

## **PROJECT DESCRIPTION**

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Grantee: Town of Strasburg

Grant: #440-S-12-02

Due to the fact that the Strasburg WWTP has been exceeding 95% of its design flow on a regular basis, State regulations required the Town to provide a plan of action for controlling current or reasonably anticipated problems resulting from high influent flows to ensure continued compliance with its VPDES permit. To comply with these regulations, the Town plans to expand and upgrade its existing facility to a 2.0 MGD state-of-the art (SOA) plant to accommodate flows over a 20 year design life as well as to help meet its nutrient reduction requirements. As outlined in a preliminary engineering report (PER) submitted January 2007 and an addendum dated March 2010, the Town has outlined a plan to convert its present facility to a Membrane Bioreactor (MBR) system. The existing oxidation ditches and clarifiers will be modified to a three stage biological nutrient removal process including pre-anoxic, aerobic, and post-anoxic reactors. These will be followed by new membrane tanks with membrane filters through which water will permeate and continue to the disinfection process. The following major project elements are proposed, along with all necessary piping, wiring, and other attendant costs:

- Influent Pump Station (not grant eligible): A new structure is proposed to grind, screen, and pump raw wastewater to the proposed plant's Headworks and Equalization Basins. The components will be sized to handle an average flow of 2.0 MGD and a peak flow of 10 MGD.
- Headworks (partially grant eligible): Downstream of the Influent Pump Station, grit removal and 2 mm screens will remove sand, grit, and finer material necessary to protect proposed membranes used in the secondary and tertiary processes.
- Equalization Basins/Surge Tanks (partially grant eligible): Two new 375,000 gallon equalization basins are proposed to control peak flows to the plant and keep the peak factor at 2.5 or less. Adjacent off-line Surge Tanks are also planned to provide additional storage during excessive peak flow events.
- Secondary and Tertiary Treatment (partially grant eligible): The existing oxidation ditches and clarifiers will be modified and integrated into a new membrane bioreactor system (MBR) capable of state-of-the art nutrient removal. These units will be converted into a three stage biological nutrient removal process which will include pre-anoxic, aerobic, and post-anoxic reactors. Additional tanks are being added to provide membrane filters through which clean permeate water will pass to the disinfection stage.
- Chemical Storage and Feed (grant eligible): Facilities are planned for the storage and feed of metal salts, polymer, and a carbon source to enable the chemical removal of phosphorus and biological removal (via carbon addition) of nitrogen.
- RAS/WAS Pump Station (partially grant eligible): New return and waste activated sludge pumps will be integrated with the new membrane tank.
- Rotary Fan Press (partially grant eligible): A new rotary fan press will be installed to replace the existing plate and frame press for sludge dewatering to enable higher volumes of solids treatment.
- Disinfection (not grant eligible): An ultraviolet disinfection system will be installed to replace the existing gas chlorine system.
- Outfall/Post-Aeration (not grant eligible): A new effluent discharge line will replace the existing outfall. New post-aeration will also be constructed.

- WTP Pump Station and Force Main (not grant eligible): A pump station and force main will be constructed to pump solids from the Strasburg water treatment plant to the Town' s wastewater treatment plant for handling.
- Autothermal Thermophilic Aerobic Digestion (ATAD) System (partially grant eligible): A new solids digester system will be constructed to produce Class A biosolids.
- Solids Pump Station/Solids Cover Building (partially grant eligible): A new solids pump station and cover building will be constructed to augment the new solids handling process.