TOWN OF VERNON:
WATER POLLUTION CONTROL FACILITY UPGRADE

Meeting State Mandates, Optimizing Grant Funding, Improving the Environment, Greater Efficiencies

WHY UPGRADE?

- **State Mandated Compliance**
  - State permit requires new phosphorous limits
  - State permit requires nitrogen limits
- Aging equipment and infrastructure
- Water quality improvements in the Hockanum River, Connecticut River, and Long Island Sound

VERNON'S REGIONAL FACILITY

- Treats: 7.1 million gallons per day of wastewater
- Serves:
    - Vernon
    - Ellington
    - Manchester
    - South Windsor
    - Tolland
- Previous upgrades:
    - 1993
    - 1973
    - 1959

COMPLIANCE

- The Town conducted a State ordered Facility Study as part of our 2015 operating permit
- Upgrades are designed to comply with State mandated standards

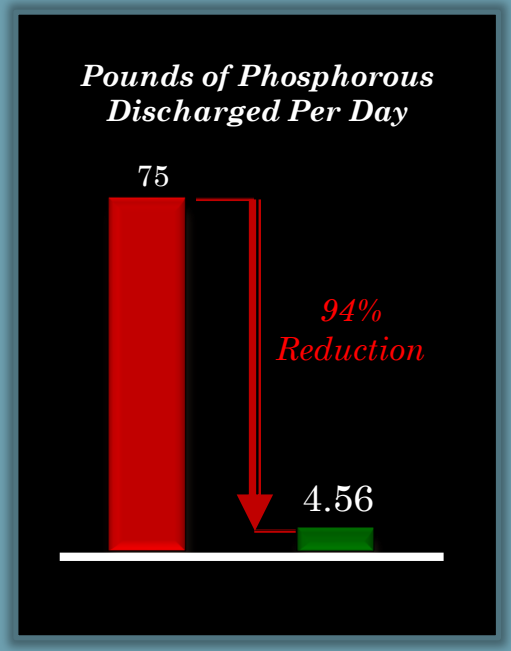
ADDRESSING NUTRIENT DISCHARGE LIMITS

- Why are we concerned with nutrients?
  - Excess nutrient discharge results in low water oxygen levels and poor water quality
  - ***Phosphorus*** impacts fresh waters, like the Hockanum River
  - ***Nitrogen*** impacts salt waters, like the Long Island Sound

PHOSPHOROUS

- In order to comply with new State regulations the Town must reduce Phosphorous by:

94 % Reduction

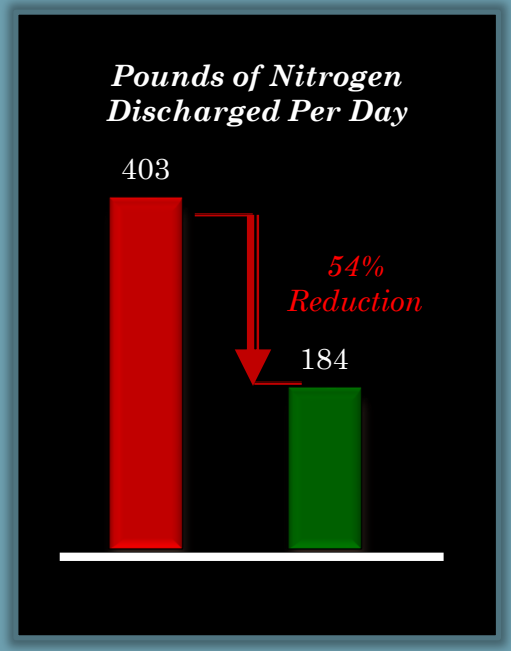


NITROGEN

- In order to meet State regulations the Town must reduce nitrogen by:

  54% Reduction

- Currently meeting regulatory requirements through purchased compliance
- Purchased compliance program may be discontinued in 2024



CURRENT TREATMENT

- Presently the Facility uses a carbon based treatment process that was designed to remove dyes from our textile mills
- This process can no longer be used
  - Can not treat for phosphorous
- Replacement saves ~$14.0 Million over life of the upgrade

DISC FILTRATION

- Treating for phosphorous is a two step process
- In addition to replacing carbon system, phosphorous filtration is also required
- Phosphorous related upgrades are eligible for State of Connecticut grant funding at 50% of the costs if construction contract is signed before July 1, 2019

ULTRA VIOLET LIGHT DISINFECTION

- Current process utilizes adding and removing chemicals to disinfect wastewater which is expensive
- Replace with Ultra Violet Light Disinfection
  - Cost effective (~$2.0 Million in savings over life of equipment)
  - Better for the environment
  - Safer for plant operations and staff

ULTRA VIOLET LIGHT DISINFECTION

Current → Proposed

ENERGY EFFICIENCY

- Current estimates indicate upgrades will reduce energy usage costs, currently over $1,000,000 annually, by as much as 30%-50%
  - Reviewed and input provided by Town of Vernon Energy Improvement District Board

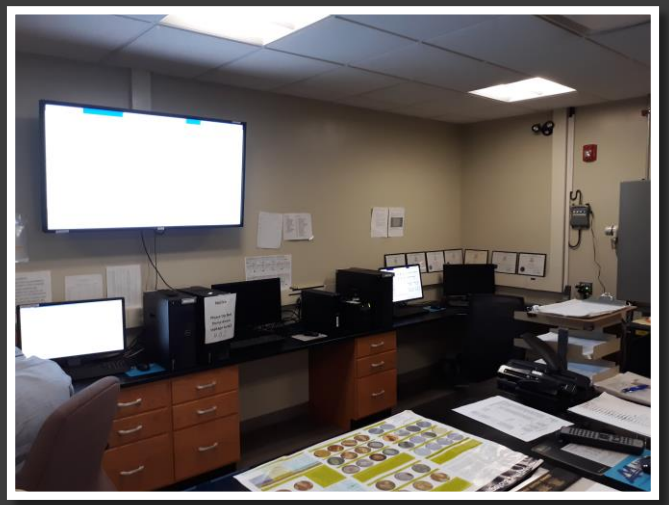
COST SAVINGS THROUGH REUSE

These once abandoned thickeners will be converted to sludge storage.

Reuse efforts like these will be incorporated throughout, saving the Town millions of dollars.

ELECTRICAL EQUIPMENT TO BE REPLACED AND AUTOMATED

Current → Proposed



Automation will enable a single shift operation as opposed to the current three shifts

1970'S MECHANICAL EQUIPMENT

Replacing aged boilers with high efficiency condensing boilers will result in efficiencies and cost savings

CURRENT PLANT

COST CONTAINMENT

- Proposed improvements represent the best combination of capital and operational efficiencies
  - Reviews and approvals by State of Connecticut Department of Energy and Environmental Protection for completeness and cost efficiency

Project Summary	
Construction Costs	$74,712,000
Design and Project Management Costs	$10,490,000
Closing and Short Term Interest Costs	$770,000
Project Total to be Authorized/Bonded	$85,972,000

Net Local Impact	
State of Connecticut Funding (Estimated at 30.2% excluding closing/short term interest)	$25,731,004
Contributions From Other Towns Served by Facility (29.95% based on Inter-municipal Agreements)	$18,042,178
Net Cost to Vernon	$42,198,818

COMPARATIVE PLANT UPGRADES

	Manchester	*Torrington*	**Vernon**
Permitted Flow	8.2 mgd	7.0 mgd	7.1 mgd
Phosphorus Limit	0.19 mg/l	0.3 mg/l	**0.08 mg/l**
Construction Award	2011	2017	2019
Total Project Cost	$52.7 Million	$70 Million	$85.97 Million
Town Share of Cost	$44.9 Million	$54.6 Million	$42.2 Million

Tighe and Bond

NEXT STEP

- December 4, 2018 Public Hearing
- January 2019 Referendum

SUMMARY

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100 Windsorville Road

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