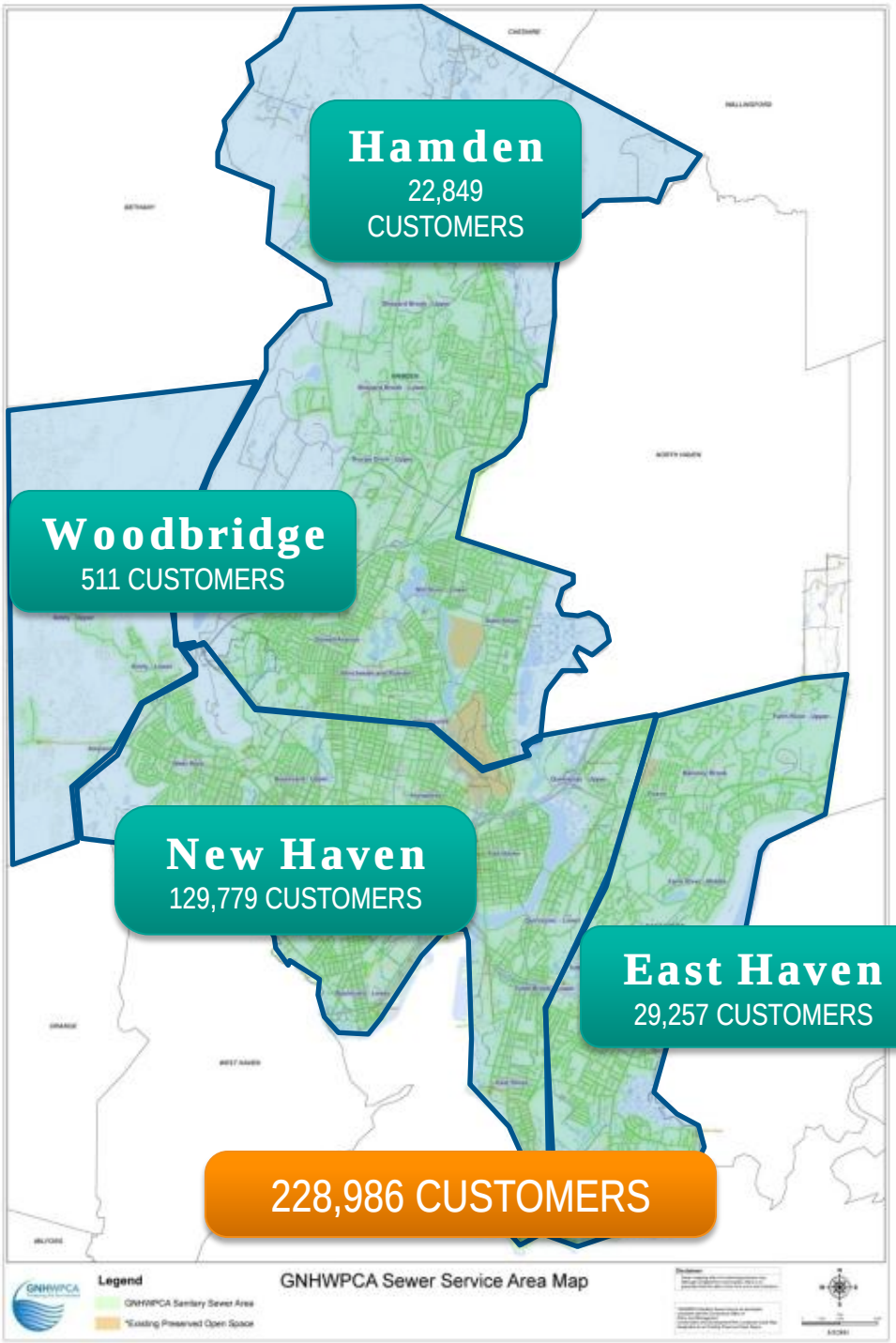
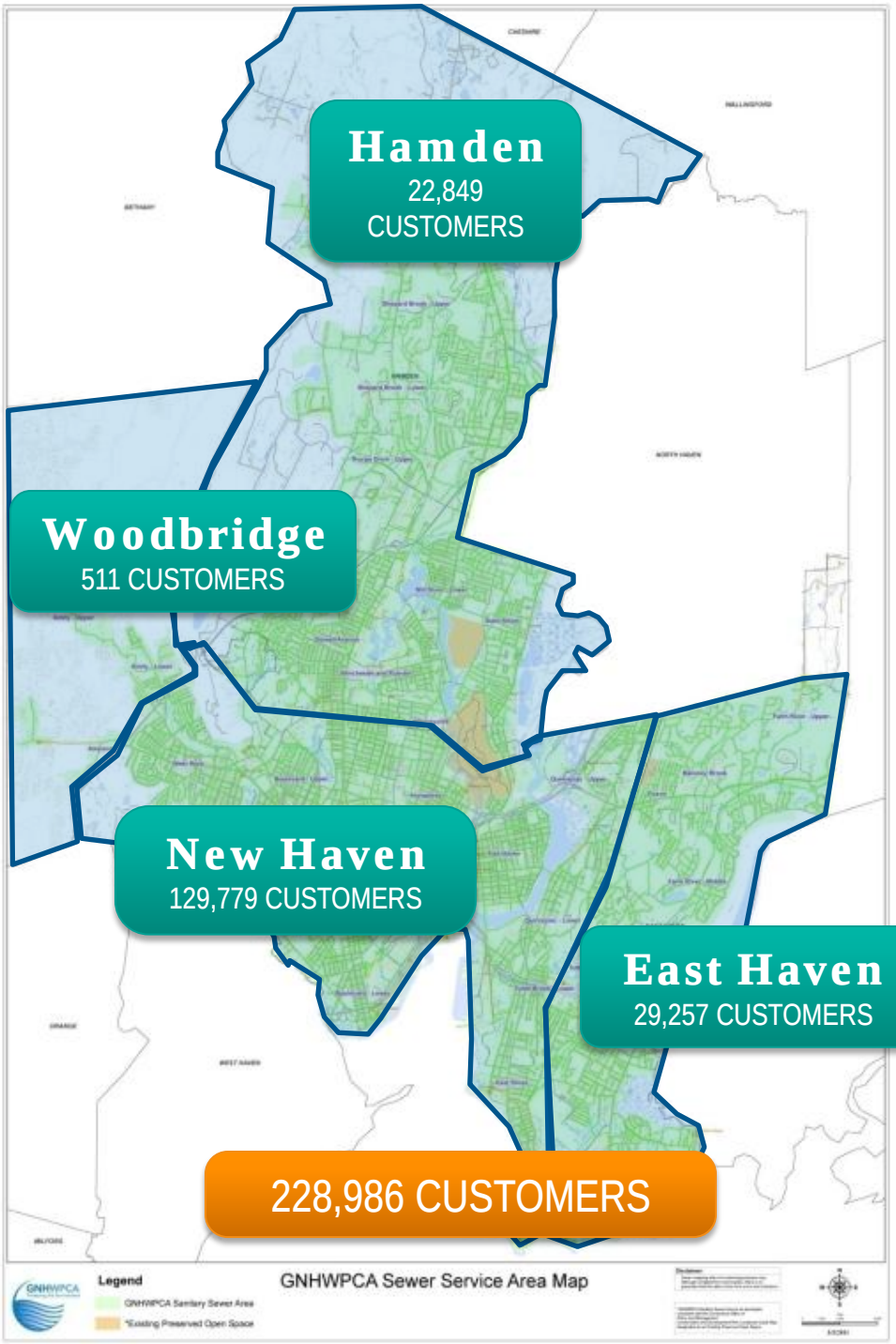

GNHWPCA
Protecting the Environment
FOLLOW UP PUBLIC INFORMATION MEETING
Greater New Haven Water Pollution Control Authority (GNHWPCA)
East Shore Water Pollution Abatement Facility (ESWPAF)
Wet Weather and Nitrogen Reduction Upgrades
September 27, 2012



Greater New Haven Water Pollution Control Authority

WWW.GNHWPCA.COM

- Four Member Communities
  - Hamden
  - East Haven
  - Woodbridge
  - New Haven
- Over 500 Miles of Collections Systems
- 30 Pump Stations
- East Shore Treatment Plant
  - 29 MGD – Average
  - 40 MGD – Secondary Design Flow
  - 100 MGD – Wet Weather Primary



Nine Municipal Directors Govern GNHWPCA

- 9 Directors Appointed by Municipalities
  - New Haven – 4
  - East Haven – 2
  - Hamden – 2
  - Woodbridge – 1

Municipal Employees and Private Contractors Operate GNHWPCA

- Exec Dir SJH; Dir Fin & Admin; Dir Ops; Dir Eng
- Contract Operations by OMI & Synagro

"To provide reliable municipal wastewater services in compliance with applicable laws, in a cost efficient and effective method, and with the intent and desire to protect the environment and public health of the constituent municipalities."

"We devote our skills to providing regional services in a sustainable and affordable manner. Through our actions and policies we enhance the economic, social and environmental well being of the greater New Haven area."

Values

- Respectful, responsive and sensitive
  - Our customers and employees
  - Ethical in professional and personal conduct
  - Vigilant to ensure optimal health, safety, and environmental outcomes
  - Committed to environmental equity, trust and meaningful public participation

June meeting generated questions about upgrading the East Shore Water Pollution Abatement Facility

PUBLIC INFORMATIONAL MEETING ANNOUNCEMENT

Greater New Haven Water Pollution Control Authority

OPEN TO THE GENERAL PUBLIC

June 21st, 2012 at 6:30pm

AN INFORMATIONAL MEETING REGARDING:

The upgrade of the East Shore Water Pollution Abatement Facility to meet Connecticut Department of Energy and Environmental Protection environmental regulations regarding water quality. This upgrade is a key part of the Greater New Haven Combined Sewer Overflow Long-Term Control Plan to reduce the discharge of combined sewer overflows. The goal is to improve the water quality of the West River, the Mill River, the Quinnipiac River, New Haven Harbor and ultimately Long Island Sound.

Will be Held At: Sound School Regional Vocational Aquaculture Center, 60 South Water St, New Haven CT 06519

PRIOR TO THE MEETING, INTERESTED PARTIES MAY *RSVP* ON WEEKDAYS, WITH RESPECT TO ATTENDANCE, TO:
GNHWPCA Administrative Office, 203.466.5680 ext. 321

ANUNCIO DE REUNION SOBRE PROYECTO MUNICIPAL

Greater New Haven Water Pollution Control Authority

ABIERTO A TODO PUBLICO

21 de Junio del 2012, 6:30 pm

REUNION INFORMATIVA SOBRE:

as al East Shore Water Pollution Abatement Facility para satisfacer requisitos del tratamiento de aguas
s domesticas impuestos por Connecticut Department of Energy and Environmental Protection. La obra es
programa Greater New Haven Combined Sewer Overflow Long-Term Control Plan para reducir descargas
as residuales en combinación con aguas lluvias al medio ambiente durante tormentas. Este proyecto es
ncial para reducir estas descargas. El objetivó es mejorar la calidad de agua en West River, Mill River,
Quinnipiac River, New Haven Harbor y Long Island Sound.

unión va a tomar lugar en: Sound School Regional Vocational Aquaculture Center,
60 South Water St, New Haven CT 06519

RSVP:
GNHWPCA Administrative Office, 203.466.5680 ext. 321

- Operations
- Green Infrastructure
- Property Boundaries
- Studies

Context is required to discuss the ESWPAF

Part 1: Why are we upgrading the facility?

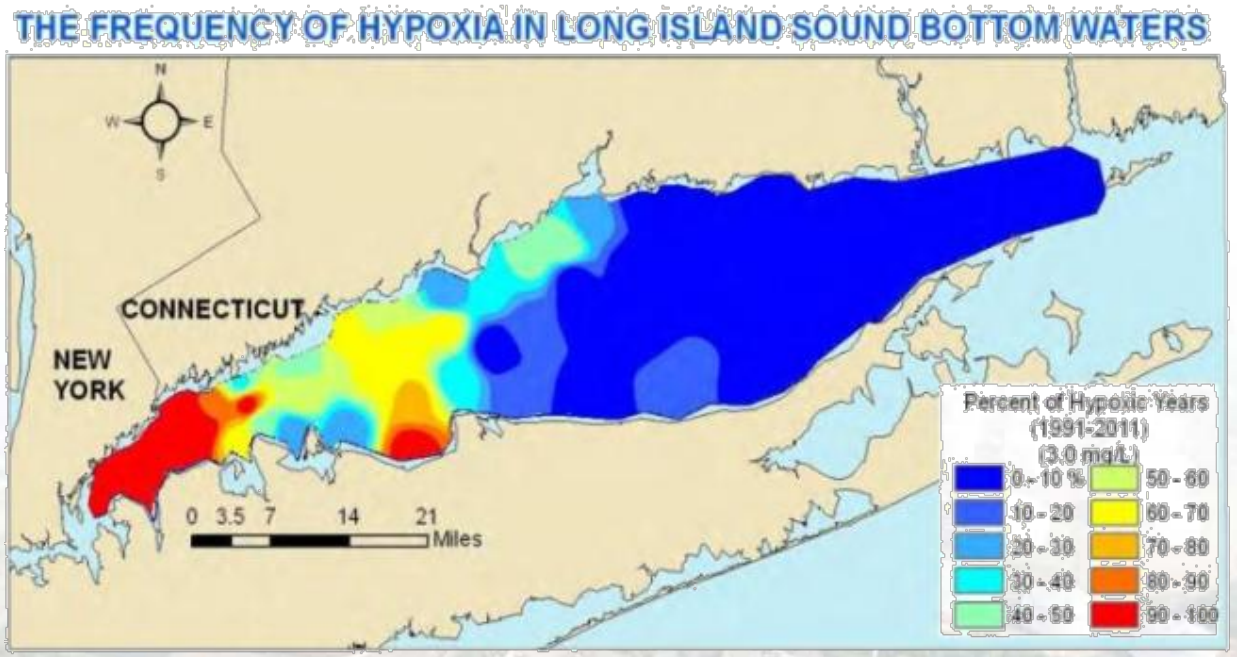
- Combined Sewer Overflows
- The need to reduce overflows and nitrogen
- Using the East Shore facility to treat overflows and nitrogen

Part 2: What does the upgrade mean for the facility, its neighbors and greater New Haven?

- Upgrade phases
- Phase 1 details
- Schedule
- Benefits

2001 Nitrogen Reduction Program for the Long Island Sound Leads to Implementation of Nutrient Removal Upgrades at the ESWPAF

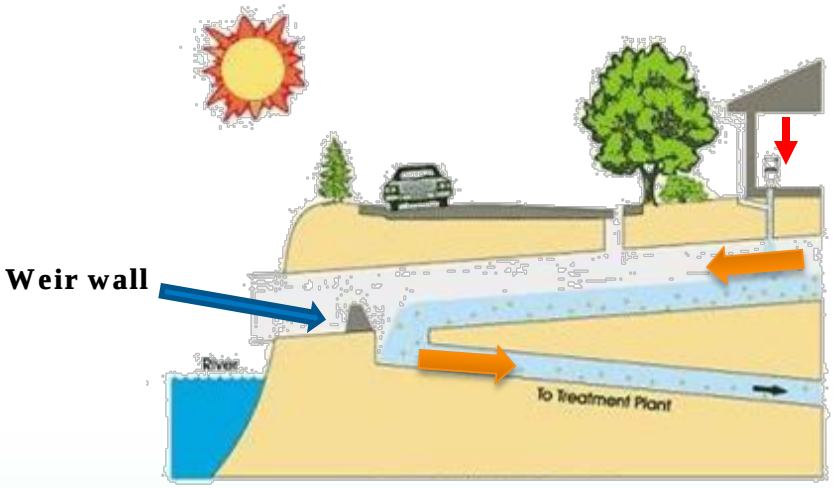
- Excessive discharge of Nitrogen from human activities is the primary pollutant causing hypoxia
- State of CT program to reduce Nitrogen loadings
- WPAF Improvement required to reduce Nitrogen



Wastewater Collection and Treatment

What Is A Combined Sewer?

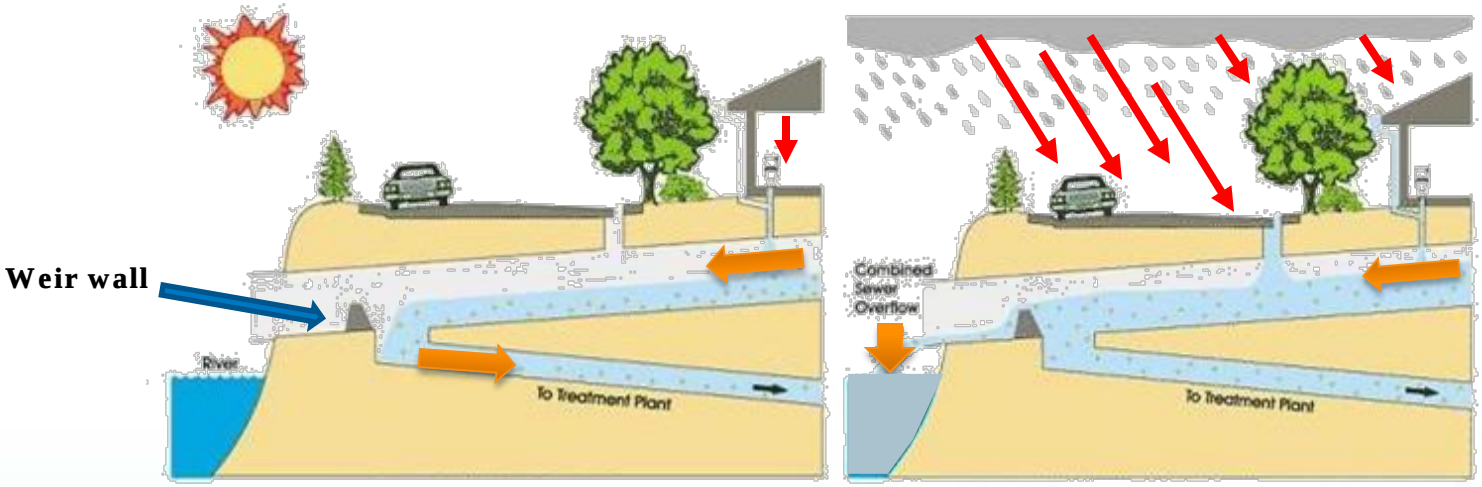
Combined Sewer Overflow Diagram



Dry weather: weir wall directs flow to treatment plant

What Is A Combined Sewer?

Combined Sewer Overflow Diagram

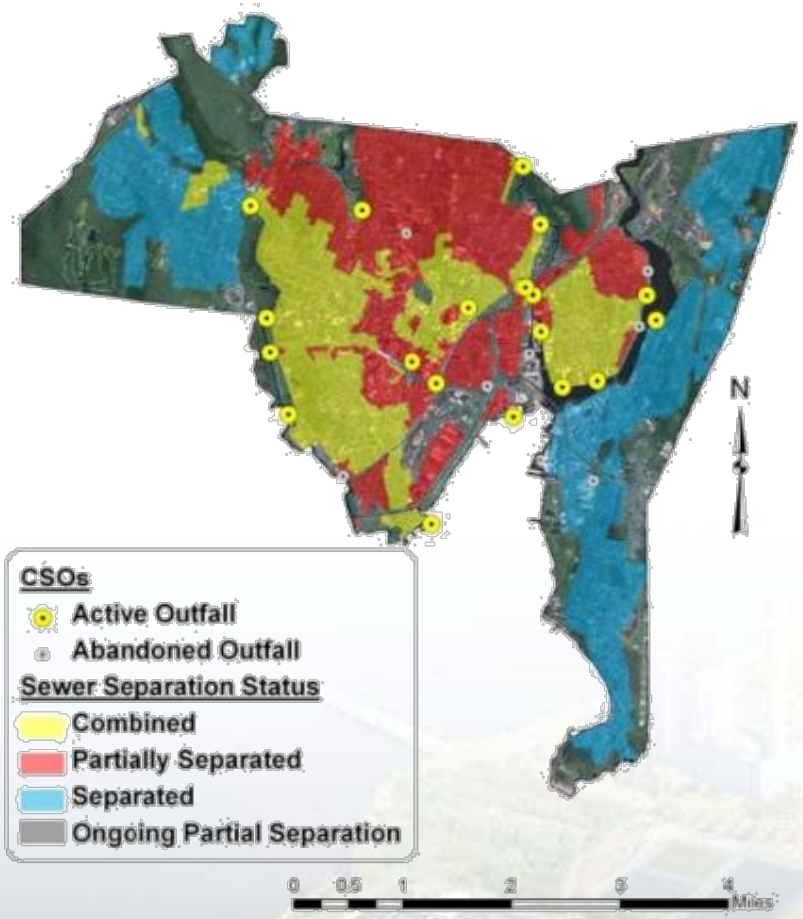


Dry weather: weir wall directs flow to treatment plant

Wet weather: some flow passes over weir wall

Where are the GNHWPCA CSO's?

Volume of CSO's?



- 24 CSO Outfalls
  - 7 New Haven Harbor
  - 4 West River
  - 9 Mill River
  - 4 Quinnipiac River
- Annual Volume = 257 Mg
  - New Haven Harbor = 48.5 Mg
  - West River = 137.5 Mg
  - Mill River = 42.9 Mg
  - Quinnipiac River = 28.3 Mg
- CSO Schedule

Three-fold strategy used to reduce CSOs

- Reduce stormwater
- Improve the collection system
- Maximize treatment capacity at plant


Bioretention basin

Rain barrel

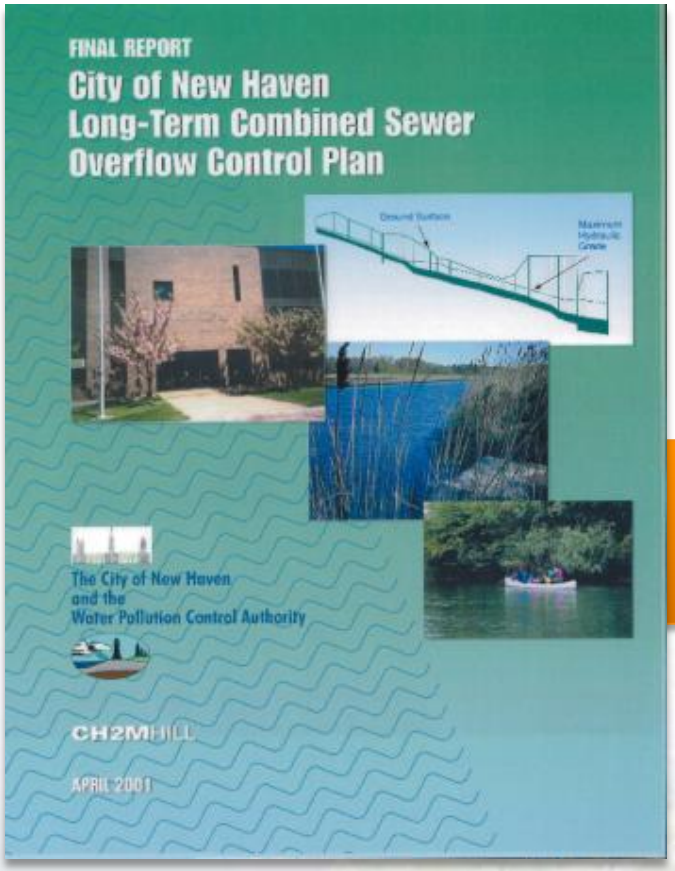

Water quality swales


Green roof

Three-fold strategy used to reduce CSOs

- Reduce stormwater
- Improve the collection system
- Maximize treatment capacity at plant

Establishment of a Long Term Control Plan



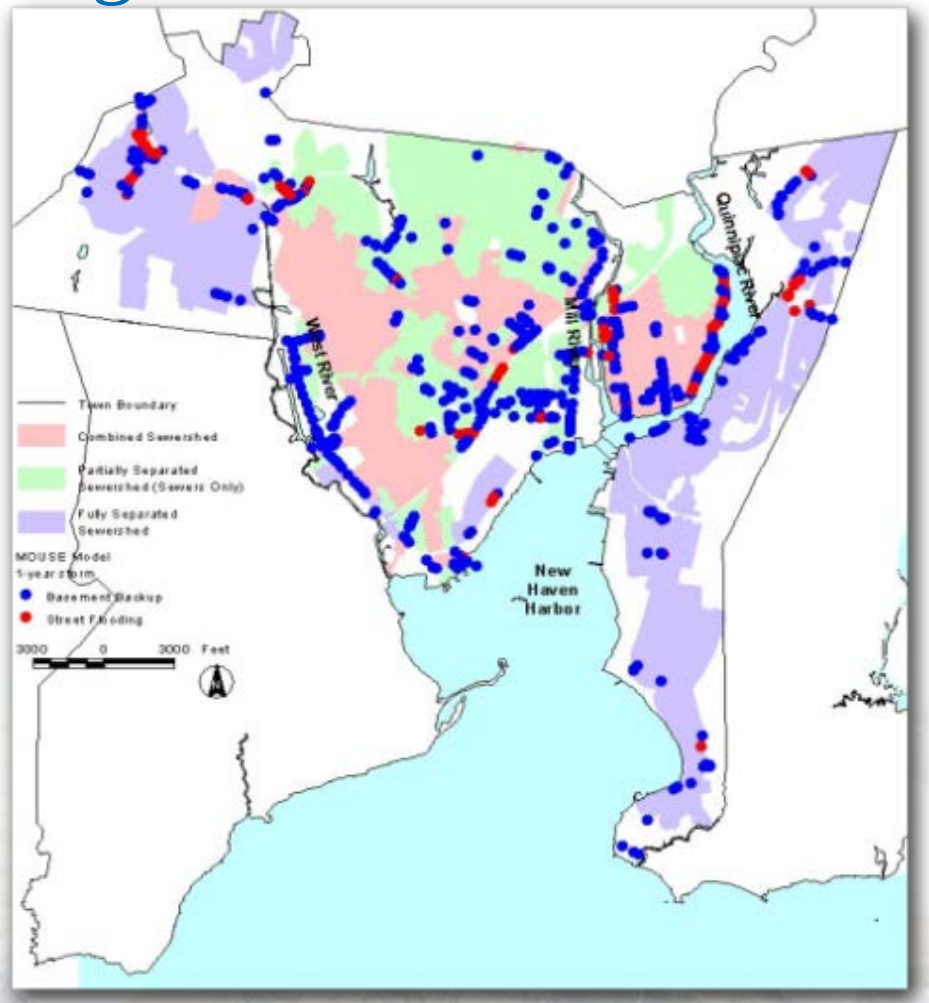
2-year Design Storm
Approximately 2-inches of Rainfall in a 6-hour Period

Goals:

- Eliminate sewer back-ups
- Eliminate flooding problems
- Eliminate CSO's during a 2-year storm

Components of the Long Term Control Plan

- Collection System Improvements
  - Sewer Separation
  - Storage Tanks (6 Tanks)
- Maximize Treatment Capacity at East Shore WPAF



LTCP COSTS

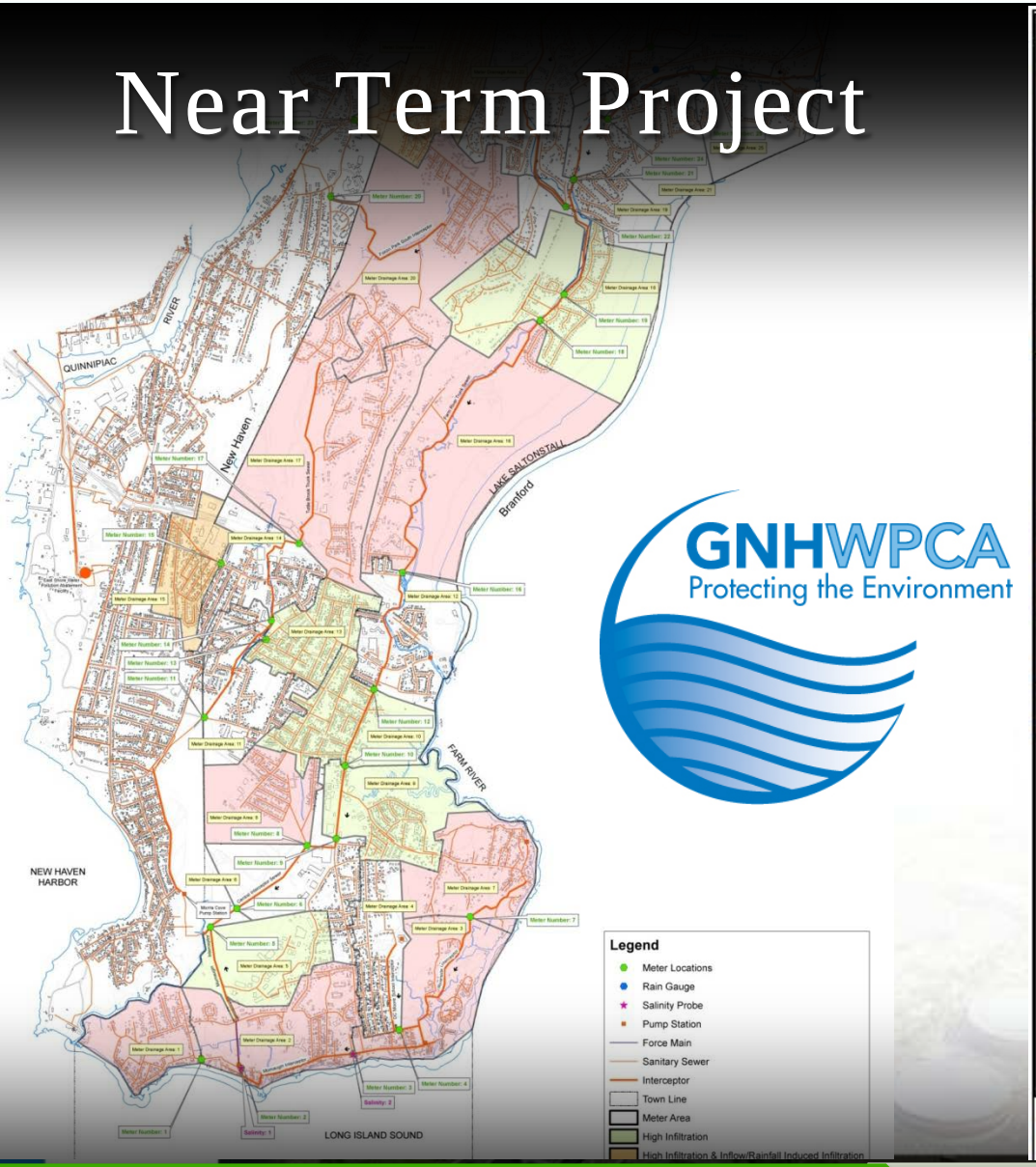
COLLECTION SYSTEM	$278M
WPAF IMPROVEMENTS	$168M
	$446M
NITROGEN IMPROVEMENTS	$28M

Near Term Project

Reducing Stormwater

Trumbull street

Near Term Project



GNHWPCA
Protecting the Environment

Improving the collection system

I/I work East Haven and Hamden

Near Term Project

Maximizing treatment capacity of plant

Phase I projects

Moving Forward on Plant Improvements

- Modified Facilities Plan Update to CSO LTCP
  - More Detailed Analysis of Treatment
  - Updated Costs - $450 Million
  - Maximize Wet Weather Flow to ESWPAF – 187 MGD
  - Phased Approach to Maximize Flow to ESWPAF

Phased Upgrades to ESWPAF

- Phase 1
  - Electrical Upgrades and Emergency Generators
  - Solids Handling Upgrades – Gravity Thickening & Storage
  - Odor Control
  - Nitrogen Removal Upgrades - Secondary Treatment Second Anoxic Zone (includes Supplemental Carbon)
- Future Phases
  - Preliminary Treatment Facilities
  - Primary Treatment Upgrades, Tank & Chemically Enhanced Primary Treatment
  - Ultra Violet Disinfection
  - Wet Weather Disinfection
  - Nutrient Removal Upgrades

Phase 1

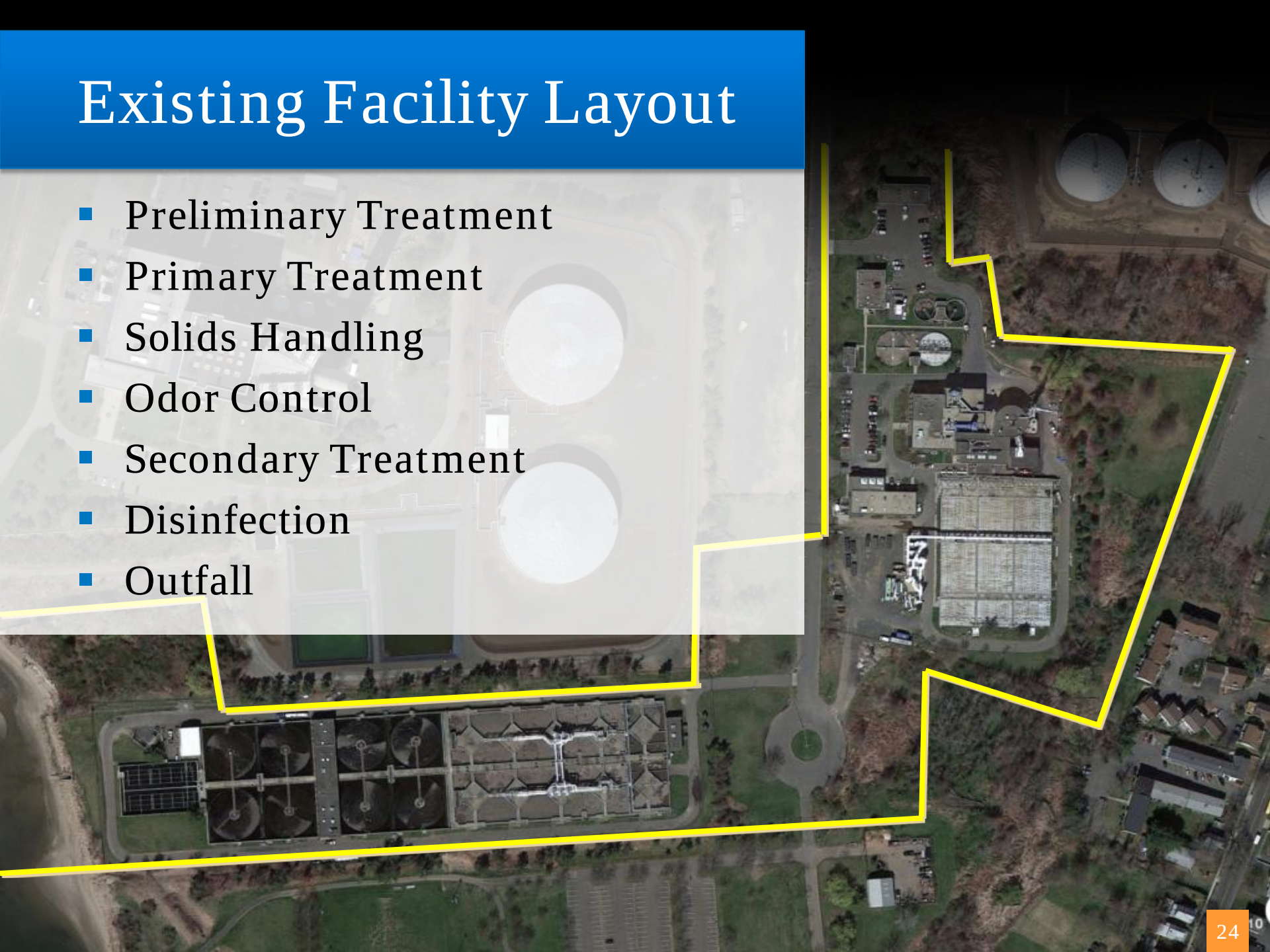
Wet Weather & Nitrogen Reduction

- Phase 1 - Wet Weather & Nitrogen Reduction - $50 M
  - Electrical Upgrades and Emergency Generators
  - Solids Handling Upgrades – Gravity Thickening & Storage
  - Odor Control
  - Nitrogen Removal Upgrades - Secondary Treatment Second Anoxic Zone (includes Supplemental Carbon)

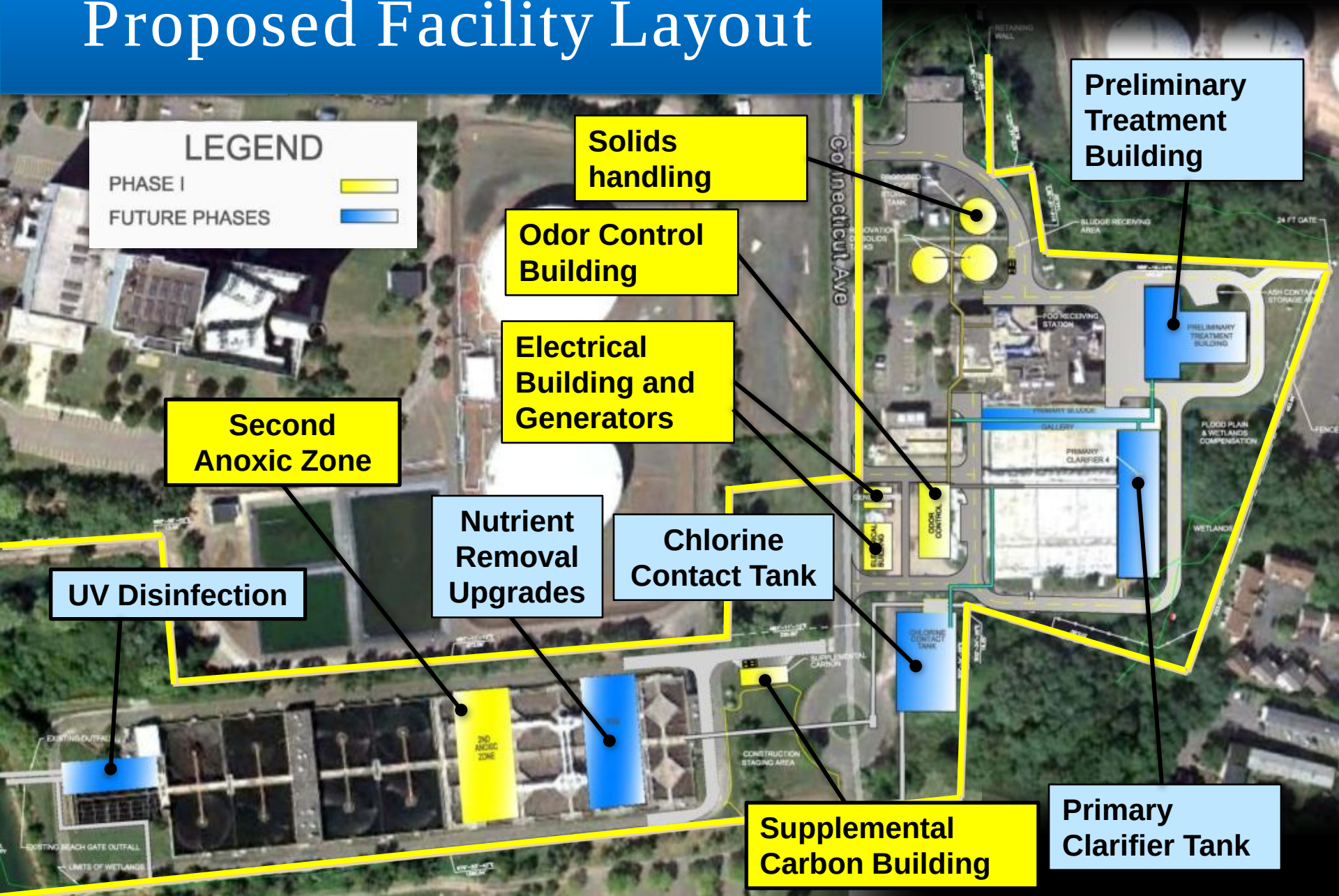
Project Location

Existing Facility Layout

- Preliminary Treatment
- Primary Treatment
- Solids Handling
- Odor Control
- Secondary Treatment
- Disinfection
- Outfall

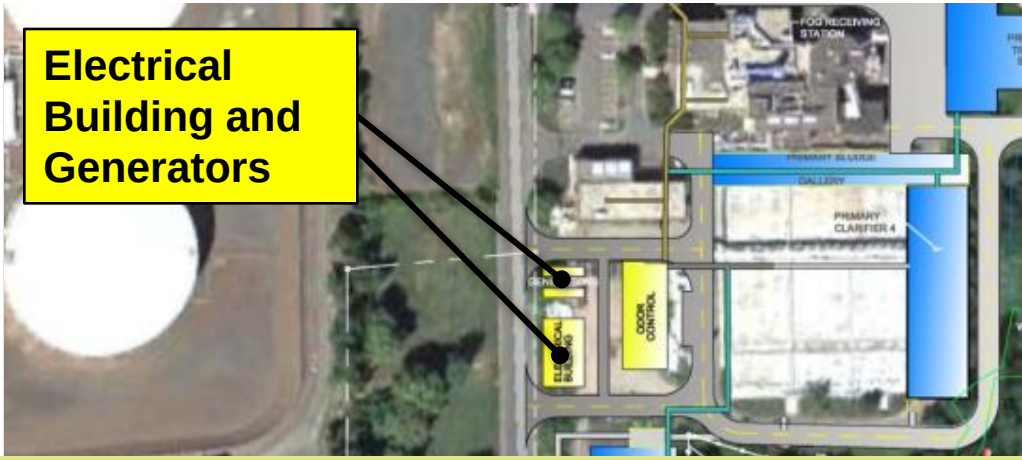


Proposed Facility Layout



Electrical Improvements and Emergency Generators

- Critical Infrastructure – Protecting Human Health & the Environment
- New Protected Electrical Feed from UI
- New Electrical Switchgear, MCCs & SCADA
- Equipment Installations above Sea Rise

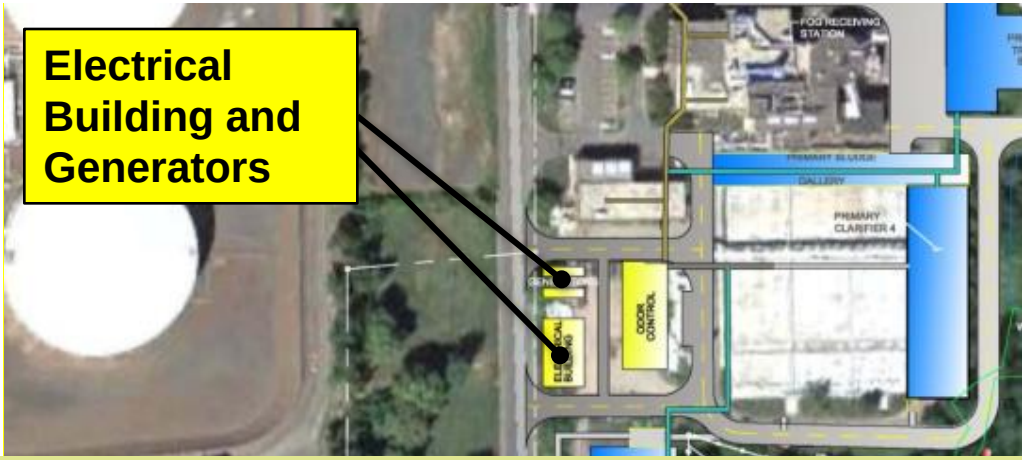


- Standby Emergency Generators
  - Limited to Emergency Use and Testing
  - Power Entire Plant Processes during Outage
  - Allow ESWPAF to function off grid in emergencies
  - Low sulfur diesel fuel

Electrical Improvements and Emergency Generators

- Critical Infrastructure – Protecting Human Health & the Environment

Pollutant	Emission rate
NOx	5.45 g/hp-hr
CO	0.3 g/hp-hr
HC	0.11 g/hp-hr
PM	0.025 g/hp-hr



- Standby Emergency Generators
  - Limited to Emergency Use and Testing
  - Power Entire Plant Processes during Outage
  - Allow ESWPAF to function off grid in emergencies
  - Low sulfur diesel fuel

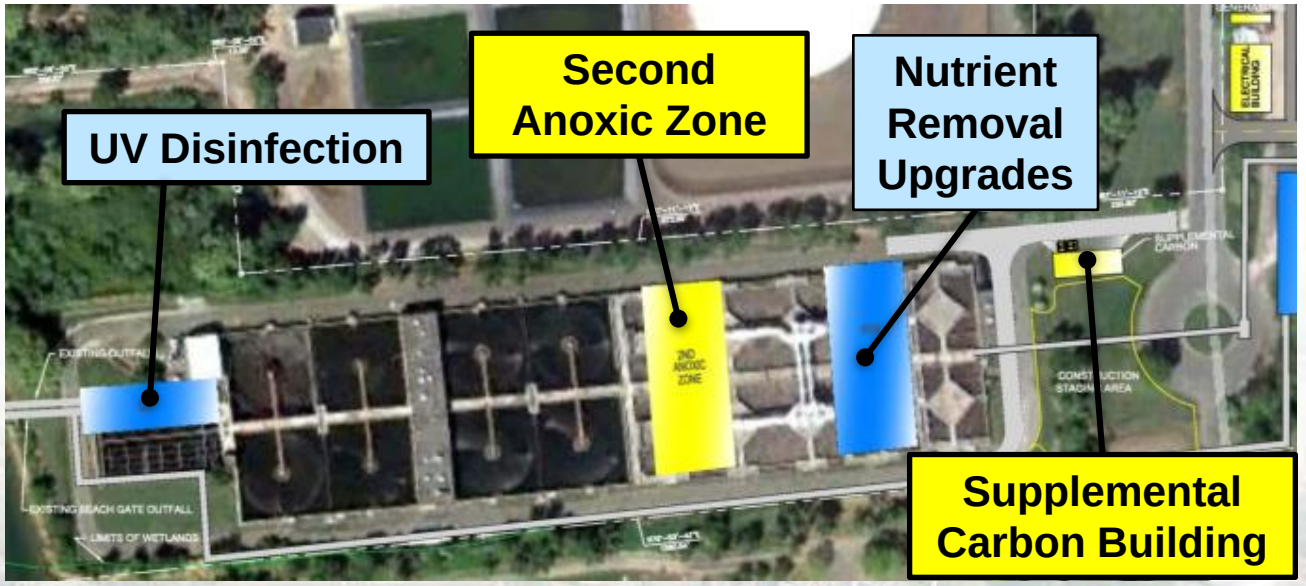
Odor Control

- Odors are inherent in Wastewater as part of Natural Decomposition of Organics
- Centralized into one facility
  - Abandon aging facilities
- Reliable Proven Technology
  - Increased capacity from 103,000 to 114,000 cubic feet/minute

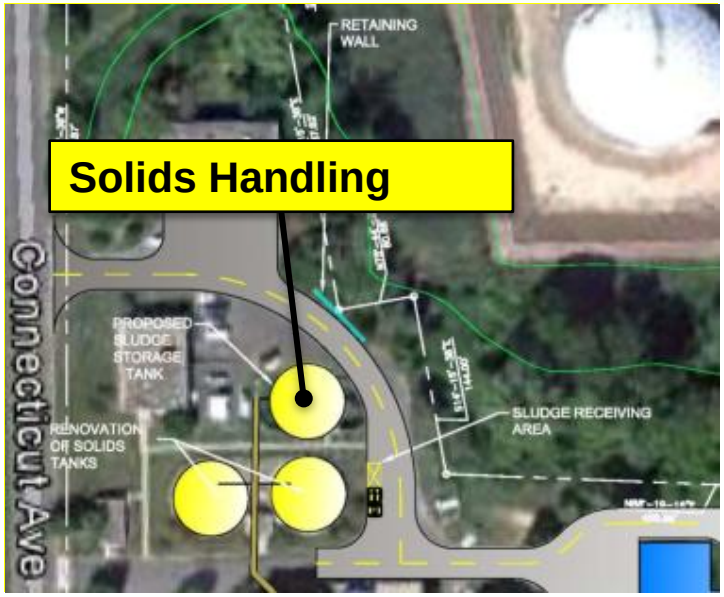
Nitrogen Removal

- LIS Nitrogen Limit for CT
- Second Anoxic Zone
- Improved Aeration & Controls
- Supplemental Carbon

- Nitrogen reduction from 897,000 lbs/year to 572,000 lbs/year



Solids Handling



- Capturing more water = more sludge
  - Improved gravity thickeners
  - Doubling storage capacity
  - No additional sludge imported
- Sludge managed on-site
  - Cost effective
  - Environmentally sound
- No additional incinerator capacity
  - Sludge sampled for metals
  - State of the art emission controls
  - Compliant with DEEP permit

Incinerator Testing and Monitoring

- Regulations promulgated under the CAA and CWA established to protect public health.
- Continuous monitoring for combustion temperature and CO and O2 concentrations in exhaust.
- Analysis of metals in the solids fed into the combustor.
- Annual stack testing for metals show emissions well below allowable limits.

The New Haven unit already meets newest EPA regulations

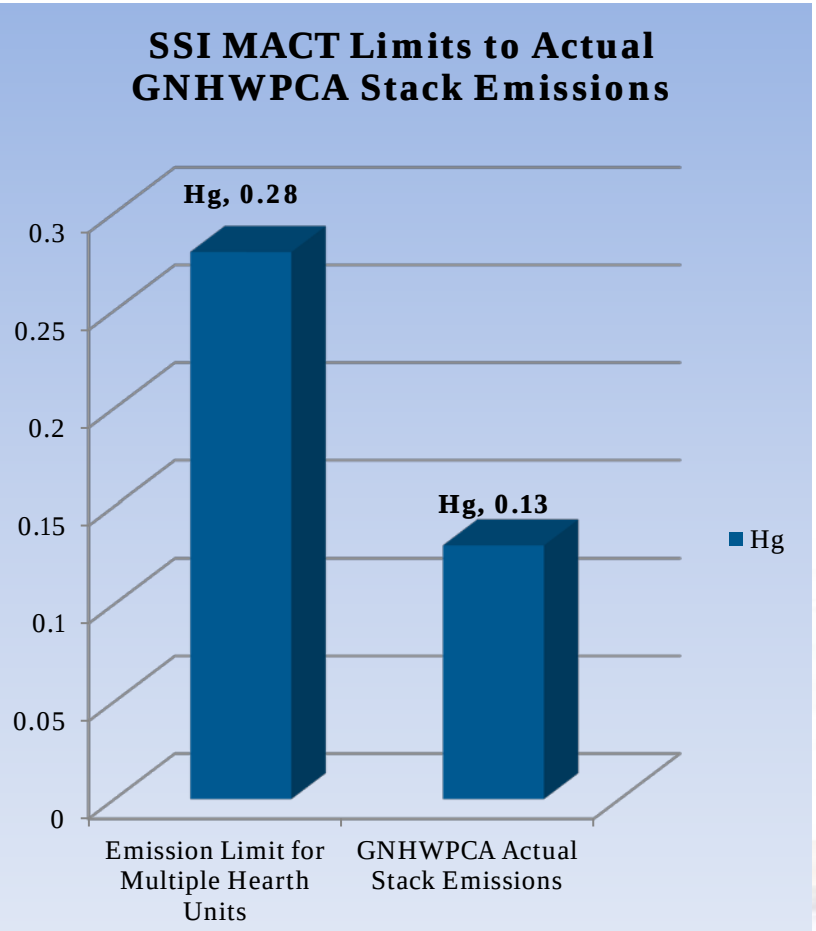
Pollutant	Units (at 7%O_2)	Emission Limit For Multiple Hearth Units	GNHWPCA [1]	GNHWPCA emissions as a % of standard
Cd[4]	mg/dscm	0.095	0.0007	0.2
CDD/CDF, TEQ[2]	ng/dscm	0.32	<0.004	<1.3
CDD/CDF, TMB[3]	ng/dscm	5	<0.4	<8.0
CO	ppmvd	3,800	35.3	0.9
HCl	ppmvd	1.2	0.55	46.
Hg	mg/dscm	0.28	0.13	46.
NO_x	ppmvd	220	115	52.
Pb	mg/dscm	0.3	0.001	0.33
PM	mg/dscm	80	6	7.5
SO_2	ppmvd	26	1	3.9

1. Actual stack emissions from the 2007 Emissions Compliance Test December 17-20, 2007.
2. TEQ = Toxic Equivalency
3. TMB = Total Mass Basis
4. Maximum result from annual testing conducted between 2007-2011 (metals testing conducted annually)

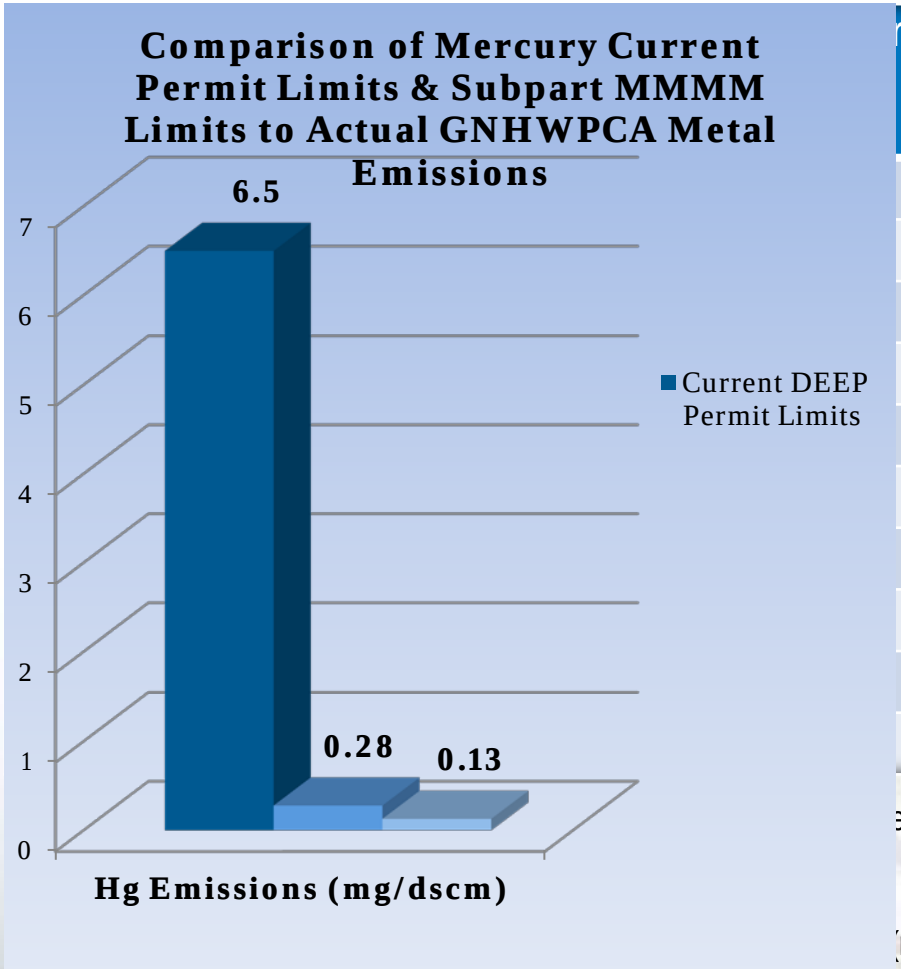
The New Haven unit already meets newest EPA regulations

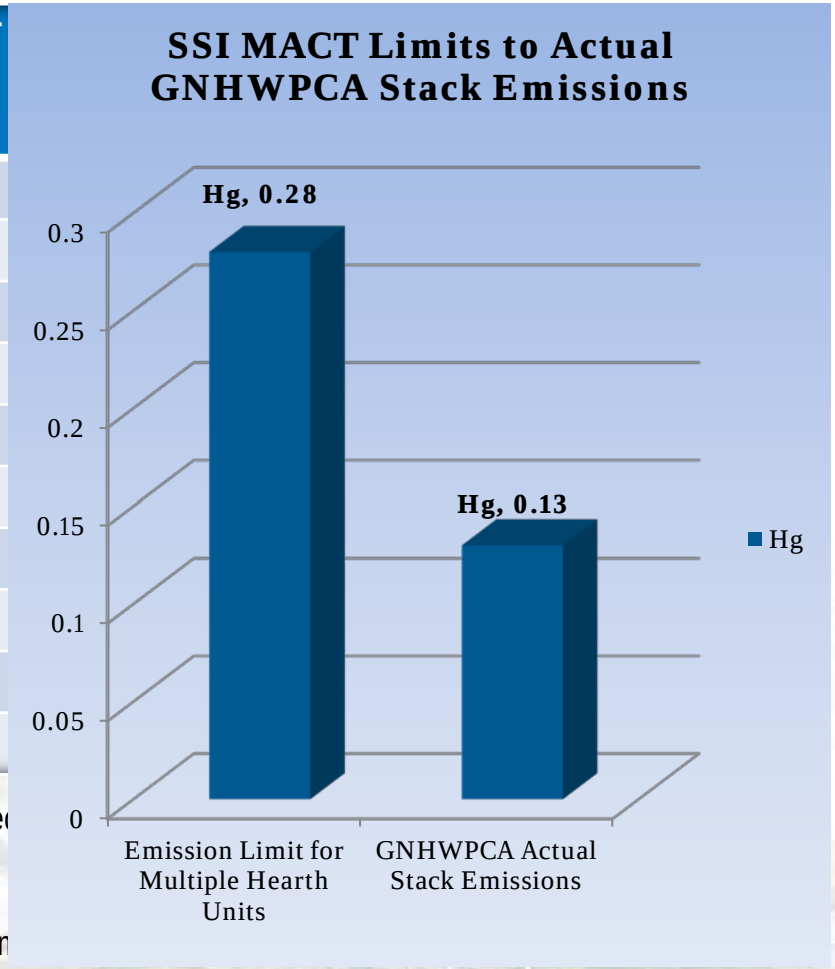
Pollutant	Units (at 7%O_2)	Emission Limit For Multiple Hearth Units
Cd[4]	mg/dscm	0.095
CDD/CDF, TEQ[2]	ng/dscm	0.32
CDD/CDF, TMB[3]	ng/dscm	5
CO	ppmvd	3,800
HCl	ppmvd	1.2
Hg	mg/dscm	0.28
NO_x	ppmvd	220
Pb	mg/dscm	0.3
PM	mg/dscm	80
SO_2	ppmvd	26

1. Actual stack emissions from the 2007 Emissions Compliance Test De
2. TEQ = Toxic Equivalency
3. TMB = Total Mass Basis
4. Maximum result from annual testing conducted between 2007-2011 (r

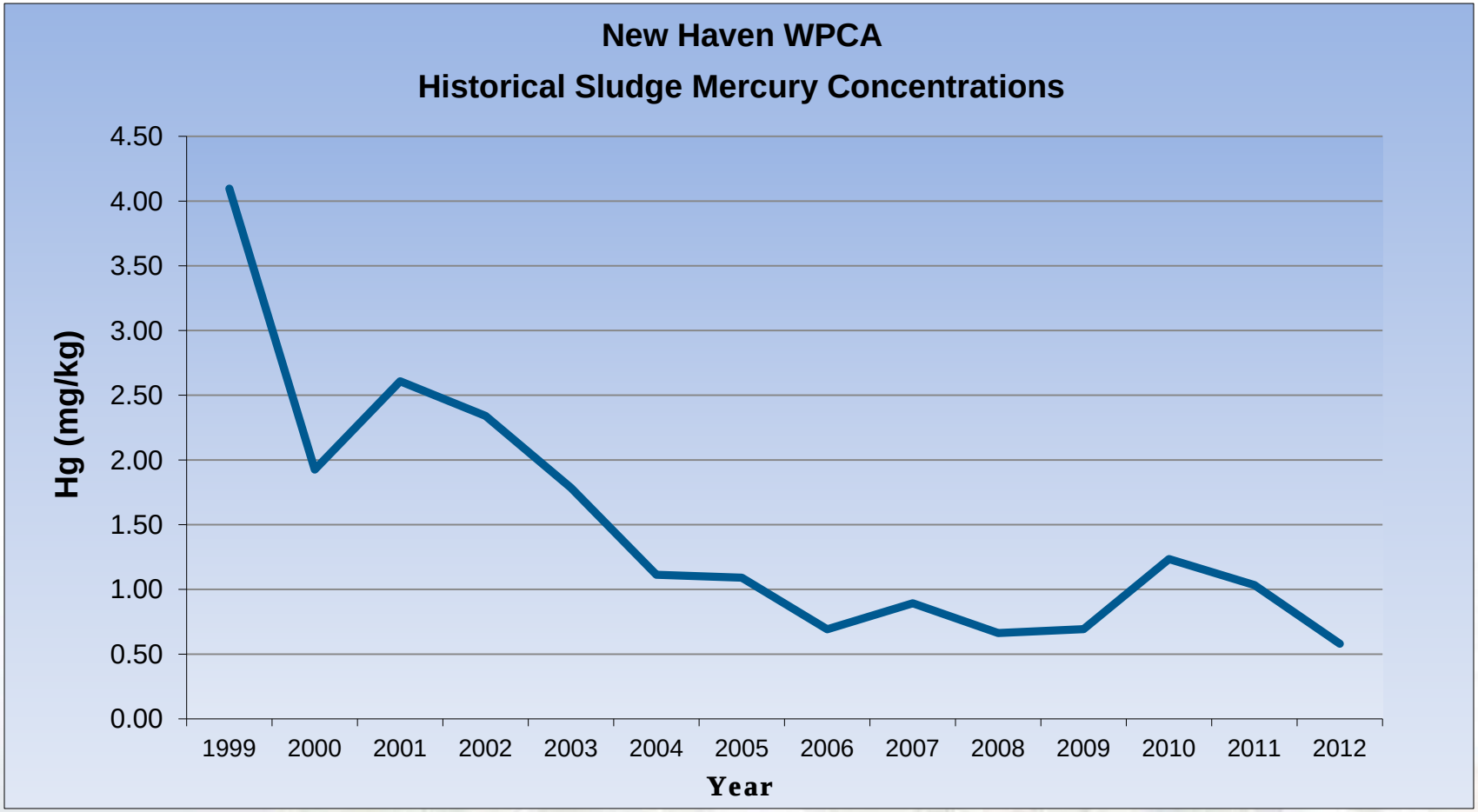


The New Haven unit already meets newest EPA regulations





Mercury in sludge is steadily decreasing



Monthly sludge sampling data reported annually to EPA

Compliance Assurance

- Design, implementation, operation subject to DEEP oversight
- Permitted through CT DEEP
  - Routine Testing of Water, Air & Residual Solids
- Water Quality
  - Permit Limits
    - Major Requirements BOD, TSS, Nitrogen
- Air Quality
  - Sludge sampling for metals
  - Compliance – Far Below Current Limits and Projected Limits

Summary of Community and Environmental Benefits

- Environmental and Human Health Benefits
  - Reduced Nitrogen Discharge to LIS
  - Reduction in Residual Chlorine Discharge
  - Reduction in Overflows to waterways
  - Reduction in street flooding and basement Backups
  - Minimize shellfish bed closings
  - Minimize beach closings
- Community Benefits
  - No air emissions increase
  - No neighborhood encroachment
- Operational Benefits (Reliability)
  - Emergency Generators to Protect against Power Outage
  - Elevations Above Projected Sea Level Rise

Schedule

- Authorization Ongoing for Current & Future Phases
- Phase 1 Construction – 2013 to 2015
  - Electrical Improvements & Emergency Generators, Solids Handling, Odor Control, & Nitrogen Reduction
- Future Phases – 2015 and Beyond
  - Likely project components: upgrades to primary treatment and nutrient removal, ultra violet disinfection, wet weather disinfection
  - Order and timing flexible based on new monitoring data, identification of priorities, funding availability

We stay engaged with our community


Facility Tours


Coats for Tots

GNHWPCA
Protecting the Environment

Please Stay Engaged with us!

- Additional Information and Periodic Updates: www.gnhwpca.com
- GNHWPCA Board Meetings
- Community Activities
- Community Environmental Benefit Fund
- Additional Permitting will Continue
- Contact Us – Engineering Department
  Telephone: (203) 466-5280 ext 321
  email to: Engineering@GNHWPCA.com
- 24 hour Emergency number: (203) 466-5260