2024

Comprehensive Plan Element for:

Carroll County/Freedom
Hampstead
Manchester
Mount Airy
New Windsor
Sykesville
Taneytown
Union Bridge
Westminster

60-Day Review DRAFT

Review Period ending 15 January 2026

46.0 Westminster

46.1 Water Supply

The City is divided into two watersheds by the northeast-to-southwest running Parr's Ridge. The western portion of the City falls into the Double Pipe Creek watershed, part of the Potomac Tributary basin area. The City's Wakefield Valley water system is located in this watershed. Also, in this watershed are nine of the City's supply wells, the Medford Quarry emergency water supply, and the wastewater treatment plant (WWTP), which discharges into Little Pipe Creek. A future project in this watershed includes PUREWater Westminster (operational by 2027).

The eastern part of the City falls into the Liberty Reservoir watershed and the North Branch Patapsco River 6-digit watersheds, which are part of the Patapsco/Back River Tributary basin. The City withdraws water from surface intakes on Cranberry Branch and Hull Creek in this watershed. Both creeks are tributaries of the West Branch of the Potomac. Water withdrawn from Cranberry Branch is stored in the raw water reservoir north of Lucabaugh Mill Road. Also, in this watershed are three supply wells and one streamflow augmentation well. Portions of the Hampstead and Freedom water and sewer systems are located within this watershed.

46.1.1 Source Water Assessment

The City of Westminster relies upon both ground and surface water for its potable supply. The unconfined fractured rock aquifer within the Wakefield Marble, Sam's Creek Formation, Marburg Formation, Ijamsville Phyllite, and Wissahickon Formation (with some of these formation names since reclassified and incorporated into the Sam's Creek, Marburg, and Prettyboy Groups) provide the source of water supply for 15 groundwater wells. Of the 15 wells, only 12 were routinely relied upon for potable supply in 2024. Two wells are unused, and another is used for stream augmentation purposes only. Four of the City's wells are completed in the Wakefield Marble, though at least one other well is completed within a carbonate rock unit classified as part of the Sam's Creek Formation. The remaining wells are within the other various crystalline bedrock formations.

The City also withdraws water from the Cranberry Run Reservoir. The Source Water Assessment (SWA) was delineated by a consultant in accordance with the 1999 MDE SWAP guidance document. A January 2004 SWA completed by the MDE for the City's surface water source indicated that nutrient enrichment, sedimentation, and contamination by pathogenic organisms were the major concerns at that time. Cranberry Branch was determined to be susceptible to nitrate contamination, and the MDE indicated that the surface supply was "particularly susceptible to contamination by protozoa, as demonstrated by the high fecal concentration." While the surface water source wasn't susceptible to synthetic organic compounds (SOCs) based on a review of water quality, the MDE indicated that intakes were susceptible to spills of such compounds. The water system was determined to be susceptible to disinfection byproducts (DBPs), which are formed by the chlorination of organic matter.

In October 2013, S.S. Papadopulos & Associates Inc., completed a Source Water Protection Plan (a step beyond a SWA) for the City of Westminster's groundwater supply sources. The October 2013 report referenced a 2005 SWA completed by Advanced Land and Water, Inc. (ALWI) for the groundwater supply sources; that report found that most of the City's wells were susceptible to

nitrate. The October 2013 report concluded that the City's "groundwater and surface water sources are potentially susceptible to surface contamination, including volatile organic compounds (VOCs), IOCs and SOCs".

46.1.2 Water Supply Demand

The total future water demand assumes that everything within the 2023 Water Service Area (WSA) builds out according to the zoning in place in 2022. If this were to occur, the total future water supply demand for the Westminster system would be 3,176,489 gallons per day (gpd).

The numbers in the "2023 Westminster Future Water Supply Demand" table are based strictly on BLI calculations. They do not reflect factors unique to the municipal system that may have been considered in the Capacity & Demand (C&D) Workbook calculations and figures presented in the next table, "2023 Westminster Water Supply Capacity Available for Existing and Future Growth."

Westminster Future Water Supply Demand at Buildout of 2023 Water Service Area (Gallons per Day)

Municipal System	2023 Existing Demand[1]	Planned Future Demand[2]		Long-Range Demand[3]	Total Buildout Demand
		Infill Demand	Future Demand		
Westminster	2,361,296	524,832	290,362	0	3,176,489
Municipal System	**2023 Existing Demand[1]**	**Additional Demand by Land Use[4]**			**Total Buildout Demand**
		Residential	**Non-Residential**		
Westminster	2,361,296	400,250	414,943		3,176,489

[1] These data are the greatest annual average daily demand for the 5-year period from 2018 through 2022.
[2] 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.
[3] These data relate to areas designated in the "Long-Range Service Area" but located within the DGA.
[4] 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.

Source: WRE Capacity & Demand Workbook: CC PLM + City of Westminster, 2023

Calculations for future water demand used the C&D data. This demand is reflected under "Infill" and "Future" (Priority + Future WSAs), as well as the Long-Range WSA. However, the C&D data do not account for additional demand that might occur within the area that is designated in the "No Planned Water Service Area" within the DGA. 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.

The table – **Westminster Future Water Supply Demand at Buildout of 2023 Water Service Area** – provides the total estimated buildout demand including the Long-Range Demand. It should be noted that the Long-Range Service Area serves as a planning tool for Carroll County jurisdictions/systems but is not a service area required by MDE, and it is not included in Table 15 of the *Water & Sewer Master Plan*. Only the total demand for Infill + Future should be considered for purposes of evaluating consistency of the *Water & Sewer Master Plan* with this document.

46.1.3 Water Supply Capacity

If Westminster were to build out according to the zoning in place in 2022 within the 2023 WSA, the City would need to expand the system beyond its current capacity to make available another

662,619 gpd to accommodate unserved demand based on the daily most limiting water supply system factor under drought conditions.

The Average Day Capacity Limitation represents the most limiting factor of the following: treatment capacity, pump capacity, largest well out of service, and safe yield. Average Day Drought Demand is based on MDE's planning formula of adding 10% to account for drought conditions. Therefore, Remaining Capacity is the amount that would be available for Unserved Demand after subtracting the Average Day Drought Demand from the Average Day Capacity Limitation. The Net Average Day Capacity Available at Buildout figure indicates whether additional capacity is needed.

Westminster Water Supply Capacity Available for Existing and Future Growth at Buildout of 2023 Water Service Area (in Gallons per Day)

Municipal System	Current			Remaining Capacity[2]	Unserved Demand[3]	Net Avg Day Capacity Available at Buildout
	2023 Permitted	Avg Day Capacity Limitation	Avg Day Drought Demand[1]			
Westminster	3,824,000	2,750,000	2,597,426	152,574	815,193	**(662,619)**

[1] *Average Day Drought Demand here includes an additional 10% for drought demand*
[2] *Remaining Capacity equals the Avg Day Capacity Limitation minus the Avg Day Drought Demand.*
[3] *These data relate to areas located within the planned water service area. This includes infill (unserved in "Existing/Final Planning" service category), as well as projected demand in the Priority, Future, and Long-Range Water 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 withdrawal from all sources from this table should be compared to the Infill + Future demand in the table – Westminster Future Water Demand at Buildout of 2023 Water Service Area – as the method for determining capacity vs. demand is more comparable.

Source: WRE Capacity & Demand Workbook: CC PLM + City of Westminster, 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 WSA using the permitted withdrawal 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

MDE WRE: Additional Capacity Needed / Available (gpd)	W&S Plan w/ Long-Range: Additional Capacity Needed / Available (gpd) (*Permitted Withdrawal - Demand*)	W&S Plan w/o Long-Range: Additional Capacity Needed / Available (gpd) (*Permitted Withdrawal - Demand*)
-662,619	~ -647,500	~ -647,500

46.1.4 Water Supply Limitations

While the demand estimates were calculated based on MDE's standard 250 gpd per household, the City calculates the average water usage per residential connection at 235 gpd per connection based on the existing connections and associated water usage. The buildout development for residential connections in the service area is projected to be complete in the year 2042; however, approximately 62% of the development is anticipated by 2027.

A linear growth rate has been used to estimate available industrial and commercial development (421 acres) between 2010 and 2027. An assumed 800 gpd per acre for commercial and industrial development was used to estimate the future water demand.

The water allocation to residential, industrial, and commercial users is controlled by the City's Department of Community Planning and Development through the Water and Sewer Allocation Policy. Additional growth beyond the allocated water will be dependent upon new water sources.

Westminster is currently not pursuing additional groundwater wells and has recently begun designing and construction of a new indirect potable reuse system. This system is the first of its kind in Maryland and will purify wastewater effluent and discharge water into Cranberry Reservoir. The reuse system is currently permitted for 0.5 million gallons per day (mgd) and will be built as a 1 mgd facility. Design of the facility accommodates for an expansion if additional supply needs arise. Westminster anticipates being able to meet future supply needs through indirect potable reuse.

Summary of 2023 Buildout Capacity and Limitations for Westminster Water Supply System

Buildout Demand Status	2022 Appropriated Capacity (gpd)	Average Day Capacity Limitation (gpd)	2022 Existing[1] (gpd)	Buildout Demand (gpd)	Additional Capacity Needed (gpd)	Critical Limiting Factor (mgd)	Actions to Consider for Increasing Capacity as Needed
🟡	3,824,000	2,750,000	2,597,426	3,412,619	662,619 162,619[2]	System Capacity	▪ .5 mgd permitted via PUREWater indirect potable reuse system (online 2027) ▪ 1 mgd design ➞↗ permitted

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

[1] 2022 Existing = existing pumped and unserved demand in the Existing Water Service Area. Includes drought demand.
[2] Additional capacity needed once the PUREWater plant comes online
**This table does not include cost in the limitations, but funding is always a consideration and a possible limiting factor*.

46.1.5 Water Demand Management

Westminster uses reservoir levels (not groundwater levels) to make decisions about low-flow operations and water use reductions because reservoir levels fluctuate more than groundwater levels.

The City's Drought Management Plan identifies what the water restrictions are, when they are imposed, and why. Check the City's website, social media, drought hotline, etc. for restrictions.

Additional water conservation and demand management measures in place are listed under that strategy in this system's section.

46.2 Wastewater

The wastewater treatment plant (WWTP) serving the Westminster area is owned and operated by the City of Westminster. The 5.0-mgd plant is an activated sludge facility consisting of bar screens, grit and grease removal facility, aeration tanks with anaerobic, aerobic, and switch zones, secondary clarifiers, denitrification, and liquid chlorination/dechlorination. Phosphorus is also removed by chemical addition. The plant discharges to Little Pipe Creek, a Use IV-P stream, which flowed into Double Pipe Creek at an average rate of 4.066 mgd between 2021-2023.

The upgrade from biological nutrient removal (BNR) to enhanced nutrient removal (ENR) technology does not include plant expansion. There are, however, future plans to expand the plant from 5.0 mgd to 6.5 mgd, if needed. Analysis in this section assumes that the plant capacity expansion to 6.5 mgd will not be implemented within the next 10 years.

46.2.1 Wastewater Demand

The total future wastewater demand assumes that everything within the *2023 Water & Sewer Master Plan* Sewer Service Area (SSA), including the Long-Range Service Area, builds out according to the zoning in place in 2022. If this were to occur, the total future wastewater demand for the Westminster WWTP would be 3,628,445 gpd. The numbers in the "2023 Westminster Future Wastewater Demand" table are based strictly on BLI calculations. They do not reflect factors unique to this municipal system that may have been considered in the C&D Workbook calculations and figures presented in the next table, "2023 Westminster Wastewater Capacity Available for Existing and Future Growth."

Westminster Future Wastewater Demand at Buildout of 2023 Sewer Service Area (in Gallons per Day)

Municipal System	2023 Existing Demand[1]	Planned Future Demand[2]		Long-Range Demand[3]	Total Buildout Demand
		Infill Demand	Future Demand		
Westminster	2,323000	663,923	277,522	0	*3,264,445*
Municipal System	**2023 Existing Demand[1]**	**Additional Demand by Land Use[2]**			**Total Buildout Demand**
		Residential	**Non-Residential**		
Westminster	2,323,000	499,500	441,945		*3,264,445*

[1] These data represent, in general, the annual average daily demand over the 3-year period 2020-2022 minus I&I.
[2] Planned Future Demand and Additional Demand by Land Use are based on estimated demand from land not yet served in the planned sewer service areas. 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.
[3] Long-Range Demand is based on estimated demand from land not yet served in the Long-Range Planned Sewer Service Area.

Source: WRE Capacity & Demand Workbook: CC PLM + City of Westminster, 2023

The table – **Westminster Future Wastewater Demand at Buildout of 2023 Sewer Service Area** – provides the total estimated buildout demand including the Long-Range Demand. It should be

noted that the Long-Range Service Area serves as a planning tool for Carroll County jurisdictions/systems but is not a service area required by MDE, and it is not included in Table 32 of the *Water & Sewer Master Plan*. Only the total demand for Infill + Future should be considered for purposes of evaluating consistency of the *Water & Sewer Master Plan* with this document.

46.2.2 Wastewater Capacity

If Westminster were to build out according to the zoning in place in 2022 within the 2023 SSA, the Town would need to expand the system beyond its current capacity to make available an additional 371,445 gpd in wastewater flows.

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

Municipal System	Current			Existing Flows	Capacity Needed[1]			Capacity Available at Buildout
	2023 Permitted	I&I	Remaining Capacity		Infill	Priority + Future	Long-Range	
Westminster	5,000,000	1,743,000	3,257,000	2,323,000	663,923	277,522	0	**(-7,445)**

[1] 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 – Westminster Future Sewer Demand at Buildout of 2023 Sewer Service Area – as the method for determining capacity vs. demand is more comparable.

Source: WRE Capacity & Demand Workbook: CC PLM + City of Westminster, 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 withdrawal 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

MDE WRE: Additional Capacity Needed / Available (gpd)	W&S Plan w/ Long-Range: Additional Capacity Needed / Available (gpd) (*Design Capacity - Demand*)	W&S Plan w/o Long-Range: Additional Capacity Needed / Available (gpd) (*Design Capacity - Demand*)
-7,445	~ +1,735,600	~ +1,735,600

46.2.3 Limitations Based on Design Capacity

The 5.0-mgd facility will be capable of accommodating all projected wastewater flows under Priority + Future conditions without requiring a Wastewater Capacity Management Plan (WWCMP). The estimated total flow for Priority + Future capacity of 3.63 mgd (including inflow & infiltration, or I&I), as calculated in the C&D Workbook, is projected to leave an excess treatment capacity of about 1.37 mgd. Despite projected excess capacity, the plant lacks raw water supply to use the full capacity due to limitations in appropriations.

According to the C&D Workbook, I&I flows average about 1.7 mgd, which represents an average of 52% of plant influent. The City has an ongoing program to identify locations of high I&I and to reduce I&I by pipe joint injections, replacement, or pipe-lining. As I&I is reduced over time, it is possible that future usable capacity will increase. However, the Westminster plant is within the FEMA floodplain, making it more susceptible to increased influent flow from runoff and I&I related to extreme precipitation events. In addition to the potential to exceed design capacity, the plant could experience damage or malfunctions to treatment equipment that reduce nutrient and other contaminant loads. Quantifying hydraulic impacts is a challenge because historical conditions may not represent future flows.

46.2.4 Limitations Based on Local Water Quality

The Westminster WWTP NPDES permit includes limits for conventional pollutants and parameters such as five-day biological oxygen demand (BOD5), fecal coliform, pH, total suspended solids, and dissolved oxygen. These limits are standard limits for secondary treatment facilities and the most recent NPDES permit fact sheet for the facility states that they are fully protective of receiving waters. Limits for parameters such as ammonia and total Kjeldahl nitrogen (TKN) were derived for local water quality protection and are expected to remain achievable even under projected buildout flows.

The plant performance concentrations (averaged by quarter) in the most recent NPDES permit fact sheet show the facility operates well below the proposed limits (monthly average) for fecal coliform and TSS (total suspended solids). It is reasonable to assume the Westminster WWTP can readily comply with fecal coliform and TSS limits, thus the total maximum daily loads (TMDLs) for Double Pipe Creek for fecal coliform and TSS will not represent the controlling limitations to discharge.

The phosphorus TMDL for Double Pipe Creek does not impose phosphorus limits that are more stringent than the Bay-related nutrient caps. The Westminster WWTP is not upstream of a Tier II stream segment, nor does it discharge into a Use Class III stream. Therefore, temperature is not a limiting factor.

46.2.5 Limitations Based on Bay Nutrient Caps

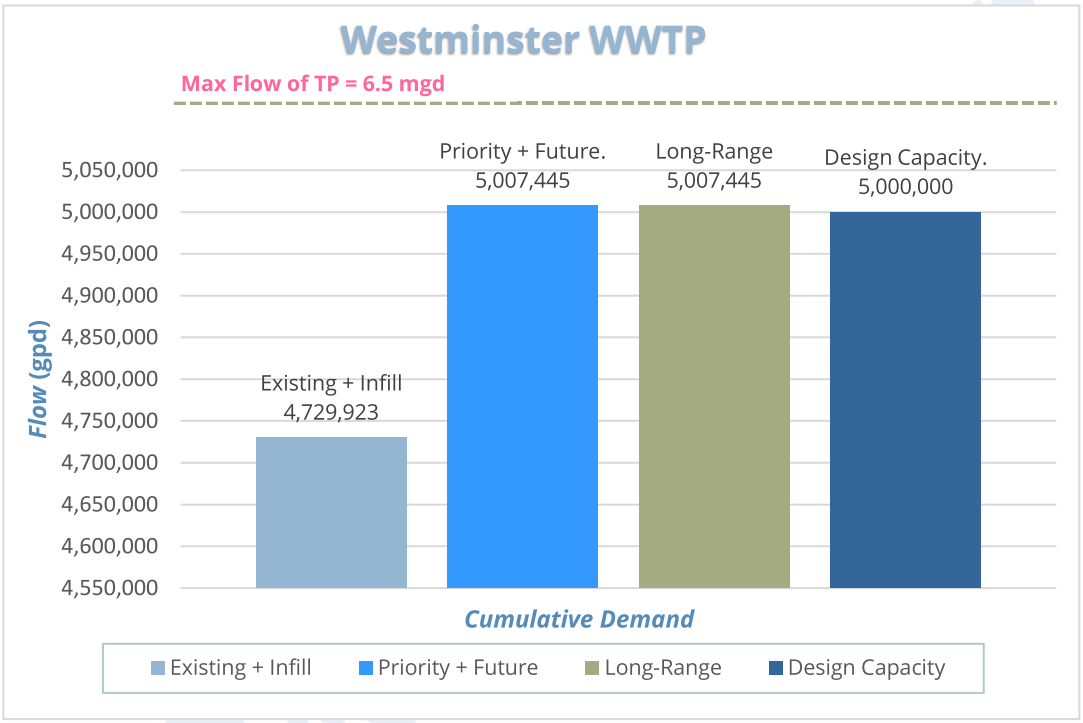
The WWTP is considered a “major” facility under the 2010 Chesapeake Bay TMDL and has been assigned nutrient loading caps for both total nitrogen and total phosphorus. The nutrient caps were based on a design capacity of 5.0 mgd, a total nitrogen concentration of 4.0 mg/L, and a total phosphorus concentration of 0.3 mg/L. As with other major facilities, these nutrient caps are enforceable NPDES permit limits.

Completion of the City’s planned ENR upgrade project was expected in 2024. The ENR upgrade will be designed to achieve 3.0 mg/L total nitrogen and at least 0.3 mg/L total phosphorus. The maximum average daily flow at which this facility can operate without exceeding the phosphorus ENR caps is 5.0 mgd. City staff have indicated that addition of alum makes phosphorus less of a limiting condition that the nitrogen cap. The maximum daily flow to remain below the ENR nitrogen cap is 6.66 mgd. Through ENR, it is expected that the plant will be able to achieve lower effluent phosphorus concentrations, which may afford the facility flexibility to operate up to 6.66 mgd without violating ENR caps. The projected Priority + Future flow (3.63 mgd) is lower than the maximum flows above which nutrient caps would be exceeded. Therefore, nutrient caps are not

anticipated to be a primary limitation for the WWTP. However, if expansion to 6.5 mgd is considered, it will require further investigation into limitations imposed by nutrient effluent concentrations.

46.2.6 Summary of Wastewater Limitations

The design capacity is the limitation as of 2023. If the plant is expanded to 6.5 mgd, the additional design capacity would accommodate the projected demand. Operations need to be evaluated and modified to address any projected exceedance of the phosphorus cap if the plant is expanded. It should be noted that climate change may lead to reduced capacity due to flooding and excess I&I. Climate change impacts should be further evaluated to assess capacity impacts from hydrologic extremes.



Note: The Existing + Infill appears to exceed the Design Capacity. This is only due to the standard estimate of I&I used in the estimates, which is likely much less than the default calculation for I&I.

Summary of 2023 Buildout Capacity and Limitations for Westminster Wastewater System

Watershed	Buildout Demand Status	2023 Design Capacity (gpd)	2023 Existing[1] (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		
Double Pipe Creek	🟡	5,000,000	4,729,923	5,007,445	7,445	✓			✓		**5.000**	I&I improvements

🟡 *WWTP does not have enough capacity to serve projected demand in 2023 Sewer Service Area, but limitations can more easily be overcome.*

[1] 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

46.3 System-Specific Strategies: Westminster

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

46.3.1 System-Specific Action Items Already in Place: Current Protections, Practices, and Polices

✓ Services to Areas Outside City Boundaries

The City's WSA currently extends outside the corporate limits to serve approximately 3,600 of the total 10,350 connections. In other words, 38% of the City's treated water serves unincorporated properties. In August 2002, the Mayor and Common Council adopted Good Cause Waiver Criteria for the extension of public water and sewerage service beyond the corporate limits of Westminster. That legislation requires new or redevelopment projects to comply with the City/County Agreement, which stipulates that if the property is contiguous to the corporate limits, the project must initiate annexation into the City of Westminster if it is to be served with public water and sewer service. If the property does not meet the legal test for annexation, its owner must file a Good Cause Waiver with the Mayor and Common Council. If approved, the applicant must execute an "Intent to Annex" agreement with the City of Westminster which is recorded in the Carroll County Land Records. This procedure provides control over the extension of City utilities outside of its corporate limits.

✓ Water Allocation Policy

In April 2007, the City entered into a Consent Order with MDE to allow the City to meet existing water needs while remedial measures are developed and put on-line, accommodate a limited amount of interim growth, and establish an effective system for managing future capacity in accordance with MDE guidelines and regulatory capacities of the City's water sources by MDE. Regulatory capacities are critically important in providing adequate resources in times of drought emergencies as well as for everyday use. Subsequently in 2007, the City adopted a Water and Sewer Allocation Policy regulating water and sewer allocation by creating a prioritized "waiting list" for available water and sewer supplies for properties inside and outside the City that are or may be

served by City utilities. The City continues to evaluate options for more efficient use of existing resources, as well as development of new water sources to accommodate projected growth.

The Policy has been amended several times, with the most recent amendment to the Policy occurring in January 2025. The Policy has maintained its primary purpose of water and sewer allocation which allows the City control over new connections and additional allocations on a project-by-project and location-by-location basis to ensure regulatory capacities are not exceeded by monitoring City recognized established, daily, and anticipated consumption. The Policy contains three sections: I. Water Allocations, II. Sewer Allocations, and III. Allocation Process. Sections I. and II. highlights the unique aspects of each water and sewer resource and addresses current conditions and desired approaches for the allocation these resources. Section III. addresses the overall allocation process and establishes the Master Distribution Chart, the guiding factor of the allocation process. The Master Distribution Chart apportions remaining allocatable resources to City allocation categories (Food and Beverage; Commercial and Industrial; Public Projects; Not-for-Public Projects; Single Family Residential; Multiple-Family Residential; Emergency Reserve; General Water Fund; and General Sewer Fund) and County allocation categories (Commercial, Industrial, Food and Beverage; Public Projects; Not-for-Public Projects; Infill Single Family Residential).

✓ *Drought Management Plan*

During the summer of 2002, the State of Maryland experienced a severe drought, which required the City to take extensive emergency measures to ensure adequate water was in the system to serve the entire service area. In response to the drought, the Mayor and Common Council adopted a "Drought Management Plan," which provides for a series of water restrictions once drought conditions have been met. By the adoption of this plan, it is not necessary to seek legislative approval to impose water restrictions on all users of the system. This plan also authorizes all police personnel and Westminster Code Officials to issue citations against any person who violates water restrictions. As a result of the drought, The Mayor and Common Council made it a priority to find alternative sources of water.

✓ *Cranberry Water Treatment Plant*

The US EPA has taken an aggressive approach to ensure that surface water treatment plants (WTPs) serving over 10,000 persons comply with the *Disinfection By-Product Rule* and the *Long Term 2 Enhanced Surface Water Rule*. The City constructed a water treatment plant utilizing membrane filtration. The Cranberry Water Treatment Plant opened in April 2009. By incorporating the membrane filtration technology into the City's water treatment system, the City is able to handle current regulations.

✓ *Union Mills Area Wells*

In 2012, Golder Associates, Inc. was engaged to perform geophysical services across the Union Mills property and adjacent properties for which an access agreement was established. The purpose of the geophysical investigation was to identify and optimize potential exploratory test well sites within three designated groundwater development areas. A total of 23 potential exploratory test well sites were identified and ranked in descending order of favorability by Golder Associates, Inc.

In 2013, Hydro-Terra Group and Alexander's Well Drilling (as a sub-contractor of Hydro-Terra Group) were engaged by the County to complete drilling and logging of proposed test wells. At least seven test wells were attempted, though none exhibited yields sufficient to justify conversion to production well status or installation of the transmission main to the City of Westminster. Therefore, due to the cost, testing, and permitting involved, this source could be considered a Long-Term option.

✓ *PureWater*

Westminster, like other cities across the United States, is experiencing increased, recurring drought conditions. In response, the City has been proactive in its water supply planning to ensure local water reliability now and for the future. One forward-thinking approach the City is actively pursuing is the PUREWater Westminster project, which will use proven technology to purify reclaimed water to provide a safe, sustainable, and drought-resistant drinking water supply. This initiative will help Westminster keep local control of its water supply and costs and provide a pathway for economic growth, business and commercial development, and continued community vitality. It is anticipated that this project will be complete by 2027. The additional capacity added to the system through this project would be .500 mgd with the ability to expand to 1.0 mgd.

46.4 Additional Recommended Strategies: Westminster

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.

46.4.1 Protect and sustain existing drinking water supplies serving existing development

System-Specific Action Items Already in Place: ("Continue to…")

- ✓ Implemented programs educating water customers about the importance of, and methods to, conserve water [*2010 WRE*]
- ✓ Implemented a system to track water demand for all known and potential development projects by modifying the allocation plan to include allocation of wastewater capacity and to give priority allocation status to projects that demonstrate significantly reduced demand through the use of water conservation measures [*2010 WRE*]
- ✓ Gesell Well: Brought online in 2018 at .165 mgd and was approved in 2022 for an increased appropriation of .258 mgd [*2024 WRE*]
- ✓ Wells sampled, as required by Unregulated Contaminant Monitoring Rule 5 (UCMR5), for 30 chemical contaminants including PFAS and lithium. The EPA uses the UCMR to gather

information for contaminants that are suspected to be present in drinking water and do not have health-based standards set under the Safe Drinking Water Act. [*2024 WRE*]

✓ Implemented ion exchange for PFAS treatment at the Vo-Tech well in 2022; the well is online again as of 2024 [*2024 WRE*]

Ongoing Action Items:

- Support the rezoning of areas outside the City's Designated Growth Area (DGA) to be consistent with other areas of the county that are not within a DGA to reflect the desired future buildout scenario for Westminster (2017) [*2024 WRE*]
- Periodically review and update the Water Supply Capacity Management Plan (WSCMP) as a mechanism to continue to track, monitor, and evaluate available capacity [*2010 WRE*]
- Identify potential industrial/manufacturing users for which water reuse in operations may be pursued [*2010 WRE*]
- Provide development plans to the County to review and offer comments to the City regarding Water Resource Management [*2010 WRE*]
- Evaluate existing wells and identify any measures needed to remain in compliance with maximum contaminant limits (MCLs) [*2024 WRE*]
- Develop indirect potable water reuse facility (PUREWater Westminster) to mitigate impact of climate change on water availability; design and construction in progress in 2024; anticipated to be operational in 2027 [*2024 WRE*]
- Site facilities using State funds outside of the 100-year floodplain to avoid flooding impacts [*2024 WRE*]

System-Specific "To Do" Action Items:

Short-Term Action Items

❑ Investigate if the Greenvale Mews well is still a viable addition to the water system [*2024 WRE*]

❑ Evaluate improvements needed as a result of reclassification of Cranberry Reservoir from a significant hazard to high hazard dam [*2024 WRE*]

❑ Amend Water Service Area map to show the missing WTPs [*2024 WRE*]

Long-Term Action Items

❑ n/a

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

MDE's goal is to ensure that the water quality and quantity at all public water systems meet the needs of the public and comply with federal and State regulations. The City of Westminster will adhere to the guidelines of its allocation policy for the foreseeable future. The inclusion of Action Items and/or projects here does not indicate a commitment or obligation to move with or implement the Action Item or project.

System-Specific Action Items Already in Place:

✓ Roops Mill Well: permitted for .120 gpd, completed late summer 2009 [*2010 WRE*]

✓ Gesell Property Well: Permitted at .258 mgd (2022) [*2024 WRE*]

✓ Continue to implement and refine the Allocation Plan, which ensures the adequacy of water supplies for each project [*2024 WRE*]

- ✓ Groundwater Development: With the Gesell well in place and operational, at this time, Westminster is not looking into new well development. The City will most likely look to other supply sources rather than develop new groundwater wells. [*2024 WRE*]
- ✓ Cellular Water Meter: In place to report back daily to indicate if there is significant use over normal or any indication of leaks [*2024 WRE*]
- ✓ PUREWater Westminster: Evaluated feasibility of indirect potable water reuse as pilot project with MDE, then designed and began construction of PUREWater Westminster potable water reuse treatment project, anticipated to be operational in 2027, initially set for 0.5 mgd with future expansion possibilities [*2024 WRE*]
- ✓ Examined the feasibility of re-using water pumped from area quarries: [*2024 WRE*]
  - ☑ Hyde's Quarry: Westminster completed a long-term aquifer test between fall 2014 and spring 2015. The quarry appears capable of sustaining a yield of 500,000 gpd.
  - ☑ Medford Quarry – Emergency Supply: In response to the severe drought from 2001 to 2002, the City, in cooperation with Medford Quarry and MDE, established an intake for an emergency water supply source from the quarry. As of 2024, the MDE permit allows for a withdrawal of 482,000 gpd (750,000 gpd MMU) under emergency conditions.
  - ☑ Medford Quarry – Additional Daily Use: In 2018, the County, in cooperation with the City, Medford Quarry, and MDE, completed an evaluation of the amount of additional water sustainably available for daily use. All parties agreed that 400,000 gpd were available for immediate use at that time, but a finalized agreement was never reached, and the original emergency permit is all that is active as of 2024.

Ongoing Action Items:

- Evaluate and adopt land use policies that promote higher densities and clustering [*2010/2024 WRE*]
- Coordinate with efforts by the Carroll County Government to develop nearby water sources that are outside City limits [*2010/2024 WRE*]
- Coordinate with Carroll County Government to obtain recharge credit for applicable wells [*2010/2024 WRE*]
- Evaluate and implement measures to ensure adequate recharge for each existing and future water supply source, such as through easements, preservation programs, or purchase [*2010/2024 WRE*]
- Continue to reduce unaccounted for water by continuing ongoing efforts to detect and repair leaks, resolve accounting errors, and reduce water that is unaccounted for to an acceptable range [*2010 WRE*]
- Continue to replace existing meter with cellular meters; replacing at a rate of ~1,200/year as of 2024 [*2024 WRE*]
- Groundwater Wells: Continue to monitor existing groundwater wells for additional capacity. [*2024 WRE*]

System-Specific "To Do" Action Items:

Short-Term Action Items

- ❑ n/a

Long-Term Action Items

- ❑ n/a

Short-Term Water Supply Solutions

- ❑ Cranberry Water Treatment Plant: Expand Cranberry WTP to accommodate additional treatment needed as a result of PUREWater facility [*2024 WRE*]
- ❑ Water Reuse – PUREWater Water Reuse Treatment Facility: Construct the PUREWater Westminster water reuse treatment facility with capacity of 0.5 mgd of indirect potable water. [*2024 WRE*]

Long-Term Water Supply Options

Note: These are options that will be considered for long-term supply. However, inclusion here does not imply that there is a definite plan to move forward with an option. Exploring additional sources, even for those systems that currently project enough capacity to meet demand, is included in order to be prepared for policy changes or other changes that would result in the need for additional available water capacity. ***The long-term water supply options, beyond further groundwater exploration, may not be financially feasible and may be severely limited due to wastewater capacity.***

- ❑ Hyde's & Medford Quarries: Reinitiate conversations with applicable parties to finalize agreements and plans [*2024 WRE*]
- ❑ Surface Water Sources: Continue to evaluate and develop, as needed [*2010 WRE*]
- ❑ Union Mills Reservoir: Safe yield 3.76 mgd with normal pool elevation of 610 ft.; planned reservoir; to serve as regional source of supply for Westminster, Hampstead, Taneytown, and Manchester Service Areas [*2010/2024 WRE*]Water purchase from City of Baltimore: Baltimore City could supply water to Westminster using surplus supply from the Baltimore City water system. Conceptual plans for this alternative have not been developed because this is an undesirable, but technically feasible, alternative for Westminster. Piping water from the Baltimore City treatment plants would require a significant amount of infrastructure that would likely pass through private property. Piping of raw water could also be considered and may be a more feasible alternative. A contractual agreement would be needed between Baltimore and Westminster. [*2010/2024 WRE*]
- ❑ Water Reuse – PUREWater Water Reuse Treatment Facility: Expand the PUREWater Westminster water reuse treatment facility capacity as additional capacity is needed [*2024 WRE*]

46.4.3 Promote water conservation measures and manage demand for potable water to ensure adequate supplies are available for planned development

System-Specific Action Items Already in Place:

- ✓ Public Education: Community conservation education and outreach activities; website; newsletter; door hangers; public outreach materials developed in cooperation with Carroll County Environmental Advisory Council
- ✓ Water Loss Management: Water Conservation Plan; testing and replacing, as needed, water meters, leak monitoring, and water use audits; City owns its own leak detection equipment. City replaced all meters ~10 years ago and is now starting to replace meter heads to cellular systems.
- ✓ Drought Management: Three-staged drought management plan adopted
- ✓ Water Use Rate Schedule: Progressive water-rate schedule
- ✓ Billing Cycle: Quarterly billing cycle
- ✓ Xeriscaping: Design Preference Manual, Section 164-131.2 of the City Code, adopted in May 2016, requires use of xeriscaping principles [*2024 WRE*]

Ongoing Action Items:

- Coordinate with the County government to promote and educate about water conservation [*2024 WRE*]
- Seek grant funding to supplement City contributions to programs which promote conservation and implement demand management recommendations [*2024 WRE*]
- Evaluate and enforce the City's Drought Management Plan to require reductions in water use during times of drought; update as needed [*2024 WRE*]

System-Specific "To Do" Action Items:

Short-Term Action Items

- ❑ Encourage water reuse, where feasible, such as Performance Food Group using WWTP effluent for refrigeration [*2024 WRE*]
- ❑ Develop a water loss prevention plan

Long-Term Action Items

- ❑ n/a

46.4.4 Sustain existing wastewater treatment capacity

System-Specific Action Items Already in Place:

- ✓ Upgraded WWTP to ENR, completed in 2025, enabling the current facility to operate at the limits of technology in terms of nitrogen and phosphorus removal [*2024 WRE*]

Ongoing Action Items:

- Evaluate I&I to determine current level of inflows and infiltration to potentially regain some capacity; make system improvements to reduce I&I; continue to televise lines as needed [*2024 WRE*]
- Adjust the capacity on the Wastewater Capacity Management Plan (WWCMP) worksheets to update available capacity, as needed [*2024 WRE*]

System-Specific "To Do" Action Items:

Short-Term Action Items

- ❑ n/a

Long-Term Action Items

- ❑ n/a

Short-Term Wastewater Solutions:

- ❑ Further investigate climate change conditions to evaluate the potential for design capacity to be reached or exceeded due to extreme hydrologic conditions [*2024 WRE*]

Long-Term Wastewater Solutions:

- ❑ n/a

46.4.5 Develop new public wastewater treatment and disposal capacity

System-Specific Action Items Already in Place:

✓ n/a

Ongoing Action Items:

Continue to plan for and implement the specific expansion projects described or included in the adopted *2023 Carroll County Water & Sewer Master Plan* [*2010/2024 WRE*]

System-Specific "To Do" Action Items:

Short-Term Action Items

❑ n/a

Long-Term Action Items

❑ n/a

Long-term Wastewater Solutions:

❑ Expand WWTP to 6.5 mgd capacity to accommodate increase in flows from PUREWater and other additional demand/flows [*2024 WRE*]

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

For additional 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.

System-Specific Action Items Already in Place:

✓ Implemented recommendations from the December 2004 *Source Water Assessment and Wellhead Protection* report, prepared by Advanced Land and Water, Inc. [*2010/2024 WRE*]

Ongoing Action Items:

Reduce the amount of impervious surface that could result from new development [*2024 WRE*]

System-Specific "To Do" Action Items:

Short-Term Action Items

❑ n/a

Long-Term Action Items

❑ n/a