



Debris Removal Task Force

Hurricane Sandy

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Short History of Past Challenges

Storms, Tornadoes & Irene

- Progressively larger, more consequential storms since 2007 brought development of the “Downed Tree Protocol”
- Post-storm, initial assessment processes with DSNY and Parks led from a paper tracking system to the Parks “Storm Mobile” system
- Integration of 311 and 911 data for assessment mapping by Community Board

“It will be more than just trees...”

- 2011 pre-storm planning of debris management for Hurricane Irene anticipated using an ICS Area Command. Never needed.
- Anticipate 2-3 localized Operations Posts in storm affected areas (Staten Island, Brooklyn, Queens).
- Expand DTTF structure to include non-woody debris streams, DSNY and DoD

Interoperability

- Concept mistakenly focuses just on radio interoperability
- Includes: common operating picture; situational awareness, reporting structures
- Requires a plan with jurisdictional authorities spelled out
- Email vs. face-to-face communications
- Stove pipes and information silos

Interagency Communications

- Interagency meetings are the heart of our business; they occur on the street, in teleconferences, in conference rooms – they are essential for coordination of data and formulation of tactical operations
- Best grouped by function, usually ESF; common objectives, shared responsibilities
- Command Element integration of key points – Planning “P”, daily meetings

Sandy Debris Chronology

- October 24th Coastal Storm Steering Committee and internal OEM Planning & Operations activations
- October 25th Coastal Storm Plan Activated, Downed Tree Task Force (DTTF)
- October 26th EOC Activated, Debris Management Advisory Group (DMAG)

Sandy Debris Chronology

- October 27th – 29th: planning based on NWS storm projections
- **October October 29th Hurricane Sandy hits NYC**
- October 30th – forward:
 - DTTF operates to remove downed trees obstructing ROW until November 4th
 - DTTF subsumed within NYC Debris Removal Task Force on November 4th

DRTF

- NYC Area Command for debris removal in storm affected areas
 - Staten Island
 - Rockaways / Queens
 - Brooklyn / Coney Island and Seagate
- Initial core agencies: Mayor's Office, OEM, DSNY, Parks; FEMA, USACE

Key Partners - Environmental

- US Environmental Protection Agency
- Occupational Safety and Health Administration
- NYS Dept. of Environmental Conservation
- NYC Dept. of Environmental Protection
- Citywide Occupational Safety and Health
- NYC Dept. of Health and Mental Hygiene

Key Objectives

- Ensure public health and safety; remove debris from ROW and TSS
- Coordinate agencies; set common priorities, effect efficient equipment / personnel use
- Track and communicate accomplishments
- Manage USACE operations for large scale debris removal

Areas of Operation

- OEM HQ – MCC, Training Room, Basement Command Centers
- Staten Island – Operations Post, Father Capodonna TSS and demo sites
- Rockaways Penninsula – Operations Post, Riis Park TSS
- Floyd Bennett Field, Brookyn
- Cunningham Park, Queens; other Parks

DRTF Beneficial Reuse Program

- 2.3 million cubic yards of debris removed
- 200,000 cubic yards of destroyed vegetation, 145,000 chipped / recycled
- 187,000 cubic yards of sand collected / returned to beaches (\$80 million saved)
- 144,000 square feet of boardwalk and 55,000 linear feet of structural timbers
- 5,000 cubic yards of debris removed from wetland areas

DRTF Beneficial Reuse Program

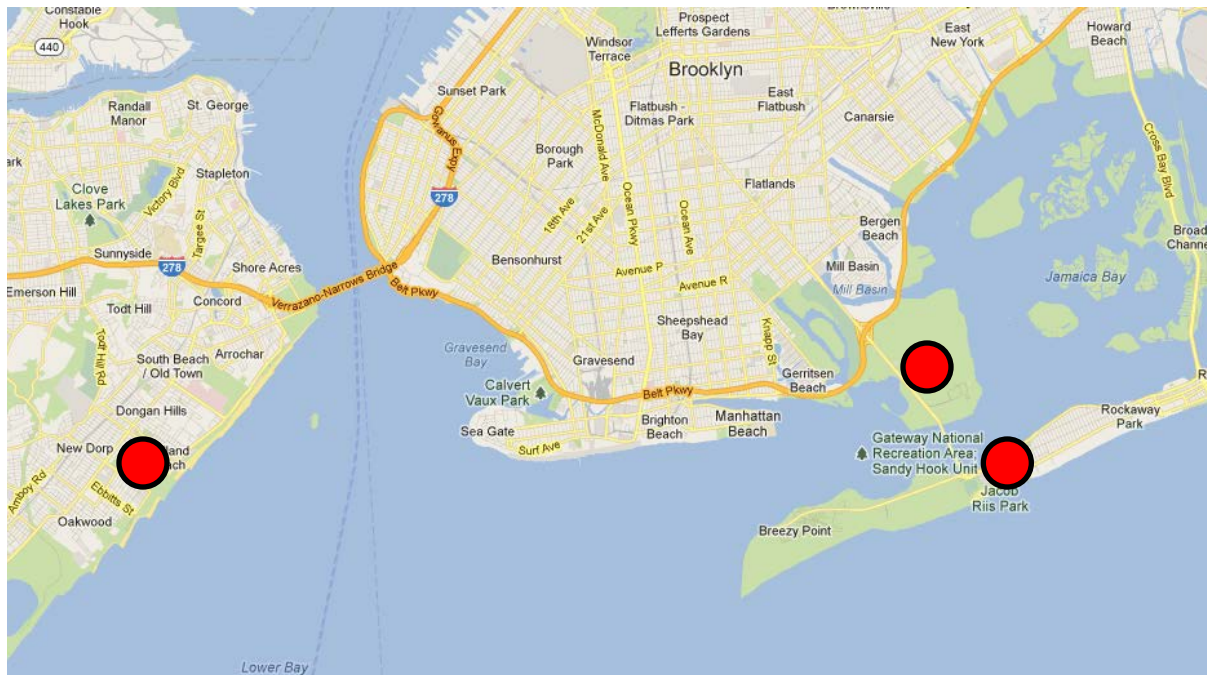
- 110,000 containers of household hazardous waste and e-goods collected
- 23,000 cubic yards of asbestos containing material abated
- 10,000 cubic yards of concrete collected, 5,000 cubic yards recycled
- Over 1,200 tons of white goods were collected for recycling

Establish Temporary Debris Storage & Reduction Sites (TDSR)

Riis Park, QN - *owned by NPS*

Father Cappodanno, SI – *owned by DPR*

Floyd Bennett Field, BK – *owned by NPS*



Types of Disaster Debris

- Vegetative
- Cars and Boats
- Construction & Demolition (C&D)
- Sand
- Boardwalk
- Private Property Debris
 - Asbestos
 - White Goods
 - e-Goods
 - Household Hazardous Waste (HHW)



VEGETATIVE DEBRIS



Downed Tree Task Force

- **Total Trees down** – approx. 20,000
- **Chipping/Mulch Operations**
 - Beneficial Reuse
 - Asian Longhorn Beetle
 - Fire Risk - combustion
- **Air Curtain (Burning)**
 - Environmental Monitoring
 - First time in NYC



REUSE OF VEGETATIVE DEBRIS



A leaning tree on a house in Howard Beach, Queens.

More than
20,000
trees damaged or
destroyed.



Aerial view of a vegetative debris pile at Floyd Bennett Field.

200,000

cubic yards of vegetative
debris chipped.



Recycling uses included
slabs for benches,
mulch for parks, and
groundcover for landfills.



A beneficial reuse contractor cutting slabs from trees to make benches at Floyd Bennett Field.



Vegetative debris pile at Floyd Bennett Field, Queens.



Chipped vegetative debris pile at Floyd Bennett Field, Queens.

Cars and Boats

The John B. Caddell Ship, Staten Island



Cars & Boats: Towing and Storage

- Total Cars – 3,437
- Total Boats - 72
- Inventory Process
- NYPD, NICB, DMV, DCAS



Construction and Demolition (C&D) Debris

Debris Piles at Jacob Riis Park



GENERAL DEBRIS RECYCLING



Concrete that has been crushed for recycling at Jacob Riis Park, Queens.



Segregated wood at Jacob Riis Park, Queens.



Segregated metal fencing at the Father Capodanno temporary storage site in Staten Island.



77,000

containers of household hazardous waste recovered.

23,000

cubic yards of asbestos containing material abated.

10,000

cubic yards of concrete recycled.



The EPA segregating household hazardous waste at Jacob Riis Park, Queens.

"Moving massive quantities of debris required a tremendous effort and a vast majority of the debris generated on Staten Island was shipped by barge...This operation was the optimal way to handle this material...It was efficient to load 18-20 thousand cubic yards of material on each barge, reducing a large carbon footprint that would have been associated with transportation solely by truck."

– Jim Dalola, Section Chief, U.S. EPA Region II

Sand debris





Comingled Sand Debris

Sand: Reclamation and Repatriation

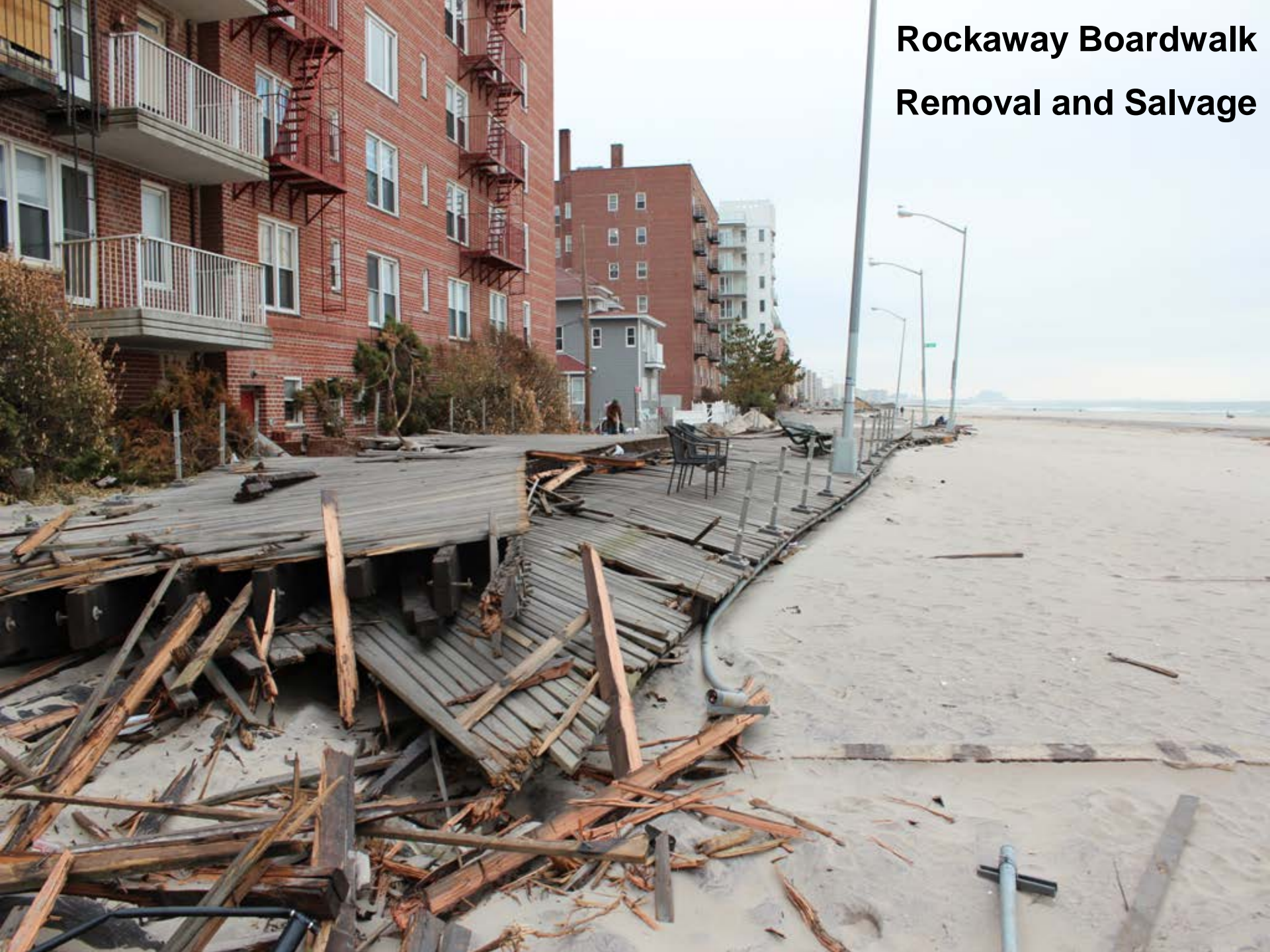
- Environmental Testing
- Screening and Sifting – **175,000 CY**
- **100%** of sand restored to beaches
- Cost Savings of re-use – **over \$80 mn**



Sifted Sand Dunes at Riis Park

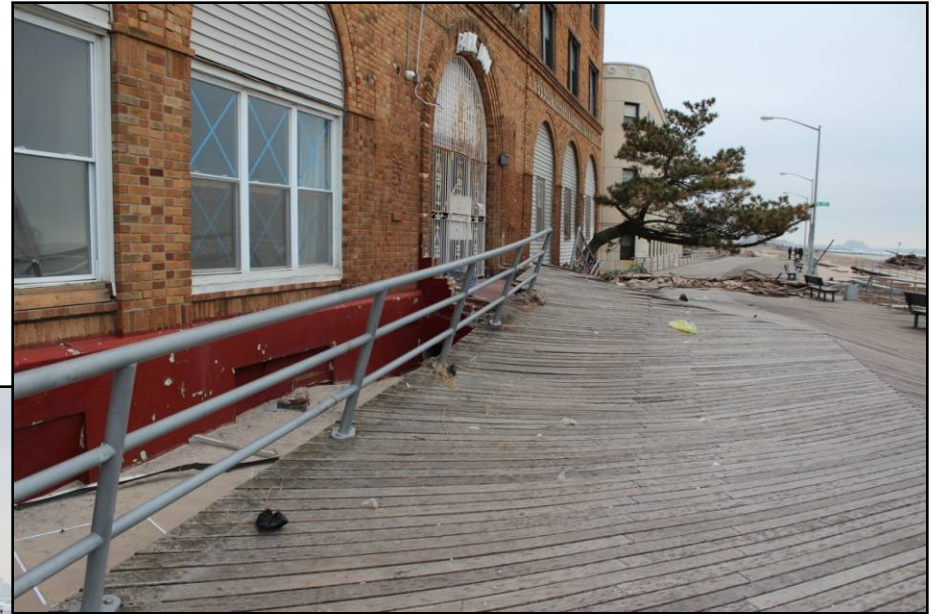


Rockaway Boardwalk Removal and Salvage



Rockaway Boardwalk Removal and Salvage

- 60+ blocks destroyed
- Valuable Tropical hardwood



BOARDWALK RECYCLING



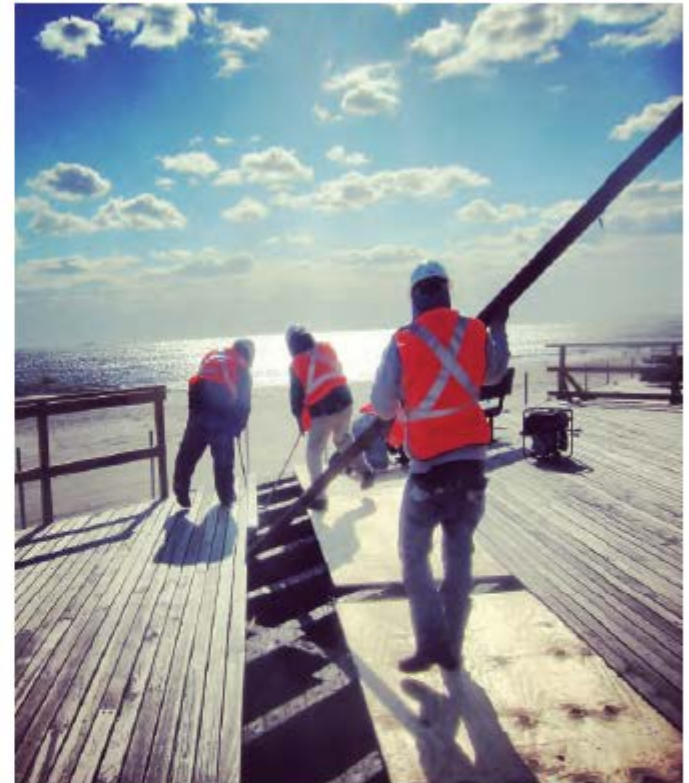
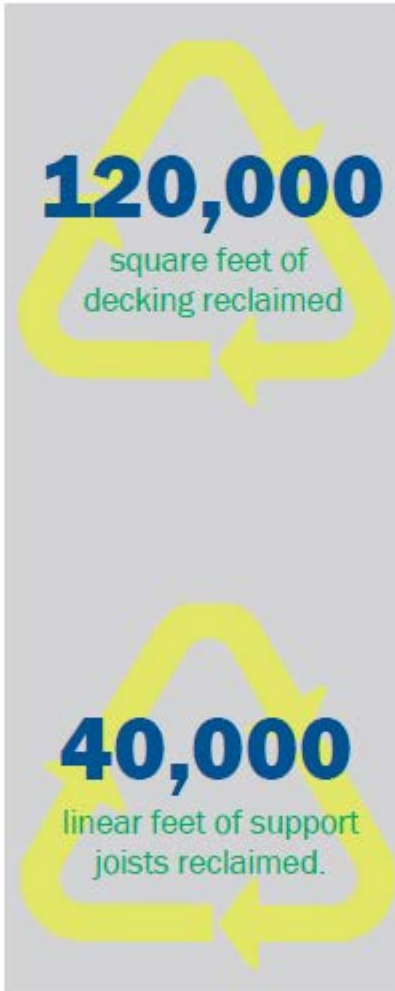
Contractors removing nails from wood to be salvaged from the Rockaway Beach boardwalk.



Contractors working on the Rockaway Beach boardwalk.



Stacks of boardwalk decking that will be recycled.



Contractors hand-removing undamaged wood for salvage.



A contractor lifting a piece of decking that will be salvaged.

Private Property Debris Removal (PPDR)

Home to be demolished, Staten Island

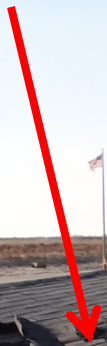


Private Property Debris Removal (PPDR)

Burnt out section of Breezy Point, Queens



Asbestos?



Metals



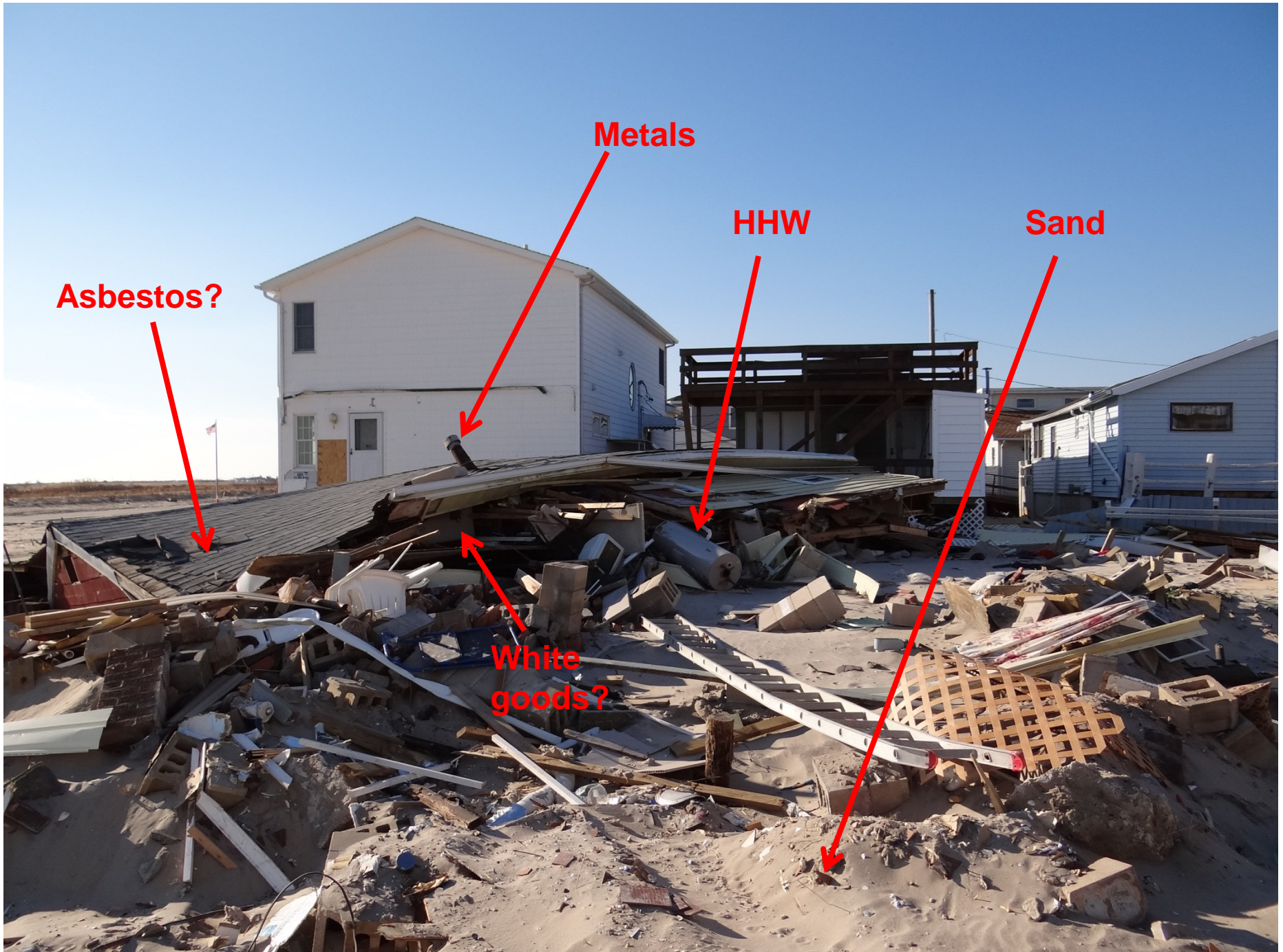
HHW



Sand



White goods?



PPDR: Demolition & Debris Removal

- Leveled/burnt buildings
- over 200 locations
- Homes demolished –
approx. 340 locations



A few homes and large debris were washed into environmentally sensitive wetland areas.



WETLAND DEBRIS REMOVAL



Protective mats were laid in the Oakwood Beach wetland during debris removal.



An exposed foundation of a house in Oakwood Beach.



A house in Oakwood Beach that was pushed into the street by storm surge.



Crews working to remove debris from the Oakwood Beach wetland in Staten Island.

5,000
cubic yards of debris
removed.

GREEN STAR Award

Objective:

The biennial Green Star Awards recognize individuals, organizations, governments and companies who demonstrate achievements in prevention, preparedness and response to environmental emergencies.

THE
GREEN STAR
AWARDS



Recycled Disaster Debris

- **Vegetative:** 145,000 CY of chips used for landscaping projects
- **Sand:** 187,000 CY of sand returned to beaches
- **Boardwalk** (tropical hardwood): over 144,000 SF of decking and 55,000 LF of supporting timbers salvaged
- **Wetlands:** Houses and debris cleared from environmentally sensitive areas
- **HHW:** over 110,000 containers recovered
- **Concrete:** 5,000 CY separated and crushed for reuse
- **White Goods & metals:** over 1,200 tons separated for recycling

Could have done this:

- **Vegetative:** burned
- **Sand:** exported as debris; dredge waterways for new sand or purchase new sand
- **Boardwalk** (tropical hardwood): destroy with machines and export as debris
- **Wetlands:** leave in place and disrupt ecosystems or increase chances of toxic fires
- **HHW, Concrete, White Goods and Metals:** sent to landfills

Agency Partners

DRTF

- Office of the Mayor
- NYC OEM
- NYC DSNY
- NYC Parks Department
- NYC DOB
- NYC HPD
- NYC DEP
- FEMA
- US Army Corps of Engineers
 - ECC
 - AshBritt

SUPPORT / REGULATORY

- NYPD
- FDNY
- NY National Guard
- US Department of Defense
- National Parks Service
- US EPA
- NYS DEC
- MTA TBTA
- NYS DOT
- NYC DOT

The NYC DRTF was one of six recipients of the 2013 GREEN STAR Award



Photo credit: UN Green Star Awards



Questions?

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UN Green Star Award DTRF

DRTF Awarded for its response to Hurricane Sandy in 2012.

Category: Response

Debris: One of the most immediately visible signs of a disastrous storm; its removal, an early sign that recovery is possible and has begun.

New York City's Hurricane Sandy Debris Removal Task Force (DRTF), comprised of 25 federal state and local agencies including [Federal Emergency Management Agency](#) (FEMA), the [US Corps of Engineers](#), the [United States Environmental Protection Agency](#) (USEPA),

[NY State's Department of Environmental Conservation](#) and [NYC's Departments of Sanitation and Parks](#) and its [Office of Emergency Management](#), was charged with the coordination, removal and final disposal of the over two million cubic yards of debris of all imaginable types generated by that October 2012 storm.

As NYC does not have a municipal landfill, and open space for staging debris is severely limited, and as the Bloomberg administration stresses environmentally sustainable problem solving, reusing and recycling debris was mandated and immediately made a priority. Through twice daily meetings, chaired by the Mayor's Incident Commander and attended by up to 65 action agency representatives, the DRTF developed and successfully implemented innovative, environmentally and fiscally sustainable, multi-faceted strategies to conserve natural resources, reduce long-distance trucking and minimize final disposal in distant landfills.