

VEGETATION'S IMPACT ON URBAN INFRASTRUCTURE¹

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Abstract. In times of budget constraints a municipal tree budget cannot be emotional but must be based on economic reality. Urban trees as part of the urban infrastructure must be part of the decision process. This paper suggests that municipal arborists use a two-pronged approach for the municipal budgeting process.

Urban infrastructure is defined by the dictionary as the base facilities, equipment, services and installations needed for the growth and functioning of a city. Urban trees are as important as the roads, sidewalks and equipment that is "needed for the growth and functioning of a city." Trees are or should be considered part of the urban infrastructure and treated as such during the municipal budgeting process. Unfortunately, this is not the case in most cities. The tree care budget is among the first cut because trees can "take care of themselves." Municipal arborists know that this is not true and must now make others aware of the benefits of urban tree care.

Tree Value

The value of urban trees can be either an asset or a liability to a city. People like trees; in a poll (2) people were asked to choose among 26 things that they considered important to their happiness. Ninety-five percent wanted green grass, trees, and flowers because of their aesthetic and psychological qualities (Figure 1).

More important than humans "liking" trees is their need of plants. Most Americans live in urban areas and have a psychological need of urban greenery. Lederer (5) writes that "Trees and other plants in the environment can be 'preventive medicine' to reduce stress, boredom, and some other problems of daily life. They are also being used successfully in the treatment process to overcome specific emotional conditions and help improve the life quality."

As a result of people's need and liking of street trees, the trees add monetary value to property (Figure 2). This in turn increases the tax base. As the former municipal arborist of New York City, I never found a run-down neighborhood that was well stocked with trees. New York City conservatively valued its city trees at \$2 billion in 1983 (3). Dr. Brian Payne of the U.S. Forest Service studied 800 properties and found that trees could increase the value of a property by as much as 20% (5). In turn, municipal arborists/urban foresters have to use this information to increase their working budget.

Increased Street Tree Budget = More & Better Trees = Increased Tax Base

Trees can also have a negative effect on a city's budget. Improper planting and maintenance can greatly increase the cost of municipal government. Proper selection of tree species and sites could reduce or even eliminate utility line pruning and sidewalk/curb damages (Figure 3) caused by tree roots. The utility line clearance cost to CON ED for Westchester, New York is \$2.2 million per year to trim and remove trees along 16,300 miles of overhead wires (1).



Figure 1. Properly planned, planted and maintained trees are an asset and beauty for a city. This information can be used to sell your budget.

1. Presented at the annual conference of the International Society of Arboriculture in Quebec City, Canada in August 1984.

TREES COULD MAKE A DIFFERENCE IN THE SELLING PRICE OF YOUR HOME



PHOTO STORY No. 26

The houses pictured are identical in architecture. Yet the one on the right sells for \$2,700 more than the one on the left. The reason? *Trees!*



A tree in your yard may be money in the bank -- so say the realtors and property owners polled recently by Forest Service environmental researcher Dr. Brian R. Payne of Amherst, Mass.

Payne found that the presence of trees around a house appears to have a tangible effect on its marketability. Trees may enhance the value of a property by as much as 20%, with an average increase of 5 to 10%. This translates to a \$3,000 to \$7,000 jump in its selling price.

Figure 2. Municipal trees have a monetary value and should be maintained with a proper working budget in order to keep up the streets' tax base.

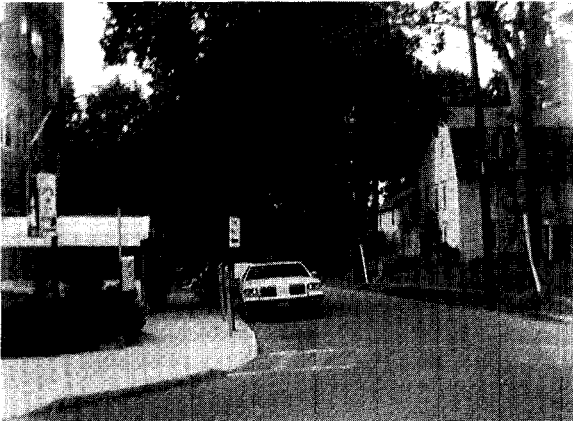


Figure 3. Municipal trees can have a negative value. Estimate the cost of not correcting hazardous conditions and use this information for your budget proposals.

In addition, trees that are not maintained at regular intervals soon become hazards due to dead wood and wind throw. This can not only upset your budget but may also cause considerable loss of life and property.

Financing Municipal Arboriculture

The financing of urban tree work has traditionally been the city's tax system. Recently some private funding has been used; one of the most successful has been the restoration of New York City's Central Park trees by the Central Park Conservancy. While private funding can be a source of funds, most of the urban tree budget in the '80s will continue to be municipal funding.

Tree wardens generally use three approaches

Construction of a Budget Presentation

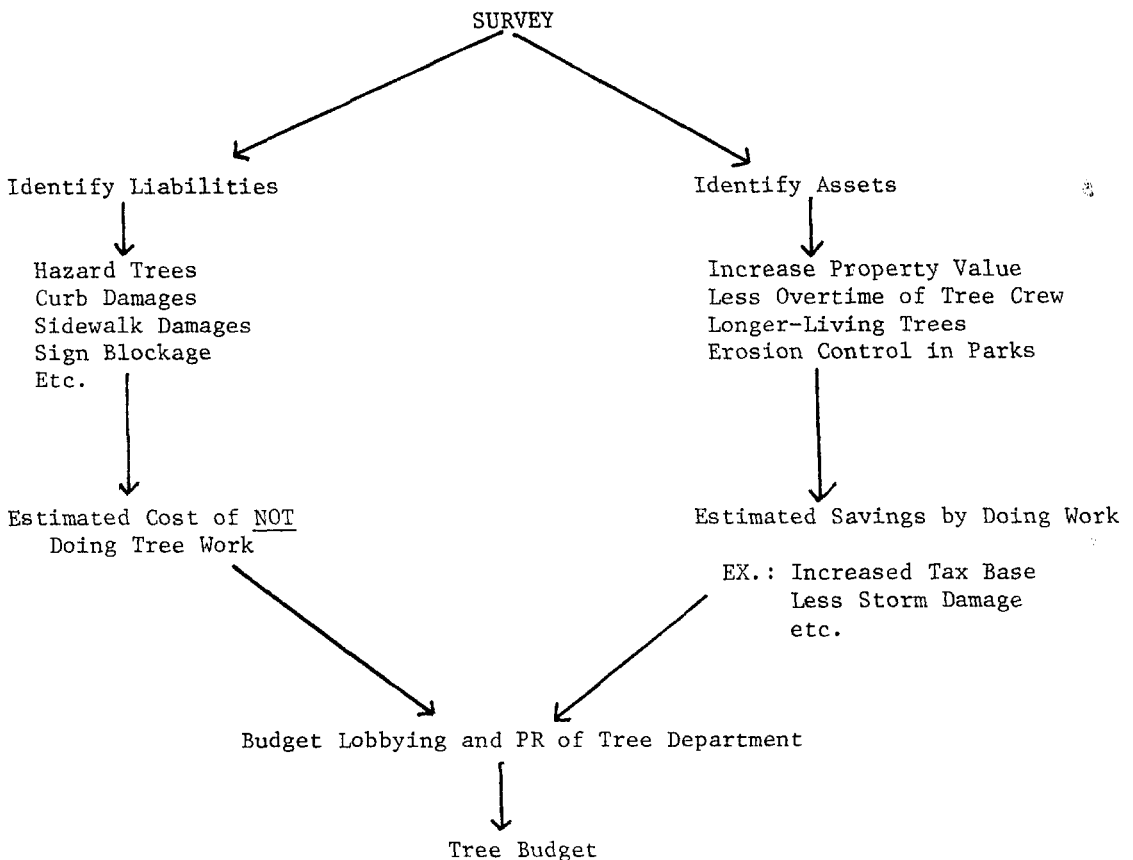


Figure 4. A tree budget for the '80s cannot be emotional, but must be practical. The bottom line in municipalities is now economics.

in seeking their budget:

1. Aesthetic/Historic approach
People like trees and we have always funded the tree budget
2. Environmental approach
This was used extensively in the '60s — pointing out the ecological benefits of trees
3. Economic/Practical approach
Increased tax base, safety.

While the first and second methods may have worked in the past, their efficiency in times of tightening budgets is questionable. A two-pronged approach is suggested consisting of outlining the city's tree assets and liabilities (Figure 4).

The first step in construction of a budget proposal is to know what you have. A survey of your city's trees listing both their assets and sites of potential problems must be recorded. You may wish to compare two similar neighborhoods — one with trees and the other without. Then evaluate the tax records. You should be able to show an increased tax base for the one with trees. Local governments are now evaluating the condition of infrastructure, making repair versus replacement decisions and choosing among competing alternatives (4). The municipal arborist must be part of this decision process.

Lastly, and most importantly, the survey results and budgeting request must be accompanied by

good public relations — good PR with both the persons making the budget decisions and good PR with the citizens. Show the city what you are doing and what you are trying to do.

In the decade of ever-shrinking budgets you as a public official have to sell your program; only by doing this will you be able to keep your cities green and healthy.

Literature Cited

1. DeChillo, S. 1984. Con Ed tests a pruning battle tactic. *N.Y. Times* June 3.
2. Dichter, E. 1976. *Use of plants as a communication vehicle*. *J. Arboric.* 2(6): 119-120.
3. French, P., Ryan, H.D., Diamond, M., Decesare, R., and Jerant, A. 1983. *Analysis of Forestry Operations*. Department of Parks, N.Y.C.
4. Hatry, H. 1981. *Maintaining the Existing Infrastructure: Current State-of-the-Art and Practice of Local Government Planning*. IB/81-904. Public Technology, Inc., Washington, D.C.
5. Lederer, R. 1983. *Plants: an answer to urban blight*. *ALI* 10(1): 6-10.
6. Payne, B. Trees could make a difference in the selling price of your home. U.S. Forest Service, North Eastern Forest Experiment Station, *Forestry Science Photo Story #26*.

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ABSTRACT

ORANS, M. 1984. **Trees that tolerate smog**. *Am. Nurseryman* 159(9): 111-113.

Smog and stress caused by carbon monoxide from motor vehicles can take a heavy toll on plants, particularly along streets and in parking lots. Yet an alert nurseryman should be able to find a few varieties in any locale that show superior resistance to these problems. Over the years, I have often noticed that certain plants appear to flourish in a diversity of growing conditions, despite attacks from man-made and natural enemies, while others go down or barely survive. Yet some of these stalwarts are not used broadly, especially where they might be most appropriate — new developments with population increases in what were rural areas. Among my selections are species of *Laburnum*, *Pyrus*, *Cryptomeria*, and *Metasequoia*.