

Trees as Capital Assets

By Dudley R. Hartel

Urban forest managers are continuously seeking support for their work to maintain a healthy, productive urban forest. In the past, we have used modeling tools to calculate the value of benefits in an attempt to leverage this information into support for our programs. There is an accounting practice available that may provide an opportunity to incorporate the value of urban forestry benefits more effectively into our programs. Urban foresters have been discussing the idea of “green infrastructure” for many years and have attempted to enumerate the economic value of trees with the goal of improving our local programs. This increased attention and investment should result in an increase in the resource (e.g. more canopy) and/or improved resource capacity (e.g. healthier canopy with increased leaf area) to provide additional benefits.

In addition to valuing nature by calculating the equivalent cost of engineered facilities, other approaches have been tried in an effort to move ‘green infrastructure’ into the mainstream with the objective of more permanent and consistent funding.

In 2000, Bailey Hudson reported his attempts to introduce the idea of the “Biogenic Public Utility” in California¹. That is, the services provided by trees such as cooling, clean air, flood control, or carbon sequestration would be taxable either directly or through other agencies (e.g. a local Flood Control District for stormwater retention). The tax would provide the necessary budget for maintaining and improving the “utility’s” productive capacity.

In Brookline, Massachusetts, the urban forestry budget is a component of the town’s Capital Improvements Program². A capital budget or program is defined as a plan to finance long-term outlays, or fixed assets like facilities and equipment. Capital budgets are often used to fund construction and repairs for the infrastructure of the city - the sewers, bridges, roads, subway lines, and wires and cables that keep a city running. Capital budgets can be funded by a variety of sources, but unlike an operating budget, which is funded largely by taxpayer money, most of the money for the capital budget comes from debt, usually through the sale of bonds. This debt must be repaid over decades to come. The rationale for using debt to pay for capital projects is that future generations will use and benefit from them, and so they should pay part of the bill. By placing their urban forestry budget into the capital programs, Brookline has been able to move their ‘green infrastructure’ onto more equal footing with the town’s gray infrastructure.

Another accounting opportunity for green infrastructure

The desire to treat the urban forest as functioning infrastructure is understandable. We manage a resource that provides direct benefits to the community and often our budgets to manage that resource are limited. In 1999, the Government Accounting Standards Board (GASB) placed new accounting standards for local governments into affect. Statement 34, hence GASB 34, deals with accounting practices for infrastructure and capital investments.

State and local governments have traditionally reported their infrastructure assets (roads, bridges, dams, vehicles, etc.) according to the cash accounting method. But according to the new financial reporting requirements, governments must begin to report such assets using accrual accounting methods. These methods are similar to those used in the private sector and take into account the monetary value of assets throughout their life spans by factoring in depreciation and capital expenses (improvements) in the same way a business would account for the value of the buildings and machinery it owns. Government agencies will now more accurately reflect expenditures made on assets, monitor maintenance, and report the full cost of providing government services to help analyze their financial performance with a more private-sector-like accountability.

Urban forestry and GASB 34

There may be several potential benefits to urban forestry programs in our communities if included in a GASB 34 implementation. First, an urban forestry program may enjoy a more favorable position in the local budget process if recognized and treated as an asset. And secondly, under one GASB 34 approach, there is a requirement for maintaining the asset in a specified condition, and inventorying the asset on a regular basis. In either case this process can result in higher levels of management for our urban forests.

The Center for Neighborhood Technology provides an additional scenario related to bond ratings³. As the result of new regulations by GASB, many local governments have had to inventory and report on their public

infrastructure assets – such as bridges, road and storm water systems. These new reporting standards are designed to prevent debt to finance expansion of assets while maintenance of existing systems is under funded. But the requirement also presents opportunities. Those municipalities that can show that they have unusually valuable natural infrastructure (e.g. a wetland or healthy watershed) may be able to achieve higher bond ratings.

When an infrastructure asset (e.g. a bridge) is installed, its capital asset value will be listed as the cost (e.g. \$10,000,000). If the bridge has a 20-year life and is depreciated evenly (i.e. straight line depreciation) throughout its life, the asset value at the end of the first year will be \$9,500,000. At the end of year 10, the value is \$5,000,000. As the city maintains the bridge, capital expenses (e.g. maintaining piers, replacing structural components) would increase the asset value. So, a \$2,000,000 expense to improve the structural integrity of the bridge in year 10 would then place the asset value at \$7,000,000 (Value = cost – depreciation + capital expense).

Three difficulties are apparent when we extend this type of asset analogy to the urban forest. First, the cost of installing the green infrastructure is low (e.g. a 2" caliper tree installed in Atlanta, Georgia may cost \$380). Consequently, the asset value that is typically determined based on the cost of construction, is low. Secondly, our green infrastructure (even without maintenance, but in absence of destructive activities) will appreciate in value. For non-property assets, accounting systems depreciate assets and don't recognize appreciation in value unless there are capital expenses. Even with zero depreciation, the asset value of a tree could never exceed its establishment cost. And finally, if trees are considered as capital assets, tree maintenance may not be considered as capital expenses.

Environmental system value

Consequently, using this standard accounting methodology does not result in the "value" that urban forest managers usually envision. The true value of trees (and urban forests) is based on the environmental services that they provide. We frequently calculate this "value" with programs like UFORE or Citygreen®. At establishment, the environmental system "value" of a single 2 inch tree is low. Its value appreciates over time, as the tree provides shade, watershed protection, and air pollution services. By measuring trees periodically (e.g. determine canopy extent and leaf area index), we can calculate this appreciation in value.

A second GASB 34 approach

GASB has provided an alternative to the historic "cost, less depreciation" reporting method for infrastructure assets, called the "modified approach". Agencies utilizing comprehensive asset management programs – which include inventory, condition assessment, and predictive maintenance/repair/restoration/replacement components – will be allowed to report their expenses for maintaining and preserving infrastructure assets instead of depreciating those assets. Governments wishing to use this approach will be required to meet certain conditions and to disclose publicly the evidence demonstrating their compliance with the conditions. These include:

- Assess the physical condition of the infrastructure asset
- Described criteria the government uses to measure and report asset condition
- Identify the condition level at which the government intends to maintain the asset
- Compare the annual dollar amount required to maintain and preserve the asset with the actual expenses for the last five years

Fitting Trees into GASB 34

There are three ways that trees might fit into GASB 34:

1. As a capital asset (without depreciation, and no appreciation), but with capital expenses
2. Under the modified approach with requirements for inventory, condition goals and maintenance
3. Or, as "capitalizable" improvements to another infrastructure asset; e.g. the cost & maintenance of parking lot trees extends the useful life of the asset by shading the pavement, or riparian trees used to reduce sediment and extend the useful life of a reservoir

Of the three approaches listed, the third may hold the most promise with the least effort. This is an approach that Hudson suggests in his "Biogenic Public Utility" concept, and one that may capture some of the value generated by urban forests. Because our "green infrastructure" can support other infrastructure positively, we may be able to treat the urban forestry budget as capital expenses for other assets that easily fit within the GASB 34 framework. By elevating trees to this new supporting role, other government agencies, departments and elected officials would support urban forestry budgets since they will help maintain the condition of infrastructure that is required to be listed as an asset for GASB 34.

The second approach holds some promise, and eliminates the difficulty with “appreciating” assets. While the “value” of the public urban forest is not on the books, this approach requires an intense level of management and reporting to the elected officials and citizens. To elect this option, the government would be required to perform regular tree inventories at least every three years and disclose information on condition levels (ISA Guide to Plant Appraisal methodology), as well as anticipated and actual maintenance outlays.

In order to accomplish any of these, the urban forestry community must:

- Establish in everyone’s mind that trees are infrastructure and a capital asset not just amenities
- Demonstrate that tree care extends the useful life of a tree and can be considered a capital expense
- Pursue and resolve the depreciation/appreciation aspects of trees
- Continue to research and demonstrate that trees can extend the life of other assets
- Develop and formalize an asset management program for public urban forests that meets the standards required for GASB 34

Trees that have experienced GASB 34

Several communities responded to a recent URBNRNET¹ inquiry of GASB 34 implementation. Most cities reported on the problems they encounter with accountants that cannot conceive of asset appreciation! Honolulu is setting up an Asset Management Program to handle the management of trees⁵ within GASB 34’s modified approach.

Only one, Norfolk, Virginia, indicated that they had attained GASB implementation: Norfolk’s street tree population has been included in the City’s GASB 34 valuation for the past two years. Since this valuation method is based on the deflated installed value over the average life of trees in the population, a \$100 million tree resource makes a very modest GASB 34 contribution of only \$11,000 to Norfolk’s infrastructure⁴.

Conclusions

Listing trees as assets based on current accounting concepts does not result in a “value” commensurate with their true worth. However, there are at least two opportunities for the treatment of trees and other urban forest resources as capital assets under GASB 34. Opportunities exist for trees to be valued in support of other community infrastructure or managed intensively as an asset without considering depreciation. Under either scenario, continued research and the implementation of those research results in the field are needed to support the concept of urban forests as productive assets.

Sources

¹Is the Urban Forest a Natural Resource Public Utility? September 2000. Hudson, Bailey O. Final Report, USDA Forest Service Grant No: G-5-98-20-076, Vallejo, CA 94591-7009

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³Visioning and Empowerment in Small Watersheds. August 2000. Center for Neighborhood Technology. Chicago, Illinois.

⁴David B. Sivyver, City Forester, Parks & Urban Forestry via e-mail

⁵Larry E. Smith, Certified Arborist, personal communication; larry@lesmithconsulting.com

This article is from Dudley's talk at the 2003 National Urban Forest Conference, San Antonio, TX September 17, 2003 and subsequent discussions with Larry Smith, SMA member of Lake Balboa, California. Dudley R. Hartel is the Technology Transfer Specialist at the Southern Center for Urban Forestry Research & Information, Southern Research Station, RWU 4901, USDA Forest Service, Athens, Georgia, a member of the SMA and a Certified Arborist. The following individuals provided reviews for this article: Ken Cordell, Mike Bowker, and Ed Macie (all USDA FS).

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The author would like to know of your local experiences with GASB 34 or Capital Budgets.

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¹ Urban Natural Resources Network; A mailing list designed to provide list users with a forum to discuss issues related to urban and community forestry. [HTTP://WWW.TREELINK.ORG/DOCS/URBNRNET.PHTML](http://www.treelink.org/docs/URBNRNET.PHTML).