

JOURNAL OF ARBORICULTURE

October 1983
Vol. 9, No. 10

PRIVATE SECTOR BUSINESS ANALOGIES APPLIED IN URBAN FORESTRY

by Bailey Hudson

Abstract. In these times of economic instability public budgeting has become a challenging task for all levels of government. For the urban forest budget the competition for the tax dollar is extremely intense. To survive politically the urban forest manager must become more effective in the preparation of fiscal budget requests and develop more of a business posture in their operations. The coming years will demand a blending of entrepreneurial skills with eclectic management of the urban forest.

It is not within the scope of this paper to identify all aspects of sound fiscal management. The focus here is a brief overview of private sector business analogies which could be applied in a government setting. Also reviewed is the relationship of business concepts to justification of fiscal budget requests. Consideration for local government being the proper authority to administer and maintain urban forests was introduced before the turn of the century. Now as we approach the end of this century, many public agencies are abandoning the care of their urban forests. Some cities are looking to contract services for economic relief, and others are causing adjoining property owners to become responsible for tree maintenance. Urban forest managers are being forced to develop volunteer maintenance programs and in many cities urban trees are not being replaced. Fiscal resources are diminishing and urban forestry budgets are being slashed. This uncertain situation is probably forcing a whole new array of policy and budget questions.

In addition to current fiscal constraints, and without addressing the problems associated with the variety of civil service systems, there appears to be two major problems related to the financial

dilemma of the urban forests:

1. Most governmental agencies cannot compete with the efficiency and cost of the private tree contractor.
2. Many urban forest managers are having problems justifying in a budget format their requests for additional personnel, equipment and material.

Applying Private Sector Business Concepts

First we must all recognize that as managers of the urban forests we operate a business without the profit motive. Further, government is business whether we will admit it or not! We must pretend away the concept of serving the taxpayer and think more in terms of serving clients or a person who is engaging the professional services of another. It is important to consider that government and the private contractor produce the same type of service, with like equipment, personnel and method. A major distinction in these business systems is the private contractor is totally aware of his operational and overhead costs. In most cases cities cannot or will not identify those costs.

Currently there is a tremendous amount of political pressure throughout the country to contract for urban tree maintenance. Many urban forest managers have succumbed to this pressure simply because they had not identified their own costs. If a city is self insured and utilizes a motor pool system for motorized equipment, chances are that in-house costs will be competitive with the private contractor. Being self insured allows the agency to group tree workers with the other laboring classes which results in a significant reduction

in workers compensation rates. As an example, in California the private contractor is paying a minimum of \$27.00 per hundred dollars of tree worker salary to the workers compensation fund. This is a minimum figure which is adjusted in accordance with the contractors accident experience. Self insured cities may be as low as \$8.00 per hundred dollars of salary. The motor pool system offers another approach to economical operation. In this system the various agency operating divisions budget for and own their own equipment. A yearly rate for each item of equipment is established and budgeted in the division's equipment account. This rate includes fuel, maintenance and equipment replacement. As an example, a chain saw owned by the urban forestry division is budgeted 240 days per year or 100% use. The monthly rate is \$13/month or \$156/year and an average of \$.19 per hour. The saw has a predetermined life of eighteen months at which time a total of \$234 has been paid to the mechanical maintenance division of the city for fuel, maintenance and replacement. Other equipment such as wench trucks, skiploaders and tractors are owned by the mechanical maintenance division and are rented on an as needed basis by other operating divisions. The motor pool system is an excellent, cost effective method of managing government equipment. This system can offer a substantial savings to operating divisions, which will allow them to be more competitive with the private sector.

Analyzing Internal Operational Costs

Many will argue that the absence of a clear-cut measure of profit and loss is a partial explanation of why an urban forestry department cannot incorporate private business concepts in their operation. Another problem may be that the educational and training background of the urban forester did not equip him with the skills to conceptualize "time is money."

Regardless of whether or not urban forestry departments can be competitive with the private sector, identification of all costs is a prerequisite to the development of economical operations. The following are relevant organizational costs which for accounting purposes should be computed into dollars and cents:

1. Overhead
 - a. Management
 - b. Rent and Utilities
 - c. Motorized Equipment
 - d. Hand Tools
 - e. Material
 - f. Training
 - g. Uniforms
 - h. Workers Compensation
 - i. Marketing and Advertisement

2. Fringe Benefits
 - a. Health Insurance
 - b. Life Insurance
 - c. Retirement
 - d. Dental Insurance
 - e. Long Term Disability Insurance
 - f. Vacation Hours
 - g. Paid Holidays
 - h. Sick Leave

Once all costs are understood it may be appropriate to bid on your own tree maintenance contracts. This exercise may prove to be a rude awakening or demonstrate that in-house costs approximate that of the private contractors. Another approach analogous to the private sector is to require crew leaders to bid on work schedules. This experience encourages "time is money" thinking among field personnel and gives them an opportunity to measure themselves against predetermined time allowances.

The use of daily operation reports which indicate labor and equipment hours, units serviced and other pertinent data, are also a valuable management tool. These reports also provide another method for measuring the relative costs between government and private contractor operations. This also points out that the use of daily operation reports are a necessity in government management the same as they are in private enterprise.

Marketing Urban Forestry Services

In view of current fiscal constraints the urban forester would do well to practice an adage from private business, "good marketing is important when times are good, and essential when times are hard." A well maintained urban forest may be viewed analogously to a retail display. This is

much the same as attracting potential customers to the point of sale. Urban forestry marketing may be described as those activities which generate interest, understanding and benefits of the urban forest for the service user or client. There are a variety of marketing methods which include:

- a. Arbor Day Ceremonies
- b. Radio and T.V. Talk Shows
- c. Speaking to Local Civic Groups
- d. Newspaper Articles
- e. Heritage Tree Programs
- f. Speaking in Public Schools
- g. Conducting Service User Surveys
- h. Responding Quickly to Complaints
- i. Projecting a Good Image
- j. Urban Forestry Brochures

Some urban forest managers will probably argue that these marketing techniques are simply public relations programs. Regardless of the interpretation, well marketed and publicized urban forestry programs translate into increased revenues and generate support from the decision makers.

Organizational Structure Problems

Most urban forestry departments are prototypes of the classical Weberian organization model or the line and staff type of organization. This vertical type of organization operates within the context of rules and with emphasis upon the size of the department and the type of civil service system. This vertical organization model may also have a negative effect on operational analysis and budget decisions.

Some general characteristics of the vertical structure are as follows:

- a. Provides for formal lines of communication both upward and downward.
- b. Facilitates the control of resources and activities.
- c. Allows for the collection of unitized operational data.
- d. Controls the behavior of employees.
- e. Facilitates the division of labor.
- f. Encourages internal organizational analysis.

While this structure serves several purposes very well, it is somewhat restrictive and tends to create tunnel vision. Therefore it is appropriate that this structure be examined in terms of what it does not do (Figure 1).

- a. Does not encourage planning and analysis outside of the organization to determine service user needs.
- b. Does not identify where labor and other resources should be tapped across organizational lines for major in-house projects.
- c. Does not reflect public benefits.

This is not to suggest that we all design a new organizational structure. The point is that private sector organization is characterized by the profit motive which requires both internal operational analysis and external market analysis (Figure 2).

As demonstrated by Figure 2, urban forestry departments should relate their external program concerns to public needs and benefits. This horizontal structure provides for a more realistic analysis of urban forestry services in terms of the

TYPICAL LINE AND STAFF URBAN FORESTRY DEPARTMENT
 Note: Provides for internal organizational and external environment analysis. "No organization exists to exclusively serve itself; it serves some client external to itself."

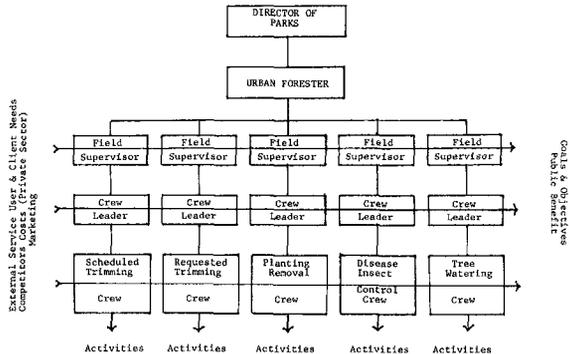


Figure 1

Figure 1

TYPICAL LINE AND STAFF URBAN FORESTRY DEPARTMENT
 Note: Provides for internal organizational analysis only. Appears to be a self-serving organization.

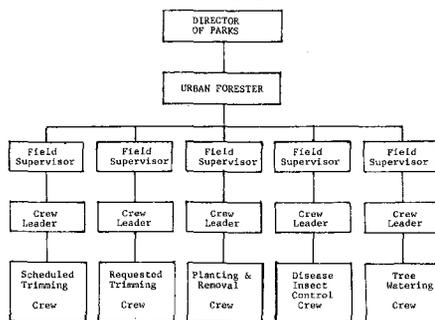


Figure 2

Figure 2

recipient of those services. Horizontal analysis does not replace internal organizational concerns. It is intended to complement the vertical structure by addressing both external client and internal organizational needs.

Government budgeting usually involves making some inference about causal relationships between what government is doing or buying and what is happening to the urban forest. Internal organizational analysis and a comprehensive external environment analysis provide a means to evaluate the relationship between the urban forest, client, and government. This type of assessment will yield information necessary for meaningful budget decisions which are vital to the continued funding and support for any urban forestry program.

Justifying Budget Requests

The day and age of requesting additional personnel, equipment and material on the basis of convenience or amenities is gone forever. These words have been substituted with more tangible terminology such as justification, cost benefit and cost effective.

Measuring anticipated workloads by time guidelines, equipment and labor costs produces the anticipated costs for job accomplishment. A budget development in this manner has more significance than one developed solely on historical data. This is not to say that historical data are useless. It can be extremely valuable in justifying budget requests. However, historical information does not generally reflect what should be accomplished.

Current management needs that are produced from an urban forest inventory are also invaluable in the development of realistic budget requests. The inventory provides documented information that is market and client oriented, relates to external organizational needs, and identifies maintenance time which translates into money.

Capturing "Time is Money" In a Budget Format. (Figures 3 and 4)

Statement of problem/public need/opportunity. Include a brief summary of the need for the project, additional personnel or equipment, and how that need has developed. Was the need

Figure 3

Explanation of Proposed Capital Outlay
 Economic Analysis: Request \$7000 For: Mini Pickup Truck
 Analysis Method Check x Cost Benefit Cost Effective
 1983-84 Fiscal Year

Prog. Key	Department	Urban Forestry	Activity	Street Trees	Acct.No.	08-50
Statement of Problem/Public Need/Opportunity						
Problem: Time and money is being lost for lack of adequate transportation.						
Public Need: To improve the level of maintenance services for the service users.						
Opportunity: To reduce operating costs with the purchase of an additional pickup truck.						
Facts (Existing)						
1. A documented time study this past year indicates that a total of 500 labor hours were lost for lack of adequate transportation.						
2. A three (3) worker Requested Tree Service crew was forced to respond to 152 crisis calls which could have been serviced with one (1) worker and a pickup. These citizen calls involved cracked or broken limbs and small limbs obstructing stop signs.						
3. The 500 hours of wasted time is valued at \$8710. (Tree Trimmer III @ \$17.42/hour x 500 hours = \$8710. Includes fringe benefits and overhead.						
Assumptions (Proposed):						
1. If the 500 hours can be recovered, this time may be redirected to the Scheduled Trimming Service crew.						
2. The recovered hours may improve the level of maintenance services.						
3. The new vehicle may also be used as a backup vehicle when other pickups are being serviced.						
4. Some service user calls represent a potential for public liabilities.						
Forecasts (Negative):						
1. A total of \$8710 in labor time will continue to be lost each year unless the pickup is granted.						
Forecasts (Positive):						
1. Public relations will improve. We have received many calls from service users who have observed wasted crew time.						
2. The level of maintenance services will improve.						
3. Our concern for public liability will be reduced.						

Figure 3

Figure 4

Alternatives:

- Rent a pickup from a private rental company.
- Reschedule work to eliminate wasted time.
- Purchase pickup.

Analysis and/or Comparison of Alternatives:

(Analysis should express cost benefits and cost effectiveness in ratios. Ratios must measure to the extent to which returns exceed costs or vice versa and/or the surplus of benefits over costs).

- Private rental services have quoted an average daily rental rate of \$30 per day plus fuel. The city mechanical maintenance division has quoted an annual rental rate of \$3816/year or \$15.90 per day for a mini pickup. (Rental ratio 2:1). Rentals are not cost benefit.
- Our current workload does not allow for rescheduling. Ninety percent of our labor hours are expended on crisis tree calls. Considering overtime for the 500 hours of one (1) worker calls would amount to \$13,065. (Tree Trimmer III @ \$26.13/hour (o.t.) x 500 hours = \$13,065). New truck cost \$7000 plus city rental rate of \$3816 = \$10,816 (first year comparison). Overtime is not cost benefit.
- Purchase new pickup.
 The pickup is projected for a 5-year life. Including the initial investment of \$7000, operational and replacement costs of \$3816 per year, a total of \$26,080 will be expended on this unit. Without the pickup a total of \$8710 per year will continue to be lost in labor time. Five years represents a total labor loss of \$43,550. For an investment of \$26,080 the city will receive a return of \$43,550 in productive labor time. The return exceeds the cost and the purchase of the pickup is the best alternative.

Spillover Costs: Mechanical Maintenance Division

Figure 4

caused by an expanded tree inventory, a new law, court decision, loss of time, lack of equipment or personnel; what precisely is the problem, etc. Statements should be brief and eye-catching. These statements should generally describe what's going on rather than what's happening to the environment you are serving. Think in terms of what you are producing for the client you are serving (taxpayer). These statements should be client-oriented and relate to needs outside of the immediate organization.

A. Example: Problem Statements

1. Lack of personnel has forced the forestry division into a false economy situation.
2. Lack of equipment has forced the forestry division into a false economy situation.
3. There is an even aged stand of mulberry trees along Main Street which represents a potential public liability problem.

B. Example: Public Need Statements

1. Improve the level of maintenance for service users.
2. To improve the aesthetic quality of the streetscape.
3. To economically maintain the urban forest.

C. Example: Opportunity Statements

1. Reduce operating costs.
2. Grant money is available.
3. Improve organization of work tasks.

D. Facts: Example Statements

List all facts which pertain to the request: increased volume of work activity to support a new personnel or equipment request; historical maintenance data to support tree removal and replacement, etc. Facts are best communicated with numerical data which eliminate or reduce the need for assumptions and beliefs.

1. An additional 5000 new trees were added to the public tree inventory this past calendar year (per daily operations reports).
2. A total of 5000 labor hours were expended on requested tree services this past calendar year (per daily operations reports).
3. A total of 500 labor hours were lost this calendar year for lack of transportation (this was a documented study).
4. These labor hours are valued at \$9000 (tree trimmer I) @ \$18/hour × 500 hours =

\$9000. Includes fringe benefits and overhead costs).

E. Assumptions: Example Statements

Separate assumptions and beliefs from facts and list separately.

1. The removal and replacement of the mulberry trees on Main Street *may* reduce the potential for public liabilities.

F. Forecasts: Example Statements

Develop projections based on the facts and assumptions as to what changes will occur this year and in the future to support your request. Include negative forecasts which indicate what will happen should the request be denied, and positive forecasts which indicate what will happen should the request be granted.

1. Negative: (See items 3 and 4 under Facts) Should this request for additional transportation be denied, a total of \$9000 in labor costs will continue to be lost each year.
2. Positive: (See items 3 and 4 under Facts) Should this request for additional transportation be approved, a total of \$9000 in labor costs will be recovered each year.

G. Alternatives

1. List all reasonable methods and alternatives for dealing with the problem or need, including the proposal that is being made.

H. Analysis and/or Comparison of Alternatives

1. *Cost Benefit* analysis measures budget requests in monetary form. Therefore allow for the development of ratios or other measures of the extent to which returns exceed costs or vice versa.

When the ratio of benefits to costs of a request is 1:1, costs are equal to benefits or a break even situation. As the ratio increases the benefits accruing have increased. For example, if the purchase of a new truck which costs \$5000 saves \$10,000 of labor time, the ratio would be 2:1. Obviously the return exceeds the cost and the new truck is a good investment.

2. *Cost Effectiveness* measures outcomes in a quantitative but not monetary form. Budget requests which are difficult to define or measure in strict terms of dollars and cents are analyzed costs effectively. This analysis involves identifying the greatest surplus of

benefits over costs. In urban forestry we often use the words amenity and aesthetics. These are emotional words which cause difficulty in the assignment of dollars and cents values. For example, a new tree planting project should be evaluated cost effectively or in terms of benefit surplus. Benefit from trees such as sensory, psychological, social, cultural, economic and engineering, are for the most part non-monetary although these dimensions obviously generate a surplus of benefits over costs.

For the most part, cost benefit and cost effective are identical forms of economic analysis. Both approaches attempt to assess desirable alternatives. Both can examine the aspects of short and long run costs and benefits. Dual use of cost effective and cost benefit analysis is often appropriate and is nearly a pure rationality approach in decision making.

I. Spillover Costs: Other Departments or Divisions; Other Budget Accounts; External Public Costs

1. Other Departments or Divisions

Additional personnel will affect the personnel office or the clerical staff in terms of record keeping and related functions.

New equipment will affect the mechanical maintenance division.

2. Other Budget Accounts

Consider insurance, fringe benefits, new tools, uniforms, and other budget accounts affected by new employee requests.

3. External Public Costs

Public trees which may be causing damage to private improvements.

Identify all direct and indirect costs related to

the request. While this analysis appears to be cumbersome and time consuming, it leaves very little to question from the decision makers. It also points out the value of cost accounting and the necessity for a "time is money" approach in government budgeting.

In summary, I submit that urban forestry faces an era in which it will survive only if we involve people and people problems in our operations. At this time the only legitimate purpose of urban forestry is to improve the places where we live, work, play and die. This purpose to enhance public health and welfare is certainly worthwhile and generally accepted. However, it seems that we continue to pursue programs to control the effects of people on the environment and have done little with the effects of environment on people. Therefore it is essential that we recast our individual interpretations of urban forestry to more appropriately include the social, psychological, cultural and economic effects of our social forests on people. Our mission requires that we develop a clear penetrating picture of urban forestry benefits and interpret these benefits to our urban audiences. Further, we must become government leaders who are noted for developing sound economic decisions and managers who care to abandon antiquated approaches to government management. Viewed in this light, urban forestry will evolve into a better formed vehicle to satisfy fundamental human needs and values.

*Park Superintendent
Recreation and Parks Department
City of Santa Maria
Santa Maria, CA*