

September 2011



Upper James



This report was prepared by the Central Shenandoah Planning district Commission (CSPDC). The CSPDC was chartered on September 30, 1969 and is comprised of five counties, five cities and eleven towns. For over forty years, the CSPDC has been providing assistance to local governments and their citizens with issues including land use planning and regulation, transportation, disaster mitigation and preparedness, solid waste management, economic development, water and waste water, emergency management, housing, water resource management and human services. The Central Shenandoah Planning District Commission makes every effort to respond to the changing needs of the citizens of the Central Shenandoah Valley. Should you have any questions, please call or email us.

Executive Summary

Introduction

The Upper James River Basin Water Supply Plan was developed in accordance with 9-VAC 25-780, Local and Regional Water Supply Planning. This requirement provides guidance to localities in developing a Water Supply Plan – a regulation that became mandated to all localities by the General Assembly. The final regulations became effective November 2, 2005 and made provisions for all localities electing to participate in a regional water supply planning effort to submit plans to the Virginia Department of Environmental Quality no later than November 2, 2011.

This plan is designed to:

1. Ensure that adequate safe drinking water is available.

2. Encourage and protect all beneficial uses.

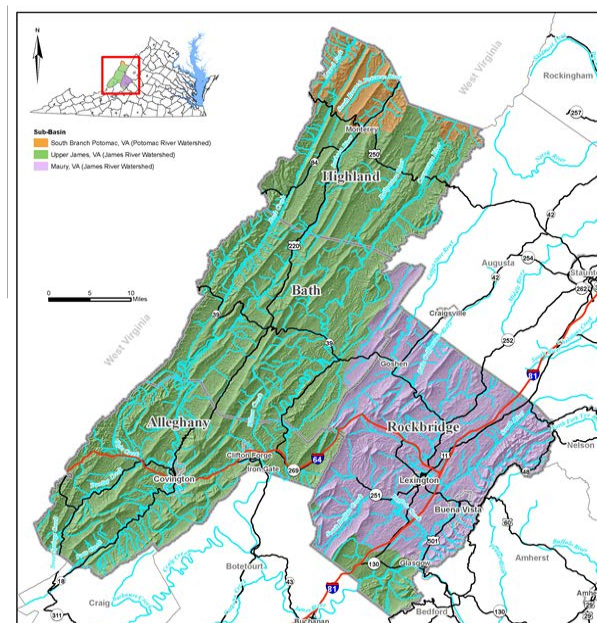
3. Encourage and promote alternative water sources.

4. Promote Conservation.

Planning Area

“Planning area” is defined in regulation 9 VAC 25-780-100 B as the geographical area as defined by local government boundaries that is included in the local or regional water supply plan. The Upper James River Basin WSP includes 11 localities:

- Alleghany County
- Bath County
- Highland County
- Rockbridge County
- City of Buena Vista
- City of Covington
- Town of Clifton Forge
- Town of Glasgow
- Town of Goshen
- Town of Iron Gate
- City of Lexington
- Town of Monterey



Planning Process

In early 2007, sub-regional groups began forming in the Upper James Basin communities where Augusta-Staunton-Waynesboro formed one regional entity and Rockingham-Harrisonburg formed a separate one. During the summer of 2006, grants were announced to assist localities in develop water supply planning work. The CSPDC was awarded a grant matched by local contributions to develop a water supply plan on behalf of the sub-region.

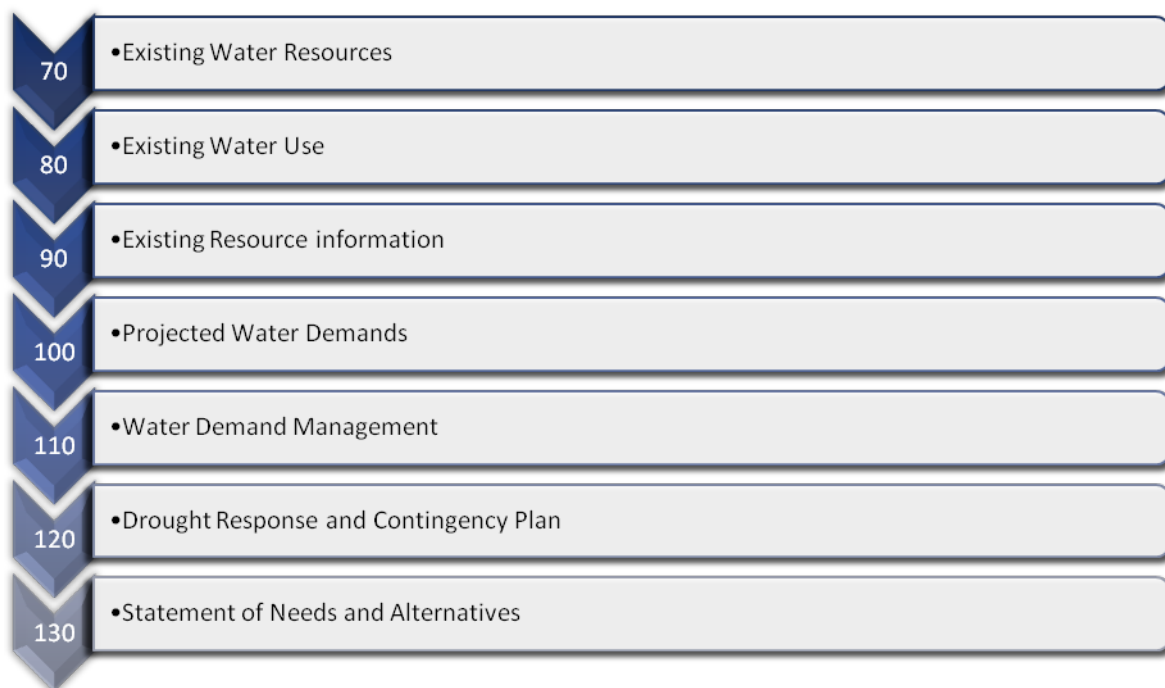
For the Upper James Basin communities to develop the best comprehensive planning document and also to make best use of fiscal resources, they joined to form one regional group. This provided a strong regional group that coincided with the political boundaries of the Upper James Basin communities that fall within the service area of the Central Shenandoah Planning District Commission and the Roanoke Valley – Alleghany Regional Commission (RVARC). During early spring, localities were invited to the regional table as they fell within the regulation to develop and maintain their individual or regional water supply plans. In 2007, the Upper James Basin Water Supply Planning Committee was created. The planning effort was led by the Central Shenandoah Planning District Commission and the Roanoke Valley – Alleghany Regional Commission.

Upper James Water Supply Technical Advisory Committee

Name	Locality/ Organization
Bonnie Johnson	Bath County
Gene Phillips	Bath County Service Authority
Trina Mastran	City of Buena Vista
Ryan Spitzer	Town of Glasgow
Bobbie Thornsberry	Town of Goshen
Roberta Lambert	Highland County
Jon Ellestad	City of Lexington
David Woody	City of Lexington
Janice Warner	Town of Monterey
Karen Austin	Rockbridge County Service Authority
Sam Crickenberger	Rockbridge County
Rick Allen	Maury Service Authority

WSP Structure

As outlined by regulation 9 VAC 25-780, this plan contains the elements listed below. This information was collected from existing, readily available information and additional detailed studies. Combined, these elements allow for a comprehensive analysis and planning of the water resources in the Upper James River Basin.



Section 70 – Existing Water Resources

Section 70 requests localities within the planning area to submit information regarding their existing water sources, including groundwater, surface water reservoirs and stream intakes. For purposes of this plan, a community water system is one that is owned, operated, and/or maintained by a local government.

Municipal Community Water Systems

Owner	Water System	Source
City of Buena Vista	Buena Vista	Groundwater – 5 wells
		Halls Spring

Section 80 – Existing Water Use

Section 80 of the regulation requires a description of existing water use. These data are compiled from several sources: VDH permit compliance reports, VDEQ water withdrawal reports, and the individual localities and water purveyors. Years 2002 and 2003 were chosen to indicate differences in usage and source water availability during a drought year followed directly by a wet water year. The Year 2006 was chosen to represent the most current data for all systems. The TAC also determined that the community systems would provide historic disaggregated water consumption by use for year 2006.

Municipal Systems - Average Daily Withdrawal (MGD)

Locality	Average
Buena Vista	1.296

Large Self Supplied Users (Non-Ag) - Surface Water 2006 Average Daily Withdrawal (MGD)

Locality	User	MGD
Buena Vista	Modine Manufacturing Company	.064
	Bontex, Inc.	.167

Section 90 – Existing Resource Information

Section 90 of the regulation requests a description of existing resource conditions to include geologic, hydrologic, and meteorological conditions in the planning area. In addition, a description of existing environmental conditions must be included that pertains to, or may possibly affect in-stream uses, and water supply sources currently serving the area.

Geology

The study area is located in the Ridge and Valley physiologic/geologic province of Virginia, characterized by long linear ridges separated by linear valleys with elevations ranging from 1000 – 4500 feet above sea level. The region is characterized by the trellis drainage pattern in which streams and rivers run parallel to mountain ridges. Due to the mountainous topography, most population and associated development is located in these long linear valleys.

Hydrology

The study area lies primarily in within the Upper James River watershed, a subwatershed of the James River. Rivers within the Upper James River basin include the Bullpasture, Calpasture, Cowpasture, Jackson, and the Maury. There are 18 USGS water gauges in the study area.

Meteorology and Climate

The climate of the study area is classified as modified continental with mild winters and warm summers. The mountains and elevation are major factors controlling the climate. Annual normal temperatures average 53 degrees and annual precipitation averages 35 inches.

Additional information can be found regarding the following topics in Section 90:

- Scenic Rivers
- Anadromous, Trout & Other Significant Hatcheries
- Historic and Archaeological Resources
- Geologic Formations
- Riparian Buffers & Conservation Easements
- Land Use and Land Cover
- Impaired Streams
- Point Source Discharges
- Potential Threats

Section 100 – Projected Water Demands

Section 100 of the regulation requests a description of projected water demands to include population estimates and projections, estimated water demand within the planning are for 30 to 50 years, and estimated future water use.

Population Projections

Base Year	Year			
2006	2010	2020	2030	2040
6,400	6,703	7,052	7,363	7,715

Projected Water Demand (MGD)

		Base Year	Year			
Demand Sector	Use Percentage	2006	2010	2020	2030	2040
Residential	50	0.648	0.648	0.648	0.648	0.648
Commercial	10	0.130	0.130	0.130	0.130	0.130
Industrial	0	0.000	0.000	0.000	0.000	0.000
Production Processes	0	0.000	0.000	0.000	0.000	0.000
Lost and Unaccounted For Water	40	0.518	0.518	0.518	0.518	0.518
Sales to Other Communities	0	0.000	0.000	0.000	0.000	0.000
Total	100	1.296	1.296	1.296	1.296	1.296

Self-Supplied Users

There are four large self-supplied users of more than 300,000 gallons per month for non-agricultural uses in the City of Buena Vista. Two are surface water users and the remaining two use groundwater. The 2006 average daily groundwater demand is .771 mgd and surface water demand is .231 mgd. Total usage in this category in the City of Buena Vista is 1.002 mgd.

Section 110 – Water Demand Management

Section 110 of the regulation requests a description of water demand management to include information describing efficient water use practices, water conservation measures and practices to address water loss. Data was collected from Demand Management Forms submitted by the localities.

Additional information can be found regarding the following topics in Section 110:

- Adoption of Virginia Uniform Building Code
- Local Water Use Ordinances or Plans
- Homeowners' Association
- Wasteful Water Use
- Irrigation Efficiency
- Municipal/ Private Water Suppliers
- Efficient Water Use Practices
- Water Conservation
- Water Loss Reduction
- Capital Improvement Plans
- Public Education

Section 120 – Drought Response and Contingency Plan

In accordance with the Water Supply Planning regulations (9 VAC 25-780-120), a Regional Drought Plan has been developed for the Upper James Basin to guide communities in the planning area through instances when water shortages lead to drought conditions.



The Plan includes three drought response levels ranging from drought watch to drought emergency. These drought stage triggers are among the primary “hard line” or mandatory triggers in the Plan. Once a drought watch level has been declared, progression through drought warning and emergency stages will be declared based on threats to the localities’ supplies and/or local system indicators that indicate negative impacts to the utility’s groundwater supplies or stream intakes.

These region-wide conservation measures in the Plan may be implemented on an individual locality basis when an Upper James River Basin local government declares a drought stage. It is possible that the increased public awareness of water conservation activities during a drought stage may reduce water use up to 5% to 15%.

Section 130 – Statement of Needs and Alternatives

Section 130 of the regulation requests a description of adequacy of existing supplies to meet current and projected demands. If deficits are expected a general discussion of potential alternatives is to be included.

Projected Year 2040 water demands and current permitted capacities of each municipal system were compared to determine adequacy of existing supplies. Based solely on that analysis, the region as a whole, will meet its projected 2040 water demand with the existing regional supply.

Additional Documentation

Each locality is responsible for adopting a Resolution in support of the Upper James River Basin Water Supply Plan. A Model resolution is presented below.

RESOLUTION

Adoption of the Upper James River Basin Water Supply Plan

WHEREAS, the Virginia General Assembly has mandated the development of local and regional water supply programs throughout the Commonwealth and the State Water Control Board has developed regulations 9 VAC 25-780, Local and Regional Water Supply Planning, to implement this planning process; and

WHEREAS, based upon these regulations, county, cities, and towns are required to complete a water supply program that fulfills the regulations by deadlines based on population.

WHEREAS, local governments may elect to join one or more other local governments to develop a regional water supply program for which a deadline of November 2, 2011 has been established.

WHEREAS, the following elements must be included in all local or regional water supply programs:

- A description of existing water sources;
- A description of existing water use;
- A description of existing water resource conditions;
- An assessment of projected water demand;
- A description of water management actions;
- A statement of need;
- An alternatives analysis that identifies potential alternatives to address projected deficits in water supplies;
- A map or maps identifying important elements of the program that may include existing environmental resources, existing water sources, significant existing water uses, and proposed new sources;
- A copy of the adopted program documents including any local plans or ordinances or amendments that incorporate the local program elements required by this chapter;
- A resolution approving the plan from each local government that is party to the plan; and
- A record of the local public hearing, a copy of all written comments and the submitter's response to all written comments received, and

WHEREAS, it is reasonable and prudent for the following local governments to coordinate and collaborate in the development of a regional water supply program:

- | | |
|-----------------------|-------------------------|
| ▪ Alleghany County | ▪ Town of Clifton Forge |
| ▪ Bath County | ▪ Town of Glasgow |
| ▪ Highland County | ▪ Town of Goshen |
| ▪ Rockbridge County | ▪ Town of Iron Gate |
| ▪ City of Buena Vista | ▪ City of Lexington |
| ▪ City of Covington | ▪ Town of Monterey |

Upper James

WHEREAS, [JURISDICTION] is part of the Upper James River Basin Regional Water Supply Plan which includes the 11 localities listed above;

WHEREAS, the Upper James River Basin Regional Water Supply Plan was developed in accordance with Virginia Regulation 9 VAC 25-780-70 through 9 VAC 25-780-130; and

WHEREAS, on [DATE], [JURISDICTION] held a public hearing to accept public comment on the Upper James River Basin Regional Water Supply Plan and all written comments submitted have received a written response as required; and

NOW, THEREFORE BE IT RESOLVED that the [GOVERNING BODY] of the [JURISDICTION] hereby adopts the Upper James River Basin Regional Water Supply Plan as it pertains to [JURISDICTION]. Approval and adoption of this regional plan indicates support for and general agreement with the regional planning approach, but does not indicate approval or disapproval of conclusions and recommendations presented in the plan as they pertain to other localities. [JURISDICTION] reserves the right to comment on specific water supply alternatives in the future even though such alternatives may be recommended in this adopted plan. [JURISDICTION] will not be limited to specific water supply alternatives in this adopted plan and reserves the right to recommend additional alternatives for consideration in the future.

BE IT FURTHER RESOLVED that the [GOVERNING BODY] of the [JURISDICTION] intends that the Upper James River Basin Regional Water Supply Plan shall be revised to reflect changes in relevant data at least once every five years and shall be revised and resubmitted to the Virginia Department of Environmental Quality every ten years in accordance with the regulation and sound planning practice.

PASSED, APPROVED AND ADOPTED by the [GOVERNING BODY] of the [JURISDICTION] at a meeting held on [DATE].