

**To:** Gary Duval  
**From:** Sheryl Stephens  
**Date:** September 6, 2011  
**Project Name:** Goochland County Water Supply Plan / Regional Water Supply Plan  
**Project Number:** R07246-01  
**Subject:** Revised Demand Projections  
**cc:** Leigh Dunn, Fred Pribble

The purpose of this memorandum is to discuss projected water demands in Goochland County and this memorandum is meant to supplement the information included in Chapter 5 (Projected Population and Water Demands) of the Goochland County Water Supply Plan dated July 2011.

The Goochland County Water Supply Plan is a portion of the Regional Water Supply Plan for the region that includes Goochland, Henrico, Powhatan and Cumberland Counties. The Goochland Plan includes projected water demands for the community water systems through 2060. The projected demands are based on current water demands, current and projected population and assumed residential and non-residential growth in the areas where Goochland County provides water.

**Population-Based Projections:**

The projected demands in Eastern Goochland, Manakin Farms and the Oilville areas total approximately 5.5 MGD in 2060. These areas are served, or may be served in the future, by Goochland County. Goochland purchases water from Henrico County to meet the demands in this portion of the county.

**Table 1. Community Systems Projected Demands<sup>1</sup>**

Census Tract	Area	Projected Demands Community Water Systems (gpd)	
		2010	2060
4001	Eastern Goochland	705,000	4,261,576
	Manakin Farms	70,190	417,858
4002	Oilville	-	<u>862,290</u>
<b>Total</b>			<b>5,543,784</b>

It is important to note that these projections are based, in part, on the relatively slow rate of development that has recently occurred in the Tuckahoe Creek Service District. The

<sup>1</sup> Source: Table 77, page 129 of the Goochland County Water Supply Plan, dated July 2011.  
P:\R07\200\R07246\R07246-01\REPORTS\MEM - 11 0906 - Memo - Commercial and Industrial Reserve - sss.docx

projected 2060 demands detailed in the previous table do not include the demands of significant commercial or industrial use. Further, the projected demands shown in the previous table are based on mid-range population growth. The Water Supply Plan includes projected water demands based on three growth scenarios: low-range, mid-range and high-range.

**Demands included in the Cobbs Creek Reservoir Joint Permit Application:**

The Joint Permit Application submitted by Cumberland County for the Cobbs Creek Reservoir project included a projected demand of 20.9 MGD in Goochland in 2055. The JPA anticipated full buildout by 2055 in the areas where water is provided to Goochland via the contract with Henrico County. At this time, Goochland does not expect full buildout to occur until beyond the 2060 timeframe addressed in the Water Supply Plan.

**Goochland County Demands Included in the Henrico Portion of the Water Supply Plan:**

In the course of developing Henrico’s portion of the Regional Water Supply Plan, utilities managers from Henrico and Goochland discussed the projected Goochland demands and the consensus is that the Goochland demands should include an additional 5.0 MGD “industrial and commercial reserve” for additional development that may occur during the planning period.

The following table and the attached graph have been developed to illustrate the projected demands in Goochland County, with and without the 5.0 MGD reserve, in the areas where water is provided through the contract with Henrico County.

**Table 2: Projected Demands with Industrial and Commercial Reserve**

	2010	2020	2030	2040	2050	2060
Low-Range Demands	0.775	1.055	1.509	2.213	3.254	4.745
Low-Range Demands Plus 5.0 MGD		6.055	6.509	7.213	8.254	9.745
Mid-Range Demands	0.775	1.053	1.612	2.435	3.688	5.542
Mid-Range Demands Plus 5.0 MGD		6.053	6.612	7.435	8.688	10.542
High-Range Demands	0.775	1.086	1.695	2.611	4.032	6.179
High-Range Demands Plus 5.0 MGD		6.086	6.695	7.611	9.032	11.179

**Projections Based on Land-Use:**

The Water Supply Plan also includes the projected demands at buildout for the Eastern Goochland area and the Oilville area (based on land-use designations). As shown in Table 3, the total projected demands for these areas, at build-out, is approximately 17.3 MGD.

**Table 3: Projected Demands at Buildout<sup>2</sup>**

Land Use	Land Area (acres)	Percent Developable (%)	Unit Flow Rate (gpd/acre)	Build-Out Flow (mgd)
<b>Eastern Goochland (Tuckahoe Creek Service District, Centerville Village, Manakin Village, River Road Community)</b>				
Residential (2.5/acre)	1,112	100	800	0.89
Residential (1.0/acre)	4,093	100	320	1.31
Residential (0.5/acre)	261	100	160	0.04
Residential (0.3/acre)	2,030	100	110	0.22
Commercial	833	100	1,500	1.25
Industrial	1,530	100	2,000	3.06
Office/Lt. Industrial	3,300	100	2,000	6.60
Mixed Use	2,985	100	800	2.39
Recreation	1,918	100	400	0.77
<b>Sub-Total</b>				<b>15.76</b>
<b>Oilville Village</b>				
Residential (0.5/acre)	1,157	100	160	0.19
Mixed Use, No Retail	340	100	800	0.27
Commercial	301	100	1,500	0.45
Industrial	276	100	2,300	0.63
<b>Sub-Total</b>				<b>1.54</b>
<b>Total</b>				<b>17.30</b>

**Summary:**

In 2060, Goochland County's projected demands that will be met by Henrico County range from 4.7 MGD to 11.1 MGD. The projected demands at buildout are approximately 17.3 MGD and it is not anticipated that buildout will be achieved until beyond 2060.

It is recommended that Goochland County continue to compare actual water demands to the projected demands on a regular basis and keep Henrico County informed of any significant changes in development that may impact the projected demands over both the short and long-term planning periods.

<sup>2</sup> Source: Table 78, page 132 of Goochland County Water Supply Plan, dated July 2011.

## Goochland County - Projected Water Demands (through Contract with Henrico County) Low, Mid and High-Range Demands with and without 5 MGD Commercial/Industrial Reserve

