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**To:** Maryland Department of Planning, Plan Review

**Date:** November 12, 2025

**Re:** Draft Carroll County & Municipalities' *Water Resources Element* (WRE)  
Submission for State Agency Review

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Carroll County and its municipalities worked collaboratively to develop one unified WRE document that can be adopted by all of Carroll County's jurisdictions to satisfy the requirements of House Bill (HB) 1141, both for the original 2010 plan element as well as the 2024 updated plan element per 2022 MDP guidance.



The County Planning & Zoning Commission and all eight municipal Planning Commissions jointly request Maryland Department of Planning to coordinate review and comment by the relevant State agencies. The draft plan element for the 60-day review process can be accessed at the following link:

<https://www.carrollcountymd.gov/government/directory/planning-land-management/comprehensive-planning/land-use-functional-plans/functional-plans-and-reports/water-resources-element/>.

The Planning & Land Management Department (PLM) will be accepting public comment on behalf of all nine Planning Commissions concurrent to the State review period. PLM staff will collect State and public comments, host a public information meeting, and facilitate a joint public hearing of all nine Planning Commissions. The relevant dates are as follows:

- November 15, 2025 – begin open review period
- January 14, 2026 (tentative) – public information meeting (see [webpage](#) for details)
- January 15, 2026 – 60-day review period closes
- February 4, 2026 (tentative) – Planning Commissions public hearing (see [webpage](#) for details)

Written comments from the public may be mailed or emailed to Brenda Dinne any time during the open review period up to the close of the public hearing. Both written and verbal comments from the public will be received by the Planning Commissions during the public hearing.

This element is a draft and is subject to change based on the comments received and deliberations of the Planning Commissions. Hardcopies are available upon request at the PLM office.

Please email all comments to Brenda Dinne, PLM Special Projects Coordinator, at ~~b.dinne@carrollcountymd.gov~~. Contact Brenda Dinne at this email or at 410-386-2140 with any questions or for more information.

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*PLM Special Projects Coordinator*

C: Town of Hampstead	Roberta Windham, County Administrator
Town of Manchester	Deb Effingham, Deputy County Administrator
Town of Mount Airy	Chris Heyn, PLM Director
Town of New Windsor	Daphne Daly, PLM Deputy Director
Town of Sykesville	Elizabeth Moore, County Attorney's Office
City of Taneytown	Janice Kirkner, Chair, Carroll County Planning Commission
Town of Union Bridge	
City of Westminster	



## 41.0 Mount Airy

### 41.1 Water Supply

#### 41.1.1 Source Water Assessment

The unconfined fractured rock aquifer within the Ijamsville Formation and Marburg Schist is the source of water supply for the Town of Mount Airy. As of 2024, the system uses 11 wells to obtain its drinking water. As of the September 2000 MDE Source Water Assessment, the Mount Airy water supply was determined to be susceptible to contamination by nitrates, volatile organic compounds (VOCs) (except one well), synthetic organic compounds (SOCs), and radionuclides, but not susceptible to protozoans. Further, 2 of the wells were determined to be susceptible to bacteria and viruses. The MDE assessment was completed when the Town's supply consisted of 7 seven active wells and 1 standby well, all of which were being utilized in 2024.

#### 41.1.2 Water Supply Demand

The total future water demand assumes that everything within the 2023 Water Service Area (WSA) (including Long-Range) builds out according to the zoning in place in 2022. If this were to occur, the total future water supply demand for the Mount Airy system would be 1,141,628 gallons per day (gpd).

2023 Mount Airy Future Water Supply Demand<sup>5</sup> at Buildout of 2023 Water Service Area (Gallons per Day)

Municipal System	2023 Existing Demand <sup>1</sup>	Planned Future Demand <sup>2</sup>		Long-Range Demand <sup>3</sup>	Total Buildout Demand
		Infill Demand	Future Demand		
Mount Airy	703,534	60,394	275,700	102,000	1,141,628
Municipal System	2023 Existing Demand <sup>1</sup>	Additional Demand by Land Use <sup>4</sup>		Total Buildout Demand	
		Residential	Non-Residential		
Mount Airy	703,534	301,050	137,044	1,141,628	

<sup>1</sup> These data are the greatest annual average daily demand for the five-year period from 2018 through 2022.

<sup>2</sup> These data relate to areas located within the designated planned water service area. Infill demand is calculated for areas classified in the "Existing/Final Planning" service category; Future demand is calculated for the combined area classified in the "Priority" or "Future" service category.

<sup>3</sup> These data relate to areas designated in the "Long-Range Service Area" but located within the DGA.

<sup>4</sup> Additional Demand is based on estimated demand from land not yet served in the planned water service areas: Existing/Final, Priority, Future, and Long-Range.

<sup>5</sup> Capacity Needed for Mount Airy does not use the BLI Demand estimates. BLI numbers for residential, commercial, and industrial demand were modified by the to reflect the Town's figures from the draft 2024 comprehensive plan. In addition, Mount Airy capacity and demand numbers may not match the BLI estimates, as the County does not have BLI information for the portion of Mount Airy that lies within Frederick County. Therefore, the Town used their own calculations to capture its entire area.

Source: Town of Mount Airy, 2023

Calculations for future water demand were provided by the Town. This demand is reflected under "Infill" and "Future" (Priority + Future WSAs), as well as the Long-Range WSA. However, areas that are designated in the "No Planned Water Service Area" within the DGA were not included in the calculations. The Long-Range Demand reflects areas designated as a Long-Range WSA, which are areas anticipated to be served in the future, but beyond the 10-year Water & Sewer Master Plan horizon.



41.1.4 Water Supply Limitations

The Town of Mount Airy has historically utilized groundwater wells for its primary water supply. The emphasis on groundwater supply has served the Town well over the last thirty years. The Town currently has control over 11 production wells (four wells in Carroll County and seven wells in Frederick County). Beyond the original water station located on Prospect Road, additional Town wells have been added and funded through the development process.

The Town would like to continue this trend to rely primarily on groundwater resources within the municipal boundaries. Ultimately, the water supply demand cannot exceed the design capacity of the wastewater treatment plant (WWTP), permitted at 1.2 mgd processing as of 2024.

With increased attention to per- and polyfluoroalkyl substances (PFAS) levels in drinking water systems by the EPA, the Mount Airy water system was tested at all five stations' points of entry to the system and on all raw water points at all 11 individual wells. Several stations/wells were found to PFAS levels above the MCL (maximum contaminant level) set by EPA in April 2024. The Town is required to install PFAS treatment at several water treatment plants (WTP).

Considering existing pipeline projects, the Town's water system is beyond 80%, but not exceeding 88% of its appropriations and is, therefore, in accordance with Town Code, approaching inadequate capacity.

Summary of 2023 Buildout Capacity and Limitations for Mount Airy Water Supply System							
Buildout Demand Status	2022 Appropriated Capacity (gpd)	Average Day Capacity Limitation (gpd)	2022 Existing <sup>1</sup> (gpd)	Buildout Demand (gpd)	Additional Capacity Needed (gpd)	Critical Limiting Factor (mgd)	Actions to Consider for Increasing Capacity as Needed
●	927,000	927,000	787,958	1,226,052	299,052	<ul style="list-style-type: none"> <li>System Capacity</li> <li>Allocability</li> </ul>	<ul style="list-style-type: none"> <li>Addn'l water sources</li> <li>↑ appropriations</li> <li>WWTP expansion</li> </ul>

● Water supply system does not have enough capacity to serve projected demand in 2023 Water Service Area, but limitations can more easily be overcome.

<sup>1</sup> 2022 Existing = existing pumped and unserved demand in the Existing Water Service Area. Includes drought demand.

\*This table does not include cost in the limitations, but funding is always a consideration and a possible limiting factor.

41.1.5 Water Demand Management

Mount Airy does not have quantitative thresholds to implement water use restrictions. The Mayor issues an executive order when water restrictions are imposed. The decision is based on state drought status, groundwater levels, precipitation, and input from water supply staff. The measures may be voluntary or mandatory, depending on the severity of the drought. The Town website, social media, e-newsletters, and notes on the water bills provide information. Additional measures in place are listed under the water conservation and demand management strategy in this section.

41.2 Wastewater

The Town completed an enhanced nutrient removal (ENR) upgrade in 2011 that fulfills removal requirements of 3.0 mg/L TN (total nitrogen) and 0.3 mg/L TP (total phosphorus). In 2022, the Town



41.2.2 Wastewater Capacity

If everything within the 2023 SSA (including Long-Range) builds out according to the zoning in place in 2022, the Town would not have sufficient capacity available with current wastewater flows.

Mount Airy Wastewater Capacity Available for Existing and Future Growth at Buildout of 2023 Sewer Service Area (in Gallons per Day)

Table with 9 columns: Municipal System, Current (2023 Permitted, I&I, Remaining Capacity), Existing Flows, Capacity Needed (Infill, Priority + Future, Long-Range), Capacity Available at Buildout. Row for Mount Airy shows 10,781 available capacity.

1 I&I flows are estimated by the Town to be ~10% of the total average plant influent. 2 The amounts for the Town's Existing Flows includes I&I. 3 These data represent unserved areas located within the planned sewer service area. This includes infill (unserved in "Existing/Final Planning" service category), as well as projected demand in the Priority, Future, and Long-Range Sewer Service Areas. Note: For purposes of evaluating consistency of the Water & Sewer Master Plan with this document (as part of the Master Plan/comprehensive plan), the permitted capacity from all sources from this table should be compared to the Infill + Future demand in the table - Mount Airy Future Sewer Demand at Buildout of 2023 Sewer Service Area - as the method for determining capacity vs. demand is more comparable.

Source: Town of Mount Airy, 2023

MDE typically requires a Wastewater Capacity Management Plan (CMP) when operating capacity reaches 80%. Capacity needs would be addressed at that time based on the existing and planned growth.

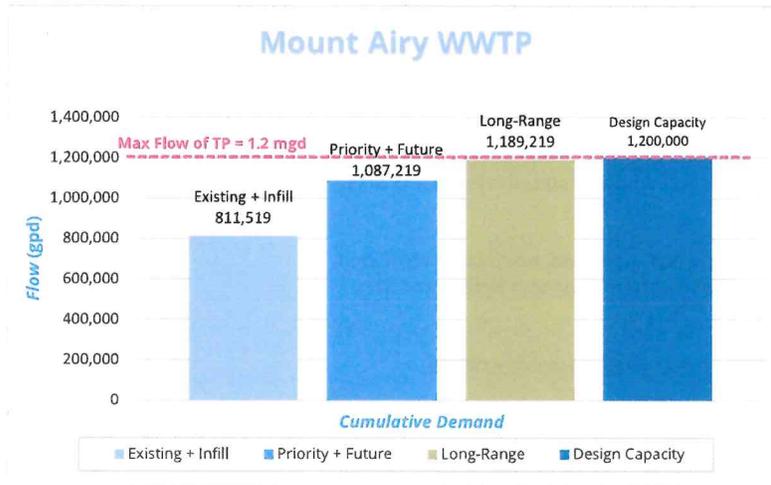
The table below indicates the comparative available capacity at 2023 buildout of the SSA using the permitted capacity minus the demand, which is more representative of the method used to determine capacity in the Water & Sewer Master Plan.

Comparison for Consistency with Water & Sewer Master Plan table with 3 columns: MDE WRE Additional Capacity Needed / Available (gpd) (+10,781), W&S Plan w/ Long-Range: Additional Capacity Needed / Available (gpd) (- +80,800), W&S Plan w/o Long-Range: Additional Capacity Needed / Available (gpd) (- +182,800).

41.2.3 Limitations Based on Design Capacity

The projected future wastewater demand of 1.119 mgd is below the 1.2-mgd design capacity of the Mount Airy WWTP. However, it exceeds the Capacity Available at Buildout where the I&I reserve is considered. The two-year average wastewater flow is less than 80% of the design capacity. The Town's expansion study concluded that, while land is not available to expand the footprint of the plant, utilizing an alternative process with the existing tanks would allow the treatment capacity to be expanded to either 1.5 mgd or 1.8 mgd.

According to the Town, estimated I&I flows averaged about 0.07 mgd, assumed to be ~10% of the total average plant influent. Recent American Rescue Plan Act (ARPA) funding covered the installation of cure-in-place (CIP) liners and replacements, resulting in significant decreases in I&I.



Summary of 2023 Buildout Capacity and Limitations for Mount Airy Wastewater System

Watershed	Buildout Demand Status	2023 Design Capacity (gpd)	2023 Existing <sup>1</sup> (gpd)	Buildout Demand (gpd)	Additional Capacity Needed (gpd)	Limiting Factor*					Limitation (mgd)	Actions Under Consideration to Increase Capacity
						Design Capacity	Site Limitatio	TN Cap	TP Cap	Other		
S. Branch Patapsco	●	1,200,000	811,519	1,189,219	0	✓			✓		1.200	WWTP expansion

● WWTP will have capacity remaining at buildout of 2023 Sewer Service Area, including Long-Range.

<sup>1</sup> 2023 Existing = existing flows and unserved demand in the Existing Sewer Service Area.

\*This table does not include cost in the limitations, but funding is always a consideration and a possible limiting factor. TP = Total Phosphorus; TN = Total Nitrogen

### 41.3 System-Specific Strategies: Mount Airy

Note: Action items included below are those that apply specifically and uniquely to this system. Action items for these strategies that apply to the County as well as all of the municipal systems are included in the Countywide Strategies section of this plan.

With the support of Carroll County, the Town completed an exploratory groundwater drilling program in 2007 in the Gillis Falls area. Up to 28 drilling attempts were made; some boreholes were abandoned and sealed, while others were properly cased and converted to permanent wells. A long-term aquifer test was performed on a well that was found to have a marginal sustained yield. While other wells were found to have similar but lesser yields, the Town determined that the drilled wells would not have an adequate cumulative yield to justify the cost to treat the water and install and maintain an extended pipeline network to convey water to the Town.



## Water Resources Element

### System-Specific "To Do" Action Items:

#### Short-Term Action Items

- Connect Twin Arch Mobile Home Park to Town water supply system; work with MDE to increase appropriations to accommodate the additional demand [2024 WRE]
- Re-engage with the Carroll County Department of Economic Development to discuss future plans for the Harrison-Leishear property [2024 WRE]
- Complete Brinkley Bill evaluation on Well #9 to increase appropriation [2024 WRE]
- Install granular activated carbon (GAC) PFAS treatment at four of the five water stations [2024 WRE]
- Acquire funding for replacement of all galvanized (GRR) lines in town, per the EPA's Lead and Copper Rule, and explore test bits for unknown lines [2024 WRE]

#### Long-Term Action Items

- n/a

### **41.3.2 Identify and develop, as needed, new drinking water supplies adequate to support planned future growth without over-allocating available sources**

#### System-Specific Action Items Already in Place:

- ✓ **Middle Run Branch (Harrison/Leishear) Wells:** Anticipated yield 0.150 mgd. The water appropriation permit application (CL2017G002) was filed with the State in June 2017. [2024 WRE]
- ✓ Amended the 2013 *Mount Airy Comprehensive Plan* to reduce the size of the Mount Airy Municipal Growth Area (MGA)/Designated Growth Area (DGA) to more closely reflect a balance between future demand and potential water supply capacity [2024 WRE]

#### Ongoing Action Items:

- 🔄 Ensure that the *Mount Airy Comprehensive Plan* closely reflects a balance between future demand and potential water supply capacity [2024 WRE]

### System-Specific "To Do" Action Items:

#### Short-Term Action Items

- Evaluate options to bring source and operational flexibility to the current system to provide overall reliability, security, and protection for current users [2024 WRE]
- Explore additional sources for future water supply to prepare for policy changes or other changes that would result in the need for additional available water capacity [2024 WRE]
- Work with the County to acquire wells at the Harrison and Leishear properties and be granted water recharge easements within the Middle Run Stream subwatershed to provide several years of manageable water to be used towards implementation of Mount Airy's comprehensive master plan [2024 WRE]

#### Long-Term Action Items

- n/a

#### Short-Term Water Supply Solutions

- Groundwater Wells:** Drill and develop groundwater wells to meet projected additional demand needs, staying below 80% of supply capacity limitations to meet projected additional demand. [2024 WRE]



41.3.4 Sustain existing wastewater treatment capacity

System-Specific Action Items Already in Place:

- ✓ Performed I&I inspection of entire 1971 original sewer system in 2007 [2010 WRE]
✓ Completed ENR upgrade, enabling the current facility to operate at the limits of technology for nitrogen and phosphorus removal [2024 WRE]
✓ Amended the Mount Airy Comprehensive Plan to reduce the size of the Mount Airy MGA/DGA to more closely reflect a balance between future demand and potential wastewater capacity, reducing the future demand to bring it under the 1.2 mgd WWTP capacity [2024 WRE]
✓ Lined roughly seven miles have been lined with CIPP (cured in place plastics) in 2022 [2024 WRE]

Ongoing Action Items:

- ⊕ I&I improvements are ongoing each year to minimize unwanted flows to the WWTP [2010 WRE]
⊕ On a regular basis, or as actions are taken or completed that would change the capacity calculation, update the C&D Workbook developed as background data for this plan document to reflect the most current information; complete and submit a full Wastewater Capacity Management Plan (WWCMP) to MDE for review, as needed [2010/2024 WRE]

System-Specific "To Do" Action Items:

Short-Term Action Items

- ☐ n/a

Long-Term Action Items

- ☐ n/a

41.3.5 Develop new public wastewater treatment and disposal capacity

System-Specific Action Items Already in Place:

- ✓ Completed study to determine feasibility of expanding design capacity of existing WWTP [2024 WRE]

Ongoing Action Items:

- ⊕ n/a

System-Specific "To Do" Action Items:

Short-Term Action Items

- ☐ n/a

Long-Term Action Items

- ☐ Design and construct expansion of WWTP from 1.2 mgd to 1.8 mgd [2024 WRE]

41.3.6 Protect and restore water quality and make progress toward any applicable TMDLs

For action items related to this strategy, please see this same strategy under the Countywide Strategies section, which lists action items for all nine jurisdictions in the county.