Taneytown

Section 1.03 (iii) of Article 66B of the Annotated Code of Maryland mandates that all Maryland counties and municipalities that exercise planning and zoning authority prepare and adopt a water resources element in their comprehensive plans.

This Water Resources Element of the 2010 Taneytown Comprehensive Plan and the projected water demand generated by the land use plan is based on a build-out scenario. The provision of an adequate public water supply has been one of the primary focuses of the City. This section of the plan will detail the significant improvements and planning programs that will provide high quality City water and wastewater systems.

Goals

- Identify drinking water and other water resources that will be adequate for the needs of existing and future development proposed in the land use element of the plan, considering available data provided by the Maryland Department of the Environment (MDE).
- Identify suitable receiving waters and land areas to meet the stormwater management and wastewater treatment and disposal needs of existing and future development proposed in the land use element of the plan, considering available data provided by MDE.

Current Conditions

Water Supply

Source Water Assessment

The unconfined fractured rock aquifer in the New Oxford Formation is the source of water supply for the City of Taneytown system, which is comprised of six wells in the Piney Creek drainage area and two wells in the Big Pipe Creek drainage area.

Water Supply Demand

The future water demand assumes that development will occur in accordance with the land use plan. If this were to occur, the total future water supply demand for the Taneytown system would be 1,785,823 gpd. The numbers in the “Taneytown Future Water Supply Demand” table are based strictly on Buildable Land Inventory (BLI) calculations.

Taneytown Future Water Supply Demand
(Gallons per Day)

Current Demand[1]	Additional Demand by Land Use			Total Demand
	Residential	Commercial	Industrial	
509,143	709,750	98,770	468,160	1,785,823

[1] This data is the greatest annual average daily demand for the five-year period from 2003 through 2007.

Source: Carroll County Department of Planning, December 2008

Water Supply Capacity

If Taneytown were to build out according to the land use designations in the GAB, the City would need to expand beyond its current capacity to make available another 1,272,891 gpd. The information in the following table is based on the December 2008 capacity management plan worksheets.

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

Current				Unserved Demand		Net Avg Day Capacity Available at Buildout
Permitted	Avg Day Capacity Limitation	Avg Day Drought Demand[1]	Remaining Capacity	Infill + Future	Public Use	
583,000	563,846	560,057	3,789	1,275,930	750	(1,272,891)

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

Source: Carroll County Department of Planning, December 2008

Water Supply Limitations

A primary water supply limitation to meeting the future demand is acquisition and/or control of recharge lands. There is significant upland (up-watershed) open space for recharge and well development. However, water rights and land acquisition by the City will be costly. A secondary limitation is site specific constraints and environmental features for the acquisition and construction of water supply systems.

Another component of the City's water supply program is a planned expansion to include a surface water system including development of a City stream intake, reservoir, and water treatment plant, or participation in a County or multi-municipal project.

Wastewater

The City owns a wastewater treatment plant (including a BNR system) along Piney Creek on the west side of the City, which has a design capacity of 1.1 mgd. The plant discharges to Piney Creek, which flows into the Upper Monocacy River. The City plans to upgrade the plant

to ENR treatment standards in order to meet the Bay-related nutrient cap.

Wastewater Demand

The future wastewater demand assumes that development will occur as proposed in the land use plan. If this were to occur, the future wastewater demand for the Taneytown WWTP would be 2,141,113 gpd and includes flows from infiltration and inflow of surface water.

Taneytown Future Wastewater Demand
(in Gallons per Day)

Current Demand	Additional Demand by Land Use			Total Demand
	Residential	Commercial	Industrial	
853,333	714,750	100,310	472,720	2,141,113

[1] This data represents, in general, the annual average daily demand over the three-year period 2005-2007, and include I&I.
[2] Total demand includes anticipated I&I.

Wastewater Capacity

The future demand assumes that development will occur in accordance with the land use plan. The City would need to expand beyond its current capacity to make available an additional 1,041,113 gpd in wastewater flows. The information in the following table is based on the December 2008 capacity management plan worksheets.

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

Current			Existing Flows	Capacity Needed			Capacity Available at Buildout
Permitted	I&I	Remaining Capacity		Infill	Future	Public Use	
1,100,000	351,000	749,000	502,333	72,000	1,215,030	750	(1,041,113)

Source: Carroll County Department of Planning, December 2008

Limitations Based on Design Capacity

The existing wastewater flow (~0.8 mgd) is approaching the 1.1-mgd design capacity of the Taneytown WWTP. The facility would have to expand in order to accommodate the projected priority+future and buildout wastewater demand of 1.74 mgd. The site has adequate land available for expansion if needed.

I&I is a major component of the existing influent flow. According to the CMP worksheets, I&I flows averaged about 0.35 mgd in 2003. The City has completed some additional detection and repairs to reduce I&I flows by televising the complete sewer system every three years. No additional studies have been completed to determine how much I&I has been reduced.

Limitations Based on Local Water Quality

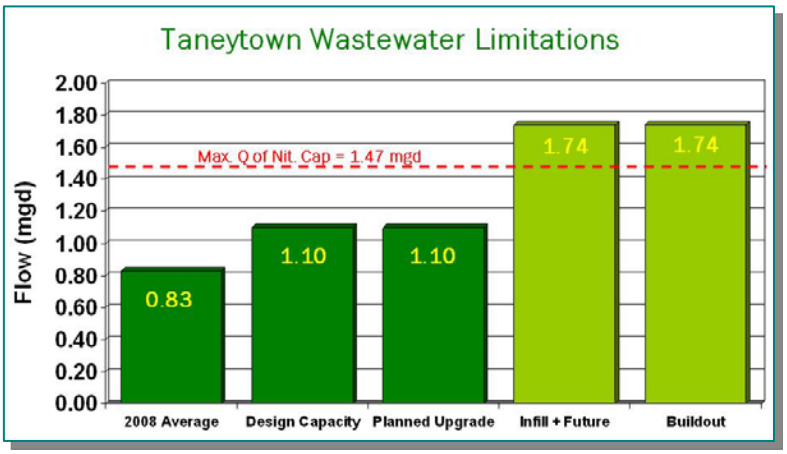
The Taneytown WWTP NPDES permit includes limits for conventional pollutants and parameters such as BOD5, fecal coliform, pH, total suspended solids, and dissolved oxygen. These limits are standard limits for secondary treatment facilities, and are fully protective of receiving waters. Limits for parameters such as ammonia were derived for local water quality protection and are expected to remain achievable even under higher effluent flows.

Limitations Based on Bay Nutrient Caps

The ENR upgrade project will be designed to achieve 3.0 mg/L total nitrogen and at most 0.3 mg/L total phosphorus. At 3.0 mg/L total nitrogen, the Taneytown WWTP would be limited to discharging approximately 1.47 mgd, which is less than the buildout wastewater demand of 1.74 mgd.

Summary of Wastewater Limitations

The existing design capacity of the Taneytown WWTP is 1.1 mgd. The Bay-related nitrogen loading cap represents a 1.47-mgd limit to surface water discharges. This limitation is lower than the maximum projected flows of 1.74 mgd.



Current Protections, Practices, and Policies

The City has taken several steps to improve the capacity and reliability of the public water supply system.

Procedure Improvements

✓ Adequate Public Facilities Ordinance

The City declared water supply an inadequate facility and has enforced the adequate public facilities ordinance. Developers have been advised that they would need to either wait until the city had resolved the situation or could provide water (source and recharge) for their project.

✓ Water Policy

The City has developed a draft water policy to guide and govern the materials and methods to be employed by developers and the City. This unique approach guides the City when making technical and hydrogeological decisions for the provision of an adequate water supply system.

✓ Water Audit

The City has performed several annual water audits including professional leak detection surveys. The water audit process identifies sources of unaccounted water usage; while the location and repair of leaks throughout the system has significantly reduced water loss.

✓ Water Supply Capacity Management Plan

The City completed a Water Supply Capacity Management Plan which is a valuable resource in the future management of water supply.

System Improvements

✓ Leak Repairs Identified (Water Audit)

The City's active leak detection and repair program has resulted in reduction of the annual average daily production to 466,000-gpd through the first seven months of 2009. That value is down from 478,000 gpd in 2004, despite the addition of over 400 new connections producing about 50,000 gpd of new water demand.

✓ Water Main Replacement

The City's deteriorating water main in Baltimore Street (11,000-LF) including all service laterals, are being replaced as part of the City's Streetscape project. Once completed, the City should realize further reduction in water loss through leakage.

✓ Existing Well Improvements

The City has completed the following improvement projects:

- WELL NO. 14 / FRINGER WELLS –The City increased the appropriated production capacity of Well No. 14, which was limited by MDE due to impact to local private wells. This was accomplished by drilling new wells on Fringer Road. This project was needed to increase the City's production capabilities to meet the drought year month of maximum use demand.
- WELL NO. 9 – The City constructed granular activated carbon contactors to adsorb PCE, because levels had reached the MCL action level. As part of the project, the well was videoed, and the well pump and piping were replaced yielding a 20 gpm increase in production. The source of the contamination is under continuing investigation by MDE.

- **WELL NO. 13** – Radionuclide (Adjusted Gross Alpha) levels in Well No. 13 have risen to the MCL action level, and after consideration of alternatives, the city has taken the well out of service, while MDE investigates.
- **WELL NO. 12** – In efforts to develop additional production capacity to offset the loss of Well No. 13, Well No. 12 was deepened, yielding a 30 gpm increase in production.

✓ Groundwater Source Development

New water supply development has been focused on development of new supply wells to provide operational redundancy as well as appropriations capacity to support planned growth. The City engaged hydrogeologists to perform geologic analysis of the region surrounding the City, prioritize potential well drilling locations, identify specific drilling sites, and permit and oversee well drilling and pump testing.

- WELL NOS. 15 & 16 – The City has requested an expansion in the appropriation for Wells 15 and 16 based on demonstration of their actual production capabilities during extended periods in 2007 and 2008. During these operating periods, the wells were producing an average daily flow of 167,000 gpd without impact to surrounding wells. MDE is reviewing the City's appropriation renewal.
- TANEYTOWN BAPTIST CHURCH WELL (WELL NO. 17) –The City has developed one new supply well for production in the Big Pipe Creek basin. The well was drilled to about 1,000-feet, cased, grouted and step-tested. A 72-hour pump test in accordance with MDE and Carroll County requirements was performed at a rate of 250-gpm. The City's hydrogeologist is completing the hydrogeologic report and is proceeding with the appropriations permit through MDE.

Recommendations

System-Specific Strategies: Taneytown

- ❑ Protect and sustain existing water supplies serving existing development
- ❑ Support the County's land use plan for areas outside the City's GAB (Growth Area Boundary) when compatible with the City's Comprehensive Plan
- ❑ Perform an annual water audit to update the Water Supply Capacity Management Plan (WSCMP) to reflect the most current data and usage
- ❑ Complete and adopt the City water policy to serve as a uniform guidance document for projects in the City
- ❑ Complete City Code updates to address new water requirements
- ❑ Institute a priority system for water allocation to projects that promote economic development
- ❑ Identify and develop new water supplies adequate to support planned future growth
- ❑ Finalize development and permitting of the Baptist Church well (#17)
- ❑ Secure the recharge land needed to match the additional water appropriation
- ❑ Explore additional sources for future water supply and prepare policy changes that

would result in the need for additional available water capacity and to meet the projected water demand of 1,164,000 gpd

- ❑ Secure additional recharge land from Carroll County government
- ❑ Develop new surface water intake on Big Pipe Creek; safe yield 0.4 mgd; with 2.0 mgd intake and 125 mgd storage impoundment
- ❑ Explore and coordinate a Flow Augmentation program from planned Union Mills Reservoir to Big Pipe Creek with Downstream Withdrawal: Taneytown may be served through flow augmentation of Big Pipe Creek and downstream withdrawal. Construction of a new 1.8 mgd WTP in Taneytown. Installation of approximately 1.0 mile of raw water transmission mains in Taneytown to connect intake to new WTP

Promote Water Conservation Measures

- ❑ Three-phased water conservation program, which restricts use during drought conditions

Preserve Existing Wastewater Treatment Capacity

- ❑ Update the Wastewater Capacity Management Plan (WWCMP) worksheets on a regular basis to reflect the most current data and usage
- ❑ Conduct an I&I study to promote system improvements to reduce I&I and regain capacity
- ❑ Complete the ENR upgrade at the WWTP to operate at the limits of technology for nitrogen and phosphorus removal
- ❑ Identify potential areas for spray irrigation to gain additional wastewater capacity at the WWTP
- ❑ Identify plant expansion improvements needed to increase the design capacity of the WWTP from 1.1 mgd to 1.74 mgd
- ❑ Investigate technologies for the WWTP expansion to allow expansion to the 1.74 mgd providing the City can meet Bay-nutrient caps (currently set at 1.47 mgd)
- ❑ Identify potential industrial/manufacturing users for which water reuse in operations may be pursued