

Public Knowledge of Urban Forest Benefits and Values in Commercial and Retail Environments

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Abstract

Urban forests provide multiple environmental and quality of life benefits for city residents. More information is needed about public preferences and perceptions regarding the benefits and costs of trees in particular urban settings. This research will be designed to elicit survey response from business owners and shoppers regarding the benefits and values of urban forests in retail districts. The project will be first carried out in the Pacific Northwest region, and then expanded nationally. Partners in the project will be government urban forestry agencies, as well as Business Improvement Associations that represent multicultural commerce districts undergoing economic revitalization efforts. The objectives of the survey are: 1) to compare and assess ethnic and cultural variations in response to different urban forest landscapes, 2) to evaluate the knowledge of business owners about the costs and benefits of urban forest plantings, 3) to determine the influence of the urban forest on retail district visitors' behavior, and 4) to develop a survey instrument that can be adapted for use by business associations for future urban forest social assessments. Research results will be reported to business and commerce organizations, as well as to urban forestry professionals and managers.

Purpose of Project

Many communities in the nation's cities are initiating business district revitalization projects. Two of the project partners represent multicultural communities that have begun such programs. Resources are limited for street improvements. This research project will assess the level of public knowledge about urban forest benefits and values, and will do so from two perspectives - private enterprise and the people that support business owners - shoppers and tourists. The results of the project will provide many returns! Members of the business community will better understand the public's appreciation for trees and the affect of the presence of trees on business revenues. This will help business owners to make better investment decisions concerning trees and vegetation. In addition information about shoppers' perceptions and preferences will aid in developing urban forest settings that are shopper and tourist friendly.

There will be another, more important outcome, from this study. The private enterprise community's perception of the urban forest can have significant long-term management and planning implications for cities nationwide. If we can determine the significance, needs or wants of retail districts and local business owners as it pertains to urban forestry matters, the business community can become a more effective and resourceful participant in the planning and management of cities' forests in all of America.

An Effective Partnership

The project partners will include: 1) University of Washington, Center for Urban Horticulture, 2) Washington State Department of Natural Resources, Community and Urban Forestry Program, 3) Chinatown/International District Business Improvement Association (Seattle), and 4) Central Area Development Association (Seattle). This team provides a combination of resources and expertise for a successful project. All partners will contribute to the study design. All partners will be represented on a Steering Committee that will oversee the progress of the project. The Center for Urban Horticulture will guide the research procedures and prepare products. DNR will administer the program and distribute products. The two business associations represent culturally diverse communities - including Asian

American, African American and Hispanic populations - insuring that the project will reach out to and understand the preferences of people who have been underrepresented in past studies.

Additional information about the partners and their letters of support are in the Appendices.

Research Goals & Performance Criteria

Many studies have documented the multiple benefits and satisfactions of urban vegetation (Dwyer et al., 1994). Most have focused on parks and residential settings (Schroeder, 1992; Sommer, 1990), overlooking the importance of the urban forest to private enterprise (Dwyer et al., 1992). Little is known about the perceived benefits and values of the urban forest in retail and commercial districts (Dwyer et al., 1992), a void that this study will address. Four general areas will be investigated:

- 1) Business owners' knowledge and understanding of the urban forest**
 - Visual preferences for varied landscape treatment of business districts
 - Knowledge of tree choices and maintenance needs - "right tree for the right place"
 - Tradeoffs of tree planting, e.g. amenity enhancement versus business visibility
- 2) Shoppers' attitudes and values regarding the urban forest**
 - Visual preferences for varied landscape treatment of business districts
 - Relationship of district attractiveness and willingness to pay for goods
 - Relationship of urban forest and rate and duration of shopping visits
- 3) Appraisal of the perceived costs of the urban forest**
 - Direct and indirect costs of tree planting and maintenance
 - Level of business owners' willingness to pay for tree planting
 - Perceptions of personal safety and security
 - Potential tree annoyances (e.g. untidy leaf litter) and problem solutions
- 4) Assessment of urban forest benefits and satisfactions**
 - Perceptions of successful business centers and relationship to presence of trees
 - Tree planting activities relationship to improved economic vitality
 - Perceptions of improved environmental quality and relationship to presence of trees

Project Scope

Preliminary discussions with the project partners has lead to the observation that planting and careful maintenance of trees and vegetation can be one of the most cost effective elements of an business revitalization program. The challenge of this project is to pursue evidence that supports and provides greater insight on this idea. Within the knowledge building process described here there are two issues of scope; each will be addressed in the methods and procedures of the project.

The first issue of scope is one of demographics - are tree plantings a revenue enhancing element in culturally diverse retail districts? Many revitalization efforts are multidisciplinary and multifunctional in nature. Cultural enhancements, arts displays and performance events accompany infrastructure and capital improvements. While the partners believe that landscape improvements are an essential element in a business zone's program of change, we need more information about the public preferences and perceptions of trees in different cultural contexts.

Secondly, this project will address the generalizability of findings to all regions of the United States - issues of geographic scope. While the project and its partners are based in the Pacific Northwest, the project intends to sample regional participants and to expand the sample base to other locations in the nation. Opportunities for determining both general and particular patterns of response are intended, promising outcomes that can serve business communities on many levels.

Methodology-

Multiple Methods - The research will be conducted in several phases. Both qualitative and quantitative methods will be used to measure benefits and values in a comprehensive approach. Established measurement techniques, of proven reliability and validity, will be used to evaluate the practical, specific benefits of trees in business districts. While scientifically sound, the methods have also

proven effective as techniques for public participation in resource management and planning (Kaplan, 1990).

Year One - Qualitative Assessment - In view of the paucity of information about perceptions and preferences for business district urban forests, the research will begin with focus groups using open-ended questions. This approach is most useful in the early stages of survey research. The dual objectives will be to resolve questions of awareness levels and attitude patterns, while at the same time developing the basis for multiple-choice questions that will be used in later large-scale surveys. Focus group participants will be a random sample of Seattle-based retail business owners, invited from a pool of candidates identified by the business organization partners.

Year Two - Regional Survey - Based on content analysis of the focus groups' responses and review of relevant research on urban forest values, two multiple-choice standardized surveys will be constructed and pretested. Sommer et al. (1990) has developed and tested a survey instrument to obtain knowledge of householder's perceptions and preferences about street trees. This model survey will be modified to include variables relevant to the specific issues of business communities. In particular, it will be expanded to include a visual environmental sample (Kaplan & Kaplan, 1989), a collection of photographic representations of different vegetation settings and arrangements. It will also include verbal items on perceived vegetation benefits, annoyances, tree maintenance needs, willingness-to-pay (Dwyer et al., 1989) and respondent demographics. Variable items will be slightly adjusted on each of the two surveys to permit comparisons between business owners and shoppers response.

The surveys will be distributed by mail in the Pacific Northwest region, targeting both retail business owners and business district visitors and shoppers. Sampling of diverse populations is an important part of this research, to ensure that the results are applicable to multiple situations. The partners will collaborate to identify and recruit respondents that represent culturally diverse business associations and their particular perceptions of urban forestry. 1750 surveys will be sent with return postage included. Anticipating a typical response rate of 20-50%, there will be adequate numbers of respondents to produce satisfactory intergroup reliability for data sorting and analysis (Schroeder, 1984). If needed to increase the return rate, follow-up post cards will be sent.

Year Three - National Survey - In the final phase of the project business revitalization zones in other cities around the United States will be surveyed. The partners will collaborate to identify additional multicultural private enterprise districts in other U.S. cities for selective random sampling. The survey will be distributed by mail at the national level, again targeting both retail business owners and business district visitors and shoppers. Sampling of diverse populations will continue to be emphasized. 3250 surveys (5000 total for the project) will be sent with return postage included. Again, if needed to increase the return rate, follow-up post cards will be sent.

Data Sorting and Analysis - The collected data will be sorted in several ways. First, the data will provide documentation about the general importance of the urban forest to business districts. Second, we will be able to compare and contrast the knowledge and perceptions of both business owners and retail shoppers, providing information for more effective use of business district tree resources. Finally, we will be able to analyze the relationship of demographic and cultural factors to perceptions of urban forest benefits.

As in the research design and instrument, established analysis techniques will be used to interpret the data, indicating specific perceptions and preferences in business districts. Descriptive statistics will provide an overview of research outcomes. Methods of multivariate data reduction will reveal patterns of response. Category identifying methodologies (Kaplan & Kaplan, 1989) will be used to analyze response to photographic elements of the survey. ANOVA and correlation tests will be used to analyze relationships between verbal and visual variables, as well as to compare responses of different cultural groups.

Products & Communication - National Distribution!

While the study is based in the Pacific NW, the outcomes will have important national significance! The methodology will produce results that are generalizable to cities across the nation. Four

major products are expected from the grant supported work; all will be made available to others across the nation:

1) Professional Publications- Results will be published in professional arenas: 1) the technical and trade publications of urban forest practitioners, and 2) the publications and reports of the urban retail business community. While providing technical and practical information, this information will also help to build political support for urban forestry.

2) Design Guidelines - These documents will help in the design and planning of retail district urban forests. The guidelines will provide practical and realistic suggestions for urban forestry practices that will enhance benefits for business owners and visitors. This product will help business associations throughout the United States maximize the green impact of limited financial resources.

3) Urban Forestry Literature - Better understanding of both the business community's and consumers' preferences for and perceptions of the urban forest will: be a study outcome. This information will be published in national academic journals, such as *Landscape Journal* and the *Journal of Arboriculture*. Results will also be presented at conferences in the United States.

4) Transferable Evaluation Tools - While the study methods will provide outcomes that are generalizable, some communities may desire a process that they can use to investigate specific, local issues. The methods of this study will provide a transferable model that will be useful to other communities in their efforts to plant, maintain and sustain their urban forest. The process will be easily customized to serve as an information-gathering tool for any private enterprise organization or agency.

5) Traditional and On-line Formats - Exciting changes are taking place in how and where we communicate. Research products will be prepared to be distributed in traditional ways, e.g. as journal articles and hard-copy publications. In addition, the information will be formatted and uploaded to electronic communications networks. Such interactive programs provide extensive opportunities to tie research into existing or proposed management and planning systems for urban forests. Examples of information servers that would provide access to the research results are the Green Plan Center (a forum for information about comprehensive programs to solve environmental problems) and Forest-Net (a service of the USDA Extension Service to promote communication, between resource managers). Both are on the Internet.

Project Performance Criteria and Evaluation

The project team will not only be responsible for research design and execution, but will also collaborate on project review and evaluation, guaranteeing its relevance to private enterprise communities in the U.S. Our team represents the many interests and concerns of urban forestry. The University of Washington will work to develop a project that is scientifically rigorous and well-executed. DNR will watchdog for government agency forestry concerns, not only those of Washington but of all states, representing local to federal government level interests. Finally, the business district partners, as well as other participants that they will identify, will guarantee that the project addresses real world, pragmatic issues - insuring that the project outcomes are relevant to the needs of private enterprise.

Project Schedule - Milestones and Target Dates

Work will begin immediately after we receive word that we have been selected. Phase One procedures will commence immediately. The photo-questionnaire surveys will be distributed in summer 1996 and spring 1997. Results and products will be distributed throughout 1997. We think this is an exciting project and guarantee it will be completed by the performance deadline of December 31, 1997. Milestones and target dates for completion follow:

Milestone	Target Date
<u>Year 1: Qualitative Assessment</u>	
Form the Partners Steering Committee	July 1995
Complete focus groups with local business owners	Aug. 1995
Design and develop draft Business Forestry Preference Survey	Nov. 1995

Submit semi-annual report to NUCFAC Dec. 1995

Year 2: Regional Survey

Select graduate student research assistant April 1996
Collect photograph sample for survey May 1996
Develop and test survey instrument; Submit annual report to NUCFAC June 1996
Distribute survey to regional retail business owners and shoppers July 1996
Collect survey Aug. 1996
Enter data, analyze survey results Oct. 1996
Review results with Steering Committee Nov. 1996
Prepare preliminary results report; Submit semi-annual report to NUCFAC Dec. 1996

Year 3: National Survey

Select graduate student research assistant Feb. 1997
Distribute survey to national retail business owners and shoppers March 1997
Collect survey April 1997
Enter data, analyze survey results May 1997
Prepare preliminary results report; Review results with Steering Committee; June 1997
Submit annual report to NUCFAC

Products

Produce design guidelines for business district urban forestry July. 1997
Write professional and academic journal articles Oct. 1997
Distribute and present results nationally (hard copy, on-line) Nov. 1997
Submit final report to NUCFAC Dec. 1997

Principle Investigator's Qualifications and Background

The researcher responsible for this effort is Kathleen L. Wolf, Research Assistant Professor of Urban Forest Environment and Behavior. Dr. Wolf is based at the Center for Urban Horticulture, College of Forest Resources, at the University of Washington. As a landscape architect and social scientist, her research concerns lie in how people perceive and relate to landscapes.

She brings a broad experience of urban forestry issues to this project. Early in her career she worked as an urban horticulturist in south Florida. As a landscape architect, she has worked on community design, urban environmental planning, community values assessment and streetscape improvements projects in Michigan cities.

Dr. Wolf's academic experiences includes investigations of a range of environmental and psychological issues. Her recent research work addressed public perceptions of ecologically sustainable landscape design in residential development. The project included research methods similar to those proposed for this project; a photo-questionnaire was designed to elicit public opinion about shoreline development issues.

Wolf holds a B.A. in Biology from Whitman College (WA), as well as a masters degree in Landscape Architecture from the University of Michigan. Most recently, she earned her Ph.D. while working with Dr. Rachel Kaplan at the University of Michigan.

A resume is in the Appendices.

Funding Request and Match

We request a total of \$74,792 for this study. The grant will be matched dollar for dollar by the partners. An annual line item budget (including the partners match) is in Appendix III. Details of the funds request follow.

Note The request reflects the University of Washington's Indirect Costs rate (for off-campus research) of 27.3%. This rate is negotiable after we receive word that we have been selected. For

instance, an Indirect Costs rate of 10% would reduce the funds requested to \$64,6268.

Salaries, Wages and Benefits

Request \$43,803 - Dr. Kathleen Wolf, P.I., will supervise the research design, research implementation and administrative aspects of the project. She will also work in to coordinate Partners' contributions and act as liaison between the project Steering Committee and the University of Washington's Center for Urban Horticulture. Support is requested for Dr. Wolf's salary (0.4 FTE) for a portion of each of the project years. The request includes a 5% yearly increase.

During each phase of survey distribution a student will be hired at an hourly rate. This person will participate directly in research efforts - including survey production, distribution, collection and data analysis. The base pay rate and benefits request is commensurate with the University of Washington's pay scale.

Match \$40,829 - The match represents the cumulative contribution of portions of salaries from the professional staff of the partnership organizations and agencies. Professional staff from the government agencies will contribute expertise on urban forestry practices, estimates of direct costs for tree plantings, and provide technical input on important issues of retail district plantings. Professional staff from the business organizations will contribute information about business revitalization and business community values regarding urban forestry and act as a liaison to additional business associations. All partners will provide staff for the project Steering Committee. All partners will contribute to identifying and contacting a multicultural survey sample, designed to reach diverse retail business communities. All partners will help to distribute products and report research outcomes to appropriate audiences.

Materials & Supplies

Request \$11,450 - Funds are requested for expendable project materials and supplies. These will include materials and services for producing and printing the survey questionnaire, materials and postage for distributing and collecting the surveys, as well as producing and printing a guidelines brochure. \$875 will be used for miscellaneous office supplies and project materials. A contingency of 15% of the materials and supplies costs estimate is included in the request.

Match \$12,093 - A significant proportion of the match will be provided by WA DNR. The agency has committed materials for producing the survey questionnaire, supplying postage for mailing the surveys and producing the guidelines brochure. In addition, all partners will contribute miscellaneous office supplies and materials to support their project activities.

Telecommunications & Reproduction Costs

Request \$0 - Project phone, fax and e-mail communications will be supported by the University of Washington for the P.I.

Match \$1,700 - All project phone, fax, e-mail **communications** and reproductions costs will be supported by the offices of each of the partners.

Domestic Travel

Request \$3,500 - Travel funds are requested to achieve two purposes. First, Dr. Wolf will travel to targeted cities (Fall 1996) to identify business districts undergoing revitalization efforts and to facilitate survey distribution in these business communities. Secondly, funds are requested so that Dr. Wolf and the student assistant will be able to travel to a national conference(s) to present results. No NUCFAC funds are requested for local travel during research design and survey distribution.

Match \$8,411 - The match sum represents the cumulative contribution of travel costs incurred by the professional staff of the partnership organizations and agencies. First, it represents automobile operating costs @ \$0.22/mile that cover the operation of private and staff cars for local trips associated with project design, development and implementation.

Secondly, the match represents the cumulative contribution of travel and air transportation costs incurred by the partners for professional meetings where the project outcomes will be presented and products distributed.

Indirect Costs

Request \$16,040 - The University of Washington's indirect costs are calculated at 27.3% of the project's total direct costs for projects that are conducted off-campus. At a negotiable 10% rate the request would be \$5,875.

Match \$17,208 - The Partners' indirect costs are also calculated at 27.3% of the project's total direct costs, reflecting overhead costs for the partners cumulative contributions.

Total NUCFAC Request @ 27.3% indirect - \$74,792

Total Partners Match - \$80,239

Total NUCFAC Request @ 10% indirect - \$64,628

Total Partners Match - \$69,335

Literature Cited

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- Schroeder, H. W. 1984. Environmental Perception Rating Scales: A Case for Simple Methods of Analysis. *Environment and Behavior*, 16, 573-598.
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APPENDIX I - PARTNERS' ROLES AND RESPONSIBILITIES

While all of the partners share an interest in urban forestry,, each offers unique strengths and capabilities. Representatives of each of the partners are excited about this project proposal, and are eager to work together on a study that promises to be important to the continued success of urban forestry in America's cities.

University of Washington Center for Urban Horticulture (CUH)

The University and Center are committed to research and teaching about applied and theoretical topics in urban forestry. The Center is also dedicated to public outreach, to providing the latest information about urban horticulture and forestry to citizens and interested groups. This study is a good example of the work promoted by the goals and mission of the Center.

CUH will house and provide day-to-day leadership for this project. Research design and methodology, data collection and analysis - each of these tasks will be guided by this partner. The Center will serve as the resource and administrative centers for the study. Research support and services (e.g. statistical processing) will be provided.

Kathleen L. Wolf, Research Assistant Professor at CUH, will be principle investigator for the project. A resume is in the Appendices.

Chinatown/International District Business Improvement Association (Seattle)

The BIA is a critical partner in this effort. The association was recently launched, after more than two years of planning. The business district encompasses a 31-block area with 340 business owners and 70 property owners. The mission of the BIA is to initiate improvements with the goals of making the streets safer, cleaner, more accessible and better known to shoppers and tourists. Street planting and landscaping projects will be one facet of the BIA's efforts. Resources are limited for improvements. Thus, the BIA has enthusiastically agreed to participate in this study in order to learn how to maximize its returns from dollars spent for trees and landscaping.

Jane Chao, Executive Director, will be the BIA's lead person for the project. Ms. Chao is a Chicago-born Chinese American who is a graduate of the University of Illinois. As a market research analyst she has studied Chinatowns in San Francisco and New York. Her expansive knowledge of Asian American urban centers will be a valuable resource for addressing cultural diversity questions in the business district survey. In addition, she will provide access to communities of other cities, a resource that will expand the sampling scope of the project.

A letter of support from Jane Chao of the Chinatown/International BIA is attached.

Central Area Development Association (Seattle)

Another very important partner in the project is CADA. The association is a community-based non-profit development corporation dedicated to building a vibrant and affordable Central Area community and to preserving the area's unique cultural heritage. CADA represents culturally diverse neighborhoods, including significant African American and Asian American populations. The association was launched a year ago after the Central Area Community Action Plan was drafted and endorsed by the Seattle City Council. The goals of CADA are to promote business, attract visitors and tourists, coordinate improvements of the Central Park Trail and to mobilize Central Area residents for these purposes. Commercial development of Jackson Street is a priority, a district that was known as the capitol of jazz on the West Coast in the 1930s-1950s. This project will help Jackson Street to regain the vitality and civic importance it once had so that becomes again a point of pride for the community.

Tracey Davis, Community Liaison, will the CADA lead person. She is currently completing a masters degree in social work at Seattle University. Ms. Davis is responsible for coordinating efforts between business owners, local residents and the Central Area Arts Council to attract new retail uses to the area. She reports that community feedback on a recent Streetscape Improvement Study has

confirmed for her the importance of street trees in economic revitalization. Ms. Davis will recruit participants for both phases of the study, as well as identify members of other similar communities for participation.

A letter of support from Tracey Davis of CADA is attached.

WA State Department of Natural Resources (DNR), Community and Urban Forestry Program

DNR is the fourth significant contributor to the project. Staff members will provide support for research design, based on their knowledge of programs around the nation. The agency will also provide graphic design services for production of survey materials and results products. Finally, DNR will support distribution of results, particularly through the Urban Forestry Clearinghouse, recently created in collaboration with the University of Washington.

DNR has been conducting a granting program to encourage and support community-based forestry programs in the cities and towns of Washington State. The results of this research will be of direct benefit to its efforts and those programs. The project will complement the agency's commitment to support community-based urban forest planning.

Shelley Farber will be DNR's lead person. She is currently the Community and Urban Forestry Coordinator for the DNR. She directs technical, financial and educational urban forestry assistance for communities and organizations and administers two grant programs for tree-planting and community-forestry projects. Ms. Farber has a masters degree in Forest Resources from the University of Washington, as well as a B.S. in business administration from the University of Southern California. In 1991 she received a Merit Award at the joint meeting of the American Planning Association and the Planning Association of WA for her city beautification efforts.

A letter of support from Shelley Farber of Washington DNR is attached.

APPENDIX II: BUDGET - YEAR 1 - 6/1/95 TO 12/31/95

	NUCFAC Funds	Partners Match	Total
SALARIES & WAGES			
Dr. Kathleen L. Wolf, P.I. Research Assistant Professor Urban Forest Environment & Behavior University of Washington	7,067	0	7,067
Student, hourly Center for Urban Horticulture University of Washington	0	0	0
Professional staff Project partner agencies and organizations	0	11,471	11,471
BENEFITS			
Dr. Kathleen L. Wolf (22% of salary)	1,555	0	1,555
Student (10% of hourly rate)	0	0	0
Professional staff (22% of salary)	0	2,524	2,524
MATERIALS & SUPPLIES			
Misc. office supplies/services	200	750	950
Contingency @ 15%	30	113	143
TELECOM. & REPRO COSTS	0	500	500
TRAVEL			
Automobile	0	750	750
TOTAL DIRECT COSTS-YR 1	\$8,852	\$16,107	\$24,959
INDIRECT COSTS @ 27.3% OF TDC	\$2,417	\$4,397	\$6,814
TOTAL COSTS-YR 1	\$11,268	\$20,504	\$31,773

APPENDIX II: BUDGET - YEAR 2 - 1/1/96 TO 12/31/96

	NUCFAC Funds	Partners Match	Total
SALARIES & WAGES			
Dr. Kathleen L. Wolf, P.I. Research Assistant Professor Urban Forest Environment & Behavior University of Washington	11,400	0	11,400
Student, hourly Center for Urban Horticulture University of Washington	2,112	0	2,112
Professional staff Project partner agencies and organizations	0	7,240	7,240
BENEFITS			
Dr. Kathleen L. Wolf (22% of salary)	2,508	0	2,508
Student (10% of hourly rate)	211	0	211
Professional staff (22% of salary)	0	1,593	1,593
MATERIALS & SUPPLIES			
Photography for survey	500	0	500
Survey layout & printing	1,135	0	1,135
Survey mailing list	0	560	560
Survey mailing materials	280	280	560
Survey mailing postage	1,164	1,164	2,328
Survey reminder card	493	0	493
Misc. office supplies/services	300	1,200	1,500
Contingency @ 15%	581	481	1,061
TELECOM. & REPRO COSTS	0	600	600
TRAVEL			
Automobile	0	1,200	1,200
TOTAL DIRECT COSTS-YR 2	\$20,684	\$14,317	\$35,001
INDIRECT COSTS @ 27.3% OF TDC	\$5,647	\$3,909	\$9,555
TOTAL COSTS-YR 2	\$26,331	\$18,226	\$44,557

APPENDIX II: BUDGET - YEAR 3 - 1/1/97 TO 12/31/97

	NUCFAC Funds	Partners Match	Total
SALARIES & WAGES			
Dr. Kathleen L. Wolf, P.I. Research Assistant Professor Urban Forest Environment & Behavior University of Washington	13,542	0	13,542
Student, hourly Center for Urban Horticulture University of Washington	2,208	0	2,208
Professional staff Project partner agencies and organizations	0	14,755	14,755
BENEFITS			
Dr. Kathleen L. Wolf (22% of salary)	2,979	0	2,979
Student (10% of hourly rate)	221	0	221
Professional staff (22% of salary)	0	3,246	3,246
MATERIALS & SUPPLIES			
Survey layout & printing	1,411	0	1,411
Survey mailing list	0	980	980
Survey mailing materials	520	520	1,040
Survey mailing postage	2,161	2,161	4,322
Survey reminder card	917	0	917
Guidelines layout & printing	0	1,200	1,200
Guidelines mailing & distribution	500	800	1,300
Misc. office supplies/services	375	900	1,275
Contingency @ 15%	883	984	1,867
TELECOM. & REPRO COSTS	0	600	600
TRAVEL			
Survey development-domestic	1,500	2,255	3,755
Results reporting-domestic	2,000	3,006	5,006
Automobile	0	1,200	1,200
TOTAL DIRECT COSTS-YR 3	\$29,217	\$32,607	\$61,824
INDIRECT COSTS @ 27.3% OF TDC	\$7,976	\$8,902	\$16,878
TOTAL COSTS-YR 3	\$37,193	\$41,509	\$78,702
TOTAL PROJECT COSTS-3 YEARS	\$74,792	\$80,239	\$155,031
Total Project Costs-%	48%	52%	100%
NOTE TOTAL PROJECT COSTS @ 10% INDIRECT RATE	\$64,628	\$69,335	\$133,963

EDUCATION

Ph.D. Landscape Architecture - School of Natural Resources & Environment; The University of Michigan, May 1993.

M.L.A. Landscape Architecture - School of Natural Resources; The University of Michigan, May 1987.

B.A. Biology - Whitman College, May 1979.

Recent Conferences:

- Healing Dimensions of People-Plant Relations: A Research Symposium - University of CA, Davis, Dept. of Environmental Design. Participated in a national conference on the social values and benefits of urban forestry, community gardening, open space planning and nature stewardship. March 1994.
- Urban Forest Landscapes: Integrating Multidisciplinary Perspectives - The University of Washington Center for Urban Horticulture. 2 day symposium. March 1993.

PSYCHOLOGICAL ISSUES IN URBAN GREEN SPACES-INSTRUCTOR; University of Washington (Seattle, WA), Spring 1995. Goals of course are to: 1) acquaint students with issues and concepts of environmental psychology, 2) to create an awareness of the importance of green spaces in urban planning and design, 3) to understand psychological responses to urban green spaces including affect, cognition and behavior, and 4) to understand and develop proficiency in landscape assessment methods. The course goals are presented through selected readings, class discussion, field trips in the Seattle area and student projects.

RESEARCH ASSISTANT PROFESSOR, URBAN FOREST ENVIRONMENT & BEHAVIOR; Center for Urban Horticulture, University of Washington; September 1994 to present.

Developing and implementing a research agenda about the psychological and social dimensions of urban green spaces. Evaluating themes of people/plant relations in landscape design and urban planning. Teaching courses on theory and methods of environmental cognition, landscape preference and nature perceptions. Research interests: public participation in green space planning, impacts of the urban forest on business districts, costs and benefits of the residential urban forest, public perceptions of urban ecosystems.

URBAN FORESTRY - PROGRAM EVALUATION CONSULTANT; Seattle Engineering Department, February to December 1994. Tree Stewards is a new program providing street tree maintenance by citizen volunteers. I developed procedures for evaluating the processes and outcomes of the program to: 1) improve training, 2) identify community values and benefits, and 3) improve recruitment procedures.

RESEARCHER - ENVIRONMENTAL PLANNING; University of Michigan (Ann Arbor, MI), January 1991 - May 1993. Conducted an independent research project designed to evaluate public response to sustainable development practices in coastal areas. Reviewed Coastal Zone Management policy and regulations of 5 states. Developed and managed a research program, including these elements: 1) overall research design and implementation, 2) design, production and distribution of public survey instrument, 3) data collection, entry and analysis, and 4) research reporting. Prepared reports of findings for public presentation and publication.

ENVIRONMENTAL ANALYSIS & PLANNING-INSTRUCTOR/TA; University of Michigan (Ann Arbor, MI), Dec. 1987 - April 1990. Taught landscape planning process based on 1) long-range management of natural resources, and 2) suitability modeling for land uses. Taught about natural resource definition and classification (including watersheds, ground water recharge zones, woodlands, wetlands, wildlife habitat). Explained quantitative modeling for land-uses siting (including residential, parks, office parks and utilities). Assisted with development of new course units on landscape ecology and landscape classification. I designed and implemented a new course phase on design guidelines. Introduced GIS for resource analysis and supervised map data collection, entry, manipulation, analysis and output. Student evaluations were "Very

Good" to "Excellent."

PROFESSIONAL EXPERIENCE

LANDSCAPE PLANNER; Wm. Johnson Associates (Ann Arbor, MI), Jan. 1990 - April

1991. Conducted technical support for urban site design and community planning projects (including site layout, planting plans, surface water management). Drafted site plans using manual tools and AutoCAD. Created maps and graphic materials for clients, elected officials, and public participation workshops. Prepared project reports for planning commissions and citizen advisory committees. Prepared new project proposals.

ENVIRONMENTAL PLANNING INTERN; Southfield Planning Dept. (Southfield, MI), May -

August 1989. Evaluated land use applications for compliance with City's environmental and landscape ordinances. Reviewed environmental ordinances to prepare code revisions and users' guide. Prepared land-use analysis reports for Planning Commission. Conducted site inspections for code compliance (including site engineering and drainage, landscape planting, wetlands and woodlands protection).

SITE ENGINEERING-INSTRUCTOR/TA; University Of Michigan (Ann Arbor, MI),

Aug.1988 - Dec. 1989. Taught principles of site drainage and grading (including watershed analysis, surface water management). Supervised 20 students in technical exercises that applied site engineering principles to site design. Supervised team of 4 other instructors in the same duties. Assisted with course review and improvements.

CONSULTANT-URBAN TREE PLANS; JSW Associates (Toronto, Canada), August 1988.

Researched and reviewed street tree plans and ordinances of 10 major cities of the U.S. and Canada. Prepared a summary report, including policy and code recommendations. My report was used to develop a long-range urban forestry plan for the City of Toronto, Dept. of Transportation.

CONSULTANT-DESIGN GUIDELINES; Dixboro Design Review Board (Dixboro, MI), Sept.

1986 - March 1987. Researched and reviewed urban design guidelines. Conducted visual and historical analyses of the village. Collaborated with a citizen advisory group on analysis and a draft report. I co-wrote the final design guidelines booklet, which specifies site design/landscaping/ architectural requirements for new development.

LANDSCAPE COORDINATOR; City Of Key West (Key West, FL), May 1981 - June 1984.

Responsible for implementing recreation and planting plans for a 7-acre botanical park. Prepared and implemented planting plans for other municipal buildings and properties. Worked with community and civic groups on urban forestry projects. Technical advisor for Tree Commission, an appointed citizens' advisory board. Researched and reviewed urban environmental ordinances and policy.

RECENT PUBLICATIONS & PRESENTATIONS

- Wolf, Kathleen L. 1995. *People and the Urban Forest Landscape: Preferences and Perceptions*. Presented at the "Urban Forestry Stewardship Forum," sponsored by the WA Department of Natural Resources and Center for Urban Horticulture, University of Washington (Seattle, WA).
- Wolf, Kathleen L. 1992. *Sustainable Development in the Coastal Zone*. Presented at a workshop entitled "Problem-solving as if Sustainability and Equity Mattered" at the Environmental Design Research Association Annual Conference (Boulder, CO).
- Wolf, Kathleen L. 1992. Digital Sketching. *Landscape Architecture*, 82(5), 75-77.
- Wolf, Kathy L. 1991. *Coastal Zone Perceptions: A Research Basis for Planning and Design Guidelines*. Presented at the Council of Educators in Landscape Architecture Annual Conference (Lansing, MI).
- Wolf, Kathy L. & Lisa V. Bardwell. 1991. *In Pursuit of Restorative Environments: Design of Residential Outdoor Spaces*. Presented at the Environmental Design Research Assoc. Annual Conference (Oaxtepec, Mexico).
- Wolf, Kathy L. 1990. *Recreational Residential Development at the Shoreline: Perceptions of Visual Quality and Satisfaction*. Presented at the Council of Educators in Landscape Architecture Annual Conference (Denver, CO).
- Wolf, Kathy L. 1989. *City of Southfield Beautification Action Plan*. Planning document prepared for the City of Southfield (MI) Parks and Recreation Department. Included an inventory of visual quality of city sectors followed by a comprehensive plan for interdepartmental beautification efforts.
- Wolf, K.L. & H. Cohen. 1987. *Design Guidelines: The Historic Village of Dixboro*. Planning document

prepared for the Dixboro Design Review Board, Superior Township, Washtenaw County, MI.

AWARDS AND HONORS

First Place, The U.S.-Japan Culture Center 10th Annual Essay Contest. 1991. Essay entitled *Beyond Garden Walls: A Metaphor for Cross-Cultural Understanding*. Awarded a fellowship and trip to Japan.
University of Michigan Dissertation Fellowship. 1991.
Research Grant, Landscape Architecture Foundation. 1990. Proposal entitled *Residential Development in the Shoreline Environment: An Evaluation of Preferences and Visual Quality*.
Merit Award, Michigan Chapter of American Society of Landscape Architects. 1987.

MEMBERSHIPS AND SERVICE

Bainbridge Island Watershed Management Committee - Chair, Education Subcommittee, May 1994 to present.
Environmental Design Research Association, 1988-present.
Sigma Lambda Alpha, Landscape Architecture Honor Society, 1989-present.
American Society of Landscape Architects, 1984-1992.
U of MI School of Natural Resources Research Committee, 1989. Student representative.



A COMMUNITY PARTNERSHIP
409 Maynard Avenue South / Room P-1 / Seattle, Washington 98104
(206) 382-1197

January 26, 1995

Kathleen L. Wolf,
Ph.D., Landscape Architecture,
P.O. Box 11334,
Bainbridge Island, Wa 98110

Dear Ms. Wolf:

I am writing in response to your request that the Chinatown/International District Business Improvement Area be a partner in your project to research urban forests.

The Chinatown/International District Business Improvement Area, a nonprofit corporation, is a community organization that is supported by over 400 businesses and property owners within the Chinatown/IDBIA boundaries. Our goal is to improve the physical, residential and business environment of our area through different activities and projects. Because your project involves improving the physical environment, we are interested in participating.

Please accept this letter as a general endorsement of your project. We hope that the results of this project will help our community as well as others. I understand that the IDBIA's contribution to your study would be in-kind. I am happy to be a community resource person and contact to help you identify people in our business community that may be interested in participating in your study.

Please feel free to contact me.

Sincerely,



Jane Chao,
Executive Director,
Chinatown/IDBIA



January 27, 1995

EXECUTIVE STAFF

George M. Stiggers
Chief Executive Officer

Matthew Metz
Chief Operating Officer

National Urban & Community Forestry Council
201 14th St. SW
Washington, DC 20250

Re: Challenge Cost Share Grants

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To the National Urban & Community Forestry Council:

It is with great pleasure that the Central Area Development Association (CADA) joins with the University of Washington's Center for Urban Horticulture as project partner to investigate the business community's perception of the urban forest.

CADA is a community-based non-profit development corporation dedicated to building a vibrant and affordable Central Area community and preserving the Area's unique cultural heritage. CADA is an organization mandated by the Central Area Action Plan, which was endorsed by Mayor Rice and adopted by the City Council as the blueprint for Central Area revitalization.

CADA was founded in 1993 by the principal authors of the Central Area Action Plan, with the intent that we would serve as a vehicle for realizing the economic development objectives of the Action Plan.

CADA has not wasted time in getting started. Current projects include: Conducting a comprehensive planning, design and business development study of the Jackson Street corridor and

organizing a community based steering committee to oversee the

2515 South Jackson Street • Seattle, WA 98144 • (206) 328.2240 • (206) 328.2157

CENTRAL AREA DEVELOPMENT ASSOCIATION

About our logo - The Spirit of Community: Imagery derived from the tradition of African-American quilt making



WASHINGTON STATE DEPARTMENT OF
Natural Resources

RESOURCE PROTECTION DIVISION
P.O. BOX 47037

OLYMPIA, WA 98504-7037

JENNIFER M. BELCHER
Commissioner of Public Lands

KALEEN COTTINGHAM
Supervisor

January 27, 1995

National Urban and Community Forestry Advisory Council
1995 Challenge Cost-Share Grants
201 14th Street SW
Washington, D. C. 20250

Dear Council Members:

The Department of Natural Resources is eager to commit its time and resources in support of the study "Public Knowledge of Urban Forest Benefits and Values in Commercial and Retail Environments."

The Department fully expects this project to be a success. We will provide technical, administrative and graphic design assistance to the entire project. We are enthusiastically committed to the concept as well as the details of the proposal before you.

The business sector plays a key role in shaping the urban forest. Business can be an enthusiastic initiator of civic improvements involving trees. Or, it can be a vociferous proponent of removing trees. Whether organized in small towns throughout the country or in neighborhoods throughout our cities business owners will express their preferences for visibility and image.

As federal funding slides, the need for business support of local urban forestry programs increases. This study will help assess and understand that support.

Furthermore, as scrutiny of federal funding grows, so does the need for thoughtful investment of public dollars. We are a state agency charged with providing technical and financial assistance. We need objective criteria on which to evaluate projects for awards. This study will help answer why and how some urban forestry efforts flourish where others flounder. We want successful projects. Taxpayers demand them.

Learning about the ingredients of a successful and attractive urban forest setting for business will help us to translate the outcomes for other communities throughout the state and the country. The analysis and evaluation from this study will allow us to help communities make the best of use of their resources for trees and landscaping.

NUCFAC
Page (2)
January 27, 1995

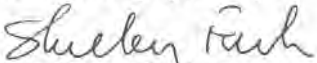
We are proud of our partnership with the University of Washington (UW). Prior collaboration with the University's Center for Urban Horticulture has resulted in many successful projects and programs including a national symposium, a statewide survey of information needs, a recent forum for managers in charge of wooded natural areas and an information clearinghouse.

The partnerships with the Chinatown/International District Business Improvement Association and the Central Area Development Association in Seattle will be just as successful and spread to other communities.

We must attain political and financial support at both the national *and* local levels. This study will help to quantify the hard-to-measure benefits that trees and vegetation provide to businesses.

We urge your support for a project that will have long-term, applied benefits to not only our state's urban forestry program, but to many others as well.

Sincerely yours,


Shelley Farber
Program Coordinator

c: George Flanigan
Gordon Bradley
Kathleen wolf