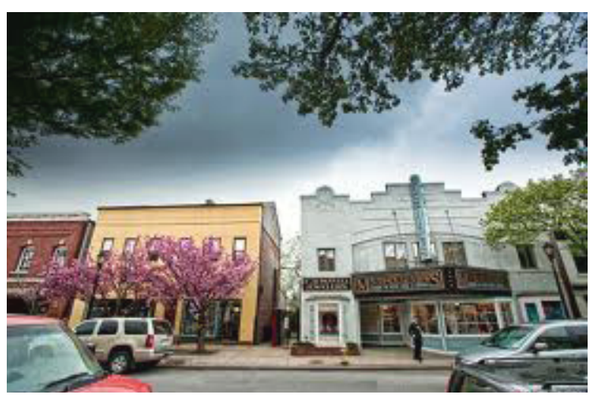


Street Tree Inventory Companion

Village of Hastings-on-Hudson, New York

Produced by The Village Tree Board
October 1, 2013

Background

Volunteers

New York State DEC Urban Forestry Grant

Global Positioning System Tagging

Maps

Tree Biodiversity

Planting Spaces

The Hastings-on-Hudson Street Tree Inventory is

a dynamic database of publicly owned and managed street trees within the right-of-way in the Village of Hastings-on-Hudson, New York.

a tool for managing a street tree maintenance protocol to encourage a healthy and safe urban forest.

the product of combined efforts by many residents with the ambition of ensuring that Hastings-on-Hudson continues to be a great place to live for future generations.

a call for
volunteers
by the
Village Tree Board

posters and online
announcements

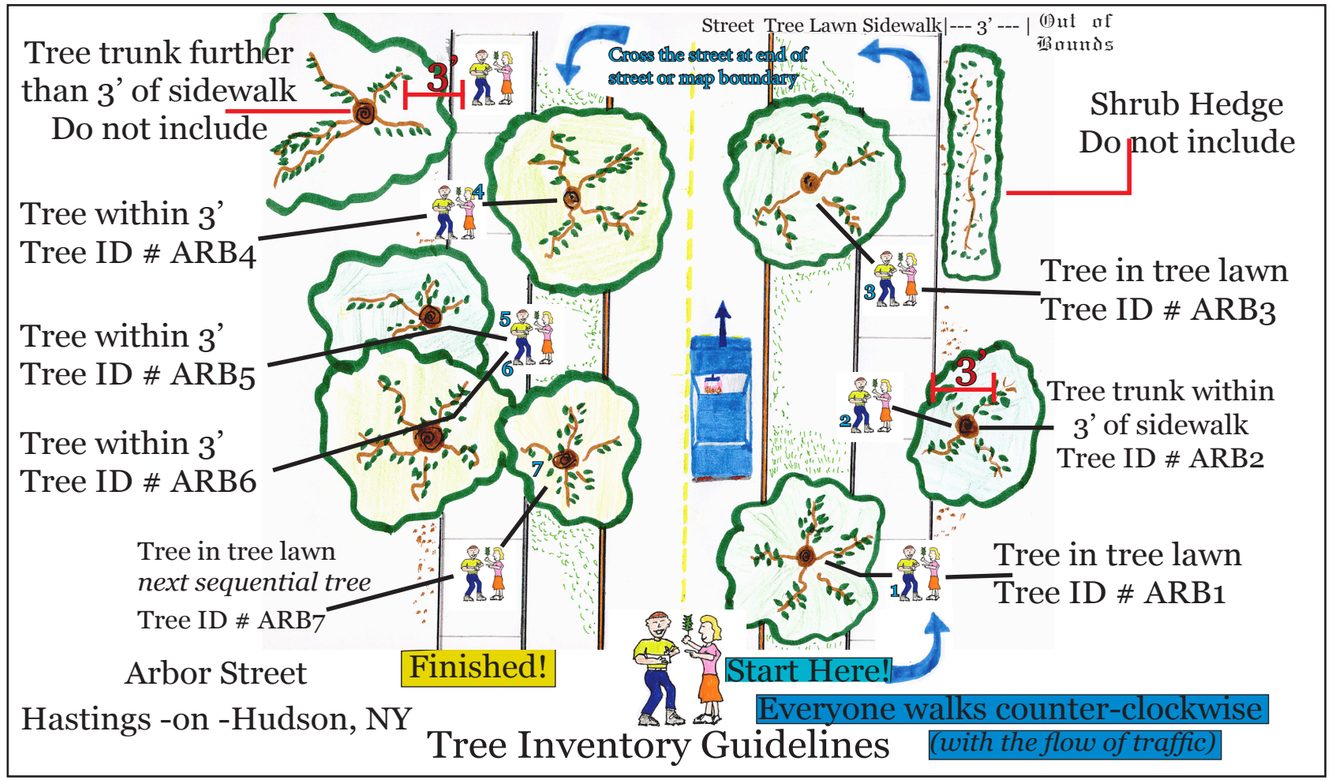
Volunteers attended an information session
Inventory goals and a basic framework was provided

Volunteers were required to work in groups no smaller than two.

No experience was necessary.
Help was offered online and in person.

Data objectives for May 2012:

- street tree location
- tree identification
- trunk diameter at breast height
- utility wire conditions
- general observations



Village of Hastings on Hudson, Spring 2012 Tree Inventory

Surveyor Name:			Date:			Map #:		Page of
Tree ID Number	Address #	Street Name	Location Type	Species	D.B.H. (inches)	Utility Wires	Noteworthy Notes: (such as but not limited to)	
Street prefix + tree #	*nearest house number*		***T*** *Tree in lawn between street and sidewalk* ***TP*** *tree pit* ***P*** *Between sidewalk and house* ***M*** *Median* ***A*** *Adjacent to curb, no sidewalk*	*use common name or Latin*		*Are utility wires overhead? Yes or no*	*low hanging branches over road* *% of dead branches* *large dead branches* *multi trunked* *obvious signs of decline - rot at base, damage to trunk* *tree was topped*	
EUC-07	83	Euclid	T	N. Red Maple Acer rubrum	16	yes	tree is dying or is dead	

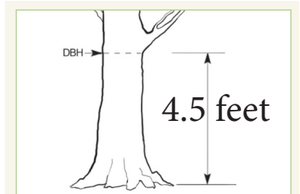
All volunteers were welcome and presented with basic guidelines for uniform data collection

Recording D.B.H.

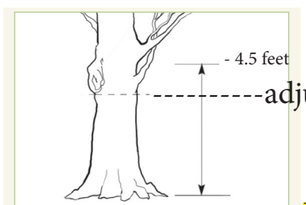
13 aligns with 0

D.B.H. = 13 inches

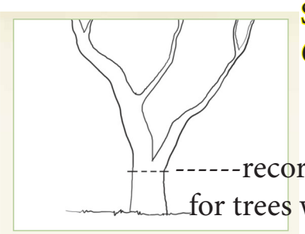
Note! A D.B.H. tape is different from a tape measure. Please do not use a tape measure. D.B.H. tapes have *two sides!* Use the side that says: Diameter Equivalents of Circumference in terms of inches and tenths of inches!!! Round up or down to the nearest half inch (ex: 6", 6.5", 7"...)



D.B.H. stands for Diameter at Breast Height = 4.5 feet



4.5 feet----------adjust for bumps and branches



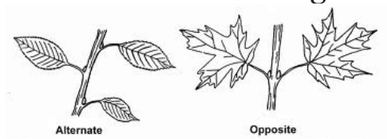
----------record below split for trees with two trunks

13" D.B.H.
Shagbark Hickory
Carya ovata

Tree Identification Basics

Arangement of Leaves

the position of a leaf or bud in reference to another leaf or bud along the stem



Opposite

If leaves are opposite, likely its...
Maple, Ash, Dogwood, or Horsechestnut
Tip: Remember M.A.D. Horse

Alternate

If leaves are alternate, likely its...
Everything Else... Oak, Pear, Apple, Birch, Hawthorn, Honey Locust...

Whorled

... only a few of these... Catalpa

Compound Leaves — Ash

Pinnately Compound — Honey Locust

a few sample shapes

Evergreens and Needle Trees

Norway Spruce Blue Spruce Hemlock

Street Trees to expect in Hastings -on -Hudson

Flowering Dogwood	*Cornus florida*
Flowering Pear	*Pyrus calleryana*
Japanese Zelkova	*Zelkova serrata*
Eastern Red Bud	*Cercis Canadensis*
Shadblow	*Amelanchier canadensis*
Hawthorne	*Crataegus spp.*
Crabapple	*Malus spp.*
Flowering Cherry	*Prunus serrulata*
Black Cherry	*Prunus serotina*
European Hornbeam	*Carpinus betulus*
Hackberry	*Celtis Occidentalis*
Green Ash	*Fraxinus Pennsylvanica*
American Linden or Basswood	*Tilia Americana*
Littleleaf Linden	*Tilia cordata*
Black Locust	*Robinia pseudoacacia*
Ginkgo	*Ginkgo biloba*
Horse Chestnut	*Aesculus hippocastanum*
Sugar Maple	*Acer saccharum*
Silver Maple	*Acer sacharinum*
Red Maple	*Acer rubrum*
Japanese Maple	*Acer palmatum*
Norway Maple	*Acer platanoides*
Tree of Heaven	*Ailanthus altissima*
Pin Oak	*Quercia palustris*
Northern Red Oak	*Quercia rubra*
Scarlet Oak	*Quercus coccinea*
American Elm	*Ulmus americana*
Elm species	*Ulmus species*

Carol Hayward
Anne-Marie McIntyre
Gene Spieler
James D’Addio
Bronwyn Taggart
Kathleen McArdle
Jan Clough
John Knittel
Monique Rothman
Elisa Zazzera
Ann Scholl
Labate-Shea family
Steve Pucillo

Ann van Buren
Elizabeth Marouk- Coe
Jane Cameron
Irene Jong
Laura Rice
Margaret Moulton
Jennie Bernard
Patty Lowy
Kathleen Ossip
Susan Maggiotto
Mary Mielke
Diana Jaeger
Tim Downey

Kathy Sullivan
Patrick Trautmann
Peter Lee Waczek
Eileen Quinlan
Nicole Diz
Bill Crosby
Bill Wu
Jackie Lhoumeau
Marty Stricks
Rhona Neuwirth
Mary Jean Madigan
Sheila Shadeed
Terry Cocchiarella

Sarita Eisenstark
Maryann Fiebach
Ms Shandroff
Barbara Prisament
Haven Colgate
Marg Quigley
Phyllis Mulaire

Michael Ambrozek
Jeff Honovich
Carol Hayward
Joanne DiSalvo
Joseph DiSalvo

Volunteers

Thank You

ANDREW M. CUOMO
GOVERNOR

JOE MARTENS
COMMISSIONER

STATE OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY, NEW YORK 12233-1010

NOV 15 2012

Mr. Francis A. Frobel
Village Manager
Village of Hastings-on-Hudson
Village Hall, 7 Maple Drive
Hastings-on-Hudson, NY 10706

Dear Mr. Frobel:

On behalf of Governor Cuomo, I want to congratulate you on your successful application to receive funding for an Urban and Community Forestry Project. The Hastings-on-Hudson Tree Inventory - 2012 project has been approved for a State share of $5,000.

You are to be commended for your success in this grant process. In total 95 applications were received, evaluated and awarded on a competitive basis. You will soon receive a letter from the DEC's Division of Lands and Forests. The term of the contract will commence upon the signing of the contract. No costs incurred prior to the signing of the contract will be eligible for reimbursement. Please watch for this letter which will advise you of these next steps.

Across the State, it is heartening to see the initiative of municipalities, grassroots organizations and volunteers working in partnership to further improve New York's urban forests. Together we are helping to enhance natural resources for all New Yorkers for generations to come.

Again, I offer my congratulations on your community's successful proposal.

Sincerely,

Joseph J. Martens

Hastings-on-Hudson, NY

Street Tree Inventory Report

Prepared for the Village of Hastings-on-Hudson
by Brett Schneiderman

October 1, 2013

The New York State grant provided resources for Global Positioning System tagging, tools for inspecting tree and planting space conditions, and help towards completing and processing collected data

In Hastings –on-Hudson, NY, a Tree City, USA for twenty-eight consecutive years, residents value the aesthetics and community lifestyle that is characterized by arbors that grace our village. We recognize that arbors improve air quality, reduce greenhouse gas emissions, cool our streets, reduce storm water runoff, encourage attractive and safe public space and bolster property values. The Village Tree Board has worked with 100 volunteers to begin a tree inventory that assesses the health and safety of publicly managed trees and identifies planting spaces to inform a planting strategy. We are seeking a Community Grant to complete the inventory to be used to create a long-term arbor management program for the Village of Hastings-on-Hudson.

The tree inventory will provide the critical information needed to determine which trees need maintenance and where new trees will be planted. The inventory will use I-Tree to record species, location, diameter, canopy spread, and visual observations of trees on village streets, parks, and public wooded areas. A stocking percentage per street will be evaluated to determine how many trees should be planted annually. The inventory will reveal the dispersion of tree species within the village. New trees will be chosen to improve species and canopy diversity. Projections of tree heights in relation to overhead wires will be considered along with the species' resilience to street salts. This careful planning will help save the village money in the long run as careful species selection will reduce maintenance needs. The resulting database will include tree identification numbers with GPS location tags for each tree and planting space using the Garmin 62S GPS.

The Inventory will quantify and qualify the condition of public trees in low- income neighborhoods in the village. Attention to these trees in such neighborhoods will help to provide here the social and ecologic benefits that trees provide: summer street cooling, improved air quality, reduced greenhouse gases; and create a nice living environment on public space. Warbuton Avenue south of Washington Avenue is our primary target area for tree planting and stormwater management in a low- income community. The current stocking percentage for street trees in this area is below 10 percent.

Brett Schneiderman, a member of the Village Tree Board and ISA Certified Arborist NY5243A, has been working with Professor Nina Bassuk of the Urban Horticultural Institute and Fred Cowett, whose recent PhD on street tree inventories in NY State, along with Professor Bassuk's work, has helped to identify the parameters needed to establish the budget and necessary tools needed for making accurate assessments of tree health and safety.

The tree inventory is critical at this time, given the extreme storms we have experienced in our region. Recently, trees that have been a feature of the landscape for the last one hundred years have suddenly fallen over after a day of heavy rains. The tree inventory will raise awareness of drainage issues resulting from this weather as well as from the impact of construction adjacent to tree root areas.

The community involvement of the tree inventory is a significant factor. Residents are already more aware of invasive threats such as the Asian Long-Horned Beetle and the Emerald Ash Borer. Residents will also have the opportunity to become stewards of mature trees, taking on some of the costs of pruning and maintenance. Having the volunteers as "eyes on the street" to report trees in decline, invasive insects, and disease will provide a fast, real-time response to these complications, saving money, trees, and lives in the long run.
A tree inventory provides a factual basis for decision making and will assist the Village of Hastings –On-Hudson to update the Village Tree Ordinance. Upon completion of the inventory the village will be able to identify older "heirloom" trees and to provide specialized maintenance to these centenarians. Proper site assessment and soil testing will assist to inform species selection for new trees that will thrive in unoccupied planting spaces.

A goal of the inventory is to provide a system for identifying trees that have a dangerous condition and to provide a framework for the department of public works to be able to quickly reference the location of the tree and dispatch the appropriate maintenance crew. Tree roots may need to be inspected for rot or to determine if an obstruction like a driveway or a building has limited the spreading of roots and compromised tree stability. To perform such inspections specific tools are used to carefully dig into the soil and to make clean and precise pruning cuts where necessary. Not only does this efficiency conserve man hours but it creates a protocol for prompt responses in emergency situations. Part of the long- term vision is to work with the Department of Public works to improve training for village employees working with equipment and responding to dangerous conditions involving tree.

The Hastings-on-Hudson Village Tree Inventory has already created a sense of generous community spirit. Volunteers who for many years have been concerned about the arbor in our village, are happy to have the opportunity to be able to do something about it. Our Board of Trustees has given the Village Tree Board its vote of confidence in the form of a limited amount of funding. A matching grant that would enable us to take action and to protect our trees on an ongoing basis would help the good will or our citizens take root and contribute to the global health of our environment.

SCHEDULE B – PROJECT BUDGET

CONTRACT NO.:_____

T304794

Cost Categories	NYSDEC Grant	Recipient Funds (50% Match)	TOTALS
PERSONAL SERVICES			
Forester	838.50	838.50	1677
Subtotal Personal Services			
NON-PERSONAL SERVICES			
Supplies & Materials: Shovel, $25, Soil Knife $25, Root Saw $36, Brush $7, Soil Meter $126, Soil Probe $103, pH Test Kit $38, 2 Hand Pruners Heavy Duty $102, Laupers $100, Pruning Saw $26, Magnifiers $20, Tree Caliper $32 Binoculars $94, Orange Flagging $28, Tree ID Tags $30, Diameter Tape $45, Sounding Hammer $15, Large Tool Box $80, Lock $4, 8 Clipboards $14, Printing & Binding $74	800	800	1600
Contractual Services: Personnel: Fred Cowett, PhD, 24 hours ($25/hr x 24 hr $600) Cornell SWAT, 8 persons, 256 hours ($18.75hr x 256hr $4800) Cornell SWAT, transportation, round trips between Ithaca and Hastings-on-Hudson for team ($248.64) Brett Schneiderman, Project Coordinator, transportation, three round trips between Ithaca and Hastings-on-Hudson ($248.64)	2948.64	2948.64	5897.28
Equipment: GPS, Two Garmin GPSMAP 62S Handheld GPS Navigators $746, Digital Camera $80	413	413	826
Administrative: (Not eligible for reimbursement, but may be eligible for up to 15% of project match.)			
Other: (not included above) Description:			
Subtotal Non-Personal Services			$10,000
GRANT AMOUNT (50%):			$5,000
MATCH AMOUNT (50%):			$5,000
TOTAL PROJECT COSTS:			$10,000

Identify below sources of matching funds: (Federal or State funds will not be considered as an eligible match source)

Village Match in-kind services, Village of Hastings-On-Hudson, NY

GRADUATE STUDENT ARBORIST TEAMS

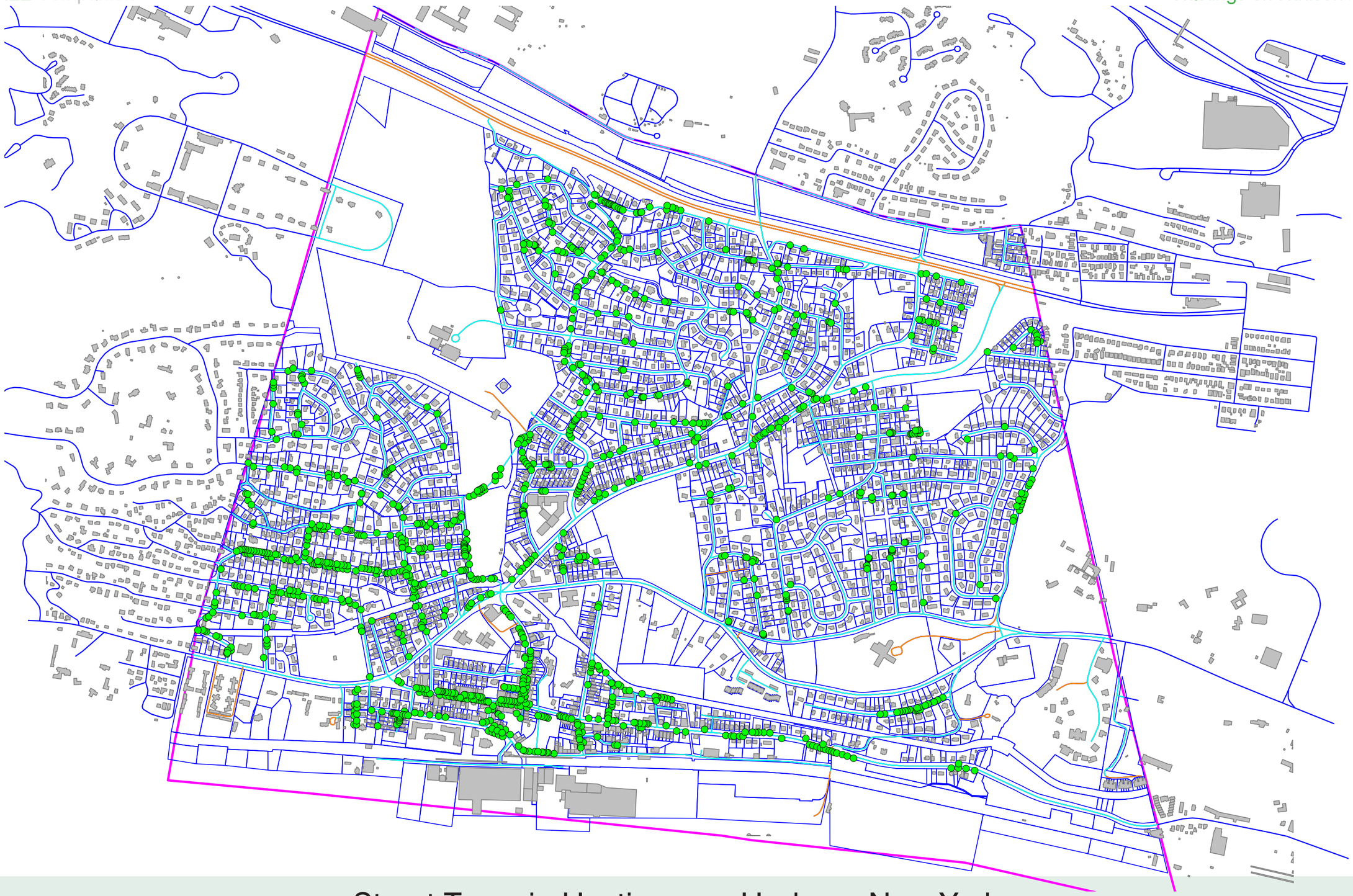
CORNELL UNIVERSITY

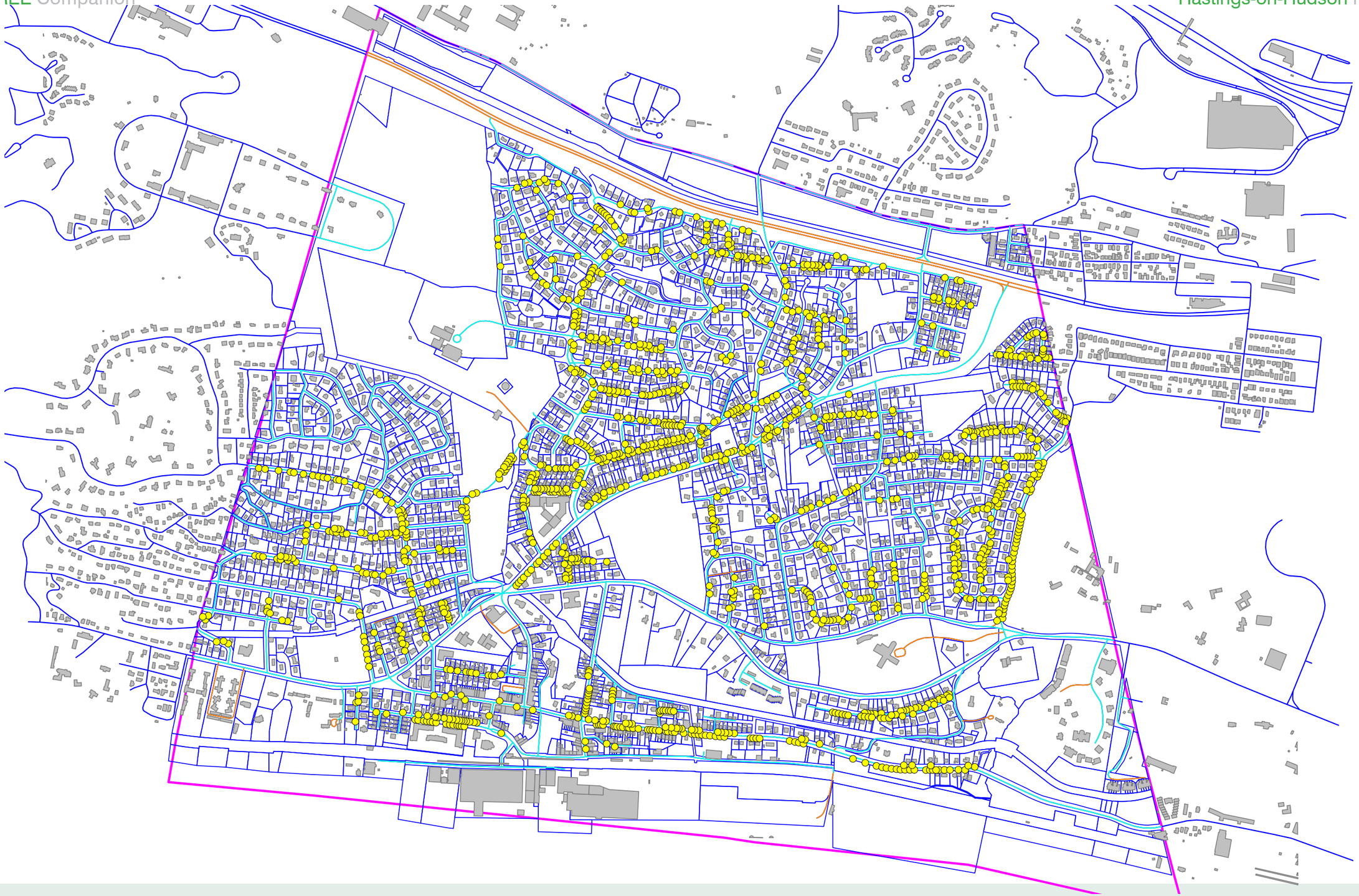
Team 1 Day 1	Dates	Compensation	Notes
Andrea Haynes	6/29/2013	$150	Field data collection
Brett Schneiderman	6/29/2013	$150	Field data collection
Team 1 Day 2			
Andrea Haynes	6/30/2013	$150	Field data collection
Brett Schneiderman	6/30/2013	$150	Field data collection
Team 1 Day 3			
Andrea Haynes	7/1/2013	$37	2 hours only, heavy rain
Brett Schneiderman	7/1/2013	$37	2 hours only, heavy rain
Team 2 Day 4			
Nicolas Azel	7/13/2013	$150	Field data collection
Brett Schneiderman	7/13/2013	$150	Field data collection
Team 3 Day 4			
Andrea Haynes	7/13/2013	$150	Field data collection
Grant Thompson	7/13/2013	$150	Field data collection
Team 2 Day 5			
Nicolas Azel	7/14/2013	$150	Field data collection
Brett Schneiderman	7/14/2013	$150	Field data collection
Team 3 Day 5			
Andrea Haynes	7/14/2013	$150	Field data collection
Grant Thompson	7/14/2013	$150	Field data collection
Team 4 Day 6			
Sara Tsiropinas	8/5/2013	$150	Field data collection
Brett Schneiderman	8/5/2013	$150	Field data collection
Fred Cowett	7/16/2013	$200	Data processing
	8/7/2013	$200	Data processing
	9/16/2013	$200	Data processing
Totals			
Nicolas Azel	2	$300	
Andrea Haynes	4.25	$637	
Brett Schneiderman	5.25	$787	Total $2774
Sara Tsiropinas	1	$150	
Grant Thompson	2	$300	
Fred Cowett	3	$600	

Date	Gas	Purpose
6/28/2013	63.99	Transportation Team 1 Ithaca to Hastings-on-Hudson
7/1/2013	45.54	Transportation Team 1 Hastings-on-Hudson to Ithaca
7/12/2013	28.94	Transportation Team 2 Ithaca to Hastings-on-Hudson
7/14/2013	40.64	Transportation Team 2 Hastings-on-Hudson to Ithaca
8/4/2013	43.7	Transportation Team 3 Ithaca to Hastings-on-Hudson
8/6/2013	48.23	Transportation Team 3 Hastings-on-Hudson to Ithaca
8/28/2013	64.45	Transportation Brett Schneiderman Ithaca to Hastings-on-Hudson
8/30/2013	43	Transportation Brett Schneiderman Hastings-on-Hudson to Ithaca
10/1/2013	40	Transportation Brett Schneiderman Ithaca to Hastings-on-Hudson
10/2/2013	40	Transportation Brett Schneiderman Hastings-on-Hudson to Ithaca
	Tolls	
6/28/2013	5	Tappan Zee Bridge
6/28/2013	1.25	New York State Thruway
7/1/2013	1.25	New York State Thruway
7/12/2013	5	Tappan Zee Bridge
7/12/2013	1.25	New York State Thruway
7/14/2013	1.25	New York State Thruway
8/4/2013	5	Tappan Zee Bridge
8/4/2013	1.25	New York State Thruway
8/6/2013	1.25	New York State Thruway
8/28/2013	5	Tappan Zee Bridge
8/28/2013	1.25	New York State Thruway
8/30/2013	1.25	New York State Thruway
10/1/2013	5	Tappan Zee Bridge
10/1/2013	1.25	New York State Thruway
10/2/2103	1.25	New York State Thruway
	Tools	
6/19/2013	308.59	Garmin GPSMap 62 (one)
7/12/2013	5.99	Batteries
	Totals	
Gas	458.49	
Tolls	34	Total $807.07
Tools	314.58	
Gas, Tolls, & Tools	807.07	Village of Hastings-on-Hudson Street Tree Inventory Urban Forestry Grant T304794

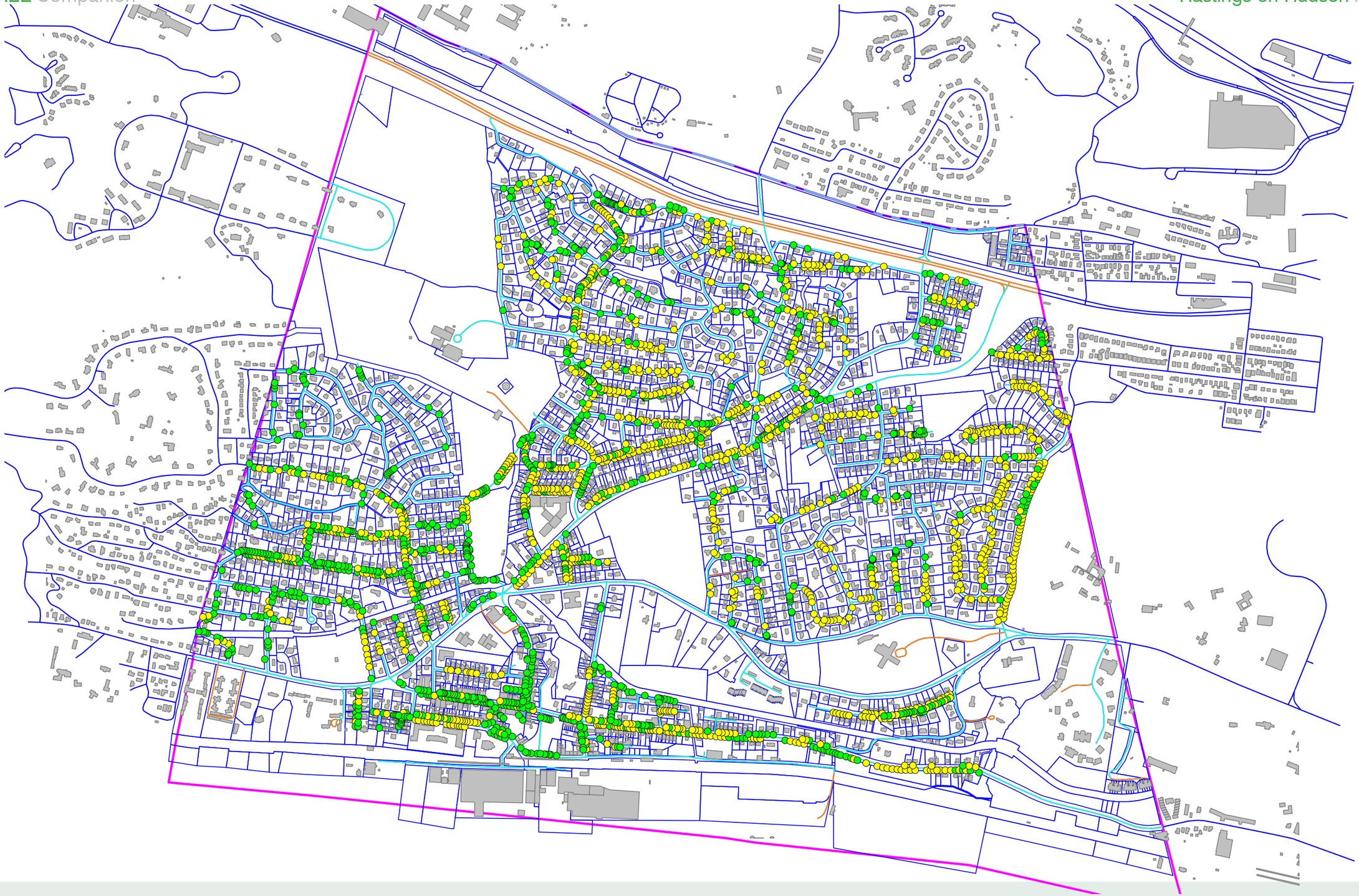
Brett Schneiderman bs523@cornell.edu

Total Expenses as of 10/1/2013
$2774 + $807.07 = $3581.07



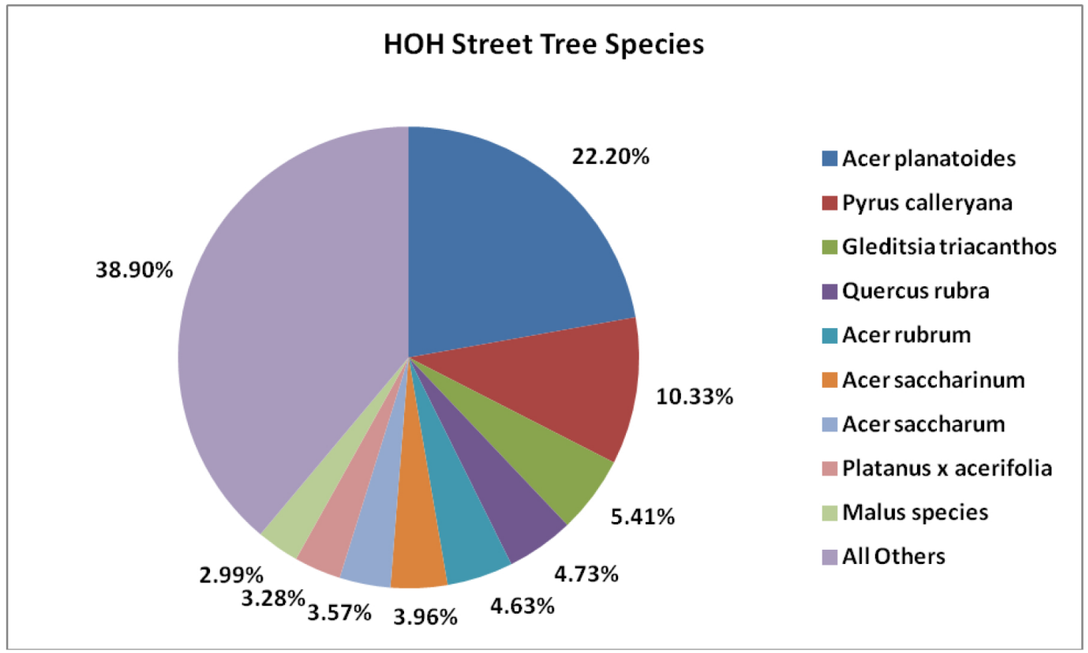


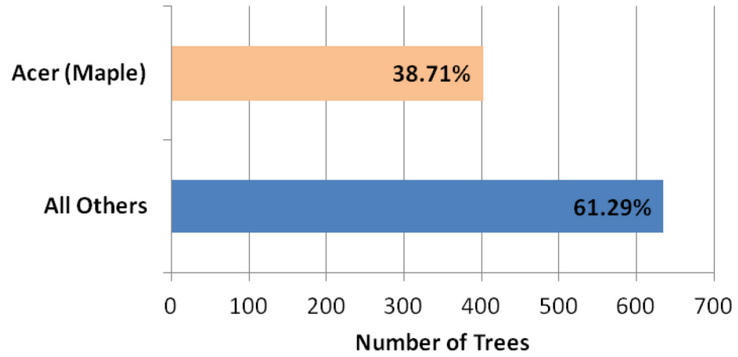
Street Tree Planting Spaces in Hastings-on-Hudson, New York



Street Trees and Street Tree Planting Spaces in Hastings-on-Hudson, New York

Diversity can reduce the impact of catastrophic tree loss in individual neighborhoods and across the overall population of street trees. Responding to catastrophic street tree losses from Chestnut Blight and Dutch Elm Disease, arbor restoration strategies looked towards increasing diversity in street tree populations and to using species cultivars with proven improved resistances to diseases or pests.





When selecting trees to plant, select trees that diversify the overall street tree populaion to help improve resilience to diseases, pests, and catastrophe.

Biodiversity 30 - 20 - 10 Rule of Thumb:
select trees to plant for a total population of no more than 30% of trees in the same FAMILY
select trees to plant for a total population of no more than 20% of trees of the same GENERA
select trees to plant for a total population of no more than 10% of trees of the same SPECIES

These street trees are for planting in small tree pits and tree lawns for streets with smaller and restricted planting spaces for planting beneath overhead utility wires

Mature Canopy	Tree	Common Name	Cultivars	Notes
30'	*Carpinus caroliniana*	American Hornbeam	Palisade	yellow orange fall foliage
25'	*Cercis canadensis*	Eastern Redbud	Forest Pansy	must be tree form
20'	*Cornus mas*	Cornelian Cherry	Golden Glory	must be tree form
20'	*Cotinus obovatus*	American Smoketree		must be single stem tree form
25'	*Crataegus phaenopyrum*	Washington Hawthorn		the cultivar Washington Lustre has fewer thorns
20'	*Crataegus viridis*	Winter King	Winter King	leaves resilient to cedar hawthorne rust
35'	*Gleditsia triacanthos*	Thornless Honeylocust	var. *inermis* 'Impcole' Imperial	seedless
30'	*Koelreuteria paniculata*	Goldenrain Tree	Summerburst	summerburst better heat resistance
30'	*Liquidambar styraciflua* 'Clyfrdgorm'	Sweet Gum	Emerald Sentinel	dwarf columnar street tree
30'	*Maackia amurensis*	Amur Maackia	MaacNificent	symmetrical upright vase shape branching
20'	*Malus spp.*	Floweing Crabapple	Adams	round canopy; deep pink, profuse flower
18'	*Malus spp.*		Adirondack	vase canopy; white flower; excel. disease resistance
20'	*Malus spp.*		Donald Wyman	white flowers
20'	*Malus spp.*		Prarie Fire	oval canopy; pink -red flower; excel. disease resistance
20'	*Malus spp.*		Professor Sprenger	pink buds, white fragrant flowers
20'	*Malus spp.*		Purple Prince	rose red flowers; maroon fruit
20'	*Malus spp.*		Sugar Tyme	good tree
28'	*Parrotia persica*	Persian Parrotia	Ruby Vase	more upright and narrow, bright fall color
25'	*P. sargentii x subhirtella*	Accolade Flowering Cherry	Prunus 'Accolade'	more disease resistant than most flowering cherries
20'	*Robina pseudoacacia* ' Globe'	Globe Black Locust	Globe	cultivar is a small to 20' black locust, less borer susceptible
30'	*Robina pseudoacacia* '*Bessoniana*'	Bessoniana Black Locust	Bessoniana	cultivar is a small to 30' black locust, less borer susceptible
25'	*Syrina reticulata*	Japanese Tree Lilac	Ivory Silk, Summer Charm	creamy white panicle flowers
20'	*Tilia cordata* 'Halka'	Little Leaf Linden	Summer Sprite	Summer Sprite is a semi-dwarf
35'	*Zelkova serrata* ' Schmidtlow'	Wireless Japanese Zelkova	Wireless	broad spreading vase canopy
20	*Zelkova serrata* '*JFS-KW1*'	City Sprite Japanese Zelkova	City Sprite	smaller oval to vase canopy

Use this tree selection guide as a basis to find the right tree for small planting spaces
Increase biodiversity by planting a variety of trees from this list. Look for available cultivars
Reference Companion Manual: Recommended Urban Trees: Site Assessment and Tree Selection for Stress Tolerance
Urban Horticulture Institute, Cornell University

These street trees are for planting in tree pits and tree lawns for streets with larger tree pits and tree lawns with no overhead utility wires

Mature Canopy	Tree	Common Name	Cultivars	Notes
40'	*Aesculus x carnea*	Red Horsechesnut	Briotii, Fort McNair	Do not plant *A. hippocastanum*
50	*Betula nigra*' Cully'	Heritage River Birch	Cully	resistant to bronze birch borer
50'	*Betula nigra*' BNMTF'	Dura-Heat River Birch	BNMTF	good heat tolerance and borer resistance
35'	*Carpinus betulus*	European Hornbeam	Columnaris	upward branching
40'	*Carpinus betulus*	European Hornbeam	Emerald Avenue	28' wide canpopy
35'	*Carpinus betulus*	European Hornbeam	Franz Fontain	15' wide canopy narrowest available
50'	*Celtis laevigata*	Sugar Hackberry	Magnifica	cultivar has little to no fruit
50'	*Celtis occidentalis*	Common Hackberry	Prarie Pride, Prarie Sentinel	cultivars more compact
50'	*Cladrastis kentukea*	Yellowwood		specify single stem, prune only in summer
60'	*Eucommia ulmoides*	Hardy Rubber Tree		rounded to broad spreading canopy
50'	*Ginkgo biloba*	Ginkgo		many male (non-fruiting) cultivars
50'	*Gymnocladus dioicus*	Kentucky Coffee Tree	Espresso	cultivar is male (non-fruiting) form
30'	*Liquidambar styraciflua*	American Sweetgum	Emerald Sentinel	12' narrow columnar canopy
45'	*Liquidambar styraciflua*	American Sweetgum	Happidaze	maroon fall color
50'	*Maclura pomifera var. inermis*	Osage Orange	Whiteshield	cultiavar is thornless male
70'	*Metasequoia glyptostroboides*	Dawn Redwood		look for cultivars that are narrow
50'	*Nyssa sylvatica*	Black Tupelo		Red Rage cultivar is resistant to leaf spot
45'	*Phellodendron amurense*	Amur Corktree	Macho	cultivar is male (non-fruiting) form
45'	*Phellodendron amurense*	Amur Corktree	Shademaster	good branching structure
40'	*Prunus sargentii*	Sargent Cherry	Pink Flair JFS-KW58	narrower vase form
45'	*Quercus robur x bicolor*	English Oak Hybrid	Regal Prince	columnar to narrow oval form
40'	*Styohnolobium japonicum*	Japanese Pagoda Tree	Millstone, Princeton Upright	the cultivar Regent is resistant to leaf hoppers
60'	*Ulmus japonica x wilsoniana*	Accolade Elm	Accolade 'Morton'	use elm hybrids for disease resistance
60'	*U. Japonica x U. wilsoniana*	Commendation Elm	Commendation	use elm hybrids for disease resistance
60'	*U. Japonica x U. wilsoniana*	Danada Charm Elm	Danada Charm	use elm hybrids for disease resistance
70'	*Ulmus parvifolia*	Lacebark Elm	many available	Dynasty has upright vase canopy, Bosque

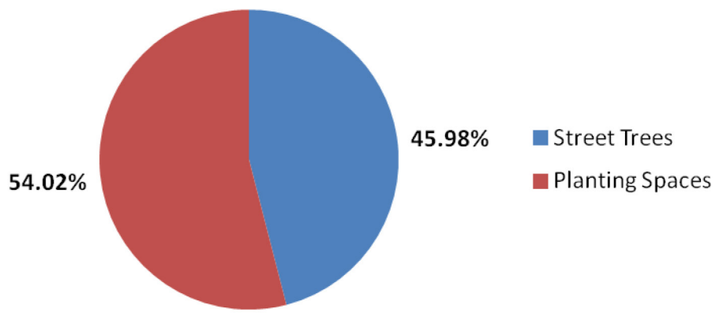
Use this tree selection guide as a basis to find the right tree for medium planting spaces.
Increase biodiversity by planting a variety of trees from this list. Look for available cultivars

Reference Companion Manual: Recommended Urban Trees: Site Assessment and Tree Selection for Stress Tolerance
Urban Horticulture Institute, Cornell University

These trees are for planting in open spaces and parks with no overhead utility wires

Mature Canopy	Tree	Common Name	Cultivars	Notes
60	*Catalpa speciosa*	Catalpa		fruit litter can be a nuisance
60	*Cercidiphyllum japonicum*	Katsura		this tree requires a planting site with ample water
40	*Cercidiphyllum japonicum*	Red Fox Katsura Tree	Rotfuchs	ample water needed, upright oval canopy
90	*Lirodendron tulipifera*	Tulip Poplar		
55	*Lirodendron tulipifera 'Emerald City'*	Emrald City Tulip poplar	Emerald City	Tighter canopy spread
80	*Platanus x acerifolia*	London Plane	Bloodgood	tolerates severe pruning
90	*Platanus x acerifolia*	London Plane	Columbia & Liberty	better disease resistance
80	*Platanus x acerifolia*	London Plane	Exclamation	very clean tree, good tree
50	*Quercus acutissima*	Sawtooth Oak		oval to broad rounded canopy at maturity
70	*Quercus bicolor*	Swamp White Oak		
70	*Quercus coccinea*	Scarlet Oak		wide street lawn or parks due to size
70	*Quercus robur*	English Oak	Forest Knight	Straight species for parks, smaller cultivars for street

Reference Companion Manual: Recommended Urban Trees: Site Assessment and Tree Selection for Stress Tolerance
Urban Horticulture Institute, Cornell University



Stocking percentage for street trees in Hastings-on-Hudson

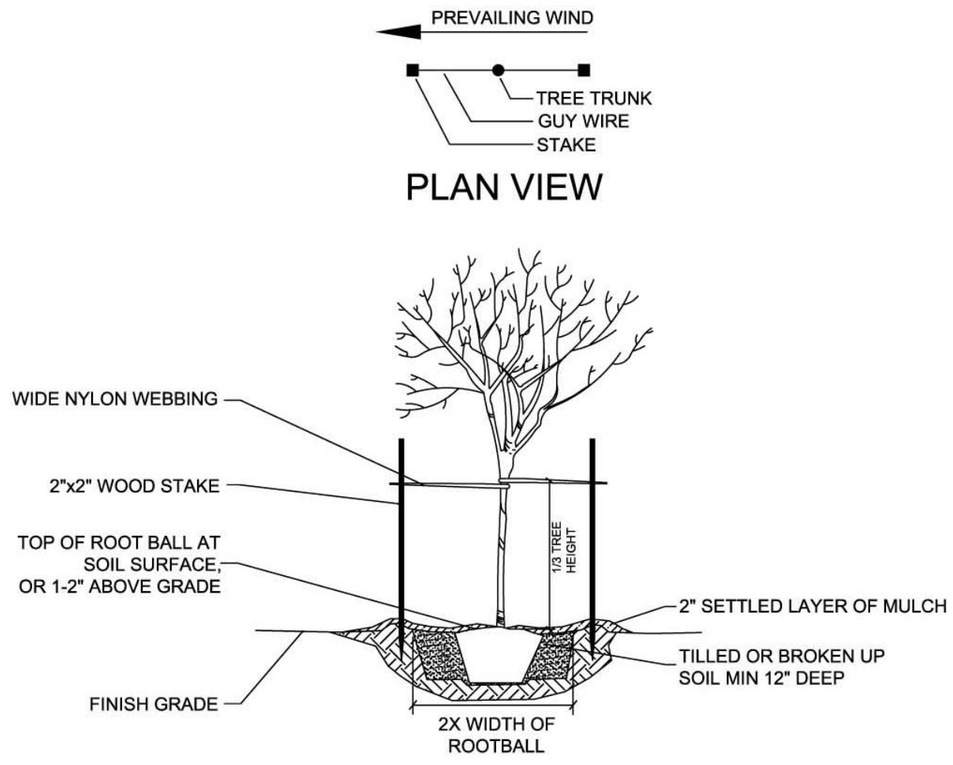
Healthy trees need a large volume of non-compacted soil with adequate drainage and aeration and reasonable fertility.
Only plant a tree where it is compatible to mature in the planting space provided.

Refer to the Hastings On Hudson Street Tree Inventory for the current population biodiversity.
Use the street tree selection guides to choose trees to plant that represent new tree families, genera, species, and cultivars.

Carry this strategy into an urban forestry management plan towards achieving
healthy and beautiful arbors for future generations to enjoy in Hastings On Hudson, NY.

Record all new street tree plantings and tree removals to update the Street Tree Inventory!

Refer to these companion manuals: Recommended Urban Trees: Site Assessment and Tree Selection for Stress Tolerances
Using CU-Structural Soil in the Urban Environment
Urban Horticulture Institute, Cornell University



SMALL TREE PLANTING (<2" CAL.)

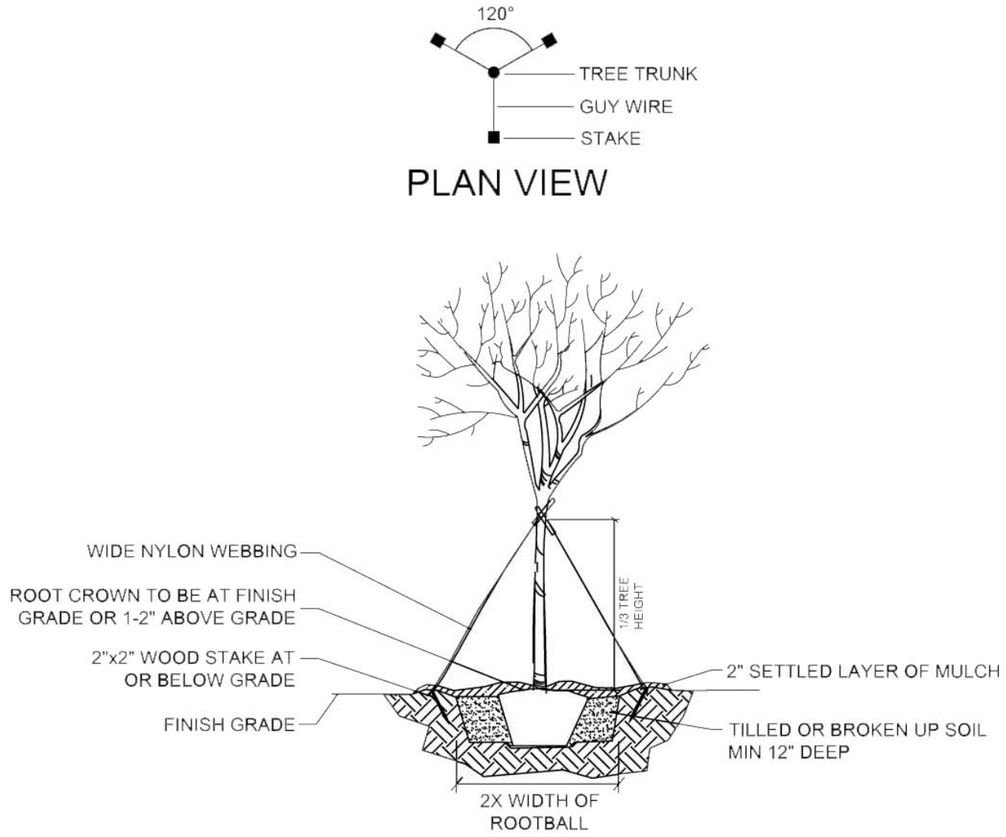
NOT TO SCALE

NOTES: SMALL TREE PLANTING (<2" CAL.)

1. ALL PLANT MATERIALS SHALL BE IN ACCORDANCE WITH THE AMERICAN STANDARDS FOR NURSERY STOCK (ANSI Z60.1-2004). PLANT ACCORDING TO ANSI A300 PART 6.
2. DIG THE PLANTING HOLE A MINIMUM OF 2x WIDTH OF ROOTBALL FOR AT LEAST THE FIRST 12 INCHES OF DEPTH. BELOW 12 INCHES, DIG HOLE WIDE ENOUGH TO PERMIT ADJUSTING. DO NOT DIG THE HOLE DEEPER THAN ROOT BALL DEPTH.
3. SCARIFY THE SUBGRADE AND SIDES OF THE PLANTING HOLE WHEN PLANTING IN CLAY SOILS (MORE THAN 15% CLAY).
4. LIFT AND SET THE TREE BY ROOT BALL ONLY. DO NOT LIFT USING THE TREE TRUNK AND DO NOT USE TREE TRUNK AS A LEVER.
5. SET THE TOP OF THE ROOT BALL LEVEL WITH THE SOIL SURFACE OR SLIGHTLY HIGHER IF THE SOIL IS PRONE TO SETTLING.
6. AFTER THE TREE IS SET IN PLACE, REMOVE BURLAP, WIRE AND STRAPS FROM AT LEAST THE UPPER 1/3 OF THE ROOTBALL.
7. BACKFILL WITH EXISTING SOIL THAT HAS BEEN WELL-TILLED OR BROKEN UP. DO NOT ADD AMENDMENTS TO THE BACKFILL SOIL. AMEND THE SURFACE WITH MULCH.
8. USE TWO 2" X 2" WOOD STAKES 1/3 TREE HEIGHT IN LENGTH DRIVEN INTO UNDISTURBED SOIL A MINIMUM OF 16 INCHES. STAKES SHOULD BE SPACED EQUALLY ACROSS FROM AND IN LINE WITH THE TRUNK PARALLEL TO THE PREVAILING WIND.
9. ATTACH 3/4" NYLON WEBBING TO CONNECT THE TREE TO STAKES. ATTACH WEBBING AT 1/3 THE TREE HEIGHT.
10. APPLY A 2-3" (SETTLED) DEPTH OF PINE STRAW OR BARK MULCH TO THE PLANTING SURFACE. LEAVE A 2" SPACE AROUND THE TRUNK FOR AIR CIRCULATION.
11. PRUNING SHALL BE LIMITED TO DEAD, DISEASED, OR BROKEN LIMBS ONLY AND SHALL BE IN ACCORDANCE WITH ANSI A300 SPECIFICATIONS.
12. REMOVE ANY TRUNK WRAP REMAINING AT TIME OF PLANTING. NO WRAPS SHALL BE PLACED ON TRUNK.

Do not pile excess soil around the trunk flare at base of trunk.

Small Tree Planting
for new trees with a trunk caliper diameter less than 2”



TREE PLANTING (>2" CAL.)

NOT TO SCALE

NOTES: TREE PLANTING (>2"CAL.)

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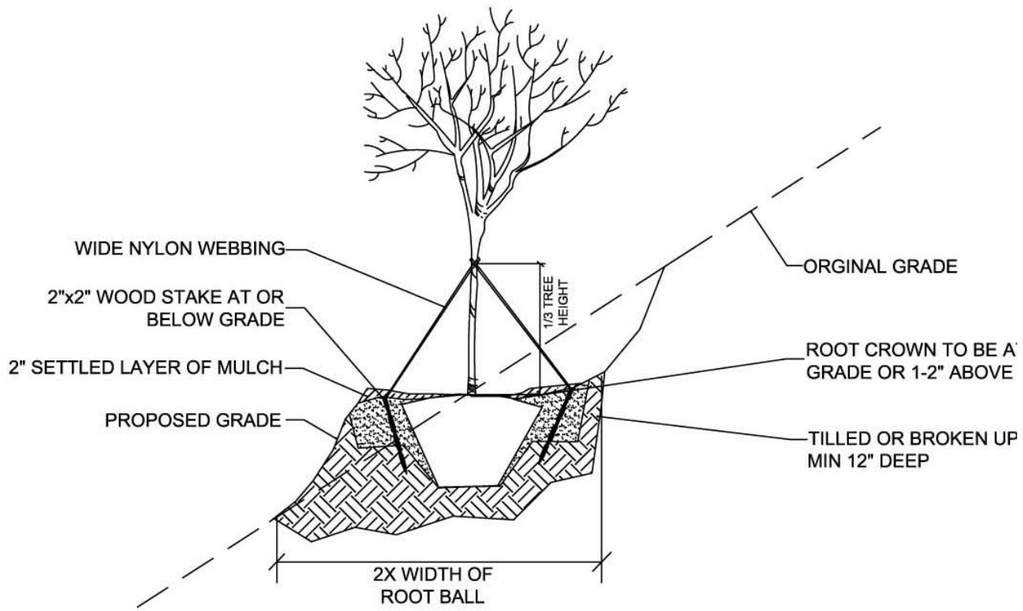
4. LIFT AND SET THE TREE BY ROOT BALL ONLY. DO NOT LIFT USING THE TREE TRUNK AND DO NOT USE TREE TRUNK AS A LEVER.
5. SET THE TOP OF THE ROOT BALL LEVEL WITH THE SOIL SURFACE OR SLIGHTLY HIGHER IF THE SOIL IS PRONE TO SETTLING.
6. AFTER THE TREE IS SET IN PLACE, REMOVE BURLAP, WIRE AND STRAPS FROM AT LEAST THE UPPER 1/3 OF THE ROOTBALL.
7. BACKFILL WITH EXISTING SOIL THAT HAS BEEN WELL-TILLED OR BROKEN UP. DO NOT ADD AMENDMENTS TO THE BACKFILL SOIL. AMEND THE SURFACE WITH MULCH.
8. USE THREE 2" X 2" WOOD STAKES DRIVEN INTO UNDISTURBED SOIL A MINIMUM OF 16 INCHES. SPACE STAKES EQUALLY AROUND THE TREE.
9. ATTACH 3/4" NYLON WEBBING TO CONNECT THE TREE TO STAKES. ATTACH WEBBING AT 1/3 THE TREE HEIGHT.
10. APPLY A 2-3" (SETTLED) DEPTH OF PINE STRAW OR BARK MULCH TO THE PLANTING SURFACE. LEAVE A 2" SPACE AROUND THE TRUNK FOR AIR CIRCULATION.
11. PRUNING SHALL BE LIMITED TO DEAD, DISEASED, OR BROKEN LIMBS ONLY AND SHALL BE IN ACCORDANCE WITH ANSI A300 SPECIFICATIONS.
12. REMOVE ANY TRUNK WRAP REMAINING AT TIME OF PLANTING. NO WRAPS SHALL BE PLACED ON TRUNK.

Do not pile excess soil around the trunk flare at base of trunk.
Staking may not be necessary when planting in medians and parks

Medium-Sized Tree Planting
for new trees with a trunk caliper diameter greater than 2”



TYP. TREE PLANTING ON SLOPE

NOT TO SCALE

NOTES: TYPICAL TREE PLANTING ON SLOPE

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3. SCARIFY THE SUBGRADE AND SIDES OF THE PLANTING HOLE WHEN PLANTING IN CLAY SOILS (MORE THAN 15% CLAY).
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5. SET THE TOP OF THE ROOT BALL LEVEL WITH THE SOIL SURFACE OR SLIGHTLY HIGHER IF THE SOIL IS PRONE TO SETTLING.
6. AFTER THE TREE IS SET IN PLACE, REMOVE BURLAP, WIRE AND STRAPS FROM AT LEAST THE UPPER 1/3 OF THE ROOTBALL.
7. BACKFILL WITH EXISTING SOIL THAT HAS BEEN WELL-TILLED OR BROKEN UP. DO NOT ADD AMENDMENTS TO THE BACKFILL SOIL. AMEND THE SURFACE WITH MULCH.
8. USE THREE 2" X 2" WOOD STAKES DRIVEN INTO UNDISTURBED SOIL A MINIMUM OF 16 INCHES. SPACE STAKES EQUALLY AROUND THE TREE.
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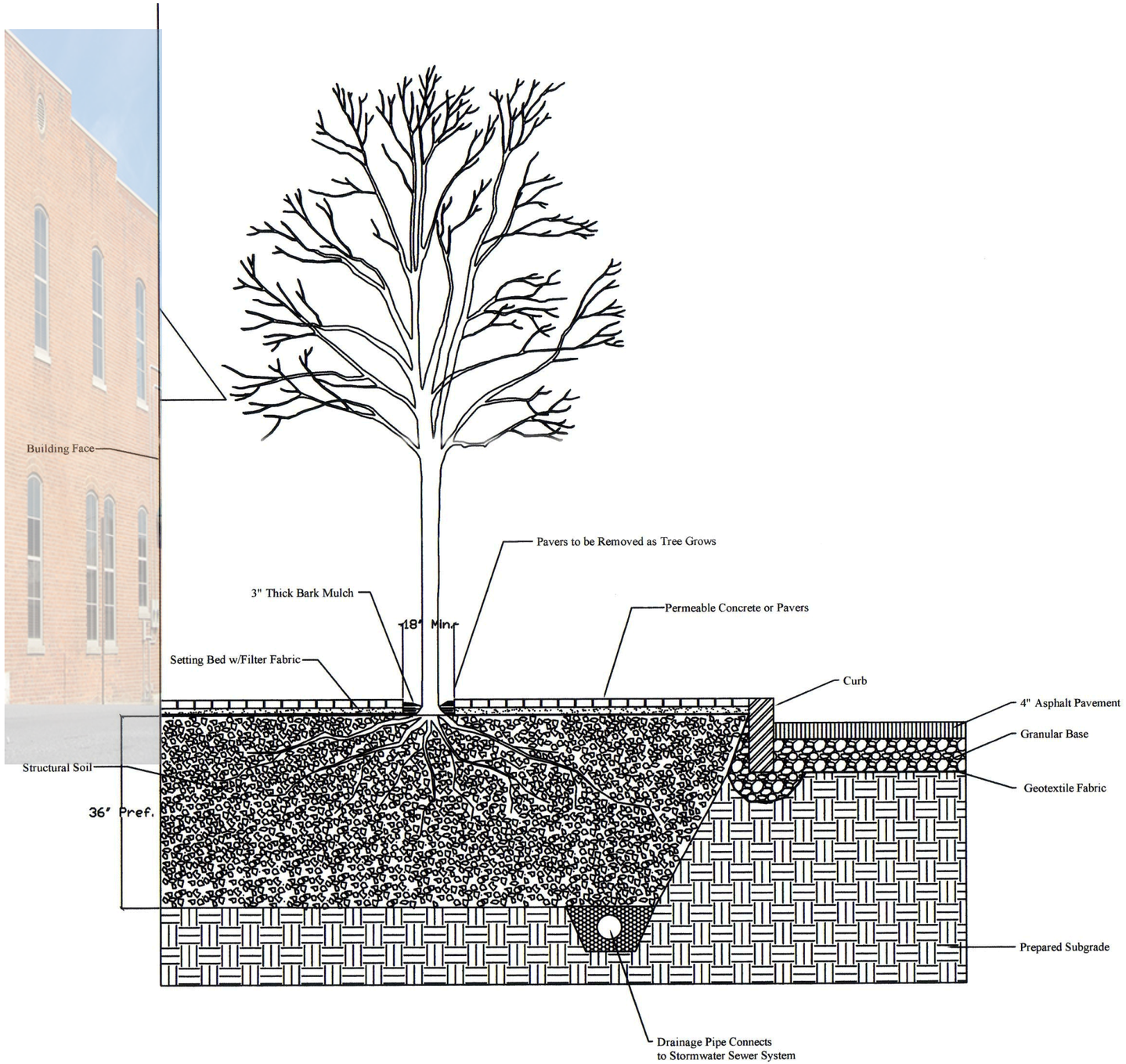
Do not pile excess soil around the trunk flare at base of trunk.



Benefits:
Improved Stormwater Management
Increased Tree Rooting Area
Improved Tree Health and Safety

CU-Soil™

Use as a base course beneath pavement in areas adjacent to small and medium planting spaces for the purpose of providing increased rooting area with adequate drainage.

Meets load bearing requirements for base courses under pavement.

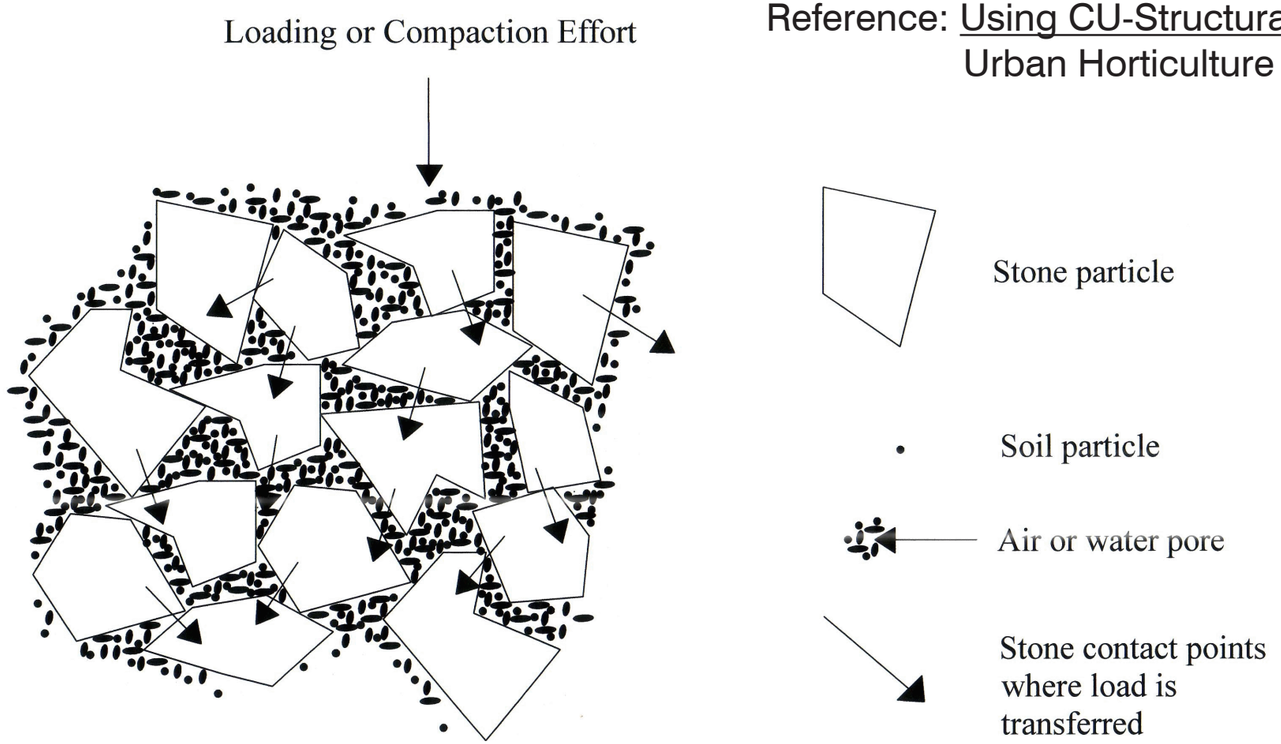
Is intended for paved sites under sidewalks, pedestrian malls, and parking lots.

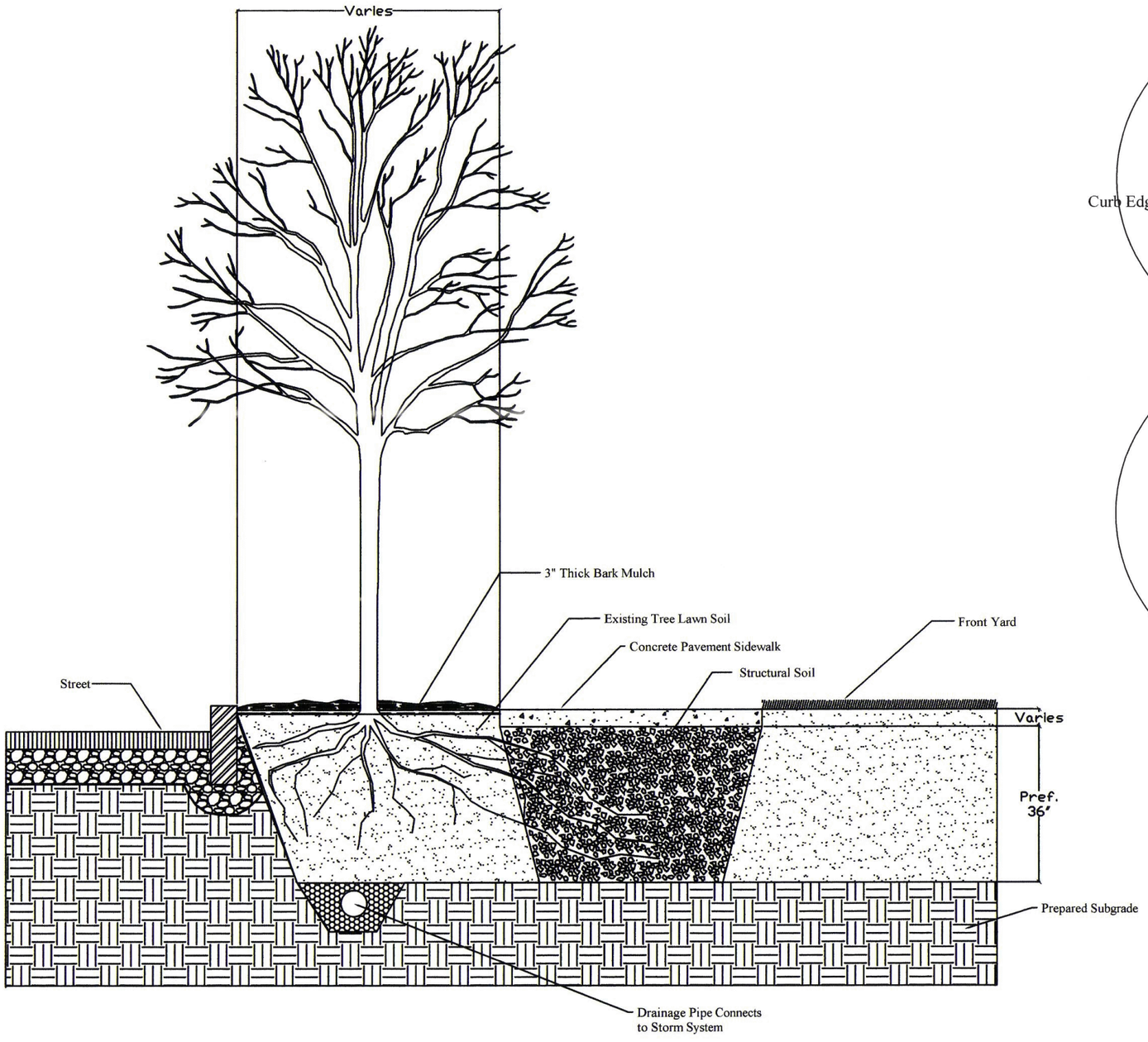
Is a two-part system comprised of a rigid stone “lattice” to meet engineering requirements for load bearing and a quanitity to meet tree requirements for root growth.

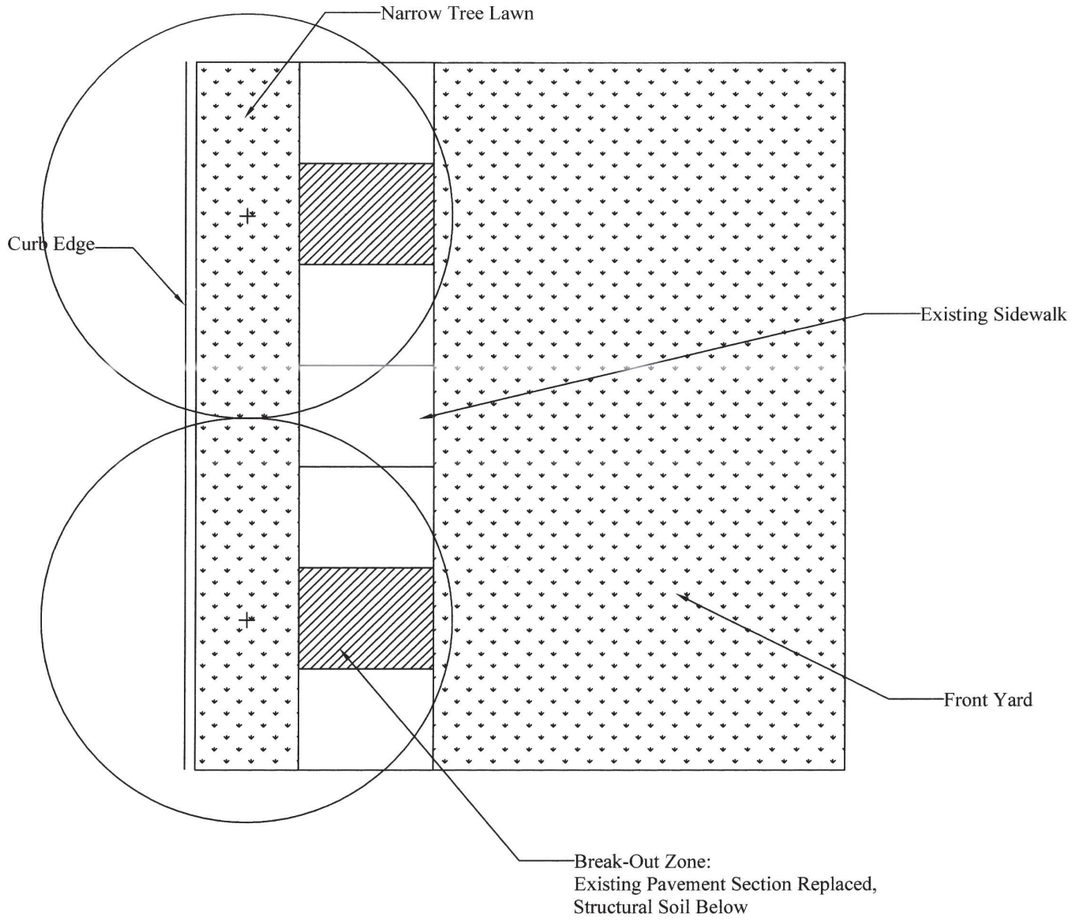
Planting a tree into structural soil is much like conventional planting.

Available at Amereq.com. Contact Brian Kalter.
The Village of Hastings-on-Hudson can become liscenced to produce CU-Soil™ for use in village infrastructure

Reference: Using CU-Structural Soil in the Urban Environment
Urban Horticulture Institute, Cornell University





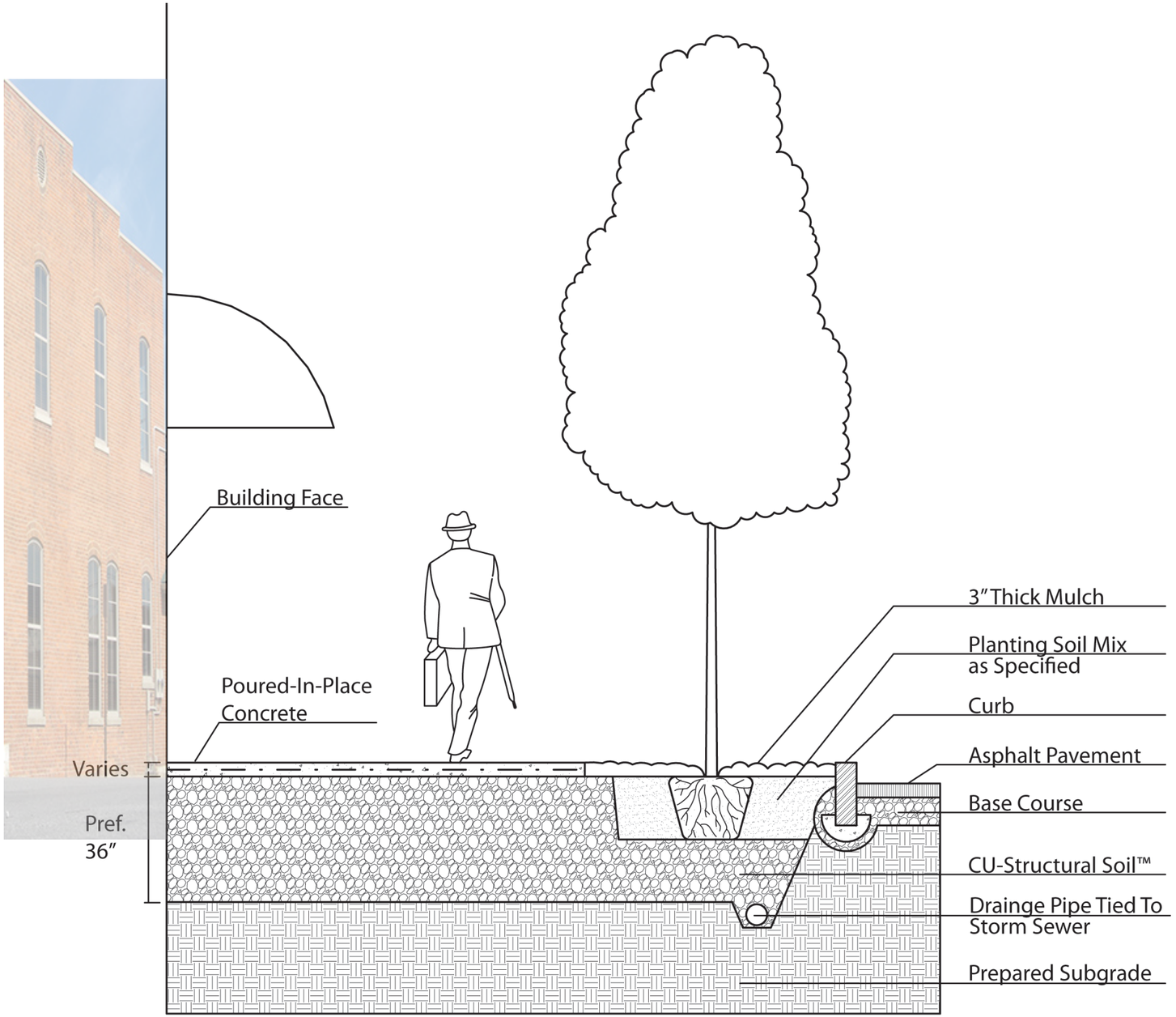


PLAN VIEW OF RETROFITTED STRUCTURAL SOIL BREAKOUT AREA

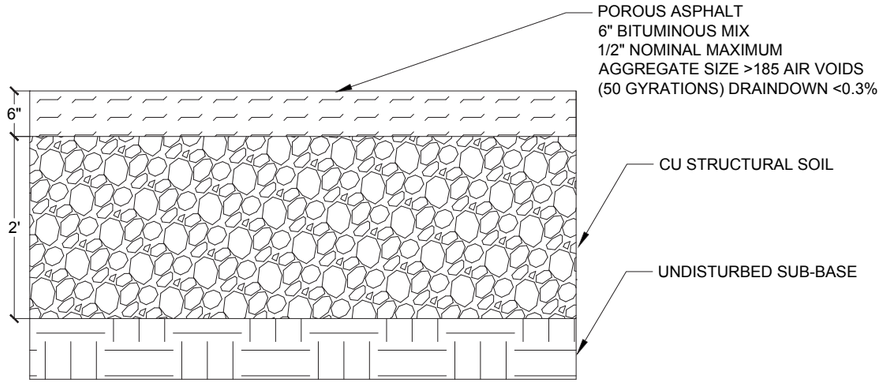
Benefits:

No Sidewalk Heaving
Increased Tree Rooting Area
Improved Tree Health and Safety

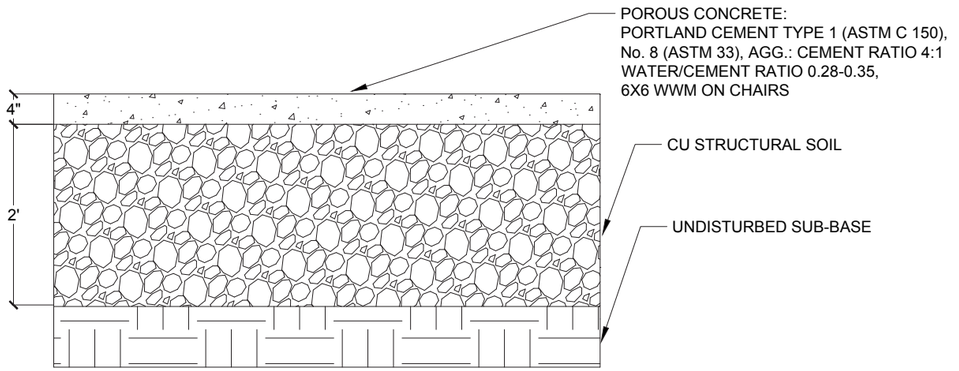
Street Tree Planting with Structural Soil Break-Out Zone



Ammend small planting spaces using structural soil as a base course beneath adjacent pavement areas providing increased rooting area with adequate drainage.



H Medium Duty Porous Asphalt
10706

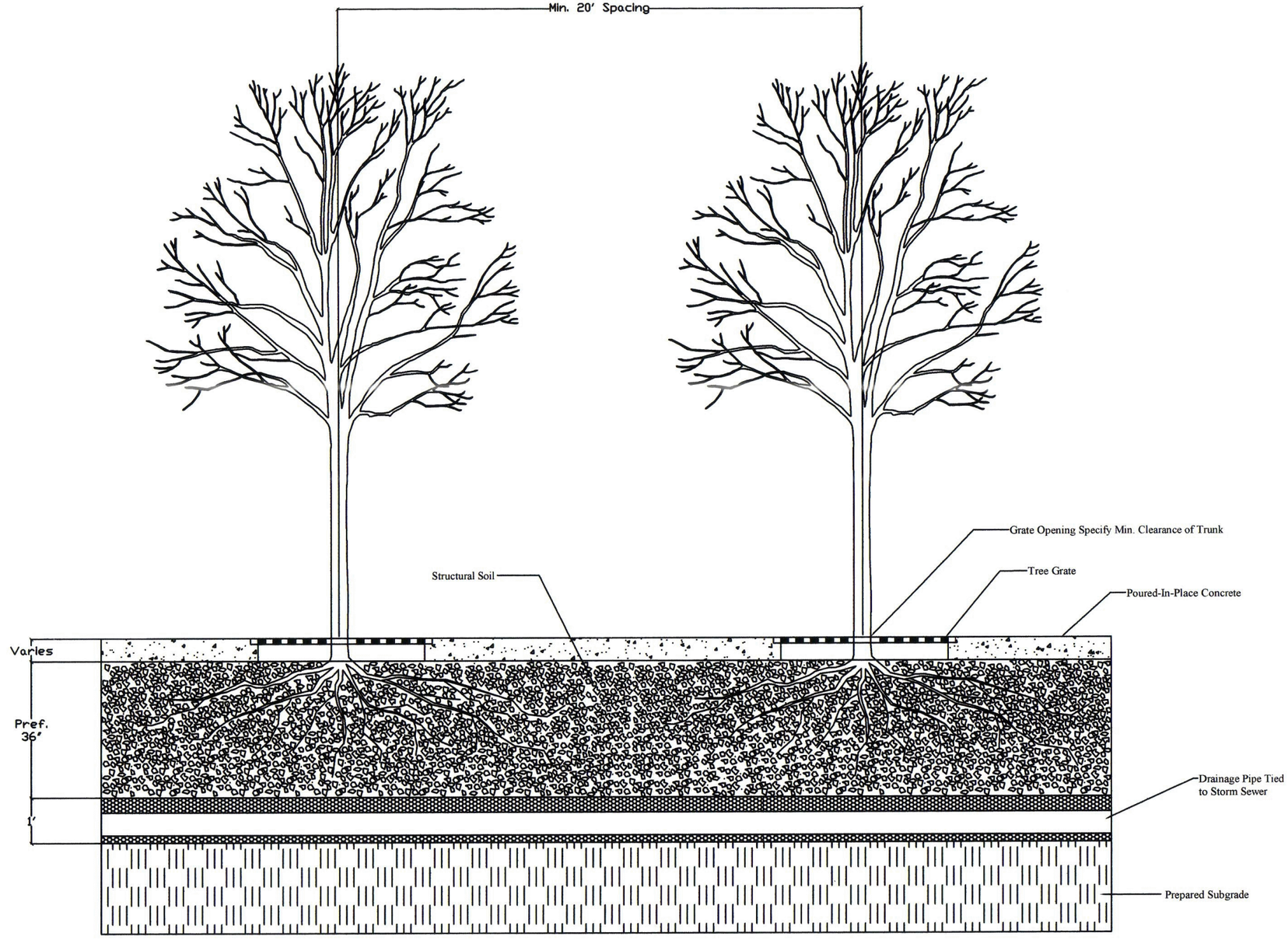


H Medium Duty Porous Concrete
10706

Hastings-on-Hudson New York, USA

Porous Surface

L10706



Typical Street Tree Planting

Moving Forward...

Read the Street Tree Inventory Report

Familiarize village officials & the Department of Public Works with the Street Tree Inventory Spreadsheet

Create a protocol for updating the Street Tree Inventory for new street tree plantings and tree removals

Refine the Street Tree Inventory through field observations

Create a plan for inspecting trees in the inventory designated ‘Consult Arborist’

Use the information in the Street Tree Inventory Report and the Street Tree Companion in village planning activities

Provide the Department of Public Works with advanced training and tools for street tree pruning, planting, and emergency response removals

Create a database for important trees in public parks and open spaces

Potential Community Activities:

Adopt-a-Street-Tree neighborhood programs
Create a Champion Tree database to record the largest trees of each kind throughout the village
Report any sightings of Emerald Ash Borer and the Asian Longhorned Beetle
Continue outdoor education
Involve both the elder and youth generations in Hastings-on-Hudson, New York

Thank you

Village of Hastings-on-Hudson:
Fran Frobel
Mike Gunther
Susan Magiotto
Ann Scholl
Raf Zaratzian
Jen Corso

Mayor Peter Swiderski
Village of Hastings-on-Hudson Trustees:
Bruce Jennings
Megan Walker
Nicola Armacost

Hastings-on-Hudson Volunteers:

Carol Hayward
Anne-Marie McIntyre
Gene Spieler
James D'Addio
Bronwyn Taggart
Kathleen McArdle
Jan Clough
John Knittel
Monique Rothman
Elisa Zazzera
Ann Scholl
Labate-Shea family
Steve Pucillo

Ann van Buren
Elizabeth Marouk- Coe
Jane Cameron
Irene Jong
Laura Rice
Margaret Moulton
Jennie Bernard
Patty Lowy
Kathleen Ossip
Susan Maggiotto
Mary Mielke
Diana Jaeger
Tim Downey

Village of Hastings-on-Hudson Tree Board:
Jenny Lee
Brett Schneiderman
Bill Crosby

Dr. Fred Hubbard inspiration

Urban Horticulture Institute, Cornell University:
Dr. Nina Bassuk
Dr. Fred Cowett

Graduate Student Arborist Team
from Cornell University
Andrea Haynes
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Grant Thompson
Sara Tsiropinas

Kathy Sullivan
Patrick Trautmann
Peter Lee Waczek
Eileen Quinlan
Nicole Diz
Bill Crosby
Bill Wu
Jackie Lhoumeau
Marty Stricks
Rhona Neuwirth
Mary Jean Madigan
Sheila Shadeed
Terry Cocchiarella

Sarita Eisenstark
Maryann Fiebach
Ms Shandroff
Barbara Prisament
Haven Colgate
Marg Quigley
Phyllis Mulaire
Michael Ambrozek
Jeff Honovich
Carol Hayward
Joanne DiSalvo
Joseph DiSalvo
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