

**The Community Trees
of
Lawrence, MA**

ASSESSMENT AND MANAGEMENT PLAN

**Jane Calvin
MA DCR Urban Forestry Program
251 Causeway St., Boston, MA 02114
617-626-1456**

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Table of Contents

I.	Background	1
II.	Key Findings	1
III.	Key Recommendations	1
IV.	Size class distribution – City-wide	2
V.	Tree planting and Species Diversity	3
VI.	Tree Maintenance and Removal	5
VII.	Public Awareness, Education, and Youth	6
VIII.	Policy and Administration	7
IX.	Conclusions	7

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I. Background

During the summer of 2004, Groundwork Lawrence hired a consultant to work alongside a small corps of volunteers to conduct a statistical survey¹ of **street tree assets** throughout Lawrence. In total, nearly 2,300 trees were assessed (“north” and “south” sections of the city), comprising 20% of Lawrence’s street tree population.

These management recommendations are designed to lead policymakers and citizens toward achieving a sustainable urban forestry program that will improve the quality of life in Lawrence for generations to come. An effective community forestry program will maintain the natural beauty of Lawrence through active participation of its citizens. The recommendations within this document can become the **template for a management plan**, outlining a multi-year timeline for annual budgeting, community involvement, developing new policies, and improved maintenance and planting programs.

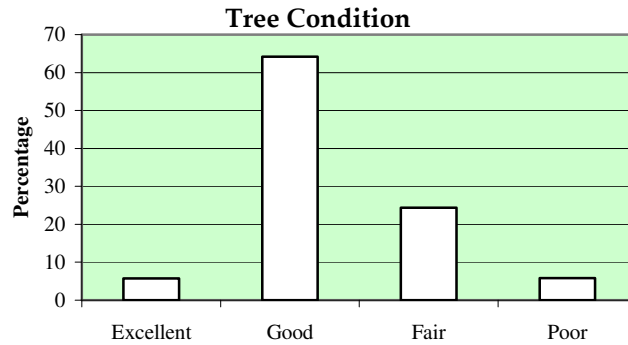
II. Key Findings

- With good coordination and communication between departments and agencies, Lawrence has the administrative leadership and active community support to develop an exemplary urban forestry program.
- Most trees surveyed are in good health (64%); 30% of trees are in fair to poor health.
- There are approximately **2,000 sites for tree planting** throughout the city, as allowed by MGL Ch. 87 (within 20’ of the right-of-way).
- The city is currently **overplanted with Norway maples (28%)**, creating optimal conditions for insects and/or disease to take hold in the city. Norway maples are also invasive, seeding in aggressively in naturalized borders and preventing competition from other species.

III. Key Recommendations

- Continue attaining Tree City USA (annual application due Dec. 31) and seek Tree City USA Growth Awards when applicable.
- **Apply for grants** to provide outside support for Lawrence’s urban forestry program, including Massachusetts Department of Conservation and Recreation’s (DCR) Urban and Community Forestry Program and other foundations as appropriate.
- Encourage **communication between departments**, commissions (e.g., historic and conservation), and boards (e.g., planning and schools) to ensure adequate protection for Lawrence’s street tree assets that add value to the streetscape of the city.
- Continue implementation of new **tree ordinance**.
- Include a section on the urban forest in the city’s **open space plan**.

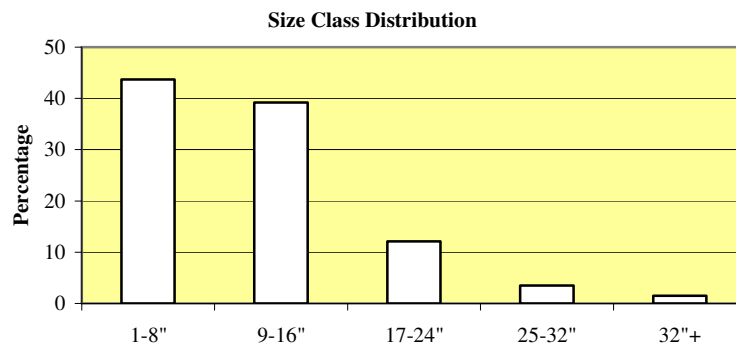
¹ Statistical analysis of the data collected, using a computer program known as “Treedt”, summarizing the urban forest in Lawrence is contained at the end of this report. Approximately 20% of all trees within the 20’ setback (city-wide) were sampled to determine species, size and condition; a total of 2,300 trees were sampled in this survey.



IV. Size class distribution – City-wide

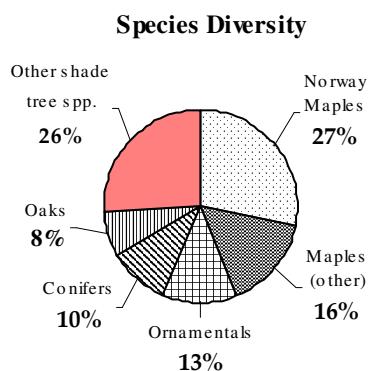
Size class distribution is an important way to evaluate the overall composition of the urban forest. Urban forests have successional stages, just as more forested parks and conservation areas do. In urban areas, size class distribution reflects more on the streetscape character and potential insect, disease and maintenance problems.

- **Average Tree Diameter (DBH) = 10.5"**. The city's street tree asset is relatively young, with the majority (84%) of the trees under 16" in diameter. The bar graph below should look more like a "bell curve". The younger population of trees in Lawrence, with proper annual maintenance, can become a vibrant older community forest in the coming decades. Younger trees require periodic pruning to ensure structural integrity and prevent future problems.
- **Mature shade trees (>32") are 1.5%** of the total population of street trees. These trees tend to define the character of the streetscape (i.e., red/sugar maples and elms) and are only a small portion of the population in Lawrence.



V. Tree planting and Species Diversity²

- The total population of the street tree asset in Lawrence is estimated to be nearly **11,300 trees**, which represent a diverse range of **52 species**;
- There are an estimated 2,000 tree planting spaces throughout the cities streets and sidewalks.



- The most common species, by far, is the **Norway maple at 28.3%**. The overwhelming presence of the Norway maples is equally distributed between the northern and southern sections of the city; five other species of maple (Japanese, boxelder, red, silver, and sugar) comprise an additional 15.5% of the city's trees.

Recommended Actions

(TP 1) Establish an **aggressive planting program** (possibly through CDBG funding) to plant 100 trees per year, addressing both replacements and empty spaces within the setback area.

(TP 2) Adopt Groundwork Lawrence **tree planting list of appropriate species**. The list should include the most desirable species (including sycamore, sourwood, and tuliptree) to guide homeowners and city officials in selecting site-appropriate (and diverse) trees and discourage the overplanting of common species. See DCR Factsheet recommended below.

(TP 3) **Establish a replacement policy**. In developing a policy related to replacement trees (whether for removals, new developments, or infrastructure improvements), it is important to review what the **replacement ratio** is. (In other words, do current policies allow replacing a 24" tree with six 4" caliper trees ["inch per inch"]? Or is it simply one tree planted for one removed, regardless of size ["tree for tree"]?)

(TP 4) **Establish "set-back" planting policy** State law permits planting within 20 feet of the right-of-way and, where space is available and a homeowners desire a tree, this should be city policy.

² When selecting trees for public areas, two goals should be kept in mind: **diversity and desirability**.

- A **diversity** of species will greatly reduce the probability that a single insect or disease problem will impact a large proportion of the urban forest (e.g., Dutch Elm Disease on American elm, or more currently, the long-horned beetle). It is normally recommended that no species make up more than about 5% of the total urban forest population; and no family more than 10 percent.
- Emphasize more **desirable** trees to reduce maintenance problems and enhance the beauty of the community. Trees that are short lived, break easily in snow, wind or ice storms, are susceptible to serious insect or disease attack, or have a high maintenance growth habit should be avoided (e.g. silver maple, bradford pear). Trees in the upper desirability classes (Classes I and II) will provide better and longer service.

(TP 5) **Establish specifications** for all work related to trees, including requiring a **minimum 100 ft³** for tree planting sites. When creating planting spaces along streets, seek the greatest amount of growing space possible. The large trees remaining today that provide canopy and define gateways are extremely difficult to replace. In order to support a healthy tree, planting spaces should be a minimum of 100 cubic feet.

(TP 6) Purchase and **plant bare-root stock** in early spring for further savings.

(TP 7) Seek a minimum **1-2% of all capital project budgets** for landscaping. Construction of new roadways and sidewalks is an excellent opportunity to fund new tree planting. Planting trees during capital improvement projects much less expensive in comparison to individual tree plantings.

Resources ~~DCR~~ **Factsheets**

Setback planting @ <http://www.mass.gov/dcr/stewardship/forestry/urban/Setback-0301.pdf>
 Species selection - <http://www.mass.gov/dcr/stewardship/forestry/urban/treeSelect.pdf>

NORTH

SOUTH

Maple, Norway	1915	29	Maple, Norway	1275	27.2
Oak, Northern Red	350	5.3	Maple, Red	390	8.3
Maple, Red	340	5.2	Oak, Northern Red	280	6
Tree of Heaven	295	4.5	Spruce, Colorado	260	5.5
Honeylocust	270	4.1	Maple, Silver	250	5.3
Spruce, Colorado	255	3.9	Crabapple	230	4.9
Linden, Littleleaf	215	3.3	Cherry (flowering)	170	3.6
Maple, Japanese	195	3	Maple, Japanese	165	3.5
Crabapple	185	2.8	Linden, Littleleaf	150	3.2
Pear, Callery, Bradford	165	2.5	Dogwood, Flowering	145	3.1
Ash, Green	160	2.4	Ash, Green	120	2.6
Maple, Boxelder	150	2.3	Tree of Heaven	110	2.3
Cherry (flowering)	145	2.2	Honeylocust	95	2
Cherry, Black	140	2.1			
Zelkova	140	2.1			
Dogwood, Flowering	140	2.1			

VI. Tree Maintenance and Removal

- **650 trees (6% of trees)** surveyed are in **poor condition** and will likely need removal within 5 years and present a possible hazard to safety.
- **2755 trees are in fair condition** and will require significant corrective pruning or insect and disease management within five years to prevent further decline.

Recommended Actions

(TM 1) **Conduct an annual spring hazard tree survey** to identify and prioritize maintenance needs, identify trees with winter damage, hazard limbs or trees that need to be removed. DCR can provide training in hazard tree identification and prioritizing responses in order to reduce hazard liabilities.

(TM 2) **Develop a long-term tree removal budget** of the estimated 650 trees in “poor” condition (by reviewing the cost of current removals). This should happen on a multi-year time frame and be clearly budgeted for to reduce liability and safety hazards. For example, if a tree costs \$500 to remove, it would cost \$325,000 to remove these trees over 5 years or \$65,000 annually). Lawrence might also consider a one time appropriation of, for example, \$50,000 to tackle the backlog of tree removals, which would help the community move toward more proactive rather than crisis management. Also, consider this as a way to reduce liability concerns.

(TM 3) **Invest in improving tree condition (cyclical pruning)**. Approximately 24.4% of your community’s trees are in fair condition. Small annual investments in maintenance can yield great long-term savings by extending tree longevity and reducing removal costs. With a relatively small investment in deadwood pruning, trees in “fair” condition can be upgraded to “good” condition with an accompanying average increase in tree value and longevity. Consider working with your local utility partner to address cyclical pruning issues.

(TM 4) **Mulch all street and park trees** with wood chips or bark mulch. Proper mulching will provide protection for trees from mower and weed whip damage as well as increase growth and vigor by conserving soil moisture and moderating soil temperatures.

(TM 5) ***ater trees regularly**. Consider contracting out or encouraging volunteers or civic organizations to water regularly during dry periods. Lack of water is the primary cause of death for new trees.

(TM 6) **Provide training opportunities** for city officials, staff, and tree advisory board members to advance their knowledge of community forestry and arboricultural practice through attendance at workshops that relate to community tree management. Attendance at the annual MA Tree Wardens and Foresters Conference is highly recommended (www.masstreewardens.org).

(TM 7) **Specify certified arborists** for all in-house tree crews or contracted city tree work. Contract work should take place primarily in the winter to assure the best bid prices. Provide **training** for in-house crews to earn status as Massachusetts Certified Arborists.

(TM 8) **Protect trees during construction** and ensure that public trees, and their critical root zones, are protected during road and building construction.

(TM ©) Meet with the local **public utility** (MA Electric) and establish a policy for tree work done in Lawrence (www.treewardens.org has an example utility policy). This might provide an opportunity to more efficiently share work loads.

VII. Public Awareness, Education, and Youth

The recommendations regarding public awareness, education, and youth are focused toward the tree warden's and possible future tree committee's activities in developing a stronger base of support for the long-term care of Lawrence's community forest.

Recommended Actions

(PA 1) **Publicize this report** and make it available to the general public to increase public awareness of the urban forest.

(PA 2) **Engage the greater community** in civic improvements focused on trees. There are considerable resources available through state and private agencies interested in supporting grassroots action on behalf of trees.

Projects might include

- Project Learning Tree (www.plt.org)
- Arbor Day events (last Friday in April) (www.arborday.org)
- Tree and park tours
- Tree Stewardship training workshops (DCR provides annual fall training)
- Heritage tree searches

(PA 3) **Establish a public education and outreach program** through local news media (cable channel) and nonprofit groups to provide information regarding tree planting and maintenance. Emphasis should be placed on the advantages of planting desirable trees and practicing good tree care.

(PA 4) **Establish a tree advisory board** through legal ordinance that will be responsible to advise the city and make recommendations for urban forest management (see DCR Fact Sheet on tree committees at <http://www.mass.gov/dcr/stewardship/forestry/urban/urbanFAs.htm>)

(PA 5) Seek a **Tree City USA Growth Award** (www.arborday.org/programs).

(PA 6) **Apply for grants** (e.g., Mass ReLeaf, Heritage Tree Care, and Planning Education) from Massachusetts Department of Conservation and Recreation's (DCR) Urban and Community Forestry Program (see <http://www.mass.gov/dcr/stewardship/forestry/urban/urbanGrants.htm>).

VIII. Policy and Administration

To accomplish the goals and objectives decided upon by the City of Lawrence, a workable administrative framework is necessary. Here are suggested steps to develop such a framework.

Recommended Actions

(POL 1) **Shade Tree Law**—Continue to enforce all the provisions of the Massachusetts Law Chapter 87 (see DCR Fact Sheet, “Protecting our Community Trees” at <http://www.mass.gov/dcr/stewardship/forestry/urban/urbanFAQs.htm>), including tree hearings and notifications of such tree hearings.

(POL 2) Encourage **communication between departments**, commissions (e.g., historic and conservation), and boards (e.g., planning and schools) to ensure adequate protection for Lawrence’s street tree assets that add value to the streetscape of the city.

(POL 3) **Establish annual long-range plans for maintenance** (through an officially recognized tree advisory board), including prioritized recommendations from this report with assigned tasks and timelines.

(POL 4) **Maintain annual work plans** (as required by Tree City USA) to accomplish needed tree work and provide alternative levels of service tied to budget constraints. You might also consider adapting a plan, such as Newton’s, for an annual work plan.

(POL 5) Establish a new **tree ordinance** (DCR has examples).

(POL 6) **Maintain contact with the Massachusetts DCR Urban Forestry Program** (617-626-1468) for cooperative programs and planning and planting grants.

CONCLUSIONS

Lawrence is a historic city with great vitality. Trees are an important community resource that add value to adjacent property and attract new residents, industry and tourism. The people of Lawrence are increasingly aware of this resource. There is great potential for enhancement of Lawrence’s urban forest. The urban forest of Lawrence contributes substantially to resident and commercial property values and, with moderate increases in annual tree planting and maintenance, could yield significant returns in the years ahead.

Support and further information for these recommendations (including all DCR fact sheets) can be found at: <http://www.mass.gov/dcr/stewardship/forestry/urban/urbanFAQs.htm>

Prioritized Recommendations- Lawrence Tree Assets Management

Tree Planting ✿ Species Diversity

		Priority (Hi✿Med✿Low)	✿ ho	By ✿ hen
TP 1	Tree Planting Program			
TP 2	Diverse Tree Planting List			
TP 3	Replacement Policy			
TP 4	Set-back Planting Policy			
TP 5	Specifications			
TP 6	Bare-root Stock			
TP 7	1-2% of Capital/infrastructure projects to landscaping			

Tree Maintenance and Removal

		Priority (Hi✿Med✿Low)	✿ ho	By ✿ hen
TM 1	Annual Spring ✿ Hazard Tree Survey			
TM 2	Long-term ✿ Hazard Tree Removal Budget			
TM 3	Cyclical Pruning			
TM 4	Proper Mulching			
TM 5	Provide Training			
TM 6	Specify Certified Arborists			
TM 7	Protect Trees During Construction			
TM 8	Public Utility Tree Care Policy			

Public Awareness, Education, and Youth

		Priority (High-Medium-Low)	Who	By When
PA 1	Publicize this Report			
PA 2	Engage the Greater Community			
PA 3	Public Outreach Program			
PA 4	Tree Advisory Board			
PA 5	Seek a Tree City USA Growth Award			
PA 6	Apply for DCR grants			

Policy and Administration

		Priority (High-Medium-Low)	Who	By When
P&L 1	Enforce Shade Tree Law (MGL 87)			
P&L 2	Communication Between Departments			
P&L 3	Long-Range Plans for Maintenance			
P&L 4	Maintain Annual Work Plans (required for Tree City USA)			
P&L 5	Establish a new tree ordinance			
P&L 6	Maintain contact with DCR Urban Forestry Program			

