

# FINAL REPORT

## FOREST SERVICE GRANT NO. WAUF-99-001

Period covered by this report: September 22, 1999 through September 30, 2004

*NOTE: Please review the following information and revise/complete as necessary.*

Issued to: University of Washington  
Address: College of Forest Resources, Box 352100, Seattle, WA 98195-2100

Congressional District Number: 7

Project Name: Nature's Assets: Public Perceptions of the Community Forest of Business Districts in Small Towns

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Your Organization's internet home page address: [www.cfr.washington.edu](http://www.cfr.washington.edu)  
Research Outreach: [www.cfr.washington.edu/research.envmind](http://www.cfr.washington.edu/research.envmind)

Date of Award: September 22, 1999

Grant Modifications: Mod. 1: No-cost time extension from December 31, 2002 to December 31, 2003.  
Mod. 2: No-cost time extension from December 31, 2003 to September 30, 2004.

Date of Expiration: September 30, 2004

Funding: Federal Share: \$84,000 plus Grantee Share: \$84,000 = Total Project: \$168,000

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Please provide an abstract on your project and its results. This abstract will be posted on the NUCFAC internet site. (approximately 200 words or less).

Merchants in central business districts of small cities strive to both retain and expand their customer base in the face of intense retail competition. Prior research has concluded that revitalizing business districts in large cities may use urban forest improvements to boost consumer perceptions and associated shopping behavior. This study demonstrated that streetscape trees also benefit retailers in small cities and towns (10-20,000 population). The study was based in the Pacific Northwest, but data was also collected from communities in states of the Midwest, Northeast and Southeast U.S. Respondents included small city residents, and residents of nearby large cities representing potential visitors to small cities. Using interviews and surveys, it was confirmed that trees in small city business districts contribute to higher visual quality, more favorable district perceptions (including merchants and products), enhanced patronage behavior, and higher willingness-to-pay for products. Business district visitors in small cities claim they are willing to pay 9 percent more for goods and services in business districts having a quality urban forest, compared to a 12 percent price margin reported by large city retail district visitors of prior research. The research expands the evidence about the positive role of trees in ALL retail environments.

## Project objectives:

The overarching goal of this project was to investigate the role of the urban forest in creating quality, vital business districts in small cities. This research project assessed public perceptions of community forest benefits and values from two perspectives - private enterprise *and* the people that support business (shoppers and tourists).

Both qualitative and quantitative methods were used to measure benefits and values in a comprehensive approach. The research was planned to be done in two phases. Phase I was a qualitative interview process intended to scope out an array of perceived costs and benefits of trees. Phase II was a written survey (distributed both regionally and nationally), using a standardized photoquestionnaire based upon the response themes of Phase I. Respondent sampling was to include local business district users of selected towns, and their prospective visitors or tourists in nearby large cities. In all phases established measurement techniques, of proven reliability and validity, were planned in order to evaluate the practical, specific benefits of trees in business districts of small communities.

Multiple strategies for technology transfer of the research results were planned, including scholarly publication, professional publication, fact sheets distribution and conference presentations.

## Objectives met successfully:

Phase I qualitative interviews commenced in spring 2000. Individual interviews were conducted within selected communities (10,000 to 20,000 population) of three Pacific Northwest states: Idaho (Jerome, Mountain Home), Oregon (La Grande, Hermiston) and Washington (Ellensburg, Moses Lake). Thirty-six interviews of business owners, business organizations staff and city staff were conducted.

Focus groups were conducted with each of the three PNW state U&CF Councils.

Based on content analysis of interviews and relevant research literature, a standardized survey was prepared for Phase II. The survey instrument included photo-rating and verbal item variables. Project collaborators assisted with questionnaire development, sampling and survey distribution. The surveys were distributed to two respondent groups: residents in the selected small towns (considered to be local consumers) and residents of large cities near the target communities (considered to be potential visitors/tourists).

Surveys were distributed in early 2004 within communities known to have a Main Street style central business district. Respondents were contacted in PNW communities (Washington, Idaho, Oregon), and cities of equivalent size and character in other regions of the United States: Arkansas, Nebraska, Georgia and Virginia. Communities were chosen based on U&CF professional networks, National Main Street participation, and National Scenic Byways participation.

Survey data was analyzed and interpreted. A draft results report became the basis for outreach and technology transfer. Results were submitted for scholarly publication, were reported in professional publications, and were summarized in technology transfer fact sheets (posted on the PI's research outreach web site). The results were also reported at numerous professional meetings and conferences.

## Objectives not met:

All objectives were met successfully.

List the major research or policy findings of your project.

Merchants of central business districts in small cities strive to both retain and expand their customer base in the face of intense retail competition. Prior research has concluded that revitalizing business districts in big cities may use urban forest improvements to boost consumer perceptions and associated shopping behavior. This study demonstrated that the same can be said for trees in downtown districts of small cities and towns! The research expands the evidence about the positive role of trees in ALL retail environments.

It was confirmed that trees in small town business districts contribute to higher visual quality, more favorable district perceptions (including merchants and products), enhanced patronage behavior, and higher willingness-to-pay for products. Business district visitors in small cities claim they are willing to pay 9 percent more for goods and services in business districts having a quality urban forest, compared to a 12 percent price margin reported by big city retail district visitors in prior research.

Positive response to retail districts is not associated with scattered or haphazard tree plantings within a district, but is correlated with depictions of districts having a mature, well-managed forest canopy. The research demonstrates that ongoing, comprehensive planning and management of the urban forest in consumer environments is necessary in order to attain economic benefits.

If not apparent in the above, or if your project did not involve research, how did the project increase the knowledge we have about urban forestry? How did (will) the public benefit?

Across the United States many small cities are working to create Main Street central business districts that both serve local needs and attract visitors.. Such retail environments primarily serve local residents, but can become destinations for urban travelers. An urban forest program can be a significant component of a downtown improvement and marketing campaign. While costs of other improvements, such as sanitation or parking, can be directly assessed it is more difficult to understand and communicate the economic returns of investing in trees. A community's challenge is to capitalize on their natural assets - including a well-planned, high quality community forest - to create vital, thriving business districts.

Resources are often limited for street and district improvements in business districts, yet a prior study of urban retail environments reveals that healthy, well-maintained trees positively influence consumer behavior in many ways. Can the same be said for small communities in more rural settings? This study explored similar issues, and confirms that investments in trees may provide many returns for small communities striving to invigorate their economic base.

What recommendations might you make for community foresters or others who might benefit from your project?

I'll repeat from the research findings - positive response to retail districts is not associated with scattered or haphazard tree plantings within a district, but is correlated with depictions of districts having a mature, well-managed forest canopy. The research demonstrates that ongoing, comprehensive planning and management of the urban forest in consumer environments is necessary in order to attain the greatest level of economic benefit.

Urban and community foresters are essential partners for business organizations that intend to create forest plans for retail districts. Early data collection for this project included interviews with business people. Not surprisingly, business stakeholders have little knowledge about the ongoing management needs of trees after planting. A business community also rarely has the capacity (such as technical knowledge, tools, equipment) to care for large trees, yet a quality urban forest containing large trees generates the most positive response from consumers.

Improved collaborations with business organizations and communities by urban foresters can promote better forest care in downtown business districts. More positive relationships with business people may also be politically favorable for local urban forest programs, as business associations often have significant political influence in small communities.

Attach copies of reports, publications, or videos. If your work has been published (journals, popular press, etc.), provide where they have been published or reported and how copies can be obtained.

See Appendix A for citations of publications, and all outreach and technology transfer efforts.

Newsletters and professional publications can be obtained from the sponsoring/publishing organizations. Scholarly publications can be accessed from libraries, on-line and from publishers. Where copyright permits, copies can also be downloaded from the research outreach web site. Fact sheets can be accessed indefinitely at the research outreach web site; hard copies will be sent free on request through December 2005.

A University of Washington sponsored research web site contains information about this and other studies regarding the human dimensions of urban and community forestry: [www.cfr.washington.edu/research.envmind](http://www.cfr.washington.edu/research.envmind)

How were the results disseminated to the public?

While this study was based in the Pacific NW, the outcomes have national significance. The research methodology produced results that are generalizable to small cities across the nation. Four major approaches were used to communicate results from the project.

- 1) Scholarly Publications — Manuscripts have been/will be submitted to academic journals and presented at conferences in the United States.
- 2) Research Fact Sheets - These hard copy and on-line documents succinctly report the outcomes of the research, providing copy for local publications, such as newspapers and newsletters.
- 3) Urban Forestry and Other Professional Publications - Results were published in the professional press of urban forestry and community planning organizations.
- 4) Outreach Presentations — Organizations and communities throughout the U.S. sponsored local presentations of the research outcomes.

What are the logical next steps or future directions of your project/research?

**Next steps for research: 1) Conduct a study of direct measures of economic outcomes in business districts having trees versus those that do not.** This research would further validate the results obtained from self-report surveys, used in studies to date on trees and business. Measures might include patron travel time and distance, visit frequency and duration, product pricing (in-shop tallies?) and district revenues (sales tax?). **2) Evaluate the effect of trees on big box retailer economics.** Retail in many U.S. communities is now focused in areas of malls and big box retail stores. Associated large parking areas having few or no trees have serious environmental and community image implications. An economic assessment of tree benefits in this retail sector may convince major retailers of the need for trees.

**Next steps for technology transfer: 1) Publication addressing technical aspects of trees in business district streetscapes.** There are currently no good publications that speak to the needs of urban forest planning, planting and management in retail environments and are directed to the business audience. We know what needs to be done, but this information must be framed in the language and needs of business. **2) Video/DVD summary of trees and business research.** As PI on this and other similar studies, I get many more requests from all around the U.S. to speak about the research than I can fulfill. A high quality, digital presentation of the research, including a few case studies to visually reinforce the findings, would be a valuable and widely used technology transfer tool.

List the active partners (key individuals or organizations) involved in the project:

Project partners included professionals representing each of these types of organizations:

- 1) Small Community, Municipal Government — Lewiston, Idaho; La Grande, Oregon; Jerome, Idaho; Mountain Home, Idaho; Ellensburg, Washington; Moses Lake, Washington
- 2) Business Organizations: La Grande/Union County (OR) Chamber of Commerce; Mountain Home (ID) Chamber of Commerce; Elmore County (ID) Impact Steering Committee; Jerome (ID) Chamber of Commerce; Hermiston (OR) Chamber of Commerce; Ellensburg (WA) Chamber of Commerce, Forrest City (AR) Chamber of Commerce, Paragould (AR) Chamber of Commerce
- 3) Urban Forestry: University of Washington, Center for Urban Horticulture; Washington, Oregon, Idaho and Virginia states' Community and Urban Forestry Coordinators; Washington, Oregon, and Idaho states' Community and Urban Forestry Councils
- 4) Community Development: National Scenic Byways, National Main Street, Bron Cleveland Associates (Jessup, GA)

Photo or Illustration: If possible, please provide a photo or illustration for our use that summarizes or represents the project. Indicate how this illustration should be credited.

A CD containing images from the study is enclosed. Explanation of the images is found in the enclosed fact sheet. Credit should be given to Kathleen Wolf.

If a no-cost time extension was requested for this project, why was it needed?

No-cost extensions were requested and granted. Phase I of the project was on schedule. Phase II of the project fell behind schedule due to complications with project partnering and resulting match commitments.

Extensions were requested for two reasons. First, the principal investigator, Kathleen Wolf, was in Japan on sabbatical during the final months of the initial grant period, delaying completion of the Phase II survey work.

Secondly, distribution of outreach products was a significant component of partners' match. Additional time was needed to enable the distribution activities to occur.

How would you evaluate the grant process? What changes, if any, would you recommend?

The RFP is a clear and concise document that describes the intentions of the NUCFAC grants program well, and the specifics of how to apply. I have no recommendations for the RFP and initial review process.

Comments considered of importance but not covered above:

Working with small communities to complete this project raised unexpected difficulties with regard to partnering and match. Few small communities have dedicated urban forestry staff, nor do their local business organizations have full time staff that can contribute to a major research effort such as this.

These circumstances made the match situation for this project difficult, and also speak to the feasibility of urban forestry efforts in small towns and cities. Another research project on trees and commerce in Athens, GA revealed that sustained, professional attention to the forest is needed to attain the higher level of benefits provided by several decades of canopy growth. This project raises the question of how well small communities are able to access/acquire the resources needed to steward the community forest to achieve greatest and ongoing economic benefits.

This report was prepared by:

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Title: Research Assistant Professor

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Date: January 14, 2005

## Appendix A: Research Outreach and Technology Transfer

### Scholarly Publications:

Wolf, K. L. 2002. Human Dimensions of the Urban Forest in Small City Business Settings. In SAF (ed.), *Forestry at the Gre Divide: Proceedings of the 2001 National Conference*. Washington D.C.: Society of American Foresters.

Wolf, K. L. 2003. Retail and Urban Nature: Creating a Consumer Habitat. *Population and Environmental Psychology Bulletin* 29 (1 ): 1-6 (reprint of People/Plant Symposium proceedings, Amsterdam).

Wolf, K. L. (submitted). Trees In the Small City Retail Business District: Comparing Resident and Visitor Perceptions. *Journal of Forestry*.

### Research Fact Sheets:

*Trees in Small City Business Districts: Comparing Resident and Visitor Response* - Fact Sheet 16. College of Forest Resources, University of Washington.

*Trees on Main Street: Influences on Retail and Shopping Behavior* - Fact Sheet 17. College of Forest Resources, University of Washington.

### Urban Forestry and Other Professional Publications:

This is a sample of newsletter and general audience articles. Due to the on-line availability of research outreach materials, it is likely that more organizations from around the U.S. are accessing the research information, but it is difficult to track all publications containing information about the project.

Los Angeles Green Corridors Tree Planting 2003-4 In: City of Los Angeles Environmental Affairs Department Informational Flyer.

Trees in Business Districts: Why Such a Tough Sell? In: California Trees, Quarterly Publication of California Releaf and National Tree Trust, Spring 2004.

Merchants — Take Note! In: Idaho Community Trees, Autumn 2004.

Trees in Business Districts: Positive Effects on Consumer Behavior. In: From the Ground Up: Conservation for the High Desert Gardener, Fall/Winter 2004.

Merchants — Take Note! In: Pacific Northwest Trees, Newsletter of the PNW ISA Chapter, Winter 2004/2005.

### Outreach Presentations (\* denotes keynote address):

#### Pacific Northwest Region Events

\*2003. *Communicating the Benefits of Trees*. Community Trees Management Institute (Port Townsend, WA).

\*2003. *Social and Economic Values of Urban Landscapes*. City of Seattle Pesticide Recertification Seminar (Seattle, WA).

\*2003. *The Power of Trees: Human Dimensions Research*. International Society of Arboriculture, Pacific Northwest Annual Training Conference (Bend, OR).

2003. *Communicating the Value of Streetscapes: Trees and Consumers Research*. International Society of Arboriculture, Pacific Northwest Annual Training Conference (Bend, OR).

2003. *Trees Pay Us Back: Research on Urban Forests*. The Sustainability Forum: Lead the Change, Sustainable Northwest & World Forestry Center (Portland, OR).

2003. *Trees and Consumer Environments: Economic Benefits of the Community Forest*. City of Colville Chamber of Commerce (Colville, WA).

\*2002. *Valuing the Urban Forest*. Pacific Northwest Community Trees Conference (Boise, Idaho).

\*2002. *The Human Benefits of the Urban Forest*. Developing Green Infrastructure, Oregon 2002 Urban Forestry Summit (Wilsonville, OR).

2002. *The Economic Value of Trees*. Idaho Horticulture Expo (Boise, Idaho).

2002. *Urban Forestry Benefits in Small Towns and Cities*. Washington State Society of American Foresters - Annual Meeting (Snoqualmie, WA).

2001. *Trees Make Good Cities Better! The Benefits of Green Space in Our Cities and Towns*. Citizens and Cities: Conversation, Collaboration, Creativity, Association of Washington Cities Annual Conference (Bellevue, WA).

### **National & International Events**

2004. *Creating Better Consumer Environments with Trees: Research and Design*. Trees Mean Business, 16' Annual Conference on Urban and Community Forestry in Connecticut (New Haven, CT).

2004. *Trees Mean Business: Designing Green Commercial Districts*. Pennsylvania State University Cooperative Extension Community Workshop (Wilkes-Barre, PA).

2004. *Trees are Good for Business: A Research Review*. The Changing Landscape of Urban Forestry: California Urban Forest Conference (Rohnert Park, CA).

2004. *Human Dimensions of Urban Forestry and Urban Greening*. Saving Towns at Risk Symposium, Alabama Cooperative Extension System.

2004. *Economic Benefits of Trees*. Branching Out - Tree Care Beyond the Canopy: Wisconsin Arborist Association and WI-DNR Urban Forestry Annual Conference (Green Bay, WI).

2004. *Trees and Business*. 18' Annual Texas Tree Conference (Round Rock, TX).

2004. *Trees Are Good for Business! A Research and Design Review*. Planning & Planting: Integrating Urban and Community Forestry in Planning, Joint Conference of the South Carolina Chapter of the American Planning Association and the South Carolina Urbana and Community Forestry Council (Hilton Head, S.C.).

\*2004. *What Could We Lose? Economic Value of the Urban Forest, Intangible and Tangible Benefits*. 6<sup>th</sup> Canadian Urban Forest Conference (Kelowna, British Columbia).

\*2003. *Retail and Urban Nature*. Urban Tree Environments: South Carolina Urban and Community Forestry Annual Conference (Rock Hill, SC).

\*2003. *Trees Pay Us Back! A Review of Economic Benefits Research, Nature and Consumer Response*. International Society of Arboriculture Southern Chapter Conference (Asheville, North Carolina).

2003. *Economic Benefits of Open Space*. National Conference of the National Association for Olmsted Parks (Seattle, WA).

\*2002. *Trees and Consumers: Research on the Retail Urban Forest*. Waynesboro (VA) Plant Health Care for Urban Trees Conference (Waynesboro, VA).

2002. *Retail and Urban Nature: Creating a Consumer Habitat*. Symposium on Reducing Health Complaints at Work. Plant/People Council, Amsterdam, Netherlands.

2002. *The Influence of Trees on Local Economics*. Second Annual Tree School, Friends of Jefferson the Beautiful (New Orleans, LA).

2002. *Current Research on Trees and Consumers*. Quarterly Meeting, Athens Community Tree Council (Athens, GA).

2001. *Nature and Commerce: Survey Research Results and Conclusions*. A Decade of Progress in Our Community Forests: 10th Annual Pennsylvania Community Forestry Conference. Pennsylvania State University (State College, PA).

2001. *The Ribbon Across the Landscape*. America's Byways: Celebrating the Journey. National Scenic Byways Conference (Portland, OR).