

8.1 SELECTED ALTERNATIVE(S)

8.1.1 Selected Sanitary Sewer Collection and Conveyance Alternative

As discussed throughout this Plan, there is adequate documentation available and reasoning to justify the provision of public to sewer to the Matamoras, Route 147 & 225, and Triangle & Lenker Estates Areas. As detailed in Chapter 5, the most advantageous alternative for these areas is Alternative 4D. Alternative 4D is dependent upon an updated inter-municipal agreement with the Halifax Area Water and Sewer Authority (HAWASA), availability of public (grant) funding, and the potential contributions made by land developers or private entities at the time of implementation. Alternative 4D provides public sewer to the Matamoras, Route 147 & 225, Triangle & Lenker Estates Areas, with consideration for a Lenker Estates Sub-division connection. These areas are proposed to be collected through a combination of gravity sewer and low-pressure sewer which is either directly conveyed to the existing HAWASA South Interceptor or conveyed to a proposed Pump Station (Pump Station 1) where the flows would be fed to the HAWASA gravity sewer system via force main and gravity sewer main. The pump station is recommended to be sized to handle any projected flows in the Matamoras and portions of the Triangle & Lenker Estates Route areas. Final conveyance of flows will occur through the HAWASA South Interceptor which conveys flows to the HAWASA WWTP. The HAWASA WWTP is currently in the design phase of an upgrade project pending the recommendations presented in this Plan. Through preliminary coordination with HAWASA, the preliminary opinion of construction cost estimate was obtained and was utilized to analyze the impact of the plant upgrade on the estimated cost per EDU. The estimated cost per EDU for both the plant and the combination of the plant and the proposed structural alternative are presented in tables 8-3 and 8-4 at the end of this Chapter.

The implementation of Alternative 4D is anticipated to be completed in accordance with the projected implementation schedule assuming that an updated inter-municipal agreement with HAWASA is negotiated and funding is secured. Without the updated inter-municipal agreement, development agreement(s), and favorable funding (public and private) this alternative is not considered to be feasible and will not be implemented. The facilities proposed in Alternative 4D shall be constructed, owned, operated, maintained, and administered by the Halifax Area Water and Sewer Authority.

The sanitary survey and well water sampling conducted as part of this Act 537 Plan indicated the existence of malfunctioning OLDS and the presence fecal bacteria was detected in several well water samples taken throughout the Township, however the greatest areas of concern are the Matamoras, Route 147 & 225, Triangle & Lenker Estates Study Areas due to, not only malfunctioning OLDS and contaminated wells, but also soil suitability (high groundwater table, slow permeability, flooding, steep slopes or shallow depth to bedrock), close proximity to the Susquehanna River, and potential development and growth. Alternatives formulated to provide public sewer service to the Tourist Park and Fetterhoff Church Study Areas as presented in Chapter 5 of the Plan, were also evaluated due to malfunctioning OLDS and the presence fecal bacteria in water samples taken as well as the potential development and growth of these areas. The structural alternatives for Tourist Park and Fetterhoff Church Study Areas are not economically feasible due to lack of residential density and projected development. As grant monies or other capital contributions become available and the selected structural alternative is completed, the provision of public sewer service to these may be re-evaluated to determine cost effectiveness.

8.1.2 Sewage Management Program

As previously stated, the Township has proposed to develop and eventually adopt an On-lot Sewage Management Ordinance as a method to prevent further malfunction of OLDS and degradation of drinking water supplies in throughout the Township.

8.2 CAPITAL FINANCING PLAN FOR SELECTED STRUCTURAL ALTERNATIVE(S)

The estimated project cost for the selected alternative for Matamoras, Route 147 & 225, Triangle & Lenker Estates Study Areas (Alternative 4D) is approximately \$12,747,400.00. After the assumed tapping fees, approximately \$2,508,600 total (\$4,948.02/EDU), are subtracted from the estimated project cost, the total remaining estimated cost is approximately \$10,238,800.00. To implement this structural alternative while maintaining a reasonable user rate, a financing plan consisting of the payment of tapping fees from new connections, grant money, capital contributions from developers, and a low interest (PENNVEST, R.U.S., County Grants, RCAP, etc.) loan or any combination is required. The funding and project schedule would also need to be coordinated with HAWASA and their funding effort and schedule. Prior to preliminary design, a detailed financial and funding analysis should be undertaken to examine all funding and financing options available. Funding scenarios studied should include (1) the use of grant monies to offset the capital costs of the project; (2) the use of potential developer capital contributions to offset the capital costs of the project; (3) the ability to combine debt service and operation and maintenance costs into a reasonable rate structure (both tapping fees and user rates), and (4) combinations of funding options.

Detailed financing estimates for each structural alternative considered are included in Chapter 5 of this Plan. Assumed financial alternatives with consideration of the estimated costs for the HAWASA WWTP upgrade spread over the total 1,244 anticipated EDUs (approximately 737 current and 507 proposed) are presented in tables 8-3 and 8-4. These tables further emphasize the need for additional financial contributions to make the selected alternative financially feasible. After tapping fees for the new users, the estimated monthly cost per EDU would be approximately \$92/month utilizing 100% PENNVEST financing and approximately \$75/month utilizing 100% USDA-RUS financing for all users. The existing user rate for HAWASA customers is approximately \$38.33/month, and without favorable funding the rates would need to increase by over 100% in order to fund all of the proposed projects.

8.3 PROJECT IMPLEMENTATION SCHEDULE

This project schedule is contingent upon the receipt of affordable funding and an updated inter-municipal agreement with HAWASA. The following activities should be undertaken to ensure successful implementation of the selected alternatives within the specified timeframes:

Table 8-1 Implementation Schedule (OLDS Sewage Management Ordinance)

Years	Activity
2018 - 2020	Develop Draft On-lot Disposal System Management Ordinance
	Provide Public Education for On-lot Disposal System Management Ordinance
2020 - 2021	Finalize and Adopt On-lot Disposal System Management Ordinance
2021 - 2022	Implement On-lot Disposal System Management Ordinance, Begin Pumping Cycles

Table 8-2 Implementation Schedule (Selected Alternative)

Years	Activity
0 to 2	Negotiate Updated Inter-municipal Agreement with HAWASA
	Pursue Funding Opportunities for Construction of Alternative 4D Facilities
2 to 5 ⁽¹⁾	Design and Permit Alternative 4D Facilities
5 to 9 ⁽¹⁾	Construct Alternative 4D Facilities (Assumed to Be Completed in Phases)
6 to 10 ⁽¹⁾	Complete Connections to Alternative 4D Facilities

Note (1): Without an updated inter-municipal agreement (including updates to the HAWASA rules and regulations), development agreement(s), and favorable funding (public and private) this alternative is not feasible and will not be implemented.

Table 8-3 Summary of Financing for HAWASA WWTP

Financial Alternatives for HAWASA WWTP								
Financial Assumption	Alternative	Estimated Project Cost	Estimated Annual Debt Service	Estimated Annual O&M Cost	Estimated Annual Cost	Number of EDUs	Estimated Annual Cost Per EDU	Estimated Monthly Cost Per EDU
0% Grant (PENNVEST)	HAWASA WWTP	\$5,500,000	\$335,856	\$339,020	\$674,876	1,244	\$542.50	\$45
25% Grant (PENNVEST)	HAWASA WWTP	\$4,125,000	\$251,892	\$339,020	\$590,912	1,244	\$475	\$40
50% Grant (PENNVEST)	HAWASA WWTP	\$2,750,000	\$167,928	\$339,020	\$506,948	1,244	\$408	\$34
75% Grant (PENNVEST)	HAWASA WWTP	\$1,375,000	\$83,964	\$339,020	\$422,984	1,244	\$340	\$28
0% Grant (USDA-RUS)	HAWASA WWTP	\$5,500,000	\$245,877	\$339,020	\$584,897	1,244	\$470	\$39
25% Grant (USDA-RUS)	HAWASA WWTP	\$4,125,000	\$184,408	\$339,020	\$523,428	1,244	\$421	\$35
50% Grant (USDA-RUS)	HAWASA WWTP	\$2,750,000	\$122,939	\$339,020	\$461,959	1,244	\$371	\$31
75% Grant (USDA-RUS)	HAWASA WWTP	\$1,375,000	\$61,469	\$339,020	\$400,489	1,244	\$322	\$27
Bond	HAWASA WWTP	\$5,500,000	\$417,549	\$339,020	\$756,569	1,244	\$608	\$51

Table 8-4 Summary of Financing for HAWASA WWTP and Alternative 4D

Financial Alternatives for Alternative 4D Plus HAWASA WWTP								
Financial Assumption	Alternative	Estimated Project Cost	Estimated Annual Debt Service	Estimated Annual O&M Cost	Estimated Annual Cost	Number of EDUs	Estimated Annual Cost Per EDU	Estimated Monthly Cost Per EDU
0% Grant (PENNVEST)	Alternative 4D + HAWASA WWTP	\$15,738,800	\$961,085	\$413,420	\$1,374,505	1,244	\$1,104.91	\$92
25% Grant (PENNVEST)	Alternative 4D + HAWASA WWTP	\$11,804,100	\$720,814	\$413,420	\$1,134,234	1,244	\$912	\$76
50% Grant (PENNVEST)	Alternative 4D + HAWASA WWTP	\$7,869,400	\$480,542	\$413,420	\$893,962	1,244	\$719	\$60
75% Grant (PENNVEST)	Alternative 4D + HAWASA WWTP	\$3,934,700	\$240,271	\$413,420	\$653,691	1,244	\$525	\$44
0% Grant (USDA-RUS)	Alternative 4D + HAWASA WWTP	\$15,738,800	\$703,602	\$413,420	\$1,117,022	1,244	\$898	\$75
25% Grant (USDA-RUS)	Alternative 4D + HAWASA WWTP	\$11,804,100	\$527,702	\$413,420	\$941,122	1,244	\$757	\$63
50% Grant (USDA-RUS)	Alternative 4D + HAWASA WWTP	\$7,869,400	\$351,801	\$413,420	\$765,221	1,244	\$615	\$51
75% Grant (USDA-RUS)	Alternative 4D + HAWASA WWTP	\$3,934,700	\$175,901	\$413,420	\$589,321	1,244	\$474	\$39
Bond	Alternative 4D + HAWASA WWTP	\$15,738,800	\$1,194,857	\$413,420	\$1,608,277	1,244	\$1,293	\$108