

A Street Tree Inventory for DeWitt **Gordon Heisler, Chair DACC**

The DeWitt Advisory Conservation Commission (DACC) embarked in 2003 upon a project to inventory street trees in the town. We define street trees as those growing on the street right-of way, which usually extends about 16 ft from the curb line. The purpose of a street tree inventory is generally to assess the species, number, health, condition, location, and maintenance needs of individual trees (See Appendix A). In addition to measuring trees, our inventory included potential planting spaces and the distance of the trees from the road and the adjacent house. Measurements were made between December 20, 2003 and June 29, 2005. A total of 1211 trees and 270 planting sites were tallied.

The rationale for our inventory was partly to be better able to plan tree planting using the DACC budget for beautification, partly to respond to residents that street trees be planted, and partly to eventually prepare a master plan for tree management in the town. A master plan would facilitate grant requests and requests to Niagara Mohawk for reimbursement for small-growing trees planted under utility wires (\$30/tree, in 2003. \$50/tree in 2007 and 2008). Finally, should another disaster such as the September storm come along, the Town would be in a better position to count losses and apply for assistance.

The field work was carried out by students from the SUNY College of Environmental Science and Forestry who were paid by the hour from DACC funds. Data were collected by use of a personal digital assistant (PDA), a device that could fit into a large shirt pocket. Methods were worked out mostly in December 2003 with the help of Paul O'Connor of Cornell Cooperative Extension. Field work was done between December 20, 2003 and June 21, 2005. Equipment used in the inventory is listed in Appendix B.

The extent of the inventory, in terms of areas of the town that were covered, was not decided at the outset. Street tree inventories can be done using sampling methods or by inventorying each individual tree. We inventoried each tree and planting space in many neighborhoods in the town. The total extent of the inventory was a function of the speed with which trees and planting spaces could be tallied, the limits of the DACC personnel services budget, and our perception of the value of the information. It was anticipated that the perception might change somewhat with experience in data collection. A priority for the order of inventory by neighborhood was established (Appendix C); and the Cornwall neighborhood and most of DeWittshire were completed first. These neighborhoods, which have streets with sidewalks and grass between the sidewalk and the street (tree lawns), and streets with center median strips (Old Lyme and Bradford, for example) most clearly have "street trees." From calls from residents, it is apparent that these are the locations for which many residents expect the town to be responsible for planting for and caring for trees. Hence, the initial goal was to inventory all streets with tree lawns.

Some areas without sidewalks may nevertheless be high priority for street tree inventorying. It is difficult to generalize on these areas. For example, in some areas where house setbacks are relatively short, trees in front of a house will of necessity be on the right-of-way. In other areas where setbacks are large, many trees are growing on the right-of-way according to some not obvious custom in the neighborhood. Conversely, in recent developments (such as Boulder Heights), the Planning Board has specified that builders will plant trees, but these trees will be at least 10 ft from the curb line, so that there are essentially no "street trees." This made a street tree inventory for these neighborhoods unnecessary.

Appendix D lists the number of trees and planting sites by street name. To date publishable maps are not yet available to show inventoried areas.

The inventory measurements include the items shown in compressed form in Appendix E. See Appendix F for definitions of variables in the inventory data. Tree or planting site locations are indicated by the address, the street on which the site is located (some trees are around the corner from the house address), the direction of travel of the inventory (From_Street and To_Street), the side of the house (Side), and the distance from the street (DistanceFromStreet). Part of the value of street trees is in providing summer shade, and this depends on the distance and direction of the tree from the house. Thus, we recorded an estimate of the direction to the house (DirectionToBuilding) and the distance to the house (DistanceToBuilding). The suitability of a tree species for a site depends upon whether or not there are overhead wires, so we indicate this (Wires) and the kind of service (Niagara Mohawk says the kind of service determines pruning requirements and the importance of avoiding trees beneath the wires.). Whether the site is a tree or just a planting site is indicated by (Planting_site); and if there is no tree, TypeOfPlantingSite indicates the type of site (a grassy streetside strip that is 5 to 12 ft wide between the sidewalk and the street is coded for Number 57 in Appendix E). The inventory crew members listed in the inventory data as Jason, Amanda, and Nick, who inventoried locations 1 through 753, did a reasonably precise job of assessing potential tree planting sites. Though some planting sites were also tallied by Matt and Steve, they were less careful in tallying potential sites. See Appendix D for a list of streets carefully examined for planting sites. Codes in the next variable, SideOfStreetsideStrip, indicate whether there is a sidewalk, and if there is a sidewalk which side, street or house side, the tree is located. Locations that just have a Stump are noted. The rest of the variables show characteristics of the trees--name, diameter (Caliper or DBH), height, height to the base of the crown, crown width, dieback of the crown, general condition, management needs, sidewalk damage caused by the tree, and damage to the trunk of the tree. Field inventory workers are not expected to identify hazardous trees, but if there are obvious problems that would suggest the need for an evaluation by an arborist, there is a variable to indicate this (Consult).

Some interesting initial findings included that in Cornwall and DeWittshire there were 269 street trees and another 52 sites with the potential for trees. The tree with the largest diameter is a silver maple on Wellington Road with a diameter of 42.6 inches; it is estimated to be 60 ft tall and have a crown width of 42 ft. This tree is probably a mixed blessing. Silver maples grow very large quickly and provide excellent shade, but they have relatively brittle branching, are difficult to prune properly, and generally do not benefit from pruning because they sprout many fine branches profusely. Though this tree may be a fine asset to the neighborhood, we would not recommend planting additional silver maples along streets in a neighborhood such as DeWittshire with houses relatively close to the street. Fortunately this tree is about 50 ft east of the house, so that it is not likely to hit the house if it fell owing to large winds. The tallest tree was tallied as a blue spruce on Cornwall Drive. It is 18 inches in diameter and has a crown spread of 22.5 feet.

Appendix G lists the number of trees tallied by species. The most common species was Norway maple (200), and the second most common was Norway spruce (107), followed by arborvitae (90). Many of the arborvitae were quite small and growing close together as screening for a side yard. Another important species was silver maple (86) because of their potential to overgrow street-side locations. Our state tree, sugar maple, was probably not over represented by the 74 trees that were tallied.

Future inventory activities include the following possibilities.

1. Make a digital map of streets and areas inventoried to date and find or develop a method to easily update the map, preferably so that neighborhood maps could be printed on 8.5” by 11” paper.
2. Check with town departments that might use inventory data for their specific needs. Determine if and how inventory data might be used in tree or infrastructure management in the future. For example, could Highways use tree condition information in planning pruning or tree removals? Should the inventory include damage to sidewalks?
3. Create standard definition for “planting space.” Our definition in the initial inventory was somewhat loose.
4. Update existing inventory data. This could include checking each tree or planting site to determine if trees are still there and data for them are approximately correct. It might include measuring stem diameters, but probably not heights or crown diameters if a quick look suggests the previously tallied values are about right. Use the new planting space definitions to check previous tallied locations and add locations that might have been missed.
5. Expand inventory to additional critical neighborhoods, probably following the initial priority.
6. Summarize and apply inventory data.
7. Carry out future updates at 5-year intervals.

Appendix A—Cornell Cooperative Extension Community Forest Master Plan Template¹

STEPS TO GUIDE COMMUNITY FOREST MASTER PLAN DEVELOPMENT

This template was developed to assist communities in developing community forest master plans to guide street and park tree management; vegetation management around infrastructure; and streamside management. It is modeled after the Draft City of Syracuse Urban Forestry Master Plan. This template is intended as a model for communities. Thus, adapting the template to your community needs may be necessary.

This template is funded under a grant from the EPA's 2000 Sustainable Development Challenge Grant Program. *Enhancing and Protecting Our Community Forests: Planning Tools* is a resource notebook for forestry and streamside management at the community planning level. Steps in this template integrate with tools and resources offered in the resource notebook and are cited by section numbers. This template and the resource notebook are available from Cornell Cooperative Extension of Onondaga County.

STEP 1: Vision and Goals

The first step in management of any resource involves setting vision and goals to achieve through management. The following example is from the Syracuse Master Plan:

“The overall mission of this plan is to facilitate appropriate management to sustain the health and increase the extent of the urban forest resource in the City of Syracuse. The specific vision of this plan is to help direct city management to increase overall tree cover, tree health, and consequent tree benefits in Syracuse in an equitable, economic, and sustainable manner.”

Other examples are provided in Section 2: Forestry Management, Urban & Community Forest Master Plan Town of Atwater, N.Y. of the resource notebook.

STEP 2: Identify Management Areas

Achieving a community forestry vision over an entire municipality is accomplished by identifying critical places to apply management activities. The following are suggested areas to focus community forestry management activities:

- • Municipal right of ways along streams and parks
- • Areas along streams and water ways[♦]
- • Areas that interface with infrastructure
- • Various land uses such as public, private, industrial, commercial

It may be necessary to further group these critical management areas into larger geographic planning areas. For example, management of the City of Syracuse's street trees was grouped by the existing eight neighborhood sectors. (See section 2: Draft City of Syracuse Urban Forestry Master Plan.)

¹ Available at <http://www.cce.cornell.edu/onondaga/forests/public%20tree.htm>.

[♦] Streamside management requires a comprehensive look at the whole watershed to determine if the specific site problems that are occurring are a result of upstream activities. The issues may involve multiple municipalities. However, any actions to improve streamside habitat can have a positive cumulative effect in the whole watershed. See Section 4 for examples of watershed management plans that would be implemented on a multi-municipal level as well as model streamside ordinances that can be implemented at the local level. For example, management of Syracuse's streamside areas should be done on a larger scale than that of street trees since the streams are impacted by activities in several neighborhood sectors.

Aerial photos, road and tax maps are useful to identify landuses, areas for management, and planning areas.

STEP 3: Inventory and Assessment

The purpose of this step is to inventory and assess the species, number, health condition, location, and maintenance needs of individual trees by management and planning areas identified in step 2. This can be done using sampling methods or by inventorying each individual tree in management areas identified in step 2. For inventorying vegetation, an example inventory procedure and sample tally sheet are provided in Section 2: Forestry Management, A Guide for Developing A Street and Park Tree Management Plan or Chapter 4 of the Draft City of Syracuse Urban Forestry Master Plan in the resource notebook.

STEP 4: Data Summary

The outcome in step 4 is a compilation of the data collected in step 3 into a useful format for analysis. This can be accomplished in a number of ways. An example of data summary over the entire municipality is provided in Section 2: Forestry Management, Urban & Community Forest Master Plan for Town of Atwater, N.Y. in the resource notebook. For the City of Syracuse Master Plan, the tree resource inventory and assessment data were summarized by neighborhood sector so that management strategies could be devised at a manageable level.

STEP 5: Identify Benchmarks

Determine desirable benchmarks for your community forest based on the defined vision and goals. A community sets benchmarks by quantifying how they might reach their stated goals. For example, one goal of the City of Syracuse's Master Plan is to increase overall tree cover. For the City of Syracuse this means increasing average tree cover from 26% in the city boundaries to a level of 50%. To accomplish this, technical experts at the US Forest Service and Cornell Cooperative Extension of Onondaga County are assisting the City figure out how many trees need to be planted to reach this goal. There are other benchmarks that a community might consider. Including tree condition, and priorities for management activities such as pruning and removals. There is a list of agencies that can provide technical assistance in Section 5.

STEP 6: Data Comparison

Compare data summary of step 4 to benchmarks in step 6 to determine management strategies to plant, maintain, remove, reinventory, and regulate. Ideally, management activities would be defined on a yearly basis to achieve vision and goals.

STEP 7: Involve Community Residents

Identify the roles of stakeholders and residents in the community. Define how citizens can become involved. For example, resident volunteers may be trained to participate in a tree inventory and assessment process. In addition, residents could be involved in tree planting and maintenance activities. If there is enough interest, residents can establish tree advisory committees. Some local examples of successful tree advisory committees are in the village of Fayetteville, Town of Manlius, and the City of Syracuse's Re-Leaf Board.

Besides defining potential community partners and roles, a tree advisory committee can serve to accomplish much of the master plan development, communication of community forestry activities, and assist municipal staff. CCE staff are available for technical assistance in developing tree advisory committees.

STEP 8: Community Development

Define how the community forestry master plan could integrate with any overall community development plans. Experience indicates that community forestry master plans are more likely to be implemented if

they are linked to a comprehensive community plan. There are many ways to do this including land use ordinances.

Appendix B. Equipment and software used in the inventory

Personal digital assistant (PDA), Sony Clie, which uses Palm OS

Rectifier to charge PDA in car, Kensington, 75 watts, Serial No. A0428022473

Pendragon Forms 4.0 program language for the PDA

Diameter tape, inches and tenths (Forestry Suppliers)

Orange vests, 2

100' Steel tape (Lufkin)

50 ft Auto Rewind tape (Pro Tape, Model 50SXB, Spencer Products Co.)

Clinometer, Degrees and percent (Suunto, Serial No. 843189)

Silva Compass

Bassuk, Nina and Lili Herrera. 2003. Tree ID Guide for common Urban Trees in NY State. The Urban Horticulture Institute.76 pp.

Name tags for inventory field personnel

Copies of letter of introduction for field personnel

Appendix C. Priority of Inventory by Neighborhood

The list below shows the order in which the neighborhoods were inventoried. Appendix H shows maps of the streets inventoried.

1. Cornwall
2. DeWittshire
3. Orvillton
4. Orrick/Terraceview area
5. Franklin Park
6. Park Hills

Appendix D. Streets inventoried with numbers of trees and planting sites.

A "Planting Site" is a location without a tree but space for one. The streets in the right column were checked carefully for planting sites, others may not have been checked.

Street	Planting Site	Tree	Grand Total	Streets checked carefully for planting spaces
ALDEN AVE.	1		1	ALWYN RD.
ALWYN RD.	6		6	AMBERGATE RD.
AMBERGATE RD.	6	45	51	BRAMPTON DR.
Avon St.		6	6	BRANDON RD.
BAIRD AVE.		2	2	BROCKTON LN
BALL LN.		2	2	CANTERBURY RD.
BARTON CIR.		11	11	CHARING DR.
BENNETT ST.		5	5	CORNWALL DR.
BRAMPTON DR.	9		9	DEWITTSHIRE RD.
BRANDON CIR.		3	3	DEWITTSHIRE RD. SOUTH
BRANDON RD.	1	30	31	DOWNING DR.
BRIARCLIFFE RD.	5	24	29	DUNBARTON RD.
BROADMORE LN.		3	3	DUNHAM RD.
BROCKTON LN	4	8	12	FORDAN RD.
CALHOUN AVE.	1	8	9	GRENFALL RD.
CANTERBURY RD.		6	6	HADDENFIELD DR.
CARSON DR.		11	11	HADDENFIELD PL.
CARSON DR..		3	3	HAMPSHIRE DR.
CARSON DR...		1	1	JAMESVILLE RD.
CHARING DR.	3	11	14	LANDSDOWNE RD.
CLEARVIEW RD		3	3	NEWFIELD RD.
COLFAX AVE.	1	5	6	OAKMONT DR.
CORNWALL DR.	8	31	39	PADDOCK DR.
COTTY DR.		3	3	PELHAM RD.
CRAIG CIR.		3	3	RIDGECREST RD.
CRAIGIE ST.		3	3	SHERWWOD DR.
CURWOOD DR.		10	10	SYCAMORE TER.
CUTLER ST.		8	8	TERRACE DR.
DEERFIELD RD.		1	1	WARWICK RD.
DEWITTSHIRE RD.	2	48	50	WEDGEWOOD TER.
DEWITTSHIRE RD. SOUTH	2	19	21	WELLINTON RD.
DOWNING DR.	5	43	48	WINDSOR DR.
DUNBARTON RD.	2	10	12	WINSTON WAY
DUNHAM RD.	3	7	10	YORK RD.
EAST GENESSEE ST.		1	1	
EXETER RD.		2	2	
FALSTAFF RD.		2	2	
FORDAN RD.	7	19	26	
FRANKLIN PARK DR.		1	1	
FREDRICK ST.	1	13	14	
GREENWOOD RD.		6	6	

GRENFALL RD.	7	5	12
GROVER ST.		1	1
HADDENFIELD DR.	23	16	39
HADDENFIELD PL.	4		4
HALE AVE.		10	10
HAMPSHIRE DR.	3	1	4
HATHAWAY RD.		6	6
HAZELHURST AVE.		2	2
HIGHLAND AVE.		5	5
JAMES ST.		7	7
JAMESVILLE RD.	1	6	7
JONES AVE.		16	16
KINNE RD.		2	2
KINNE ST.		9	9
KIRKPATRICK AVE.		15	15
KIRKPATRICK ST.		1	1
LANDSDALE RD.		3	3
LANDSDOWNE RD.	23	28	51
LILLIAN AVE.		4	4
LONGWOOD DR.		1	1
LYNBROOK CIR.		27	27
MACONI AVE.		1	1
MARSH DR.		19	19
MASTERS RD.		6	6
MERMAN DR.		9	9
MOTON RD.		8	8
NELSON AVE.		13	13
NEWFIELD RD.	2	3	5
NORTH AVE.		4	4
OAKMONT DR.	4	5	9
ORRICK RD.		5	5
ORVILTON DR.	7	77	84
PADDOCK DR.	20	19	39
PARKWOOD DR.		2	2
PELHAM RD.	20	10	30
RADCLIFFE RD.	11	23	34
REVERE AVE.		6	6
REVERE RD.	1	15	16
RIDGECREST RD.	14	25	39
ROBBINS LN.		14	14
ROBY AVE	1	15	16
ROYCROFT RD.		1	1
RUTGERS RD		6	6
SAGINAW DR.		8	8
SALEM RD.	2	4	6
SARGENT RD		1	1
SCOTLAND RD		1	1
SHERWOOD DR.	1	6	7

STILLWELL CIR.		9	9
STONERIDGE DR.		6	6
SUTTON PL.		10	10
SYCAMORE TER.	18	34	52
TAFT AVE.		6	6
TERRACE CIR.		9	9
TERRACE DR.		9	9
TERRACEVIEW RD		30	30
THOMPSON RD.	2	45	47
TILDEN DR.		7	7
TUCKER AVE.		16	16
WARWICK RD.	2	14	16
WASHBURN DR.		12	12
WEDGEWOOD TER.	14	9	23
WELLINGTON RD.	4	56	60
WELLS DR		2	2
WEMBRIDGE DR.		2	2
WESTMINSTER RD		12	12
WINCHESTER DR.		4	4
WINDSOR DR.	10	11	21
WINSTON WAY	8	8	16
YALE AVE.		5	5
YORK RD.	1	7	8
Grand Total	270	1211	1481

Appendix E – Examples of Entries in DeWitt Street Tree Inventory

Number	House_number	Street	Inventory_date	Inventory_by	On_street	From_street	To_street
56	304	CORNWALL DR.	12/21/03	Jason	CORNWALL DR.	YORK RD.	DUNHAM RD.
57	306	CORNWALL DR.	12/21/03	Jason	CORNWALL DR.	YORK RD.	DUNHAM RD.
58	308	CORNWALL DR.	12/21/03	Jason	CORNWALL DR.	YORK RD.	DUNHAM RD.
60	310	CORNWALL DR.	12/21/03	Jason	CORNWALL DR.	DEAD END	YORK RD.
64	100	CORNWALL DR.	12/21/03	Jason	CORNWALL DR.	YORK RD.	DEAD END
65	303	CORNWALL DR.	12/21/03	Jason	CORNWALL DR.	DUNHAM RD.	YORK RD.

Number	Site_number	Side	DirectionToBuilding	DistanceToBuilding	DistanceFromStreet	Wires	
56	1	Front	270	50		6None	
57	1	Front	270	50		None	
58	2	Front	270	50		6None	
60	4	Front	270	50		5None	
64	1	Front	90	30		5Single Phase	
65	1	Front	90	50		5Single Phase	

Number	Planting_site	TypeOfPlantingSite	SideOfStreetsideStrip	Stump	Common_name	Caliper	DBH
56	N		outside	N	Maple, Spp.	2.5	
57	Y	streetside strip 5 to 12 feet	outside	N			
58	N		outside	N	Maple, Silver		21.5
62	N		lawn	N	Spruce, Blue		18
64	N		lawn	N	Maple, Norway		24.7
65	N		outside	N	Maple, Spp.	2.5	

Number	TreeHeight	HeightFromBaseToCrown	CrownWidth	PercentDieback	Condition	Management	Consult
56	12			4			N
57	0						N
58	78	8		40			N
60	3	0		2			N
64	60	10		40			N
65	15			5			N

Number	Sidewalk_damage	Trunk_damage	Other_Comments				
56	N	N					
57	N	N					
58	N	N					
60	N	N	3 others planted at same height and size				
64	N	N					
65	N	N					

Appendix F -- DEFINITIONS

Street:	name of street that corresponds to the address of the tree
OnStreet:	street on which the tree is located
FromStreet:	cross street name corresponding to the lowest house number of the Street where the tree is located
ToStreet:	cross street name corresponding to the highest house number of the Street where the tree is located
Side:	side of the house that tree is located on
Site number:	tree, stump, or planting space number where #1 is at the lowest house number
Wires:	choose highest priority (3-phase, single phase, service, tv/cable, none)
Planting Site:	Y=prospective planting site that needs to be re-assessed, N=not a place to plant a tree (ie. Existing tree)
Caliper:	Trunk diameter at 1 ft above ground when DBH could not be measured.
DBH:	tree diameter at 4.5 feet
Total height:	height estimated to the top of the canopy
Height to live base:	height estimated to the average bottom of canopy
Mean crown width:	average of 2 perpendicular crown widths
Percent dieback:	percent of the canopy missing
Distance to building:	distance in feet to a building within 60 feet of the tree location
Direction to building:	degrees to the building (stand at the tree, direction to get from the tree to the building)
Condition:	of tree health (good, fair, poor, dead)
Consult:	Y=some aspect of the tree's health should be evaluated by a professional arborist to determine treatment, N=not Y
Management:	suggested maintenance (none, train, routine prune, immediate prune)
Sidewalk damage:	Y= tripping hazard created by tree roots exists, N=no tripping hazard
Trunk damage:	Y= significant damage, N= not Y
Comment	

Appendix G. Numbers of trees tallied by species

Alder, Black	1
Apple, Spp	1
Apple, Wild	3
Ash, Green	11
Ash, Spp.	10
Ash, White	6
Aspen, Quaking	2
Basswood / Linden	1
Beech, American	3
Beech, Spp.	1
Birch, European White	1
Birch, Spp.	8
Birch, White-paper	5
boxelder	2
Buckthorn, Spp.	4
Catalpa, Speciosa	2
Cedar, Deodar	2
Cedar, Eastern Red	15
Cedar, White (arbor Vitae)	92
Cherry, Ornamental	5
Cherry, Spp	1
Cottonwood, Eastern	8
Crabapple, Spp.	39
Dogwood, Spp.	6
Douglas Fir	1
ELDER Spp.	1
Elm, American	1
Elm, Spp.	3
Fir, Balsam	1
Fir, White	2
Ginkgo	1
Hackberry, Common	2
Hawthorn, spp	7
Hawthorn, Spp.	7
Hemlock, Eastern	22
Hickory, Bitternut	5
Hickory, Pignut	1
Hickory, Shagbark	1
Honeylocust	20
Hornbeam/ Hop Hornbeam	4
Larch / Tamarack	1
Lilac, Spp.	2
Lilac, Tree	2
Linden, Glenleven	1
Linden, Littleleaf	7
Locust, Black	15
Magnolia, Spp.	4
Maple, Boxelder	14
Maple, Japanese	4
Maple, norway	216
Maple, Norway - Crimson King	18
Maple, Red	35
Maple, Silver	93
Maple, Spp.	10
Maple, Sugar	75
Maple, Sycamore	1
Mulberry, Red	2
Oak, Pin	2
Oak, Post	1
Oak, Spp.	2
Oak, White	2
Pear, Callery	13
Pear, Spp.	5
Pine, Austrian	2
Pine, Mugo / Swiss Mountain	1
Pine, Red	23
Pine, Scotch	27
Pine, Spp.	2
Pine, White	10
Planting Site	10
RED PLUM	1
Redbud, Eastern	3
Rose-of-sharon	1
Serviceberry	7
Smoke Tree, Spp.	2
Spruce, Blue	62
Spruce, Norway	113
Spruce, Spp.	45
Spruce, White	32
Sweetgum, American	1
Sycamore, American	1
Tulip Tree	3
Unknown spp	8
Walnut, Black	3
Willow, Black	2
Willow, Spp.	5
Yew, Spp.	3
Zelkova, Sawtooth / Japanese	11
Grand Total	1211

Appendix H. Maps of streets inventoried.

Appendix H. Map of DeWitt streets and neighborhoods inventoried for street trees.

