

# NORWALK POWER ECONOMIC IMPACT ANALYSIS

## CITY OF NORWALK & MANRESA ASSOCIATION



*Photo Credit: Geoffrey Steadman*

# AGENDA

- Presentation
  - Power Plant Trends
  - Reuse Planning Process
  - History of Manresa Island
  - Site Conditions
  - Remediation Strategy
  - Environmental Features
  - Market Conditions
  - Case Studies
  - Survey Results to Date
- Break Out Session



*Photo Credit: Geoffrey Steadman*



# THE NORWALK POWER PLANT IS ONE OF MANY SHUTTERED PLANTS ACROSS NEW ENGLAND

Other closed or retiring plants include:

- Mt. Tom (MA)
- Brayton Point (MA)
- Pilgrim (MA)
- Salem Harbor (MA)
- Vermont Yankee



# THE DECOMMISSIONING AND REDEVELOPMENT OF FOSSIL FUEL PLANTS IS OCCURRING THROUGHOUT THE COUNTRY

## Pacific Standard



MAGAZINE  
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NEWSLETTER  
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NEWS ECONOMICS EDUCATION ENVIRONMENT SOCIAL JUSTICE MAGAZINE SUBSCRIBE

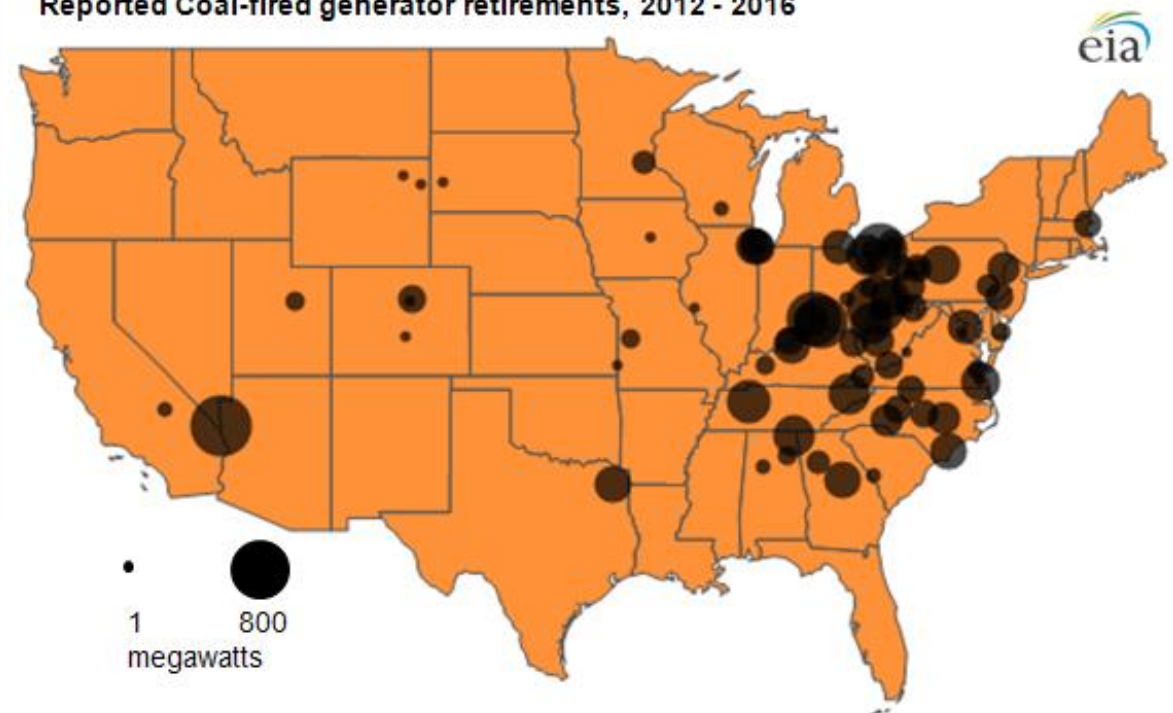
### ENVIRONMENT

## AMERICA'S POWER PLANT PROBLEM

More than 200 out of the 523 coal-fired power plants that were in operation five years ago are now closed or slated for closure. What should we do with them?

DANIEL J. MCGRAW · FEB 1, 2016

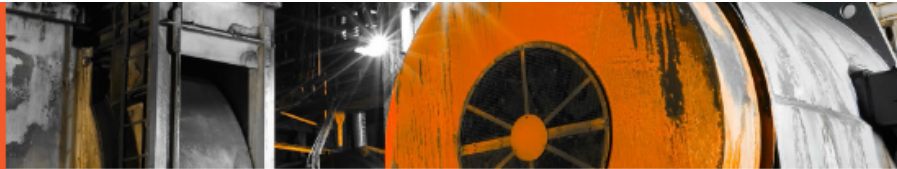
Reported Coal-fired generator retirements, 2012 - 2016



# EPA GUIDANCE

## COAL PLANT DECOMMISSIONING

## PLANT DECOMMISSIONING, REMEDIATION AND REDEVELOPMENT



**Many coal-fired power plants are expected to close in coming years. Coal plant communities are faced with potentially long-term job and tax revenue loss, legacy environmental contamination and the need for new economic opportunities.**

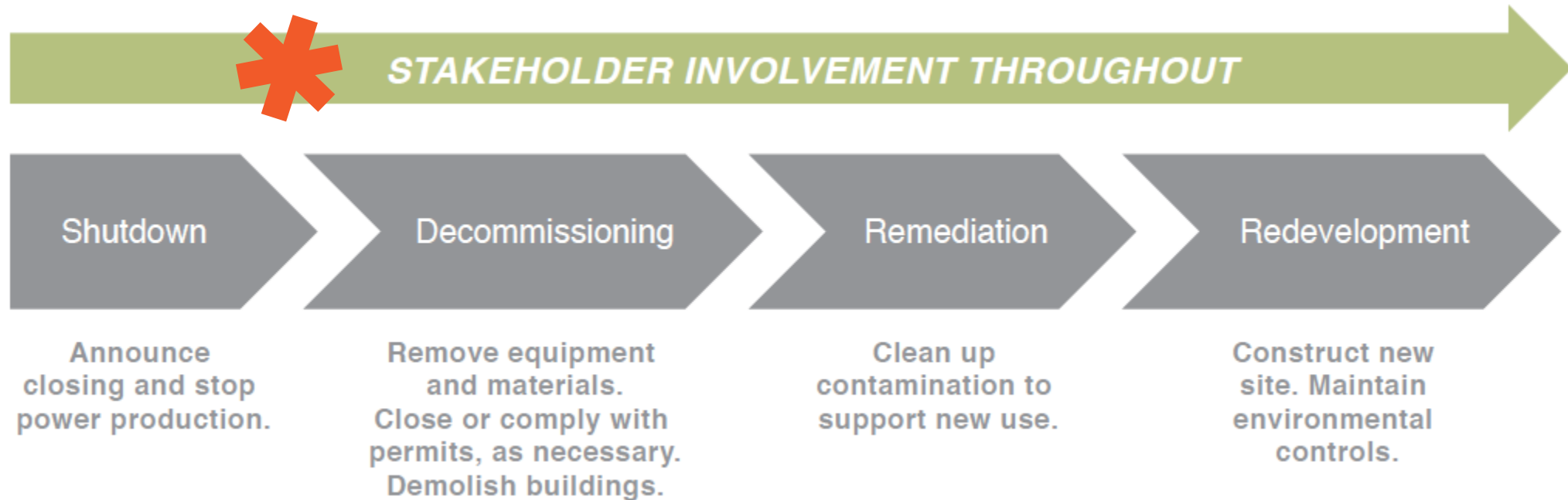
Site reuse options inform cleanup decisions and should be developed early in the process to determine the appropriate level of work needed for redevelopment. Understanding the range of reuse options will help in the development of realistic schedules and cost estimates.

Preparing a site for reuse often is a complex, multi-year process that includes decommissioning the existing power plant, cleaning up contamination (e.g., in materials, soil and ground water), and creating and implementing a redevelopment plan. Local leadership that is committed to public involvement and the establishment of a balanced and inclusive stakeholder group can guide the process by considering the many factors and unique conditions of a coal plant site, along with the community's redevelopment goals.

EPA prepared this fact sheet to help communities that may be affected by the closure of coal-fired power plants. Fact sheets covering stakeholder identification and facilitation, as well as financing options and incentives, are also available.

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# REUSE PLANNING PROCESS



# SUCCESSFUL MODEL FOR REDEVELOPMENT

## KEY ELEMENTS OF SUCCESS

1. Early planning ✓
2. Transparent stakeholder engagement ✓
3. Facilitation by neutral third party ✓
4. Clear, long-term vision of reuse ✓
5. Active local government support ✓

## WHO NEEDS TO BE INVOLVED

- Community leaders ✓
  - Municipal governments ✓
  - Power plant property owners ✓
  - Private sector
  - Funders
  - Regulators/Environmental compliance specialists
- } Position for engagement

Source: Delta Institute: Transforming Coal Plants into Productive Community Assets, 2014

## KEY CHALLENGES ASSOCIATED WITH COAL PLANT REDEVELOPMENT INCLUDE:

- **Scale** – large and unconventional buildings
- **Time** – average time from closure to planned completion of redevelopment is 27 years
- **Remediation** – can vary in cost according to end use
- **Financing** – coal plants require extra effort and resources from private sector
- **Models** - Lack of demonstrated best practices



# MANRESA ISLAND

**Manresa Island**

**South Norwalk**

**Calf Pasture Beach**



# MANRESA ISLAND HISTORY

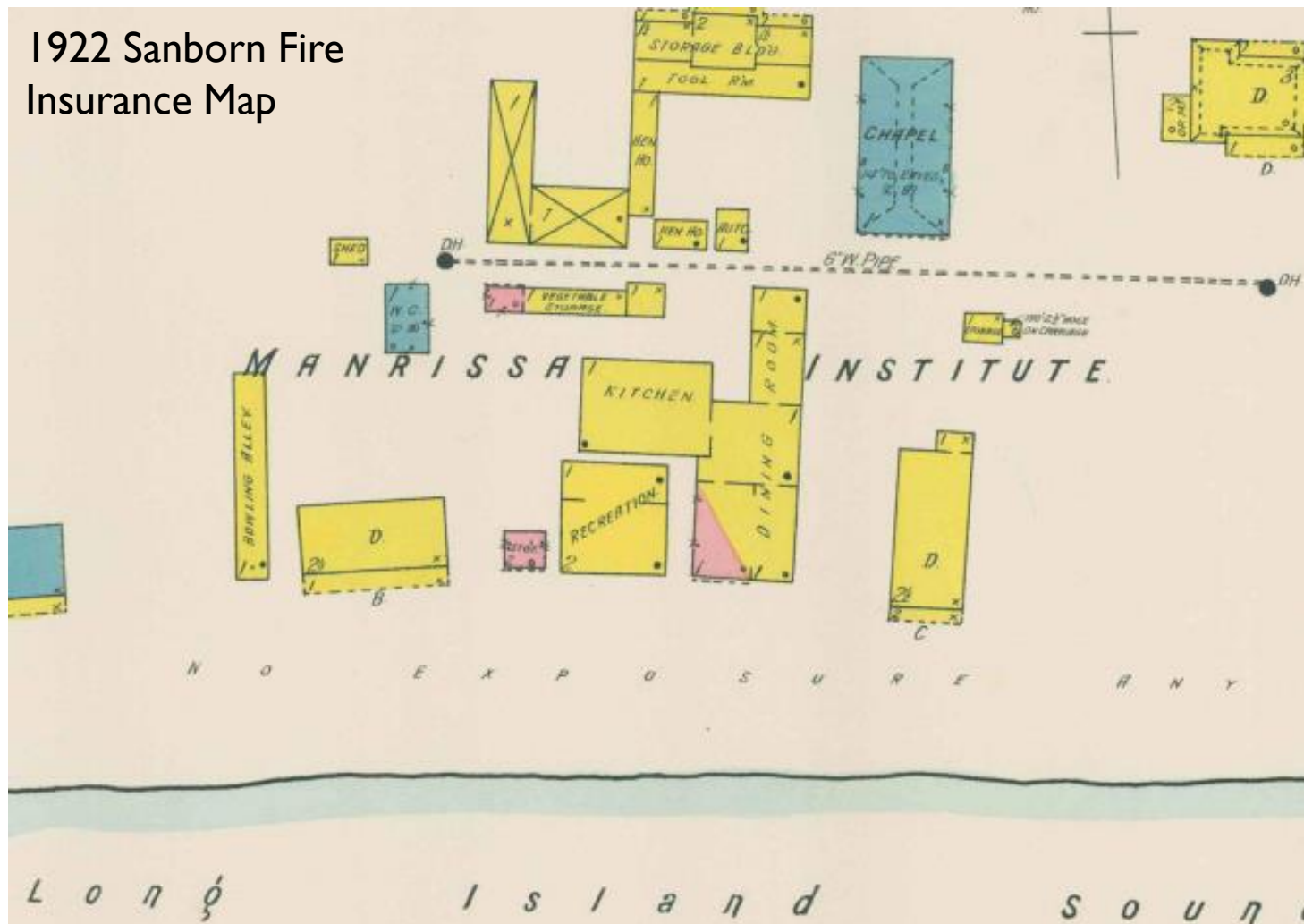
- Manresa was formerly known as Bouton's Island and then later as Keyser Island
- In the early 1900's Father Terence Shealy opened a Jesuit retreat. Shealy's retreat movement was called "Mount Manresa". In 1911, Shealy moved the retreat to Staten Island





# MANRESA ISLAND HISTORY

1922 Sanborn Fire Insurance Map



MANRESA INSTITUTE,  
KEYSER ISLAND.

Keyser Island, near South Norwalk, Conn., under the direction of Fathers of the Society of Jesus, was formally inaugurated as a house of spiritual retreats on Easter Sunday, 1889. It is the only establishment in the United States exclusively devoted to the work of private retreats to priests and laymen. It is called Manresa, from the Spanish town where St. Ignatius Loyola composed the "Book of Spiritual Exercises."

The choice of this beautiful seclusion, considering its purpose, could scarcely be surpassed. On Long Island Sound, within one hour of New York by train from the Grand Central depot, accessible, too, by boat—a most pleasant trip in summer, three hours on the Sound—within two miles of a large New England town, Manresa is readily reached, and yet it is entirely secluded. The name "island" is now somewhat of a misnomer, as the magnificent causeway which was built by the former proprietor, Mr. Keyser, makes the island a small peninsula, and enables visitors to drive on an excellent carriage road all the way from the depot in South Norwalk to Manresa Institute on the "Island," a distance of two miles. The tram-

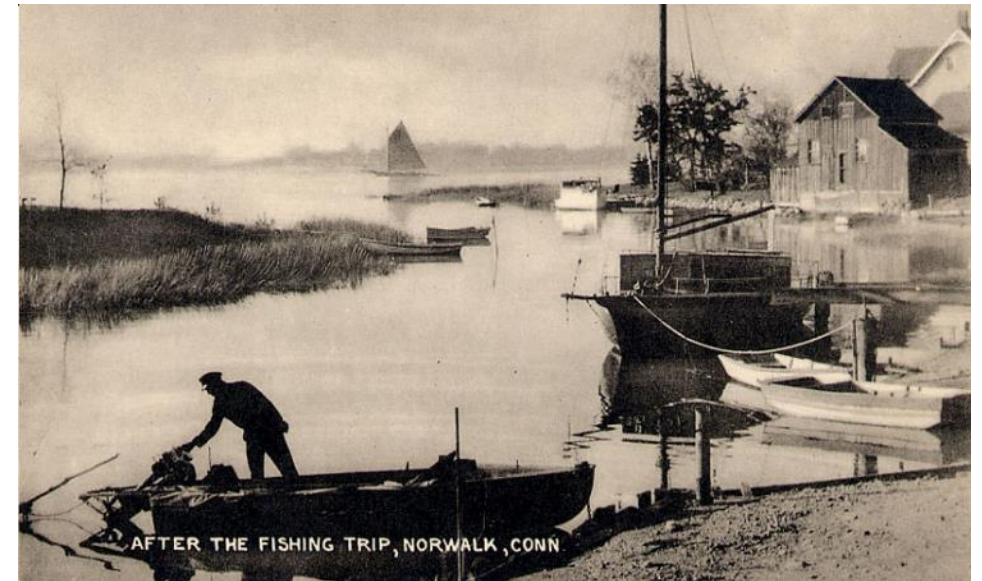


A. M. D. G.

MANRESA INSTITUTE, KEYSER ISLAND.

# MANRESA ISLAND HISTORY

- In 1953 the Norwalk Zoning Commission approved a plan to build a coal power plan on the island with a 3-1 vote.
- In 1955 the Marvin Beach Association in East Norwalk tried unsuccessfully to stop the power plan project
- Power Plant was built in the late 1950's, CL&P commissioned the plant in 1960
- Power Plan burned coal between 1960 – 1972





# MANRESA ISLAND HISTORY

- Large fuel oil spill in 1969 causes significant damage to Village Creek beach and tidal flats
- Power plant is converted from coal power to oil power in 1972
- In response to the newly passed (1976) Federal Resource Conservation & Recovery Act (RCRA) which governs the disposal of solid and hazardous waste, the facility filed as a TSD (Treatment, Storage, and Disposal of Hazardous Waste) Facility in 1980. That triggered the Corrective Action Process, a requirement under RCRA that facilities investigate and clean up hazardous releases into soil, ground water, surface water and air
- Norwalk Common Council adopted the Harbor Management Plan in 1990- this called out the wetlands around Manresa as “areas of concern”

# MANRESA ISLAND HISTORY

- In 1992 a transmission line was installed below Long Island Sound from Manresa to Long Island
- In 1997 Manresa was named one of Connecticut's "Filthy Five" by the CT Coalition for Clean Air
- In 1999 NRG Energy purchased the plant from CL&P



# MANRESA ISLAND HISTORY

- In 2012 the Manresa property was almost completely underwater during Hurricane Sandy
- Plant decommissioned in June 2013
- Remediation plans are being developed



# LAND USE CONTEXT



- Manresa power plant is buffered from residential neighborhoods by open space (not preserved) and wetlands
- Three neighborhoods lie adjacent to the Manresa peninsula; Village Creek, Harbor Shores, and Harborview
- Site falls inside the Coastal Area Management zone- subject to Coastal Area Management review and application process
- Under current zoning, any non-residential or non-institutional use would require rezoning



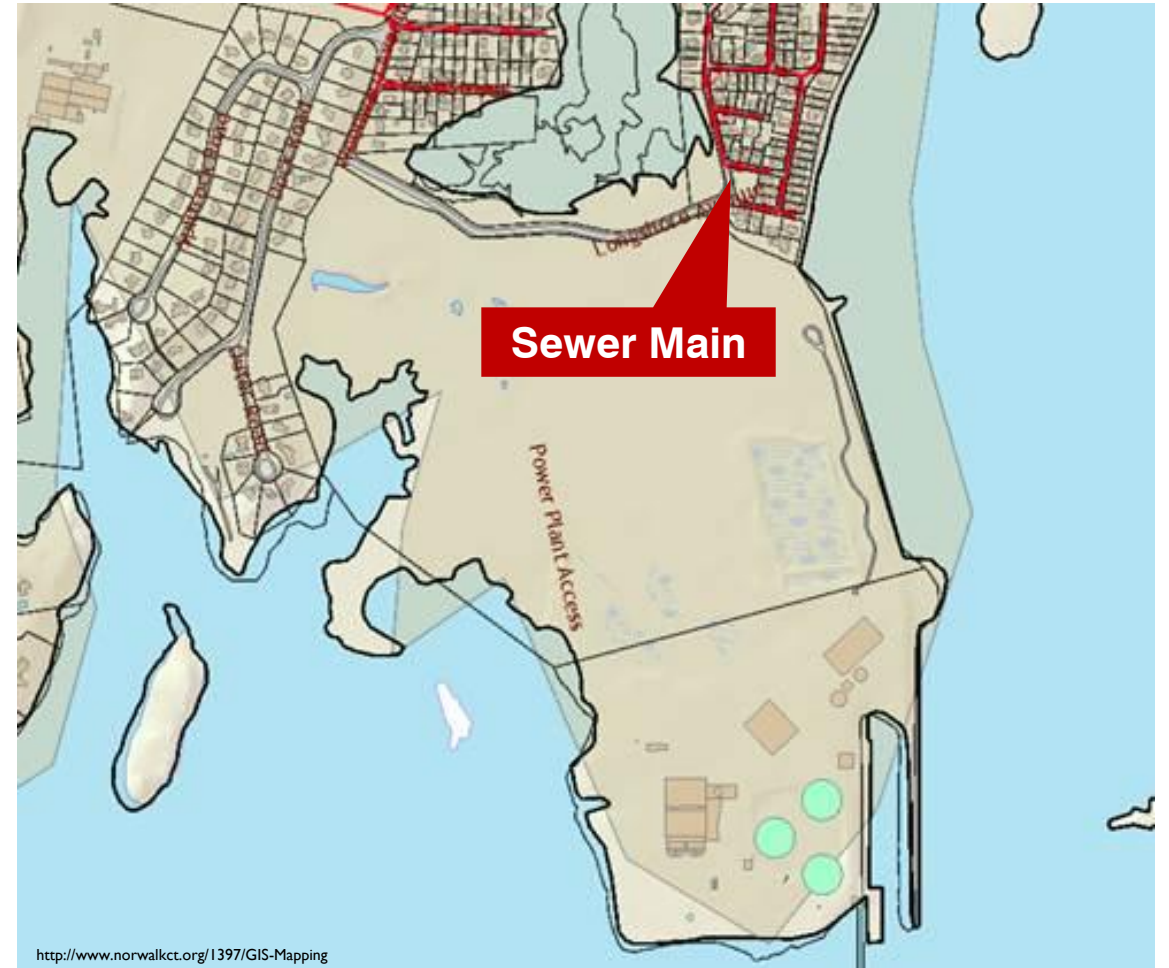
# ZONING



- Entire property is zoned “B Residence”
- Intent of this zone is for single-family dwellings and other compatible uses
- Allowable uses include:
  - Single-family detached dwelling
  - Parks and playgrounds
  - Farms, gardens, nurseries on parcels 12,500 sq ft or more
- The site’s public utility use is allowed by special permit

# SEWER INFRASTRUCTURE

Sewer infrastructure is available immediately north of the site, but there is no current service to the site



# NORWALK'S VISION PLAN OF CONSERVATION AND DEVELOPMENT

## Norwalk's Vision

- In growth lies the opportunity to fund the preservation and enhancement of both natural and man-made assets that will contribute to Norwalk's enduring quality of life.
- The harbor, streams, beaches, islands, and marshlands are fragile resources that are the foundation of the city's unique appeal.

# MANRESA ISLAND HISTORY – 1934 AERIAL PHOTO



Original  
“dry land” area



# MANRESA ISLAND HISTORY – 1951 AERIAL PHOTO



Expansion  
to east

# MANRESA ISLAND HISTORY – 1965 AERIAL PHOTO



# MANRESA ISLAND HISTORY – 1970 AERIAL PHOTO



**Expansion  
to north**

# MANRESA ISLAND HISTORY – 1985 AERIAL PHOTO



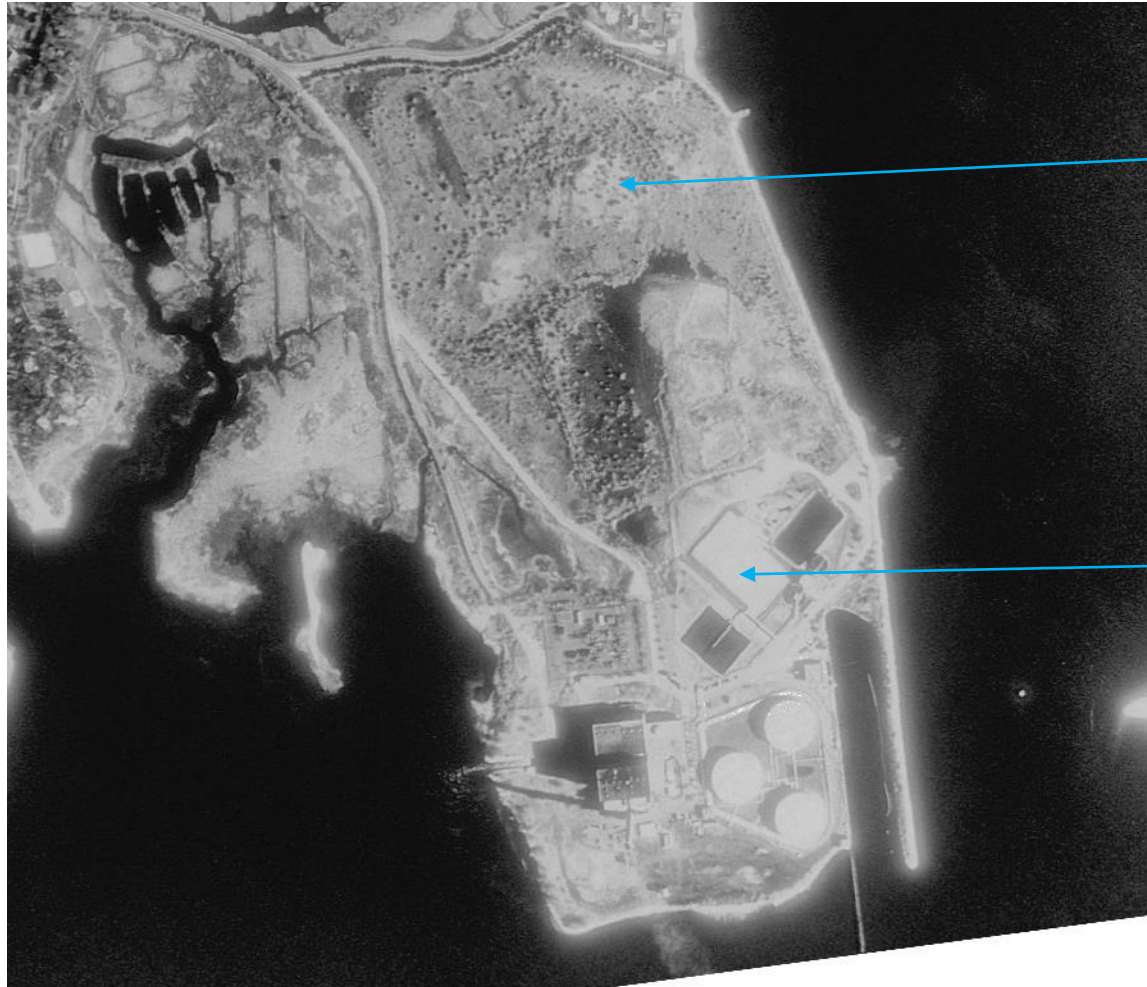
**Further expansion  
to north**

**Wastewater  
impoundment**

**Fuel tanks**



# MANRESA ISLAND HISTORY – 1991 AERIAL PHOTO



**Emergence of tree canopy**

**Detention basin filled and new basin to south**

# MANRESA ISLAND HISTORY – 2006 AERIAL PHOTO



**Forest canopy expansion**



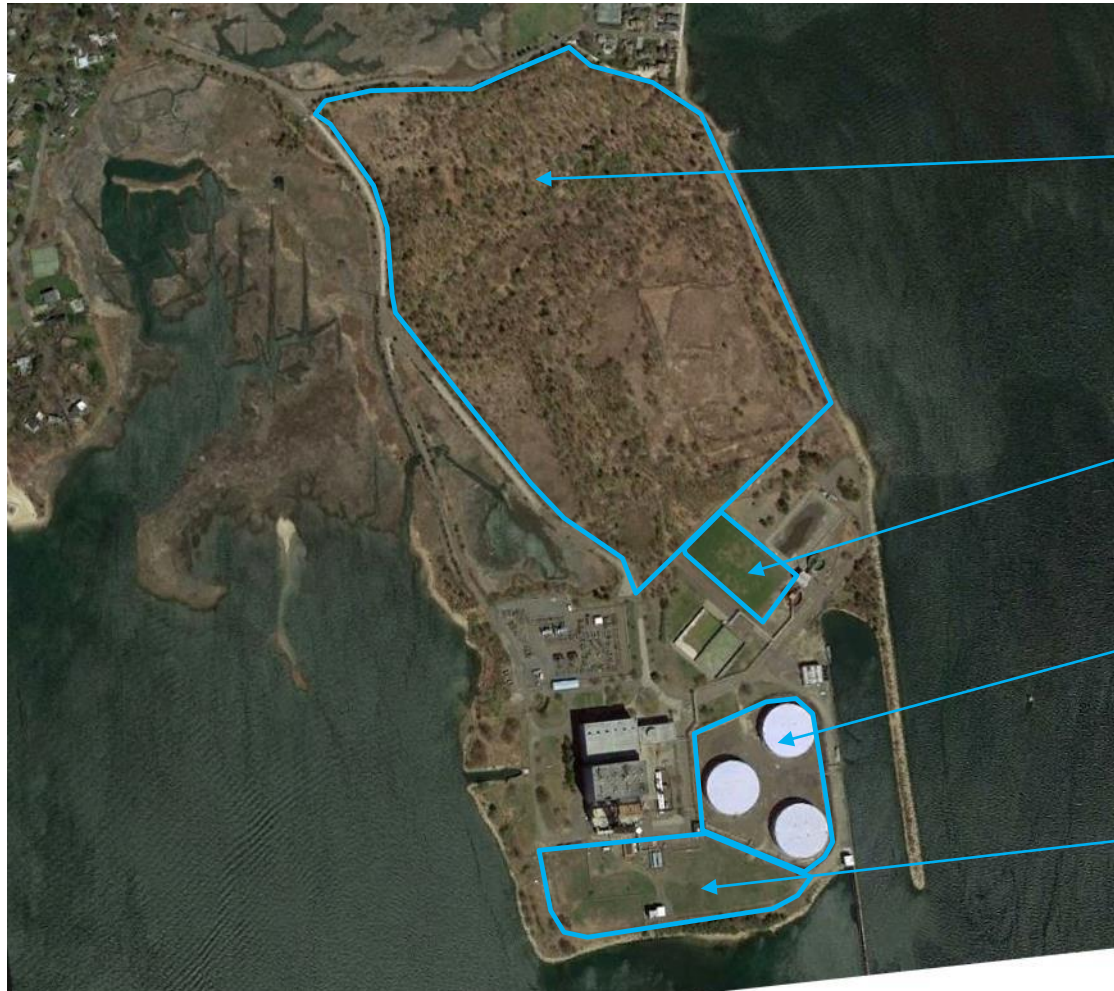
# MANRESA ISLAND HISTORY – 2016 AERIAL PHOTO



**Small ponds filled**

**Former detention basins**

# MANRESA ISLAND – CONTAMINATION LOCATIONS



**Coal ash fill: arsenic, beryllium, thallium, nickel contamination in both soil and groundwater**

**Former surface impoundment  
arsenic, beryllium, cadmium, chloride, lead, nickel  
groundwater contamination**

**Tank farm: arsenic contamination in soil, zinc contamination in groundwater**

**Former coal storage site:  
arsenic contamination in soil**



# EXISTING SITE CONDITIONS & REMEDIATION APPROACH





# GENERAL SITE INFORMATION

- Owned by Norwalk Power, LLC a subsidiary of NRG
- Site Consists of Two Properties
  - Lot 1 Former Power Plant Area
    - 33-Acres (Southern Portion of Site)
    - Power Plant, Oil Tank Farm, Wastewater Treatment Plant and Associated Basins, Subsurface Cooling Water Structures, Dock (Inactive)
    - Active Electrical Substation
  - Lot 2 Undeveloped- Wooded
    - 92-Acres Densely Wooded, Wetlands (freshwater and inter-tidal)
    - Area of Historic Filling

# REGULATORY SUMMARY

- Site is enrolled in the Connecticut Department of Energy and Environmental Protection (CT DEEP) Property Transfer Program
  - Previously a large quantity generator of hazardous waste
  - Enrollment was triggered by the sale of the property from CL&P to NRG in 1999.
  - In RCRA Corrective Action Program for previous activities at the site
- The CTDEEP/ USEPA have been addressing investigations and remedial activities under a Combined Program (Property Transfer Program/ RCRA Closure) since 2006

# SITE INVESTIGATION

## Site Investigations/Assessment: 1999 to 2010

- Phase I Site Assessment
- Phase II and Phase III Site Assessments
  - Assess Nature and Extent of Soil, Sediment, Groundwater and Surface Water Concentrations
- Ecological Risk Assessment
- Annual Groundwater Monitoring (on-going)

# AREAS OF ENVIRONMENTAL CONCERN (AOCs) AND CHEMICALS OF CONCERN (COCs)

## Areas of Environmental Concern (AOCs)

- AOC-1: Former Ash Disposal Area:
- AOC-2: Former Gasoline UST:
- AOC-3: Fuel Oil Tank Farm:
- AOC-4: Coal Storage Area
- AOC-5: Former Fuel Oil USTs
- AOC-6: Int. Comb./Blowdown UST
- AOC-7 Existing Septic Leach field
- AOC-8 Former Septic Leach field
- AOC-9: Electrical Equipment
- AOC-10: Former RCRA Impoundment
- AOC-11: Long Island Sound Sediment
- AOC-12: Container Storage Area





# AREAS OF ENVIRONMENTAL CONCERN (AOCs) AND CHEMICALS OF ENVIRONMENTAL CONCERN (COCs)

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## Chemicals of Concern (COCs)

Metals, PAHs, VOCs

Petroleum (TPH), lead

Petroleum (TPH), PAHs

Metals, PAHs

Petroleum (TPH), PAHs, VOCs

Petroleum (TPH), PAHs, VOCs

No Releases of COCs noted

No Releases of COCs noted

Petroleum (TPH)

No Releases of COCs noted

Petroleum (TPH), PAHs and Metals

VOCs, SVOCs/ PAHs, PCBs, Metals

# AREAS OF ENVIRONMENTAL CONCERN (AOCs) AND REMEDIATION

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## Remediation Required

Yes: Metals above Residential and Ind./Com. Criteria.  
Potential Ecological Risk to Wetlands\*

No: Soil indicated as compliance

No: Soil indicated as compliance

Yes: Metals above Residential and Ind./Com. Criteria

No: Soil indicated as compliance

Yes: Petroleum Hydrocarbons above Residential Criteria

Not required / Not applicable

Not required/ Not applicable

No: Soil indicated as in compliance

Not required/ Not applicable

Not required/ Not applicable

Not required/ Not applicable

# PROPOSED REMEDIAL APPROACH-ESTIMATED COSTS

## **Proposed Engineered Control - \$500,000**

- Contact Barriers Installation (i.e., gravel)
- Power Plant Structures/Features Remain
- Industrial Commercial Use Restriction
- Inspection, Maintenance and Monitoring Plan
- Financial Assurance
- Public Notice is required
- On-hold

# ESTIMATED REMEDIAL COSTS- EXCAVATION

## Shallow Excavation -**\$31,000,000**

- AOC-1 Excavation (22 Acres\*): \$19,700,000
  - Excavation to 4 feet below grade: 212,960 tons
  - Less than half of AOC-1 (55-acres\*) [possibly \$29,500,000? more]
- AOC-4 Excavation (5.8 Acres): \$11,300,000
  - Excavation to 4 feet/ 2-feet below pavement: 120,400 tons
  - Some pavement replacement
- Industrial Commercial Use Restriction
- Power Plant Structures/Features Remain

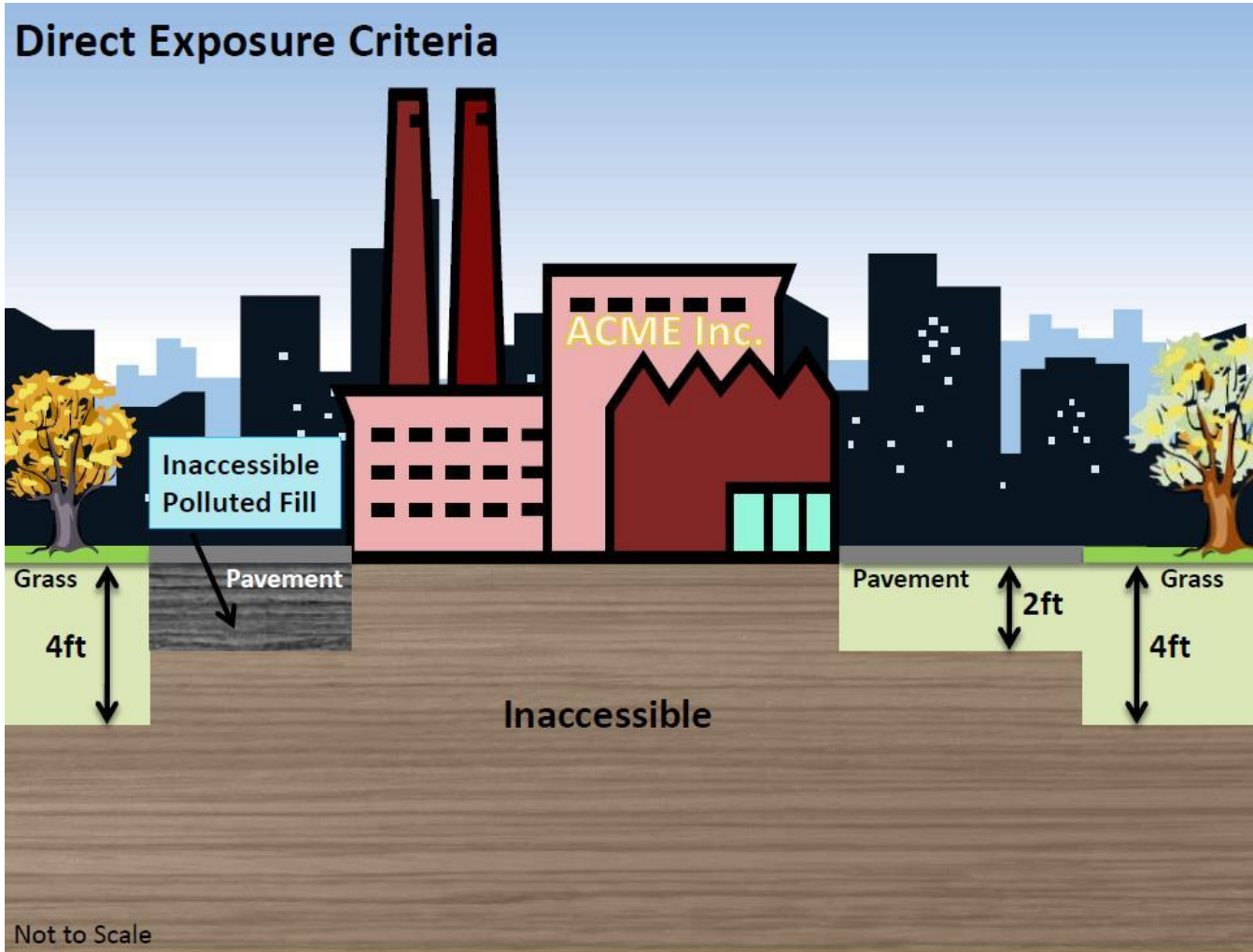


# REMEDIAL COSTS- POWER PLANT DEMOLITION

## **Placeholder Cost Range: \$6,000,000 to 9,000,000**

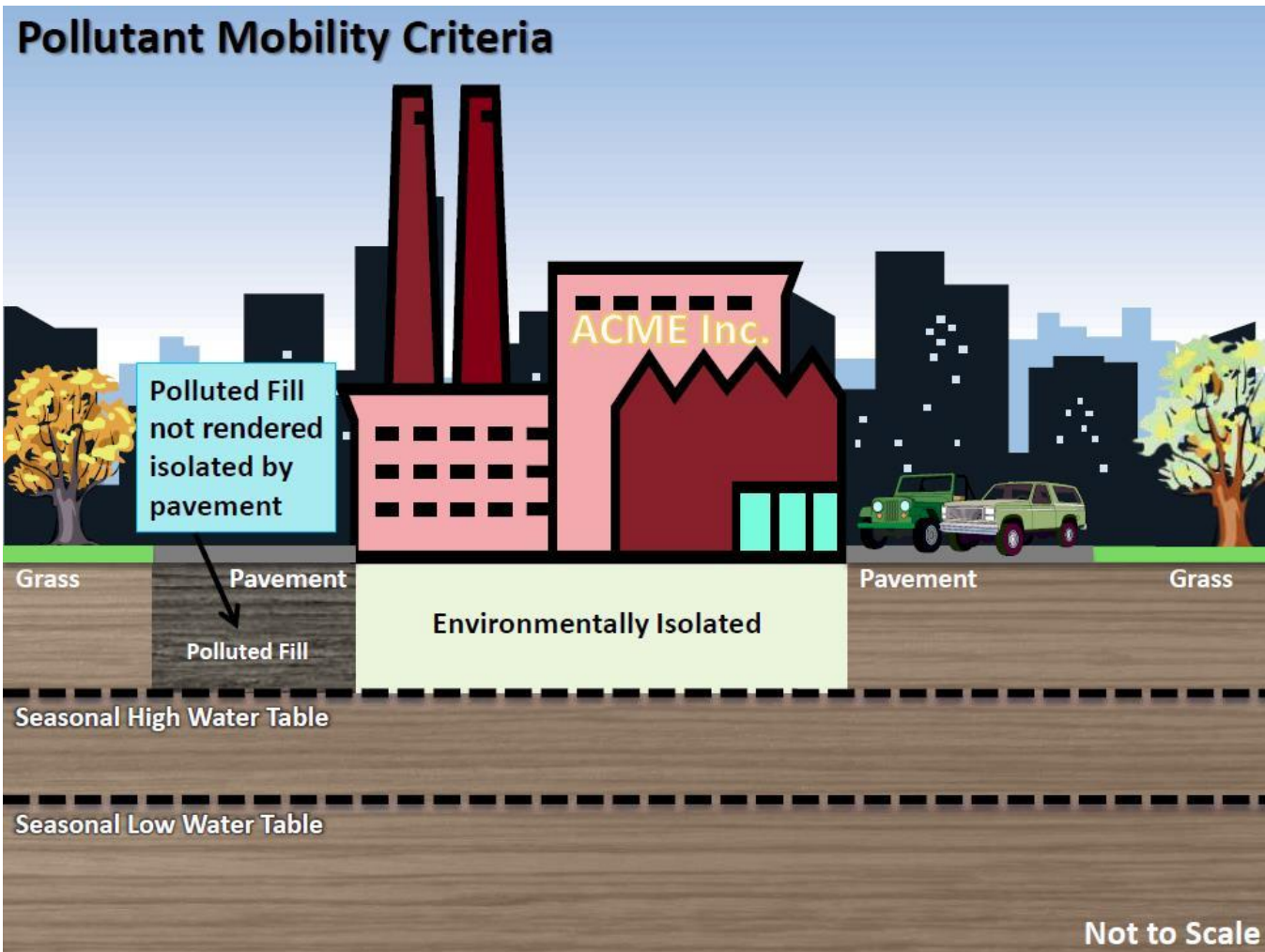
- Hazardous Building Materials (i.e., Asbestos, PCBs, Lead Based Paint)
- Estimate based upon a similar sized power plant in Georgia
- A lot of unknowns (e.g., PCB use in paint and hazardous building materials)
- Not covered by the site investigation activities completed to date

# REMEDIATION STANDARD REGULATIONS (RSRs)



Source: The Remediation Standard Regulations CTDEEP and EPOC  
[http://www.ct.gov/deep/cwp/view.asp?a=2715&q=325012&deepNav\\_GID=1626](http://www.ct.gov/deep/cwp/view.asp?a=2715&q=325012&deepNav_GID=1626)

# REMEDIATION STANDARD REGULATIONS (RSRs)



Source: The Remediation Standard Regulations CTDEEP and EPOC  
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# SITE REMEDIATION RELATED ACTIVITIES

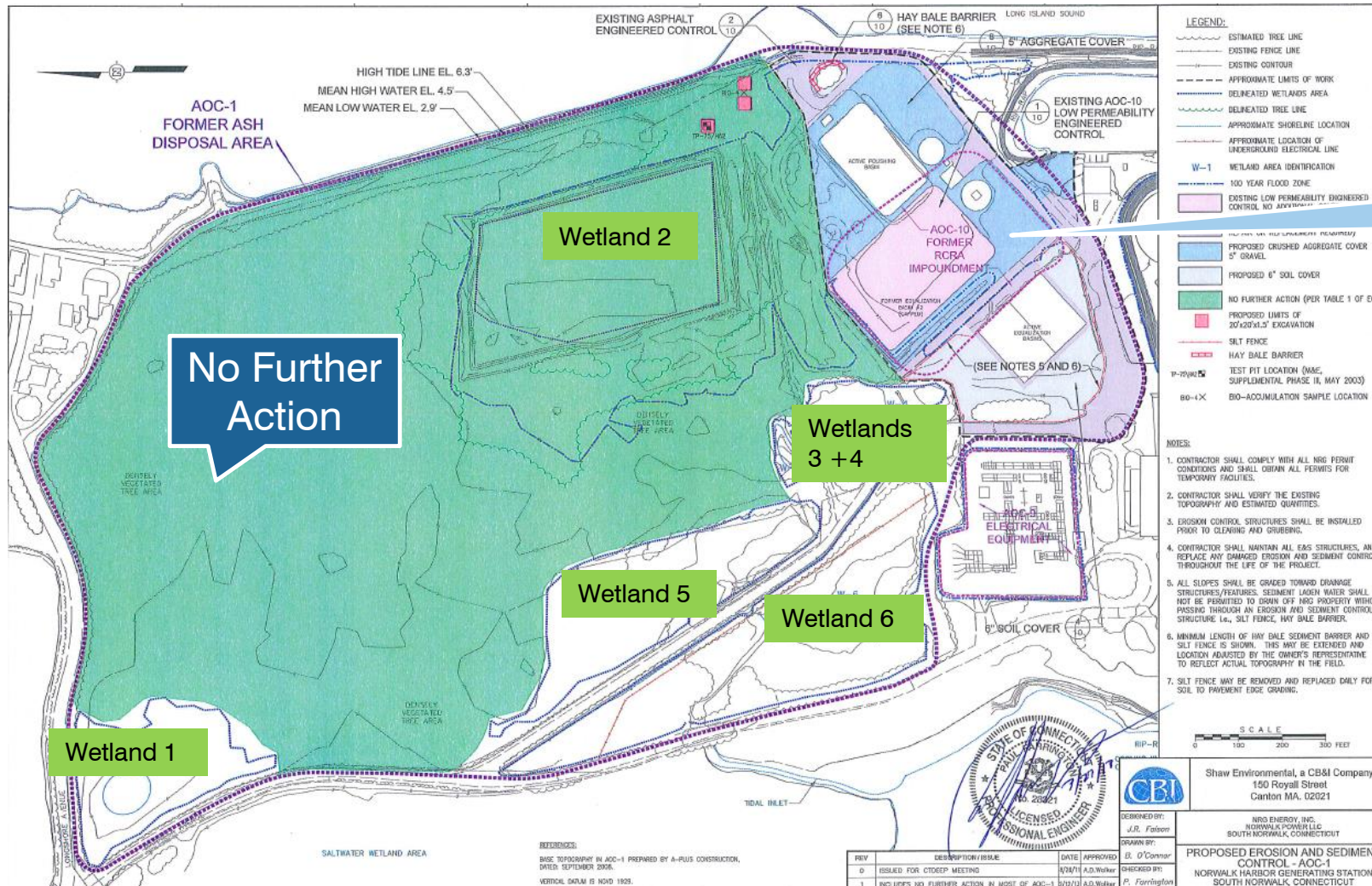
- Site Remedial Planning and Activities: 2010-Current
  - 2009-Limited Remedial Action Plan : To remove isolated areas of sediments
  - 2011 Preliminary Technical Impracticability Assessment for Groundwater
  - 2013 Engineering Control Submittal
  - 2013 Site Specific I/C DEC Request
  - 2017 Sediment Backfill Pilot Test (Wetlands W-5 and W-4)
  - Post-2017 Full Scale Sediment Remediation



# CURRENT REMEDIAL APPROACH: SOILS

- Engineering Control (AOC-1 and AOC-4)
  - Limit access to Soil Contact for **Industrial/ Commercial Use**
    - (No Residential/ Outdoor Recreation Uses)
  - Protective covers (5-inch gravel and 6-inch soil covers) proposed
  - Existing Buildings Remain and Inaccessible Soil Exemption for request for soils under Tanks, Piping, and Electrical Generation Equipment
  - Fencing and signs limiting trespassers
- No Remediation of AOC-1 Wooded Area (Alternate Criteria requires CTDEEP Approval)
- Establishment of an Environmental Land Use Restriction (ELUR) for Industrial/ Commercial Use
- Inspection, Maintenance and Monitoring Plan
- Financial Assurance

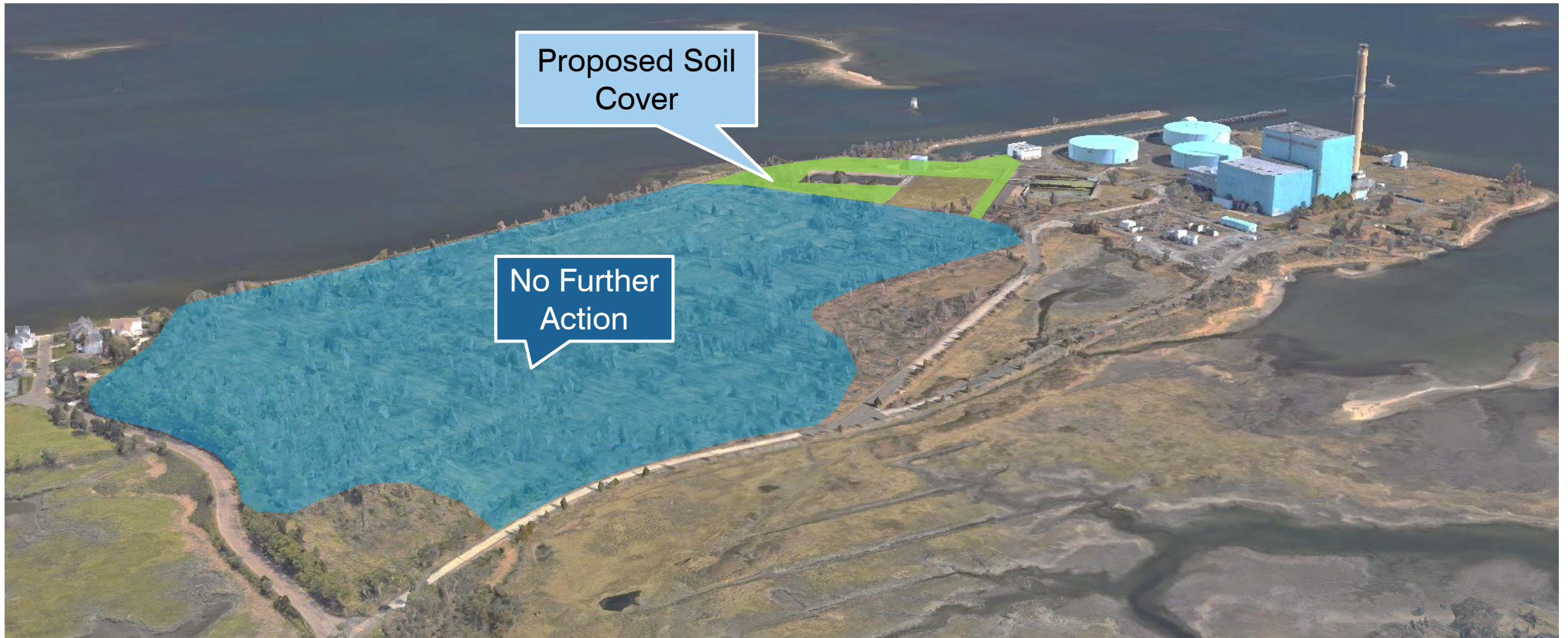
# CURRENT REMEDIAL APPROACH: SOILS (AOC-1 COAL ASH DISPOSAL AREA)



Soil Cover or  
Existing Cover

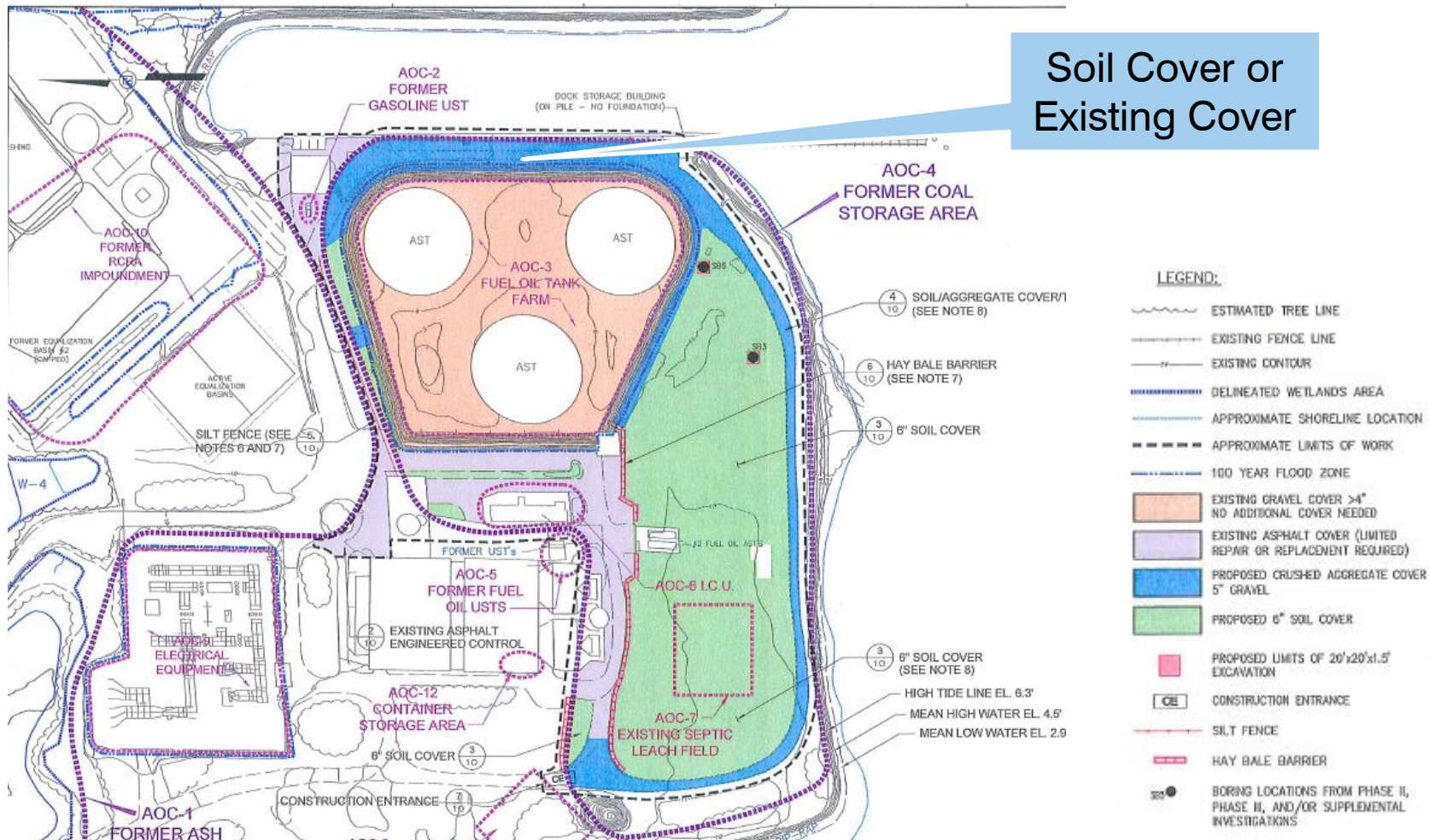


# CURRENT REMEDIAL APPROACH: SOILS (AOC-1 COAL ASH DISPOSAL AREA)





# CURRENT REMEDIAL APPROACH: SOILS (AOC-4 FORMER COAL STORAGE AREA)





# CURRENT REMEDIAL APPROACH: SOILS (AOC-4 FORMER COAL STORAGE AREA)



# CURRENT REMEDIAL APPROACH: WETLANDS & GROUNDWATER

## Wetlands Sediment

- Shallow remediation to address ecological impacts to wetlands W-3, W-4, W-5, W-6
- Pilot Test is moving forward small area of W-5 and W-4 (pending permitting)

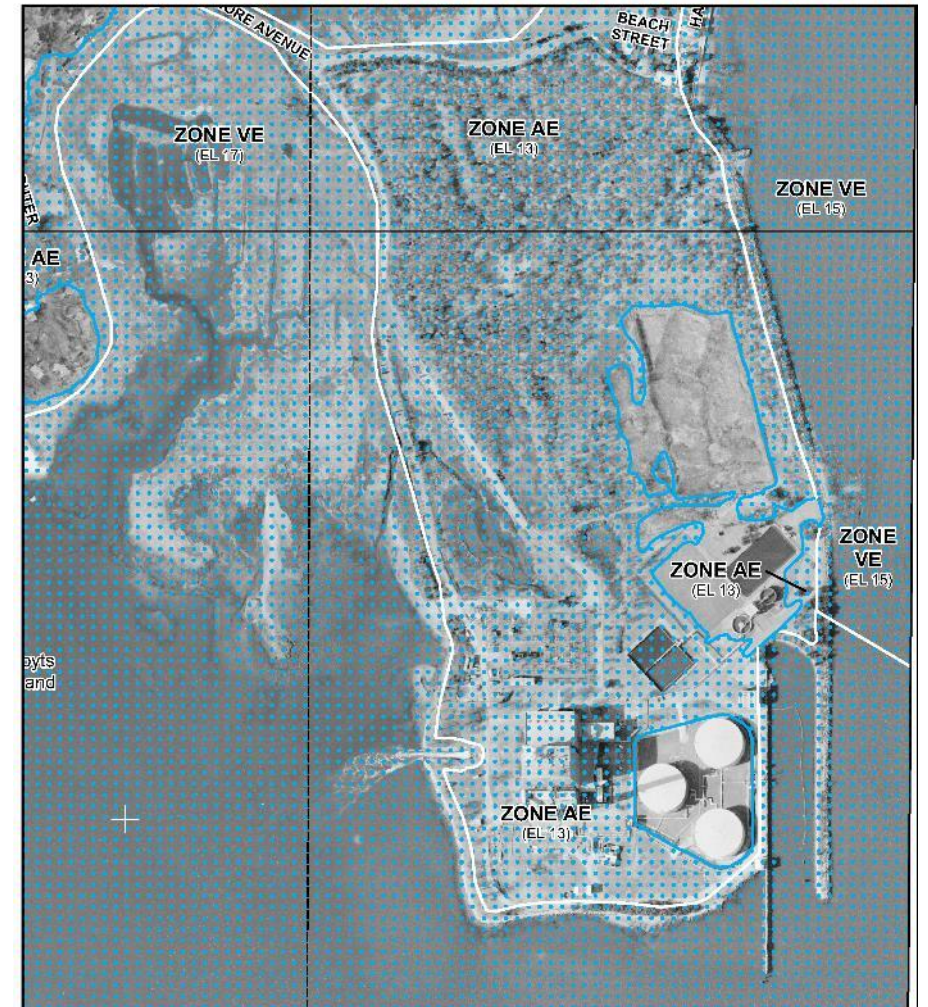
## Groundwater

- Preliminary Request for Technical Impracticability for Groundwater
  - CTDEEP Approval Needed
  - Stable Groundwater Plume
- On-going groundwater monitoring
- Environmental Land-use Restriction-no groundwater use



# FLOOD ZONES

- Most of site is covered by zone VE or AE (1% annual chance of flooding/100 year flood zone)
- Coastal Flood Zone with wave action/ velocity hazard (VE) [Ele.15 to 17 ft.]
- Constraints:
  - Buildings 1 ft. above base flood elevation or Flood-proof construction
  - Can fill the flood plain (stabilized and compacted) - CT DEEP permitting
  - No Hazardous Waste Storage
  - Funding Considerations





# NATURAL RESOURCES





# WETLANDS INVENTORY



# IMPORTANCE OF THE SITE TO BIODIVERSITY

Site Contains Unique or Sensitive Habitats

- Salt Marsh (esp. high marsh)
- Intertidal flats
- Freshwater emergent wetlands
- Coastal shrubland
- Coastal forest
- Essential Fish Habitat



# IMPORTANCE OF THE SITE TO BIODIVERSITY

Site provides breeding or foraging habitat for:

- CT Listed Species (SC, T, & E)
- Fish Spp. under Purview of the New England & Atlantic States Marine Fisheries Commissions
- Other flora and fauna listed as “Greatest Conservation Need” in the CT Wildlife Action Plan





# EXAMPLES OF GCN SPECIES KNOWN TO OCCUR AT THE SITE

- Common Tern (SC) (Foraging)
- Least Tern (T) (Foraging)
- Bald Eagle (T) (Winter foraging)
- Peregrine Falcon (T) (Foraging)
- Great Egret (T) (Foraging)
- Snowy Egret (T) (Foraging)
- Yellow-crowned Night-heron (SC) (Breeding)
- Diamond-backed Terrapin (SC) (Breeding)





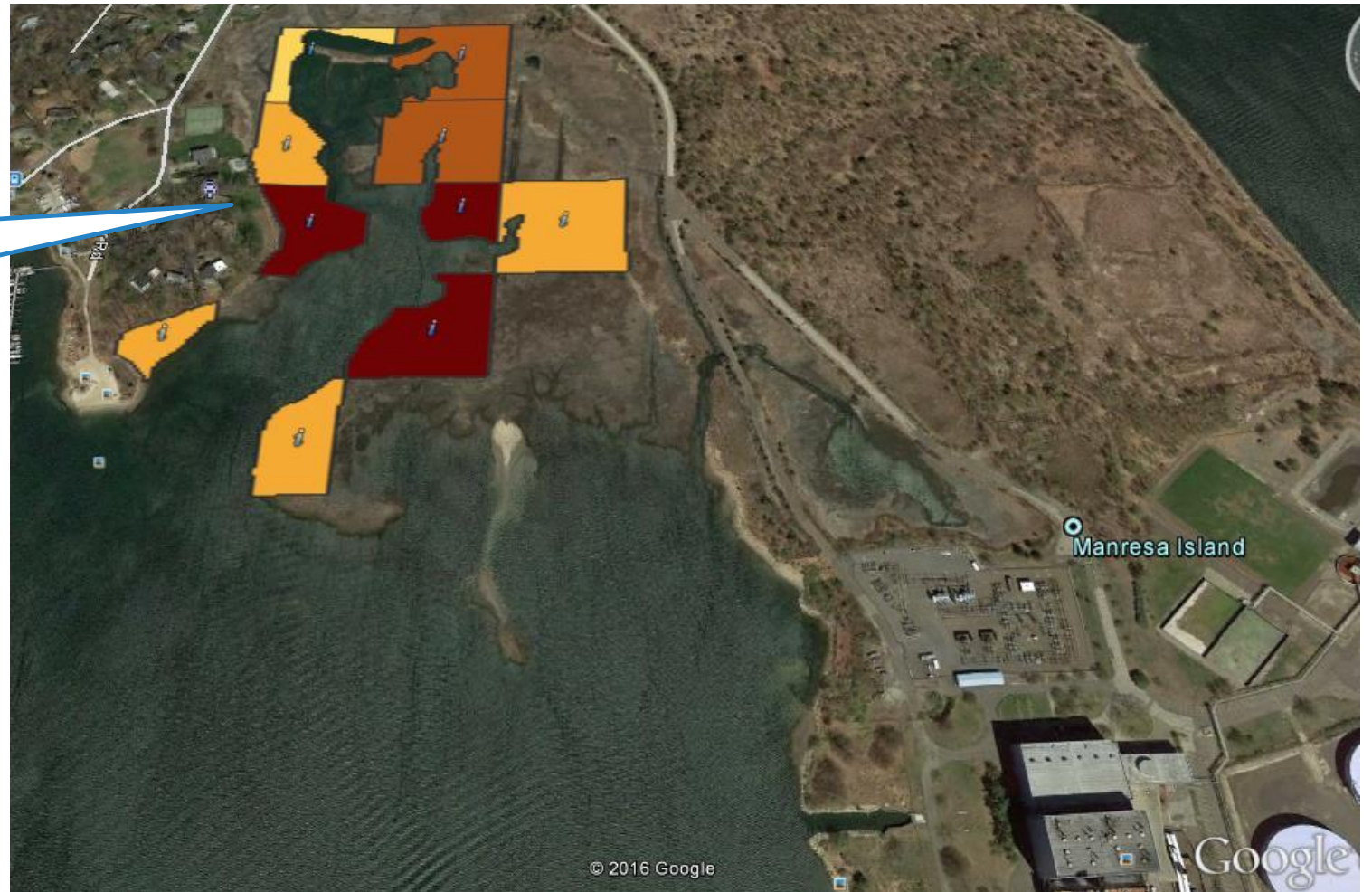
# ADDITIONAL RARE SPP. ARE SUSPECTED OF OCCURRING AS WELL

- Saltmarsh Sparrow (SC) (Breeding)
- Brown Thrasher (SC) (Breeding)
- Glossy Ibis (SC) (Breeding)
- Winter owl roosts ???



# MARSH HABITAT

High Probability of  
Saltmarsh Sparrow  
Nests



# COASTAL RESILIENCY

- Any new development will need to be resilient to predicted future changing meteorological forcing events (e.g., storms of greater frequency and intensity)
- Defense against storm energy should explore natural alternatives, engineered alternatives, or a combination of both
- Design standards applicable to site may need to surpass current standards for other properties in the CT coastal zone



# RIP-RAP SHORELINE DESTROYED BY SUPERSTORM SANDY: STRATFORD EXAMPLE





# CONTAMINATION RISK

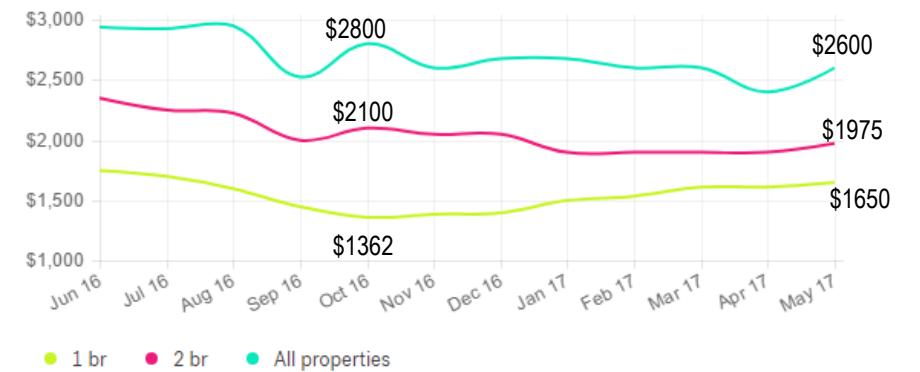
Contaminant + Pathway + Exposure = **Risk**

*Reduction or elimination of either contaminant,  
pathway or exposure reduces risk*

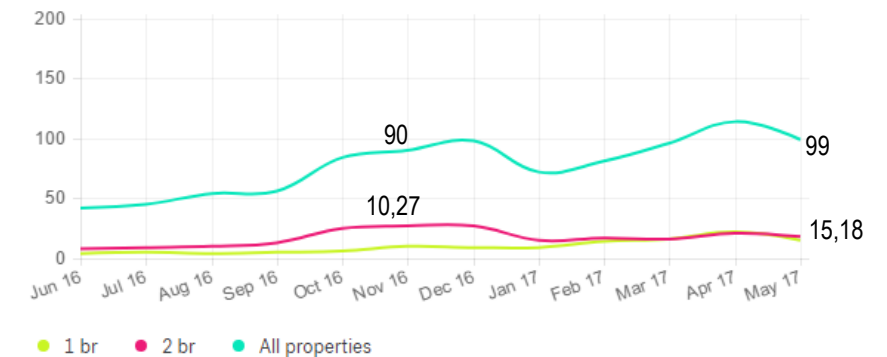
# PRELIMINARY MARKET FINDINGS



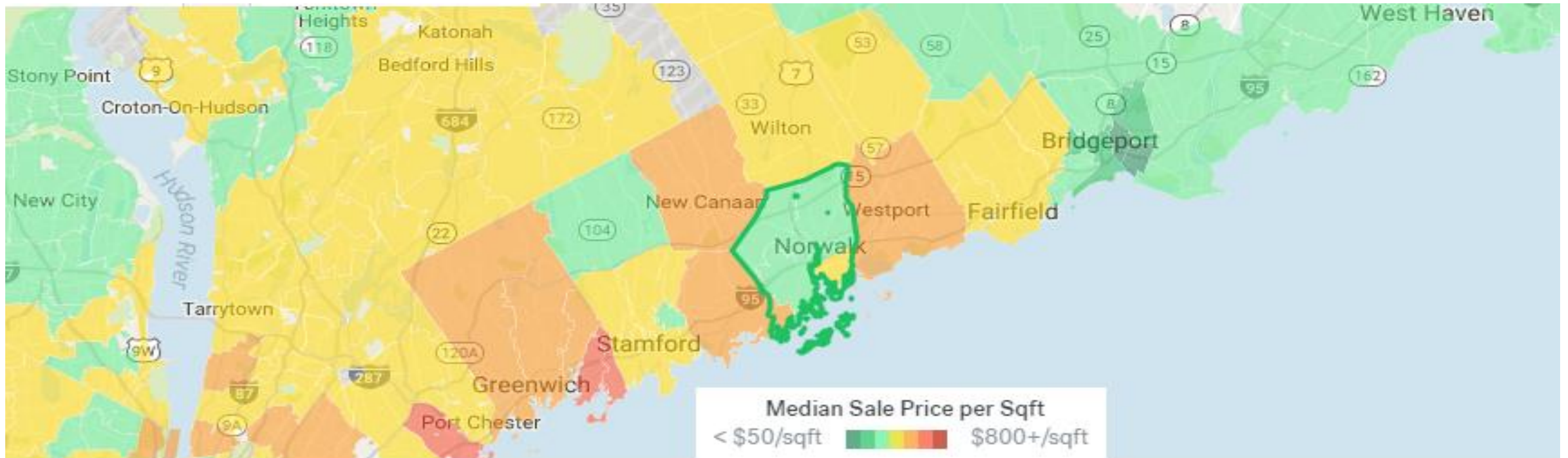
Median Rent



Number of Rentals



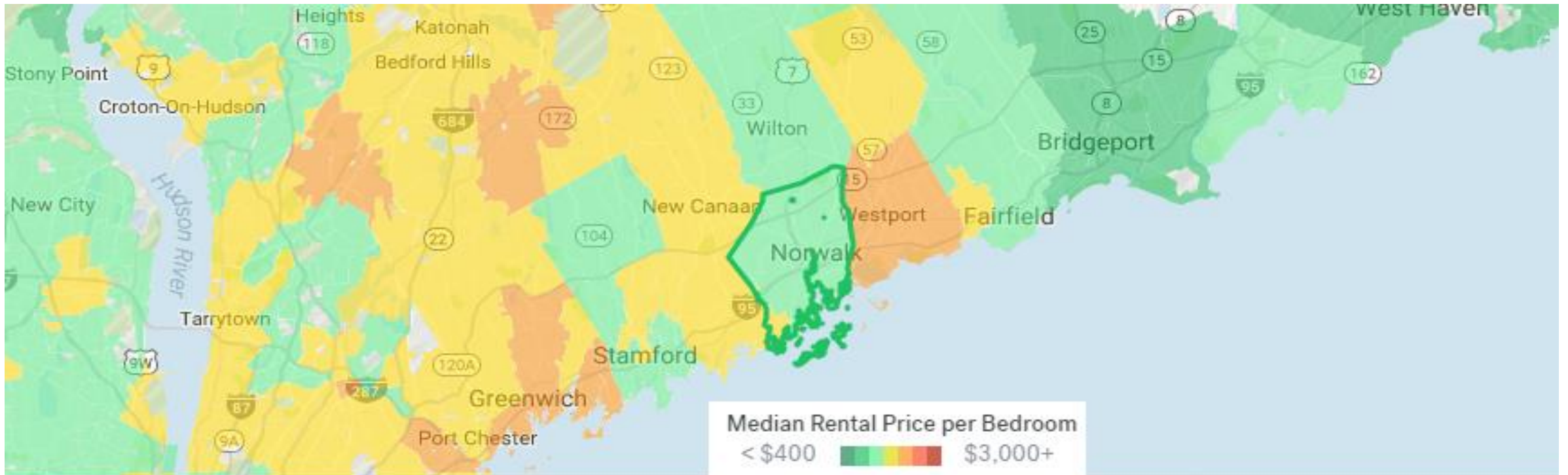
# RESIDENTIAL MARKET: NORWALK IS AMONG THE MOST AFFORDABLE COMMUNITIES IN FAIRFIELD COUNTY



Source: May 2017 Trulia Real Estate Guide Query



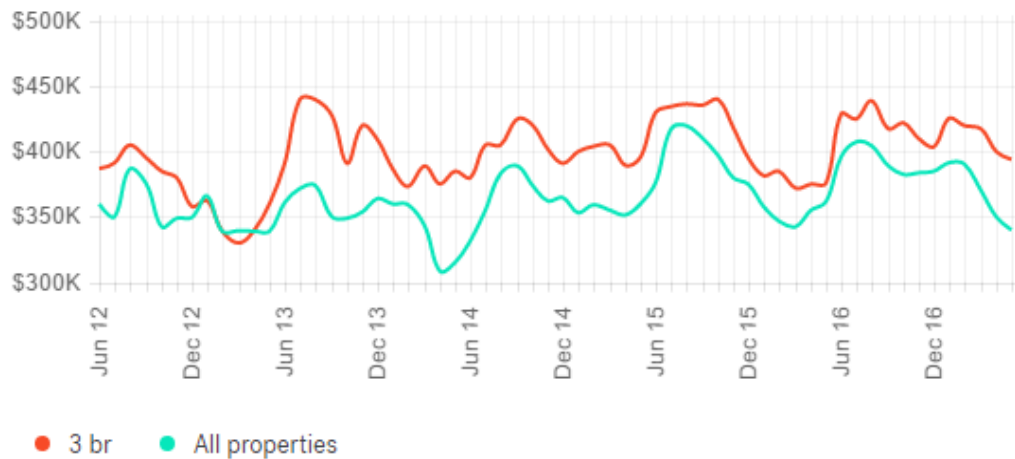
# RESIDENTIAL MARKET: NORWALK IS AMONG THE MOST AFFORDABLE COMMUNITIES IN FAIRFIELD COUNTY



Source: May 2017 Trulia Real Estate Guide Query

# RESIDENTIAL MARKET: THERE IS A SUBSTANTIAL INVENTORY OF SINGLE FAMILY HOMES ON THE MARKET IN NORWALK

Median Sales Price

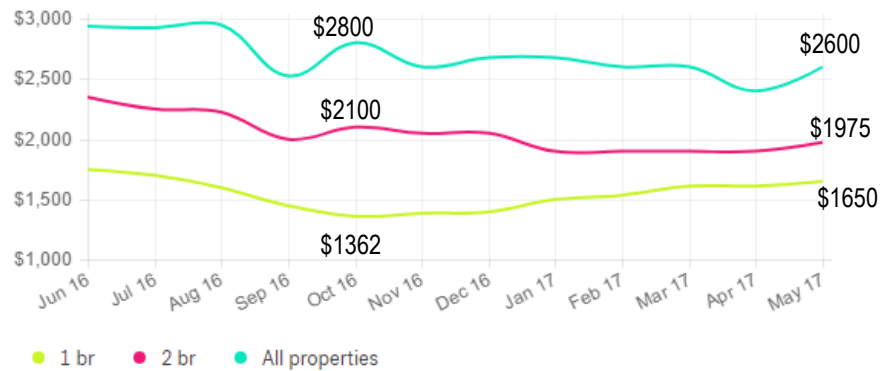


- Trends in Norwalk show a -8% year-over-year drop in the median sales price of homes
- Housing prices while fluctuating, are trading within a range rather than showing a discernible trend over a 5 year period

Median Sales Price	\$339,125
Price Per Square Foot	\$260
Houses on Market	842
Single Family	566
Condo/Townhomes	245
Other	31

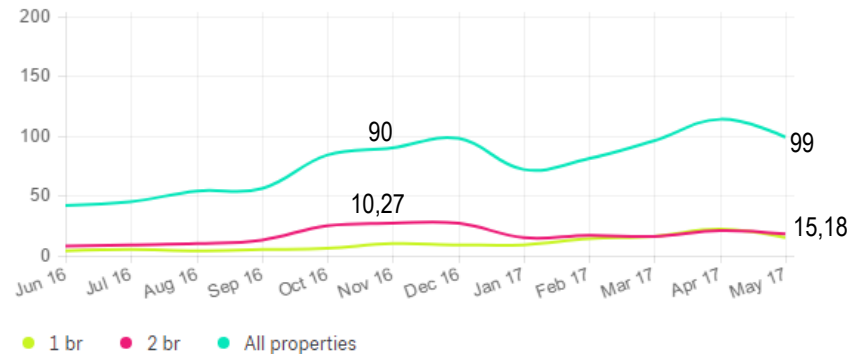
# RESIDENTIAL MARKET: RENTAL MARKET CONDITIONS SHOW VERY LITTLE 1BR/2BR RENTAL PRODUCT AVAILABLE

Median Rent



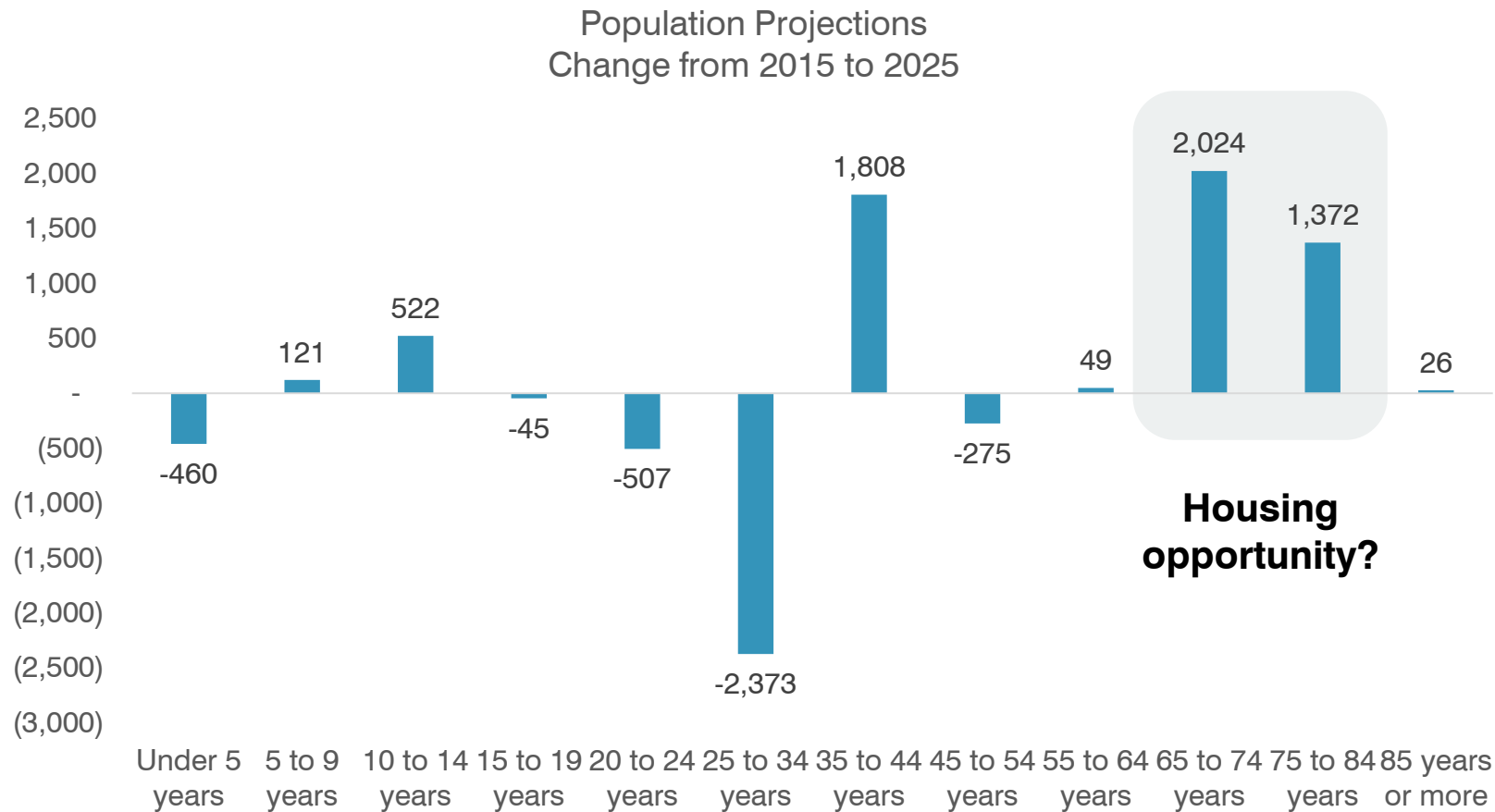
- Approximately 1/3 of the rental market are 2 bedrooms or fewer
- Available 1 br/2br unit inventory is fairly stable

Number of Rentals



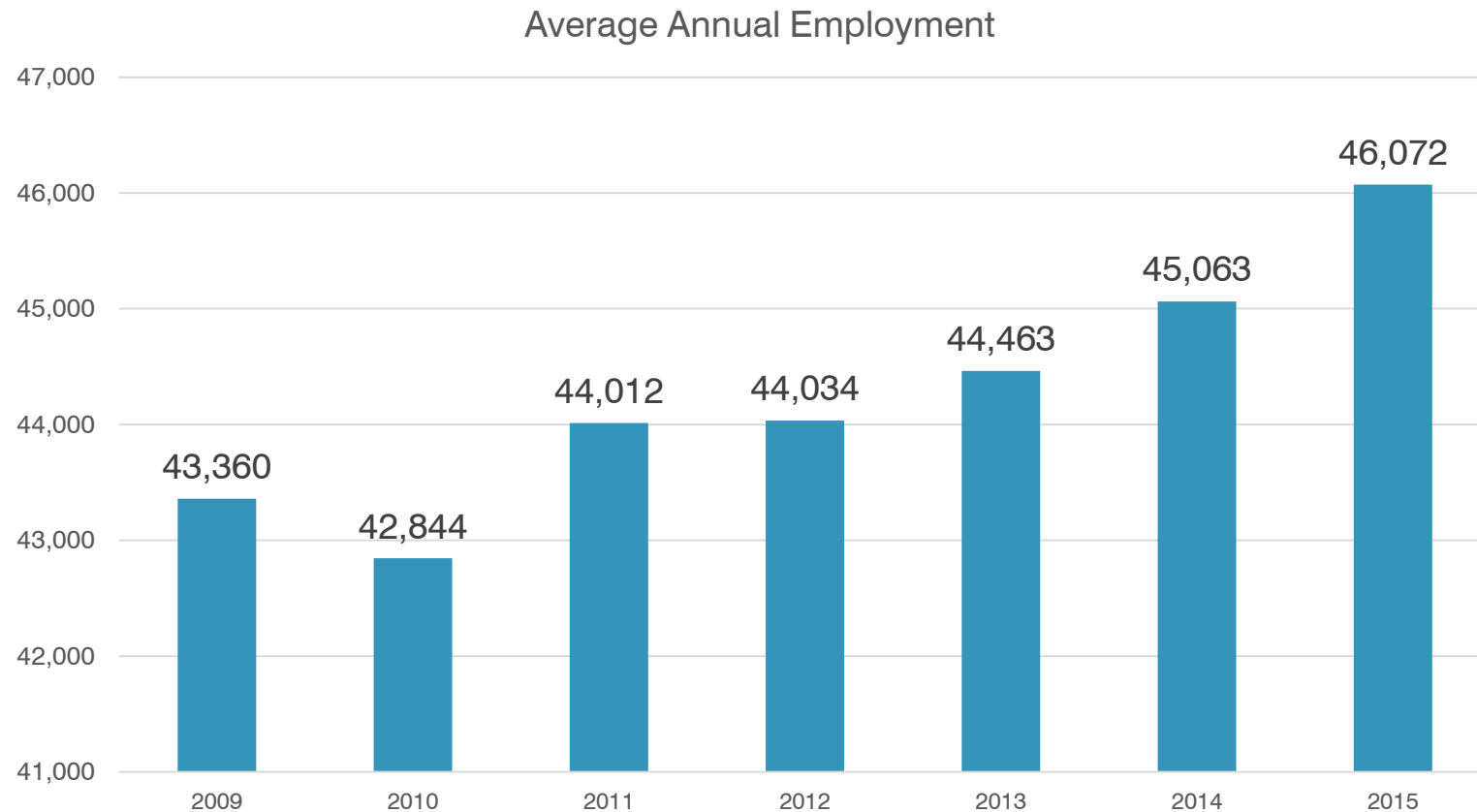


## POPULATION PROJECTIONS: A MODEST 3% INCREASE IN POPULATION IS PROJECTED THOUGH GROWTH IS UNEVEN ACROSS AGE COHORTS, WITH LOSSES IN TWENTY AND EARLY THIRTY SOMETHINGS AND INCREASES IN OLDER POPULATIONS.



Source: Connecticut State Data Center at the University of Connecticut Libraries Map and Geographic Information Center – MAGIC. (2012). 2015-2025 Population Projections for Connecticut at State, County, Regional Planning Organization, and Town levels – November 1, 2012 edition

# INDUSTRY TRENDS: NORWALK'S EMPLOYMENT HAS INCREASED BY 6% SINCE THE RECESSION



Source: 2009 & 2015 Quarterly Census of Employment and Wages (QCEW),  
State of Connecticut Department of Labor - Office of Research

## INDUSTRY TRENDS: MORE THAN 200 NEW FIRMS HAVE BEEN FORMED IN NORWALK



Source: 2009 & 2015 Quarterly Census of Employment and Wages (QCEW),  
State of Connecticut Department of Labor - Office of Research



## INDUSTRY TRENDS: THE GROWTH IN NUMBER OF BUSINESSES ARE IN HOSPITALITY AND SMALL SERVICES BUSINESSES WITH THE NOTABLE EXCEPTION OF THE INFORMATION SECTOR

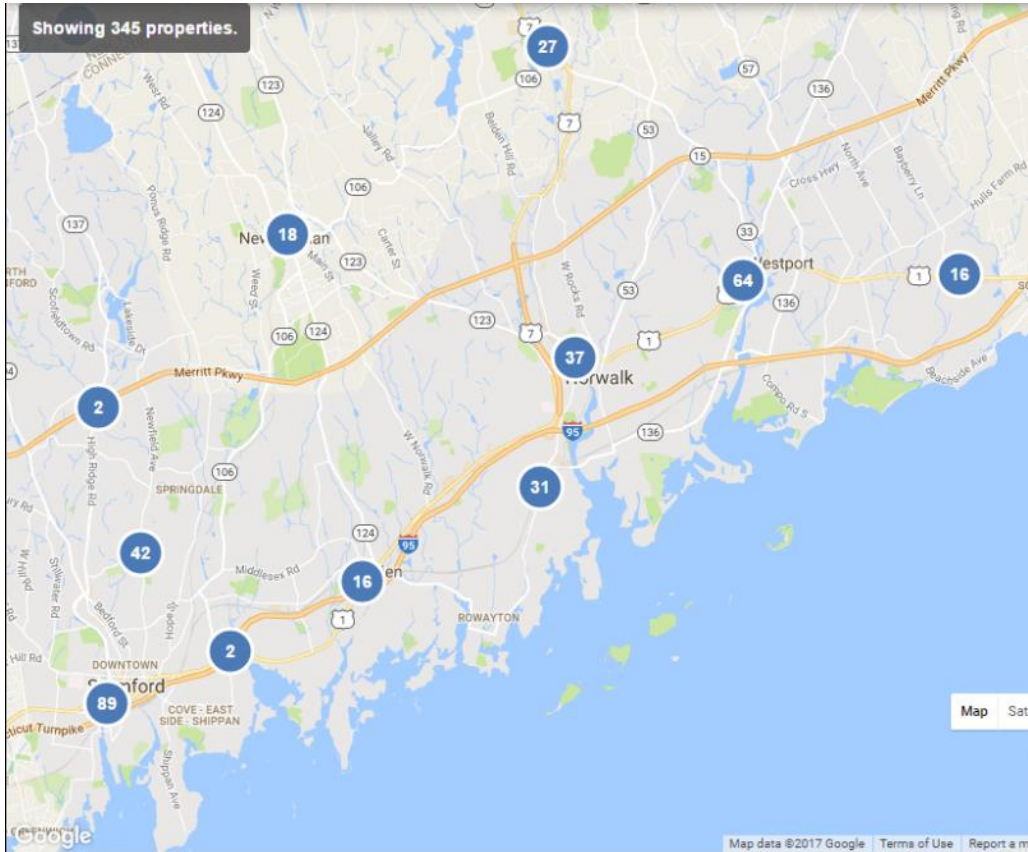
Industry	Units 2015- 2009	Change in Employment 2015-2009
Total Private	218	2712
Utilities	5	92
Construction	-16	205
Manufacturing	-15	-1363
Wholesale Trade	33	87
Retail Trade	-26	395
Transportation and Warehousing	-7	1
Information	9	1227
Finance and Insurance	4	698
Real Estate and Rental and Leasing	16	74
Professional, Scientific, and Technical Services	37	-140
Management of Companies and Enterprises	4	-182
Admin Svcs & Waste Management	31	-236
Educational Services	5	-101
Health Care and Social Assistance	17	717
Arts, Entertainment, and Recreation	14	414
Accommodation and Food Services	40	566
Other Services (except Public Administration)	57	111

← Office driven employment but will this trend continue?

← Increase in firms but decline in employment suggest growth in smaller businesses that may not have enough credit capacity to support real estate development through leases

← Household services, beauty/spa services

# COMMERCIAL MARKET: THERE IS A SUBSTANTIAL AMOUNT OF COMMERCIAL SPACE AVAILABLE IN THE REGION

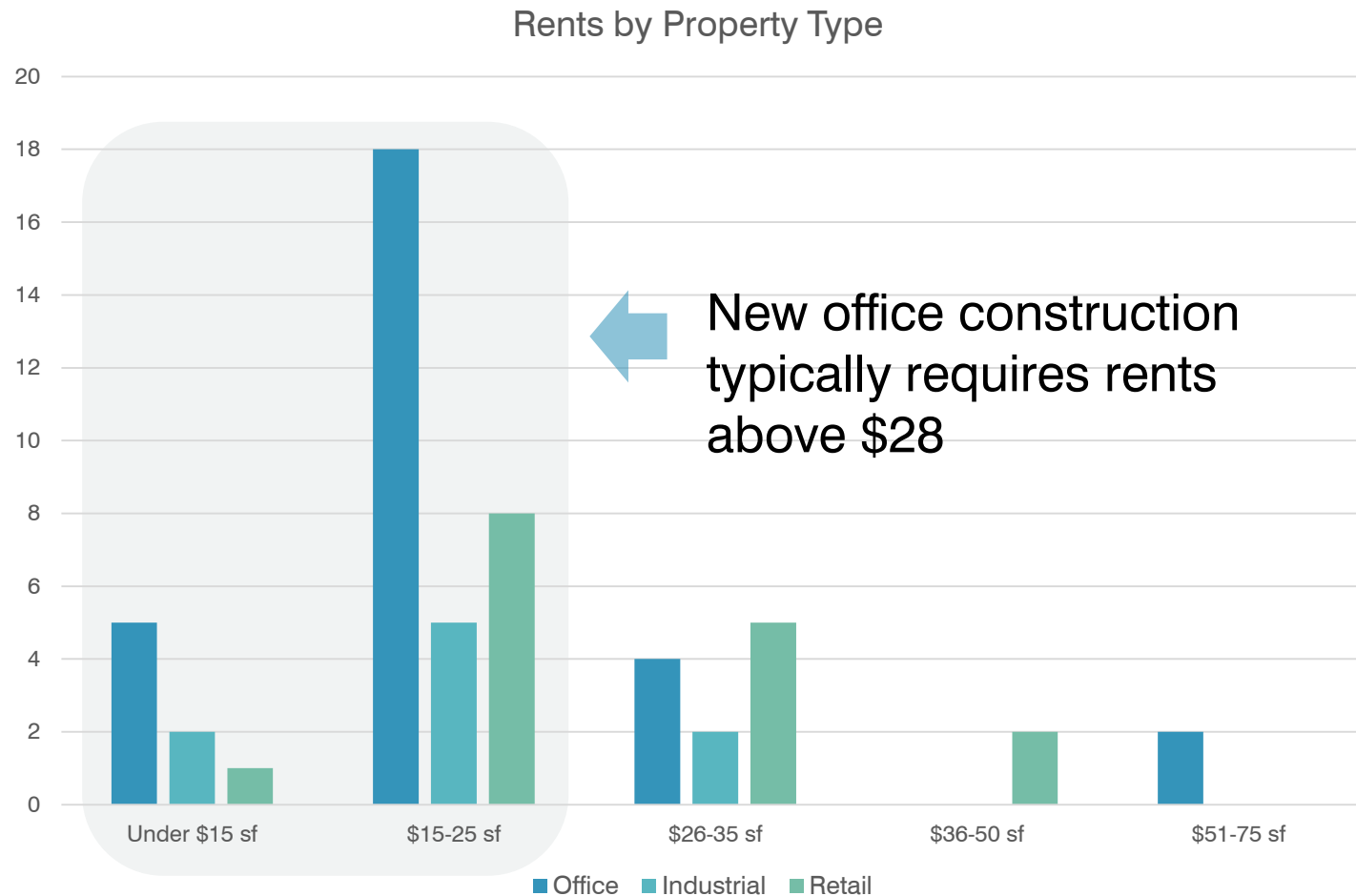


- 345 available properties in the region
- Norwalk is 22% of the regional market

	For Sale	For Lease
Office	9	40
Industrial	4	12
Retail	6	30
Medical	0	1

Source: May 2017 Cityfeet query for Norwalk Commercial properties. Note that category sum differs from property total as some properties have multiple uses.

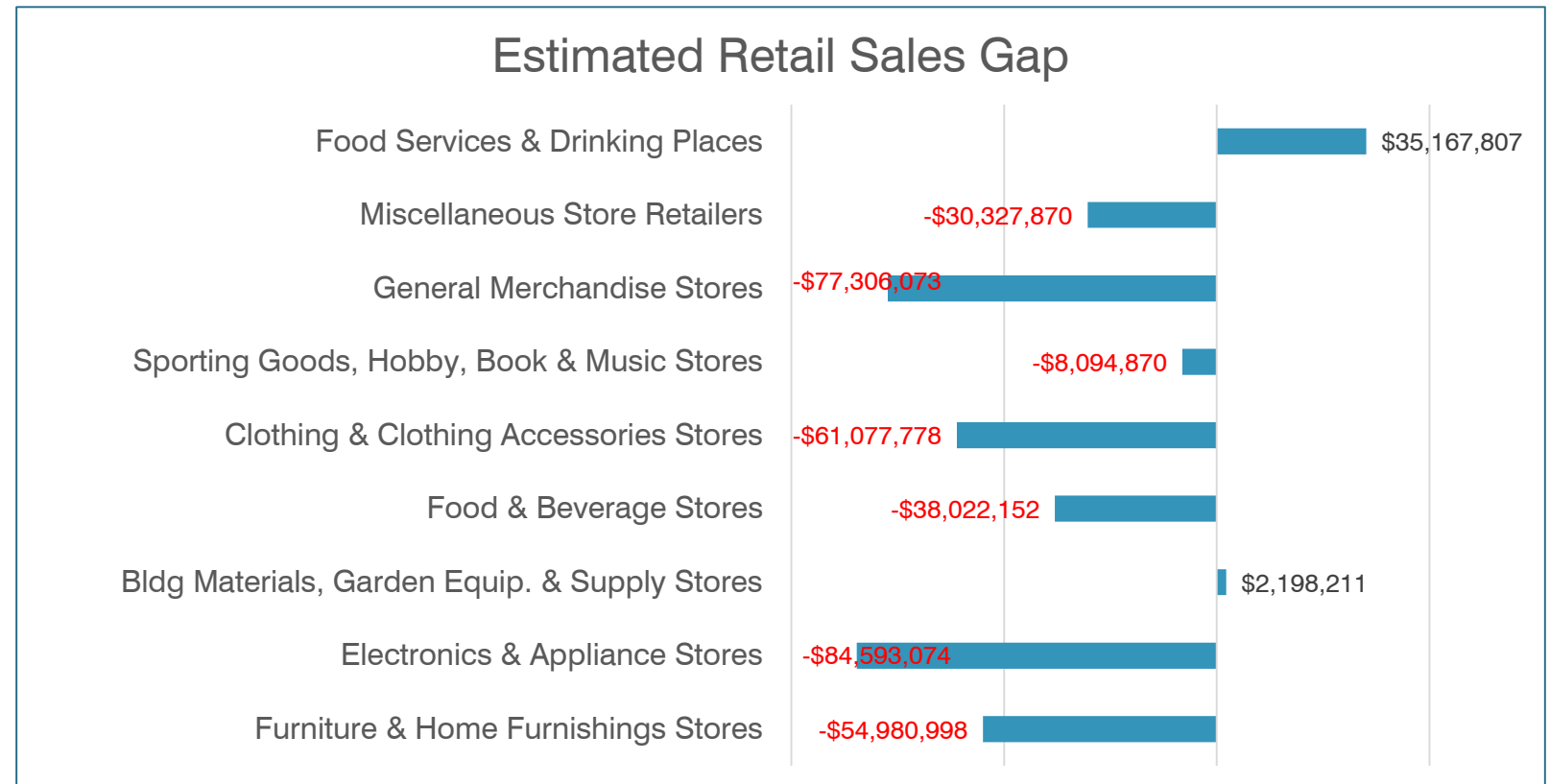
# COMMERCIAL MARKET: BASED ON MARKET CONDITIONS NEW OFFICE / INDUSTRIAL CONSTRUCTION WILL LIKELY BE TENANT SPECIFIC BUILD TO SUIT



Source: May 2017 Cityfeet query for Norwalk Commercial properties. Note that category sum differs from property total as some properties have multiple uses.

# RETAIL MARKET: HIGH LEVEL RETAIL ANALYSIS SHOWS THAT NORWALK IS HIGHLY DEPENDENT ON BRINGING IN OUTSIDE SPENDING TO SUPPORT ITS RETAIL CAPACITY

- There appears to be additional room for restaurant capacity
- New retail would need to find specific market niches and runs the risk of cannibalizing existing retail





# MARKET ANALYSIS EARLY CONCLUSIONS

- Based on market trends and conditions **residential development** is the most likely driver of reuse of this property, however...
- This analysis does not preclude a curated, targeted development either as a build to suit office situation or some other unique development idea brought forth by a developer

# CASE STUDIES & RETIREMENT OPTIONS



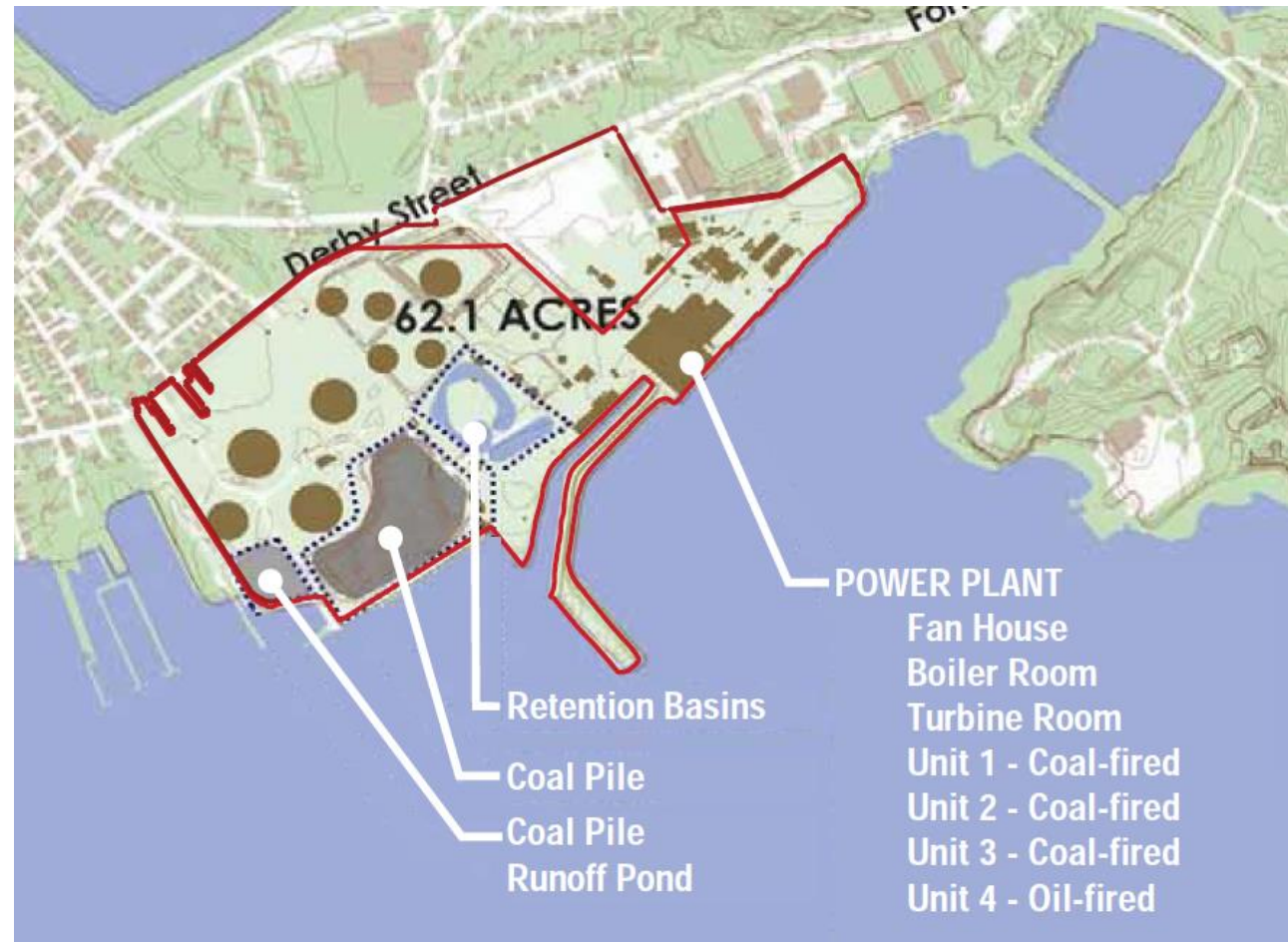
# CASE STUDY: SALEM HARBOR POWER STATION, MA

- Coal Fired Power Plant
- Began operation in 1950's
- Taken offline in 2014
- Demolished in 2016



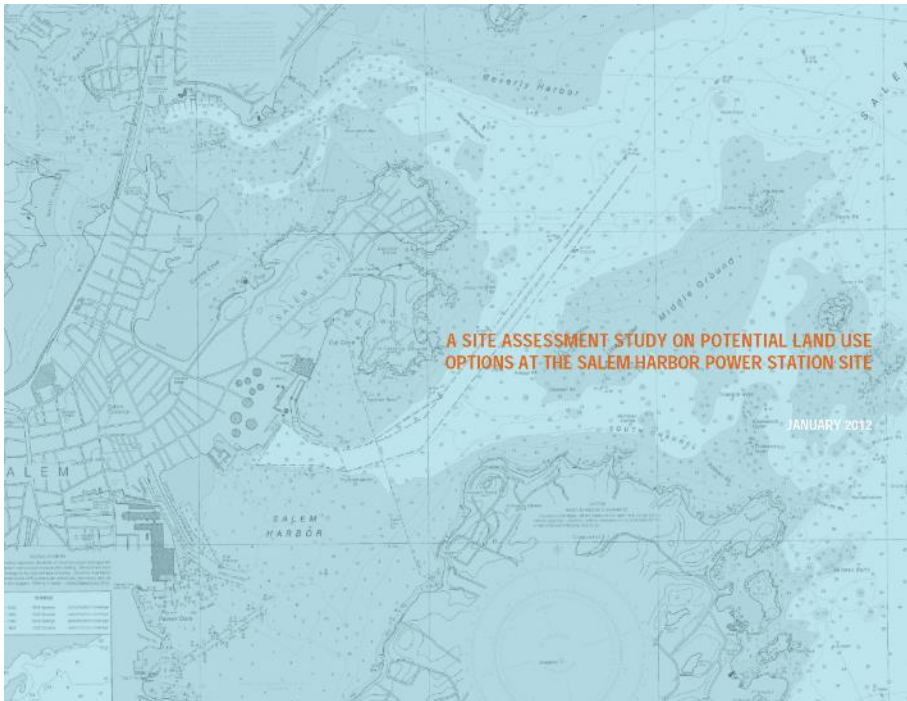


# CASE STUDY: SALEM HARBOR POWER STATION, MA





# CASE STUDY: SALEM HARBOR POWER STATION, MA



- Reuse study was conducted in 2012



## CASE STUDY: SALEM HARBOR POWER STATION, MA

	Lower Range	Higher Range
Site Remediation	\$5 Million	\$20 Million
Abatement	\$10 Million	\$10 Million
Demolition	\$70 Million	\$75 Million
Salvage Value Credit	(\$25 Million)	(\$20 Million)
<b>Total Cost For Demolition And Remediation</b>	<b>\$60 Million</b>	<b>\$85 Million</b>

# CASE STUDY: SALEM HARBOR POWER STATION, MA

## Old Salem power plant falls as new one rises



Footprint Power®  THE PROJECT THE TEAM RESOURCES HISTORY NEWS  
SALEM HARBOR STATION [CONTACT](#)

# Salem Harbor

The Project

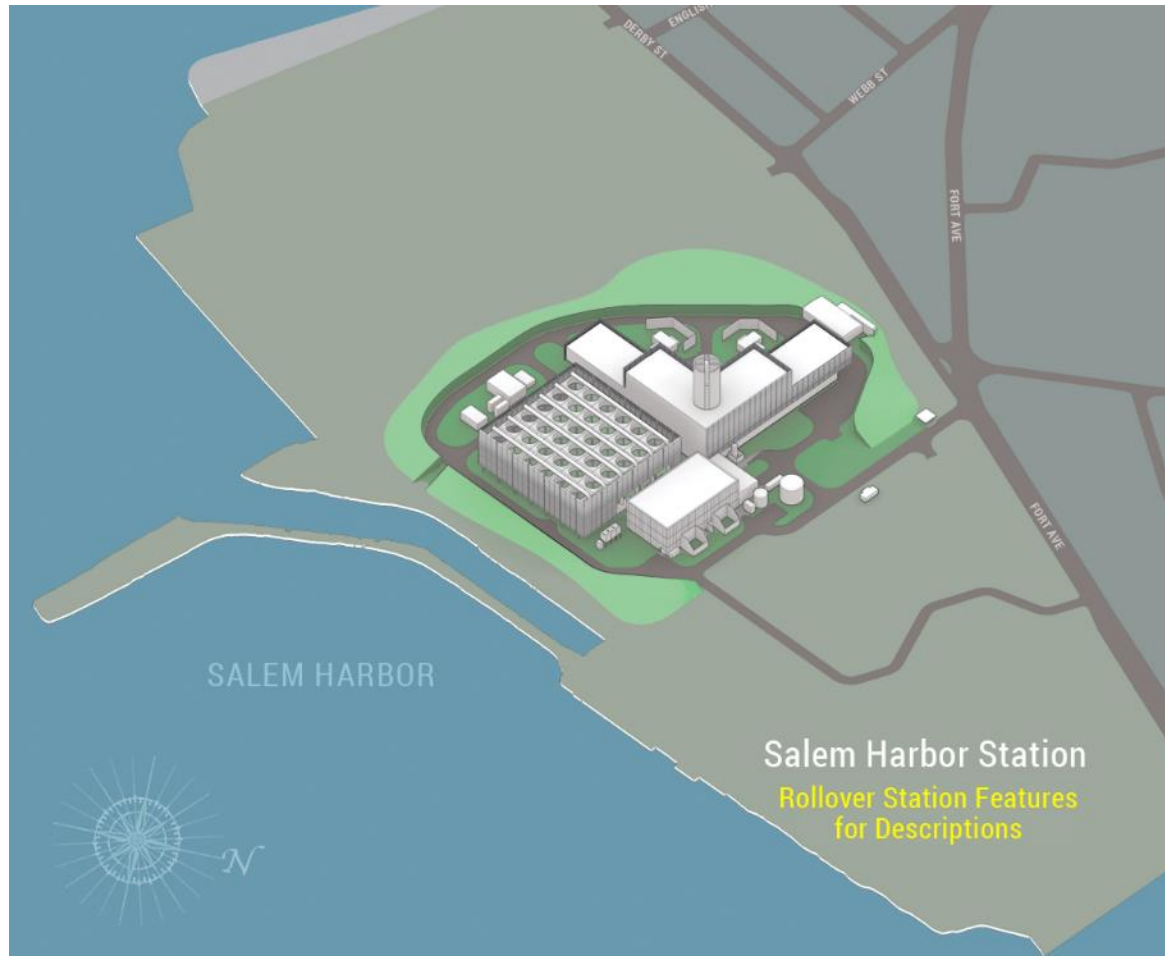
[Pathway to Cleaner Energy](#) [Power Station for the Future](#) [Environmental Commitment](#) [What's Next?](#)

The new Salem Harbor Station is a 674-megawatt (MW) natural gas-fired, quick-start, combined-cycle electric generating facility on a 23 acre portion of the original 65-acre Salem Harbor Generating Station, a coal-fired generating plant site. It will produce and provide efficient, reliable, low-emission electrical power to New England, and will support the introduction of new renewable resources to the energy grid.





# CASE STUDY: SALEM HARBOR POWER STATION, MA





# COAL TO BIOMASS CONVERSIONS

## Coal Plants Switch to Bioenergy in the UK

Tough emissions legislation has prompted a switch in feedstocks to make the UK's Tilbury Power Plant the world's largest biomass plant.

February 14, 2012



# COAL TO SOLAR FACILITY CONVERSIONS



## Former Massachusetts Coal Plant Site to Become a Solar Farm

Oct 13, 2016



Former Massachusetts Coal Plant Site to Become a Solar Farm



# TYPICAL POST RETIREMENT OPTIONS

- **Retirement and Decommissioning:** Decommissioning includes abatement, removal of regulated materials, structural demolition, remediation, and restoration of a site suitable for beneficial use. Of the 200 or so announced closures since 2000, about 35 sites have been decommissioned.
- **As-Is Sale for Decommissioning and Redevelopment:** Some owners opt to sell closed power plants as-is, because these sites have significant redevelopment potential. Developers may be willing to assume the risk of decommissioning in exchange for a reduced purchase price.
- **Retrofit:** Conversion to Natural Gas: Conversion from coal or oil to natural gas can be the most economical solution, there are about 30 gas conversion projects under way across the country.
- **Replacement with New Generation:** Would include modernizing and reactivating former generation. Very unlikely for the Norwalk Plant.

# TYPICAL POST RETIREMENT OPTIONS

- **Sale for Redevelopment:** Buyers may be willing to decommission plant structures in exchange for a risk adjusted lower purchase price. Remediation costs can be included and risks can be managed through the use of contract terms, escrows, and environmental insurance.
- **Owner-Controlled Decommissioning:** In some cases, owners may not be able to sell a site, and they may not want to give up a site that may be useful for new generation or transmission. In these cases, they may opt to decommission aging plants to reduce risk, monetize salvage and scrap, and prepare a site for future uses. This would reduce carrying costs for taxes and security.
- **No Action:** The no action decision is taken on the majority of closed power plants nationwide. Owners are reluctant to act because of costs, risk, and the attitude that “we’re not in the real estate business.” Economic drivers are unknown until engineering and real estate studies are performed. There are no federal or state requirements to decommission or sell these facilities, so they sit idle. As the number of closed plants grows, this issue will become more visible, especially to local communities.



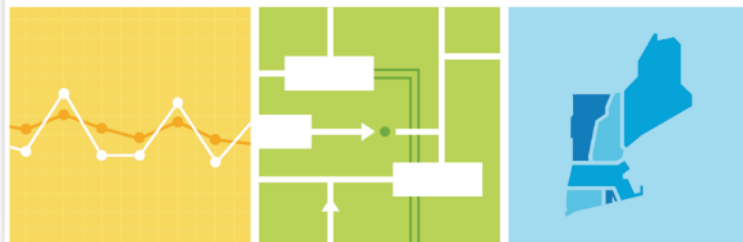
# ISO NEW ENGLAND PLANNING



## 2015 Regional System Plan

© ISO New England Inc.  
System Planning  
NOVEMBER 5, 2015

ISO-NE PUBLIC



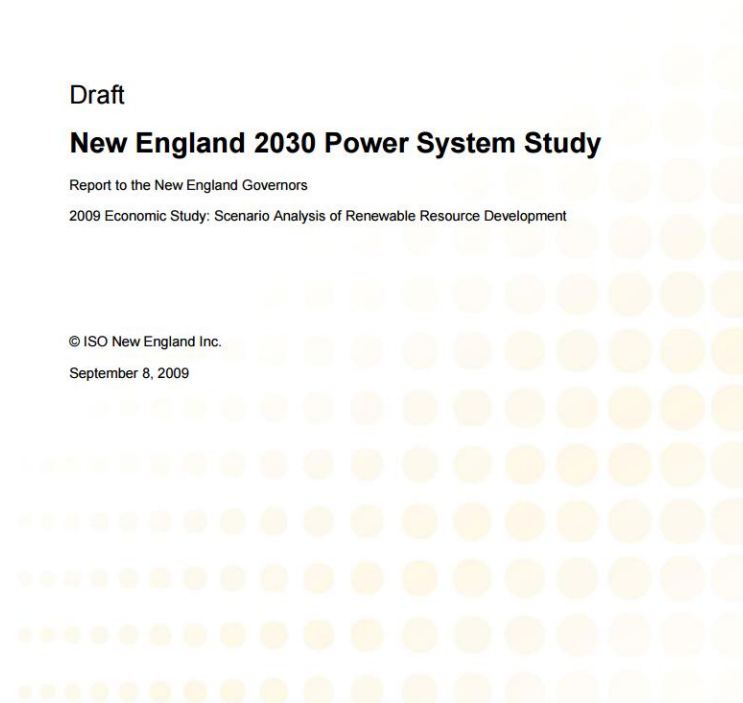
Draft

## New England 2030 Power System Study

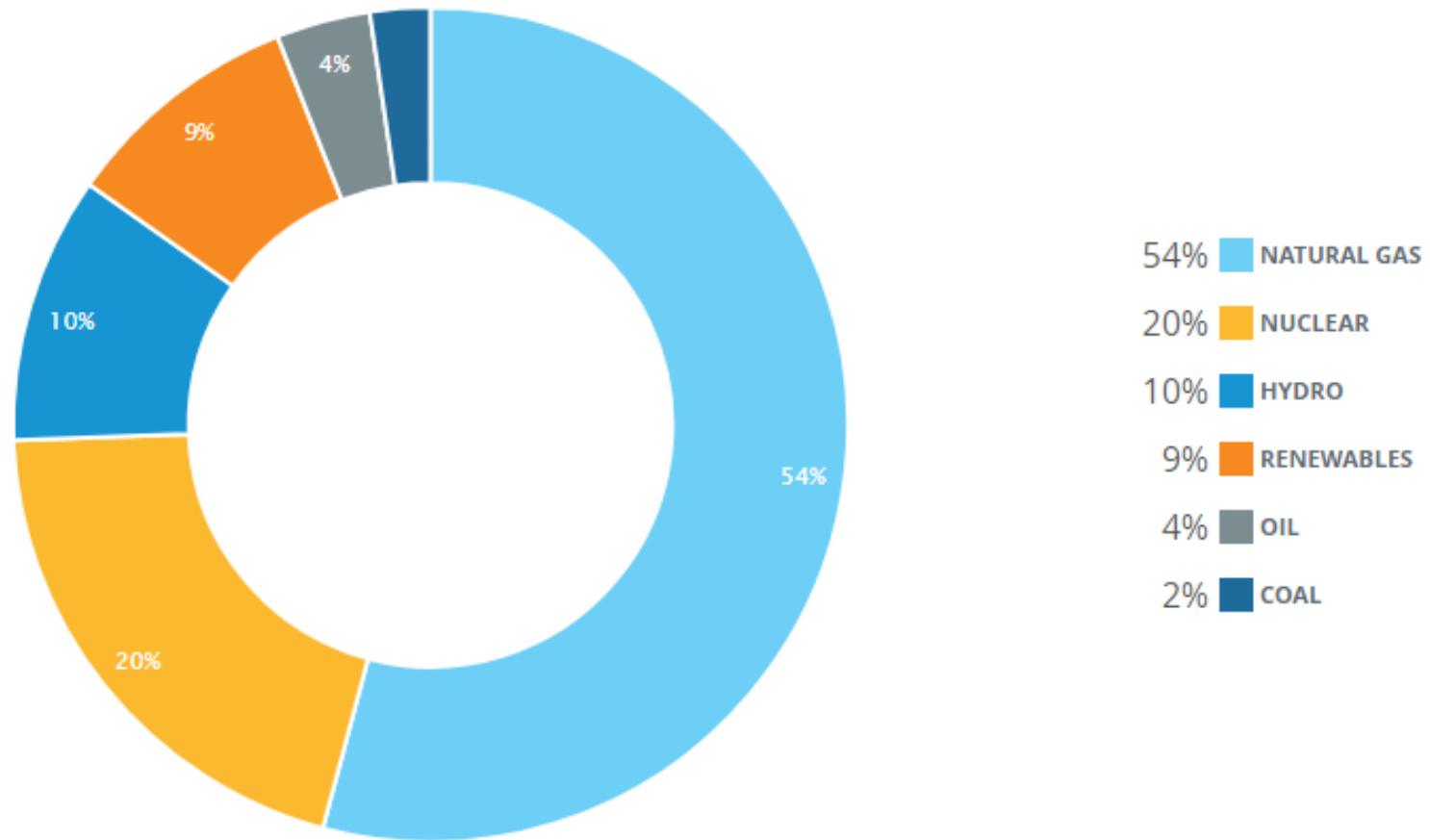
Report to the New England Governors

2009 Economic Study: Scenario Analysis of Renewable Resource Development

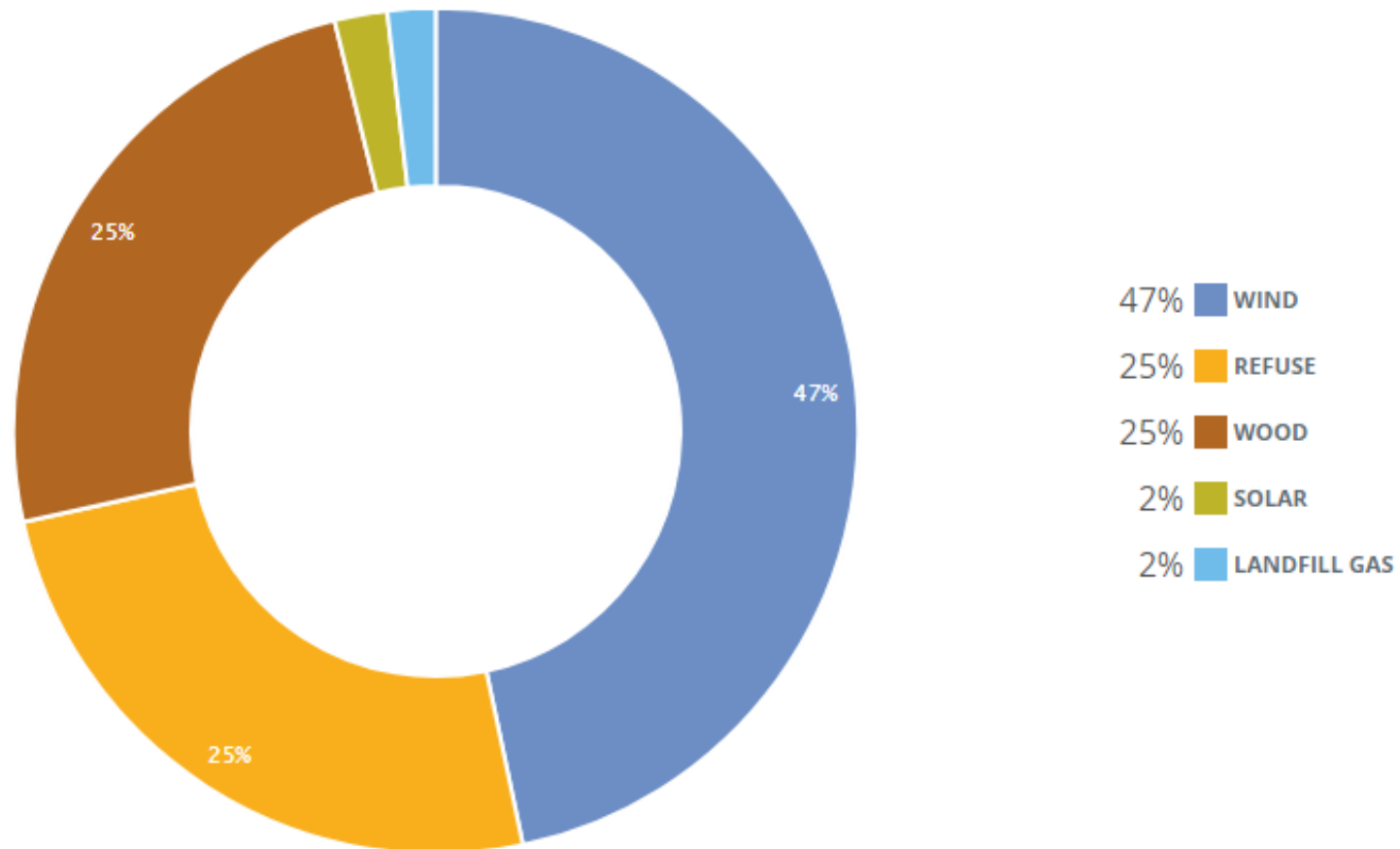
© ISO New England Inc.  
September 8, 2009



# NEW ENGLAND GENERATION PROFILE

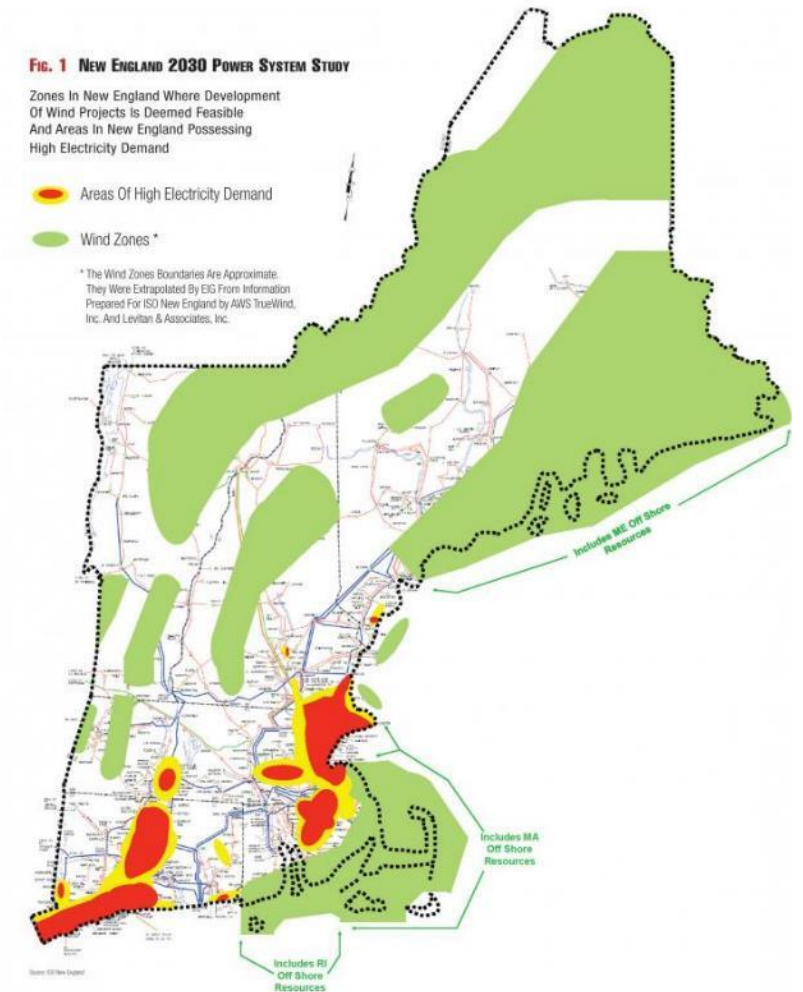


# NEW ENGLAND ALTERNATIVE GENERATION PROFILE



# GENERATION OUTLOOK

*Although each of the Greater CT, SWCT, and NEMA/Boston areas are likely to have sufficient resources in the long term to meet their representative reserve requirements, the placement of fast-start, energy-efficiency, and economical baseload resources in these areas would improve system performance, especially in the short term for the NEMA/Boston area.*





# GENERATION OUTLOOK

- *The use of natural-gas-fired combined-cycle units and fast-start units in the ISO's interconnection queue will likely meet the long-term needs for additional operating reserves.*
- *Studies show the most reliable and economic place for developing new resources is the combined NEMA/SEMA/RI area.*
- *The (2030) study recognizes that New England also has the potential for expanding energy trade with neighboring regions. The ISO identified options for importing additional power through expanded transmission interconnections with New York...*

# ONLINE SURVEY

## Manresa Island Economic Analysis and Reuse Study

### About Manresa Island

Manresa Island was formerly known as Bouton's Island and then later as Keyser Island. In the early 1900's the Island was home to a Jesuit retreat called "Mount Manresa". In 1953 the Norwalk Zoning Commission approved a plan to build a coal power plant on the island with a 3-1 vote.

The power plant was built in the late 1950's and was commissioned for use by CL&P in 1960. The plant was initially coal powered but was converted to oil in 1972. The site has multiple areas of hazardous materials contamination that are primarily associated with coal storage and coal ash disposal. Much of the island's forested area sits upon coal ash deposits.

In 1992 a transmission line was installed below Long Island Sound from Manresa to Long Island. In 1999 NRG Energy purchased the power plant from CL&P and operated the facility until June 2013, when it was decommissioned. Remediation plans are currently being developed and the future of the site is uncertain. Additionally, the site is vulnerable to storm surge and flooding events. In 2012 the Manresa property was almost completely underwater during Hurricane Sandy.

The City is currently working with the Manresa Association (a local neighborhood group) to conduct an economic analysis and reuse study to assess potential future uses of the property. In support of this study, the City seeks your input in assessing potential future uses of this property. By taking the following survey, you will provide us with valuable information that will inform this decision making process. The survey will take about five minutes to complete.



## Manresa Island Economic Analysis and Reuse Study

### Please tell us about yourself

#### 1. Where do you live?

- ☐ Within a five minute drive of Manresa Island
- ☐ In Norwalk but more than a five minute drive from Manresa Island
- ☐ Outside of Norwalk

#### 2. What is your age?

- ☐ Under 21
- ☐ 21-30
- ☐ 31-40
- ☐ 41-50
- ☐ 51-60
- ☐ 61+

33%

Prev

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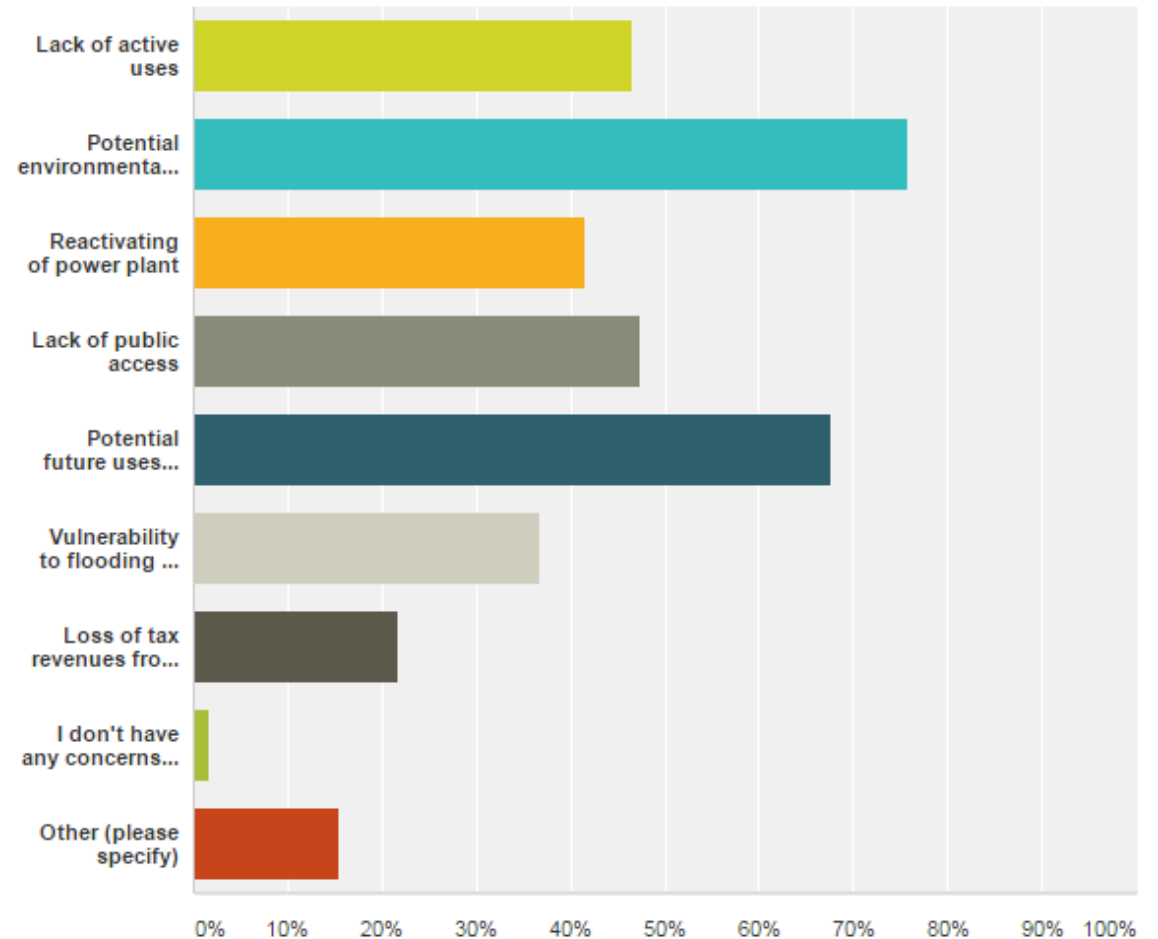
# WHAT WE HAVE HEARD FROM THE SURVEY

- 489 responses to date
- 51% of respondents live within a five minute drive of Manresa Island
- 63% of respondents “know the property well”
- 67% of respondents believe that the property is “very significant to Norwalk’s landscape and identity”
- 78% of respondents believe that “The City should be very engaged in facilitating a desirable reuse of the property”

# WHAT WE HAVE HEARD FROM THE SURVEY

When asked “What concerns, if any, do you have about the property”, The most common response was:

- “Potential environmental hazards” and
- “Potential future uses that are incompatible with the adjacent neighborhoods”

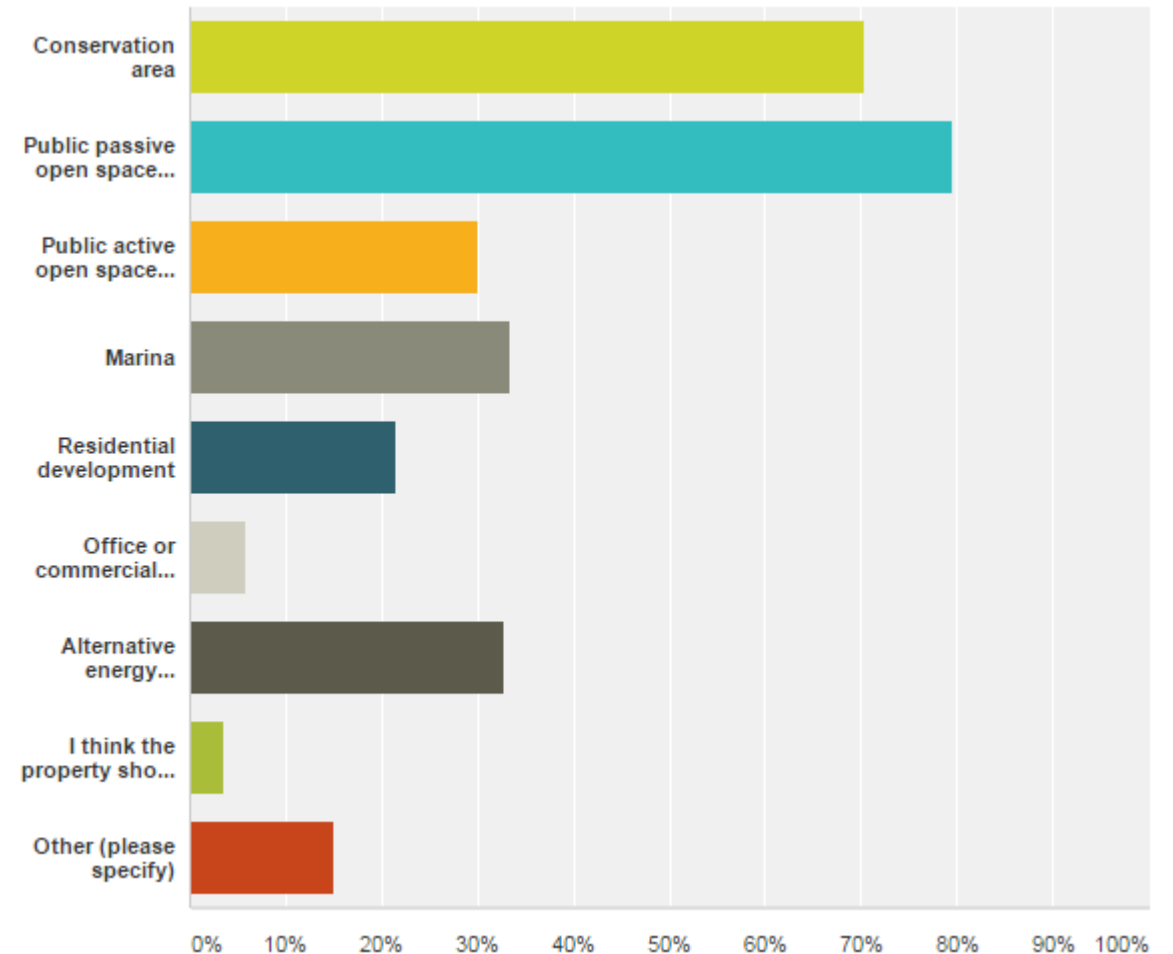




# WHAT WE HAVE HEARD FROM THE SURVEY

When asked “How do you think that Manresa Island should be reused”, The most common response was:

- “Public passive open space” and
- “Conservation area”



## NEXT STEPS

- Identify potential future uses for the property
- Conduct a build-out analysis to determine what could be built on the property
- Evaluate pros and cons of potential uses
- Conduct public presentation to review potential reuse options (July)