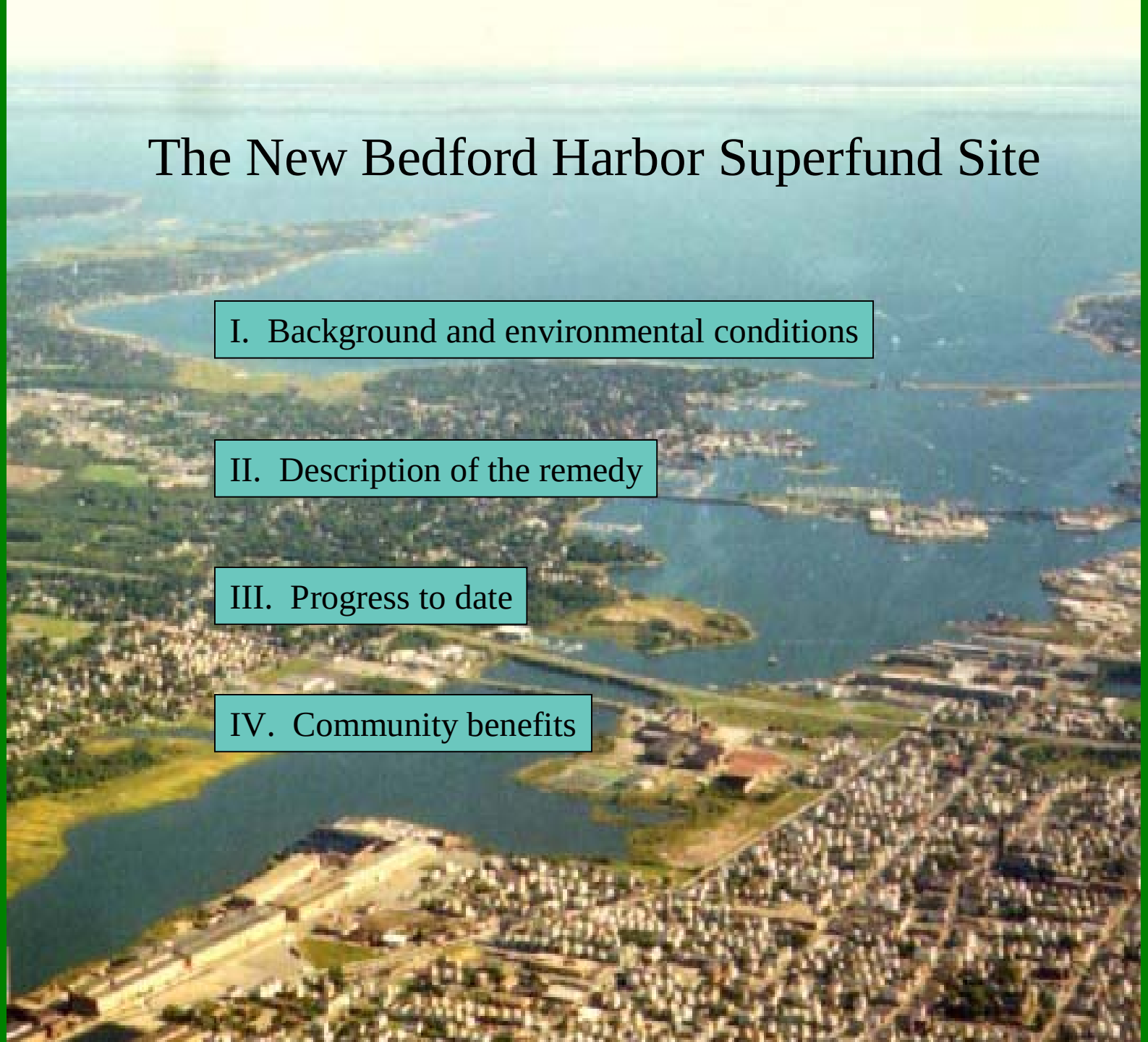
The New Bedford Harbor Superfund Site

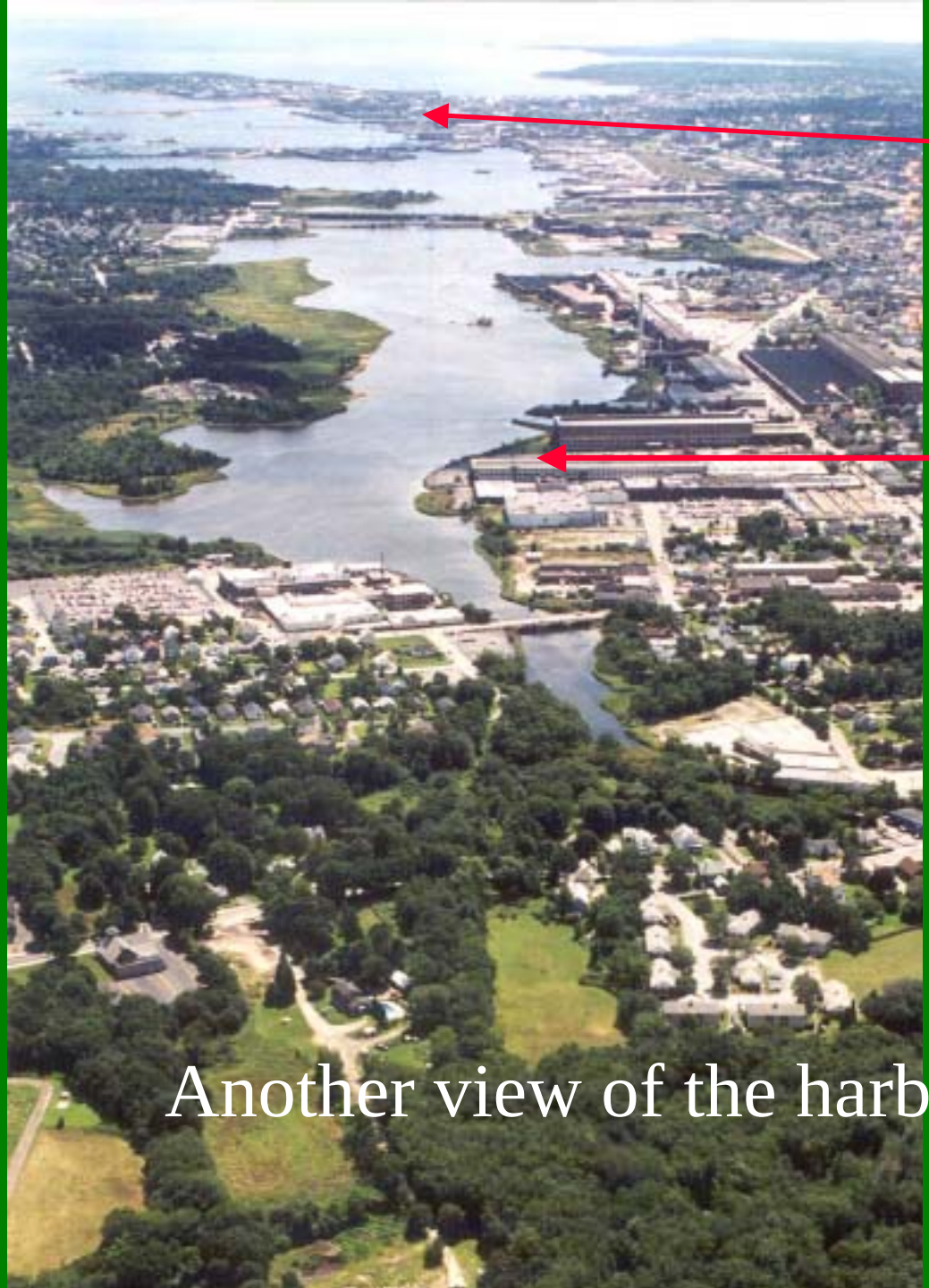


I. Background and environmental conditions

II. Description of the remedy

III. Progress to date

IV. Community benefits

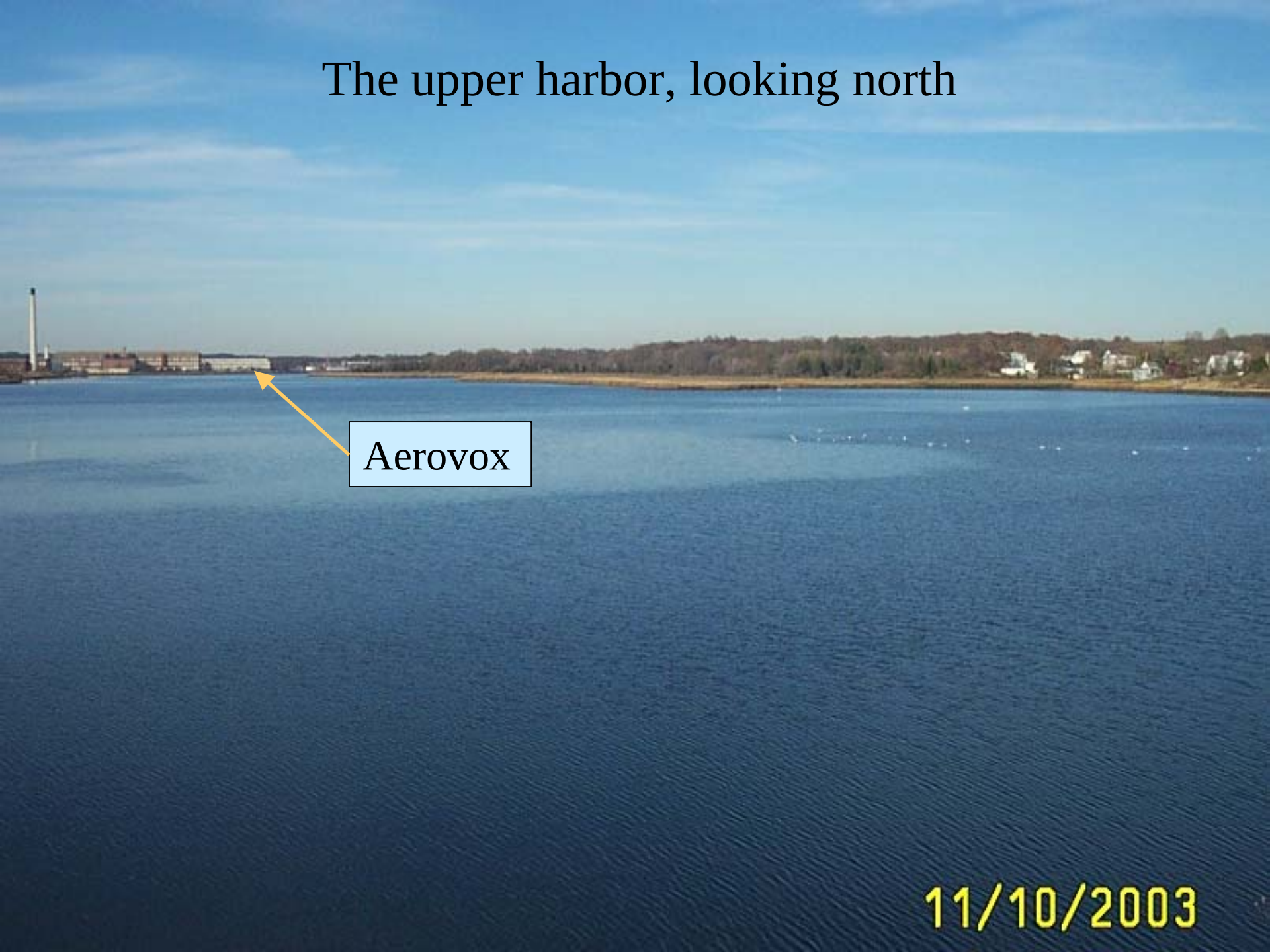


Another view of the harbor

Some key features

A closer look at the upper harbor, looking south

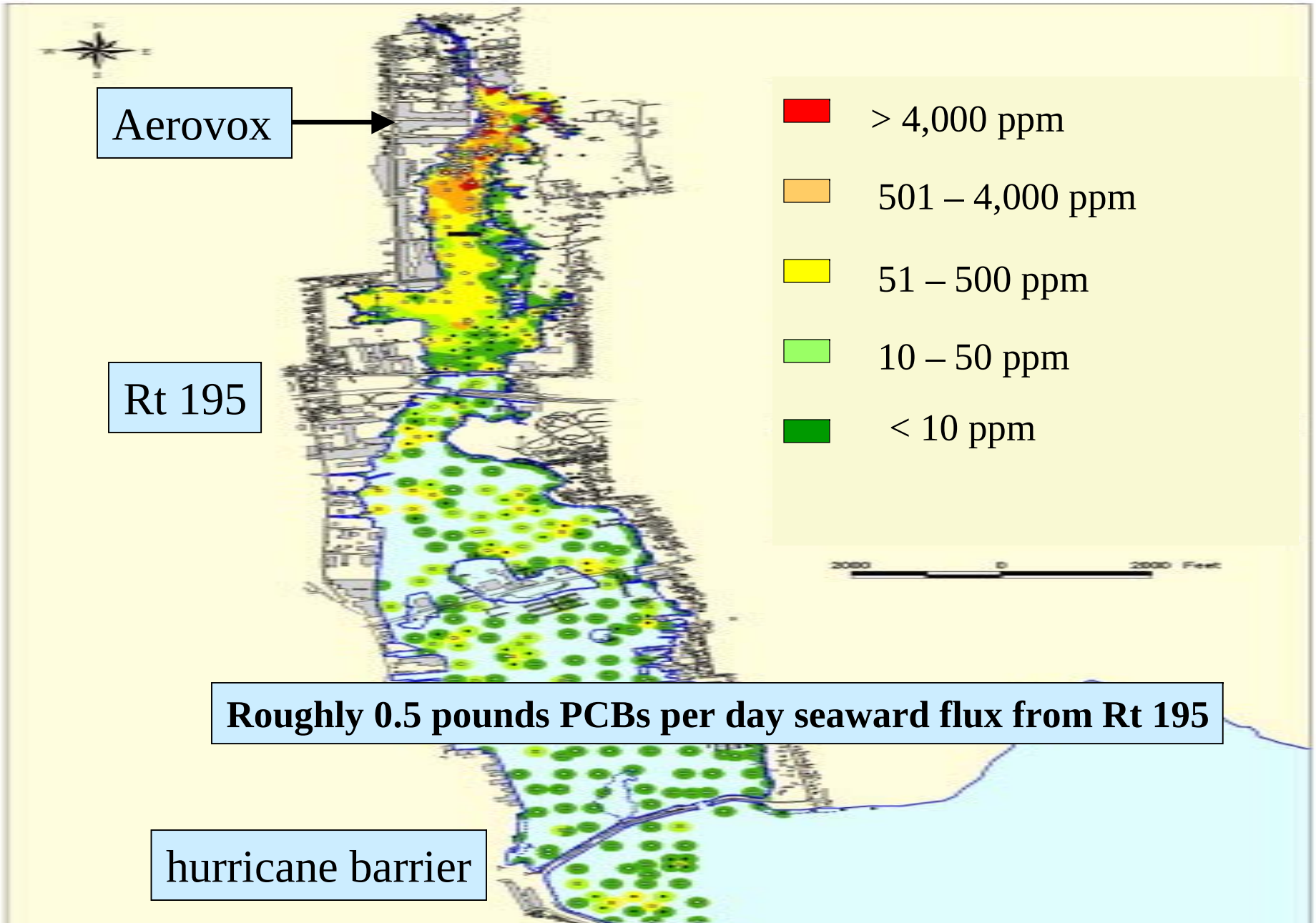
The upper harbor, looking north



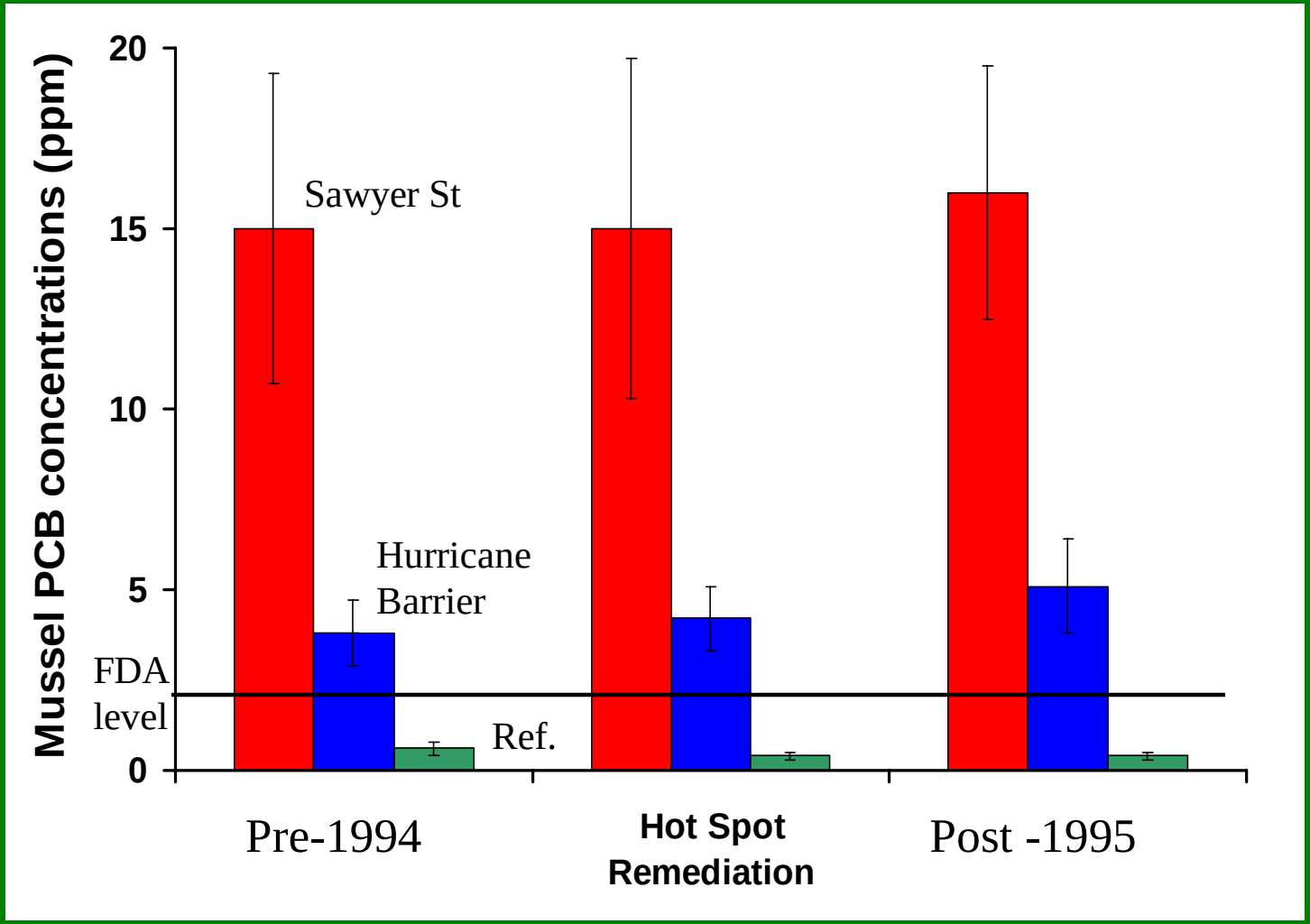
Some quick PCB history

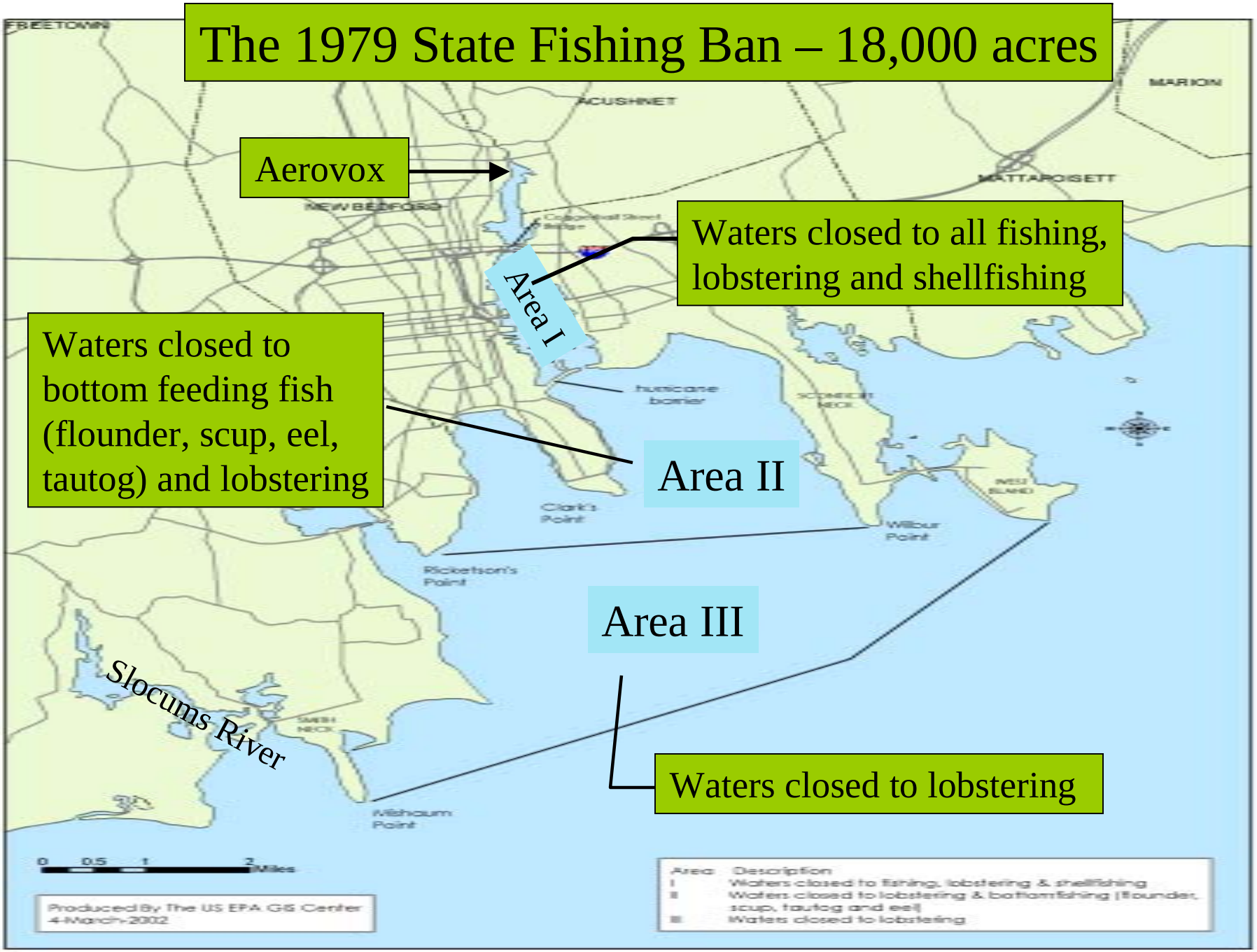
- c. 1940 2 capacitor factories move to town, begin using PCBs
- PCB oil used as an insulator/dielectric fluid in the capacitors
- oily PCB waste discharged to harbor leading to high levels of sediment contamination
- PCBs accumulate within the marine food chain to become a health risk to humans eating local fish (ICR = $4x10^{-3}$)
- additional health risks due to PCB contaminated shorelines in residential and recreational areas (ICR = $4x10^{-4}$)

PCBs in sediment – top foot



Some Blue Mussel Data - Above FDA




The 1979 State Fishing Ban – 18,000 acres
Aerovox
Waters closed to all fishing, lobstering and shellfishing
Area I
Waters closed to bottom feeding fish (flounder, scup, eel, tautog) and lobstering
Area II
Area III
Waters closed to lobstering
Slocums River
FREETOWN
ACUSHNET
MARION
MATTAPOISETT
NEW BEDFORD
hurricane barrier
Clark's Point
Wilbur Point
Ricketson's Point
Mishaum Point
0 0.5 1 2 Miles
Produced By The US EPA GIS Center
4-March-2002
Area Description
I Waters closed to fishing, lobstering & shellfishing
II Waters closed to lobstering & bottomfishing (flounder, scup, tautog and eel)
III Waters closed to lobstering

Ecological risks

Average water column PCB levels are 1**0 times higher** than EPA criteria (0.3 ppb v. 0.03 ppb).

Maximum sediment PCB levels are currently **10,000 times higher** than ecologically safe levels (10,000 ppm v. 1 ppm - the highest levels we're aware of in the country)

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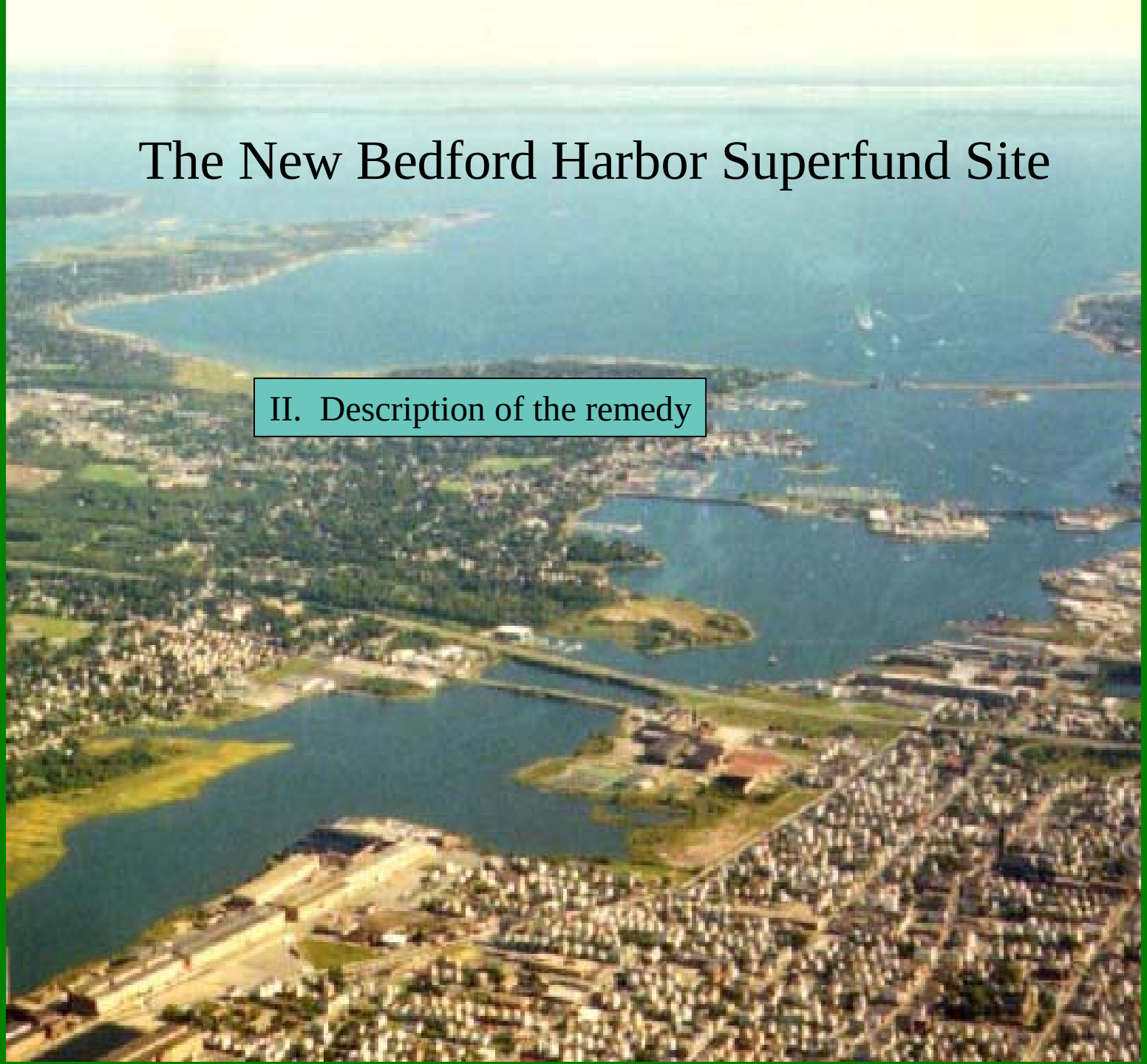
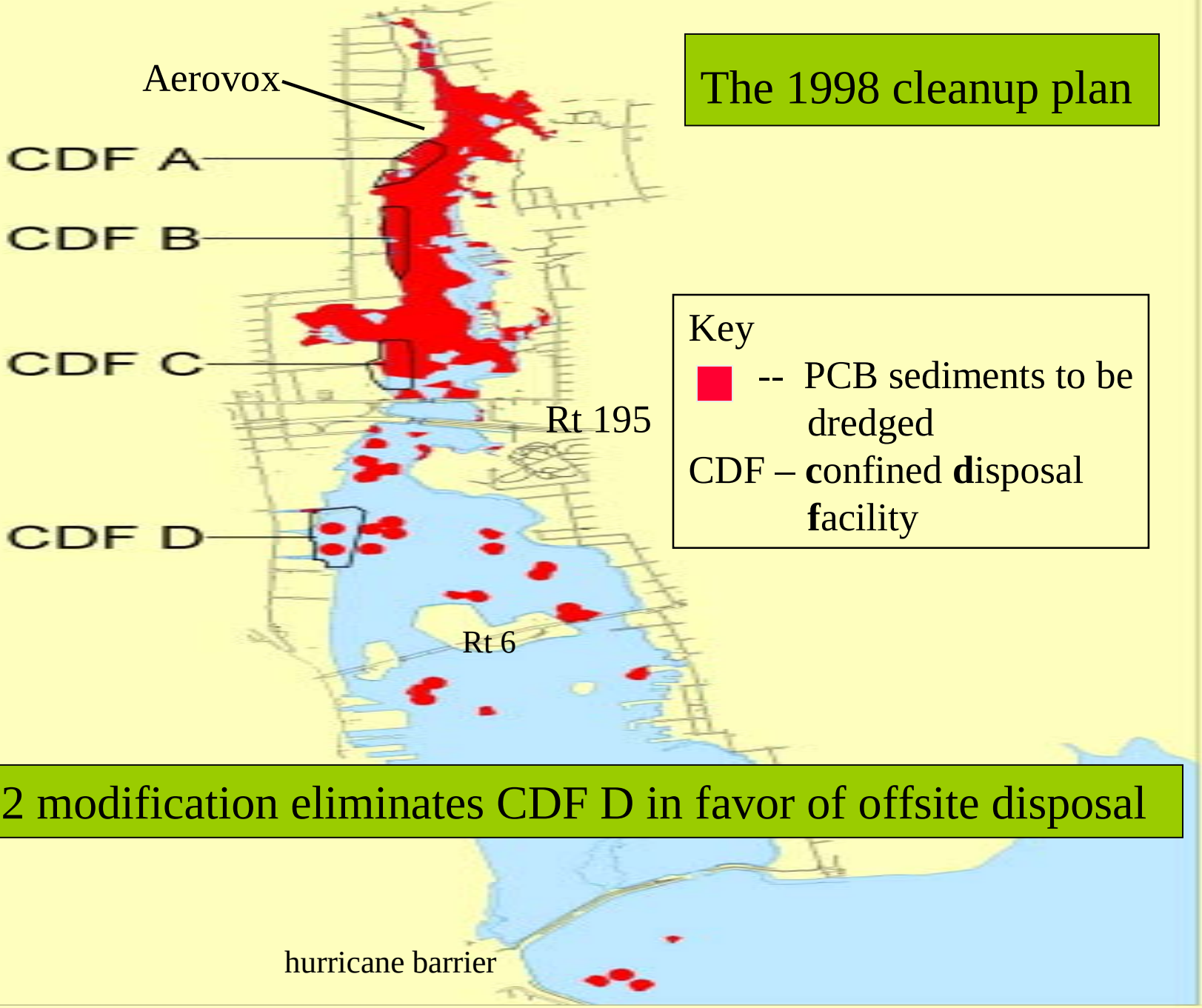


II. Description of the remedy

The 1998 cleanup plan



Key

■ -- PCB sediments to be dredged

CDF – **c**onfined **d**isposal **f**acility

2002 modification eliminates CDF D in favor of offsite disposal

Cleanup levels in the 1998 ROD

Dependent on land use and habitat type:

1 ppm - intertidal zone: residential
25 ppm - intertidal zone: public access (non-residential)

10 ppm - subtidal and mudflats, upper harbor
50 ppm - subtidal and mudflats, lower harbor

50 ppm - saltmarsh, upper & lower harbor
(with no public access)

NEW BEDFORD HARBOR

CLEANUP PROCESS

The full scale cleanup process:

Dredge(s) - location varies

Desanding facility at Sawyer St

Railyard brownfield being redeveloped, rail spur to dewatering facility

Submerged dredge pipeline

Dewatering, water treatment and transfer facility

Full Scale Dredging

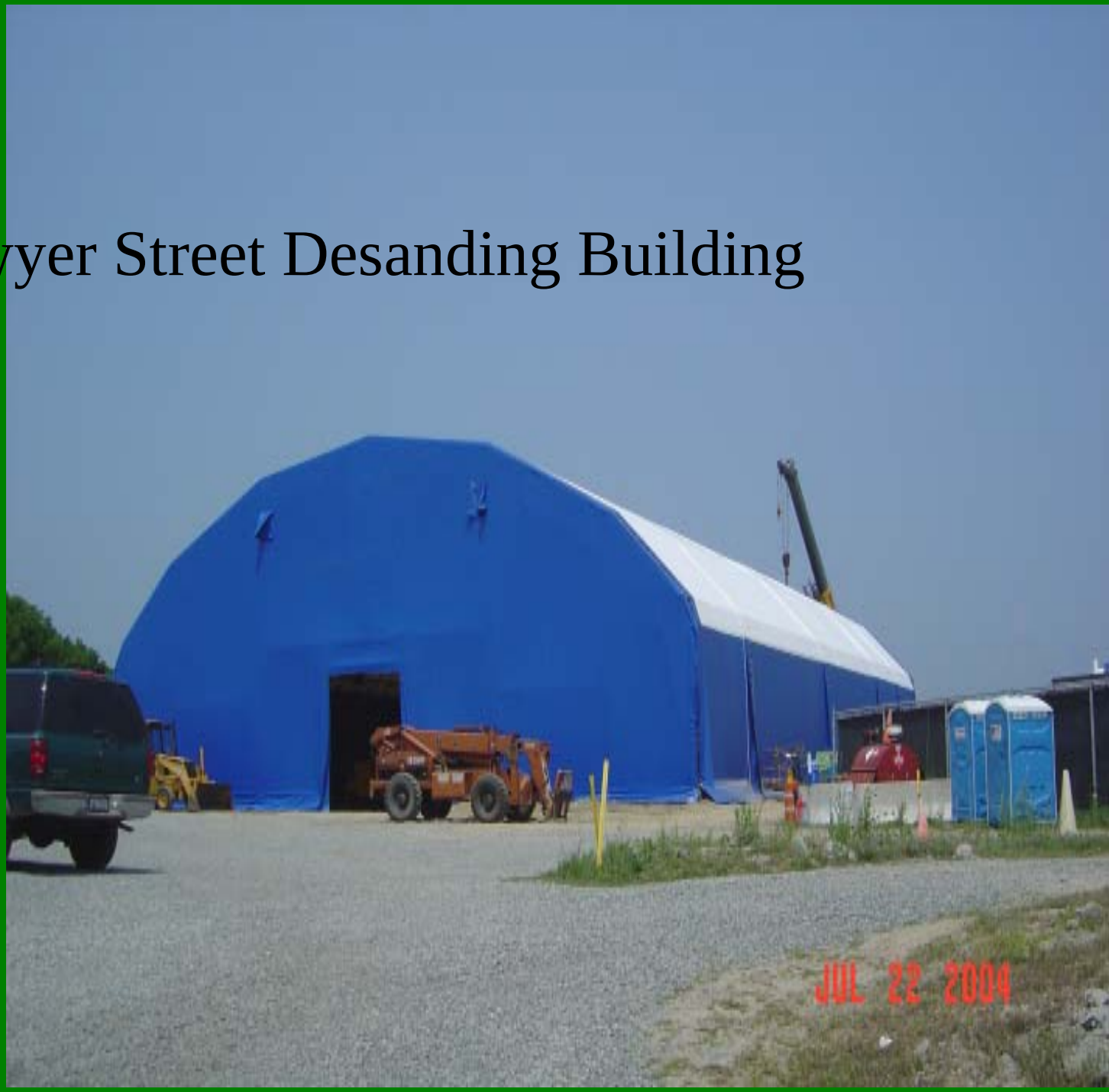
Full scale dredging started 9/04

Horizontal Auger Dredge

Another view of 2004 dredge area

Desanding Facility

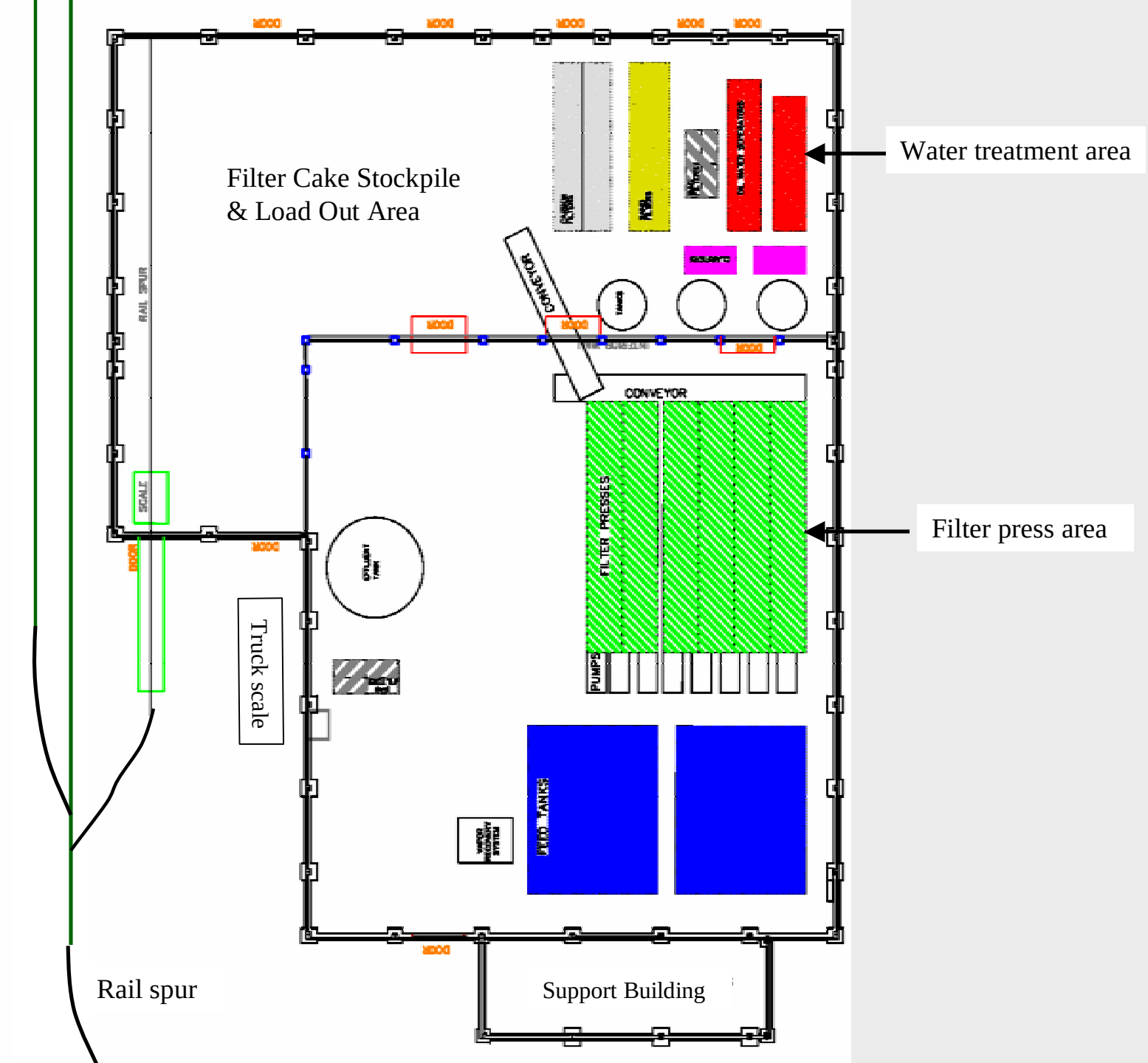
Sawyer Street Desanding Building




Shaker Screen & Hydrocyclone Units

Dewatering, Water Treatment & Transfer Facility

5 Acre Dewatering, Water Treatment & Transfer Facility


Filter Cake Stockpile
& Load Out Area
Water treatment area
Filter press area
Truck scale
Rail spur
Support Building
CONVEYOR
FILTER PRESSES
PUMPS
RAIL SPUR
SCALE

Filter Presses

Filter Cake Stockpile Area

Measures of Project Success

Short Term:

- Confirmatory Sediment Sampling
- Air Monitoring
- Water Quality Monitoring

Long Term:

- Benthic Monitoring (physical, chemical, biological)
- Local Seafood Monitoring
- Water Quality Monitoring

Relationship Between Schedule, Annual Funding & Costs To Complete

Cleanup time frame depends on future funding rates

(fy04 onward, 880,000 cy, actual funding basis)

Annual funding level	Years to complete	Costs to complete
$80 million	4	$290 million
$30 million	11	$330 million
$20 million	18	$360 million
$15 million	26	$390 million

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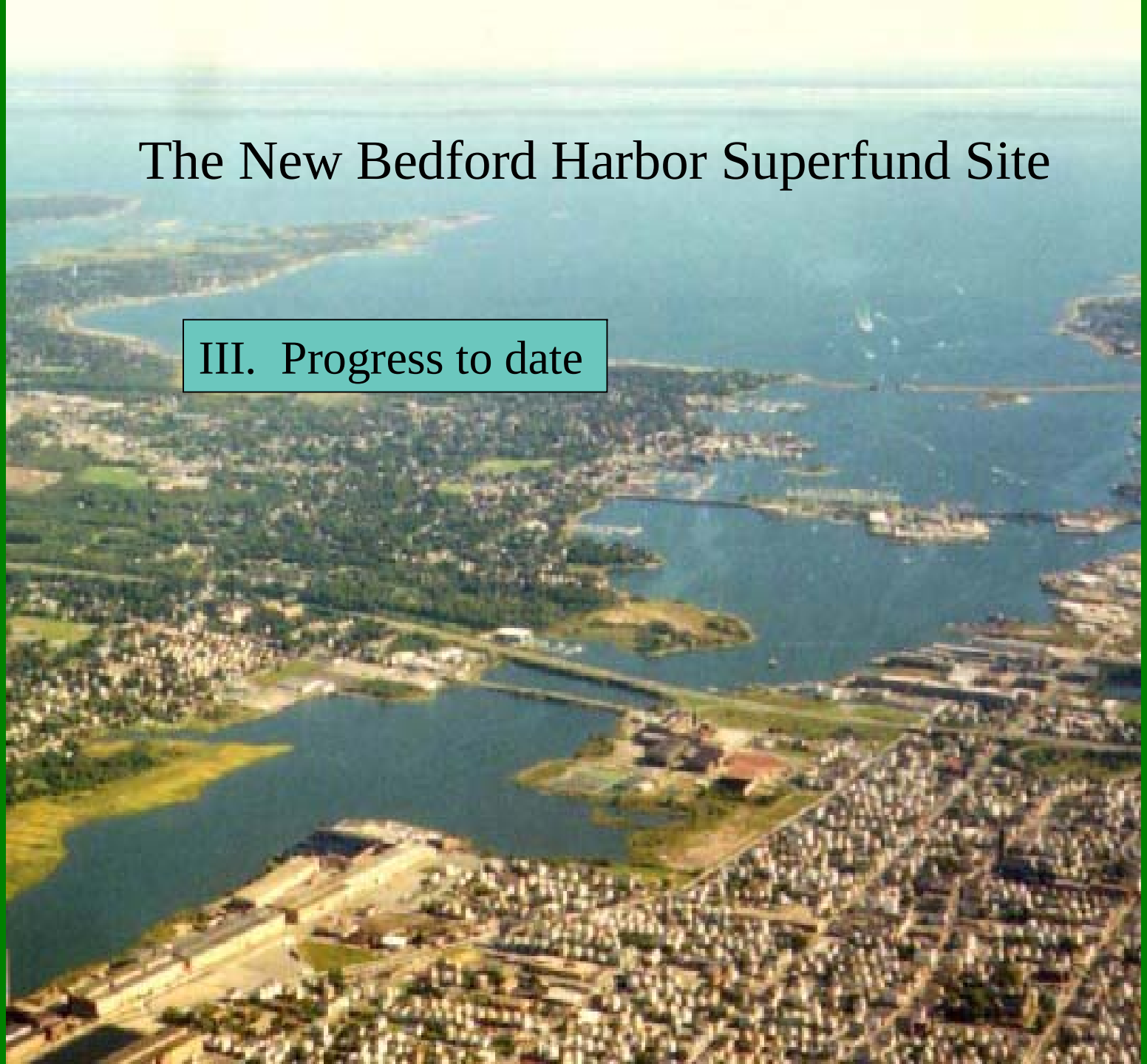
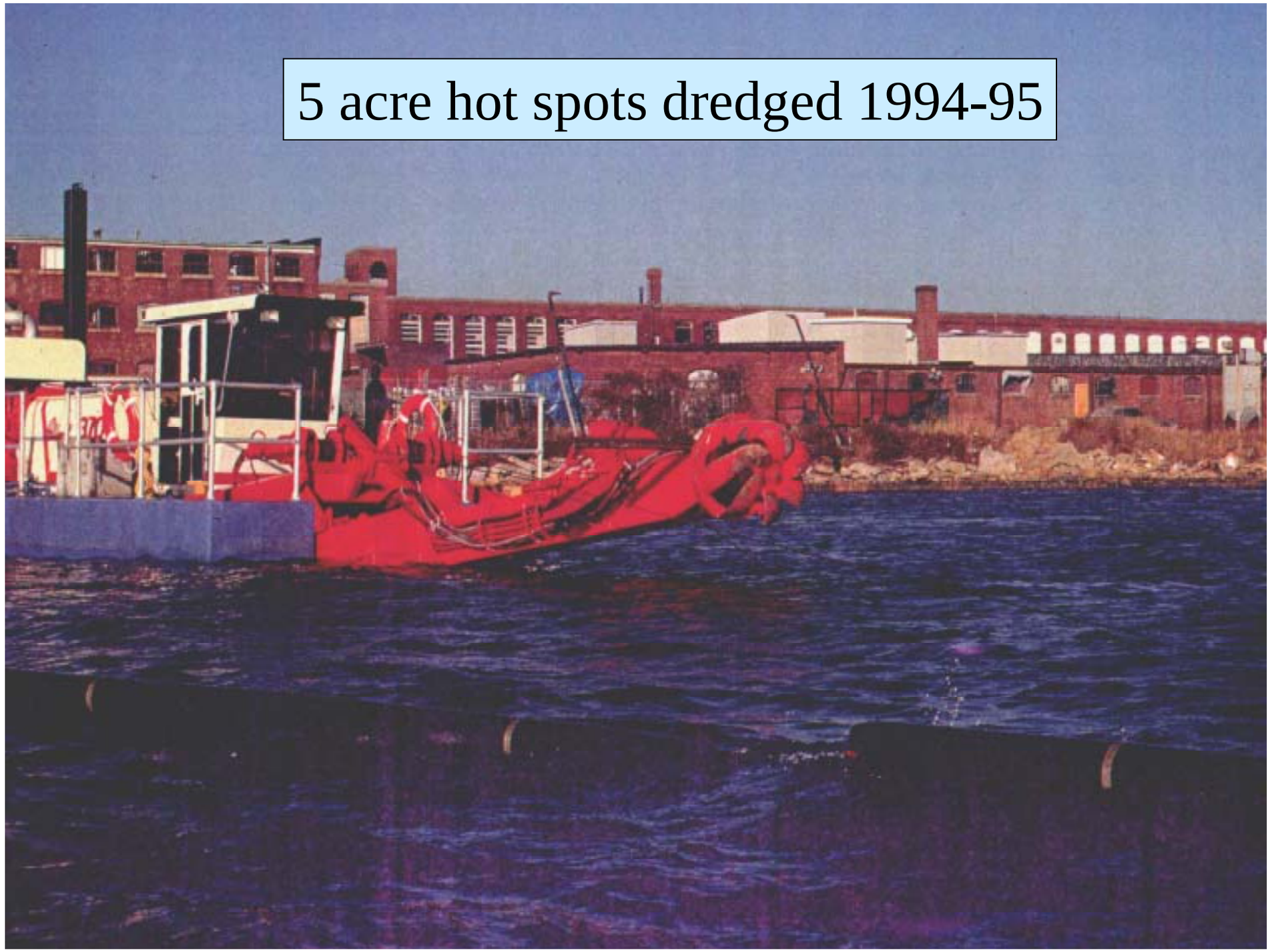


III. Progress to date

Hydraulic Cutterhead Dredge



Hot Spot ROD Amendment
Pilot Scale Treatability Studies

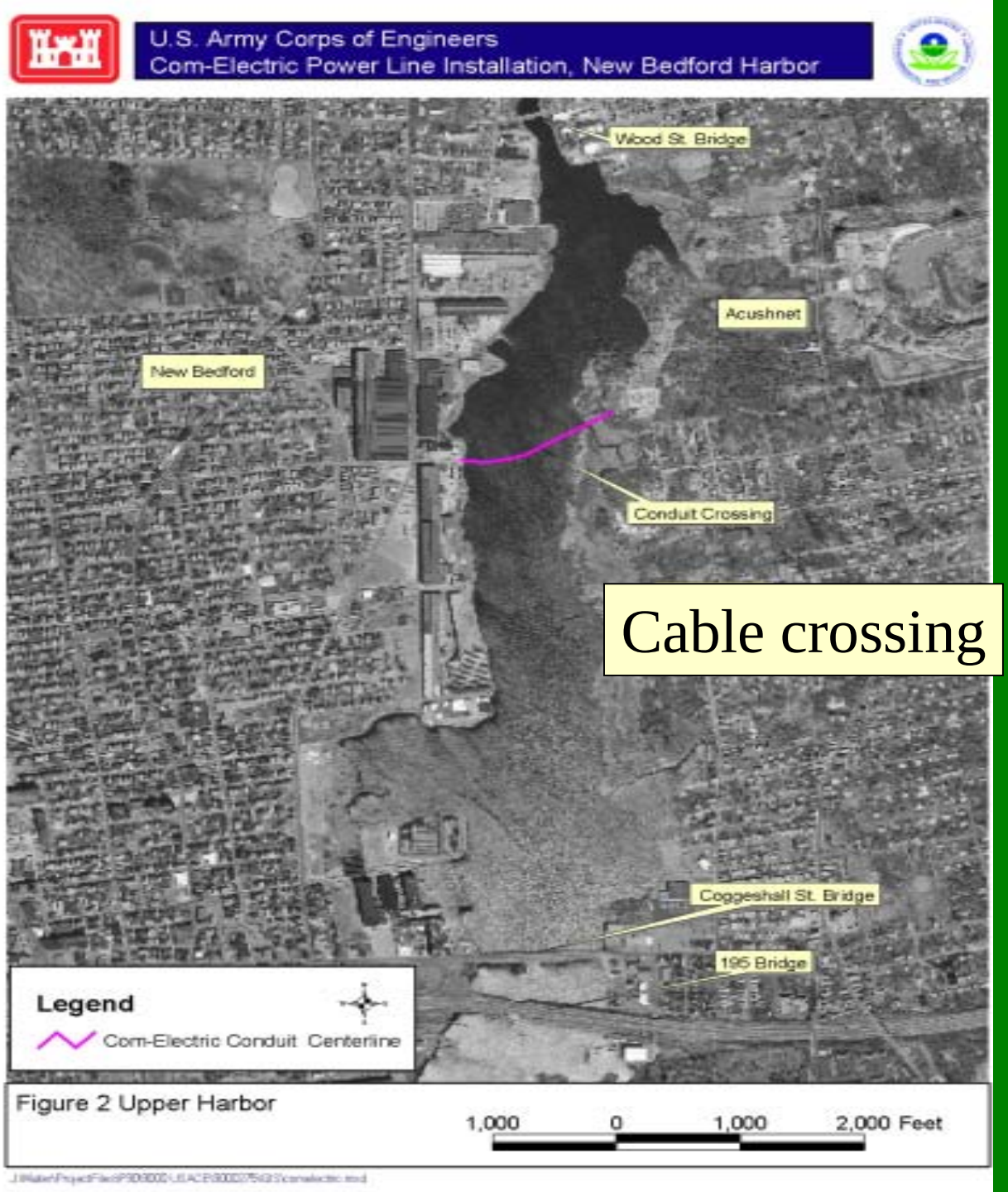
- Thermal Desorption and Gas Phase Reduction
- Solvent Extraction and Solid Phase Dechlorination
- Vitrification
- Solidification/Stabilization (bench scale)


Offsite disposal of hot spot sediments - 1999/2000

Pilot Test of Mechanical/Hydraulic Dredge - 2000

Close-Up of Pilot Dredge

NSTAR cable relocation – 2001



NSTAR Power Cable Relocation 2001

“Early Action” shoreline cleanup - 2001

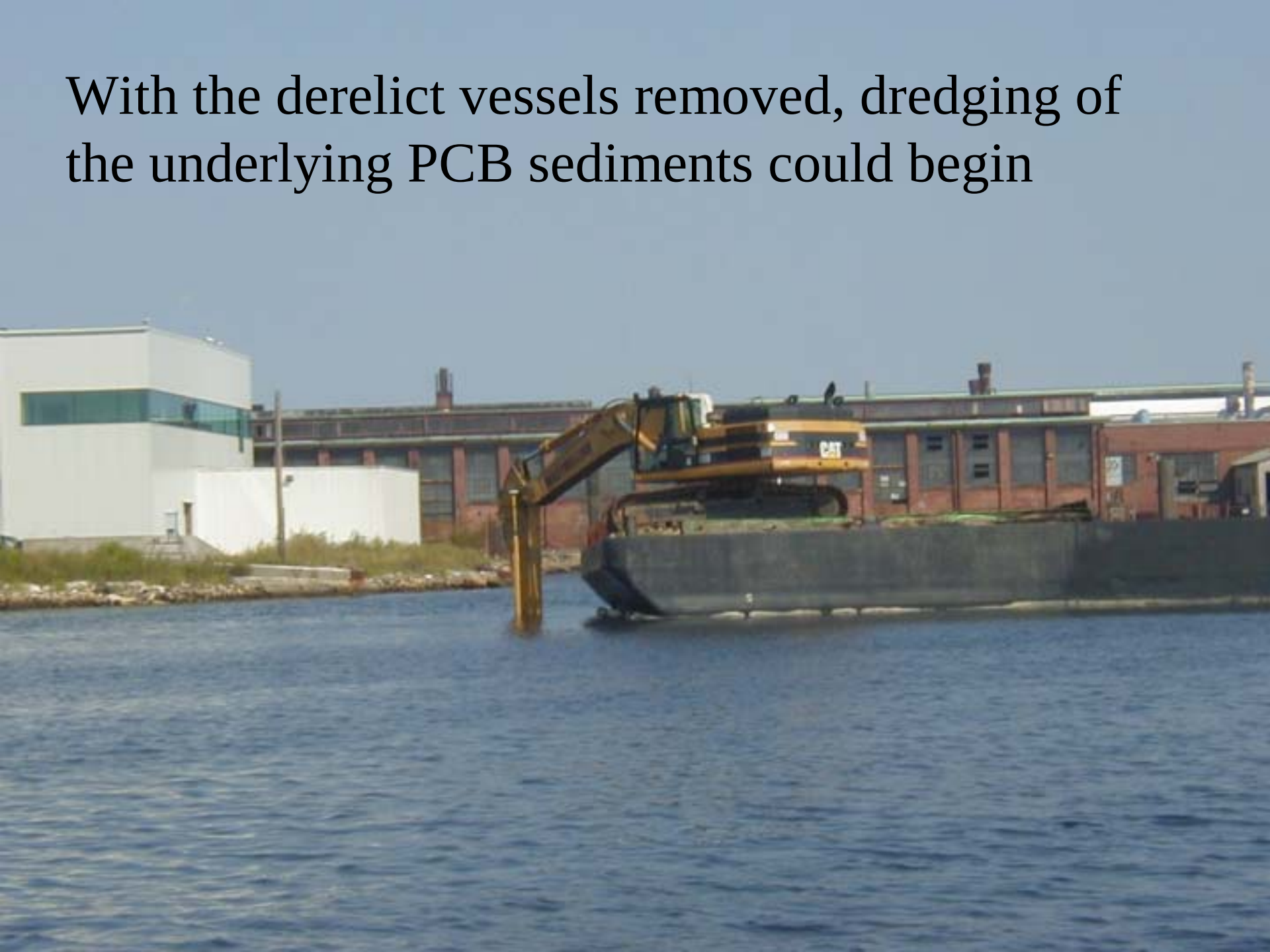

The dewatering facility bulkhead
under construction - 2002/2003

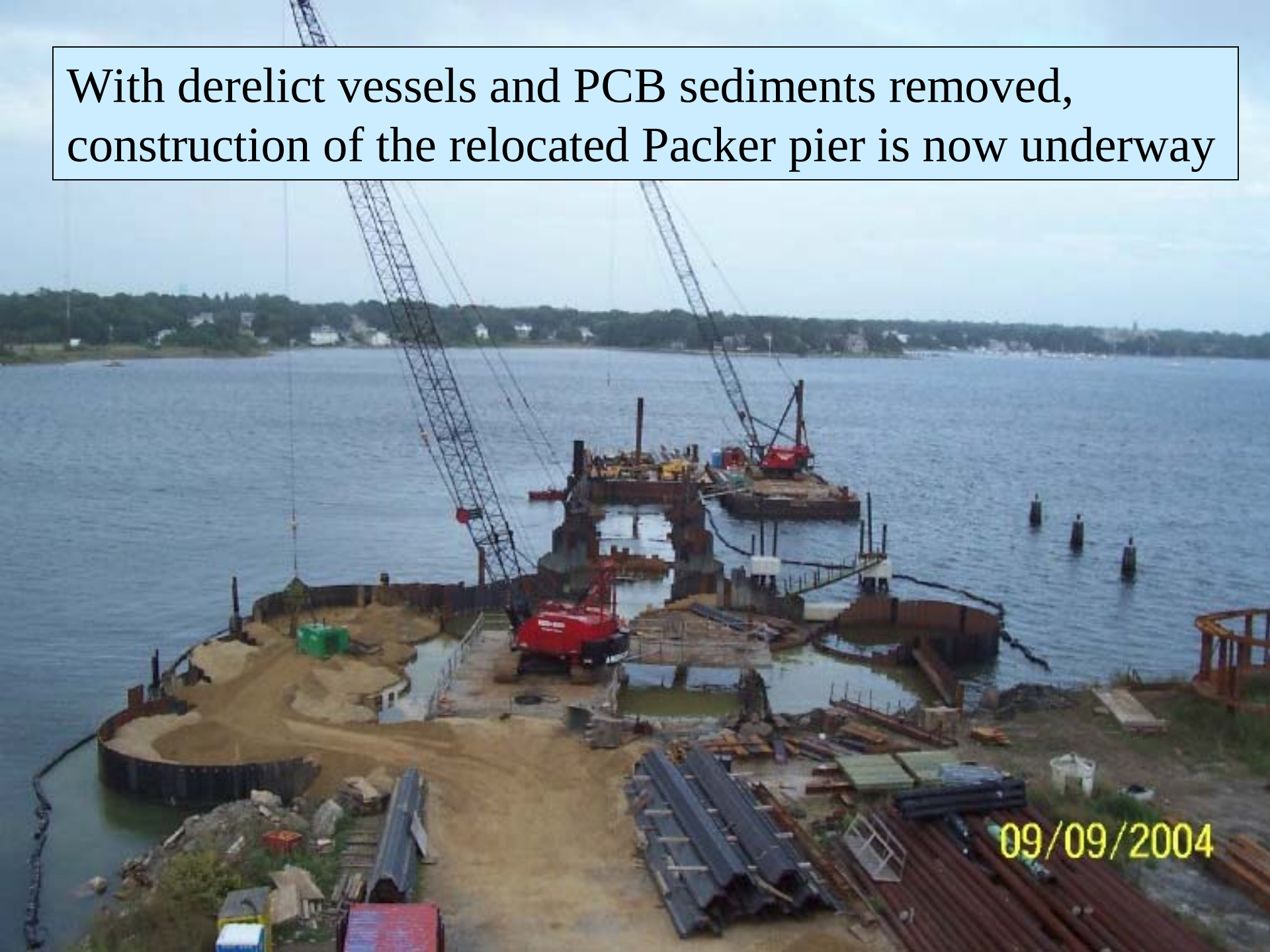
Derelict vessel removal to make way
for the Packer barge pier relocation - 2002

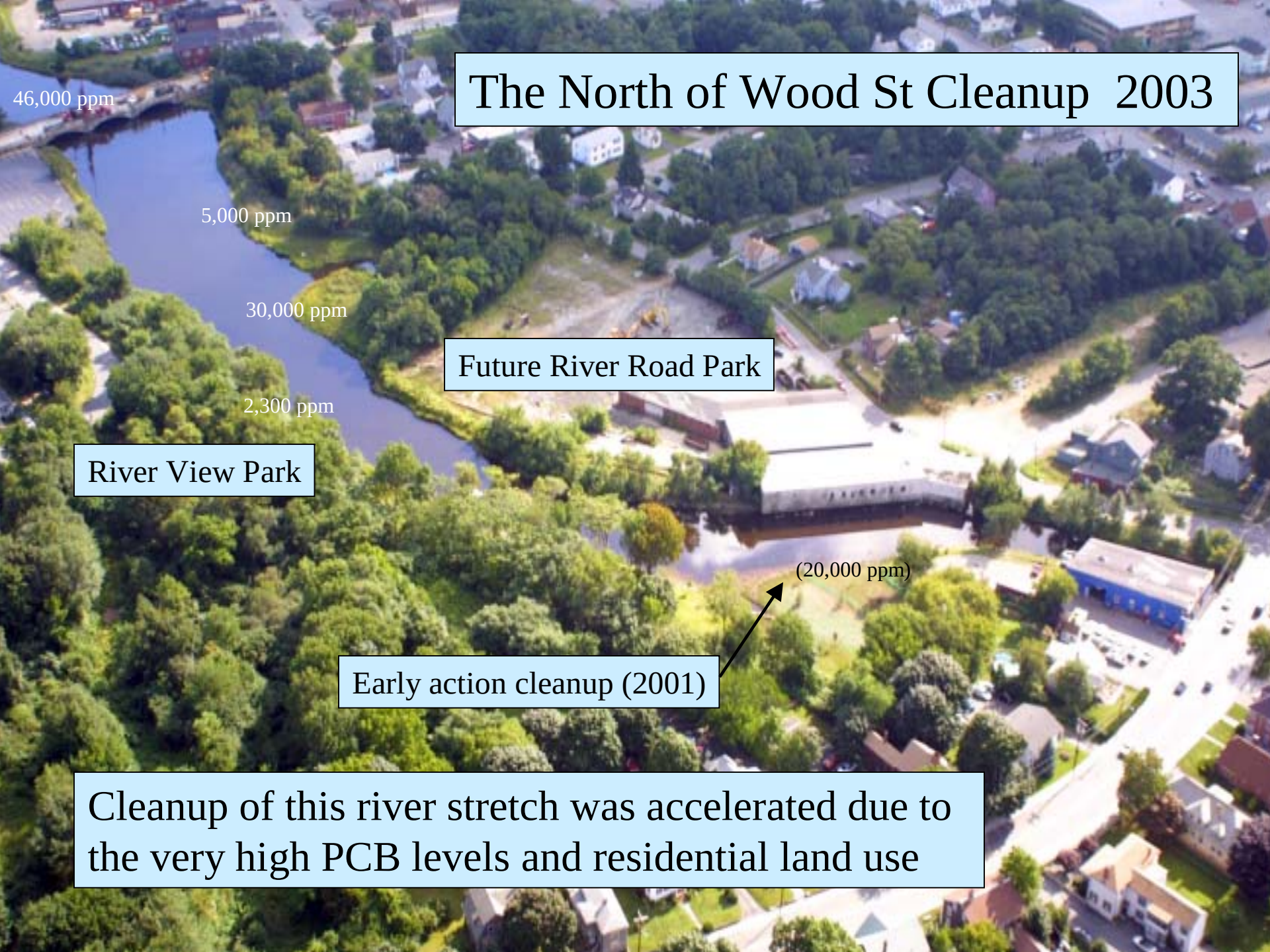

Another view…

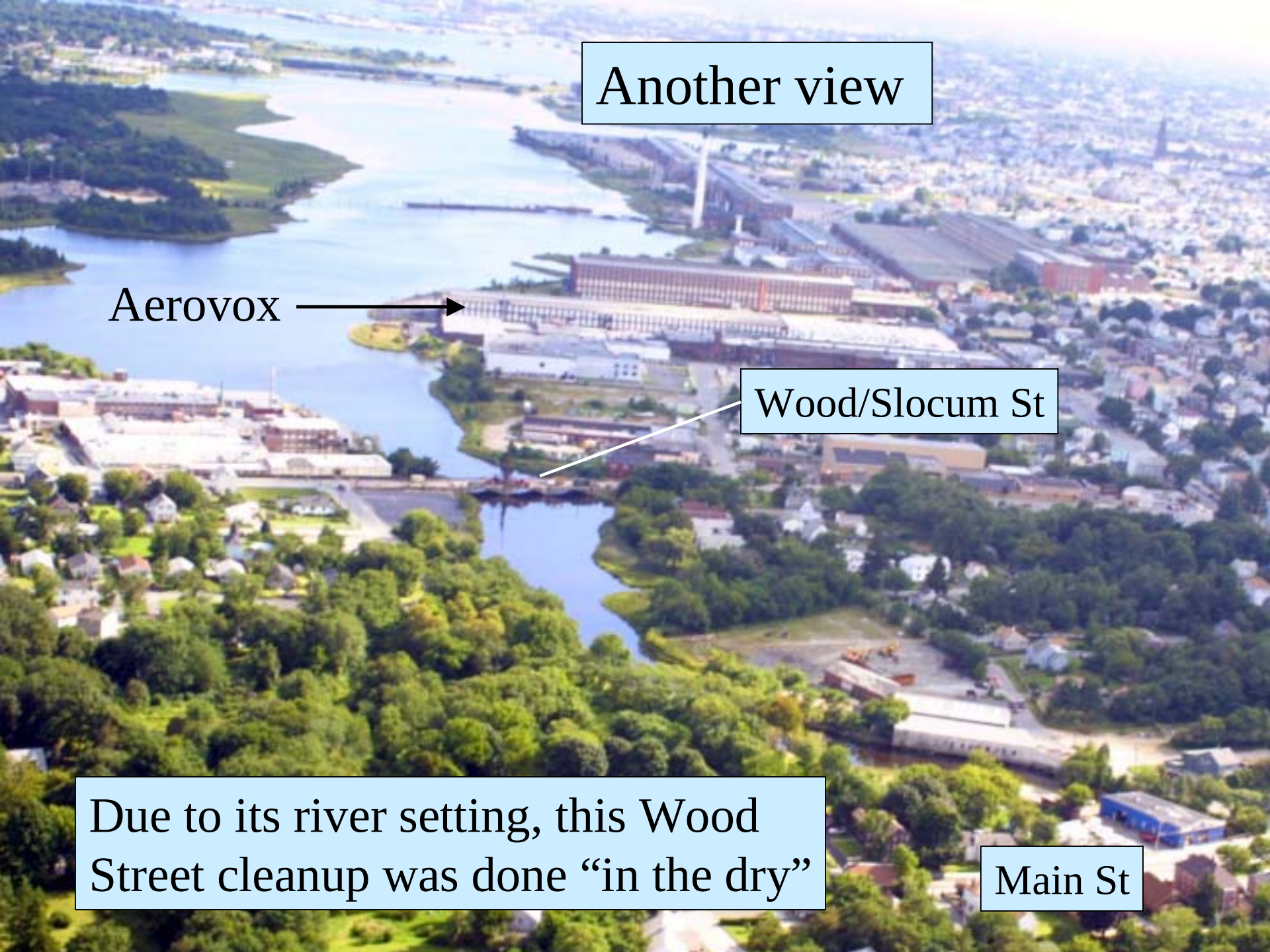

Demolition and
removal of the
derelict vessels
MACK

With the derelict vessels removed, dredging of the underlying PCB sediments could begin




With derelict vessels and PCB sediments removed, construction of the relocated Packer pier is now underway
09/09/2004


The North of Wood St Cleanup 2003
46,000 ppm
5,000 ppm
30,000 ppm
2,300 ppm
Future River Road Park
River View Park
(20,000 ppm)
Early action cleanup (2001)
Cleanup of this river stretch was accelerated due to the very high PCB levels and residential land use


Another view
Aerovox
Wood/Slocum St
Due to its river setting, this Wood Street cleanup was done “in the dry”
Main St

Excavation “in the dry”

Installing erosion control and new shoreline

Shoreline reconstructed; river bypass still in place

Flow restored and fringe saltmarsh planted (low tide)

Community Benefits

Maximize use of local labor

Maximize use of local business

Consistency with the Harbor Master Plan

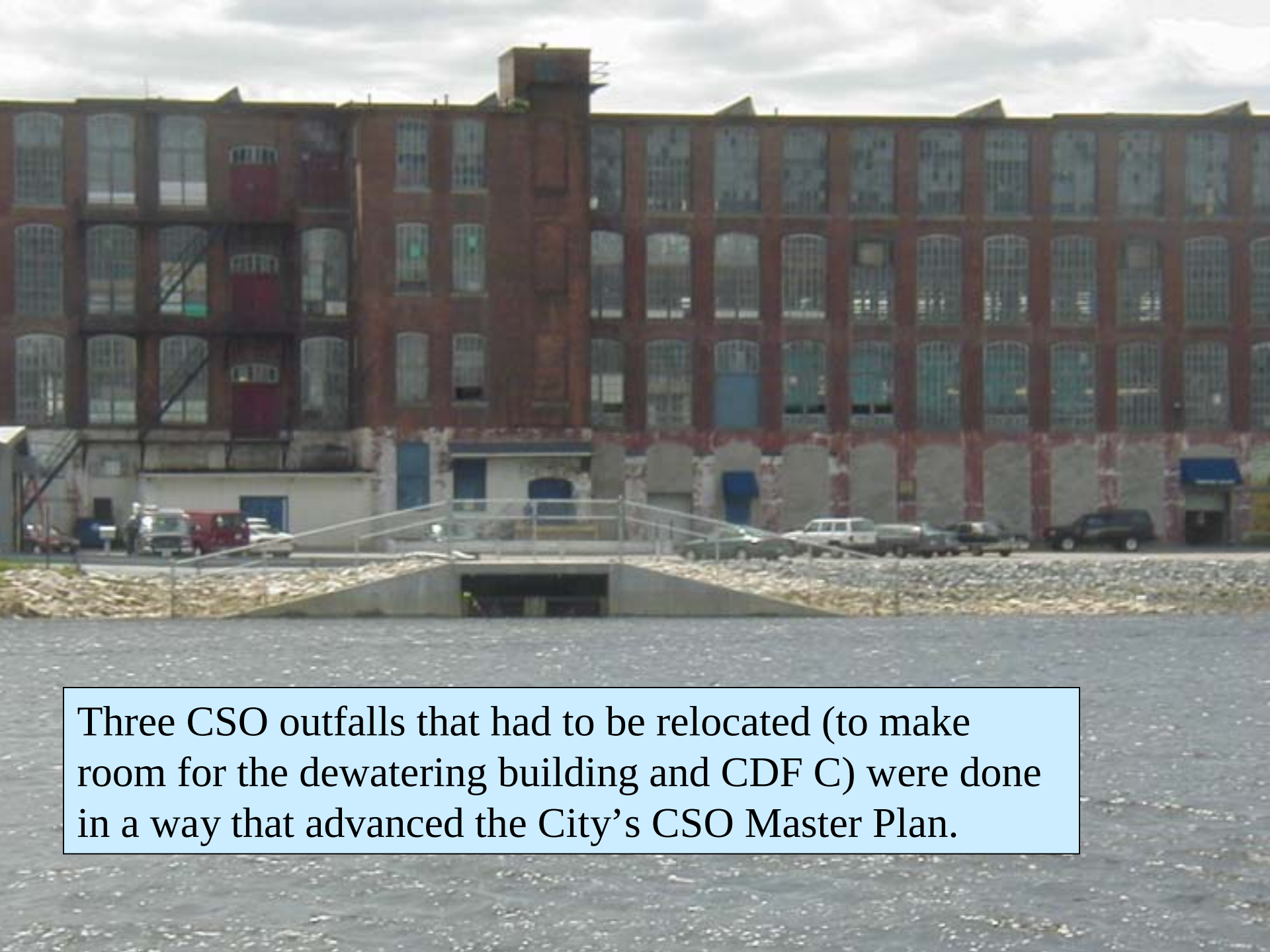
Dewatering facility designed with future reuse in mind

New intermodal freight facility once cleanup is complete:

- 350’ deep water pier
- 55,000 sq ft warehouse
- rail spur to new rail yard


The deep water bulkhead
(shared use during cleanup)

The rail spur and building

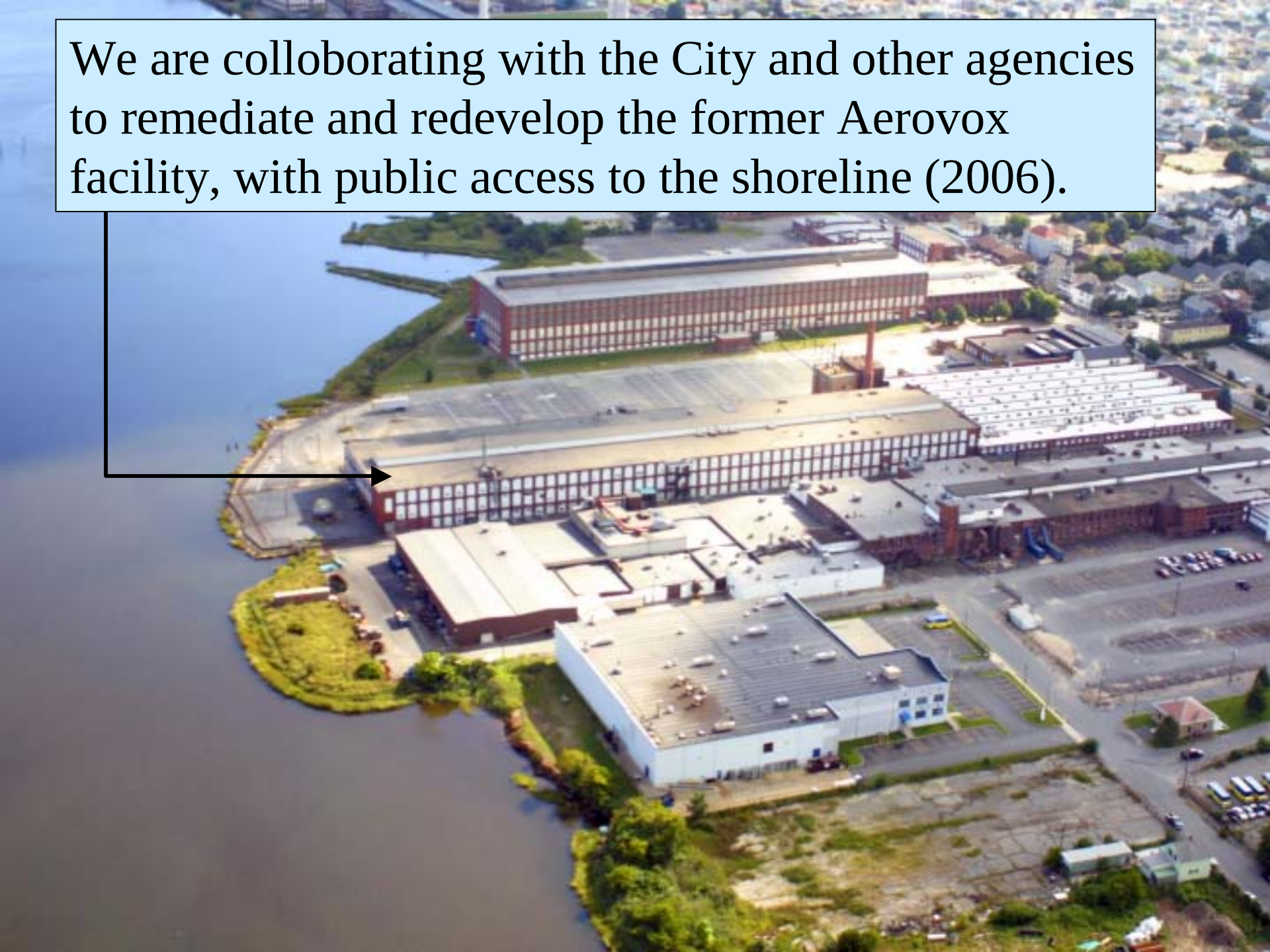


Three CSO outfalls that had to be relocated (to make room for the dewatering building and CDF C) were done in a way that advanced the City's CSO Master Plan.


The Wood Street cleanup restored the shoreline area of a future City park

The cleanup is being coordinated to meet the needs of new land use

In 2005, the city is planning to construct a new 10 acre shoreline park where a mill once stood. We are thus planning to focus next year's cleanup on this area.


We are colloborating with the City and other agencies to remediate and redevelop the former Aerovox facility, with public access to the shoreline (2006).


New land trust properties
Mill slated for artist lofts
New Riverside park
Mill renovated for assisted living housing
Coalition for Buzzards Bay new HQ
Lastly, slow but sure changes in shoreline land use…
River View Park
Future park at former lumberyard


www.epa.gov/ne/nbh


Questions?