

New Windsor

Water Supply

■ Source Water Assessment

The Town of New Windsor relies upon both surface and groundwater for its potable supply. The unconfined fractured rock aquifer within the Wakefield Marble, Sam's Creek Formation, Marburg Formation, and Ijamsville Phyllite provide the source of water supply for three groundwater wells and one spring. The Hillside wellfield consists of two wells completed in the phyllite, while the Dennings Road Well in the Main Spring system is located near a contact of the Sam's Creek and Marburg Formations. The Hillside wells were determined to be susceptible to contamination from VOCs associated with commercial enterprises, as well as radionuclides. The Main Spring system was determined to be susceptible to contamination by nitrates, viruses, and bacteria associated with surface activity sources.

■ Water Supply Demand

The total future water demand assumes that everything within the GAB builds out according to the adopted land use plan. If this were to occur, the total future water supply demand for the New Windsor system would be 448,190 gpd. The numbers in the "New Windsor Future Water Supply Demand" table are based strictly on BLI calculations. They do not reflect factors unique to this individual municipal system that may have been considered in the capacity management plan (CMP) worksheet calculations and figures presented in the next table, "New Windsor Water Supply Capacity *Currently Available* for Existing and Future Growth."

**New Windsor Future Water Supply Demand
(Gallons per Day)**

Community	Current Demand ¹	Planned Future Demand ²		Other Potential Demand ³	Total Demand
		Infill Demand	Future Demand		
New Windsor	159,600	35,850	248,940	3,800	448,190
Community	Current Demand ¹	Additional Demand by Land Use			Total Demand
		Residential	Commercial	Industrial	
New Windsor	159,600	169,750	2,520	116,320	448,190

¹ These data are the greatest annual average daily demand for the five-year period from 2003 through 2007.

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 "No Planned Water Service Area" but located within the Community Growth Area Boundary.

Source: Carroll County Department of Planning, December 2008

Water Resources Element

Calculations for future water demand in the table below used the CMP data. This demand is reflected under “Infill + Future.” “Infill + Future” reflects the entire planned service area. “No Planned Service” reflects the balance of the area within the GAB. However, the CMP data do not account for additional demand that would occur within the balance of the planned water service area or the area that is located within the “No Planned Water Service Area.” To factor in this further demand, future development potential and existing development that would be served were estimated and calculated for water demand and are reported under “Other Potential Demand.”

■ Water Supply Capacity

If New Windsor were to build out according to the planned land uses adopted within the 2007 GAB, the Town would need to expand its water system beyond its current capacity to make available another 385,688 gpd. The information in the following table is based on the December 2008 CMP worksheets.

**New Windsor Water Supply Capacity *Currently Available* for Existing and Future Growth
(in Gallons per Day)**

Community	Current			Remaining Capacity	Unserved Demand		Net Avg Day Capacity Available at Buildout
	Permitted	Avg Day Capacity Limitation	Avg Day Drought Demand ¹		Infill + Future	No Planned Service	
New Windsor	196,100	78,462	175,560	(97,098)	284,790	3,800	(385,688)

¹ Average Day Drought Demand here includes an additional 10% for drought demand

Source: Carroll County Department of Planning, December 2008

■ Water Supply Limitations

Town budget and user-pay (rate) limitations for funding the operation and improvement of a public water system and a public sewerage system impose a significant limiting factor for the Town of New Windsor. Additionally, competing State-imposed policies regarding land use (e.g. smart growth priority funding areas and future municipal growth area planning) on one hand, and severe water appropriation permit limitations (to accommodate worst case drought conditions) on the other, cause the former to be impeded by the latter. State administrative parameters and policy also significantly increases groundwater development costs and system uses fees, while currently not providing grants or cost sharing to mitigate capital costs resulting from State and federally-imposed mandates.

Wastewater

The New Windsor WWTP is owned and operated by the Town of New Windsor. The plant is currently rated as a .094-mgd facility. The average wastewater flow into the plant is .067 mgd (excluding I&I). The existing infiltration and inflow amount for the system is .025 mgd. The plant discharges to Dickerson Run, which flows into Little Pipe Creek. The Town is

Water Resources Element

currently designing an upgrade and expansion of the WWTP using sequencing batch reactor (SBR) technology with nutrient removal. The technology upgrade, resulting in additional treatment, would use the existing design capacity to increase the rated capacity of the WWTP to 0.115 mgd.

■ Wastewater Demand

The total future wastewater demand assumes that everything within the GAB builds out according to the adopted land use plan. If this were to occur, the total future wastewater demand for the New Windsor WWTP would be 404,486 gpd. The numbers in the “New Windsor Future Wastewater Demand” table are based strictly on BLI calculations. They do not reflect factors unique to this individual municipal system that may have been considered in the CMP worksheet calculations and figures presented in the next table, “New Windsor Wastewater Capacity *Currently Available* for Existing and Future Growth.”

**New Windsor Future Wastewater Demand
(in Gallons per Day)**

Community	Current Demand ¹	Planned Future Demand ²		Other Potential Demand ³	Total Demand
		Infill Demand	Future Demand		
New Windsor	91,716	21,950	287,020	3,800	404,486

Community	Current Demand	Additional Demand by Land Use			Total Demand
		Residential	Commercial	Industrial	
New Windsor	91,716	162,250	2,520	148,000	404,486

¹ These data represent, in general, the annual average daily demand over the three-year period 2005-2007, and include I&I.

² These data relate to areas located within the designated planned sewer 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 “No Planned Sewer Service Area” but located within the Community Growth Area Boundary.

Source: Carroll County Department of Planning, December 2008

■ Wastewater Capacity

If New Windsor were to build out according to the planned land uses adopted within the 2007 GAB, the Town would need to expand its WWTP beyond its current capacity to make available an additional 255,466 gpd in wastewater flows. The information in the following table is based on the December 2008 CMP worksheets.

**New Windsor Wastewater Capacity *Currently Available* for Existing and Future Growth
(in Gallons per Day)**

Community	Current			Existing Flows	Capacity Needed			Capacity Available at Buildout
	Permitted	I&I	Remaining Capacity		Infill	Future	No Planned Service	
New Windsor	94,000	25,000	69,000	66,716	21,950	232,000	3,800	(255,466)

Source: Carroll County Department of Planning, December 2008

Water Resources Element

■ Limitations Based on Design Capacity

The infill+future demand, which represents the entire planned service area in the table above, combined with the No Planned Service area wastewater demands would total approximately 0.35 mgd, which is greater than the planned WWTP expanded capacity of 0.115 mgd. With additional treatment and reactors, the SBR process could take the plant to .175 mgd in treatment capacity. According to the Town, the wastewater demand projections are unlikely to exceed 0.25 mgd. The CMP worksheets indicate that I&I flows averaged about .025 mgd in 2003, which represented about a quarter of the total average flows at that time.

■ Limitations Based on Local Water Quality

NPDES permit limits for parameters, such as ammonia, were derived for local water quality protection and will be achievable with nitrification even at expanded flows, after the plant expansion is complete.

Because the New Windsor WWTP can readily comply with fecal coliform and TSS limits, the TMDLs for Double Pipe Creek for fecal coliform and TSS will not represent the controlling limitations to discharge. Similarly, the future TMDL for biological impairments in the Double Pipe Creek watershed is also not expected to impose the controlling limitation on discharge rates. The future phosphorus TMDL for Double Pipe Creek is unlikely to impose phosphorus limits that are more stringent than the Bay-related nutrient caps. The New Windsor WWTP is not upstream of a Tier II stream segment.

■ Limitations Based on Bay Nutrient Caps

The New Windsor WWTP is considered a 'minor' facility under *Maryland's Tributary Strategies Statewide Implementation Plan*. As a minor facility, the nutrient loading caps are assigned as goals. These nutrient caps were based on a projected 2020 flow of 0.058 mgd, a total nitrogen concentration of 18.0 mg/L, and a total phosphorus concentration of 3.0 mg/L. Because the plant is expanding to a treatment capacity of more than 0.1 mgd, these loading caps will become enforceable permit limits upon completion of the expansion.

Even if the WWTP is increased to a flow of 0.175 mgd, the New Windsor WWTP could meet its nutrient loading caps by attaining effluent concentrations of approximate 6.0 mg/L total nitrogen and 1.0 mg/L total phosphorus, which are achievable with the technology selected for the upgrade. If the plant ultimately upgraded to full ENR (3.0 mg/L total nitrogen and



Water Resources Element

0.3 mg/L total phosphorus), it could attain its nutrient loading limits even at the 0.350 mgd flow projected for full buildout (based on CMP worksheets).

■ Summary of Wastewater Limitations

The existing design capacity (0.094 mgd) of the New Windsor WWTP represents the controlling limitation under current conditions. As the plant expands and upgrades, the rated design capacity is likely to remain the controlling limitation to discharge as long as advanced nutrient removal technology is employed.

System-Specific Strategies: New Windsor

Note: Numbers for each objective correspond to the relevant objective in the countywide strategies section of this plan. Objectives included below are those that apply specifically and uniquely to this system. Strategies that apply to the County and all of the municipal systems are included in the Countywide Strategies section of this plan.

1. Protect and sustain existing water supplies serving existing development

System-Specific Action Items Already in Place:

- ✓ Adopted the Carroll County Water Resource Management Code, Chapter 218, which provides source water projection regulations

System-Specific "To Do" Action Items:

Short-term

- Support the rezoning by the County of areas outside the Town's future annexation line (Growth Area Boundary) to be consistent with other areas of the county that are not within a DGA to reflect desired future buildout scenario for New Windsor
- Amend the Municipal Growth Element of the *New Windsor Community Comprehensive Plan* and associated annexation areas, as needed, to reflect the changes recommended in this plan
- Update the WSCMP worksheets developed as background data for this plan document to reflect the most current data, then complete and submit a full WSCMP to MDE for review

Long-Term

- Identify potential industrial/manufacturing users for which water reuse in operations may be pursued to reduce consumption of potable water

Water Resources Element

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

System-Specific “To Do” Action Items:

Short-term Strategy/ies

- Develop an agreement with Lehigh Portland Cement Company to use water pumped from the Lehigh New Windsor quarry

Short-term Water Supply Solutions

- Hillside Well 1 (2nd well @ Hillside): Bring back online; anticipated yield 0.050 mgd
- Well in Conjunction with Development of Snader Property: To be developer supplied and funded in conjunction with development approval
- Well #5 at Main Spring Farm: Connect existing Well #5 at Main Spring Farm to water supply system
- Groundwater Wells: Drill and develop 3 groundwater wells (based on the average MDE appropriation of existing New Windsor wells) to meet projected additional demand requirements of approximately 198,000 gpd
 - Obtain control (annex, purchase, or designate as planned WSA) over sufficient acreage in the appropriate watershed(s) to meet the MDE-required amount of recharge
 - Begin MDE water appropriation permitting process
 - Acquire ownership or easement of well site(s)
 - Drill and develop well site(s)
 - Conduct pumping test(s) and source water quality analyses
 - Finalize MDE water appropriation permit process
 - Install permanent wellhead(s) and fencing and constructing treatment/transmission infrastructure necessary to connect wells to the WSA distribution system

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.

- Well in Conjunction with Development of Lease Property: To be supplied and funded by the developer in conjunction with development approval
- Well #6 at Main Spring Farm: Has been drilled and constructed; needs to be permitted
- Lehigh Quarry: Use of Lehigh Quarry near New Windsor as a raw-water reservoir to supply approximately 0.25 mgd to New Windsor; preferred method of transferring water to the WTP is via a release to the nearby stream, and a subsequent withdrawal at the treatment plant
- Regional Connection to Westminster (approximately 2 miles to raw water or 3 miles to treated water)
- Regional Connection to Union Bridge: Subsequent to any use of the Union Bridge Lehigh Quarry water

Water Resources Element

4. 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: Trying to shift attitude toward constant conservation, not just for emergencies; newsletters
- ✓ Drought Management: Three-staged drought management plan adopted

5. Sustain existing wastewater treatment capacity

System-Specific “To Do” Action Items:

Short-term

- Update the WWCMP worksheets developed as background data for this plan document to reflect the most current then complete and submit a full WWCMP to MDE for review
- Complete planned construction of SBR plant (2 tanks)
- Pursue re-rating of the WWTP capacity upon completion of the SBR construction to recognize additional capacity gained through operational upgrade
- Conduct an I&I study to determine current level of inflows from I&I to potentially regain some capacity; make system improvements to reduce I&I; adjust the capacity on the WWCMP worksheets to update available capacity

Long-Term

- Identify potential industrial/manufacturing users for which water reuse in operations may be pursued
- Complete further expansion of the SBR plant (filtering and 4 tanks)
- Evaluate the feasibility of a regional connection to Westminster’s wastewater treatment system
- Investigate reuse of Town’s gray water through spray irrigation at ballfields, for firefighting, industrial operations, or other appropriate uses