

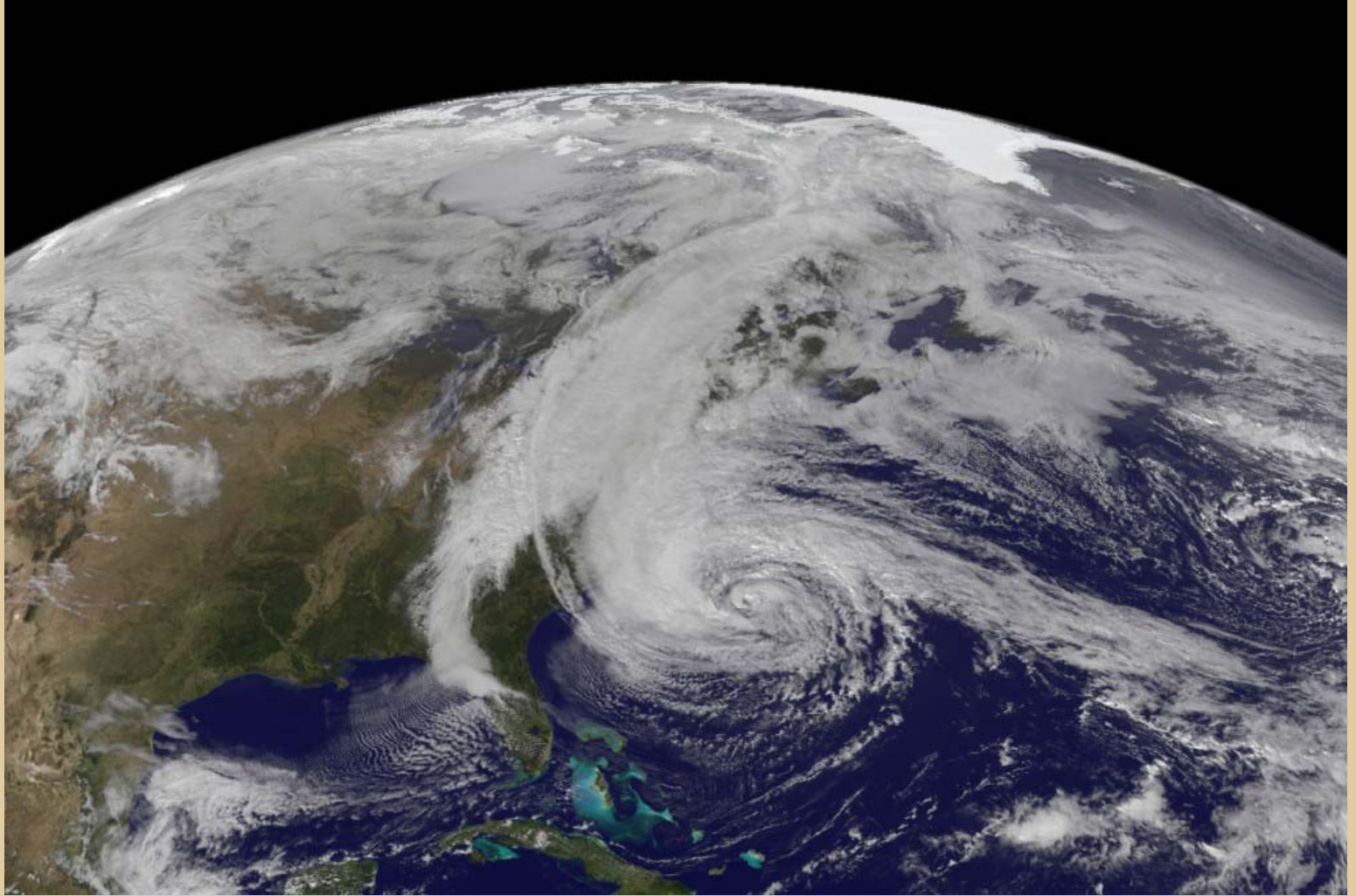


Superstorm Sandy

Realizations, Recovery and Replanting

ISA Annual Conference
Milwaukee, WI
August 5, 2014

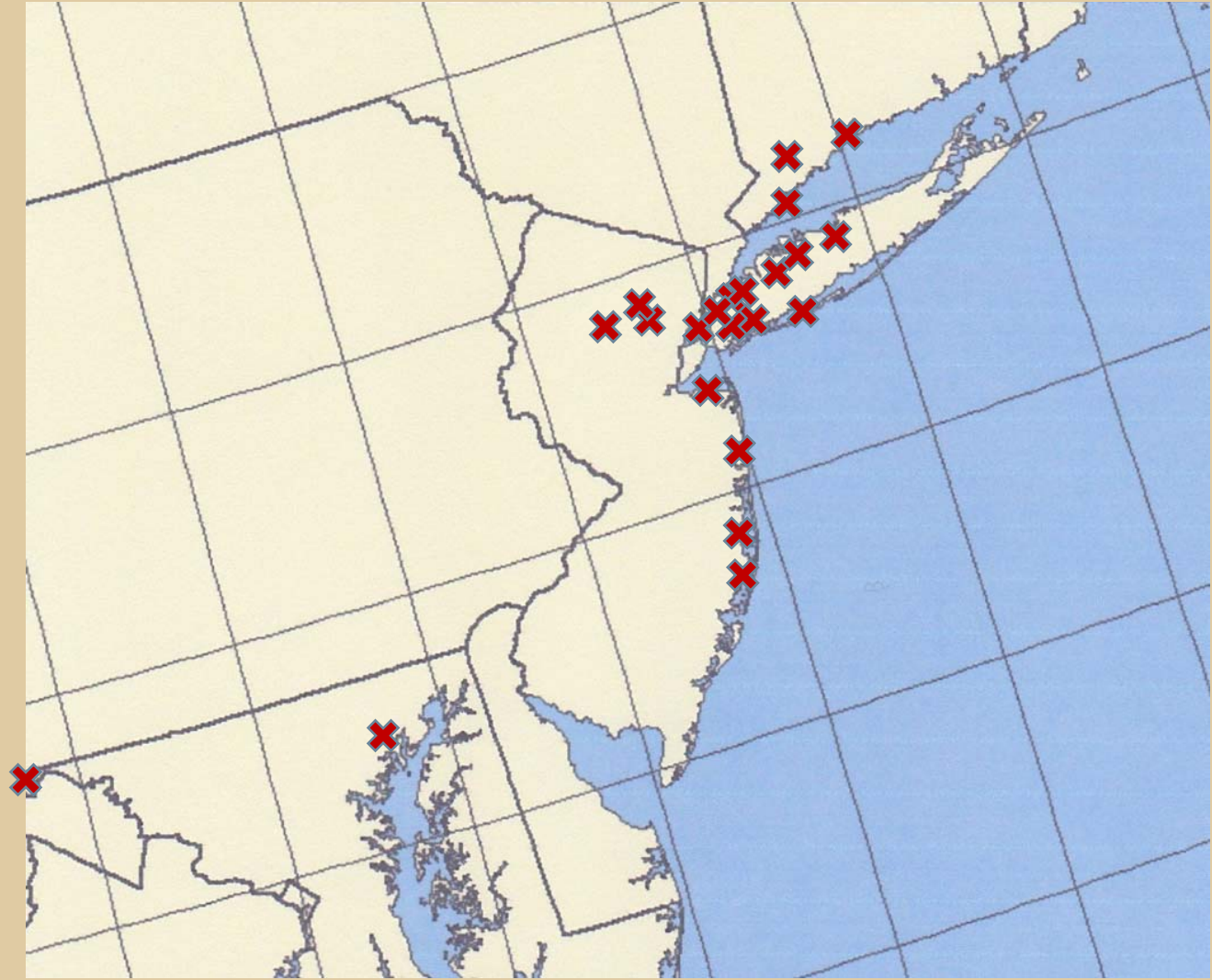
Superstorm Sandy





Statistics

- The largest diameter Atlantic hurricane on record - winds spanned 1,100 miles
- 2nd costliest hurricane in United States history
- Hurricane Sandy affected 24 states, including the entire eastern seaboard from Florida to Maine and west to Michigan and Wisconsin
- US 2014 assessed damage was over \$68 billion, Canadian damage was estimated at \$100 million
- Formed: Oct 22, 2012, dissipated: Oct 31, 2012
- Highest winds: 114.95 mph (185 km/h)
- Nearly 10,000 trees fell in NYC alone and 48,000 were damaged by salt.





THE DAMAGE

Milford, CT



Photo Credit: Margaret/WTNH Report It

Brighton Beach, Brooklyn, NY



South Richmond Hill, NY



Photo Credit: WABC TV Channel 7

The Bronx, NY



Photo Credit: Enid Alvarez, NY Daily News

Brooklyn, NY



Photo Credit: Leslie Albrecht/DNAinfo

Staten Island, NY



Photo Credit: Chuck Hadad CNN

Coney Island, NY



Photo Credit: Stephen Nessen

Jersey City, NJ



Photo Credit: Charles Sykes

Elliot Lake, Ontario Canada



Photo Credit: Karen Dichuk

Lehigh University, Bethlehem, PA



Photo Credit: LUPD

Lakewood, Ohio



Photo Credit: Lisa DeJong, The Plain Dealer

Somewhere



Central Park, NYC



Central Park, NYC



Photo Credit: Randy Harris

Baltimore Osage Orange Tree



Photo Credit: monumentcity.net, mydoodle.wordpress.com

The Lincoln Oak



Photo Credit: Thomas MacMillan, Melissa Bailey

Frelinghuysen Arboretum Jonathan's Woods



Photo Credit: Charles Zafonte

Bartlett Arboretum



Photo Credit: Keelin Daly

Liberty Island

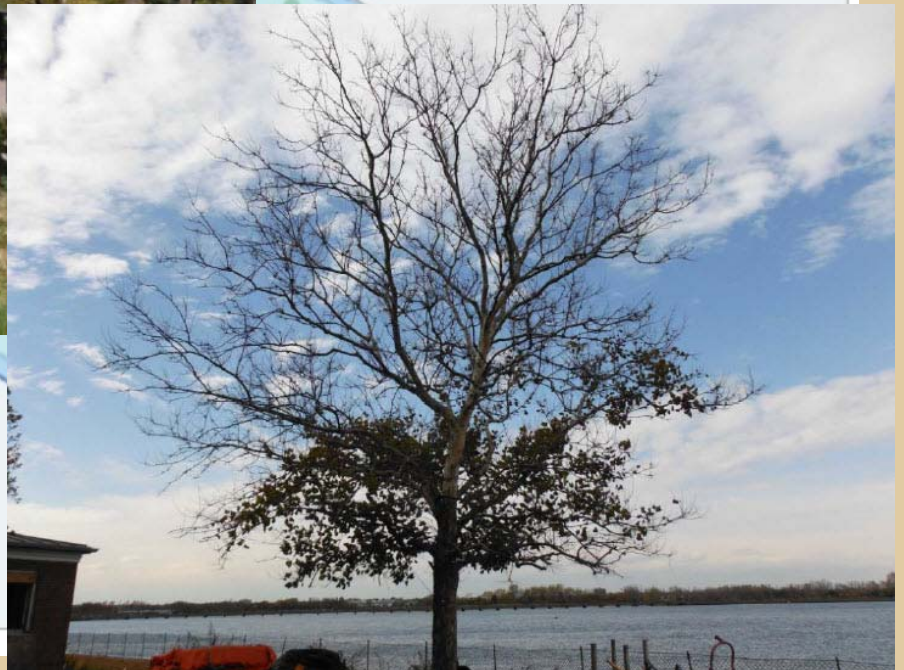
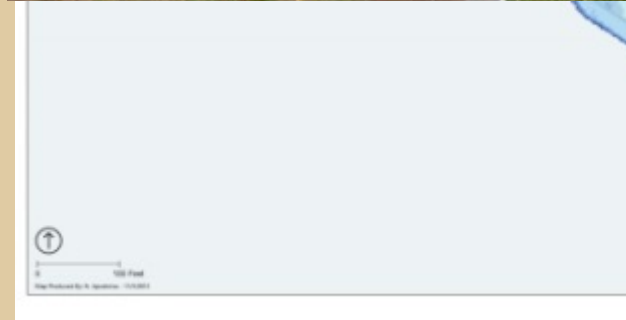


Photo Credit: Paul Cowie, Tim Aubry, National Park Service

Ellis Island



Photo Credit: Downtown Express, Paul Cowie, National Park Service

Morristown National Historical Park



Centennial Watershed State Forest



Salt Damage Long Island, NY



Photo Credit: Laura Glabman

Pinetum Christmas Tree Farm





SOME SURVIVORS

911 Memorial, NYC, New York



Photo credit: Paul Cowie, Theworldisabook

911 Memorial, NYC, New York

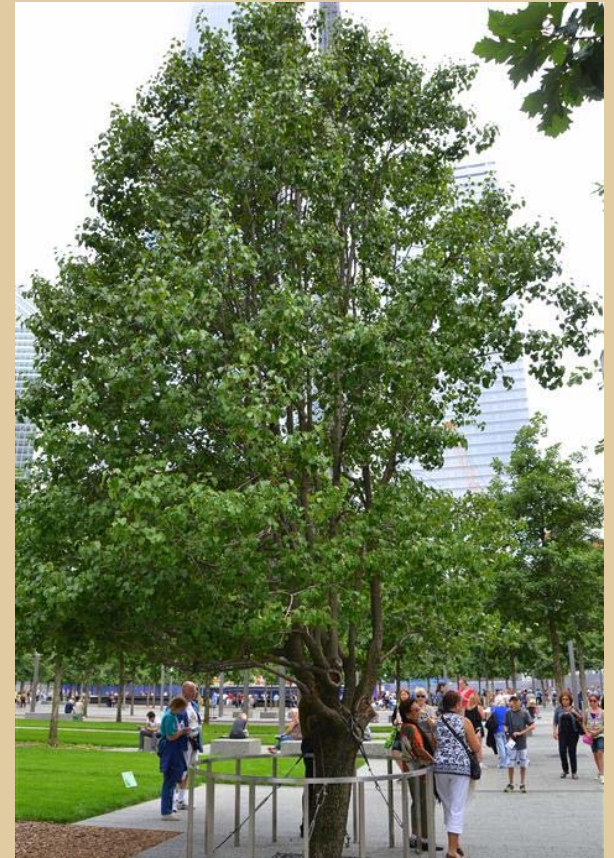


Photo credit: Theworldisabook, inhabit.com, Mark Lennihan

Rockefeller Center Holiday Tree



Photo Credit: Rich Schultz

Rockefeller Center Holiday Tree



Rockefeller Center Holiday Tree



Tree of Hope, Union Beach, NJ



Photo Credit: Buzzfeed

Tree of Hope, Union Beach, NJ



Tree of Hope, Union Beach, NJ



Photo Credits: newjersey.news12 , Matawan-Aberdeen Patch



TREE UTILIZATION

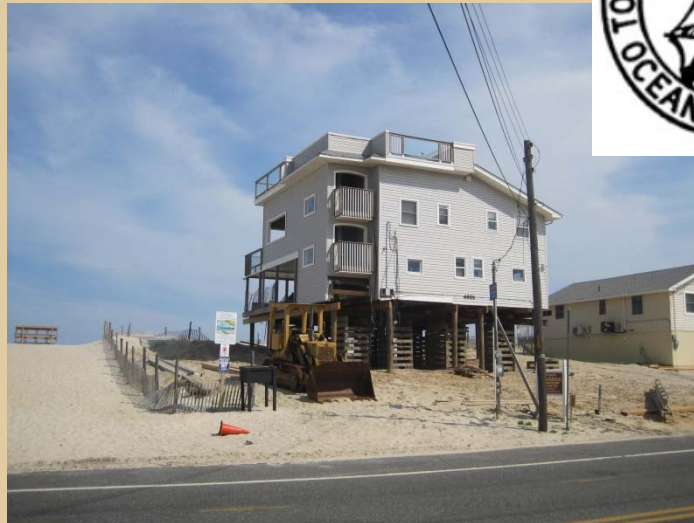
Barnegat Light Township



Barnegat Light Township



Long Beach Township (Holgate)



Barnegat Light Township Long Beach Township (Holgate)



Using Trees to Protect Trees

Bradley Beach, NJ



Photos Credit: Andrew Mills, maybeillbecomeafarmer

Using Trees to Protect Trees

Berkeley Township, NJ



Dominick Solazzo

30 years of dune building protected Midway Beach condo development from serious damage.



Photo Credit: Amanda Brown, David Swanson

Using Trees to Protect Trees Island Beach State Park, NJ

4,000 Trees



Photo Credit: Berkeley Patch, Adam Cole

Using Trees to Protect Trees

Long Beach, NY

3,000 Trees



Photo Credit: Ozier Muhammad, J. Conrad Williams, Jr.

Prospect Park, Brooklyn, NY



Photo Credit: DNAinfo.com

Brooklyn Botanical Gardens Tree House



Photo Credits: Sarah Ferguson, Pamela Nguyen, Caroline Voagen Nelson & Design Revolution

Wood Utilization



Photo Credit: Daniel Garofali

Wood Utilization



Photo Credit: News 12 New Jersey,
NorthJersey.com

Faneuil Hall Marketplace Boston, MA



Lincoln Park, Rutherford, NJ



Rutherford



***Renovating Historic
Lincoln Park***



Photo Credits: Rutherford BOE and Rutherford Borough



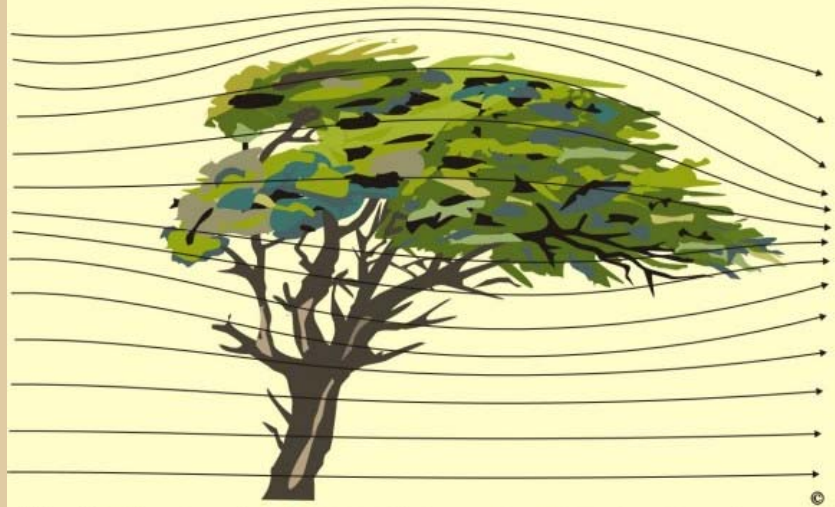
TREES AND UTILITIES

Pruning and Tree Failures

University of Florida Study

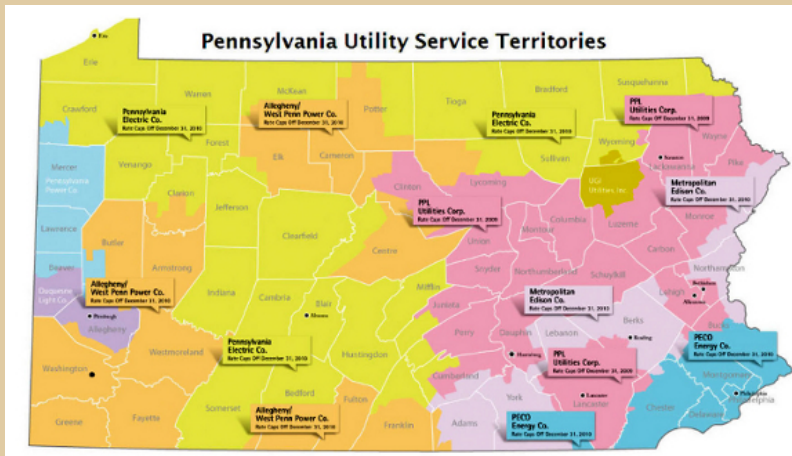
Trees that had been pruned survived high winds better than unpruned trees.

Wind Effects on Trees



Poor pruning practices, such as topping or removing large branches, make trees more susceptible to wind failure.

PPL Electric Utilities



PPL was among the top performers following Hurricane Sandy, according to JD Power and Associates.

NJ Department of Transportation



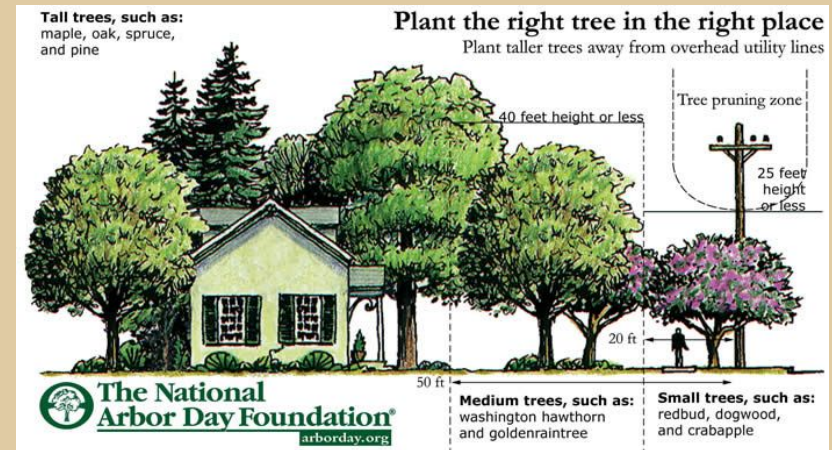
NJDOT ramped up its tree clearing activities following a 2011 snow storm.



Photo Credit: autolinetransport.com, NJDOT

Public Service Electric & Gas Jersey Central Power & Light

JCP&L had budgeted \$24 million for tree trimming work in 10 counties for 2013.



PSE&G has said they intend to prune trees more frequently than before.

PSE&G is encouraging towns to replant trees that are small enough so they won't interfere with the power lines.

Design Credit: NADF, PSE&G

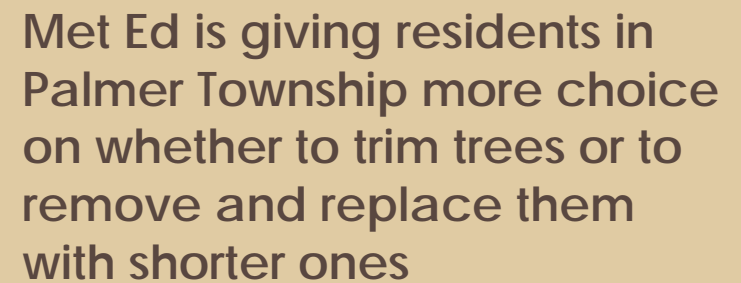
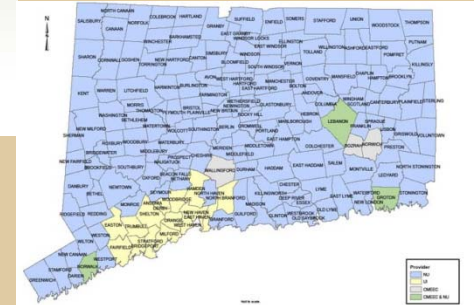


Photo Credit: Karen Vkmiecik, gophoto.usa

United Illumination Connecticut Light & Power



"New Haven without street trees is like cake without frosting".



Photo Credit: News 8 WTNH, Michael McAndrews



Legislation, New Jersey

- A number of pieces of legislation were introduced after the storm.
- One assembly bill sought to modify existing law by nullifying a shade tree commission's right to have a say in line clearance work on public property.
- Another sought to allow utilities the right to remove any tree outside the ROW that they deemed a danger to the lines.
- A third mandated new property owners notify utilities within 10 days of purchase so they could come out to inspect and perform line clearance.
- A fourth required utilities to consult annually with shade tree commissions to develop a vegetation management plan.



MUNICIPALITIES



Municipal Trends

- Loosening of local ordinances and permit requirements following the storm for a specified length of time. (Many)
- Exceptions to permitting if private landowner was afraid of large trees falling on property. (Some)
- Lower threshold of risk for remaining tree resource in some towns. (Few)
- Changes in attitude toward line clearance (Few)
- Change of species planted (Few)

Munsey Park, Long Island, NY

Allowed resident to submit a permit application instead of a licensed arborist



Allowed removals of healthy trees if resident replaces them with a more appropriate tree for the site.

Wayne Township, NJ



Wayne Township will replant street trees for free but the tree must be at least 4 feet in from the sidewalk

Glen Rock Borough, NJ



Switched from a policy of planting large trees and no trees under the wires to planting medium-size trees and utility-compatible species under wires



They received funding from PSE&G to do test plantings of under-the-wire trees



TREE PLANTING

NJ Tree Recovery Campaign



115,000 tree seedlings to neighborhoods in more than 100 towns and cities





20,000 trees are planted in one day
in Rockaway Community Park,
Queens

NJ Tree Foundation & NFL



Fall 2013

- 9 NJ Counties: Gave away 1,800 trees (2'-5' tall)
- Bay Head School, Bay Head, NJ: 45 trees and 20 shrubs
- Weequahic Park, Newark, NJ: 12 trees
- Brookdale Park, Bloomfield, NJ: 5 trees
- Chancellor Avenue School, Newark, NJ: 28 trees

NJ Tree Foundation TD Bank American Forests



- Pt. Pleasant Beach, NJ: 80 trees
- Bound Brook, NJ: 50 Trees





NJ Tree Foundation

Spring 2014

- Liberty State Park: 75 trees
- Seer Farms, Jackson, NJ: 11 trees
- Landis Park/VA Center, Vineland, NJ: 24 trees



Fall 2014

- Asbury Park, NJ: 100 street trees and 200 container trees
- Neptune, NJ: 40 trees
- LSP playground: 40
- LSP: 25 trees



New York Replanting

Nassau County, Long Island, NY in April 2013. The first of 1,100 trees.



Queens, NY: 6 months after Hurricane Sandy

Photo Credit: Mona Rivera/1010 WINS

New York Replanting



Nassau Soil & Water Conservation District's 2013 plant sale sold 11,000 tree and shrub seedlings.



JetBlue Airlines partnered with NYRP to plant more than 2,400 trees in Highland Park, NYC.

New York Replanting



Brooklyn Bridge Park replanted the majority of trees it lost.

They substituted pond cypress for dawn redwood trees.

Stuyvesant Cove Park continues to host volunteer planting events.

It is an all native species park



Photo Credit: SolarOne



Lessons Learned?

- Hurricane Sandy did not have as great an impact on managing local tree resources as might be assumed.
- The industry, as well as municipalities and utilities, can do a lot more to lessen the damage and frequency of tree failures during storms.
- There may be some genetic basis to the connection between people and trees.



David Johnson

Superstorm Sandy: Realizations, Recovery, and Replanting



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- 1 ☐ **Superstorm Sandy**
Realizations, Recovery and Replanting
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- 2 ☐ **Superstorm Sandy**

- 3 ☐ **Statistics**

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- 4 ☐

- 5 ☐ **THE DAMAGE**

- 6 ☐ **Milford, CT**

- 7 ☐ **Brighton Beach, Brooklyn, NY**

- 8 ☐ **South Richmond Hill, NY**

- 9 ☐ **The Bronx, NY**

- 10 ☐ **Brooklyn, NY**

- 11 ☐

Staten Island, NY

- 12 ☐ **Coney Island, NY**

13 ☐ Jersey City, NJ

14 ☐

Elliot Lake, Ontario Canada

15 ☐ Lehigh University, Bethlehem, PA

16 ☐ Lakewood, Ohio

17 ☐ Somewhere

18 ☐ Central Park, NYC

19 ☐ Central Park, NYC

20 ☐ Baltimore Osage Orange Tree

21 ☐ The Lincoln Oak

22 ☐

Frelinghuysen Arboretum
Jonathan's Woods

23 ☐

Bartlett Arboretum

24 ☐ Liberty Island

25 ☐ Ellis Island

26 ☐ Morristown National
Historical Park

27 ☐ Centennial Watershed State Forest

28 ☐ Salt Damage
Long Island, NY

29 ☐ Pinetum Christmas Tree Farm

30 ☐ **SOME SURVIVORS**

31 ☐ 911 Memorial, NYC, New York

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33 ☐ Rockefeller Center Holiday Tree

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36 ☐ Tree of Hope, Union Beach, NJ

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39 ☐ **TREE UTILIZATION**

40 ☐ Barnegat Light Township

41 ☐ Barnegat Light Township

42 ☐ Long Beach Township (Holgate)

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44 ☐ Using Trees to Protect Trees
Bradley Beach, NJ

45 ☐ Using Trees to Protect Trees
Berkeley Township, NJ

46 ☐ Using Trees to Protect Trees
Island Beach State Park, NJ

47 ☐ Using Trees to Protect Trees
Long Beach, NY

48 ☐ Prospect Park, Brooklyn, NY

49 ☐ **Brooklyn Botanical Gardens Tree House**

50 ☐ **Wood Utilization**

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52 ☐

**Faneuil Hall Marketplace
Boston, MA**

53 ☐ **Lincoln Park, Rutherford, NJ**

54 ☐ **TREES AND UTILITIES**

55 ☐ **Pruning and Tree Failures**

1 Design Credit: University of Karlsruhe, Germany

2 University of Florida Study

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57 ☐ **NJ Department of Transportation**

58 ☐ **Public Service Electric & Gas
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59 ☐ **Metropolitan Edison Co.**

Photo Credit: Karen Vkmieciak, gophoto.usa

60 ☐ **United Illumination
Connecticut Light & Power**

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65 ☐ **Wayne Township, NJ**

66 ☐ **Glen Rock Borough, NJ**

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68 ☐ **NJ Tree Recovery Campaign**

69 ☐

70 ☐ **NJ Tree Foundation & NFL**

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76 ☐ **Lessons Learned?**

77 ☐