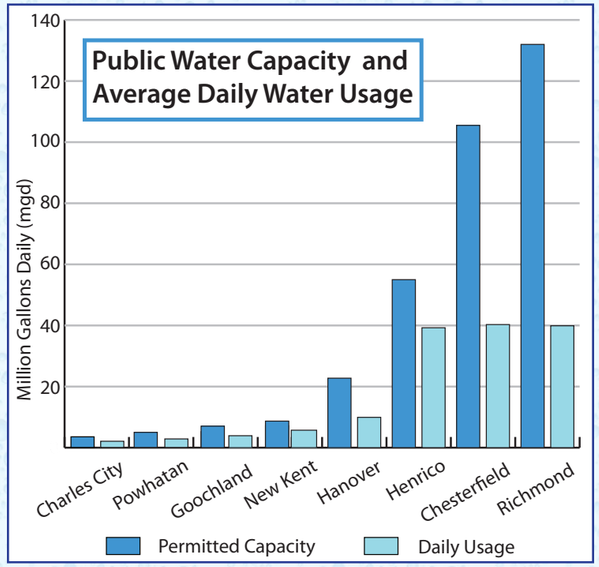
Public Water

Surface Water

The principal source of water in the Richmond Region is surface water coming from the Region's major rivers and reservoirs. Two-thirds of the Region's water comes from the James River and one quarter comes from the Appomattox River or Lake Chesdin. The North Anna River and Swift Creek Reservoir are additional sources. While 97% of public water comes from surface water resources, public and community well systems provide the remaining 3%.

Three separate water supply partnerships involving six localities in the Richmond Region are preparing regional water supply plans to submit to the Virginia Department of Environmental Quality in accordance with the Local and Regional Water Supply Planning Regulations. The City of Richmond, Charles City County, New Kent County, and Chesterfield County (as part of the Appamattox River Water Authority) have, or are in the process of, preparing long-term water supply plans as well.



The City of Richmond water treatment plant

Ground Water

The land of the Richmond Region is divided by the fall line which runs in close alignment to Interstate 95. The geological fall line divides the Region into two physiographic provinces – the Coastal Plain to the east and the Piedmont to the west – displaying distinctly different characteristics of geology, topography, and soil types which affect water resources.

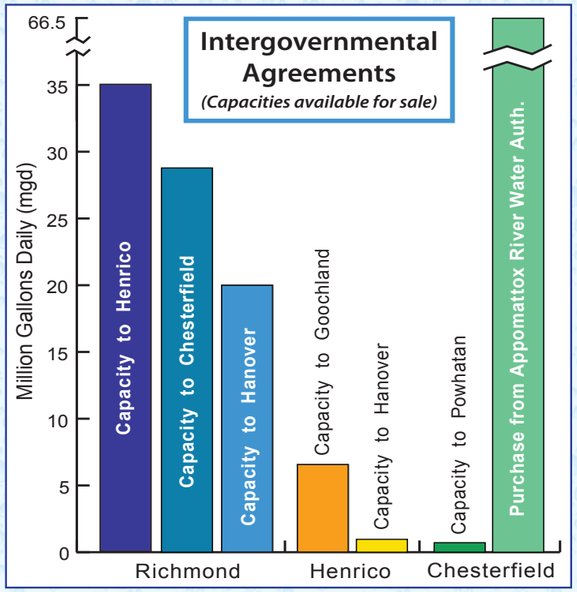
Coastal plain: In the coastal plain areas east of I-95, hundreds of domestic and other small capacity wells draw ground water from a shallow unconfined aquifer system. Major ground water withdrawals come from a deeper system of confined aquifers whose recharge area extends for miles.

The broad recharge areas of the deep confined aquifers beneath the coastal plains present complex wellhead protection problems. When water infiltration from the water table and shallow aquifers recharge the deep aquifers, pollutants can follow. The shallow aquifers have a more direct interaction with the surface. The Virginia Department of Environmental Quality is developing a new regional ground water model to support more effective planning and management through revised Ground Water Withdrawal Regulations.

Piedmont: The western piedmont area is characterized by gently rolling topography and deeply weathered bedrock, resulting in wide variations in ground water quality and well yields and limiting ground water use in many locations.

DID YOU KNOW?

- The Richmond Region is served by nine separate water systems, several of which are physically interconnected. These interconnections provide opportunities for water sharing during times of need.
- The average household in the Region uses 185 gallons of water per day which translates to a total residential demand of 76.3 MGD, if all of the Region's residences were on public water.
- At least 50% of public water treatment resources are shared through wholesale purchase or reserve agreements between localities in the Region.

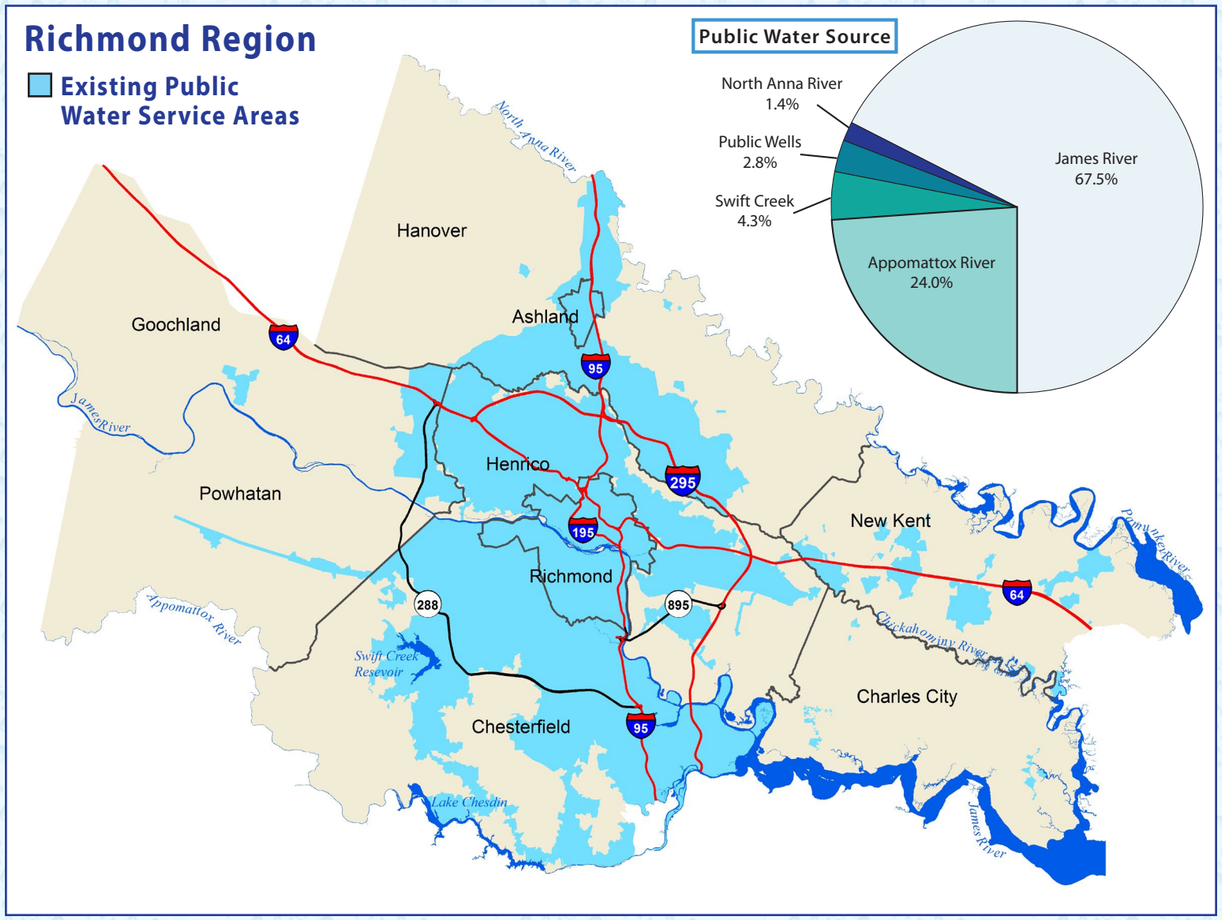


Water Supply Planning

The Gathright Dam and Lake Moomaw project located in the Alleghany Highlands above Covington, Virginia serves to manage water supply to the James River. Operated by the U.S. Army Corps of Engineers Norfolk District, the multipurpose federal project is regulated to reduce flood damages at downstream locations, to increase low flows for the improvement of downstream water quality, and to provide the opportunity for water-based recreation. The project has served as a critical water supply source to the Region since the reservoir was completely filled in April 1982.

Adopted in October 2008, the City of Richmond Water Supply Plan predicts the peak daily demand for the Region. Since the adoption of the City's plan, Henrico County has reached an agreement with Cumberland County on a permitted 50-year regional water project to cooperatively develop a reservoir along the James River. This augmentation reservoir will be used to collect river water when the level is adequate and release water back into the river when river flow is inadequate. By virtue of this reservoir, additional withdrawls from the James River will be authorized for Henrico, Powhatan and Cumberland Counties.

The full story of the Richmond Region's public water supply will not be complete until the Virginia Department of Environmental Quality completes its review of the water supply plans being submitted by the Appomattox River Water Authority (including Chesterfield County), Henrico/Cumberland/Powhatan and Goochland counties, and Hanover County with the Town of Ashland.



Richmond Regional Planning District Commission

The RRPDC is a government body created by the Virginia General Assembly to coordinate issues of regional concern among the City of Richmond, Town of Ashland, and the Counties of Charles City, Chesterfield, Goochland, Hanover, Henrico, New Kent, and Powhatan.

The 33-member RRPDC board is comprised of 22 elected officials, seven Planning Commission members, and four citizens representing nearly one million Virginians residing in an area of approximately 2,200 square miles. The Board meets monthly to promote regional collaboration and address issues of regional significance.

Richmond Regional Planning District Commission
9211 Forest Hill Ave; Suite 200
Richmond, VA 23235
(804) 323-2033
www.richmondregional.org

The RRPDC expresses its gratitude to the members of the Regional Deputy Utilities Directors Work Group and other Public Utilities Directors, administrators, and their staffs: Jack Miniclier (Charles City County), George Hayes (Chesterfield County), Gary DuVal (Goochland County), Gary Craft (Hanover County), Bill Mawyer (Henrico County), Mike Lang (New Kent County), Chris Rapp (Powhatan County) and Bob Steidel (City of Richmond).

This project was funded by the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NA09N0S4190163 of the US Department of Commerce National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.

Virginia Coastal Zone MANAGEMENT PROGRAM

Wastewater and Sewer Service

The Richmond Region's wastewater treatment capacity is defined both by the physical capacity of the sewerage systems and the limits on pollutant discharge, or pounds per year of nitrogen, phosphorus and sediment, allowed to be released from the treatment plants (point-sources).

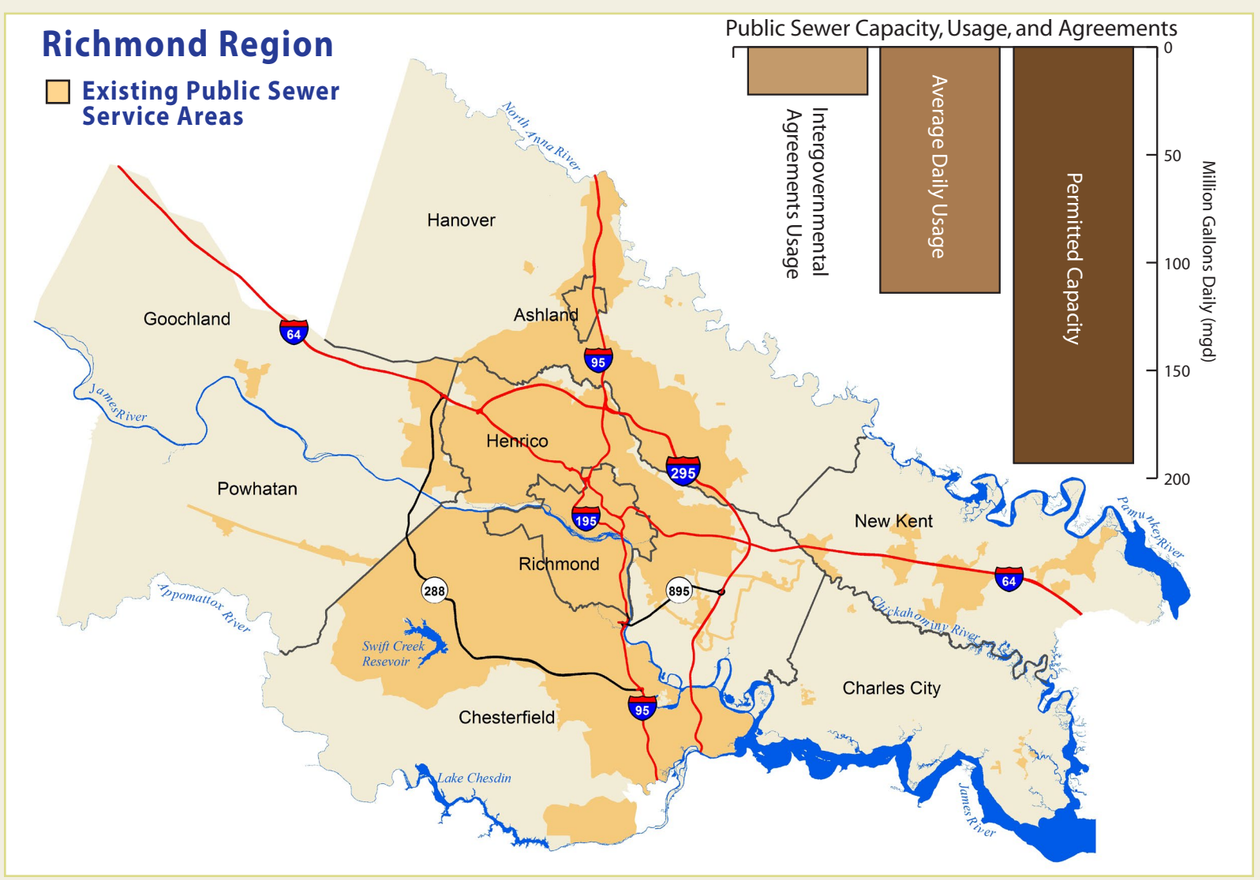
Permitted hydraulic capacity is the amount of flow that can be accommodated by the sewerage system, consisting of collection lines and treatment plants. The Richmond Region is served by 15 public wastewater treatment facilities with a total permitted hydraulic capacity of 192.7 million gallons per day (MGD).

Wastewater system capacity is also defined by the total maximum daily load (TMDL) of pollutants that may be discharged into the Region's waterways in compliance with the Clean Water Act and Chesapeake Bay Restoration Act requirements. The Virginia Department of Environmental Quality is currently reviewing load allocations as part of the Phase II Watershed Implementation Plan in response to the Federal Environmental Protection Agency TMDL allocations.

DID YOU KNOW?

- The Region's publicly-operated wastewater treatment plants range in size from 10,000 GPD to 75 MGD capacity.
- The Richmond Region uses about 60% of its permitted hydraulic capacity based on dry weather flow (DWF).
- The Region's total current wastewater discharge allocation is 3.5 million pounds of nitrogen and 251,000 pounds of phosphorous annually.

Henrico County's water reclamation facility



Richmond Regional Water & Sewer Inventory

The James River supplies nearly 68% of the Region's public water

In October 2008, the Small and Large Jurisdictions Committees of the Richmond Regional Planning District Commission directed staff to compile baseline information on water and sewer systems of the Richmond Region. The goal of this information sharing is to create a regional picture of usage and capacity, educate the public, and develop a planning tool for the RRPDC's nine localities.

Water and Sewer in the Region

Inter-jurisdictional agreements for provision of utility service have created an interwoven, almost regional system operated at the individual locality level for the benefit of local residents and businesses.

The 2010 21st Annual Virginia Water and Wastewater Rate Report prepared by Draper Aden Associates, shows a total of 307,309 residential and 20,969 non-residential water units [not necessarily one connection per dwelling unit] are accounted for in the existing public water service area. Total permitted water capacity in the Region is approximately 277 million gallons per day (MGD) with an average daily use approaching 135 MGD.

Public sewer service is provided to the equivalent of 286,055 residential and 17,942 non-residential wastewater units.

The City of Richmond's wastewater treatment facility