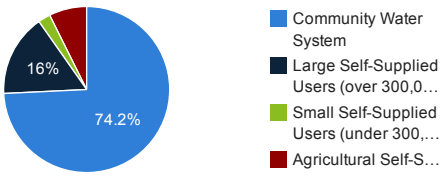



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

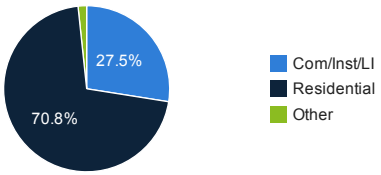



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Orange County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.50 | 1.34 | 0.83 | 3.64 |

***Figure 3:** Orange County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Possible alternatives include increasing the existing, permitted surface water withdrawal, developing new raw water storage, and developing new groundwater supplies.

***Table 3:** Orange County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 33,481 | 37,648 | 41,207 | 44,662 | 33.3% |

***Figure 4:** Orange County population projections by decade for 2010, 2020, 2030 & 2040

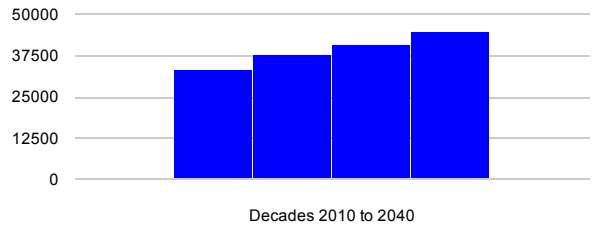
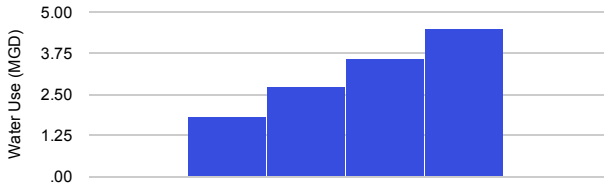



***Table 4 & Figure 5:** Orange County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 1.84 | 2.71 | 3.59 | 4.47 | 143.5% |




### Drought Management Practices

Enforcement of the Drought Response and Contingency Plan is addressed through ordinances that apply to the Towns and the Rapidan Service Authority. (Orange County Regional WSP)

Page County and the Towns of Luray, Shenandoah, and Stanley

### Water Source Overview

Major sources include groundwater wells, Hite Spring, Hudson Spring, and the South Fork Shenandoah River.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Page County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 1.563 | 1.657 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.040 | 0.043 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.036 | 1.095 |
| Agricultural Self-Supplied Users | 0.060 | 0.063 |

### Water Use by System Type

Approximately 13,810 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

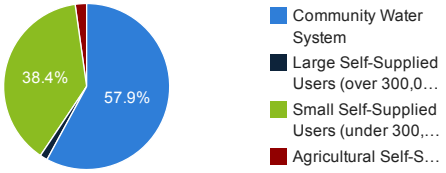



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

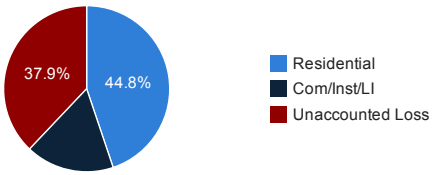



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Page County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.80 | 0.89 | 1.96 | 0.90 |

***Figure 3:** Page County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Page County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 24,042 | 24,995 | 25,895 | 26,716 | 8.3% |

***Figure 4:** Page County population projections by decade for 2010, 2020, 2030 & 2040

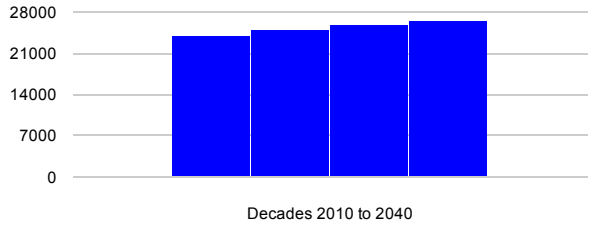
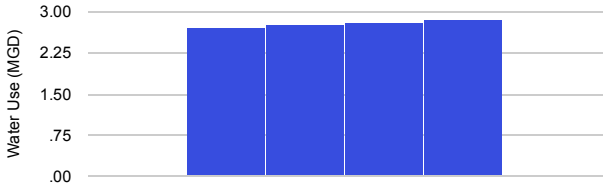



***Table 4 & Figure 5:** Page County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 2.70 | 2.75 | 2.80 | 2.86 | 5.9% |




### Drought Management Practices

The County and Towns adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Northern Shenandoah Regional WSP)

Patrick County and the Town of Stuart

### Water Source Overview

Major sources are groundwater wells, the South Fork Mayo River, and Jacks Creek.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Patrick County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.317 | 0.317 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.533 | 0.828 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.375 | 2.260 |
| Agricultural Self-Supplied Users | 0.743 | 0.743 |

### Water Use by System Type

Approximately 19,257 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

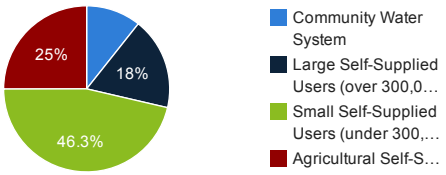



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

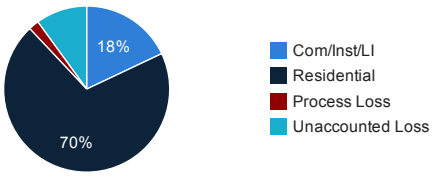
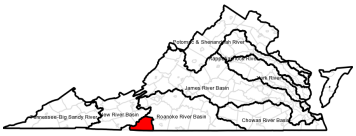



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Patrick County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 2.22 | 0.75 | 3.35 | 0.79 |

***Figure 3:** Patrick County highlighted in the Commonwealth of Virginia



### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Patrick County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 18,490 | 18,488 | 18,682 | 18,902 | 0.0% |

***Figure 4:** Patrick County population projections by decade for 2010, 2020, 2030 & 2040

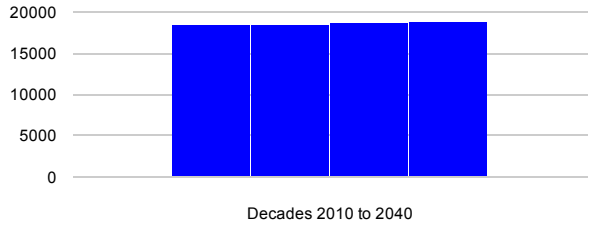
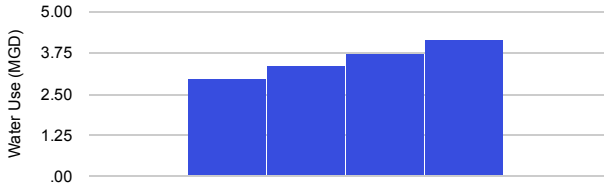



***Table 4 & Figure 5:** Patrick County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 2.97 | 3.36 | 3.75 | 4.15 | 39.8% |




### Drought Management Practices

The County and Town adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (West Piedmont PDC Regional WSP)

City of Petersburg

### Water Source Overview

Major sources are purchased water and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Petersburg in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Large Self-Supplied Users (over 300,000 gal/month) | 0.038 | 0.045 |
| Community Water System | 4.828 | 5.733 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

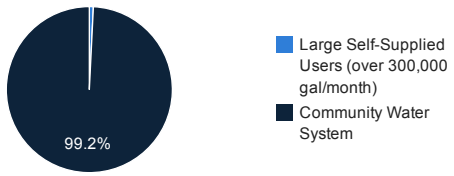



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

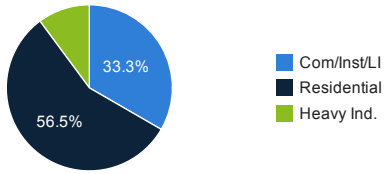



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Petersburg in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.04 | 4.83 | 0.04 | 5.73 |

***Figure 3:** Petersburg highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to increase slightly through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Petersburg population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 32,420 | 32,699 | 33,320 | 33,939 | 3.1% |

***Figure 4:** Petersburg population projections by decade for 2010, 2020, 2030 & 2040

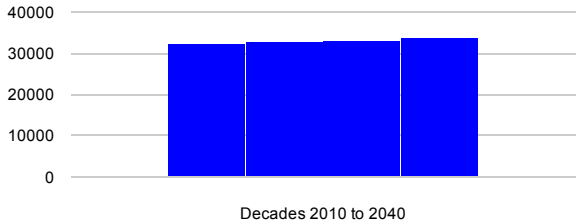
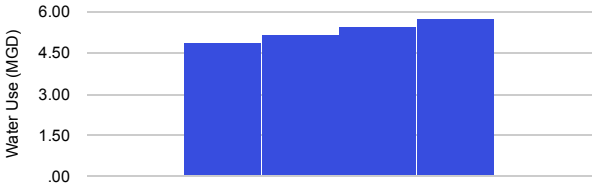



***Table 4 & Figure 5:** Petersburg water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 4.87 | 5.17 | 5.47 | 5.78 | 18.7% |




### Drought Management Practices

The City adopted an ordinance for the implementation and enforcement of the regional Drought Response and Contingency Plan. (Appomattox River Water Authority and Hopewell Regional WSP)

Pittsylvania County and the Towns of Chatham, Gretna and Hurt

### Water Source Overview

Major sources include groundwater wells, Cherrystone Creek, purchased water, and the Georges Creek Reservoir.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Pittsylvania County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 1.417 | 1.506 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.079 | 0.112 |
| Small Self-Supplied Users (under 300,000 gal/month) | 3.096 | 5.087 |
| Agricultural Self-Supplied Users | 8.488 | 8.488 |

### Water Use by System Type

Approximately 16,136 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

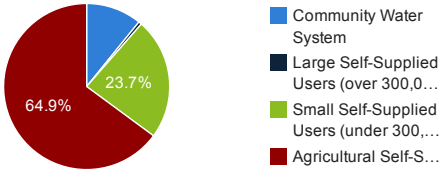



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

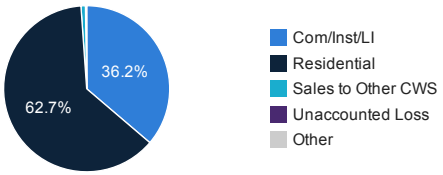



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Pittsylvania County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 7.48 | 5.59 | 9.51 | 5.68 |

***Figure 3:** Pittsylvania County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Demand is projected to increase through the planning period. Existing water sources are expected to meet the projected demands of the County and Towns through the planning period with the exception of the Town of Gretna. The Town of Gretna's demands may exceed the Georges Creek Reservoir safe yield by 2020. The Town will likely pursue a new raw water intake on Whitethorn Creek and a pipeline to Georges Creek Reservoir.

***Table 3:** Pittsylvania County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 63,506 | 63,751 | 63,720 | 63,648 | 0.0% |

***Figure 4:** Pittsylvania County population projections by decade for 2010, 2020, 2030 & 2040

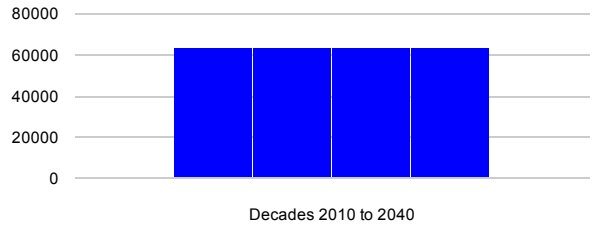
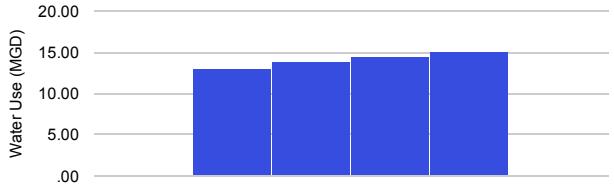



***Table 4 & Figure 5:** Pittsylvania County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 13.08 | 13.78 | 14.49 | 15.19 | 16.2% |




### Drought Management Practices

The County and Towns adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (West Piedmont PDC Regional WSP)

City of Poquoson

### Water Source Overview

The major water source is purchased water. Newport News Waterworks (NNW) provides water service to approximately 400,000 people in the Peninsula sub-region of Hampton Roads, including the City of Poquoson. Water use and projected demand data for the City of Poquoson is included in the totals for NNW.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Poquoson in MGD

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Poquoson in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 |

***Figure 3:** Poquoson highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to increase through the planning period. Supplies are expected to meet projected demands in the HRPDC region through 2050.

***Table 3:** Poquoson population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 12,150 | 13,623 | 15,167 | 16,604 | 33.3% |

***Figure 4:** Poquoson population projections by decade for 2010, 2020, 2030 & 2040

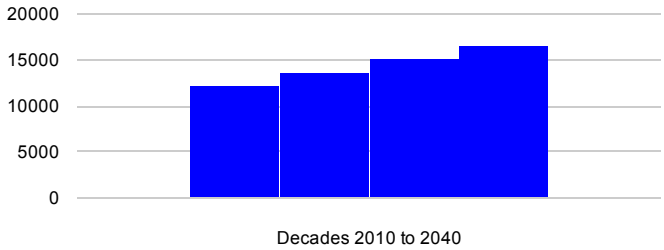



***Table 4 & Figure 5:** Poquoson water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | % |

### Drought Management Practices

The City adopted a “water supply emergency ordinance” for the implementation and enforcement of the Drought Response and Contingency Plan. (Hampton Roads PDC Regional WSP)

City of Portsmouth

### Water Source Overview

Major sources are groundwater wells and four interconnected reservoirs (Speights Run and Lakes Meade, Cahoon, and Kilby).

***Table 1:** Reported (2010) and projected (2040) water use by system type for Portsmouth in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 13.969 | 14.833 |
| Large Self-Supplied Users (over 300,000 gal/month) | 2.185 | 2.185 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.000 | 0.000 |

### Water Use by System Type

Three people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

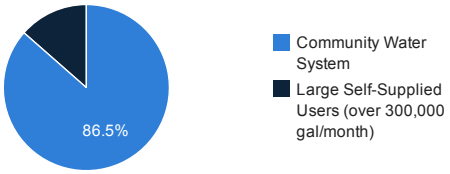



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

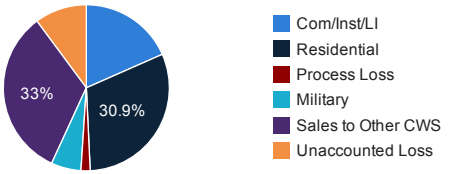



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Portsmouth in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 4.93 | 11.22 | 5.10 | 11.92 |

***Figure 3:** Portsmouth highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing supplies are expected to meet projected demands in the HRPDC region.

***Table 3:** Portsmouth population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 95,535 | 95,717 | 97,826 | 99,916 | 4.2% |

***Figure 4:** Portsmouth population projections by decade for 2010, 2020, 2030 & 2040

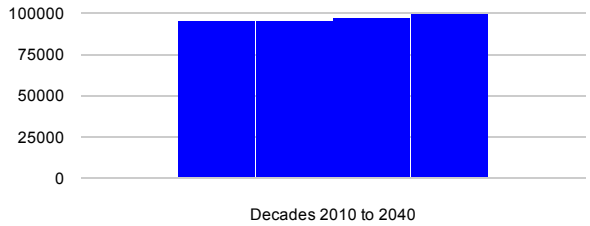
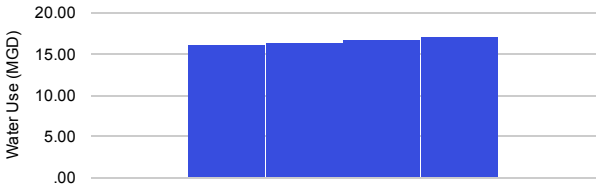



***Table 4 & Figure 5:** Portsmouth water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 16.15 | 16.44 | 16.73 | 17.02 | 5.3% |




### Drought Management Practices

The City adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Hampton Roads PDC Regional WSP)

Powhatan County

### Water Source Overview

Major sources include groundwater wells, purchased water, and golf course irrigation lakes.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Powhatan County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.727 | 1.393 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.370 | 0.370 |
| Small Self-Supplied Users (under 300,000 gal/month) | 2.596 | 2.719 |
| Agricultural Self-Supplied Users | 0.008 | 0.008 |

### Water Use by System Type

Approximately 25,389 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

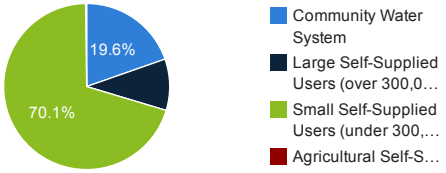



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

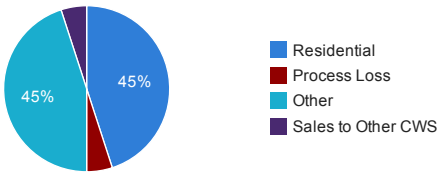



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Powhatan County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 2.71 | 0.99 | 2.94 | 1.55 |

***Figure 3:** Powhatan County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. A deficit of 0.56 MGD is anticipated by the year 2030. Possible alternatives for meeting this additional demand include the regional Cobbs Creek Reservoir project and regional coordination between DOC, Goochland and Powhatan Counties to increase the withdrawal of water from an existing James River water withdrawal.

***Table 3:** Powhatan County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 28,046 | 32,019 | 35,702 | 39,343 | 39.3% |

***Figure 4:** Powhatan County population projections by decade for 2010, 2020, 2030 & 2040

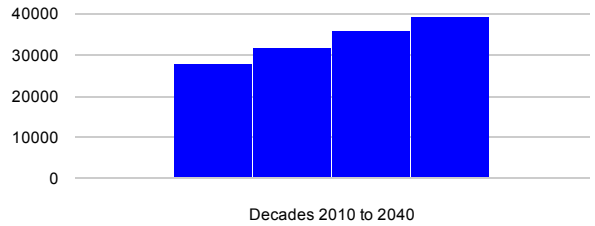
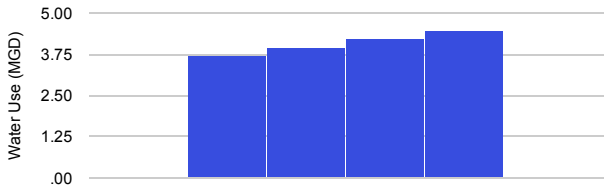



***Table 4 & Figure 5:** Powhatan County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 3.70 | 3.96 | 4.23 | 4.49 | 21.3% |




### Drought Management Practices

The County adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Henrico-Goochland-Powhatan-Cumberland Counties Regional WSP)

Prince Edward County and the Town of Farmville

### Water Source Overview

Major sources include the Appomattox River and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Prince Edward County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 1.311 | 5.333 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.302 | 1.450 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.032 | 0.032 |
| Agricultural Self-Supplied Users | 0.038 | 0.038 |

### Water Use by System Type

Approximately 12,480 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

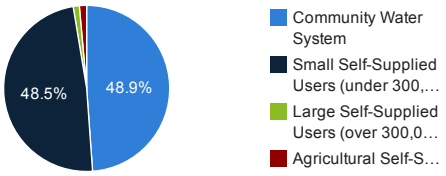



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

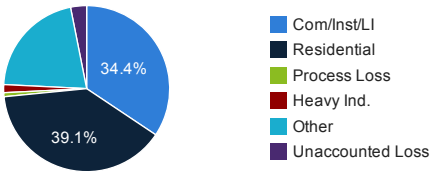



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Prince Edward County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.73 | 0.95 | 5.59 | 1.26 |

***Figure 3:** Prince Edward County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Prince Edward County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 23,368 | 24,865 | 25,816 | 26,592 | 13.0% |

***Figure 4:** Prince Edward County population projections by decade for 2010, 2020, 2030 & 2040

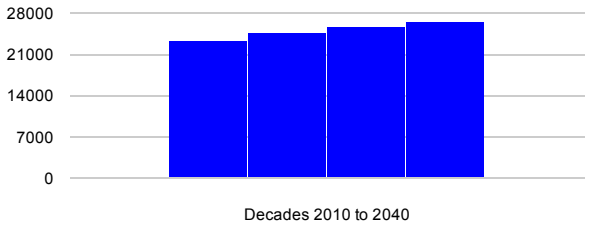
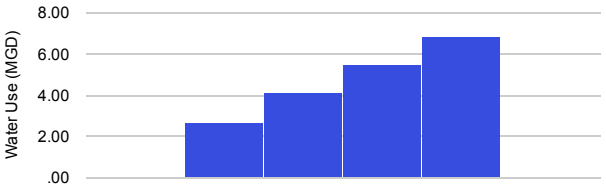



***Table 4 & Figure 5:** Prince Edward County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 2.68 | 4.07 | 5.46 | 6.85 | 155.5% |




### Drought Management Practices

The County and Town adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Prince Edward County and the Town of Farmville Regional WSP)

Prince George County

### Water Source Overview

Major sources include the James River, groundwater wells, and purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Prince George County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.957 | 1.791 |
| Large Self-Supplied Users (over 300,000 gal/month) | 12.626 | 23.923 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.834 | 3.475 |
| Agricultural Self-Supplied Users | 0.048 | 0.086 |

### Water Use by System Type

Approximately 26,208 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

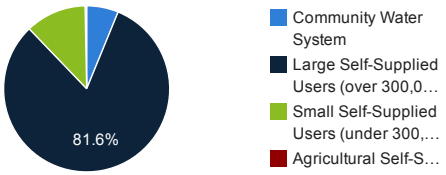



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Prince George County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 2.88 | 12.58 | 5.44 | 23.84 |

***Figure 3:** Prince George County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Prince George County anticipates a peak day deficit of 0.9 MGD by 2020 and the Appomattox River Water Authority (main supplier of water to Prince George County) anticipates a system wide deficit of 9.4 MGD by the year 2040. Possible alternatives include increases in current water supply allocations and the development of additional supply (new groundwater sources, new intake on the Appomattox River, and a new surface water reservoir).

***Table 3:** Prince George County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 35,725 | 37,751 | 39,447 | 40,899 | 14.3% |

***Figure 4:** Prince George County population projections by decade for 2010, 2020, 2030 & 2040

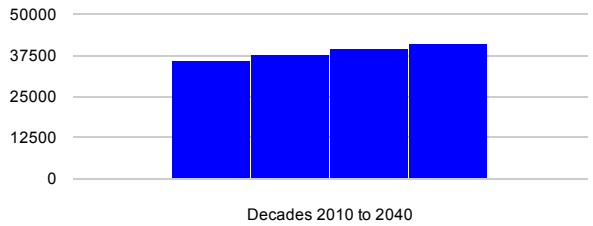
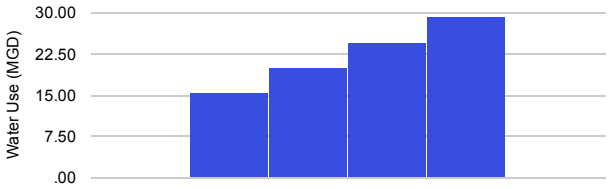



***Table 4 & Figure 5:** Prince George County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 15.47 | 20.07 | 24.67 | 29.27 | 89.3% |




### Drought Management Practices

The County adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Appomattox River Water Authority and Hopewell Regional WSP)

Prince William County and the Towns of Dumfries, Haymarket, Occoquan, and Quantico

### Water Source Overview

Major water sources include purchased water, groundwater wells, and the Breckenridge-Lunga Reservoir.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Prince William County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 94.833 | 124.248 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.075 | 0.114 |
| Small Self-Supplied Users (under 300,000 gal/month) | 6.192 | 6.236 |
| Agricultural Self-Supplied Users | 1.052 | 1.052 |

### Water Use by System Type

Approximately 81,530 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

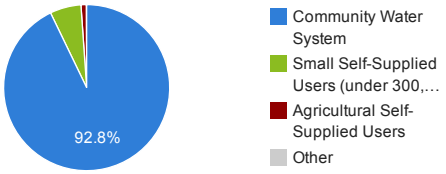



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

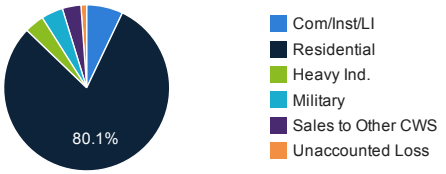



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Prince William County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 6.87 | 95.28 | 7.00 | 124.65 |

***Figure 3:** Prince William County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through 2040. Existing water sources are expected to meet projected demands.

***Table 3:** Prince William County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 402,002 | 487,768 | 573,535 | 659,301 | 63.9% |

***Figure 4:** Prince William County population projections by decade for 2010, 2020, 2030 & 2040

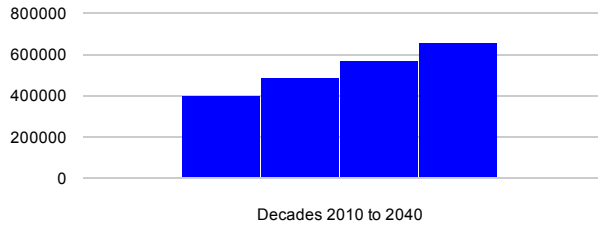
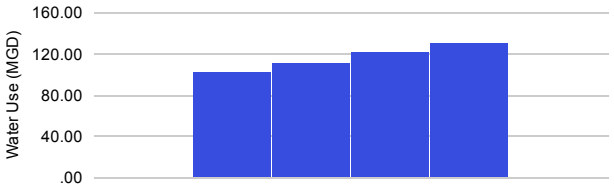



***Table 4 & Figure 5:** Prince William County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 102.15 | 111.98 | 121.82 | 131.65 | 28.9% |




### Drought Management Practices

The County and Towns, with exception of Quantico, adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. The Town of Quantico follows the water emergency procedures of the Quantico Marine Base. (Northern Virginia Regional WSP)

Pulaski County and the Towns of Dublin and Pulaski

### Water Source Overview

Major sources include Claytor Lake, Peak Creek, and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Pulaski County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 4.154 | 4.188 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.835 | 0.826 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.000 | 0.000 |
| Agricultural Self-Supplied Users | 1.081 | 1.081 |

### Water Use by System Type

Approximately 8,067 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

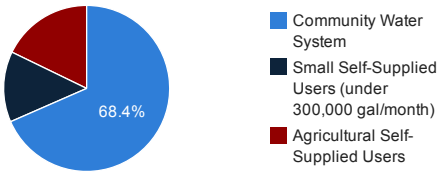



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Pulaski County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.38 | 4.69 | 1.37 | 4.72 |

***Figure 3:** Pulaski County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Pulaski County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 34,872 | 35,655 | 36,580 | 37,436 | 8.8% |

***Figure 4:** Pulaski County population projections by decade for 2010, 2020, 2030 & 2040

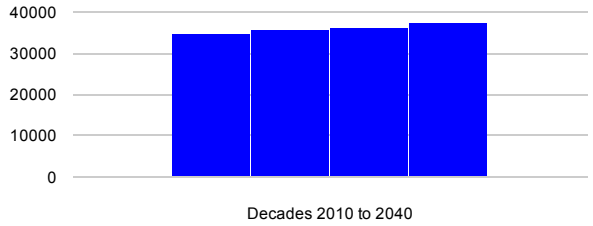
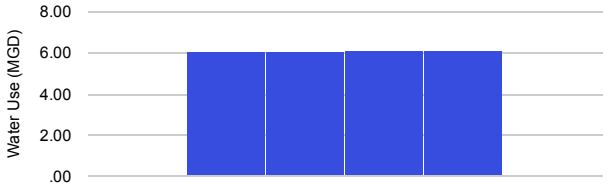



***Table 4 & Figure 5:** Pulaski County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 6.07 | 6.08 | 6.09 | 6.09 | 0.4% |




### Drought Management Practices

The County and Towns adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (New River Valley Regional WSP)

City of Radford

### Water Source Overview

The major water source is the New River.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Radford in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 17.759 | 17.702 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

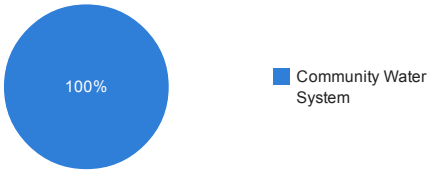



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

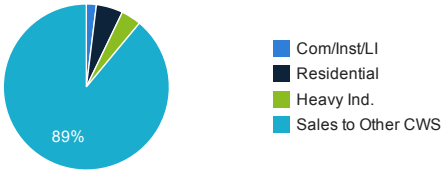



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Radford in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.00 | 17.76 | 0.00 | 17.70 |

***Figure 3:** Radford highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to increase and demands decrease slightly through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Radford population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 16,408 | 17,392 | 18,392 | 19,318 | 18.8% |

***Figure 4:** Radford population projections by decade for 2010, 2020, 2030 & 2040

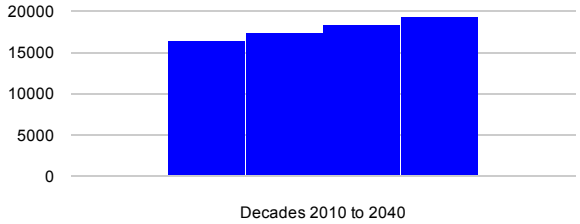
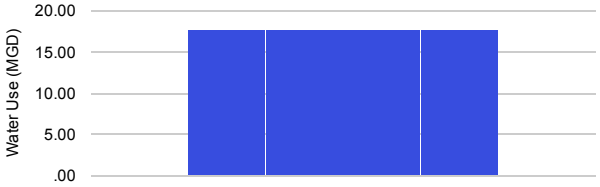



***Table 4 & Figure 5:** Radford water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 17.76 | 17.74 | 17.72 | 17.70 | -0.3% |




### Drought Management Practices

The City adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (New River Valley WSP)

Rappahannock County and the Town of Washington

### Water Source Overview

Major sources of water are groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Rappahannock County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Agricultural Self-Supplied Users | 0.317 | 0.317 |
| Community Water System | 0.031 | 0.043 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.602 | 0.783 |

### Water Use by System Type

Approximately 6,683 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

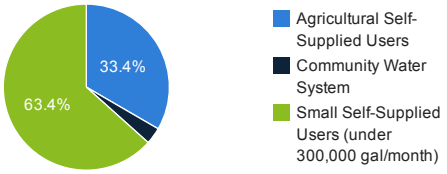



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

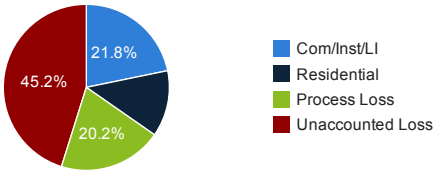



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Rappahannock County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.63 | 0.32 | 0.83 | 0.32 |

***Figure 3:** Rappahannock County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Rappahannock County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 7,373 | 7,649 | 7,882 | 8,089 | 14.3% |

***Figure 4:** Rappahannock County population projections by decade for 2010, 2020, 2030 & 2040

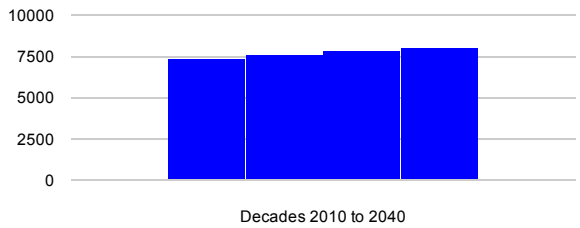
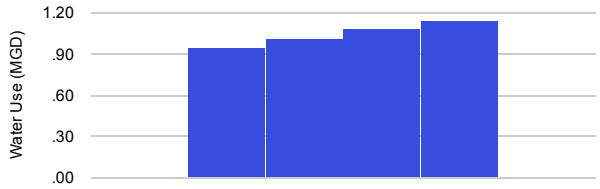



***Table 4 & Figure 5:** Rappahannock County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 0.95 | 1.01 | 1.08 | 1.14 | 20.4% |




### Drought Management Practices

Rappahannock County and the Town of Washington will adopt an emergency ordinance for the implementation and enforcement of the Drought Response and Contingency Plan when the need arises.

City of Richmond

### Water Source Overview

The major source of water is the James River.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Richmond City in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Large Self-Supplied Users (over 300,000 gal/month) | 1.244 | 1.437 |
| Community Water System | 72.000 | 83.168 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

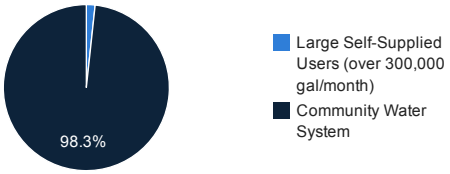



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

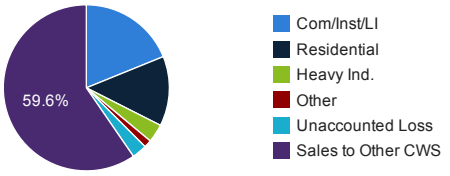



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Richmond City in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.03 | 73.21 | 0.03 | 84.57 |

***Figure 3:** Richmond City highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Richmond City population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 204,214 | 206,674 | 208,665 | 210,368 | 2.9% |

***Figure 4:** Richmond City population projections by decade for 2010, 2020, 2030 & 2040

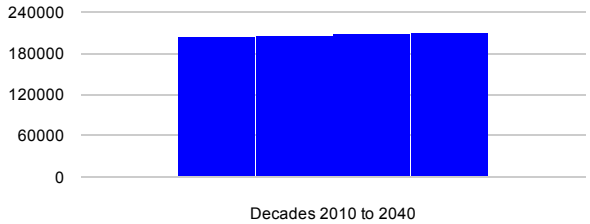
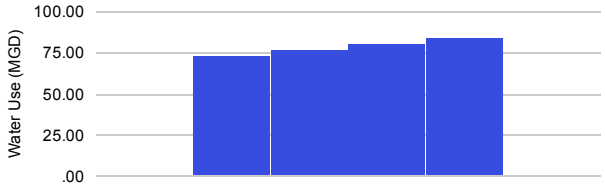



***Table 4 & Figure 5:** Richmond City water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 73.24 | 77.03 | 80.82 | 84.61 | 15.5% |




### Drought Management Practices

The City adopted an ordinance to implement and enforce the Drought Response and Contingency Plan. (City of Richmond WSP)

Richmond County and the Town of Warsaw

### Water Source Overview

Major sources of water are groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Richmond County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Small Self-Supplied Users (under 300,000 gal/month) | 0.470 | 0.582 |
| Community Water System | 0.332 | 0.401 |

### Water Use by System Type

Approximately 6,270 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

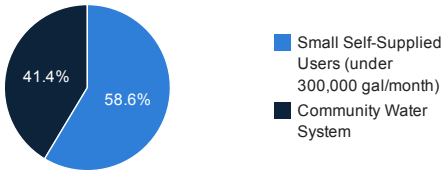



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Richmond County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.80 | 0.00 | 0.98 | 0.00 |

***Figure 3:** Richmond County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Richmond County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 9,254 | 9,727 | 10,175 | 10,587 | 11.1% |

***Figure 4:** Richmond County population projections by decade for 2010, 2020, 2030 & 2040

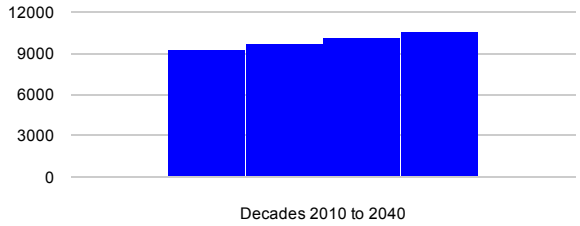
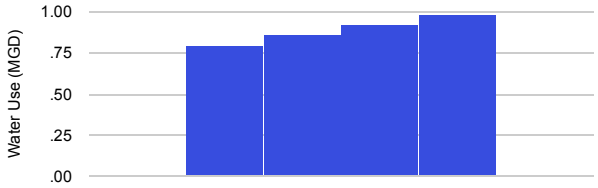



***Table 4 & Figure 5:** Richmond County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 0.80 | 0.86 | 0.92 | 0.98 | 22.5% |




### Drought Management Practices

The County and Town adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Northern Neck Regional WSP)

City of Roanoke

### Water Source Overview

Major water sources for the City include purchased water, the Roanoke River, and groundwater wells. The Western Virginia Water Authority provides water service to the residents of Roanoke County and the City of Roanoke. Water use and projected demand data for the City of Roanoke is included in the community water system (CWS) totals found in the Roanoke County snapshot.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Roanoke City in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Large Self-Supplied Users (over 300,000 gal/month) | 0.984 | 1.628 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

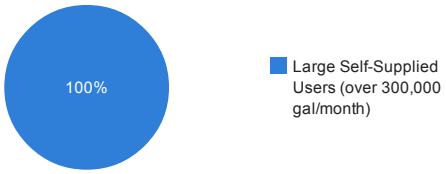



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Roanoke City in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.32 | 0.66 | 0.53 | 1.09 |

***Figure 3:** Roanoke City highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Roanoke City population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 97,032 | 99,287 | 101,174 | 102,656 | 5.2% |

***Figure 4:** Roanoke City population projections by decade for 2010, 2020, 2030 & 2040

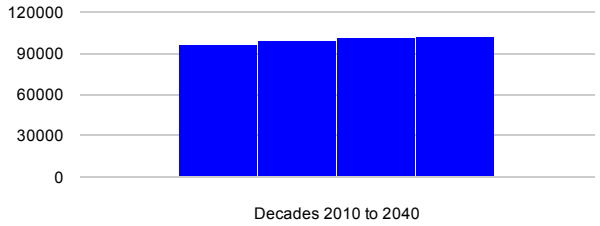
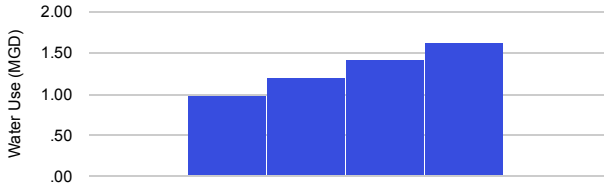



***Table 4 & Figure 5:** Roanoke City water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 0.98 | 1.20 | 1.41 | 1.63 | 65.5% |




### Drought Management Practices

The City's drought enforcement measures shall be implemented and enforced by the Western Virginia Water Authority, per authorizing resolution. (Roanoke Valley Alleghany Regional Commission Regional WSP)

Roanoke County and the Town of Vinton

### Water Source Overview

Major water sources include Carvins Cove Reservoir, Spring Hollow Reservoir, Crystal Spring, Falling Creek Reservoir, and groundwater wells. The Western Virginia Water Authority provides water service to the residents of Roanoke County and the City of Roanoke. Water use and projected demand data for the City of Roanoke is included in the community water system (CWS) totals found in the Roanoke County snapshot.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Roanoke County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 24.754 | 27.055 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.052 | 0.086 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.092 | 1.807 |
| Agricultural Self-Supplied Users | 0.145 | 0.145 |

### Water Use by System Type

Approximately 14,551 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

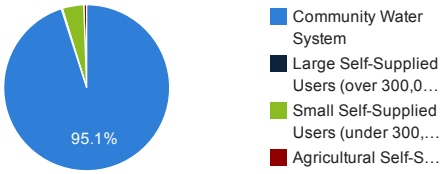



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

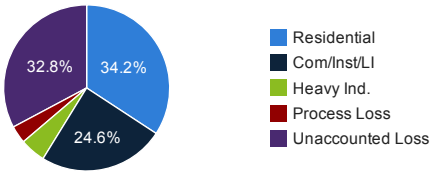



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Roanoke County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 12.04 | 14.00 | 13.89 | 15.21 |

***Figure 3:** Roanoke County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Roanoke County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 92,376 | 98,413 | 104,063 | 109,373 | 18.5% |

***Figure 4:** Roanoke County population projections by decade for 2010, 2020, 2030 & 2040

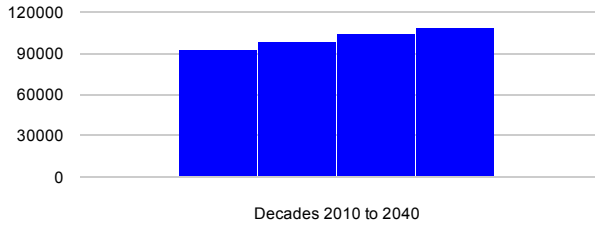
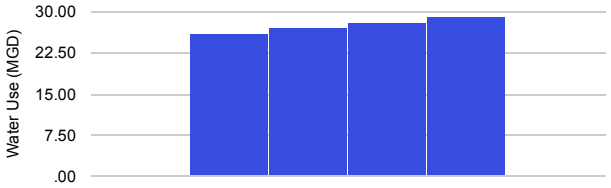



***Table 4 & Figure 5:** Roanoke County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 26.04 | 27.06 | 28.08 | 29.09 | 11.7% |




### Drought Management Practices

The County's drought enforcement measures shall be implemented and enforced by the Western Virginia Water Authority, per authorizing resolution. (Roanoke Valley Alleghany Regional Commission Regional WSP)

Rockbridge County and the Towns of Glasgow and Goshen

### Water Source Overview

Major water sources include the Maury River, groundwater wells, purchased water, and Goshen Spring.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Rockbridge County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 2.589 | 3.266 |
| Large Self-Supplied Users (over 300,000 gal/month) | 1.087 | 1.114 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.348 | 1.348 |

### Water Use by System Type

Approximately 17,979 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

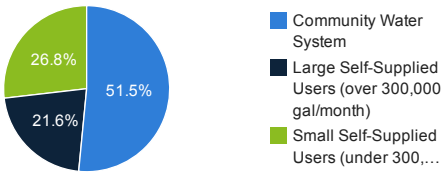



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

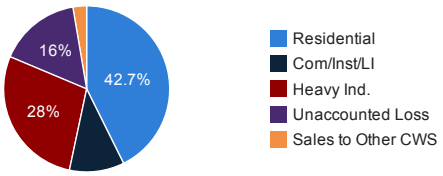



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Rockbridge County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 2.45 | 2.57 | 2.52 | 3.21 |

***Figure 3:** Rockbridge County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Rockbridge County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 22,307 | 22,887 | 23,223 | 23,478 | 4.5% |

***Figure 4:** Rockbridge County population projections by decade for 2010, 2020, 2030 & 2040

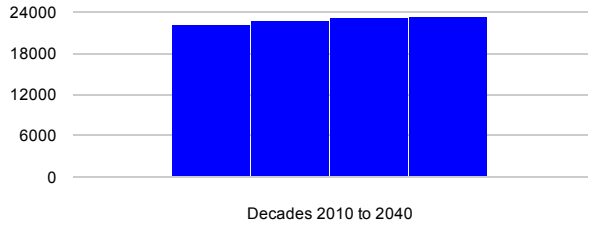
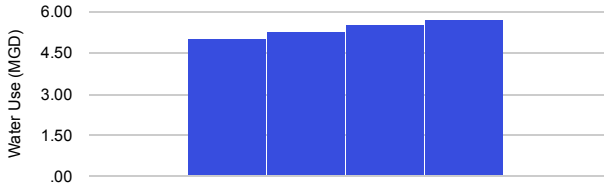



***Table 4 & Figure 5:** Rockbridge County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 5.02 | 5.26 | 5.49 | 5.73 | 14.0% |




### Drought Management Practices

The County and Towns adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Upper James River Basin WSP)

Rockingham County and the towns of Bridgewater, Broadway, Dayton, Elkton, Grottoes, Mount Crawford, and Timberville

### Water Source Overview

Major sources of water supply include groundwater wells, the North Fork Shenandoah River, and North River.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Rockingham County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 7.004 | 23.537 |
| Large Self-Supplied Users (over 300,000 gal/month) | 8.609 | 8.609 |
| Small Self-Supplied Users (under 300,000 gal/month) | 3.140 | 3.906 |
| Agricultural Self-Supplied Users | 0.240 | 0.240 |

### Water Use by System Type

Approximately 41,866 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

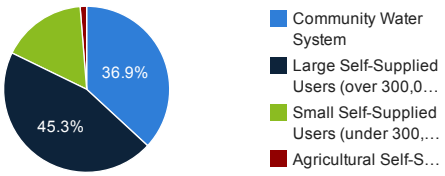



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

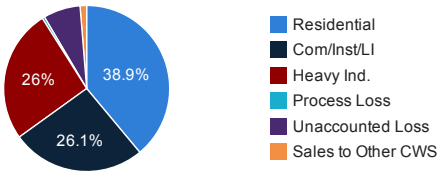



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Rockingham County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 15.83 | 3.16 | 26.61 | 9.68 |

***Figure 3:** Rockingham County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. The following localities may experience a deficit during the planning period: Rockingham County (includes the Town of Mount Crawford) deficit of 1.272 MGD by 2020; Town of Bridgewater deficit of 0.05 MGD by 2030; Town of Broadway deficit of 0.23 MGD by 2040; Town of Grottoes deficit of 0.01 MGD by 2040; Town of Timberville deficit of 0.04 MGD by 2040. Several alternatives are recommended for meeting this additional demand in the future: development of new wells and treatment facilities; plant upgrades to provide additional supply and treatment capacity; development of new stream intakes; development of purchase water agreements with neighboring jurisdictions; and inter-jurisdictional collaboration on new infrastructure projects.

***Table 3:** Rockingham County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 76,314 | 83,431 | 90,341 | 97,249 | 27.6% |

***Figure 4:** Rockingham County population projections by decade for 2010, 2020, 2030 & 2040

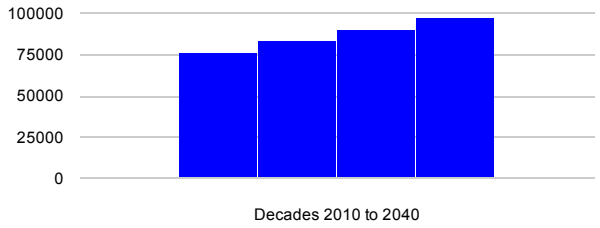
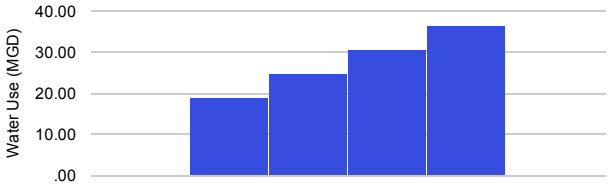



***Table 4 & Figure 5:** Rockingham County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 18.99 | 24.76 | 30.53 | 36.29 | 91.1% |




### Drought Management Practices

The County and Towns adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Upper Shenandoah River Basin Regional WSP)

Russell County and the Towns of Cleveland, Honaker, and Lebanon

### Water Source Overview

Major water supply sources include Chaney Creek, Big Cedar Creek, groundwater wells, and springs.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Russell County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 1.415 | 1.415 |
| Large Self-Supplied Users (over 300,000 gal/month) | 1.995 | 0.000 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.776 | 0.193 |

### Water Use by System Type

Approximately 12,800 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

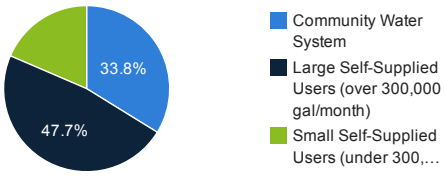



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

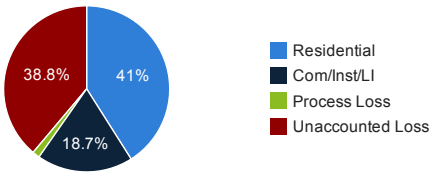



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Russell County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.21 | 2.97 | 0.63 | 2.97 |

***Figure 3:** Russell County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to increase during the planning period. The County may experience a deficit of 0.12 MGD by 2040. The regional alternatives for addressing projected shortfalls include maintaining, increasing, or initiating supply interconnections with neighboring localities, infrastructure upgrades, groundwater source development, increasing permitted surface water withdrawals, upgrading current VDH permitted capacities, and continuing existing water conservation policies or developing new ones.

***Table 3:** Russell County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 28,897 | 29,051 | 29,296 | 29,534 | 3.6% |

***Figure 4:** Russell County population projections by decade for 2010, 2020, 2030 & 2040

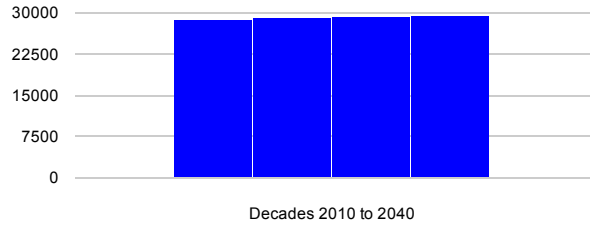
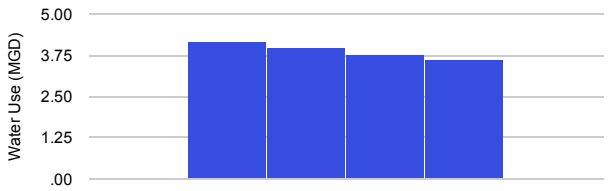



***Table 4 & Figure 5:** Russell County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 4.19 | 3.99 | 3.80 | 3.60 | -13.9% |




### Drought Management Practices

The County and Towns adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Southwest Virginia Regional WSP)

City of Salem

### Water Source Overview

Major water sources include groundwater wells and the Roanoke River.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Salem in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Large Self-Supplied Users (over 300,000 gal/month) | 0.057 | 0.123 |
| Community Water System | 5.604 | 5.604 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

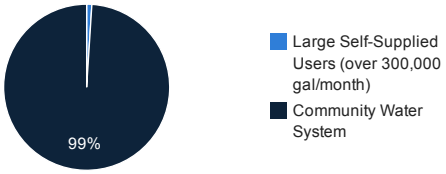



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

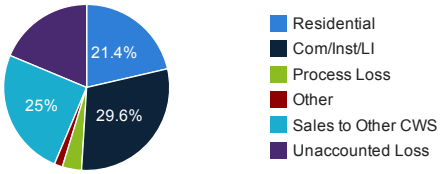



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Salem in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.14 | 5.52 | 0.21 | 5.52 |

***Figure 3:** Salem highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period of 2040. Althought current water supply sources are expected to meet projected demand, the water supply plan identified some alternatives should a deficit be realized. Alternatives identified include the development of additonal groundwater wells and regional water sources, such as the development of a new intake at Smith Mountain Lake to supplement the Western Virginia Water Authority's Carvin's Cove reservoir system and the expansion of the Smith Mountain Lake Regional Water Treatment Plant.

***Table 3:** Salem population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 24,802 | 25,889 | 27,075 | 28,116 | 16.7% |

***Figure 4:** Salem population projections by decade for 2010, 2020, 2030 & 2040

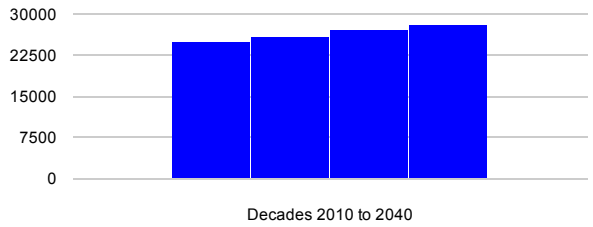
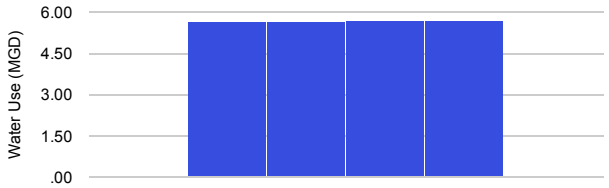



***Table 4 & Figure 5:** Salem water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 5.66 | 5.68 | 5.71 | 5.73 | 1.2% |




### Drought Management Practices

The City adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Roanoke Valley Alleghany Regional Commission Regional WSP)

Scott County and the Towns of Clinchport, Duffield, Dungannon, Gate City, Nickelsville, and Weber City

### Water Source Overview

Major water supply sources include groundwater wells, Big Moccasin Creek, the North Fork Clinch River, and Spurlock Branch.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Scott County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Small Self-Supplied Users (under 300,000 gal/month) | 0.537 | 0.537 |
| Community Water System | 0.859 | 0.836 |

### Water Use by System Type

Approximately 10,400 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

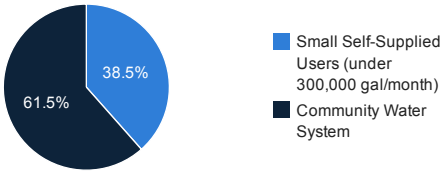



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

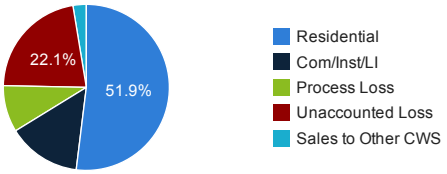



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Scott County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.71 | 0.69 | 0.69 | 0.69 |

***Figure 3:** Scott County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to decrease through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Scott County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 23,177 | 22,985 | 22,821 | 22,679 | -4.3% |

***Figure 4:** Scott County population projections by decade for 2010, 2020, 2030 & 2040

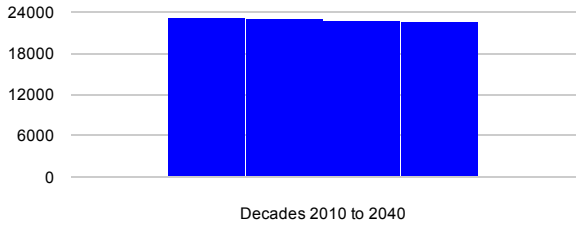



***Table 4 & Figure 5:** Scott County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 1.40 | 1.39 | 1.38 | 1.37 | -1.7% |

### Drought Management Practices

The County and the Towns of Duffield and Weber City adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. The status of drought enforcement for the Towns of Clinchport, , Dungannon, Gate City, and Nickelsville is pending and will be addressed by the five-year update of the water supply plan. (Southwest Virginia Regional WSP)

Shenandoah County and the Towns of Edinburg, Mount Jackson, New Market, Strasburg, Toms Brook, and Woodstock

### Water Source Overview

Major water sources include groundwater wells, the North Fork Shenandoah River, and Stony Creek.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Shenandoah County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 4.072 | 7.122 |
| Large Self-Supplied Users (over 300,000 gal/month) | 1.203 | 1.656 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.130 | 1.130 |
| Agricultural Self-Supplied Users | 0.024 | 0.041 |

### Water Use by System Type

Approximately 15,064 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

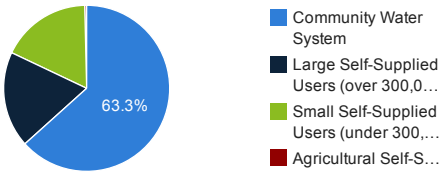



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

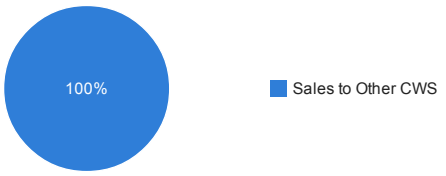



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Shenandoah County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 5.30 | 1.13 | 8.18 | 1.77 |

***Figure 3:** Shenandoah County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Shenandoah County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 41,993 | 45,829 | 49,045 | 52,104 | 26.8% |

***Figure 4:** Shenandoah County population projections by decade for 2010, 2020, 2030 & 2040

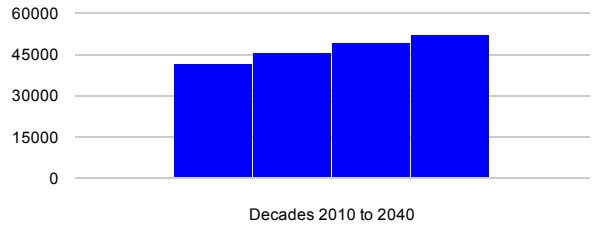
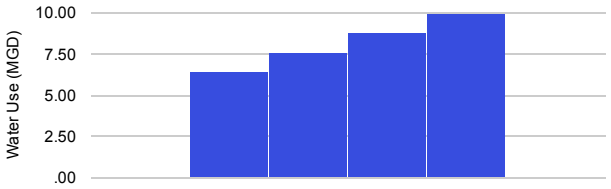



***Table 4 & Figure 5:** Shenandoah County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 6.43 | 7.60 | 8.78 | 9.95 | 54.8% |




### Drought Management Practices

The County and Towns adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Northern Shenandoah Regional WSP)

Smyth County and the Towns of Chilhowie, Marion, and Saltville

### Water Source Overview

Major water supply sources include Staley's Creek, springs, and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Smyth County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Agricultural Self-Supplied Users | 3.751 | 3.751 |
| Community Water System | 4.294 | 4.294 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.488 | 0.488 |

### Water Use by System Type

Approximately 6,398 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

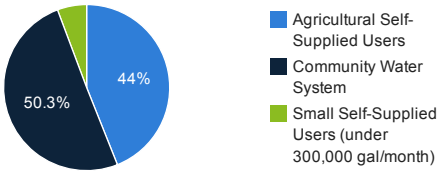



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

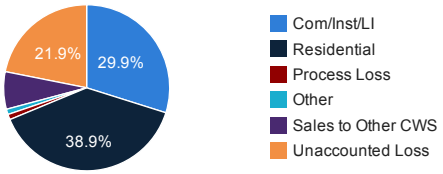



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Smyth County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.88 | 6.65 | 1.88 | 6.65 |

***Figure 3:** Smyth County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to increase slightly through the planning period of 2040. Existing water sources are expected to meet projected demand during the planning period. However, Southwest Virginia Regional WSP listed alternatives to address the any shortfall of municipal supply, which include: maintaining, increasing, or initiating supply interconnections with neighboring localities, infrastructure upgrades, groundwater source development, increasing permitted surface water withdrawals, upgrading current VDH permitted capacities, and continuing existing water conservation policies or developing new ones.

***Table 3:** Smyth County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 32,208 | 32,302 | 32,599 | 32,913 | 0.0% |

***Figure 4:** Smyth County population projections by decade for 2010, 2020, 2030 & 2040

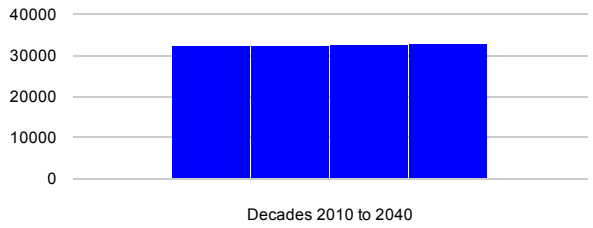



***Table 4 & Figure 5:** Smyth County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 8.53 | 8.53 | 8.53 | 8.53 | 0.0% |

### Drought Management Practices

The County and Towns adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Southwest Virginia Regional WSP)

Southampton County and the Towns of Boykins, Branchville, Capron, Courtland, Ivor, and Newsoms

### Water Source Overview

Major water sources are groundwater wells and the Nottoway River.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Southampton County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.894 | 1.302 |
| Large Self-Supplied Users (over 300,000 gal/month) | 5.383 | 5.383 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.014 | 1.408 |
| Agricultural Self-Supplied Users | 0.780 | 0.862 |

### Water Use by System Type

Approximately 12,152 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

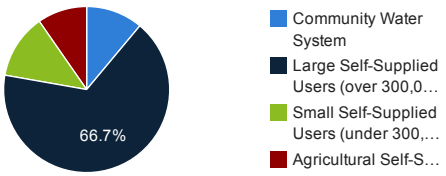



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

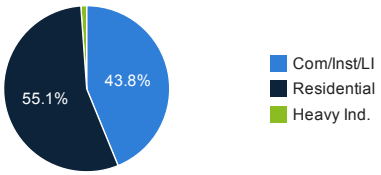



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Southampton County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 7.39 | 0.68 | 8.24 | 0.72 |

***Figure 3:** Southampton County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Demands are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Southampton County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 18,570 | 18,684 | 18,568 | 18,412 | 0.0% |

***Figure 4:** Southampton County population projections by decade for 2010, 2020, 2030 & 2040

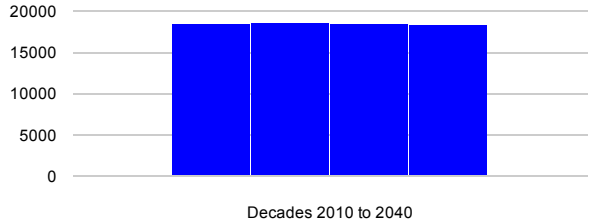
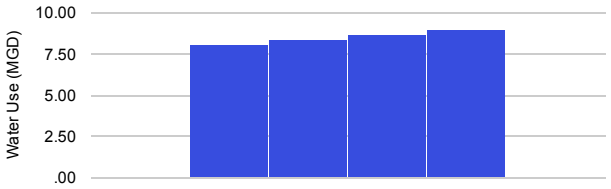



***Table 4 & Figure 5:** Southampton County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 8.07 | 8.37 | 8.66 | 8.96 | 10.9% |




### Drought Management Practices

The County and Towns adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Hampton Roads Regional WSP)

Spotsylvania County

### Water Source Overview

Major water supply sources include the Rappahannock and Rapidan rivers, Motts Run and Ni River reservoirs, and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Spotsylvania County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 10.482 | 29.166 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.145 | 0.362 |
| Small Self-Supplied Users (under 300,000 gal/month) | 4.841 | 13.669 |
| Agricultural Self-Supplied Users | 0.070 | 0.070 |

### Water Use by System Type

Approximately 38,881 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

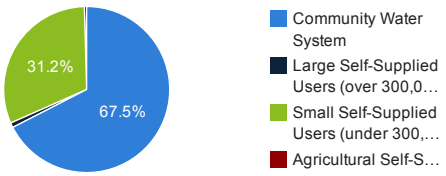



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

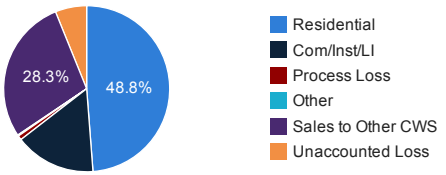



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Spotsylvania County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 5.23 | 10.31 | 14.23 | 29.03 |

***Figure 3:** Spotsylvania County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Spotsylvania County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 122,397 | 166,236 | 223,917 | 299,632 | 145.1% |

***Figure 4:** Spotsylvania County population projections by decade for 2010, 2020, 2030 & 2040

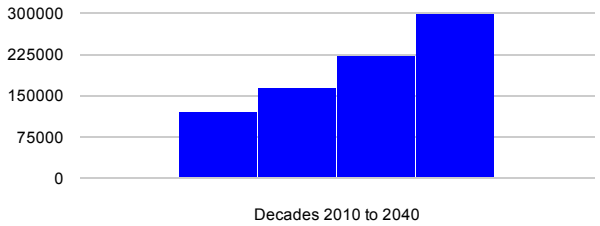
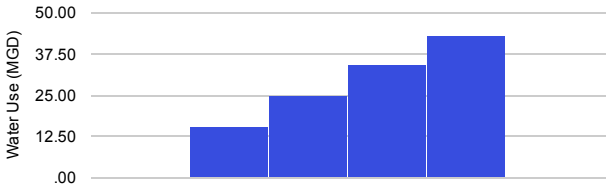



***Table 4 & Figure 5:** Spotsylvania County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 15.54 | 24.78 | 34.02 | 43.27 | 178.5% |




### Drought Management Practices

The County adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Spotsylvania County and the City of Fredericksburg Regional WSP)

Stafford County

### Water Source Overview

Major water sources include Abel Lake, Smith Lake, and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Stafford County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 10.174 | 25.210 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.928 | 0.928 |
| Small Self-Supplied Users (under 300,000 gal/month) | 2.103 | 1.934 |

### Water Use by System Type

Approximately 22,798 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

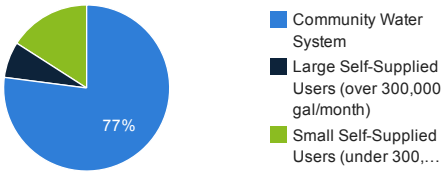



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

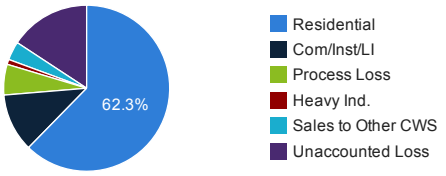



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Stafford County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 2.55 | 10.65 | 2.40 | 25.67 |

***Figure 3:** Stafford County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. A deficit of 14.7 MGD is anticipated in 2015. Plans to address the projected shortfall of municipal supply include the completion of the Rocky Pen Run Reservoir project and pursuing other surface water and groundwater alternatives as needed.

***Table 3:** Stafford County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 128,961 | 178,152 | 244,410 | 333,654 | 160.2% |

***Figure 4:** Stafford County population projections by decade for 2010, 2020, 2030 & 2040

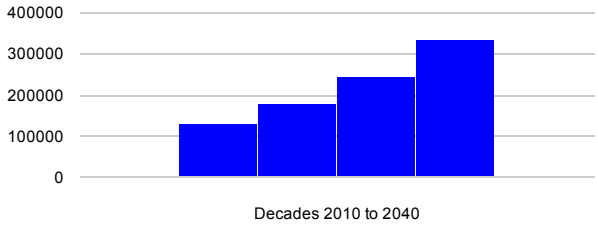
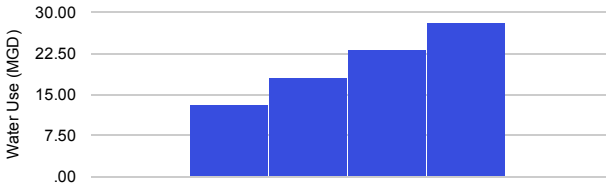



***Table 4 & Figure 5:** Stafford County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 13.20 | 18.16 | 23.12 | 28.07 | 112.6% |




### Drought Management Practices

The County adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Stafford County WSP)

City of Staunton

### Water Source Overview

Major sources of water include Elkhorn Lake, Gardner Spring, and the Middle River.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Staunton in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Large Self-Supplied Users (over 300,000 gal/month) | 0.036 | 0.036 |
| Community Water System | 3.910 | 4.726 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

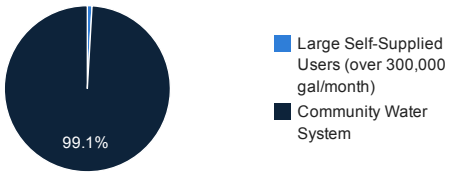



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

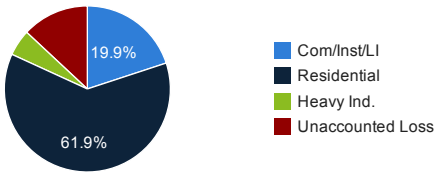



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Staunton in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.00 | 3.95 | 0.00 | 4.76 |

***Figure 3:** Staunton highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Staunton population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 23,746 | 24,605 | 25,574 | 26,440 | 13.0% |

***Figure 4:** Staunton population projections by decade for 2010, 2020, 2030 & 2040

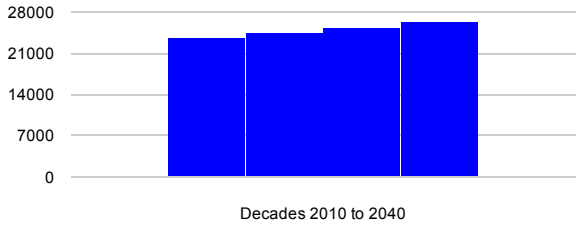



***Table 4 & Figure 5:** Staunton water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 3.95 | 4.22 | 4.49 | 4.76 | 20.7% |

### Drought Management Practices

The City adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Upper Shenandoah River Basin WSP)

City of Suffolk

### Water Source Overview

Major water sources include groundwater wells, purchased water, Lone Star Lakes, and Crumps Mill Pond.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Suffolk in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 7.752 | 16.519 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.187 | 0.187 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.575 | 1.525 |
| Agricultural Self-Supplied Users | 0.246 | 0.528 |

### Water Use by System Type

Approximately 20,164 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

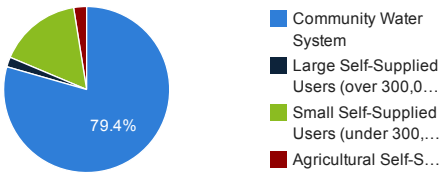



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

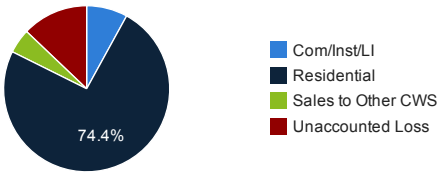



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Suffolk in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 9.37 | 0.39 | 18.01 | 0.75 |

***Figure 3:** Suffolk highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Suffolk population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 84,585 | 99,126 | 114,615 | 132,187 | 57.1% |

***Figure 4:** Suffolk population projections by decade for 2010, 2020, 2030 & 2040

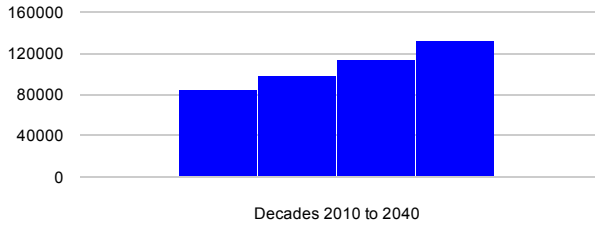
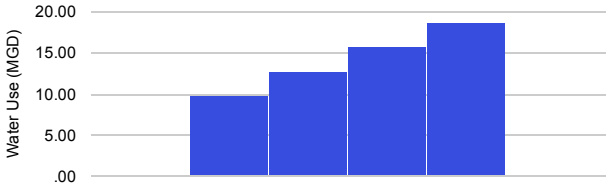



***Table 4 & Figure 5:** Suffolk water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 9.76 | 12.76 | 15.76 | 18.76 | 92.2% |




### Drought Management Practices

The City adopted a water supply emergency ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Hampton Roads Regional WSP)

Surry County and the Towns of Surry, Dendron, and Claremont

### Water Source Overview

Major water sources include groundwater wells and the James River.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Surry County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.135 | 0.196 |
| Large Self-Supplied Users (over 300,000 gal/month) | 17.752 | 17.752 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.463 | 0.643 |
| Agricultural Self-Supplied Users | 0.240 | 0.349 |

### Water Use by System Type

Approximately 6,634 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

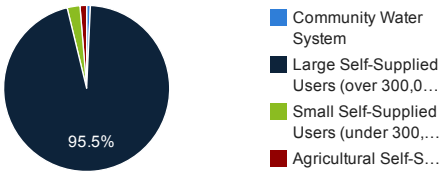



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

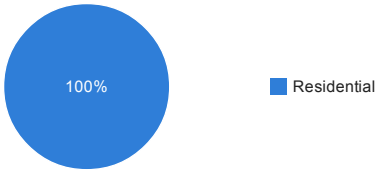



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Surry County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.75 | 17.84 | 1.05 | 17.89 |

***Figure 3:** Surry County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Surry County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 7,058 | 7,408 | 7,759 | 8,086 | 14.3% |

***Figure 4:** Surry County population projections by decade for 2010, 2020, 2030 & 2040

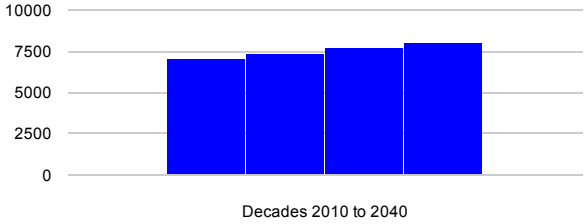
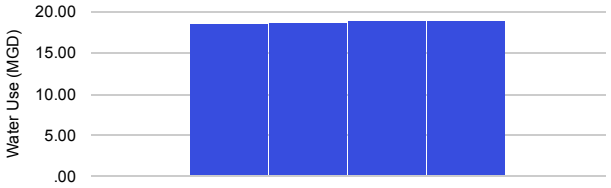



***Table 4 & Figure 5:** Surry County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 18.59 | 18.71 | 18.82 | 18.94 | 1.9% |




### Drought Management Practices

The County and Towns adopted an ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Hampton Roads Regional WSP)

Sussex County and the towns of Jarratt, Stony Creek, Wakefield, and Waverly

### Water Source Overview

Major water sources include groundwater wells and the Nottoway River.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Sussex County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.771 | 1.062 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.369 | 0.545 |
| Large Self-Supplied Users (over 300,000 gal/month) | 1.397 | 1.397 |
| Agricultural Self-Supplied Users | 0.179 | 0.179 |

### Water Use by System Type

Approximately 2,180 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

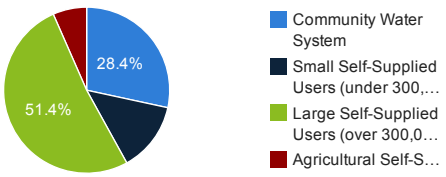



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

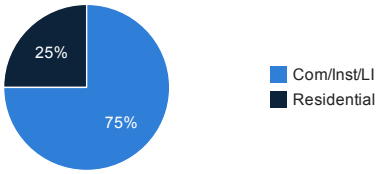



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Sussex County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 2.67 | 0.04 | 3.14 | 0.04 |

***Figure 3:** Sussex County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Sussex County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 12,087 | 12,121 | 12,249 | 12,386 | 0.0% |

***Figure 4:** Sussex County population projections by decade for 2010, 2020, 2030 & 2040

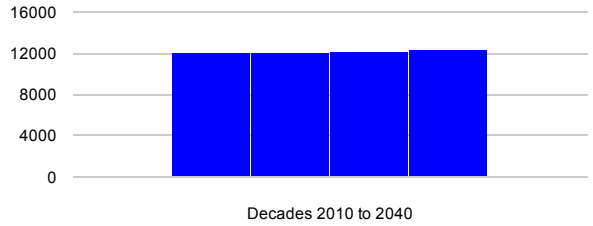
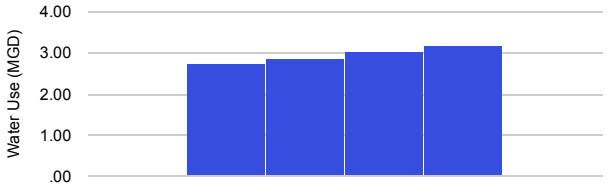



***Table 4 & Figure 5:** Sussex County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 2.72 | 2.87 | 3.03 | 3.18 | 17.2% |




### Drought Management Practices

The County and Towns adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Greensville-Sussex-Emporia Regional WSP)

County of Tazewell and the Towns of Bluefield, Cedar Bluff, Pocohontas, Richlands, and Tazewell

### Water Source Overview

Major water sources include the Bluestone River, Clinch River, Lake Whitten, and the Cox Reservoir.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Tazewell County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 7.510 | 7.510 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.074 | 7.469 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.697 | 0.010 |

### Water Use by System Type

Approximately 11,500 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

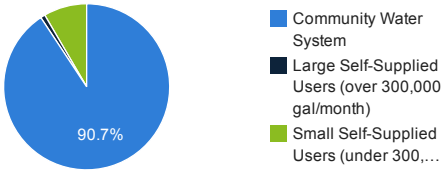



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

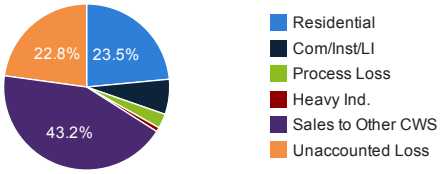



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Tazewell County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.78 | 7.50 | 0.10 | 7.50 |

***Figure 3:** Tazewell County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to increase slightly through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Tazewell County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 45,078 | 45,300 | 45,436 | 45,535 | 0.0% |

***Figure 4:** Tazewell County population projections by decade for 2010, 2020, 2030 & 2040

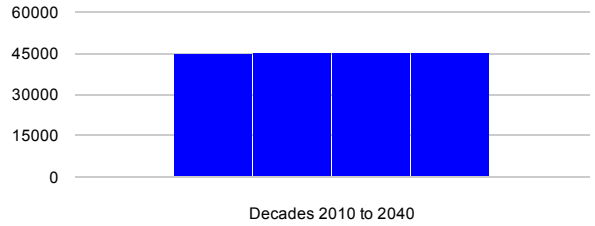
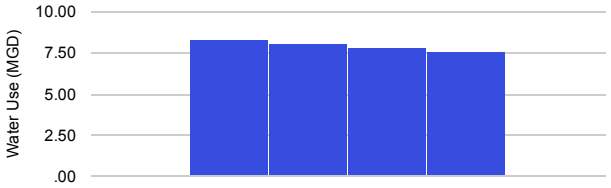



***Table 4 & Figure 5:** Tazewell County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 8.28 | 8.05 | 7.82 | 7.59 | -8.3% |




### Drought Management Practices

The County and Towns adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan (Southwest Virginia Regional WSP).

City of Virginia Beach

### Water Source Overview

Major water sources include Lake Gaston and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Virginia Beach in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 73.064 | 100.534 |
| Large Self-Supplied Users (over 300,000 gal/month) | 1.230 | 1.230 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.664 | 0.643 |
| Agricultural Self-Supplied Users | 0.019 | 0.026 |

### Water Use by System Type

Approximately 4,851 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

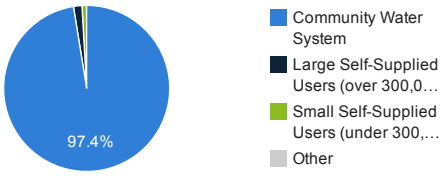



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

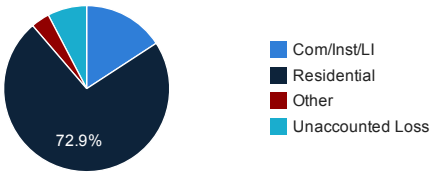



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Virginia Beach in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.40 | 73.58 | 1.38 | 101.05 |

***Figure 3:** Virginia Beach highlighted in the Commonwealth of Virginia

### Projected Water Demand

Demand is projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Virginia Beach population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 437,994 | 438,114 | 430,495 | 419,103 | -4.1% |

***Figure 4:** Virginia Beach population projections by decade for 2010, 2020, 2030 & 2040

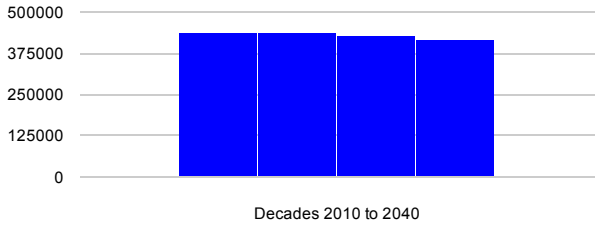
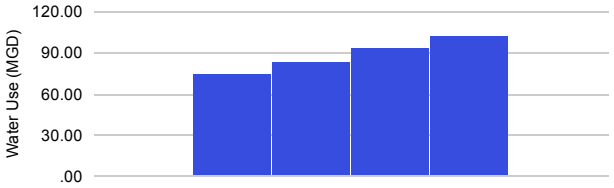



***Table 4 & Figure 5:** Virginia Beach water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 74.98 | 84.13 | 93.28 | 102.43 | 36.6% |




### Drought Management Practices

The City of Virginia Beach adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Hampton Roads Regional WSP)

Warren County and the Town of Front Royal

### Water Source Overview

Major water sources include the South Fork Shenandoah River, groundwater wells, and Passage Creek.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Warren County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 2.323 | 3.801 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.093 | 0.202 |
| Small Self-Supplied Users (under 300,000 gal/month) | 1.426 | 3.106 |
| Agricultural Self-Supplied Users | 0.733 | 1.596 |

### Water Use by System Type

Approximately 19,010 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

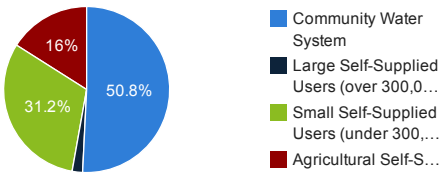



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Warren County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.57 | 3.00 | 3.43 | 5.28 |

***Figure 3:** Warren County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are estimated to meet projected demands.

***Table 3:** Warren County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 37,575 | 41,856 | 45,818 | 49,709 | 32.4% |

***Figure 4:** Warren County population projections by decade for 2010, 2020, 2030 & 2040

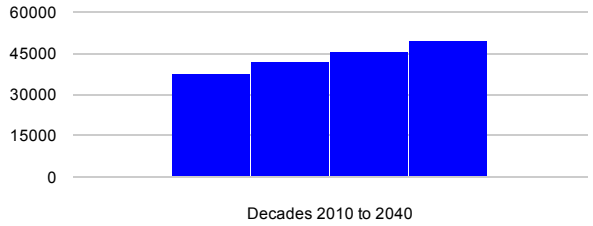
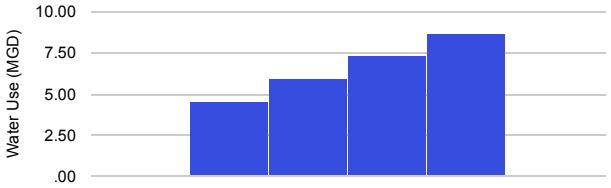



***Table 4 & Figure 5:** Warren County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 4.57 | 5.95 | 7.33 | 8.71 | 90.3% |




### Drought Management Practices

The County and Town adopted ordinances to implement and enforce the Drought Response and Contingency Plan. (Northern Shenandoah Regional WSP)

Washington County and the Towns of Abingdon, Damascus, and Glade Spring

### Water Source Overview

Major water sources include the Middle Fork Holston River, Coles Spring, Reservation Spring, and purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Washington County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 7.200 | 7.200 |
| Large Self-Supplied Users (over 300,000 gal/month) | 3.380 | 3.380 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.077 | 0.077 |
| Agricultural Self-Supplied Users | 1.959 | 1.959 |

### Water Use by System Type

Approximately 1,095 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

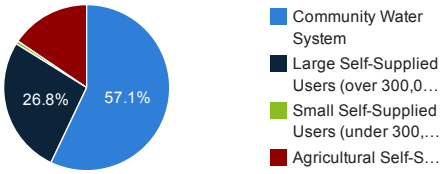



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Washington County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.15 | 11.47 | 1.15 | 11.47 |

***Figure 3:** Washington County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population is projected to increase slightly through the planning period of 2040. Washington County is estimated to experience a water deficit as early as 2006 . Regional plans for addressing projected shortfalls of municipal supply include maintaining, increasing, or initiating supply interconnections with neighboring localities, infrastructure upgrades, groundwater source development, increasing permitted surface water withdrawals, upgrading current VDH permitted capacities, and continuing existing water conservation policies or developing new ones.

***Table 3:** Washington County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 54,876 | 57,040 | 58,800 | 60,402 | 11.1% |

***Figure 4:** Washington County population projections by decade for 2010, 2020, 2030 & 2040

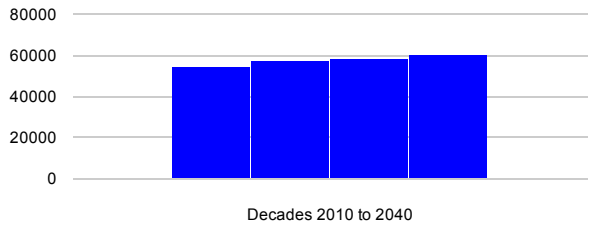



***Table 4 & Figure 5:** Washington County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 12.62 | 12.62 | 12.62 | 12.62 | -0.0% |

### Drought Management Practices

The County and Towns adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Southwest Virginia Regional WSP)

City of Waynesboro

### Water Source Overview

Major sources include groundwater wells, Coyner Springs, and Baker Spring.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Waynesboro in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Agricultural Self-Supplied Users | 0.009 | 0.009 |
| Community Water System | 3.256 | 3.961 |
| Large Self-Supplied Users (over 300,000 gal/month) | 4.209 | 4.209 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

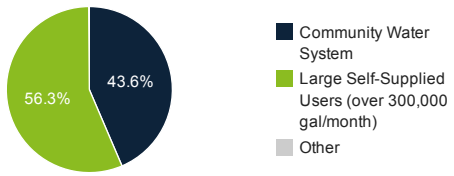



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

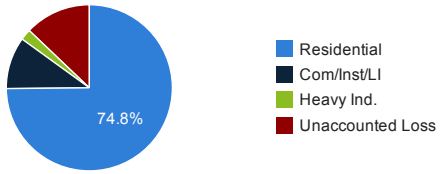



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Waynesboro in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 6.75 | 0.72 | 7.46 | 0.72 |

***Figure 3:** Waynesboro highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Waynesboro population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 21,006 | 22,375 | 23,575 | 24,613 | 14.3% |

***Figure 4:** Waynesboro population projections by decade for 2010, 2020, 2030 & 2040

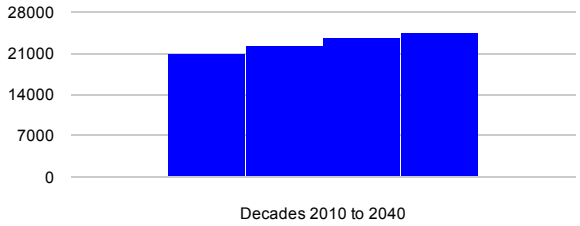



***Table 4 & Figure 5:** Waynesboro water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 7.47 | 7.71 | 7.94 | 8.18 | 9.4% |

### Drought Management Practices

The City adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Upper Shenandoah River Basin WSP)

Westmoreland County and the Towns of Colonial Beach and Montross

### Water Source Overview

Major water sources are groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Westmoreland County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.836 | 1.008 |
| Large Self-Supplied Users (over 300,000 gal/month) | 0.056 | 0.057 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.449 | 0.584 |

### Water Use by System Type

Approximately 5,985 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

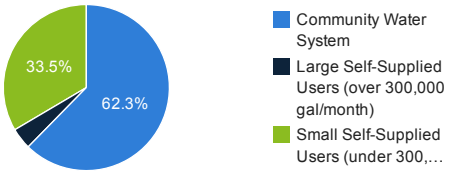
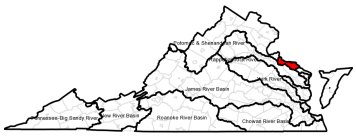



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Westmoreland County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 1.33 | 0.01 | 1.63 | 0.01 |

***Figure 3:** Westmoreland County highlighted in the Commonwealth of Virginia



### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Westmoreland County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 17,454 | 18,344 | 19,202 | 19,994 | 11.8% |

***Figure 4:** Westmoreland County population projections by decade for 2010, 2020, 2030 & 2040

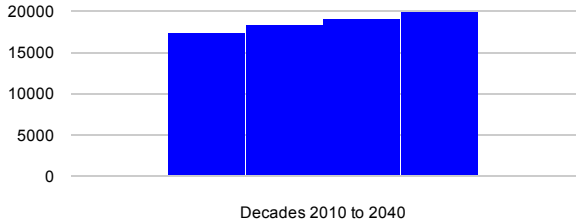
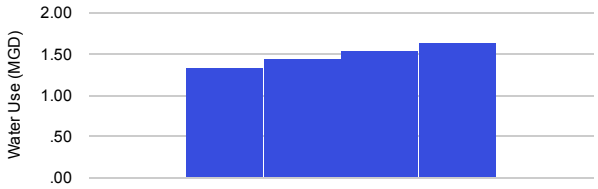



***Table 4 & Figure 5:** Westmoreland County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 1.34 | 1.44 | 1.55 | 1.65 | 23.0% |




### Drought Management Practices

The County and Towns adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Northern Neck Regional WSP)

City of Williamsburg

### Water Source Overview

Major water sources include the Waller Mill Reservoir and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Williamsburg in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Large Self-Supplied Users (over 300,000 gal/month) | 0.700 | 0.700 |
| Community Water System | 3.340 | 4.971 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

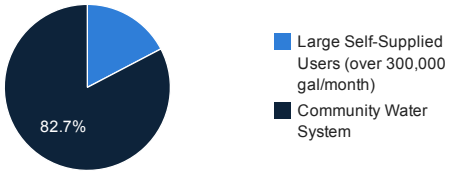



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

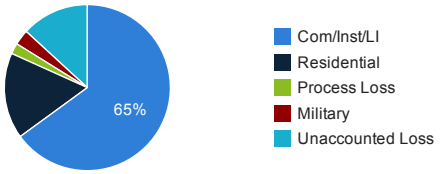



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Williamsburg in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.87 | 3.18 | 1.00 | 4.67 |

***Figure 3:** Williamsburg highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Williamsburg population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 14,068 | 15,510 | 16,729 | 17,820 | 21.4% |

***Figure 4:** Williamsburg population projections by decade for 2010, 2020, 2030 & 2040

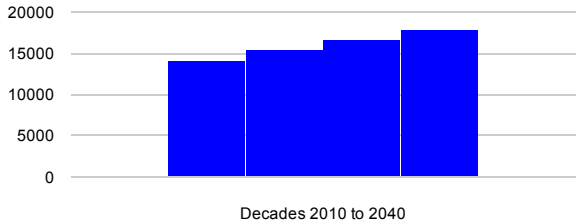
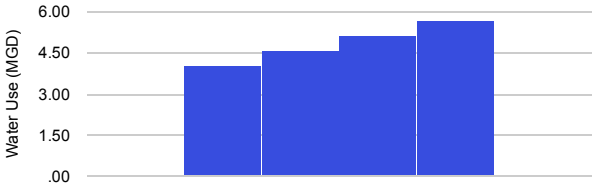



***Table 4 & Figure 5:** Williamsburg water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 4.04 | 4.58 | 5.13 | 5.67 | 40.4% |




### Drought Management Practices

The City of Williamsburg has adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Hampton Roads Regional WSP)

City of Winchester

### Water Source Overview

Major water sources include the North Fork Shenandoah River and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Winchester in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Large Self-Supplied Users (over 300,000 gal/month) | 0.431 | 0.449 |
| Community Water System | 7.710 | 10.993 |

### Water Use by System Type

There are no reported users of private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

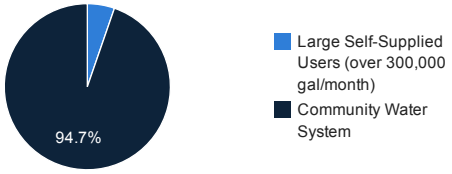



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

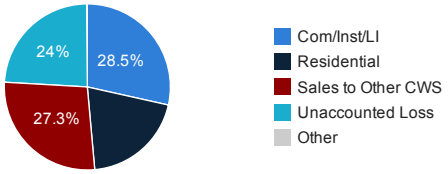



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Winchester in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.43 | 7.71 | 0.45 | 10.99 |

***Figure 3:** Winchester highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Winchester population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 26,203 | 27,967 | 29,449 | 30,781 | 15.4% |

***Figure 4:** Winchester population projections by decade for 2010, 2020, 2030 & 2040

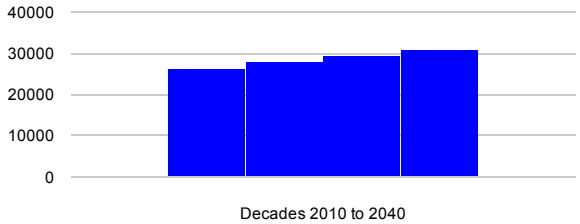
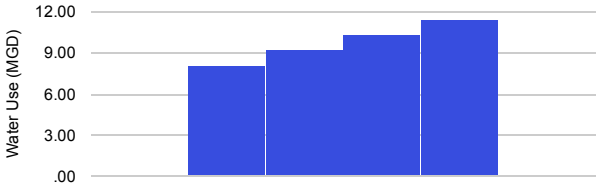



***Table 4 & Figure 5:** Winchester water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 8.14 | 9.24 | 10.34 | 11.44 | 40.5% |




### Drought Management Practices

The City adopted an ordinance to implement and enforce the Drought Response and Contingency Plan. (Northern Shenandoah Regional WSP)

Wise County and the Towns of Appalachia, Big Stone Gap, Coeburn, Pound, St. Paul, and Wise

### Water Source Overview

Major sources include the Big Cherry, Wise, Tom's Creek and Pound Reservoirs and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Wise County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Small Self-Supplied Users (under 300,000 gal/month) | 0.506 | 0.506 |
| Community Water System | 3.411 | 3.093 |

### Water Use by System Type

Approximately 6,700 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

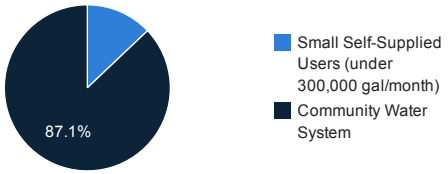



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

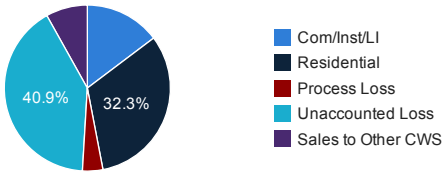



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Wise County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.98 | 2.94 | 0.97 | 2.63 |

***Figure 3:** Wise County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and water use are projected to decrease slightly during the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** Wise County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 41,452 | 40,841 | 40,357 | 39,976 | -4.9% |

***Figure 4:** Wise County population projections by decade for 2010, 2020, 2030 & 2040

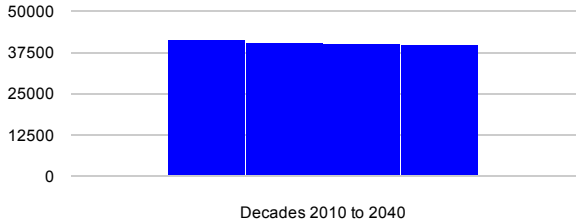
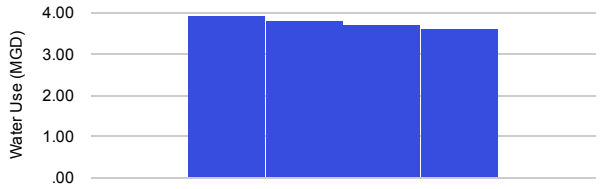



***Table 4 & Figure 5:** Wise County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 3.92 | 3.81 | 3.71 | 3.60 | -8.1% |




### Drought Management Practices

The County adopted an ordinance to implement and enforce the Drought Responseand Contingency Plan. The status of drought enforcement in the Towns of Appalachia, Big Stone Gap, Coeburn, Pound, St. Paul, and Wise is pending and will be addressed by the five-year update of the water supply plan. (Southwest Virginia Regional WSP)

Wythe County and the Towns of Rural Retreat and Wytheville

### Water Source Overview

Major sources include Boiling and White springs, Reed Creek, and groundwater wells.

***Table 1:** Reported (2010) and projected (2040) water use by system type for Wythe County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 3.501 | 3.501 |
| Large Self-Supplied Users (over 300,000 gal/month) | 3.743 | 3.743 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.716 | 0.716 |
| Agricultural Self-Supplied Users | 1.973 | 1.973 |

### Water Use by System Type

Approximately 9,456 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

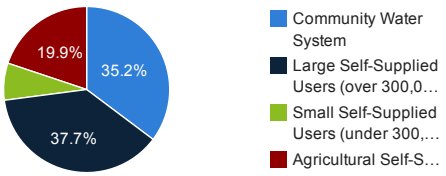



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

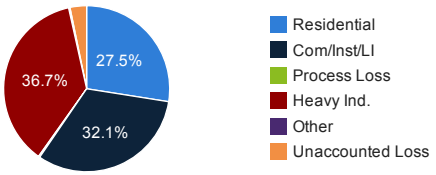



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for Wythe County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 2.13 | 7.81 | 2.13 | 7.81 |

***Figure 3:** Wythe County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Regional population is projected to increase slightly through 2040. Ewater sources are expected to meet projected demands during this planning period. The region's plan included alternatives, should there be a shortfall of municipal supply, which include: maintaining, increasing, or initiating supply interconnections with neighboring localities, infrastructure upgrades, groundwater source development, increasing permitted surface water withdrawals, upgrading current VDH permitted capacities, and continuing existing water conservation policies or developing new ones.

***Table 3:** Wythe County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 29,235 | 30,030 | 30,581 | 31,035 | 6.9% |

***Figure 4:** Wythe County population projections by decade for 2010, 2020, 2030 & 2040

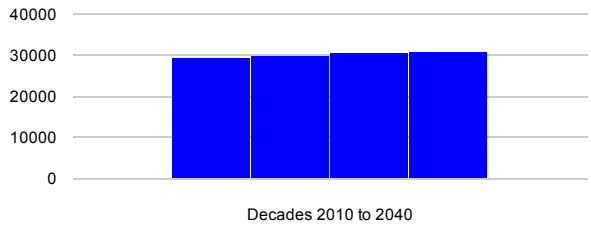
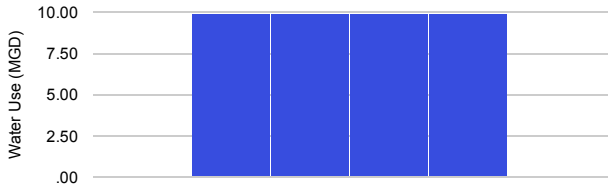



***Table 4 & Figure 5:** Wythe County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 9.93 | 9.93 | 9.93 | 9.93 | -0.0% |




### Drought Management Practices

The County and Towns adopted ordinances for the implementation and enforcement of the Drought Response and Contingency Plan. (Southwest Virginia Regional WSP)

York County

### Water Source Overview

Major water sources include the York River, groundwater wells, and purchased water.

***Table 1:** Reported (2010) and projected (2040) water use by system type for York County in MGD

| Type | Reported Use 2010 MGD | Projected Use 2040 MGD |
|---|---|---|
| Community Water System | 0.328 | 0.391 |
| Small Self-Supplied Users (under 300,000 gal/month) | 0.306 | 0.366 |
| Large Self-Supplied Users (over 300,000 gal/month) | 8.221 | 8.221 |

### Water Use by System Type

Approximately 3,200 people use private groundwater wells for residential water supply.

***Figure 1:** Percentage of reported water use by system type in 2010 *(No use data shown on graph if less than .01 MGD: Refer to Table 1)*

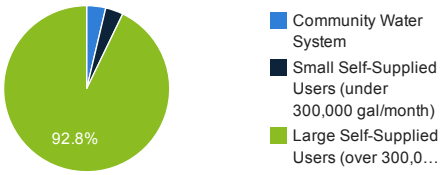



***Figure 2:** Disaggregated water use percentages for Community Water Systems in 2010 *(No graph shown if no disaggregated use data reported)*

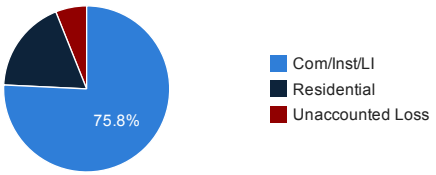



***Table 2:** Reported (2010) and projected (2040) groundwater and surface water use for York County in MGD

| Reported 2010 Groundwater Use (MGD) | Reported 2010 Surface Water Use (MGD) | Projected 2040 Groundwater Use (MGD) | Projected 2040 Surface Water Use (MGD) |
|---|---|---|---|
| 0.63 | 8.22 | 0.76 | 8.22 |

***Figure 3:** York County highlighted in the Commonwealth of Virginia

### Projected Water Demand

Population and demand are projected to increase through the planning period. Existing water sources are expected to meet projected demands.

***Table 3:** York County population projections by decade from 2010 to 2040 (data gathered from VEC projections - 05/20/13)

| 2010 | 2020 | 2030 | 2040 | % Change (2010-2040) |
|---|---|---|---|---|
| 65,464 | 75,590 | 86,321 | 97,627 | 49.2% |

***Figure 4:** York County population projections by decade for 2010, 2020, 2030 & 2040

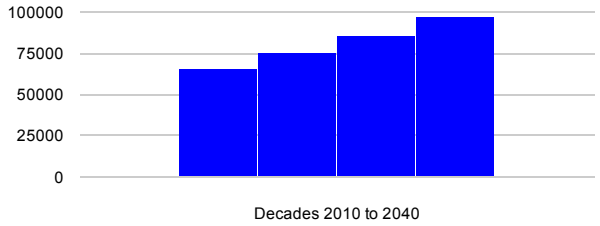
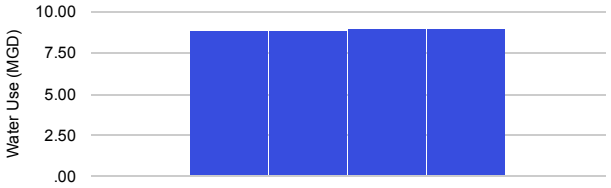



***Table 4 & Figure 5:** York County water demand trends by decade for 2010, 2020, 2030 & 2040 in MGD

| Reported Use 2010 MGD | Projected Use 2020 MGD | Projected Use 2030 MGD | Projected Use 2040 MGD | Percent Change (2010-2040) |
|---|---|---|---|---|
| 8.86 | 8.90 | 8.94 | 8.98 | 1.4% |




### Drought Management Practices

York County adopted an ordinance for the implementation and enforcement of the Drought Response and Contingency Plan. (Hampton Roads Regional WSP)