



OAKLAND – TROUT RUN REGIONAL WASTEWATER TREATMENT PLANT

Issue:

Both the Trout Run and Oakland Wastewater Treatment Plants (WWTP) rely on lagoon based liquid treatment systems. The Trout Run WWTP has recirculating sand filters available. The Oakland WWTP has media in one lagoon cell intended to promote nitrification. Both facilities utilize ultraviolet (UV) disinfection systems prior to discharge. Neither facility has a solids processing system. The lagoon systems are outdated and require significant upgrades to meet Enhanced Nutrient Removal (ENR) and denitrification standards. A regional wastewater treatment facility with a single discharge and extension of the service to a priority area is a better economic solution than upgrading two separate treatment facilities.

Background:

The Trout Run wastewater treatment plant (WWTP) is located at 1156 Norris Welch Road, Oakland, Maryland. The facility is owned and operated by Garrett County Department of Public Works – Utilities Division (GCPU). The facility has a rated design capacity of 900,000 gallons per day (gpd) and treats approximately 200,000 to 300,000 gpd on typical dry weather days. The effluent flow discharges to the Little Youghiogheny River under NPDES Permit No. MD0051497. The Little Youghiogheny River is designated as Use III-P waters and is protected for trout and public water supply. The NPDES permit includes requirements regarding the quantity of flow that can be released based on the Little Youghiogheny River stream flow. The hydrographic wastewater release requirements are in place from June 1st through October 31st. The permit also sets allowable BOD, TSS and TKN loading rates based on stream flow.





OAKLAND – TROUT RUN REGIONAL WASTEWATER TREATMENT PLANT



The Oakland WWTP is located at 27 Oakland Rosedale Road, Oakland, MD and is owned and operated by the Town of Oakland. The facility also has a rated design capacity of 900,000 gpd and treats approximately 200,000 on typical dry weather days. The effluent flow discharges to the Youghiogheny River under NPDES Permit No. MD0020648. Similar to the Little Youghiogheny River, the Youghiogheny River is designated as Use III-P waters and is protected for trout and public water supply.

During 2015, the Maryland Department of the Environment (MDE) indicated to the GCPU that Bay Restoration Fund (BRF) grant funding would be available if the facility were upgraded to Enhanced Nutrient Removal (ENR) effluent standards of 3.0 mg/l total nitrogen (TN) and

0.3 mg/l total phosphorus (TP). While the facility does not discharge to the Chesapeake Bay watershed, the MDE indicated the funding would be available due to the near completion of the ENR upgrades of most other major facilities in the State. The BRF provides grant funds for improvements directly related to achieving the nutrient standards. MDE indicated to the GCPU that if the Trout Run WWTP were upgraded to ENR standards, the hydrographic release requirements of the existing permit would be eliminated and the facility would be able to discharge to the receiving stream year-round.

During 2016, the GCPU and the Town of Oakland elected to evaluate the feasibility and cost effectiveness of combining the two facilities, providing an ENR treatment facility designed for the total capacity of both facilities located at the Town of Oakland WWTP site. The decision to locate the combined facility at the Oakland site is due to the larger receiving stream of the Youghiogheny River compared to the Little Youghiogheny River.

The GCPU retained the services of RK&K to develop plant upgrade alternatives that would achieve ENR requirements. RK&K developed three (3) process technologies that were evaluated 1) Sequencing batch reactor (SBR) system, 2) Biolac wave oxidation ditch system, and 3) Oxidation ditch reactor system.





OAKLAND – TROUT RUN REGIONAL WASTEWATER TREATMENT PLANT

Included in each alternative are additional nutrient reduction with denitrification filters and other unit processes including headworks, disinfection, post-aeration, chemical storage and feed systems, aerobic digesters and solids dewatering and support systems including non-potable water and drain pumping systems.

Each ENR alternative was evaluated on the basis that BRF funding would only be available for improvements designed for wastewater temperatures of 12° C and above based on input received from MDE.

In addition to the treatment alternatives evaluated, the combined Facility requires a conveyance system to transfer flow currently treated at the Trout Run WWTP to the new combined facility as well as a parallel outfall from the combined facility since the existing Oakland WWTP outfall would have insufficient capacity for the combined flow. Five (5) conveyance options were evaluated. The options vary by their route, pumping requirements, and use of existing Oakland collection system piping compared with a direct force main.

The recommended alternative for the combined Trout Run/Oakland WWTP ENR Upgrade is to construct an SBR system followed by denitrification filters (Option 2a) for the process alternative and conveyance Option 4 for transferring flow from Trout Run to the combined facility. Although conveyance Option 4 is not the cheapest option, Option 4 provides a social economic benefit of serving the Rosedale and Shaffer Hill Road, west of MD-39, that are experiencing septic system failures.

Project Summary:

- Construct a 1.8 mgd (ADF) / 6.75 mgd (Peak) Wastewater Treatment Plant
 - 2,000 gpm influent pump station
 - Modifications to one of the lagoons to act as flow equalization
 - Screen and Grit Removal
 - Sequencing Batch Reactor Biological Treatment
 - Denitrification Filters
 - Chemical Addition
 - UV Disinfection
 - Aerobic Digesters
 - Solids Handling
 - 4,700 gpm effluent pump station
 - 3,800 LF of new outfall





OAKLAND – TROUT RUN REGIONAL WASTEWATER TREATMENT PLANT

- Conveyance System
 - 2,000 gpm Pump Station located at Trout Run WWTP
 - 11,500 LF of new sewer force main
 - 5,500 LF of new gravity sewer

Project Costs

Combined Oakland/Trout Run WWTP	\$ 24,936,000
Conveyance System (Option 4)	\$ 4,100,000
<u>Design, Construction, Admin, Legal</u>	<u>\$ 6,388,000</u>
Total Project Costs	\$ 35,424,000

Project Funding

Bay Restoration Fund (BRF)	\$ 22,491,000
Other	\$ 12,933,000

Action Requested:

Your assistance is desperately needed to fund the Oakland-Trout Run Regional Wastewater Treatment Plant as the best option for the required upgraded facility. Garrett County is seeking \$12.9 million to provide the gap funding for this project. The estimated construction cost for the combined Trout Run/Oakland WWTP ENR Upgrade is \$29.04M, of which \$4.1M is construction costs for the conveyance system. For the combined WWTP, with a capital cost of \$24.94M, the current BRF guidelines would fund approximately \$17.7M plus an additional \$4.8M for design, construction and inspection, leaving approximately \$12.9M that will require other funding sources. These numbers are based on the upgrades in the Draft PER. Pending the new limits provided by MDE, these numbers could change.

