

Final Recommendations

Scarsdale Village Tree Policy Study

Conservation Advisory Council

December 2014





Summary of Recommendations

We recommend that...

1. the Village actively seek to maintain its 50% tree canopy coverage.¹
2. all projects requiring land use board approval must either attain the 50% canopy goal (at maturity) or pay an assessment for any shortfall.
3. preconstruction tree surveys be conducted by a certified ISA arborist.
4. “street” trees be required for all site redevelopment.
5. a permit be required for any tree (> 6” DBH²) removed by a homeowner.
6. neighbors be notified of substantial (> 12” DBH) tree removals.
7. violations of the tree protection code result in subtraction of any unprotected trees from the canopy calculation.
8. recent FOSP tree ordinance guidance be adopted.



Canopy Replacement Assessment (CRA)

- The Village's tree canopy coverage has been measured at 50%. The *canopy replacement assessment* (CRA) is designed to maintain this level.
- For any site plan before a land use board, the landowner either **achieves the canopy target, or pays a CRA** that will cover the cost of the Village planting trees to recover lost canopy coverage.

Sample Project Requiring CRA

A pool is added to a wooded 1/3 acre property requiring the removal of several large trees. The homeowner prefers a sunny backyard and opts not to replant the large trees. The landscape plan indicates that the canopy coverage will be only 30% after construction.

Calculation of CRA

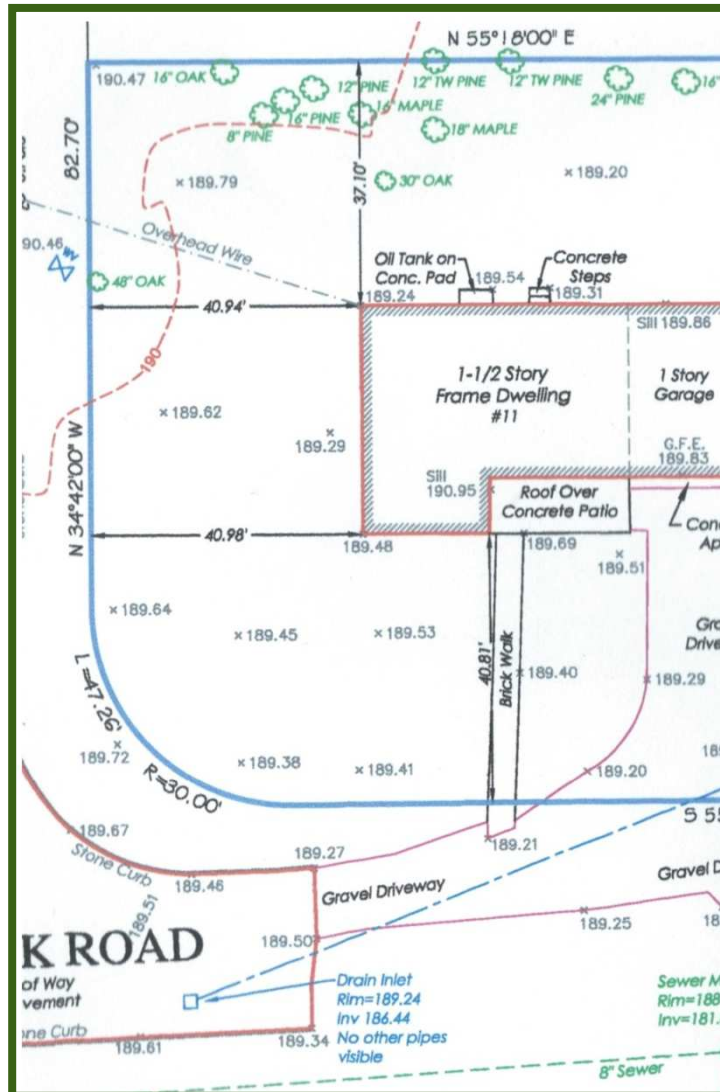
1. Property area = 14,520 square feet ($\frac{1}{3} \times 43,560$)
2. Shortfall % = 50% goal – 30% achieved = 20% shortfall
3. Shortfall area = $.2 \times 14,375 = 2,904$ sq. feet
4. CRA constant³ = \$2.16/sq. ft.
5. CRA = \$2.16 x 2,904 sq. ft. = **\$6,277**



Benefits of A CRA (Canopy Replacement Assessment)

- Simple to calculate, to use and to verify
- Provides landowners the flexibility to plant (to 50% canopy) or pay the CRA
- Equally captures all land use decisions impacting canopy
- Benefits the Village tree planting program (provided the assessment funds are directed towards tree planting and maintenance)
- Provides land use boards with concrete and straightforward criteria that would benefit their decision-making

Required Preconstruction Tree Survey



- Conducted by an ISA certified arborist
- Specifies tree species, location, condition, canopy coverage and size of all trees greater than 4" DBH
- Included in the land use site plan for utilization in building and landscape planning



Street Trees

(Newly Developed Properties Only)

1. The Village should require that the landowner of a newly developed property* plant or protect existing street trees. The street tree requirement is appropriate for new properties with more flexibility in their landscape plans
2. The number of street trees to be planted or maintained shall be one or more, with the exact number to be determined by the appropriate land use board
3. At landowner discretion, street trees may be planted either in the Village right of way or just beyond, on homeowner property
4. Respects homeowners' rights to develop property for personal use while maintaining Scarsdale's "village in a park" appearance

* New construction or construction where more than 50% of the structure is impacted in any way or where the structure is being increased by 25% of the floor area or 25% of lot coverage area



Enhanced Tree Permit Requirements

1. Require a permit for removal of **any** tree larger than 6" DBH i.e. eliminate allowance of 2 per year "as of right" from the current ordinance
2. Notify adjacent neighbors (as per guidelines for other land use notices) of any permit for removals greater than 12" DBH
3. Creates a complete database from which to base future decisions pertaining to canopy coverage, tree planting and other related issues



Tree Protection During Construction

1. Any tree within a construction zone requires protection as detailed in the ANSI A300 (Part 5) tree protection standards:
 - a. Throughout construction, surround each protected tree with a fence approximately 1 foot from the trunk for each inch of trunk diameter
 - b. No storing of machinery or materials within this area
 - c. No digging, trenching or other disturbance is allowed in fenced area
 - d. Use a tree well if the original ground level is changed
2. Trees that have not been protected during any period of construction will be treated as 'nonexistent' in canopy calculations, reflecting the increased probability that the tree will die and not provide canopy coverage.
3. When tree protection is required, public notice describing measures taken shall be posted on-site including contact information to report violations.



Impact on Staff and Budget

1. Maintenance of 50% canopy requirement
 - Surveys would be paid for by landowner
 - Funds would come from canopy replacement assessment (CRA)
2. Enhanced tree permitting
 - Additional staff time required to process forms
3. Notification of tree removal
 - Paid for by homeowner
4. Tree construction standards during construction
 - Additional staff time required to the extent that violations are reported
5. Street tree requirement
 - No additional cost as landowners (not Village) will be required to plant
 - Cost of long-term maintenance of trees planted within ROW

Appendix

1. A **canopy coverage** number was determined using i-Tree Canopy software. Over 1,000 points were randomly sampled from aerial images and classified as either “canopy coverage” or “not canopy coverage”. A sample report follows.
2. **DBH** is “diameter at breast height” and is typically measured in inches in this country. This is the standard used within the industry to measure trees.
3. The **CRA constant** is the weighted average lifetime cost per square foot of canopy as calculated by the U.S. Department of Agriculture, Forest Service in the “Northeast Community Tree Guide – Benefits, Costs & Strategic Planting” published in 2007. The constant has been adjusted for inflation. Details provided.



Canopy Analysis

Conducted by random sampling of aerial images using the industry-standard software, iTree Canopy

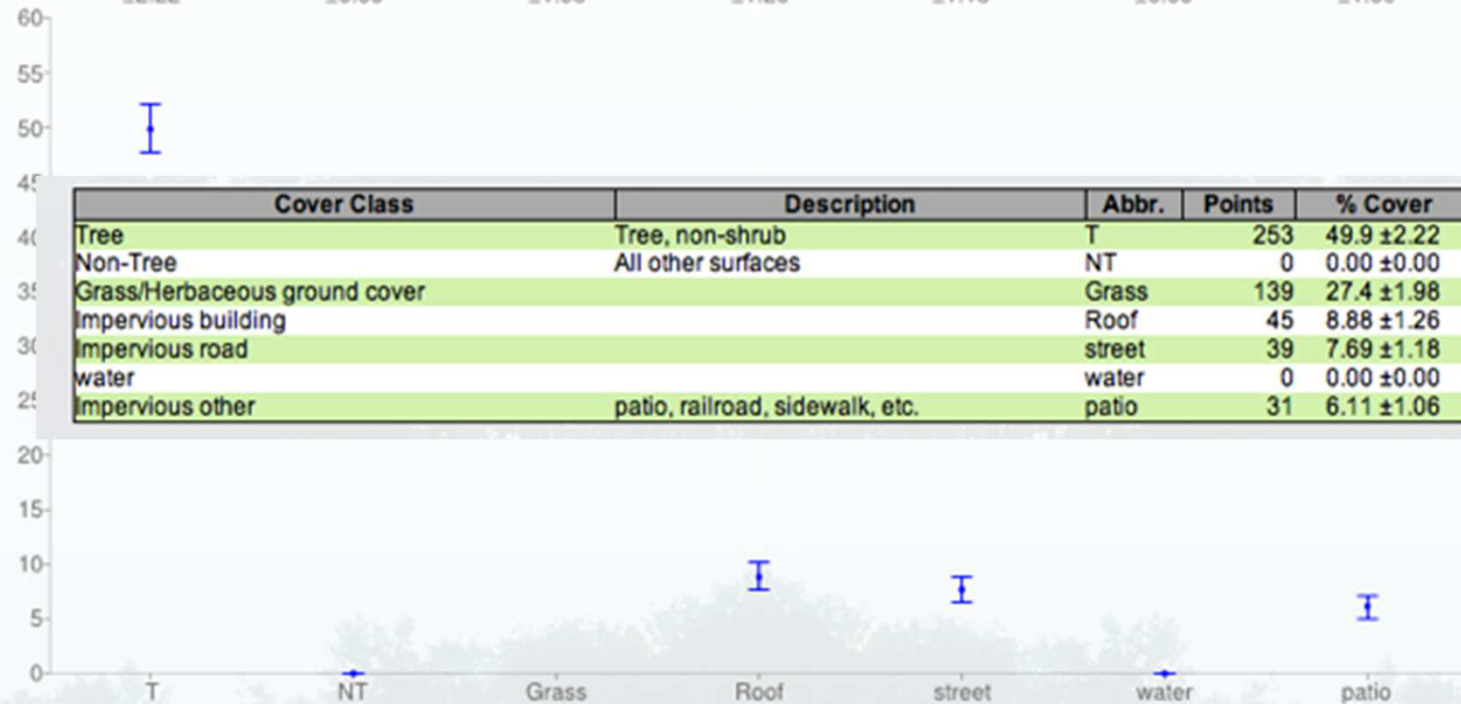
Cover Report - 4/23/13



Report by Area

Percent Cover (\pm SE)

49.9	0.00	27.4	8.88	7.69	0.00	6.11
± 2.22	± 0.00	± 1.98	± 1.26	± 1.18	± 0.00	± 1.06



Basis for CRA Constant



Tree Category Sample Tree Placement of Tree <i>Costs/Tree/Year:</i>	Small		Medium		Large	
	Kwanzan Cherry		Red Maple		Japanese Zelkova	
	Yard	Public	Yard	Public	Yard	Public
Tree & planting	15.00	10.00	15.00	10.00	15.00	10.00
Pruning	3.76	3.26	12.52	7.69	18.01	11.60
Remove & dispose	2.58	1.28	3.45	1.62	4.61	2.06
Pest and disease	-	0.09	-	0.13	-	0.17
Infrastructure repair	0.14	1.13	0.19	1.55	0.26	2.06
Cleanup	0.03	0.26	0.04	0.35	0.06	0.46
Liability & legal	-	-	-	-	-	-
Admin/inspect/other	1.51	3.96	1.90	5.42	2.54	7.21
TOTAL ANNUAL COSTS/TREE	\$ 23.02	\$ 19.98	\$ 33.10	\$ 26.76	\$ 40.48	\$ 33.56
TOTAL LIFETIME COSTS (40-YEARS)/TREE	\$ 920.80	\$ 799.20	\$ 1,324.00	\$ 1,070.40	\$ 1,619.20	\$ 1,342.40
**MATURE CANOPY SIZE (SF)	400	400	900	900	1600	1600
LIFETIME COST/SF CANOPY	\$ 2.30	\$ 2.00	\$ 1.47	\$ 1.19	\$ 1.01	\$ 0.84
Weighted Average Lifetime Cost/SF Canopy	\$ 1.33	\$ 1.11				
***Increase for 2007-2014 Inflation	\$ 1.59	\$ 1.32				
***Adjustment for local costs	\$ 2.60	\$ 2.16				


*SOURCE: US Dept. of Agriculture, Forest Service
Northeast Community Tree Guide - Benefits, Costs & Strategic Planting (2007)
Homeadvisor average cost comparisons by location*



Alternative Calculation for CRA Constant (For Comparison Only)

A second calculation using “prevailing costs” yielded a similar magnitude CRA constant.

Trees in Village	12000	Trees in Village	12000
pruned/year	250	removed/year	200
Likelihood of pruning	0.020833	Likelihood of removal	0.016667
Pruning avg cost	\$ 464.00	Removal avg cost	\$ 855.00
cost/year	\$ 9.67	cost/year	\$ 14.25
40 year cost	\$ 387	40 year cost	\$ 570
Planting cost	\$ 250		
Pruning 20 years	\$ 387		
Removal 20 years	\$ 570		
Total	\$ 1207		
Per square foot	\$ 1.34	Assuming a median 900 sq. foot tree	



The CAC Affirms the Guidance of FOSP Tree Ordinance Study (Sep. 29 2014)

The Village should adopt a tree replacement policy which promotes the planting of appropriate, non-invasive, preferably native species and their hybrids or cultivars. The Village should avoid planting trees with documented invasive characteristics or lack of resistance to diseases or pests, regardless of whether such trees have been planted or recommended by the Village previously.

The Village should adopt the more inclusive DEC or similar definition of “invasive species.”

The fact that the American Elm and American Beech do not appear to be listed in any of the four DEC “protected” plant lists is not dispositive of the question whether these and other important native canopy trees are worthy of protection in Scarsdale. While the American Elm has long been at risk, trees which might still be found because of disease tolerance or other factors such as non-exposure should be protected.

Key sections only are shown above; please consult the FOSP letter for full detail.

Mistreated Trees At Current Construction Sites

