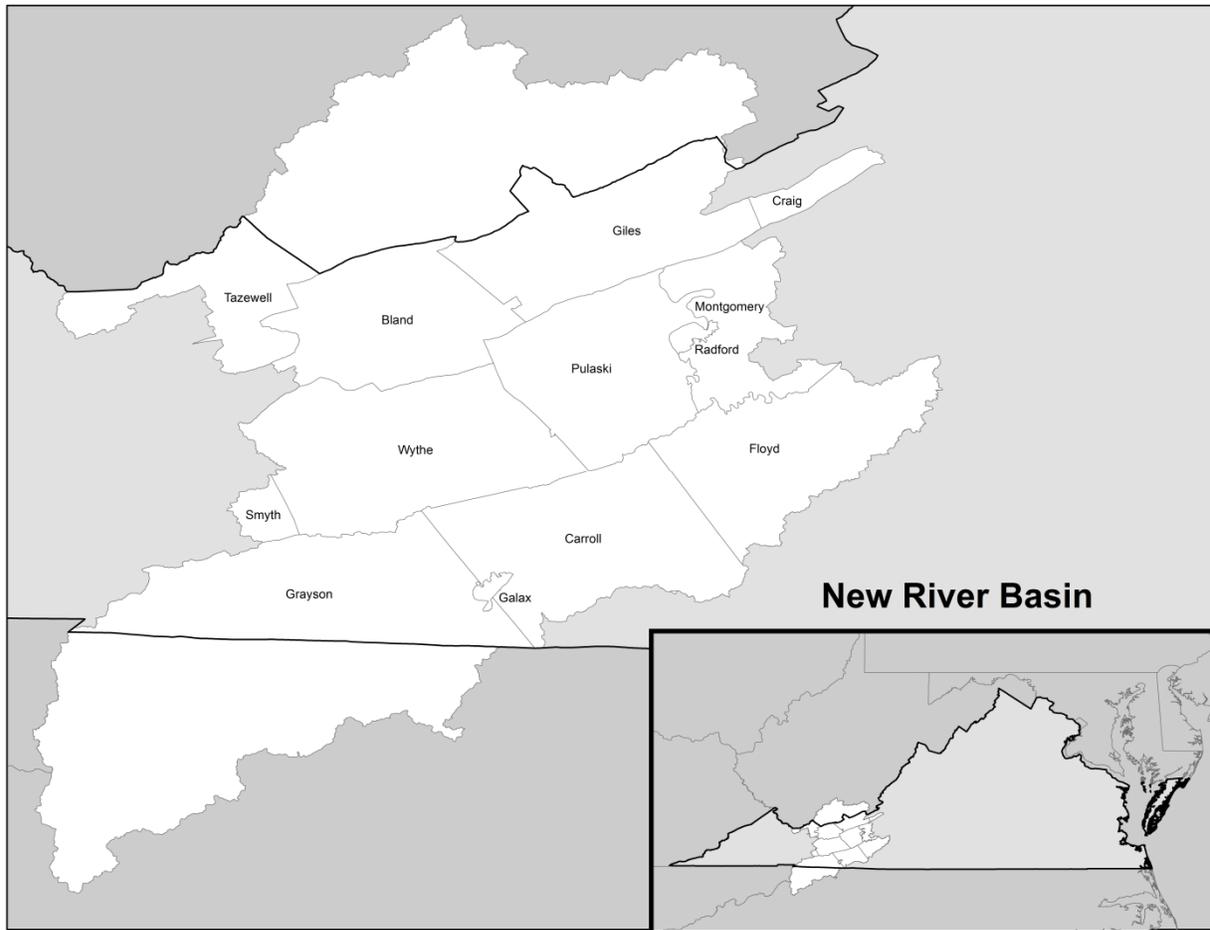


New River Basin Summary

For a full description of localities included in the water supply plans, as well as explanations of various terms and concepts used throughout this summary, please review the Introduction to the State Plan Appendices.

The New River Basin is located in southwest Virginia and covers 3,068 square miles, or approximately 7% of the Commonwealth's total land area. The New River flows from its headwaters in Watauga County, North Carolina in a northeasterly direction to Radford, Virginia, and then in a northwesterly direction to Glen Lyn, Virginia, where it exits into West Virginia. From there it flows to the confluence of the Gauley River forming the Kanawha River, a tributary to the Ohio River.

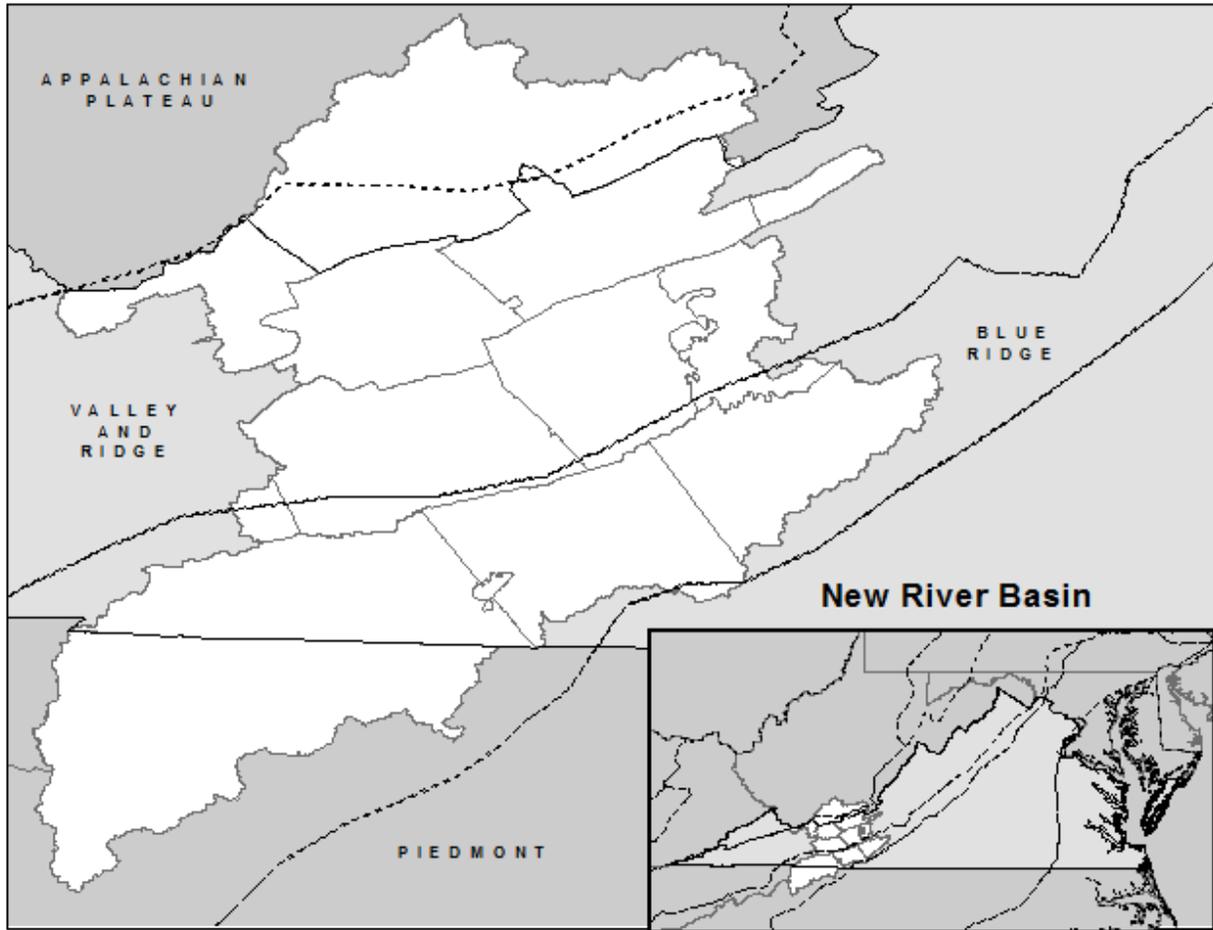
All or portions of the following jurisdictions lie within the Basin: Counties of Bland, Carroll, Craig, Floyd, Giles, Grayson, Montgomery, Pulaski, Smyth, Tazewell, and Wythe; Cities of Galax and Radford. These jurisdictions are represented within four regional water supply plans (Craig County and the Town of New Castle, Southwest Virginia, Blacksburg/Christiansburg, and the New River Valley).



New River Basin Localities

The New River Basin in Virginia is defined by both hydrologic and political boundaries. It is bordered by the James River Basin and Roanoke River Basin to the east, and the Tennessee-Big Sandy River Basin to the west. The southern boundary of the Virginia portion is the North Carolina state line and its northwest boundary is the West Virginia state line.

The topography of the New River Basin is generally rugged; the upper reaches of its tributaries are extremely steep. High mountains, narrow valleys, and steep ravines characterize the Basin. There are ten tributaries in the Upper New River Basin, each having more than 100 square miles in drainage area and many others with forty or more square miles. The New River Basin runs 115 miles in length from Blowing Rock, North Carolina to Bluestone Dam near Hinton, West Virginia with a maximum basin width of 70 miles near Rural Retreat, Virginia. The Virginia portion of the New River Basin is 87 miles in length.



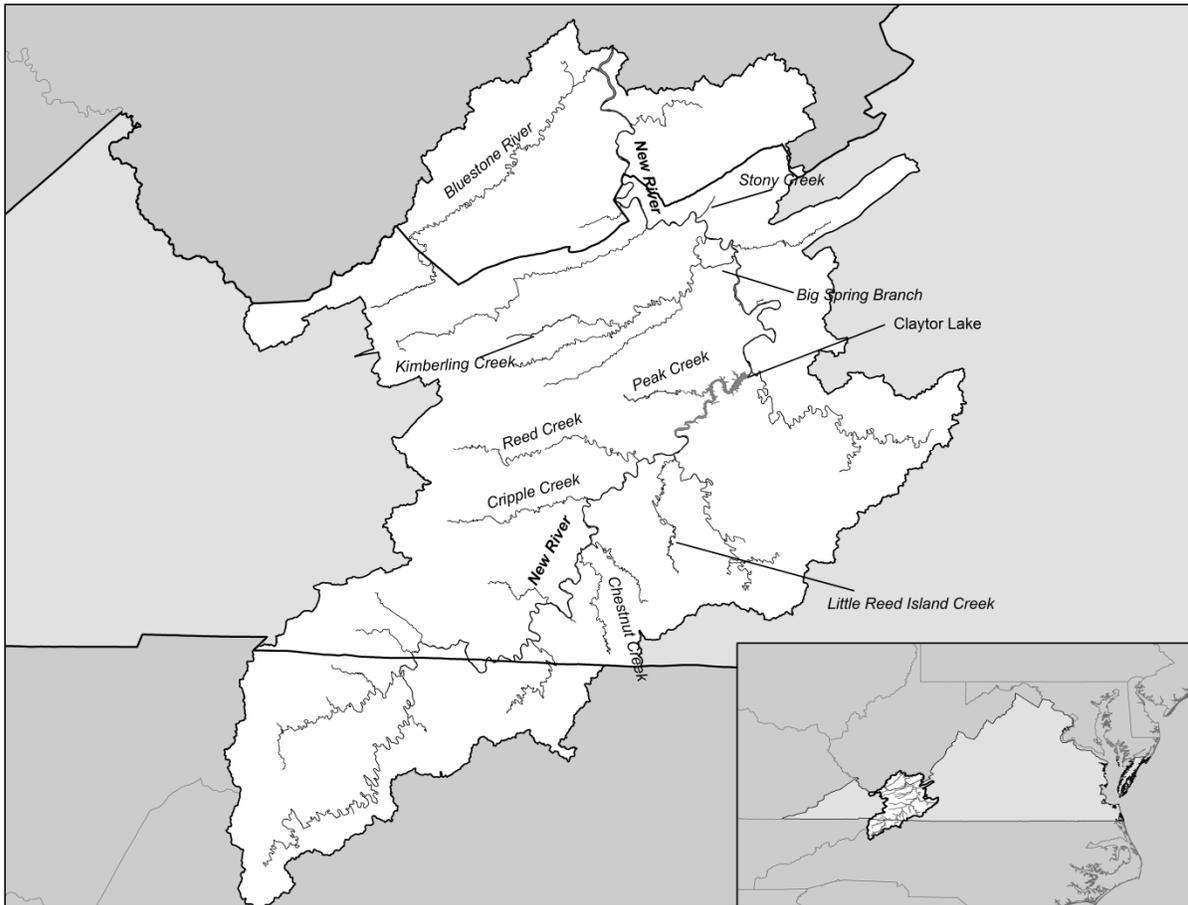
New River Basin Physiographic Provinces

The New River Basin is the least densely populated of the Commonwealth's major river basins. The higher elevations of the Basin have steep slopes and are thickly forested, while the mount bases are mostly used for agriculture. Approximately 59% of its land is forested. Cropland and pasture make up another 35%, with approximately 3% considered urban. The New River Basin is divided into two USGS hydrologic units as follows: HUC 05050001 – Upper New; and HUC 05050002 – Middle New. The two hydrologic units are further divided into 38 water bodies or watersheds and 88 6th order watersheds.

Existing Water Sources

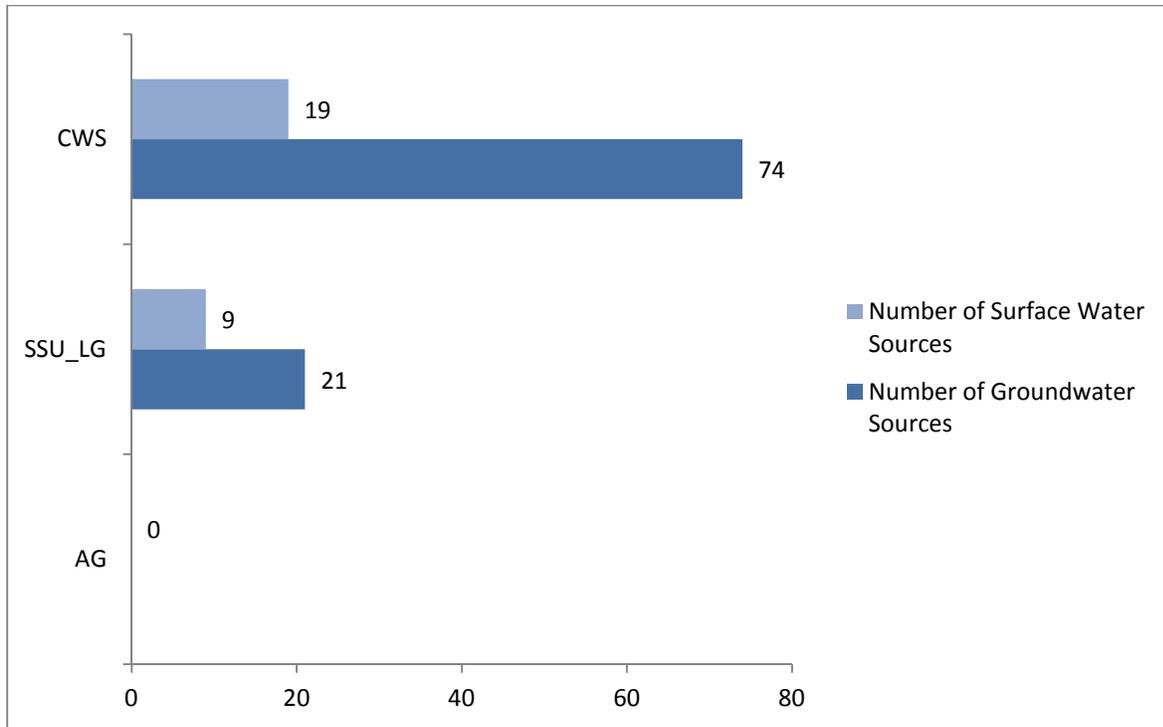
Water sources utilized in the Basin include stream intakes, reservoir, springs, and groundwater wells. Surface water sources account for 28 withdrawals. Additionally, there are 95 groundwater withdrawals currently identified in the New River Basin. Source water reservoirs used in the Basin include Claytor

Lake. Stream intakes and springs used in the Basin include the New River, Peak Creek, Phillippi Spring, Bluestone River, Big Spring, Abbs Creek, Butt Mountain Spring, Chestnut Creek, Dill Springs, Dulaney Spring, Eagle Bottom Creek, Kimberling Creek, Little Reed Island Creek, Boiling Springs, Stony Creek, and White Spring.



New River Basin Major Reservoir and Stream Sources

Reported groundwater sources outnumber surface water withdrawal types in CWS and SSU_LG. The number of groundwater sources for the SSU_SM use type is unknown and, therefore, is not included in the figure below. As estimated for the year 2010, approximately 98,927 people in the Basin use private groundwater wells for residential water supply. Agricultural use was estimated through a combination of water withdrawal reporting and the USDA Census method; therefore, source was not available.



New River Basin Source Type by User Type

Nontraditional water sources, such as water reclamation and reuse, desalination, and interconnection are not currently used by the localities in the region.

Transfers

Water withdrawn in the Basin may be used by the withdrawing user, or it may be transferred to another user. The transfer of water within and between river basins is a demand management practice that can address water supply and/or water quality needs by moving water from a basin or sub-basin with surplus supply to a basin or sub-basin with a supply deficit. Most often this practice of transferring water across sub-basin boundaries within a river basin - intrabasin transfers - occurs within a single county, but they can occur across county lines. Water movement that occurs when water is withdrawn from one major basin and transferred to a user in another major basin is called an interbasin transfer. Interbasin transfers of water are less common in Virginia. There are no interbasin transfers reported in the four regional water supply plans in covering this Basin.

The following table lists the reported intrabasin transfers between water providers and the entities to which they sell water (water purchaser).

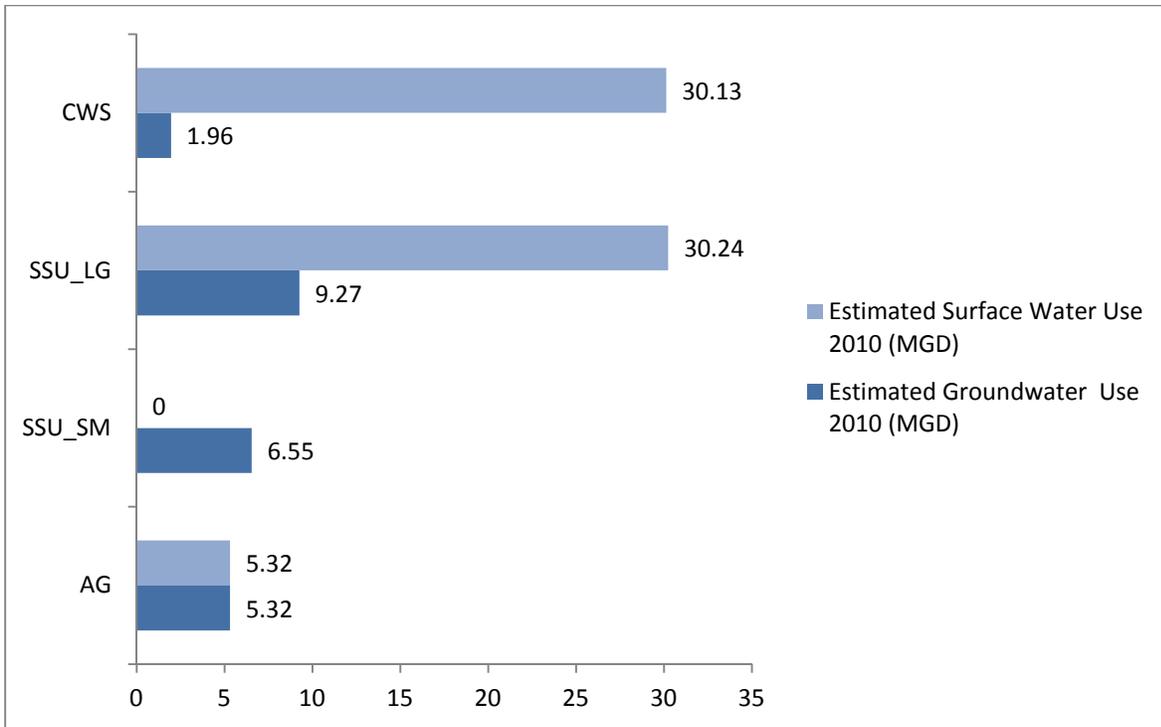
User	Water Purchases and System(s)	Water Provider
CWS	Giles County	Giles County PSA
CWS	Town of Glen Lyn	Giles County PSA
CWS	Town of Narrows	Giles County PSA
CWS	Town of Pearisburg	Giles County PSA
CWS	Town of Pembroke	Giles County PSA
CWS	Town of Rich Creek	Giles County PSA
CWS	Town of Dublin	Pulaski County PSA
CWS	Town of Pulaski	Pulaski County PSA
CWS	Montgomery County PSA-Belview, Warm Hearth, Rt. 144 Corridor, Jennell Road and Yellow Sulphur Road, Merrimac/Price Mountain, Coal Bank Ridge	Town of Blacksburg
CWS	Montgomery County PSA-Bethel Area, Rt. 177 Corridor, Plum Creek	City of Radford
CWS	Town of Blacksburg	VPI Water Authority
CWS	Montgomery County PSA-Midway/Merrimac, Christiansburg Elliston Waterline, Industrial Park-Price Mountain, Mudpike Road Waterline	Town of Christiansburg
CWS	Town of Christiansburg	VPI Water Authority
CWS	Montgomery County PSA-Prices Fork/Merrimac	Radford Army Ammunition Plant
CWS	Pulaski County PSA	Radford Army Ammunition Plant

CWS	Viewland Subdivision	Montgomery County PSA/New River Water Company
CWS	Pulaski County PSA - Brookmont Area	Town of Pulaski
CWS	Pulaski County PSA - Mt. Olivet	no information provided in the regional plan
CWS	New River Valley Planning District Commission (NRVPDC)	City of Radford
CWS	Pulaski County PSA	NRVPDC
CWS	Bland County SA - Rocky Gap/Bastian System	Bluefield Valley Water Works (WV)
CWS	Fairview Water System	City of Galax
CWS	Old Town Water System	City of Galax
CWS	Carroll County PSA - Carroll County Industrial Park, Tower Road	Town of Hillsville
CWS	Town of Tazewell	Tazewell County PSA
CWS	Tazewell County - Falls Mills	Town of Pocahontas

New River Intrabasin Water Transfers

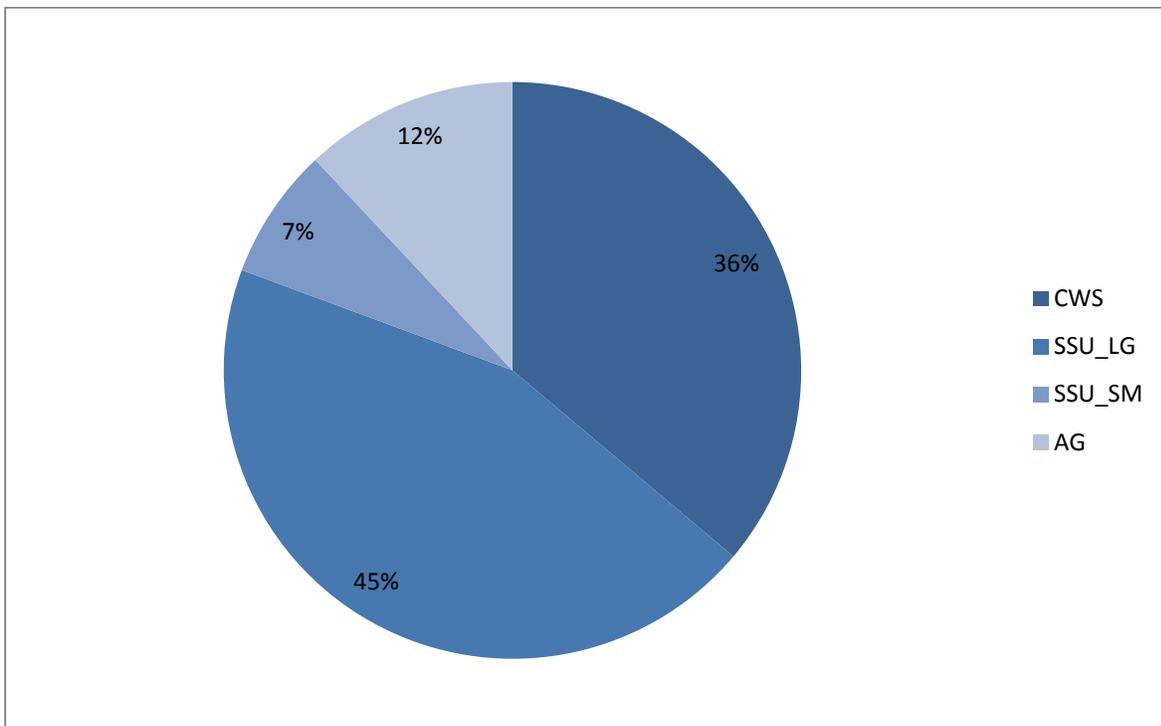
Existing Water Use

The total estimated water use provided in the four water supply plans is summarized in the following figure. The total estimated water use is 89 MGD with approximately 23 MGD of groundwater and approximately 66 MGD of surface water.



New River Basin Estimated Use by Source and Type

SSU_LG use an estimated 45% of the total water in the Basin followed by CWS (36 percent), AG (12%), and SSM_SM (7%).

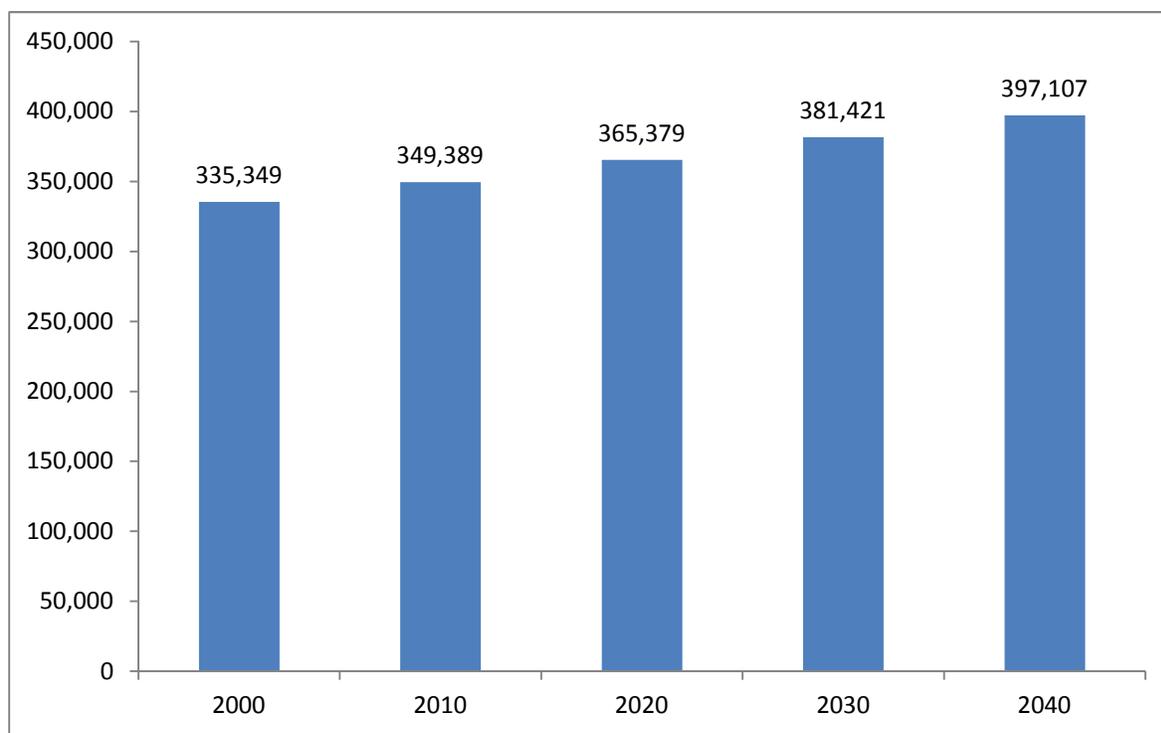


New River Basin Percentage of 2010 Estimated Use by User Type

CWS reported their water use disaggregated into categories of use appropriate for the system. Categories commonly used included Residential, Commercial/Institutional/Light Industrial (CIL), Heavy Industrial, Military, Unaccounted for Water Losses, Production Processes, and Sales to other CWS. In addition, some CWS chose to include a category for “Other” use. Many smaller CWS did not report disaggregated use as required. Therefore, the data set is not complete, but is evaluated as a percentage of those that reported. The majority of water used by CWS is for residential supply.

Projected Water Demand

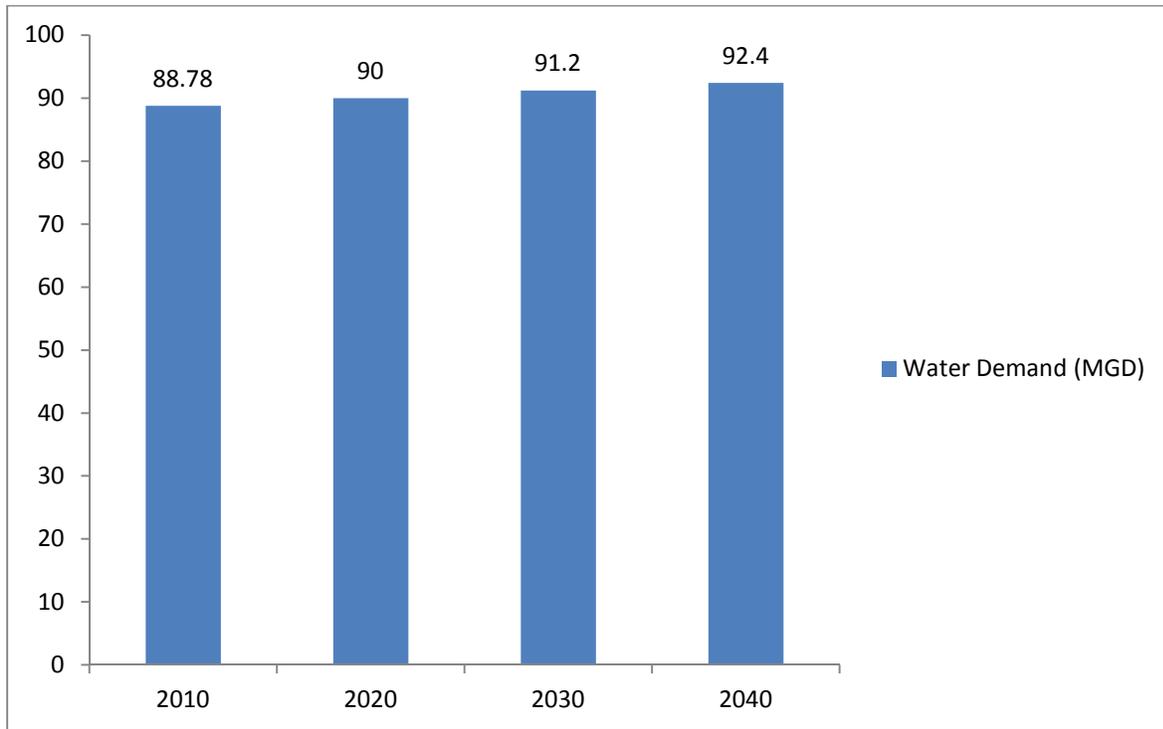
The projected population of the localities with at least a portion of their area in the New River Basin is displayed in the following figure. Population data is obtained from the Virginia Employment Commission’s population estimates which rely on data produced by the United States Census Bureau. The overall population is projected to increase through the year 2040. By the year 2040 the estimated basin-wide population is projected at 397,107. The percent change in population from the years 2000 through 2040 is estimated at 13.7%.



New River Basin Projected Population

A 30- to 50-year projection of future water demand is required by the WSP Regulation. Thirty years is the period of time common to all plans, so data is analyzed here for the timeframe of 2010 through 2040. The total projected water demand in the New River Basin, as reported in the regional water supply plans,

is estimated to increase from approximately 89 MGD in 2010 to 92 MGD in 2040. The percent change in water use during the 30 year timeframe is estimated at 5.4%.



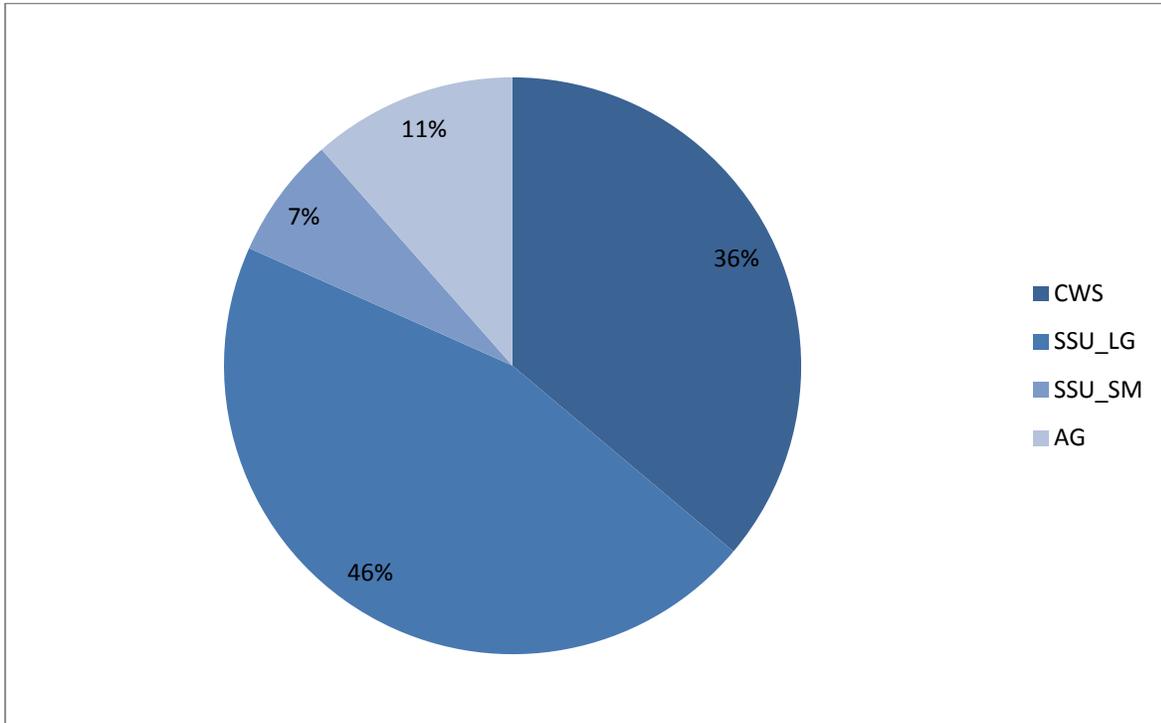
New River Basin Projected Water Demand

As depicted in the following table, the percentage change among users is slight, with CWS showing a 7.4 percent change in water demand over the 30 year planning period. SSU_LG show a 6.5% change and SSU_SM show a decrease in use with a -3.9% change in water demand. The AG use in the New River Basin remains unchanged over the planning period with initial figures based on water withdrawal reporting and USDA Census data.

User Type	Reported Use 2010 MGD	Projected Use 2020 MGD	Projected Use 2030 MGD	Projected Use 2040 MGD	Percent Change (2010-2040)
CWS	32.09	32.52	33	33.39	7.4%
SSU_LG	39.51	40.37	41.2	42.08	6.5%
SSU_SM	6.55	6.46	6.4	6.29	-3.9%
AG	10.63	10.63	10.6	10.63	0.0%

New River Basin Projected Water Demand by User Type (2010-2040)

In the year 2040 the percentage of water demand by user type in the New River Basin is similar to the 2010 use in that SSU_LG are projected to use the greatest percentage of water followed by CWS, AG, and SSU_SM.



New River Basin Percentage of 2040 Projected Demand by User Type

Statement of Need and Alternative Water Sources

The following review of future water needs is obtained from the four regional water supply plans represented in the New River Basin. The information is presented for all those localities with at least a portion of land area located within the New River Basin. The following lists the projected deficits in the Basin.

Town of Blacksburg and Town of Christiansburg Regional Water Supply Plan

Blacksburg and Christiansburg confirm that available resources and the permitted capacity of the treatment plant exceed current and future demand projections.

Craig County-Town of New Castle Regional Water Supply Plan

Based on projections of future water demand and the VDH permitted capacity of the Craig-New Castle Public Service Authority community water system, existing water sources are deemed adequate to meet projected 2040 community water system demands.

New River Valley Water Supply Plan

Montgomery County; Floyd County; Pulaski County and the Towns of Dublin and Pulaski; Giles County and the Towns of Glen Lyn, Narrows, Pearisburg, Pembroke, and Rich Creek; City of Radford

As a region, there is generally no deficit during the planning period. Some systems are already exploring options to increase system capacity. Alternatives considered include the installation of pressure reducing valves; interconnection of systems with the City of Radford across the planning area; increased educational efforts; additional well(s) in Floyd; water capacity expansion for the Giles County PSA and a pilot study on potential to withdraw from the New River; joining the Blacksburg-Christiansburg-VPI water authority for Montgomery County; Pulaski County is engaged in discussions with the City of Radford to increase capacity in an industrial park.

Southwest Virginia Regional Water Supply Plan

Bland County; Carroll County and the Town of Hillsville; Grayson County and the Towns of Fries, Independence, and Troutdale; Smyth County and the Towns of Chilhowie, Marion, and Saltville; Wythe County and the Towns of Rural Retreat and Wytheville; Tazewell County and the Towns of Bluefield, Cedar Bluff, Pocahontas, Richlands, and Tazewell; the City of Galax

The Town of Saltville may experience a water deficit as early as 2006 based on the current VDH permitted capacity. The deficit is projected to increase to approximately 0.68 MGD in 2060. The Town of Wytheville may experience a water deficit as early as 2041, based on the current VDH permitted capacity. The deficit may increase to approximately 0.85 MGD in 2060.

The region's plan to address the projected shortfall of municipal supply includes: 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.

Locality	Estimated Year of Deficit	Estimated Deficit Amount (MGD)
Town of Saltville	2060	0.68
Town of Wytheville	2060	0.85

New River Basin Projected Water Deficits