FINAL REPORT
FOREST SERVICE GRANT NO. 01-DG-11244225-291

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

Issued to: Davey Resource Group

Mailing Address: 6050 Hicks Rd., Naples, NY 14512

Project Name: Integrating a High-Powered Urban Forestry Benefits Model in a User-Friendly Public Domain Program

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Date of Award: August 2, 2001

Grant Modifications: No-cost time extension to August 8, 2003

Date of Expiration: August 2, 2002

Funding: Funding: Federal Share: $92,000 plus **Grantee Share:** $92,000 = **Total Project:** $184,000

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Please provide an abstract on your project and its results (approximately 200 words or less):

UFORE, or the Urban Forest Effects model, is a powerful, scientifically accurate program that estimates urban forest structure, composition and environmental benefits. However, because of its programming as a research tool, UFORE's general use is limited. This project developed a user-friendly program and materials that will assist urban forest managers and others in setting up UFORE projects. It also provides access to information on how UFORE works and the results from completed projects from other cities. These materials are accessible and downloadable through a website **(www.ufore.org).** The project also includes a demonstration of map-based presentation formats that will be developed further as work on the UFORE software program continues.

Project objectives:

1. Create an instruction guide or manual describing how to setup a UFORE project
   Develop a UFORE data collection program for PDAs
   Beta test or trial these products in the field and in selected communities

2. Create presentation products including GIS-based map outputs, charts and easy to read tables

A. Develop presentation materials from sample cities to demonstrate UFORE capabilities and presentation materials

3. Create web site access to setup and presentation materials
   A. Create access to cover map data for any city in the nation
   B. Add UFORE demonstration products based on Syracuse, NY and GIS
   C. Add UFORE access products in downloadable format

Objectives met successfully:
The project successfully met all the above-described objectives. All the proposed products and materials were finished and are available for use. The work completed in this project was critical to providing general access to detailed information about the UFORE program and how it works, the materials that will allow UFORE projects to be set up and completed, and general access to UFORE projects results that have been finished by other cities.

It is important to note that this project initiated the development of the UFORE program for general use by urban forest managers and others interested in the environmental importance of their city's trees (previously UFORE was only accessible by the USDA Forest Service). Since this is the first version of the UFORE program, many of the proposed objectives will be ongoing as the program is used and refined from its current version. Therefore, complete ongoing review and testing of all the interim products was attempted, as a substantial amount of work on the program remains before it will be fully functional.

Objectives not met:
As indicated above, all the objectives were completed to the degree allowable by the current stage of development of the UFORE program. We expect that review and modification of some of the products will continue as the UFORE program and the materials that were developed for this project are used in the field. For example, the Palm Pilot field data collection program that was completed for the project will certainly be tested further and revised as users provide valuable input from UFORE field data collection projects.

List the major research or policy findings of your project.

A survey was taken of over 400, officials, and activists, and results tabulated (www.facilitykeeperonline.com/ufore). Main findings:

- 9 out of 10 respondents held it very important to assess and monitor the health of the urban forest
- Information about the urban forest structure and function was deemed very useful to managers and policy makers by 84% of the respondents
- The respondents determined two areas to be most important to them: 1) structure and function, and 2) economic benefits
- Better than one-third would be willing to set up or coordinate a UFORE project with outside funding.
- The most important aspect of the development of UFORE software was held to be scientifically accurate results
- The top use for the program was to sample the urban forest to estimate project benefits
- The highest ranking use of the program's charts and graphs was the promotion of urban forestry through public relations or education

- 7 out of 8 respondents were very interested in seeing and analyzing the changes in urban forest health and benefits over time
- The most useful of the program outputs to the respondents were 1) city maps with the benefits of trees presented in GIS or graphical formats, and 2) charts and graphs with the economic value of the urban forest
- 9 out of 10 respondents would like to have both pre-programmed products and the ability to create or customize their own
- Half responded that they would find the ability to compare cities real helpful
- Four types of pre-programmed reports were of equal interest to the respondents: introduction to UFORE and the use of its data, methodology of field data collection, standard results section, and a brief discussion of the results of a particular UFORE analysis

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?

This project developed a user-friendly application for a Windows platform that allows easy access to existing UFORE data. Any user will now be able to examine the data for 9 cities in the US and Canada, choosing charts, tables and maps (where available) that display the urban forest's effects. This easy access to UFORE data will help spread an understanding of the benefits of urban forests to planners, managers, and activists and should help encourage other cities to initiate their own UFORE projects.

In addition, an intuitive Wizard was built to guide first-time users. It explains UFORE and its uses in everyday language, and simultaneously allows the interested professional to drill down to the scientific methods and literature that underlie the model.

The project also developed the materials and a data collection program for Palm OS PDAs that will allow potential users to develop their own UFORE projects. Within a couple of years, these end users will be able to carry out their own projects within this same application, using it to set up data collection, analyze the data, and display the results in a format that is attractive and comprehensible.

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

Anyone can learn a great deal about the benefits of urban forests by exploring the results of the UFORE projects carried out in other cities. Furthermore, community foresters and managers can use the scientifically based results available through this application to persuade local officials of the utility of carrying out their own UFORE analysis. Being able to cite specific numbers about these benefits—including their dollar worth—is a highly persuasive tool in the search for support for the ongoing work of urban forestry.

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.

CD of products enclosed with this report. Also to be posted at www.ufore.org. Cover map data available at http://www.fs.fed.us/ne/syracuse/Data/data.htm.

How were your results disseminated to the public?

A list of more than 400 officials, officials, and activists was created, and then used to inform them about this project. They will receive shortly a letter back about the results, including information about how to obtain the products. In addition, Dave Nowak will present an overview of the project at the 2003 National Urban Forest Conference in San Antonio, TX, in September.

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

USDA Forest Service, Northeast Research Unit, Syracuse NY and Davey Resource Group, Stow OH

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.

Screen capture of the main menu for UFORE for Windows (v. 1.0). Developed by the USDA Forest Service, Northeast Research Unit (Syracuse NY) and Davey Resource Group (Stow OH), with design by EYEMG Interactive Media Group (Akron OH).

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

The no cost time extension was requested to allow the current UFORE project to be fully integrated with other ongoing and the future work on the application. The development of the "shell" program encompassed by this project could not proceed until the planning for the recoding of the UFORE program in SAS was completed. This delayed the project at least one year. In addition, the conversion of the existing data into a format that would be compatible with future versions of UFORE took much longer than originally thought. We believe however, that the time that was taken to ensure that the work on this grant would integrate fully with the long-term goal of a fully operational UFORE application was worthwhile. This required extensive planning on the software design and user interface that was not initially projected when the grant was written.

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

From our end it seemed to function well. Posting all report templates on the NUCFAC website would be useful.

Comments considered of importance but not covered above:

The UFORE software development that was initiated by this project is a multi-year effort involving multiple groups (USDA FS, SUNY ESF, Clemson University, Davey Resource Group, and others). We appreciate the NUCFAC funding that started this long-term process forward. The grant provided valuable seed money to get the UFORE application out into the hands of the urban managers where it has the potential to have a significant impact in the management of urban forest.

This report was prepared by:
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