



ARLINGTON COUNTY, VIRGINIA

**County Board Agenda Item
Meeting of October 15, 2011**

DATE: September 26, 2011

SUBJECT: Request to advertise a Public Hearing for Saturday November 19, 2011, to consider the adoption of a regional Water Supply Plan developed collaboratively with other jurisdictions through the Northern Virginia Regional Commission.

C. M. RECOMMENDATIONS:

Approve the advertisement of a Public Hearing on Saturday November 19, 2011, to consider the adoption of a regional Water Supply Plan developed collaboratively with other jurisdictions through the Northern Virginia Regional Commission.

ISSUE: This is a request to advertise for a public hearing on the proposed regional water supply plan that must be approved by the County Board. No issues have been identified.

SUMMARY: In November 2005, the state of Virginia adopted the Local and Regional Water Supply Planning (WSP) Regulation 9 VAC 25-780-10 *et seq.* The WSP regulation was developed largely as a result of the droughts experienced in 1999 and 2002. In 2006, the Chief Administrative Officers (CAOs) of Northern Virginia jurisdictions, working with the Northern Virginia Regional Commission, determined that pursuit of a regional supply plan was desirable for technical, timing, and cost reasons. In March of 2007, the County Board authorized the County Manager to work with the Northern Virginia Regional Commission (NVRC) to develop a regional plan in conjunction with the other jurisdictions in northern Virginia. This work is now complete and the plan is available for public review at the NVRC web site, www.novaregion.org and search on "Water Supply Plan". The Executive Summary and Introduction sections are attached here for a basic review of the plan, but the overall plan is several hundred pages long.

BACKGROUND: The purpose of the WSP regulation is to: (i) ensure that adequate and safe drinking water is available to all citizens of the Commonwealth; (ii) encourage, promote, and protect all other beneficial uses of the Commonwealth's water resources; and (iii) encourage, promote, and develop incentives for alternative water sources, including but not limited to desalinization.

County Manager:

County Attorney:

33.

Staff: Dave Hundelt, Department of Environmental Services

The regulation establishes the required planning process and criteria that local governments must use in the development of local or regional WSPs. WSPs must encompass a planning horizon of 30 to 50 years and address both surface and groundwater use. They must contain information on: (i) existing water sources; (ii) existing water use; (iii) existing water resource conditions; (iv) an assessment of projected water demand; (v) a description of water management actions; (vi) a statement of need if demands exceed source availability within the planning horizon; (vii) an analysis of alternatives to address projected source water deficits; and (viii) maps detailing program elements. In addition, a local public hearing on the WSP consistent with §15.2-1427 of the Code of Virginia must be held. Local governments must adopt a WSP, as well as any necessary revisions to their comprehensive plan or other local programs necessary to implement the WSP prior to submitting it to DEQ.

After a WSP is submitted to and reviewed by the Virginia Department of Environmental Quality (DEQ), the State Water Control Board will make a determination as to its compliance with the regulation. WSPs must be reviewed by the locality every five years and revised and resubmitted if necessary; all WSP's must be reviewed, revised, and resubmitted to DEQ every ten years.

All cities, counties, and towns in the Commonwealth are required to submit a local WSP or to participate in a regional WSP. The deadlines for the first WSP submissions to DEQ are based upon population. Arlington County's deadlines are discussed below.

Because of the County's long term relationship with the Interstate Commission on the Potomac River Basin (ICPRB), through our supplier the Washington Aqueduct, the County, is already well protected from a water supply perspective. The ICPRB's CO-OP section is the cooperative of the three major water suppliers in the region, the Washington Aqueduct (which supplies Arlington, Falls Church and the District of Columbia), Fairfax Water, and the Washington Suburban Sanitary Commission. The CO-OP has worked since 1970 to construct and operate upstream reservoirs as well as adopt the Low Flow Allocation Agreement that stipulates how the river's flow is divided during periods of drought. These measures, along with local ordinances that allow the County Manager (and other CAOs) to enact water restrictions during periods of drought, help to ensure that Arlington's citizens will be protected during periods of unusually low natural flows in the river. The findings of this water supply plan validate the previous planning efforts in the metropolitan area and because of the previous efforts; it's unlikely that major improvements will be necessary in the planning horizon of this plan.

DISCUSSION: As a jurisdiction with a population greater than 35,000 people, Arlington County would have had to submit a WSP by November 2, 2008, if it had not participated in a regional plan. By joining the other northern Virginia jurisdictions in developing a regional plan the County has until November 2011 to complete and adopt the plan.

The development of the regional WSP has been overseen by an Executive Committee comprised of the CAOs and Water Utility CEOs in northern Virginia. A Technical Advisory Committee (comprised of staff from the appropriate county, city and town agencies as well as water utilities) along with NVRC staff has facilitated the exchange of required information, reviewed the regional WSP, and is guiding the WSP through the public hearing process.

The finding for Arlington is that we are projected to experience a water surplus through the planning horizon. We have a capacity for approximately 48 Million Gallons per Day (MGD), but an average demand currently closer to 25 MGD. Through the planning horizon that demand grows to about 30 MGD, but even with seasonal peak demands, we will see a surplus of supply capacity.

FISCAL IMPACT: There is no initial cost in adopting this regional water supply plan as our supply needs for the foreseeable future are met with existing facilities. The County's costs for future improvements would be determined by its share of use or benefit from each individual project. Adoption of the regional plan does not obligate the County to a set share of expenses for potential improvements to the region's water supply.

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EXECUTIVE SUMMARY

Organization of the Northern Virginia Regional Water Supply Plan (Plan) generally follows the State Water Control Board's regulation 9 VAC 25-780, Local and Regional Water Supply Planning. The major sections in the Plan include information on water sources, water use, and natural resources in the region; water demand management information including population and demand projections, water conservation practices, and drought response and contingency planning; a statement of need and alternatives analysis; and information on public participation. This executive summary provides a summary of the regional approach as well as a summary for each of the 22 participating jurisdictions.

The Plan complies with the State Water Control Board's regulation 9 VAC 25-780, Local and Regional Water Supply Planning, and is a functional plan supporting sustainable growth and economic development. The purpose of the regulation is to establish a comprehensive water supply planning process for the development of local, regional, and state water supply plans. This process is designed to:

- ◆ Ensure that adequate and safe drinking water is available to all citizens within the region;
- ◆ Encourage, promote, and protect all other beneficial uses of the region's water resources;
- ◆ Encourage, promote, and develop incentives for alternative water sources; and
- ◆ Promote conservation.

Local governments participating in the regional plan notified VDEQ of their intent to participate in the Plan before the November 2, 2008 deadline. The Plan will be submitted to the VDEQ prior to the November 2, 2011 deadline. A public hearing will be held by each participating jurisdiction and the local governments will pass resolutions approving the Plan and adopting other policies or ordinances that were developed during the planning process.

The northern Virginia regional water supply planning group is made up of 22 local governments. Participating jurisdictions include the counties of Arlington, Fairfax, Loudoun, and Prince William; the cities of Alexandria, Fairfax, Falls Church, Manassas, Manassas Park; and the towns of Clifton, Dumfries, Hamilton, Haymarket, Herndon,

Leesburg, Lovettsville, Middleburg, Occoquan, Purcellville, Quantico, Round Hill, and Vienna.

The Northern Virginia region is located in the northern portion of Virginia in the Blue Ridge, Piedmont, and Coastal Plain Physiographic Provinces. According to the U.S. Census Bureau, the total population of the region in 2007 was estimated to be 2,201,645. The region is served by both surface water and groundwater sources. The major streams utilized in the region as water sources include the Potomac River, Occoquan River, and Goose Creek. The major reservoirs in the region utilized as water sources include Occoquan Reservoir, Lake Manassas, Hirst Reservoir/Cooper Spring Empoundment, and the Breckenridge-Lunga Reservoir. The region is also dependent upon groundwater and several springs. Fairfax Water is one of the major water providers in the region selling water to Prince William County, City of Fairfax, Town of Herndon, and Town of Vienna.

Arlington County

Arlington County is located in the northeastern portion of the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 203,914. Arlington County purchases water from the Washington Aqueduct Division of the U.S. Army Corps of Engineers (Washington Aqueduct). Arlington County serves approximately 208,653 people with approximately 37, 115 connections. Arlington County is expected to experience a water surplus through the 2040 planning period.

Fairfax County

Fairfax County is located in the central portion of the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 1,005,531. Fairfax Water operates the public community water system that supplies the majority of Fairfax County. The City of Falls Church also operates a public community water system that supplies a portion of Fairfax County. The City of Falls Church purchases water from the Washington Aqueduct. Fairfax Water is one of the major water suppliers in the region serving approximately

1,356,995 people in portions of the counties of Loudoun and Prince William, the City of Fairfax, and the towns of Herndon and Vienna. Fairfax Water is a member of the Washington Metropolitan Area (WMA) water suppliers, which also includes the Washington Aqueduct and the Washington Suburban Sanitary Commission. The WMA water suppliers cooperate on water supply operations in the Potomac, essentially operating as one entity in sharing water across the Potomac, Patuxent, and Occoquan basins during periods of low flow. The cooperative work is coordinated by a special section of Interstate Commission on the Potomac River Basin (ICPRB), the "Section for Cooperative Water Supply Operations on the Potomac" (CO-OP).

Fairfax Water utilizes a stream intake on the Potomac River, which accounts for approximately 78 percent of water demand, and the Occoquan Reservoir, which accounts for the remaining 22 percent of water demand. In addition, Fairfax Water has a Mutual Assistance Agreement with the City of Fairfax allowing them to purchase water. Fairfax Water also purchases water from the Town of Vienna and has the ability to purchase water from the City of Falls Church. Fairfax County will have sufficient water supply through the 2040 planning period, even when including current sales to other municipalities. Although Fairfax County is projected to have sufficient water supply through the planning period, Fairfax Water has studied use of the Lorton and Vulcan Quarries (both owned by Fairfax Water) near the Occoquan Reservoir as supplemental water sources. In addition, a study was completed in 2004 for conceptual design of a Reverse Osmosis Membrane Treatment Plant, which would use the Occoquan River estuary as a water supply.

Loudoun County

Loudoun County is located in the northwestern portion of the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 277,459. The Loudoun County Service Authority (Loudoun Water) operates the public community water systems in Loudoun County and serves approximately 175,685 people. Loudoun Water operates six community water systems utilizing groundwater wells. In addition, Loudoun Water purchases water from Fairfax Water and the City of Fairfax. Loudoun County is expected to experience a water surplus through the 2040 planning period. Although Loudoun County

is projected to have sufficient water supply through the planning period, Loudoun Water has considered use of four quarries in Loudoun County to supplement storage available within the Potomac Basin.

Prince William County

Prince William County is located in the southern portion of the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 402,002. The Prince William County Service Authority (PWCSA) and the Virginia American Water Company (VAWC) operate the public community water systems in Prince William County and serves approximately 290,519 people. The PWCSA operates three community water systems utilizing groundwater wells. The PWCSA purchases water from Fairfax Water and the City of Manassas and the VAWC purchases water from Fairfax Water. The PWCSA and VAWC are expected to experience a water surplus through the 2040 planning period.

City of Alexandria

The City of Alexandria is located in Fairfax County in the eastern portion of the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 140,233. The City of Alexandria purchases water from the VA-American Water Company. The VA-American Water Company is a private company that purchases water from Fairfax Water. The City of Alexandria is expected to experience a water surplus through the 2040 planning period.

City of Fairfax

The City of Fairfax is located in Fairfax County in the central portion of the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 23,317. The City of Fairfax utilizes a stream intake on Goose Creek and purchases water from Fairfax Water. The City serves approximately 24,000 people. The City of Fairfax is expected to experience a water deficit around 2038 if no measures to obtain an additional water source are explored. The limiting factor is based on VDH permitted capacity of 12.0 MGD.

City of Falls Church

The City of Falls Church is located in Fairfax County in the eastern portion the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 11,039. The City of Falls Church purchases water from the Washington Aqueduct. The City of Falls Church is expected to experience a water surplus through the 2040 planning period.

City of Manassas

The City of Manassas is located in Prince William County in the southern portion of the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 34,817. The City of Manassas utilizes a surface water reservoir (Lake Manassas) as a water source. In addition, the City has the ability to purchase water from the PWCSA; however, this agreement has never been exercised. The City of Manassas is expected to experience a water surplus through the 2040 planning period.

City of Manassas Park

The City of Manassas Park is located in Prince William County in the southern portion of the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 11,533. The City of Manassas Park utilizes groundwater wells and purchases water from the PWCSA and the City of Manassas. The City of Manassas Park is expected to experience a water surplus through the 2040 planning period.

Town of Clifton

The Town of Clifton is located in Prince William County in the southern portion of the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 208. The Town of Clifton does not own or operate a community water system and all residents are supplied by individual groundwater wells.

Town of Dumfries

The Town of Dumfries is located in Prince William County in the southern portion of the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 4,848. The PWCSA provides water to the Town of Dumfries and all components of the

water system belong to the PWCSA. The Town does not own or operate their community water system.

Town of Hamilton

The Town of Hamilton is located in Loudoun County in the northwestern portion of the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 506. The Town of Hamilton utilizes groundwater as a water source. This system has approximately 665 connections and serves approximately 2,000 people. The Town of Hamilton is expected to experience a water surplus through the 2040 planning period.

Town of Haymarket

The Town of Haymarket is located in Prince William County in the southern portion of the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 1,217. The PWCSA provides water to the Town of Haymarket and all components of the public water system belong to the PWCSA. The Town does not own or operate their community water system. In addition, several residences and commercial establishments are self-supplied by private groundwater wells.

Town of Herndon

The Town of Herndon is located in Fairfax County in the central portion of the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 23,217. The Town of Herndon purchases water from Fairfax Water. The Town of Herndon is expected to experience a water surplus through the 2040 planning period.

Town of Leesburg

The Town of Leesburg is located in Loudoun County in the northwestern portion of the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 38,320. The Town of Leesburg utilizes groundwater wells as well as a stream intake on the Potomac River. The Town of Leesburg is expected to experience a water surplus through the 2040 planning period.

Town of Lovettsville

The Town of Lovettsville is located in Loudoun County in the northwestern portion of the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 1,230. The Town of Lovettsville utilizes groundwater as a water source. The Town of Lovettsville is expected to experience a water surplus through the 2040 planning period.

Town of Middleburg

The Town of Middleburg is located in Loudoun County in the northwestern portion of the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 673. The Town of Middleburg utilizes groundwater as a water source. The Town of Middleburg is expected to experience a water surplus through the 2040 planning period.

Town of Occoquan

The Town of Occoquan is located in Prince William County in the southern portion of the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 820. The PWCSA provides water to the Town of Occoquan and all components of the water system belong to the PWCSA. The Town does not own or operate their community water system.

Town of Purcellville

The Town of Purcellville is located in Loudoun County in the northwestern portion of the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 4,961. The Town of Purcellville utilizes a surface water reservoir (Hirst Reservoir/Cooper Spring Empoundment as well as groundwater wells. The reservoir is fed by Catoctin Creek and Cooper Springs. This system has approximately 2,455 connections and serves approximately 6,300 people. Based on data provided, the Town of Purcellville should have experienced a water supply deficit in 2007 and is expected to experience a water supply deficit of approximately 1.55 MGD in 2040.

Town of Quantico

The Town of Quantico is located in Prince William County in the southern portion of the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 480. The Quantico Marine Corp Base-Mainside (QMBC-Mainside) is a private community water system in Prince William County and provides water to the Town of Quantico. This system utilizes the Brekenridge-Lunga Reservoir. The Town of Quantico is expected to experience a water surplus through the 2040 planning period.

Town of Round Hill

The Town of Round Hill is located in Loudoun County in the northwestern portion of the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 539. The Town of Round Hill utilizes groundwater as a water source. This system has approximately 1,207 connections and serves approximately 3,579 people in the Town as well as in Loudoun County. The Town of Round Hill is expected to experience a water surplus through the 2040 planning period.

Town of Vienna

The Town of Vienna is located in Fairfax County in the central portion of the region. According to the U.S. Census Bureau, the population in 2007 was estimated at 14,781. The Town of Vienna utilizes groundwater as a water source and purchases water from the City of Falls Church. This system has approximately 9,534 connections and serves approximately 30,000 people in the Town as well as in Fairfax County. The Town of Vienna is expected to experience a water surplus through the 2040 planning period.

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1.0 INTRODUCTION

The northern Virginia regional water supply planning group is made up of 22 local governments. Participating jurisdictions include the counties of Arlington, Fairfax, Loudoun, and Prince William; the cities of Alexandria, Fairfax, Falls Church, Manassas, Manassas Park; and the towns of Clifton, Dumfries, Hamilton, Haymarket, Herndon, Leesburg, Lovettsville, Middleburg, Occoquan, Purcellville, Quantico, Round Hill, and Vienna.

1.1 Purpose of the Study and Regulations

The Northern Virginia Regional Water Supply Plan (Plan) complies with the State Water Control Board's regulation 9 VAC 25-780, Local and Regional Water Supply Planning, and is a function plan supporting sustainable growth and economic development. The purpose of the regulation is to establish a comprehensive water supply planning process for the development of local, regional, and state water supply plans. This process is designed to:

- Ensure that adequate and safe drinking water is available to all citizens within the region;
- Encourage, promote, and protect all other beneficial uses of the region's water resources;
- Encourage, promote, and develop incentives for alternative water sources; and
- Promote conservation.

Local governments participating in the regional plan notified VDEQ of their intent to participate in the Plan before the November 2, 2008 deadline. The Plan was submitted to the VDEQ prior to the November 2, 2011 deadline. A public hearing was held by each participating jurisdiction and the local governments passed resolutions approving the Plan as well as adopting other policies or ordinances that were developed during the planning process.

1.2 Background and Regional Nature of the Study

Washington Metropolitan Area

Northern Virginia and the Washington Metropolitan Area (WMA) began the first regional approaches to water supply planning in the 1960s. In 1978, the United States, Virginia, Maryland, the District of Columbia, and the WMA water suppliers, which include Fairfax Water, the Washington Aqueduct Division of the U.S. Army Corps of Engineers (Washington Aqueduct), and the Washington Suburban Sanitary Commission (WSSC) formalized this cooperative approach in a set of agreements signed in the late 1970s and early 1980s. These agreements include the Low Flow Allocation Agreement (LFAA) and the Water Supply Coordination Agreement (WSCA). The LFAA allocates the amount of water each water supplier can withdraw from the Potomac River, the major water source for the region, when the total flow is not sufficient to meet all needs. In 1982, the WMA water suppliers and the Interstate Commission on the Potomac River Basin (ICPRB) signed the WSCA, which provides for coordination of all the major supply facilities in the region during periods of low flow in the Potomac River.

The WMA water suppliers cooperate on water supply operations in the Potomac, essentially operating as one entity in sharing water across the Potomac, Patuxent, and Occoquan basins during periods of low flow. The cooperative work is coordinated by a special section of ICPRB, the “Section for Cooperative Water Supply Operations on the Potomac” (CO-OP). In the WSCA, the ICPRB CO-OP agreed to assume a direct role in managing water supply resources and withdrawals in the WMA. The agreement provides for an Operations Committee that is responsible for overseeing the CO-OP activities and consisting of representatives from the Washington Aqueduct, Fairfax Water, and WSSC.

The LFAA requires that “In April 1990 and in April of each fifth year thereafter...the [WMA water suppliers and the District of Columbia] shall evaluate the adequacy of the then available water supplies to meet the water demand in the WMA which may then be expected to occur during the succeeding twenty year period.” Pursuant to that Agreement, the ICPRB CO-OP has been preparing a Water Supply Reliability Forecast for the region.

The three major regional water suppliers' decision to a regional approach to water supply planning through the ICPRB CO-OP has made it possible to provide adequate water supply for the WMA as well as provide significant cost savings for the region.

Northern Virginia Region

As discussed above, the ICPRB CO-OP has previously been responsible for water supply planning efforts for the WMA, which includes the District of Columbia and portions of Maryland. The Local and Regional Water Supply Planning Regulations, 9 VAC 25-780, which became effective in November 2005, however, only applies to Commonwealth of Virginia. Since Fairfax County/Fairfax Water is one of the major water suppliers in the northern Virginia region, it made sense for the localities in the NVRC to work together on a regional water supply plan. On May 18, 2006, the Northern Virginia Chief Administration Officers (CAOs) Committee met to determine how each of the jurisdictions intended to proceed to meet the water supply plan requirements. Representatives from many of the region's water supply utilities attended this meeting as well. After considerable discussion, the CAOs asked that the Northern Virginia Regional Commission (NVRC) form a committee to further discuss this matter and to determine which jurisdictions would like to participate in a regional initiative. Moreover, the CAOs asked that NVRC serve as the coordinating mechanism for the regional initiative if such an approach is utilized.

Following the CAO Committee meeting, representatives from NVRC and the local utilities met to discuss how to proceed. It was decided that a Northern Virginia Water Supply Work Group would be formed to further investigate the feasibility of developing the water supply plans on a regional basis. The consensus of those in attendance was to begin meeting immediately to discuss the particulars of the legislation, to investigate the specific requirements for developing the water supply plans, and to determine which jurisdictions would like to participate in a regional initiative.

Although the state law stipulates that the localities are responsible for developing the water supply plan, it was discussed that there needed to be considerable input and involvement of the local water utilities in this initiative. For instance, in Fairfax County, the

Board of Supervisors has already passed a resolution that identifies Fairfax Water as the lead agency in developing the County's plan. Similar approaches may be applicable in other jurisdictions.

These issues and others were discussed at the initial meeting of the Northern Virginia Water Supply Workgroup on June 19, 2006, at the NVRC office. At this meeting the Workgroup reviewed the legislation and associated regulations and further discussed the concept of a regional WSP. The Workgroup affirmed the recommendation that NVRC take the lead for the region to develop a regional WSP for those participating jurisdictions; and had requested an affirmation from each jurisdiction in their willingness to participate. The workgroup further recommended that the development of the regional WSP should be overseen by an Executive Committee comprised of the CAO's and Water Utility CEO's and that a Technical Advisory Committee (TAC) comprised of staff from the appropriate County agencies, Water Utilities be developed to facilitate the exchange of required information, review the regional WSP, and to shepherd the WSP through the public hearing process.

1.3 General Location and Description

The northern Virginia region is located in the northern portion of Virginia in the Blue Ridge, Piedmont, and Coastal Plain Physiographic Provinces. According to the U.S. Census Bureau, the total population of the region in 2007 was estimated to be 2,201,645. The region is served by both surface water and groundwater sources. The major streams utilized in the region as water sources include the Potomac River, Occoquan River, and Goose Creek. The major reservoirs in the region utilized as water sources include Occoquan Reservoir, Lake Manassas, Hirst Reservoir/Cooper Spring Impoundment, and the Breckenridge-Lunga Reservoir. The region is also dependent upon groundwater and several springs. Fairfax Water is one of the major water providers in the region selling water to Prince William County, City of Fairfax, and the Town of Herndon. Figure 1-1 identifies the location of each jurisdiction in the northern Virginia regional water supply planning group.

Figure 1-1: Regional Overview Map