

Project Implementation

The construction phase of the project broke ground in June 2007 and was substantially completed and operational in April 2009. Tertiary Treatment Facilities were completed in May, 2011.

The total construction cost of the treatment facility was \$13,000,000. The total capital cost of all associated wastewater projects, study/engineering, and contingency budgets was \$21,000,000.

The Town received \$6 million in grant funding from USDA RD, USEDA, and USEPA. The Town also received \$1.44 million grant funding through the ARRA CWSRF Program for the tertiary treatment project. The remainder of the project costs were financed using Town reserves and low interest loans from USDA RD and NHDES.

Design Summary

Design Flows

- Average
- Peak Instantaneous

1.25 MGD
3.80 MGD

- Grit Removal
- BNR Process

Vortex
CARROUSEI® Oxidation
Ditch (A₂O) - 2 trains

- Volume
- Aeration Capacity
- Secondary Clarifiers
Type
- Supplemental Alkalinity
- Phosphorus Coagulant
- Tertiary Process

725,000 gallons
80 Hp
2 @ 50' diameter
Spiral Blade
Magnesium Hydroxide
Ferric Chloride
Ballasted Flocculation
Kruger Actiflo®

- Post Aeration
- Ultraviolet Disinfection
- Biosolids Dewatering
- Biosolids End Use

Diffused Aeration
128 lamps
Centrifuge
Compost (Merrimack, NH)



Town of Jaffrey
Department of Public Works
23 Knight Street
Jaffrey, NH 03452

www.town.jaffrey.nh.us

Design Engineer

WRIGHT-PIERCE 
Engineering a Better Environment

230 Commerce Way, Portsmouth, NH 03801
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Advanced Wastewater Treatment Facility



Town of Jaffrey
Wastewater Treatment Facility

Design Engineer
Wright-Pierce

Contractors
Penta Corporation
Weston & Sampson, CMR

Facility Operator
United Water

Aerial Photography by New England Aerial Photography
(www.neairphoto.com)

Advanced Wastewater Treatment

Town of Jaffrey Wastewater Treatment Facility

The Town of Jaffrey has been a leader in environmental stewardship in the State of New Hampshire, providing centralized wastewater treatment before most other communities, with the construction of the original stabilization ponds in the 1960's. The treatment facility was upgraded to aerated lagoons and UV disinfection in the 1980's to protect Contoocook River water quality.

New water quality environmental regulations were enacted in the 1990's and resulted in discharge permit requirements that could not be met with a lagoon system. The Town of Jaffrey was faced with challenging water quality issues primarily due to relatively low flow in the Contoocook River and lack of feasible alternative discharge options.

Following thorough evaluation, the Town elected to replace the existing facility with an Advanced Wastewater Treatment Facility. With the completion of the new Advanced Wastewater Treatment Facility, The Town of Jaffrey is again leading the State of New Hampshire with construction of one of the first facilities designed to meet advanced discharge standards for conventional pollutants, metals and nutrients.

Meeting Higher Standards

The new facility achieves advanced treatment standards including greater than 95% removal of total phosphorus and ammonia nitrogen, and greater than 60% removal of total nitrogen. Nitrogen and phosphorus nutrient loadings have been identified as a leading cause of detrimental water quality impacts in New Hampshire and throughout the United States.

Environmentally Friendly and Energy Efficient

The facility includes a UV disinfection system to reduce pathogen levels without the use of toxic and dangerous chemicals. The CARROUSEL® Oxidation Ditch process achieves biological nitrogen removal with simple tank geometry and flow controls which require no additional energy in place of typical recycle pumping systems. Sophisticated instrumentation and computer based controls allow the entire facility to be automatically optimized to maintain the highest level of effluent quality while using the least amount of energy.



- **Advanced Treatment Technology**
- **Phosphorus and Nitrogen Removal**
- **Automation to Minimize Power and Operational Costs**
- **Water Quality Improvements for the Contoocook River**

