

# MUNICIPAL TREE MANAGEMENT IN NEW JERSEY<sup>1</sup>

by Robert L. Tate

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**Abstract.** A 1983 survey of 329 cities to determine the level of municipal tree care in New Jersey resulted in a return of 34 percent. The largest obstacle to tree care was lack of funding. Tree care agencies in New Jersey spent just over 50 percent of their time on actual tree-related work activities. A greater percentage of larger cities have suffered budget reductions than did smaller ones. Most tree care is divided into the activities of removal, pruning, and planting. Most tree work is scheduled by requests from residents. Contracting for tree work is widely used and satisfies the needs of the cities. Shade tree ordinances and public tree bodies are widely used, but less so in larger cities. Nearly all trees for street planting are purchased from commercial nurseries and are similar in composition to what is being planted by other cities in the northeast United States.

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What is the current status of municipal tree management in the most urban state? Has New Jersey declined from being at the forefront of the movement to systematically and professionally manage urban trees, a position that is enjoyed at the turn of this century? The state enacted legislation in 1893 empowering municipalities to appoint commissioners with the authority to plant, maintain and protect shade trees along public streets of their respective communities. Much of the technology regarding tree planting and care and the development of municipal tree management programs was initially described in 1911 by William Sotolaroff, a shade tree commissioner in New Jersey (Richards and Giedraitis 1980).

Since then, we have suffered from the ravages of Dutch elm disease, gypsy moths and urban blight. We continue to lose vast amounts of rural and suburban land to urbanization and are hampered by budget restrictions caused by federal and state cutbacks, as well as our own state-imposed municipal budget caps, which restrict yearly spending increases to approximately 5 percent.

Information from New Jersey can provide a basis of comparison for existing programs, suggest a guide for the development of new ones and may indicate future trends to be considered by city administrators, urban tree managers and political decision makers in other regions of the country that are rapidly urbanizing.

Survey questionnaires were sent to a stratified random sample of 329 municipalities (approximately 58 percent of the state total) in two mailings over a three month period ending in May 1983 resulting in a total return of 34 percent. Table 1 summarizes these responses by population group and geographic area.

## Management and Budgetary Allocations

The effective management of city trees seems to be directly related to adequate funding for proper maintenance. Three-fourths of the respondents felt that inadequate funding was the major obstacle to overcome in providing optimum tree care while only 17 percent viewed the lack of technical expertise to be the chief barrier. New Jersey's urban tree managers appear to be taking advantage of the state's excellent cooperative extension program in urban horticulture and arboriculture, as well as an active shade tree federation to gain the necessary technical expertise.

But technical expertise doesn't prune trees, people do as a result of budget funds allocated for tree care. In this respect, urban tree programs in New Jersey have suffered along with the rest of local government because of the decrease in federal aid programs, state cutbacks and lost revenues.

By city size, shade tree funding over the last five years, when adjusted for inflation, has decreased in 80 percent of our largest communities (Table 2). And although budgets have in-

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**Table 1. City survey response.**

| <i>City classification</i> | <i>No. in NJ</i> | <i>No. surveyed</i> | <i>No. responding</i> | <i>% in NJ responding</i> | <i>% surveyed responding</i> |
|----------------------------|------------------|---------------------|-----------------------|---------------------------|------------------------------|
| <b>Population</b>          |                  |                     |                       |                           |                              |
| ◀ 5,000                    | 936              | 100                 | 27                    | 1.5                       | 27                           |
| 5,000-10,000               | 95               | 76                  | 31                    | 33                        | 27                           |
| 10,000-49,999              | 140              | 132                 | 44                    | 31                        | 33                           |
| ▶ 50,000                   | 22               | 21                  | 10                    | 45                        | 48                           |
| <b>Geographic region</b>   |                  |                     |                       |                           |                              |
| Northeast                  | 149              | 111                 | 42                    | 28                        | 38                           |
| North                      | 216              | 31                  | 7                     | 3                         | 23                           |
| Central                    | 319              | 84                  | 31                    | 10                        | 37                           |
| South                      | 509              | 103                 | 32                    | 6                         | 31                           |

creased in a greater percentage of remaining smaller cities, many have lost funding (53 vs. 37 percent, respectively).

**Table 2. Change in budget allocation to tree care (1977-82).**

| <i>City Population</i> | <i>No.</i> | <i>Increased</i>         | <i>Decreased</i> | <i>No change</i> |
|------------------------|------------|--------------------------|------------------|------------------|
|                        |            | <i>----- % of cities</i> |                  |                  |
| ▶ 50,000               | 10         | 20                       | 80               | —                |
| 10,000-50,000          | 40         | 55                       | 43               | 2                |
| 5,000-10,000           | 25         | 48                       | 24               | 28               |
| ◀ 5,000                | 9          | 56                       | 44               | —                |

New Jersey urban tree management agencies spend less of their time in tree related activities as compared to the national average in 1980 as reported by Giedraitis and Kielbaso (1982) (53 vs. 61 percent respectively). Visibility of the tree maintenance operation is an important factor in obtaining and keeping yearly budget funds. Tree care agencies in name only probably will not get their share of funds for tree care and may be inefficient when called upon to perform tree work. Workers who spend less time on tree care activities that require skill lose proficiency.

Urban tree management functions in New Jersey cities fall into three major activities consisting of removal (including debris pickup, 37 percent), planting (21 percent) and pruning (16 percent). These comprise nearly three-fourths of total budget expenditures and roughly equal the 1980 national average of 71 percent for the same activities (Giedraitis and Kielbaso 1982).

**Table 3. Budget allocation by tree care activity (1982).**

| <i>City population</i> | <i>No.</i> | <i>Removal</i>                    | <i>Planting</i> | <i>Pruning</i> |
|------------------------|------------|-----------------------------------|-----------------|----------------|
|                        |            | <i>----- % of total tree care</i> |                 |                |
| ▶ 50,000               | 10         | 33                                | 5               | 11             |
| 10,000-50,000          | 42         | 34                                | 14              | 18             |
| 5,000-10,000           | 25         | 39                                | 24              | 23             |
| ◀ 5,000                | 12         | 42                                | 41              | 11             |

Inadequate budgets caused by underfunding or funding cuts often force the emphasis to shift from preventative systematic tree care activities to those that are corrective and responsive. When pruning budgets are curtailed, for example, area-wide rotational pruning may be discontinued in favor of individual tree pruning by resident request. Activities become more tree specific and work is scheduled in favor of tree care which "satisfied" the citizen and political decision maker.

In 61 percent of the cities surveyed, the primary reason given for scheduling tree work is a result of resident requests, while only 36 percent of the cities listed staff inspections as the primary reason. Few communities seem to rely on outside help or data from tree inventories to aid in determining work needs.

An accurate, well designed inventory provides worthwhile information regarding the number, location and condition of the trees and can aid the urban tree manager in making more informed decisions with respect to present maintenance and future planning objectives.

Table 4 gives a complete breakdown by popula-

tion group of finished inventories, average number of street trees, and budget information. In general, while we exceed the 1980 national average of 22 percent as reported by Giedraitis and Kielbaso (1982), only one-third (33 percent) of the cities responding in New Jersey have conducted and completed inventories. The remaining have not for reasons of lack of funds, interest, skill and workforce.

Many respondents admitted that scheduling by request often necessitates having to reschedule similar tree work on the same street at a later date because of another request. Politically this may be expedient, but it is seldom efficient.

From inventory records, the average number of street trees per New Jersey city is substantially less than the 1980 average for cities under 500,000 population (10,249 vs. 17,853 trees respectively) (the national average for cities under 500,000 is estimated from data reported by Giedraitis and Kielbaso (1982) because Newark is our largest city with 329,000 persons).

#### Performing Tree Work by Outside Contract

Because of uncertain funding levels, lack of equipment and employee skills, and cost savings, municipalities often use contracted service (Table 5). Contract services are used in 70 percent of the New Jersey cities to fulfill all or some of their

tree care responsibilities (Table 6). The top 3 major items contracted for by cities are tree removal, planting and pruning (69, 63 and 53 percent, respectively). Nearly all of the municipalities (93 percent) reported that contracting fulfilled their needs. This is probably because of the long history and ready availability of competent arboriculture work provided by licensed certified tree experts and other private arborists.

Even though contracting is widely used, a considerable amount of tree work is performed by regular employees (Table 5). On the average New Jersey cities have more full-time tree care employees compared to the 1980 national average (3.9 vs. 3 employees, respectively) as reported by Giedraitis and Kielbaso (1982).

#### Shade Tree Ordinances and Public Tree Commissions

New Jersey was one of the first states to enact legislation that allowed municipalities to set up ordinances regarding the care and preservation of public shade trees and to appoint shade tree commissioners to regulate tree maintenance activities. This long history of legislative involvement may account for the higher percentage of cities having ordinances than the national average (73 percent vs. 61 percent, respectively). Generally, these or-

**Table 4. Inventories taken, average number of street trees, and budget expenditures (1982).**

| City population | Number | Inventory % of cities | Avg. no. of street trees | \$ Budget avg. |          |
|-----------------|--------|-----------------------|--------------------------|----------------|----------|
|                 |        |                       |                          | Total          | per tree |
| ► 50,000        | 10     | 70                    | 22,950                   | 143,200        | 6.24     |
| 10,000-50,000   | 42     | 42                    | 13,034                   | 50,800         | 3.90     |
| 5,000-10,000    | 25     | 13                    | 3,810                    | 7,900          | 2.07     |
| ◄ 5,000         | 11     | 29                    | 1,203                    | 1,103          | .91      |

**Table 5. Contracting tree work and city tree care employees (1982).**

| City population |    | All/some work contracted<br>% of cities | Avg. no. of city employees |          |
|-----------------|----|---|----------------------------|----------|
|                 |    |   | full-time                  | seasonal |
| ► 50,000        | 10 | 70                                      | 8.7                        | 1.3      |
| 10,000-50,000   | 43 | 68                                      | 3.8                        | 3.5      |
| 5,000-10,000    | 26 | 77                                      | 2.0                        | 2.7      |
| ◄ 5,000         | 11 | 64                                      | 1.0                        | 2.5      |

ordinances seem to fulfill the needs of the smaller communities (Table 7). In the majority of larger cities, however, ordinances were not able to meet the needs of the tree managers for reasons such as revisions needed, doesn't cover activities, and difficult to enforce.

The shade tree commission is an integral part of urban tree management in New Jersey (Table 8). Most commissions are comprised of 5 members appointed by the mayor. Some are more active than others depending on the backgrounds, interests and leadership abilities of individuals in respective commissions. Communications between shade tree commissions are facilitated by a shade tree federation which publishes a monthly bulletin and sponsors a well-attended annual educational meeting. Members individually and collectively advise the tree care agency on management needs, deal with citizens and city officials, and in some smaller communities actually perform planting and minor pruning tasks. Shade tree commissions are more frequently found in smaller cities probably due to the absence of a professional tree-care-oriented position.

**Tree Planting Activities**

Properly selected tree species or cultivars that can withstand the harsh effects of the urban environment determine the future composition, and to a great extent, future maintenance needs of the tree resource. Planting is an investment for the future in an urban tree management program. Investing wisely will return high values from the physiological, economic and aesthetic benefits urban trees can provide. Planting is a visible and popular function of New Jersey city tree care agencies, yet it appears that little emphasis is being placed on the smaller ornamental type trees. The old standby, Norway maple, and its cultivars is the most widely planted species (Table 9). The composition of established street trees in New Jersey cities is not much different than that reported by Giedraitis and Kielbaso (1982) for the Northeast United States. Only 7 percent of the New Jersey cities operate their own nurseries as compared to the national average of 22 percent in 1980 (Giedraitis and Kielbaso 1982). This is probably due to the number of excellent commercial shade tree nurseries located in or near the state.

**Table 6. Type of tree work contracted (1982) (91 cities).**

| <i>Activity</i> | <i>Cities contracting %</i> |
|-----------------|-----------------------------|
| Tree removal    | 69                          |
| Planting        | 63                          |
| Pruning         | 53                          |
| Stump removal   | 43                          |
| Spraying        | 35                          |

**Table 7. Performance and existence of shade tree ordinances (1982).**

| <i>City population</i> | <i>No.</i> | <i>Have ordinance<br/>% of cities</i> | <i>Fulfills needs<br/>% of cities</i> |
|------------------------|------------|---------------------------------------|---------------------------------------|
| ▶ 50,000               | 10         | 90                                    | 44                                    |
| 10,000-50,000          | 43         | 83                                    | 62                                    |
| 5,000-10,000           | 26         | 69                                    | 61                                    |
| ◀ 5,000                | 11         | 50                                    | 75                                    |

**Table 8. Shade tree commissions (1982).**

| <i>City Population</i> | <i>No.</i> | <i>% Cities with commissions</i> |
|------------------------|------------|----------------------------------|
| ▶ 50,000               | 10         | 10                               |
| 10,000-50,000          | 43         | 52                               |
| 5,000-10,000           | 26         | 62                               |
| ◀ 5,000                | 11         | 75                               |

**Table 9. Distribution of tree species (1982) (96 cities).**

| <i>Tree type</i>       | <i>Currently planting<br/>% of cities</i> | <i>existing<br/>% of cities</i> |
|------------------------|---|---------------------------------|
| Norway maple/cultivars | 74  | 83                              |
| Flowering pear         | 58  | 54                              |
| Oak (red, pin)         | 48  | 70                              |
| Little-leaf linden     | 27  | 37                              |
| Silver maple           | 1   | 48                              |
| Sugar maple            | 23  | 37                              |
| Red maple              | 1   | 37                              |
| Honey locust           | 18  | 34                              |

**Summary and Conclusion**

In this, the first in-depth study of the public tree care agencies in New Jersey, we found that, in general, the biggest obstacle to tree care was lack of funding. A greater percentage of larger cities are experiencing budget reductions than are

smaller ones, probably as an indirect result of the cuts in federal aid.

Tree care agencies in our state spend less of their time actually working on tree care when compared to the national average, primarily schedule work as a result of requests, but end up spending about the same proportion of time on planting, pruning and removal as do other cities in the nation.

Inventories have been taken in nearly one-third of the communities surveyed, but do not appear to be utilized for systematic tree care.

On the average there are fewer street trees than are found in comparable cities in other regions of the country. Shade tree managers buy nearly all of their trees from commercial nurseries and plant the same type of trees as do other cities in nearby states.

Nearly three-fourths of the communities in New Jersey have tree ordinances, but the largest cities are less satisfied with their ordinances than are the smaller ones. Public tree bodies are widely established here and are more frequently found in smaller cities.

Unfortunately, the most urban state does not appear to be much different than the rest of the nation in general level of tree care it gives its communities. A conclusion would be that whatever "lead" it seemed to have at the turn of the century has been lost due to budget cuts, lack of interest or higher priority items as identified by public administrators and political decision makers.

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## EUCOMMIA ULMOIDES: A TREE FOR URBAN AREAS

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*Eucommia ulmoides* Oliv. (Family Eucommiaceae), with its numerous attributes, frequently has been recommended for general use in urban areas (6,8,9). In overall form and leaf character, the species resembles American elm. Mature trees attain heights up to about 60 ft, have wide-spreading branches, and leaves that are glossy green. Although lacking in fall color, the leaves have the desirable characteristic of dropping fairly fast and, therefore, compared with other species of trees, the cleanup period is short. The flowers

are inconspicuous and the fruit are compressed winged nutlets, much like those of the elm. But, despite these favorable traits, trees of this species are seldom seen.

The purpose of this article is to summarize various trial plantings and the propagation of this dioecious, deciduous tree from central China. The chemical properties of the species are described including the nature of a substance in the leaves that mistakenly has been called rubber. With this additional information, anyone considering grow-