

Section 7: Water & Wastewater

Background

Three separate authorities provide water and wastewater service to the Region. The Manheim Borough Authority system serves the Borough with additional customers in Penn and Rapho Townships, and all three municipalities are represented on the Manheim Borough Authority Board. Penn Township’s Northwestern Lancaster County Authority serves Penn Township and coordinates services and facilities with the Manheim Borough Authority. Rapho Township receives service from the Mount Joy Borough Authority for the portions of Rapho located inside the urban growth area adjacent to Mount Joy Borough.

Water Supply

Water supply and conveyance is generally good in the Region. Current and upcoming projects and needs include:

- Northwestern Lancaster County Authority (NWLCA) is in the process of permitting a new well to meet future supply needs.
- Northwestern Lancaster County Authority and the Manheim Borough Authority have begun construction of an interconnect between the systems to stabilize supply in an emergency and to provide the infrastructure to enable NWLCA to become a bulk customer of the Manheim Authority if the future needs of Penn Township cannot be met by its own water supply.
- NWLCA is seeking an additional water source at the southern end of Penn Township and is considering the Rohrer’s Quarry site as a long-term regional solution involving Penn Township and a number of other municipalities outside of the Manheim Central Region.
- The Mount Joy Borough Authority, which supplies water and sewer to properties in Rapho Township, has not identified future water supply needs.

Table 7.1: Water Capacity

	Existing Treatment (gpd)	Existing EDU	DEP permitted capacity (gpd)	Total permitted EDU capacity	Estimated Capacity beyond DEP permits
NWLCA	194,400	904	324,000	1,310	406
Manheim Borough Authority	700,000	4,100	1,000,000	5,850	1,750
Mount Joy Borough Authority	1,000,000	7,766	2,016,000	10,600	2,834**

* For DEP planning purposes, 171 gallons per day is equal to one EDU.

** Mount Joy Borough Authority is in the process of permitting a third well, but that capacity is not currently in place

Wastewater

As in many rural communities, the Region faces a number of challenges with its wastewater system. These range from aging infrastructure for the Manheim Borough Authority to management of on-lot systems in areas outside of the urban growth area. The following paragraphs summarize the key wastewater issues for the Region.

The impacts of the 2010 requirements of the Chesapeake Bay Strategy on the Region's Authorities and stormwater management practices will be a major issue moving forward. The Chesapeake Bay Agreement requires a 30 percent reduction in nutrients and sediments by 2010. In Pennsylvania, only 11 percent of the total nitrogen is from point sources, such as wastewater plants, and 49 percent is from agriculture. For total phosphorus, 18 percent is from point sources and 63 percent is from non-point sources. Given this imbalance, nutrient trading between agricultural uses and the Region's authorities is one potential alternative to updating otherwise functional treatment plants that are not in compliance with the Chesapeake Bay Strategy.

The Region has experience in this area; in 2007, the Mount Joy Borough Authority became the first municipality to implement nutrient trading as part of its overall permit compliance plan. The Borough invested \$2.9 million in plant improvements and partnered with a local farmer to generate credits by converting more than 900 acres to continuous no-till agriculture. Mount Joy reduced its annual projected cost for nutrient treatment using the trading option from \$382,500 per year to \$248,000 per year, a 35 percent reduction.

The Manheim Borough Authority is also completing a wastewater treatment plant upgrade for \$10 million. The renovation is needed to enable the Authority to meet the 2010 requirements of the Chesapeake Bay Tributary Strategy. The Borough considered purchasing nutrient credits instead of upgrading the plant, but the cost of the credits was higher than the cost to upgrade the plant.

The Manheim Borough Authority is also working to address the considerable inflow and infiltration (I&I) issues in its wastewater conveyance system. DEP has limited the permitted capacity of the Authority's system until these problems are resolved. The Authority has initiated a work schedule to reduce I&I by 60 to 70 percent over the next five to seven years, at which point DEP will increase the permitted capacity of the Authority.

In each of the Townships, failing on-lot disposal systems are an issue and there are areas of concern identified in each municipality's Act 537 Plan. For Rapho specific areas of concern include the Newtown, Sporting Hill and Mastersonville areas. In Penn Township, the Township Northwestern Lancaster County Authority has also identified three areas of concern the Penryn Village Growth Area describe above and the Hi View and Lexington areas.

Table 7.2: Wastewater Capacity

	Existing Treatment (gpd)	Existing EDU*	DEP permitted capacity (gpd)	Total permitted EDU capacity	Estimated Capacity beyond DEP permits
NWLCA	650,000	1,793	650,000	3,403	1,793
Manheim Borough Authority	800,000	4,500	2,300,000	10,000	5,500
Mount Joy Borough Authority	850,000	6,108**	1,530,000	No data provided	***

* For DEP planning purposes, 237 gallons per day is equal to one EDU.

** This is an approximate value of residential, commercial, industrial, schools and public facilities.

*** 1,530,000 gpd is the maximum discharge into the Little Chiques receiving stream.

Water & Wastewater Recommendations

Goal 7.1: Maintain and enhance high-quality and cost-effective systems that will support economic and community development needs and reinforce desired land use patterns.

Objectives

- Provide for adequate water and wastewater supply and rate structure to support economic development initiatives, residential needs and firefighting
- Ensure that wastewater systems protect local watersheds and contribute to meeting the standards of the Chesapeake Bay Agreement
- Limit water and wastewater service extensions outside of the UGA to areas that have imminent public health concerns and where site-specific, decentralized options are not feasible

Strategies

7.1.1. Continue to pursue nutrient trading as appropriate

In some cases nutrient trading will be an effective tool to reduce the costs of meeting the requirements of the Chesapeake Bay Agreement. As noted above, a considerable portion of the nutrient load in this area comes from non-point sources, including agricultural uses, and not the Authorities. Initial experiences for the Mount Joy Borough Authority have been positive, though the trading option for the Manheim Borough Authority is not cost effective when considered in 2009.

Trading may take place between any combination of eligible point sources, non-point sources and third parties within the Chesapeake Bay watershed. Each trading entity must meet applicable eligibility criteria established by the Department of Environmental

Protection (DEP). Both long- and short-term credits can be traded, so it is possible to use credits as an interim solution while a permanent one is sought or as the final solution.

7.1.2. Explore potential service consolidation strategies between Manheim Borough Authority and the Northwestern Lancaster County Authority.

The Manheim Borough Authority was successful in obtaining a \$4.3 million grant from the Commonwealth Financing Authority as a part of its H2O Pennsylvania Program to help fund its needed \$10 million plant upgrade. Without grant funding, it was feared that the Authority's rate would need to be increased by as much as 100 percent to pay for the improvements. The grant funding will decrease the ratepayer increase but not eliminate it.

The Manheim Borough Authority and Northwestern Lancaster County Authority have been pursuing opportunities to share services and even to potentially consolidate as one Authority. A major stumbling block to the proposal has been the considerable cost burden of the Manheim Borough Authority's current facility maintenance and planned facility improvements. While the grant funding described above will help to reduce the rate differential between the two authorities, it will not eliminate it.

In order to realistically pursue consolidation, Manheim Borough will require additional outside funding sources. Alternatively, the two authorities could create an interim dual rate structure that covers the cost of financing the planned improvements, moving to a single rate structure as debt is retired through operating revenues, grant resources or other repayment measures.

7.1.3. Implement improvements to address areas identified in the Region's Act 537 Plans as sewer needs areas without increasing development pressures outside of the UGA

The 537 Plans for Rapho and Penn Townships identify a number of solutions to address malfunctioning on-lot systems outside of the UGA. Due to high costs of implementation, each of these solutions represents a long-term strategy. In the short- and medium-term, each township should continue to focus on better management of on-lot systems, including mandatory pump out requirements.

Rapho's 537 Plan recommends three new package wastewater treatment plants to resolve failing on-lot systems in Newtown, Sporting Hill and Mastersonville. The new plant in the Newtown area would serve 318 EDUs or 0.12 MGD for a construction cost of \$6.4 million. Sporting Hill's new plant would serve 130 EDUs or 0.05 MGD at a cost of \$2.6 million. The Mastersonville plant would serve 0.025 MGD and it would cost about \$1.8 million. In lieu of a package system, the Sporting Hill area could be connected to the Borough Authority system for an estimated 2.4 million; however, recent test show that water quality in this area is improving, so Rapho may not need to take any action in Sporting Hill.

Penn Township's 537 Plan indicates that the Township and Northwestern Lancaster County Authority have three areas of concern: Penryn Village Growth Area, Hi View and Lexington. Public sewer service could be extended to the Penryn Sewer Planning District in two phases in the roughly 2010 to 2012 timeframe. Exact timing is largely dependent on development occurring north of the existing UGA. (See UGA discussion in Land Use Element.) The cost to extend the sewer to Penryn is estimated to be \$6 million. The proposed private development would pay for the portion of the extension that runs through its property line, likely between \$1 million and \$1.5 million of the total cost. The

Northwestern Lancaster County Authority also intends to extend sewers into the Hi View Sewer Planning District by 2013. The Hi View area currently has a MHP package facility that needs to be upgraded if the area is not connected to the public system. In 2013, public sewer service is anticipated to be extended to the Lexington Sewer Planning District.

Lancaster County recently completed a Wastewater Treatment Alternatives Study to identify effective and cost efficient wastewater treatment alternatives that can be replicated in areas without public sewer. This document should be used as a guide to developing cost effective solutions that may not have been included in the 537 Plans.

7.1.4. Prohibit extensions of water and wastewater lines beyond the designated urban growth areas

The Region should develop and sign agreements with all three water and wastewater authorities to prohibit the extension of water and wastewater services beyond the UGAs except in the case of an immediate public health concern and where site specific , decentralized options are not feasible.

7.1.5. Work toward establishing a regional wellhead protection program

Wellhead protection involves setting up procedures to prevent contaminants from reaching a groundwater supply source. This may involve actions such as the installation of signs marking wellhead protection areas, educating the community of the need to protect the water supplies, setting aside land areas at the wellhead areas and passing ordinances limiting particular activities in sensitive areas.²

The Region's municipalities should implement a wellhead protection program, either individually or as a region. This is typically achieved by adopting a zoning overlay ordinance that prohibits incompatible land uses and activities in well water recharge areas. Lancaster County's Wellhead Protection Handbook provides resources and guidelines for developing a program, including model overlay ordinance language. Given the importance of well water as a drinking water supply in the Region, each municipality should strongly consider adopting an overlay ordinance that would reduce the potential for well water contamination.

² Lancaster County Wellhead Protection Handbook