

Department of Community Development
Water Summit Briefing Paper
September, 2014

Background:

County residents outside of the town of Warrenton rely exclusively on groundwater for their water supply needs. In decades past, the County explored surface water options including reservoirs, and due to high costs, impacts on historic and environmental resources, and public opposition, the Board of Supervisors abandoned the idea in favor of groundwater.

Fauquier County's water supply is obtained from fracture-flow type groundwater systems. This means that, in comparison to the more traditional/conventional groundwater system where underground flows are more consistent and predictable, our groundwater resources:

- are highly variable (in every aspect) from one location to the next;
- have a higher degree of susceptibility to surface water contamination;
- are influenced to a greater degree by surface conditions;
- have a higher probability of changing over time; and
- are more challenging to understand and costly to manage.

Groundwater management may be considered as five closely-integrated and related functions:

- 1) Strategic management (managing the aquifer);
- 2) Groundwater development (building water supply capacity);
- 3) Operational management (managing getting water to water utility customers);
- 4) Wellhead protection (protecting wells from potential contaminant sources); and
- 5) Groundwater monitoring (monitoring to support operational and strategic needs).

Within the County, responsibility for management of our water supply has been shared by a variety of organizations and entities, sometimes with differing priorities. The operational aspect of water supply is undertaken by the Fauquier County Water and Sanitation Authority (WSA), an independent political subdivision of the Commonwealth, whose board members are appointed by the Fauquier County Board of Supervisors. Land-use and strategic management of groundwater is provided by the County government. The specific roles and responsibility of these two organizations relative to water could be more clearly defined so that matters of mutual interest are better facilitated.

Other key players are:

- Fauquier County Health Department (provides regulation and oversight of groundwater health for public water supplies);
- The United States Geological Survey- Virginia Water Science Center (conducts fundamental groundwater research within Virginia; they are also the entity that manages the State's only groundwater monitoring well located within Fauquier County);

- Virginia Department of Environmental Quality’s Office of Groundwater Characterization (provides localities with groundwater support); and
- Emery and Garrett Groundwater (EGGI, a private consulting firm that Fauquier County has contracted with over the years for hydrogeological services).

From the mid-1990s through the mid-2000s, Fauquier County contracted with EGGI to conduct a series of hydrogeological investigations within Fauquier County. The investigations conducted by EGGI are generally organized into the following six stages:

- 1) Phase I- Basic mapping and assessment of an area with a special emphasis on potential contaminant issues. No specific field data is obtained in this phase, since the reliance is upon GIS analysis using existing data.
- 2) Phase II- Field work to map fractures, lineaments and other geologic structures that would likely influence groundwater flow; and the selection of potential exploratory well locations.
- 3) Phase III- Exploratory well drilling and conducting preliminary water supply and quality testing.
- 4) Phase IV- Converting suitable exploratory wells to the larger-diameter wells used for production.
- 5) Phase V- Conducting long-term pumping and yield tests to characterize this well’s potential.
- 6) Phase VI- Preparing final groundwater use management plans and submitting permit applications to health department.

Phase I studies have been completed for the major service districts of Marshall, New Baltimore, Warrenton (outside the town), Opal, Bealeton and Remington, and the town of The Plains. No assessments have yet been made in our Village Service Districts (Catlett, Calverton and Midland). Phase II studies have been completed for The Plains, Marshall, New Baltimore, Opal and Bealeton. Higher-level hydrogeological studies have been completed for portions of The Plains, Vint Hill, and the New Baltimore, Warrenton, Opal and Bealeton Service Districts. These investigations were discontinued during the height of the recession due to budget constraints. (Prior to 2008, approximately \$200,000 had been budgeted annually for groundwater work.) Approaches and funding for “strategic management”, wellhead protection and groundwater monitoring have never been initiated.

The County partnered with the towns of Remington and The Plains in the development of a Water Supply Plan (2011), required by the Commonwealth of Virginia. This plan identified several water supply needs related to our groundwater use, including:

- Plan for the future, especially in sensitive groundwater use areas. Identify critical areas for groundwater investigation, groundwater monitoring and groundwater protection based upon projected growth and water use.
- Develop management strategies for protecting existing groundwater supplies. Such measures can include acquisition of property or easements within critical wellhead protection areas, developing redundancy in the water supply systems and the development of contingency plans.
- Establish a program for long-term monitoring of groundwater resources.
- Engage, educate and enable the public on critical water-related issues.

The Water Supply Plan also identified recommendations related to surface water, especially in light of the interrelationship of surface and groundwater. These recommendations include:

- Work with the state and regional partners to preserve and protect the health of streams and reservoirs.
- Coordinate a surface water management program with state and regional initiatives, including water supply planning, TMDL studies and implementation plans, tributary strategies, and other Chesapeake Bay programs.
- Promote innovative stormwater management, including low-impact development techniques.
- Develop a riparian buffer protection program that leverages resources from state and regional partners.
- Work with partners and citizen volunteers to establish and maintain a surface water monitoring program.

Key Issues and Challenges:

The following outlines some key issues and challenges, as identified by the Department of Community Development:

- 1) We meet our current water supply needs, but there is not much extra capacity in the systems to meet situational or operational needs, or to address anticipated future needs. We currently have little understanding of the extent of our groundwater aquifers and their long term sustainability.
- 2) Our current approach in locating water supply wells within developing areas may not be the most effective given potential contamination issues, as well as future needs.
- 3) Planning and decision-making is complicated by the lack of formalized roles and responsibilities between Fauquier County and Fauquier County Water and Sanitation Authority (WSA).
- 4) Short-term operational needs are not based on strategic and comprehensive studies and investigations.
- 5) Long-term strategic needs often take a lower priority to short-term operational needs.
- 6) Groundwater programs and protocols should be flexible and dynamic, since groundwater needs have evolved over the years, and our institutional understanding of groundwater has increased.
- 7) Groundwater monitoring and wellhead protection have both strategic and operational benefit and are critical to ensuring long-term sustainability of our resources.
- 8) There is an inherent conflict between the rights and needs of individuals living in groundwater recharge areas and the needs of the communities depending upon the recharge to that aquifer.

- 9) A comprehensive approach to managing our groundwater resources may reduce the “unanticipated consequences” upon groundwater quality and quantity when developing County land use and development policies.
- 10) Water re-use is an approach to be explored for our supply needs over time.
- 11) The County has invested large sums of money developing groundwater resources, but we have committed little resources in protecting those investments from threats.
- 12) Land-use decisions affecting a potential well site’s suitability are often made long before the community explores its water supply expansion options.
- 13) Groundwater supplies from wells are not static, they change over time and are influenced by outside events. They rarely improve with time. Understanding our groundwater supply is not finite is important to the long-term sustainability of these resources.
- 14) Once an individual private well is approved and developed, there is very little in the way of public support to that well owner.
- 15) The County has no active plans or programs focused on groundwater protection.
- 16) There are currently discrepancies between the Comprehensive Plan and the Zoning Ordinance regarding centralized water systems versus individual wells. Specifically, should the County’s policy encourage or discourage central water systems over individual wells for Fauquier County residents located outside of Service District?