PROPOSAL

Urban Tree Canopy Assessment and Planting Plan RFP Number: #5-2013

March 2013

Prepared for:

Lexington-Fayette Urban County Government
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DAVEY RESOURCE GROUP
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Introduction

The trees in Lexington, as a major component of the infrastructure, provide more than the traditional values of aesthetics and shade. As the Lexington-Fayette Urban County Government (LFUCG) is well aware, they also provide numerous quantifiable environmental benefits, including stormwater management, watershed protection, water quality improvements, temperature moderation and cooling, reduction of air pollutants, energy conservation, and overall increases in property values.

The trees also contribute greatly to the quality of life in the region, and provide an unmatched setting that complements the equine industry and enhances the historic and cultural resources in the area. Bluegrass and green trees combine to define the special places found in Lexington and Fayette County. And, unlike the other components of the region's infrastructure, the tree population in both rural and urban forests, with proper care and protection, will actually continue to increase in value with each passing year.

Therefore, the LFUCG's Urban Tree Canopy (UTC) and planting plan project will be especially valuable for the reasonable, rational, and defensible planning of the area's current and future forest.

Davey Resource Group has extensive experience conducting UTC Assessments across the country and working with urban forest advocates and all levels of governments to further enhance the results to make them more usable, practical, and applicable. Because Davey Resource Group has already worked with the LFUCG, the Kentucky Division of Forestry (KDF), and other Kentucky cities to complete important urban forestry projects, and is very familiar with local issues and regional stakeholders, Davey Resource Group is also in a unique position to help the LFUCG achieve the major goals of this project. Using our local experience and national expertise, Davey Resource Group can provide the LFUCG with urban tree canopy information and technological tools that will promote the importance of tree management planning to ensure communities maintain sustainable forests, and address the priority issue of forest loss and fragmentation as indicated in the Kentucky Division of Forestry's Kentucky *Statewide Assessment of Forest Resources and Strategy.*

Our experience working with some of the best urban forest programs across the country assures that the LFUCG will receive the desired information and planting plans based on the use of the latest technologies and in formats suitable for a wide variety of audiences.

Scope of Work

Our results will meet your objectives. Davey Resource Group understands the objectives of the LFUCG are twofold:

1. Establish an UTC baseline of known accuracy and classification methodology that can be used to track canopy gains and losses over time for municipalities for the Urban Service Area in Fayette County (Project Area).
2. Develop a prioritized planting plan based on environmentally sensitive and socio-economically important areas in the Project Area.

The following sections describe Davey Resource Group's approach to achieving these objectives and delivering high-quality work products, as well as offer additional services and options the LFUCG may want to consider as part of this project.

Urban Service Area – Lexington, Kentucky

Project Approach

Narrative

Over the last 20 years, great advances in mapping technologies and quantifying the environmental, economic, and social benefits of the urban forest have been made. These advances have been driven by an increasingly common shift in how communities around the country value their trees and green spaces. Forward-thinking communities, government stakeholders, urban forest managers, and non-profits have used these tools and technologies to their advantage.

The intent of the project is to provide the LFUCG with current baseline land cover percentage and assessment of the UTC within the Project Area, and create a customized planting plan using the UTC information. Having completed similar large and small canopy assessment projects all over the country, Davey Resource Group understands that a tree canopy assessment will facilitate long-range planning with regards to setting canopy goals, analyzing current land cover for revising policies, promoting the benefits of trees, and developing sound management plans. Our approach will provide the LFUCG with a high-quality project team with the broad and specialized expertise required for this unique project to be a success.

Task One. Project Orientation and Coordination Meeting

Davey Resource Group will meet with LFUCG (and others as appropriate) to kick off the project. The goal of this meeting is to create a cohesive core team that will be sustained through the duration of the project. In this meeting, Davey Resource Group will share our roles, action items, and schedules and will seek LFUCG input as well. We will exchange “best contact” information and affirm communication protocols (telephone, e-mail, etc.). The most important result of this meeting will be the assurance that the core team’s (Davey Resource Group, LFUCG, and others) expectations for the project are aligned.

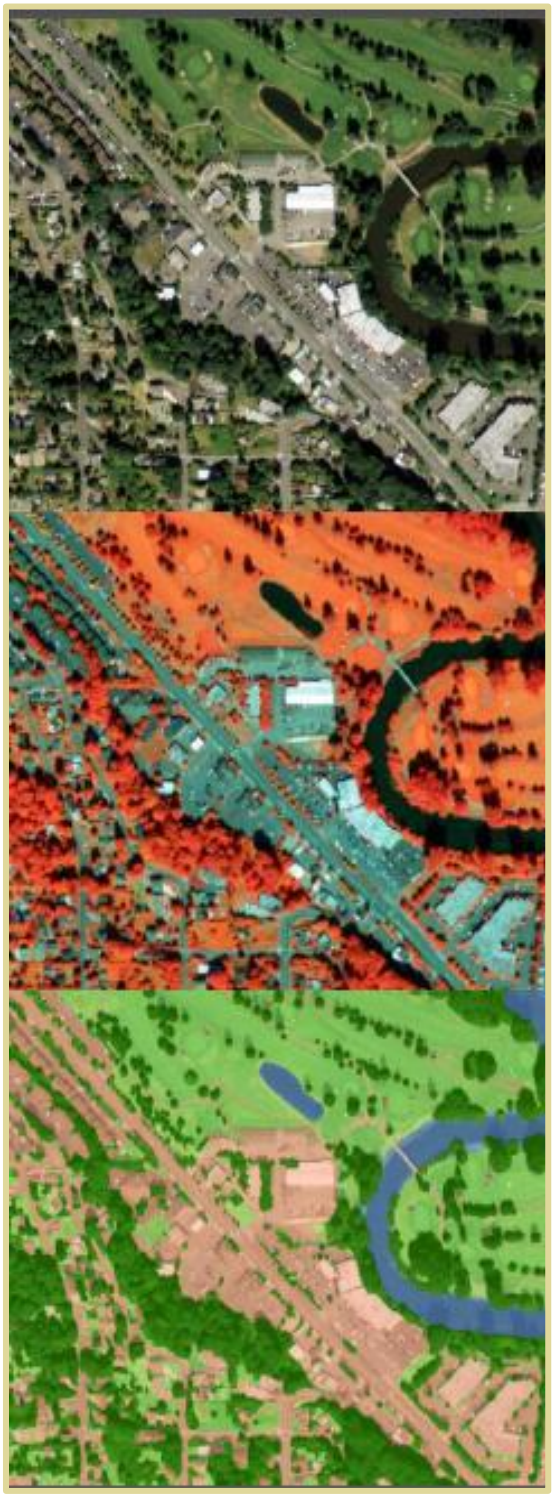
Task Two. Urban Tree Canopy Assessment

A crucial step to protect and enhance a community’s urban forest is by developing land cover strategies supported by an urban tree canopy assessment. This is accomplished by first quantifying a community’s current percentage of UTC and land cover. In order to increase a community’s awareness, a UTC assessment should be incorporated with other land use strategies previously adopted, and facilitated with social and educational opportunities.

A cost-effective and accurate strategy for assessing the community forest in the Project Area is through the use of remotely sensed and semi-automated feature extraction methods to inventory the current UTC and land cover. This will be performed for the 85.35 square miles that comprise the Urban Service Area of Fayette County.

Data Gathering and Consolidation

Davey Resource Group's project approach is to work with the LFUCG and core project partners established during the kick-off meeting to obtain and consolidate all available GIS and other information relevant to the project. Davey Resource Group already knows that high-resolution digital ortho-photographs and other ancillary GIS data layers are available from the LFUCG that could greatly benefit this project. Davey Resource Group has other local, state, and national sources of GIS information and will use any or all of these resources to deliver the final products the LFUCG requests. Davey Resource Group will efficiently gather all the necessary and beneficial data that exist from the many sources to make this project a success.



Land Cover Classification

2.1. Image Acquisition

Davey Resource Group will obtain the 2012 National Agricultural Imagery Program (NAIP) leaf-on 1 meter aerial digital imagery acquired by the U.S. Department of Agriculture to provide the most up-to-date land cover extraction. We utilize the NAIP 4-band orthoimagery on a majority of our past and current UTC projects, taking advantage of the near-infrared band for a more accurate extraction.

2.2. Land Cover Extraction

Davey Resource Group utilizes three techniques to generate the "best" extraction results: 1) a segmentation classification; 2) an object-based image analysis (OBIA) approach; and 3) LiDAR data analysis, when available. Davey Resource Group will use the following land cover classifications as they pertain to the RFP: urban tree canopy cover, impervious surfaces, open space/grass, bare soils, and water features. Additional classifications such as roads, buildings, agricultural lands, etc. can be provided if data are available.

ArcGIS® and Overwatch's Feature Analyst® will be the GIS and remote sensing software used to complete this automated extraction process. Feature Analyst® is a powerful Automated Feature Extraction (AFE) tool for extracting object-specific geographic features and allows the minimum mapping unit (MMU) to be set prior to the initial feature extraction process. This option will be set before the classification is run, allowing only areas having this specified area aggregated, as well as certain spectral characteristics, to be classified as a particular cover type.

2.3. Accuracy Standards

Davey Resource Group's experience and knowledge in utilizing a combination of these powerful classification tools and techniques enable us to capture a much more accurate representation of the current land cover layer and decreases the amount of manual editing time needed in the quality control process. Davey Resource Group manually edits and conducts thorough quality assurance and quality control checks on all urban tree canopy and land cover layers. A QA/QC process will be completed using ArcGIS® to identify, clean, and correct any misclassification or topology errors in the final land cover dataset. Davey Resource Group will edit the initial land cover extractions in urban areas at a 1:1250 quality control scale, rural areas at a 1:2500 scale, and woodland/forested areas at a 1:5000 scale utilizing the most current high-resolution aerial imagery to aid in the quality control process.

Generally, other UTC projects edit urban areas at a 1:2500 scale. Davey Resource Group will use a more detailed 1:1250 scale in urban areas so that the results of the final land cover layer will reflect a more accurate representation of the true nature and extent of the urban landscape by capturing individual tree canopy features. Additionally, this higher scale will aid in achieving a minimum of 94% user's accuracy for tree canopy and impervious classes. Overall accuracy will be greater than or equal to 92%.

2.4. Third Party Accuracy Verification

Davey Resource Group will voluntarily coordinate and cooperate with the LFUCG during the QA/QC assessment on the image classification deliverables if LFUCG desires. Unless severe deficiencies with the NAIP imagery are apparent, the imagery will be not be resampled, so the MMU for the land cover layer will be approximately 9 square meters. The positional accuracy of the final land cover dataset will be dependent on the accuracy of the NAIP imagery as provided and processed by the U.S. Department of Agriculture.

Davey Resource Group will provide LFUCG datasets needed for accuracy verification prior to final analysis and report generation. This will include the final classified raster layer with metadata, the narrative description of the classification methodology, the error matrix and the narrative describing Davey Resource Group's error assessment methodology, and all training set data required to perform the extraction.

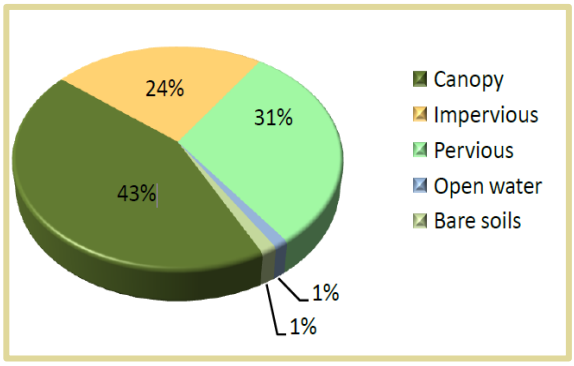
2.5. Data Deliverables

All deliverables will be produced and distributed as specified in the RFP. Davey Resource Group delivers all Geographic Information System (GIS) data in an ESRI ArcGIS® geodatabase in a projected coordinate system that fully integrates with our clients' existing GIS software. These data sets will be delivered complete with projection files and metadata using Federal Geographic Data Committee (FGDC) specifications.

Urban Tree Canopy Project Data Parameter Summary Information

Parameter	Description
Imagery	2012 NAIP 4-band (1m resolution)
Extraction Software	Overwatch Feature Analyst 5.0® and ESRI ArcGIS®
Land Cover Classes	Canopy, Impervious, Open Space/Grass, Bare Ground, Water
Minimum Mapping Unit (MMU)	9 square meters
QA/QC Scale	**1:1250 (Urban)** – 1:2500 (Rural) – 1:5000 (Woodland/Forested Areas)
Error Sampling Method	Random point generation
Statistical Metrics	Kappa, Quantity Disagreement, and Allocation Disagreement
Minimum User's Accuracy	Canopy = 94%, Impervious = 94%, Overall = 92%

UTC Analysis



After completing the accuracy assessment, the final comprehensive land cover dataset will be processed in ArcGIS® to measure the existing urban tree canopy cover for the Project Area. Depending on the availability of data provided, further analyses will provide the LFUCG with a statistical summary of the area and existing percent of canopy cover for geographic boundaries such as land use, zoning, parks, rights-of-way, watersheds, and other management units. Area and percentages of canopy cover will be calculated for the Project Area, each land use category, and other geographic boundaries. This comparison of canopy cover with land designations will become a primary resource for recommendations and goals for the community forest. The results will be prepared for the LFUCG in a report with tables, graphs, charts, and maps. The spatial land cover dataset provided by Davey Resource Group from the semi-automated extraction will allow further GIS analysis at the regional, city, and parcel-based levels.

UTC Deliverables

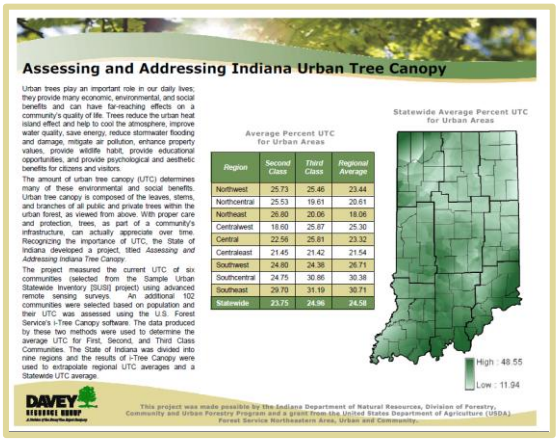
Providing our clients with an UTC assessment report is as important as identifying, collecting, and analyzing the baseline data. A brief written report, delivered electronically, will be submitted at the completion of the UTC analysis. The report will contain summarized information about the purpose, methodology, and findings of this part of the project, including land classifications for the Project Area expressed as a percentage of total urban county government area and a comparison to the stated 40% canopy cover goal. Additionally, an electronic copy of the final UTC map will be provided to the LFUCG in a format suitable for printing and posting on websites.

All UTC data and related information will also be delivered as instructed in the RFP.

UTC Analysis – Value Added Services

The following services and information will be given to the LFUCG at no additional charge over the fees presented for the minimum requirements of the RFP if desired. The total value of these services to LFUCG is $5,800.

1. **Urban Service Area UTC Factsheet**



   Davey Resource Group can develop a brief factsheet to present the results of the UTC analysis for the Project Area. The factsheet will briefly describe what UTC is, how it benefits the community, what the Service Area statistics are, and how they compare to other cities, and to the desired 40% canopy cover goal.

   Deliverables: The document will contain easy-to-understand information and be visually appealing. It will also be created in a format that will facilitate mass production printing as well as posting on websites or otherwise distributing it electronically.

2. Ecosystem Benefits Analysis

Building on our remote sensing and GIS analysis experience, Davey Resource Group has developed a comprehensive working knowledge of i-Tree and its many applications. From identifying the initial land cover data to mapping and graphing actual ecosystem services for LFUCG, Davey Resource Group will utilize a combination of internal analytical processes and i-Tree tools to quantify the value and spatially represent the specific tree canopy ecosystem services of air pollution removal and carbon storage and sequestration

Analysis 1 – Air Quality: The publically accessible software model called i-Tree VUE uses National Land Cover Data (NLCD) satellite-based imagery to assess a community's land cover. The software supports analysis of pollution removal from different land classes (including tree canopy). Recent innovations with the latest version of VUE will allow the Council to adjust the NLCD Tree Canopy (TC) and Impervious Cover (IC) values overall within the software model to generate the overall ecosystem service estimated values. Davey Resource Group will convert the land cover classified in Task 2.2 for use in i-Tree Vue and provide analysis and report on pollution removal within the AOI. Davey Resource Group will aggregate and process the existing land cover dataset to generate a more detailed analysis and report for the Project Area. The report will be generated to quantify the monetary and unit values of pollution reduction.

Analysis 2 – Carbon: The software model i-Tree VUE can again provide the solution to evaluating the carbon sequestration and storage services provided by the Project Area's tree canopy. Along with the Air Quality analysis, the software will be calibrated with the current land cover and impervious surface percentages to model the urban forests' carbon benefits. These results will be analyzed for the Project Area to demonstrate the amount of UTC that can be directly correlated to current and future increases in carbon reduction.

Analysis 3 – Stormwater: Davey Resource Group will complete a stormwater assessment using the TR-55 hydrologic equations created by the USDA for modeling stormwater runoff. These equations are commonly used to assess stormwater runoff in urban watersheds by generating a curve number. This number is correlated with hydrologic soil groups, which identify a soil's permeability. In addition, the curve number also uses current land cover as an input. To calculate runoff, the equation uses rainfall data, potential maximum retention, and initial abstraction. CITYGreen® for ArcView 3.x software will be utilized to quantify the monetary and unit values of pollution reduction and stormwater.

Deliverables: The results of the statistical summary report generated by i-Tree for air quality and for carbon will be provided as an Excel™ document. The data needed to run this tool will also be provided to LFUCG. This tool will allow LFUCG and its partners to visualize and model basic scenarios producing simple analyses outputs including: carbon storage, carbon sequestration, pollution removal, and tree canopy grow-out modeling.

3. Detailed Land Cover

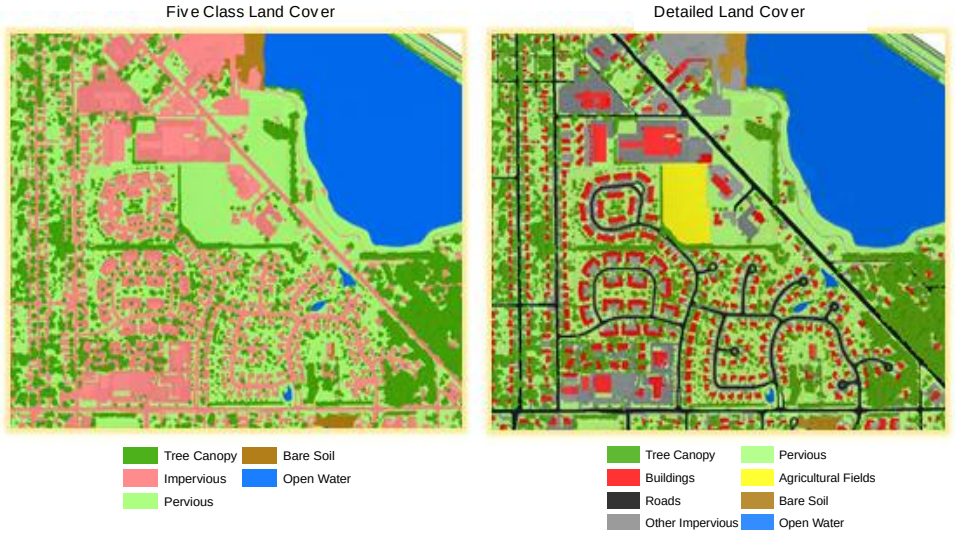
Since the LFUCG maintains a well-attributed impervious layer depicting buildings, roads, sidewalks, pavement, etc., Davey Resource Group will utilize the impervious surfaces layer and separate each of these classes individually to provide a more defined representation of the true nature of Lexington's landscape.

Davey Resource Group will also add agricultural fields and wetlands as separate pervious land cover classes. During this additional analysis, Davey Resource Group will identify tree canopies that overhang impervious surfaces which will give LFUCG a more realistic view and statistics on the current amount of pavement.

In effect, LFUCG will receive five additional layers at no cost. This information will be used by Davey Resource Group to produce an even higher quality, more realistic planting plan, and LFUCG will have the additional information to support other GIS analysis projects, such as for stormwater management or public services uses.

Deliverables: Davey Resource Group would provide the LFUCG with a detailed 10-class land cover layer in addition to the original 5-class land cover layer specified in the minimum deliverables. LFUCG will receive these land cover classes in two shapefiles complete with all relevant statistics.

Land Cover Class	Subclass	Description
Canopy		The layer of leaves, branches, and stems of a tree that covers the ground when viewed from above
	Rights-of-Way	Tree canopy that overhangs a road or other important rights-of way
Impervious		Impermeable surfaces that are not obscured by tree cover
	Buildings	Houses and commercial, industrial, and public structures
	Roads	Streets and highways
	Other Impervious	Includes driveways, sidewalks, and other impermeable surfaces
Open Space/Grass		Areas that allow water to penetrate the ground surface
	Grass/Irrigated	Lawns and other grass covered areas
	Agricultural	Identifies agricultural fields and separates them as their own class
Hydrology		Bodies of water such as lakes, rivers, ponds, and streams
	Open Water	Water features that are not covered by canopy
	Wetlands	Locally mapped or NWI wetland boundaries
Bare Ground		Areas free of vegetation, most likely around new development or industrial areas



In the graphic above, the difference is easily observable between 8 detailed land classes and 5 initial land classes. Davey Resource Group will give LFUCG this added level of accuracy.

4. **i-Tree Canopy Analysis**

   Davey Resource Group will compare the land cover percentage values with the statistical results generated from i-Tree Canopy for Project Area. The random point locations derived from i-Tree Canopy can be re-imported to produce a statistically valid estimate of land cover for future analysis using new aerial images as they become available in Google Maps. This is an easy way to statistically estimate tree canopy cover, set canopy goals, and keep track of canopy change over time.

   Deliverables: Google Earth kmz files, zipped kml (Keyhole Markup Language) files, and i-Tree Canopy point data files (.DAT) will be provided with the random point locations so any organization with access to an internet browser can run the canopy analysis again at any time, utilizing historical or new aerial images as they become available. Also, a statistical report generated by i-Tree will be provided as a Word or PDF document.

5. **Historical Land Cover Change Assessment**

   Davey Resource Group will generate a Google Earth kml file of the random point locations derived from i-Tree Canopy analysis for the Project Area to complete a statistical canopy assessment for up to 2 additional years as determined by the LFUCG. Currently, the historical images available in Google Earth range for the years 1992 through 2012.

   Deliverables: Statistical change report in electronic format with simple graphics representing the conditions of the selected years.

6. **Public Meeting Support Materials**

   Davey Resource Group will create PowerPoint slides about the project and results so the LFUCG can use and incorporate them into UTC-specific presentations or for other outreach efforts. These would be prepared to be audience-appropriate to use for presentations to the Lexington Tree Board, Urban County Council, Stormwater Stakeholder Advisory Committee, the Kentucky Tree Board Seminar, and for allied non-profit organizations, private grant foundations, other government staff, state agencies, and regional stakeholders.

7. **Interim Deliverables**

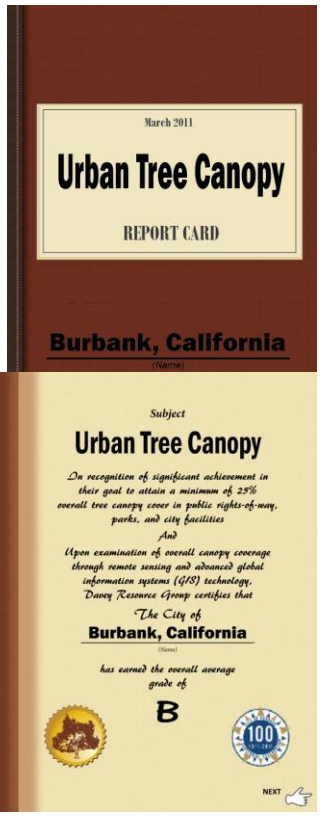
   Beyond the minimum monthly reporting required in the RFP, Davey Resource Group will provide LFUCG with thorough updates during the project. LFUCG will receive Google Earth KML and PDF files of accomplishments, and in-person updates. Davey Resource Group will also host remote web-based meetings (using GoToMeeting, etc.) that all staff can conveniently attend if desired.

UTC Analysis – Optional Services

To supplement our UTC Assessments, Davey Resource Group offers additional optional services that are unique ways for the LFUCG and future professional project partners to use the baseline data for more advanced analysis and for presenting the UTC project and results that make it tangible for the community at-large. These supplemental services provide the LFUCG with more robust analysis and comprehensive findings. These analytical services are completely optional and do not influence the basis of the UTC Assessment; Davey Resource Group offers them for the LFUCG's consideration only.

1. Canopy "Report Card"

Measuring canopy over time is critical to understanding the success and failures of urban forest management and land development with the LFUCG urban service area. To help facilitate understanding, Davey Resource Group has developed the "Canopy Report Card". This unique public relations tool gives an instant gauge for the Project Area's canopy coverage. By utilizing a "letter grade" based on the canopy percentage goal, the public and regional stakeholders have a quick understanding of both the government's and their roles in protecting and enhancing canopy cover.



LFUCG has an overall goal of 40% canopy coverage. Based on what the UTC analysis finds to be the current coverage, it is given a letter grade based on what percentage of the 40% coverage achieved using a simple equation:

% Canopy/40% Canopy Goal = % Attainment.

Letter grades are assigned just like school:

A+ = 100% attainment of tree canopy goal

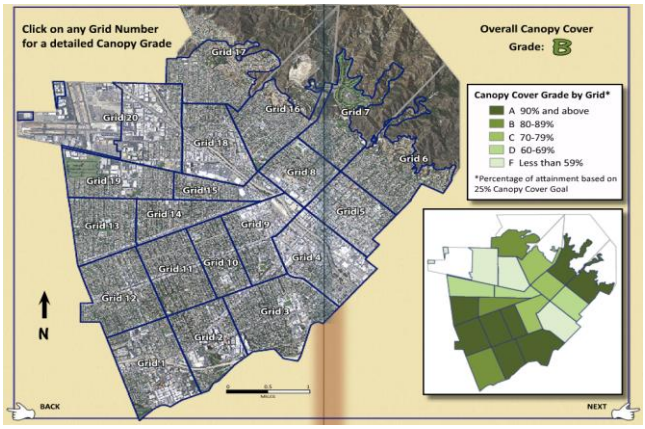
A = 90-99% attainment

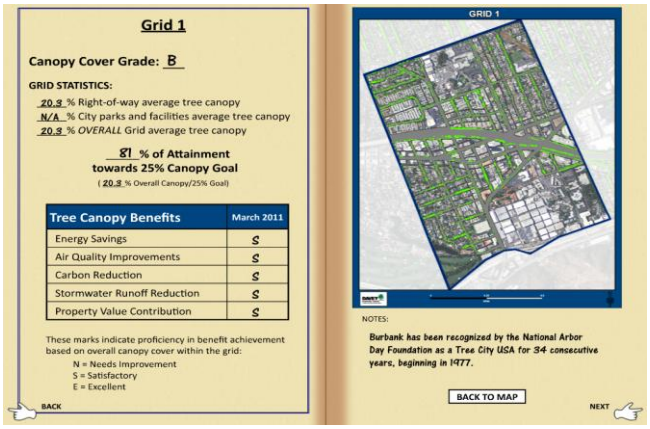
B = 80-89% attainment

C = 70-79% attainment

D = 60-69% attainment

F = less than 59% attainment





Example of a Report Card on the attainment of community canopy goals

This can be done as an average over the entire Project Area or based on areas that are delineated during the canopy study. Currently, LFUCG's TreeKeeper® tree inventory software program has quadrants set up as the primary management units for public tree management. However, we expect that the LFUCG will have applicable political, geographic, or environmental boundaries for determining canopy grades, and Davey Resource Group will work with LFUCG to define these and apply them to the UTC for reporting and comparison purposes.

Deliverables: The document, designed as an electronic publication, provides details about the performance and attainment level of LFUCG's overall municipal canopy and for distinct areas. It can be linked to and from stakeholder websites, e-mails, and other electronic documents. In addition, Davey Resource Group will provide both an on-line and written report about the UTC Report Card. More information and examples can be provided for this aspect of the canopy study if requested.

2. Wall Maps

Whether for individual neighborhoods, land use types, city-county urban or business cores, or the entire Project Area, Davey Resource Group can produce and provide attractive oversized maps and convenient map books that would complement public outreach efforts, be displayed at public meetings, and be a useful visual tool for project partners.

The oversized wall maps can be customized to meet the needs of the LFUCG and will provide an at-a-glance view of the UTC and tree assets, their location, and attributes, all in relation to the area's existing features. The map will incorporate the UTC data with the best available basemaps.

Deliverables: Electronic copies of the map or mapbook and/or a defined set of printed maps and mapbooks.

3. Public Presentations/Workshops

At the conclusion of the project, Davey Resource Group can conduct customized public workshops or make public presentations of the results. An expanded PowerPoint presentation will be created and will be customized for the audience and location. Appropriate handouts will be developed for printed or electronic distribution. With LFUCG assistance, Davey Resource Group will make all logistical arrangements related to these presentations.

4. Existing GIS Layer Updates

Davey Resource Group can update the buildings, edge of pavement, and other paved surfaces (parking lots, driveways, etc.) layers during the manual quality assurance and quality checking process utilizing the most current imagery available within the Urban Service Area.

Deliverables: The final GIS layer will be provided to the LFUCG as an ESRI ArcGIS® geodatabase in a projected coordinate system that fully integrates with our clients' existing GIS software. Layer will only have updated polygons. Attributes will not be filled out.

5. **Urban Tree Canopy Comprehensive Report**

Beyond the summary report, the LFUCG may elect to have a comprehensive UTC Report developed. The report will follow the guidelines set forth in accordance with the U.S. Forest Service "UTC Assessment Guidelines". The report will include the project methodology, tables, maps, findings, and recommendations.

Davey Resource Group knows that the report must be presented such that it is visually appealing, concise, and able to convey the totality of what the urban forest provides to a community, in a fashion that is easily read and understood by community stakeholders. Since many of Davey Resource Group's urban foresters have experience working for local and state governments, as well as non-profit organizations, we understand the essence of communicating with a variety of community stakeholders. This is important when determining how to organize and present urban forestry data. Effective communication of the results for this project will build the trust and confidence needed for community stakeholders to understand and support the Council's urban forestry management.

In addition to high-quality reports, Davey Resource Group also retains a highly skilled marketing and communications team who help to ensure an aesthetically pleasing and polished final report. The marketing and communications team adds value by allowing Davey Resource Group to offer UTC assessment reports in a variety of formats. From a simple PDF document to an interactive, online publication, Davey Resource Group is able to provide a detailed, meaningful, and effective UTC assessment report. It will clearly demonstrate the structure, function, and value of the urban and community forest.

Task Three. GIS-Based Prioritized Planting Plan

A standard UTC will provide mapping and information on "all possible planting areas". The "possible planting area" calculation that a preliminary UTC analysis returns is the total of all areas that are open ground – such as golf courses, active agricultural fields, and sports fields. While it is theoretically possible that these types of pervious surfaces and land use areas *could* represent future tree planting areas, considering these is understandably not practical for implementing actual planting projects nor is it realistic for urban forest planning and management.

Example of Mapping and Classification of Potential Tree Planting Sites of a UTC-Based Planting Plan

Therefore, Davey Resource Group will perform further analysis for the LFUCG to determine more "real world" and reasonable areas to plant trees; these are termed "preferred planting areas". Davey Resource Group will perform this analysis for the entire Project Area and will additionally prioritize these areas based on maximizing ecological services, providing equal access to trees and natural resources, and protecting public health and safety benefits.

UTC-Based Planting Plan Methodology

The prioritized, preferred planting plans will be developed using the UTC mapping analysis and results in addition to factoring in the following information:

- The final UTC-based planting plan analysis parameters will be decided by the LFUCG with input from Davey Resource Group, but the following information will be used at a minimum and as a basis for creating the planting plan and prioritizing target planting areas within the Project Area:
    - Socio-economic data
    - Proximity to surface waters and impaired waterways
    - Topography and soil types
    - Public/private ownership
    - Linkages to greenways and other forest resources
- The plan will include information recommending areas for planting, and approximate numbers and species suggestions will be included for each prioritized area with an emphasis on maximizing the population of large canopy tree species.
- Tree planting areas can be viewed or used as polygons or as points for planning purposes depending on the level of detail required. When viewing both polygons or points, a table will be provided for reference indicating whether the species recommended for a given area is a small, medium, or large canopy tree with species suggestions made that are suited to the LFUGC growing conditions, tolerant of urban conditions, and suitable for a variety of site conditions (such as wet, dry, or compacted).
- The plan will also be organized in geographical quadrants to facilitate integration of public tree inventory data that are organized in a similar fashion in the LFUCG's TreeKeeper® inventory database management software program. The site types designated within the planting plan will be mutually agreed upon by Davey Resource Group and LFUCG.

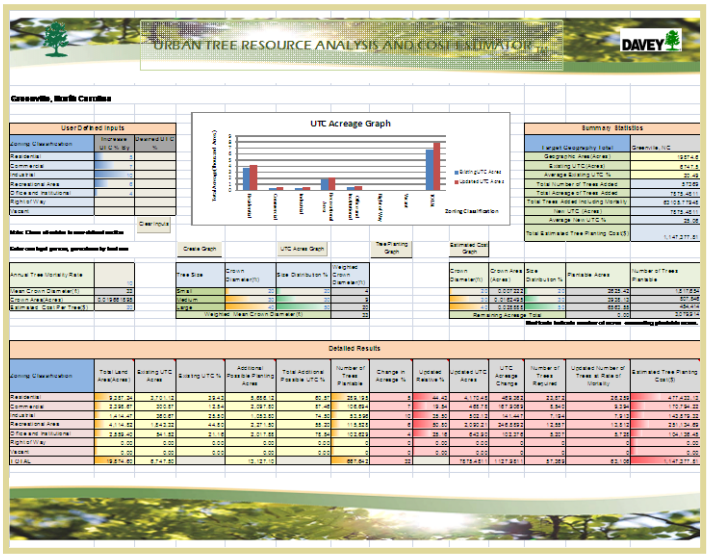
Deliverables

The planting plan will be a GIS feature layer with associated polygon attributes and will be delivered electronically to the LFUCG. Additionally, a brief written report, delivered electronically will be submitted to the LFUCG at the completion of the planting plan creation. The report will contain summarized information about the purpose, methodology, and findings of this part of the project.

UTC-Based Planting Plan – Value Added Services

The following services and information specifically for the planting plan will be given to the LFUCG at no additional charge over the fees presented for the minimum requirements of the RFP if desired. The total value of these services is $7,760.

1. **Urban Tree Canopy Calculator**

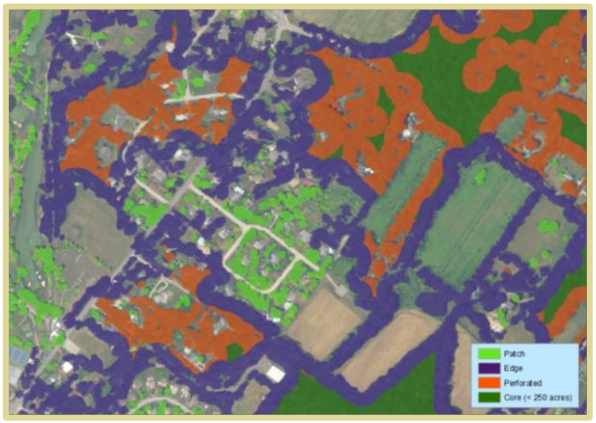


Developed by Davey Resource Group, the Urban Tree Resource Analysis and Cost Estimator (UTRACE) tool utilizes current baseline percentages from the UTC assessment to generate possible planting scenarios. The tool is aimed at estimating future tree plantings to attain a canopy goal, allowing a user to set the desired canopy cover percentage increase for the entire Project Area or specific land use categories. The tool allows the user to determine the estimated number of trees biophysically feasible to plant within the available planting space and vice versa, estimating budget implications and accounting for the number of trees plantable by crown size. UTRACE also generates graphs for the existing and projected UTC results, the number of trees within the plantable space, and the estimated cost of planting.

The LFUCG will receive a customized version of the UTRACE tree canopy calculator for the Urban Service Area. The calculator will be fully adjustable and allow the LFUCG and regional partners to plan and consider additional planting strategies.

Deliverables: LFUCG will receive a customized version of the UTRACE tree canopy calculator for the Project Area. The calculator will be fully adjustable and allow LFUCG and regional partners to plan and consider additional planting strategies.

2. **Forest Fragmentation and Urban Habitat Assessment**



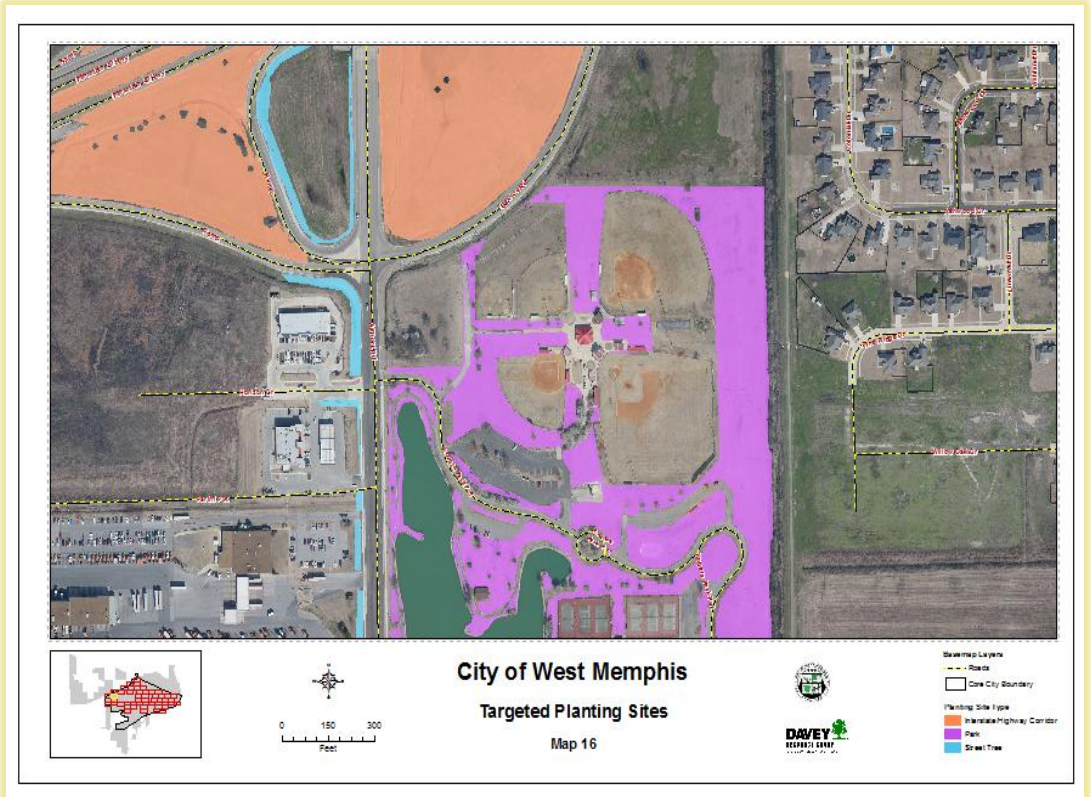
Forested areas provide numerous benefits to city residents including improved water quality and filtration of pollutants from the air, but urban wildlife habitat is one thing that often gets overlooked in most urban tree canopy reports. The urban ecosystem is extremely complex and diverse because it exists from many small functional ecosystems to form a large one. Overall health of the urban ecosystem depends highly on the ability of the trees, plants, wildlife, insects, and humans to act collectively as a whole. However, one key factor in declining urban health is urban build-up and sprawl which leads to the removal and decrease of canopy across the City. Many times this effect causes canopies to succumb to forest fragmentation leading to degradation of ecosystem health. In turn, habitat quality and canopy connectivity declines which causes changes in microclimates increasing the risk of susceptibility to invasive species.

As a part of Davey Resource Group's Fragmentation Assessment, we will analyze urban tree canopy for fragmentation. This assessment will focus on how the canopy is spatially distributed throughout the City and provide the client with an index displaying the degree of fragmentation. Davey Resource Group can then determine locations that would benefit most from tree plantings. Oftentimes, health and diversity can be greatly improved by creating linkages between multiple patches of forest. Davey Resource Group can also provide the LFUCG a set of the tools used to calculate fragmentation if the LFUCG or any of its regional partners wish to do future analysis on their own.

Deliverables: LFUCG will receive a statistical report and map of this fragmentation analysis. Davey Resource Group can also provide LFUCG a set of the tools used to calculate fragmentation if LFUCG or any of its regional partners wish to do future analysis on their own. The important forest connection information generated from this service will augment the other factors used to create and prioritize the planting plan at no additional charge.

3. Map Booklet of Prioritized Planting Sites

Map booklets are multi-page, color-printed documents that can be used in the office or the field by anyone to view UTC results in a map-view. Customized UTC locations and attributes can be represented in the Map Booklet pages using symbols and colors. An index grid system, based on an areas's reference map, divides the UTC data into workable scale "pages" for ease of use.



Davey Resource Group will provide a map book to the LFUCG as a part of our prioritized planting plan. The above graphic is an example of a page from a map book that displays planting site polygons derived through preferred planting site methodologies and site prioritization. Within these boundaries, potential tree planting locations are identified as points.

Deliverables: LFUCG will receive a map booklet of planting sites throughout the entire Urban Service Area detailing the type of planting site and approximate number of trees that could potentially be planted within each individual map. Species suggestions can also be summarized and placed on each individual map. The map booklet will be the same as the GIS layer but will present the plan in easy-to-understand, more practical views and will be delivered in printed and electronic formats.

4. **Urban Service Area Planting Plan Factsheet**

   Davey Resource Group can develop a factsheet to present the results of the UTC-based planting plan created for the Urban Service Area. The factsheet can briefly describe how the plan was developed, how the community can use it to achieve canopy goals, and what actions they can take to implement the plan. The document will contain easy-to-understand information and be visually appealing. It will also be created in a format that will facilitate mass production printing as well as posting on websites or otherwise distributing it electronically.

   Deliverables: Electronic copy of the factsheet (similar in style to the UTC factsheet previously described).

5. **Public Presentations**

   At the direction of LFUCG, Davey Resource Group will make up to three formal, brief presentations of the results of the Planting Plans to select groups, such as the Tree Board, Urban County Council, and/or City staff. Davey Resource Group will prepare the presentation materials and provide the staff for these meetings; the LFUCG will initiate and coordinate the request.

6. **Interim Deliverables**

   Beyond the minimum monthly reporting required in the RFP, Davey Resource Group will provide LFUCG with thorough updates during the project. LFUCG will receive Google Earth KML and PDF files of accomplishments, and in-person updates. Davey Resource Group will also host remote, web-based meetings (using GoToMeeting, etc.) that all staff can conveniently attend.

UTC-Based Planting Plan – Optional Services

1. **Projected Ecosystem Benefits**

   With the development of Davey Resource Group's internal Ecosystem Benefits Calculator, this value-added service/tool assesses future ecosystem benefits for tree planting projects. In order to provide the client with as much information as possible, Davey Resource Group has assembled a detailed version of the calculator. This new feature predicts benefits in five-year intervals for up to 40 years after planting by using unit values derived from the USDA Forest Service Pacific Southwest Research Station. Currently, unit values have been established for 19 climates zones throughout the United States.

   In the detailed version of the calculator, we have the ability to compare the benefits (and costs) associated with private yard and public tree plantings. A directional component is also added for all private yard trees to further enhance and more accurately predict ecosystem benefits. This feature allows Davey Resource Group the capability of distinguishing directional differences on a west, south, and east yard location. Finally, the calculator will provide summary tables and graphs detailing the net benefits for each tree size category and planting location, as well as a marginal benefit for each five-year interval which determines when trees will reach their maximum ecosystem benefit for a community.

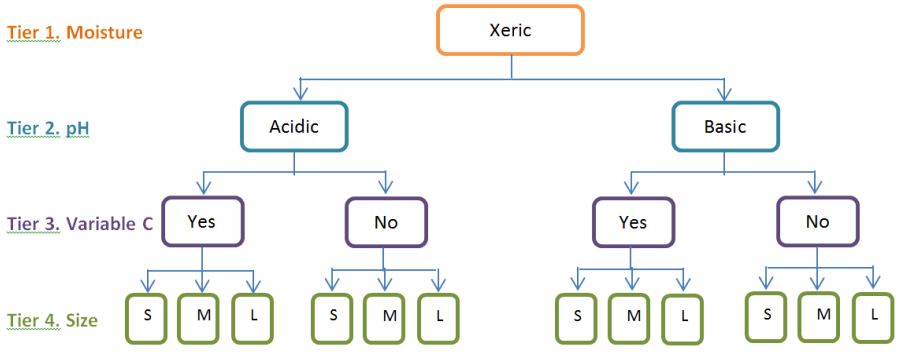
The development of this multi-level ecosystem benefit calculator allows Davey Resource Group the flexibility to analyze each unique community and recommend realistic planting goals. Since tree planting plans are not consistent from community to community, the way we calculate benefits should not be the same either. Some cities may only need to plant public trees or only private trees, while others may want a mix of both public and private trees to achieve their planting goals. Being able to successfully plan for any scenario ensures greater accuracy when determining overall benefit to the community.

2. Tree Planting Decision Model

Naturally, urban canopy assessments are completed to provide a city with information about its land cover and, most times, that is about as far as canopy assessments will go. In some cases, this approach is all the information a city might need, but it does not serve as a comprehensive analysis. To supplement our UTC analysis, Davey Resource Group offers the option to analyze the city's available planting spaces and develop a planting strategy based on the environmental conditions of each planting site. This will allow the city to make informed tree planting decisions regarding size and species. If the city wishes to plant only a certain tree size, this analysis can do that. Also, if a city wishes to only plant a particular species, this analysis can do that as well. Subsequently, this analysis serves as a dichotomous key to determine which type of tree will best be suited for the site conditions in which it is to be planted. In theory, following this strategy will decrease tree mortality and should lessen the number of trees that would need to be replanted saving the city additional money.

Analysis Procedures

Davey Resource Group will assess soil properties as well as landscape placement to determine which tree species is best suited for each planting site. Soil components such as moisture, drainage, and pH will act as a basis for the analysis. Since the degree of the obtainable data is variable for each city, the flexibility to include or omit variables is a strength of the model. As a baseline, Davey Resource Group will use all relevant soil and topographic data in every analysis. However, Davey Resource Group can include additional variables at the client's discretion. Below is an example of an abbreviated decision tree model. In this example, Tiers 1 and 2 provide as the initial factors to determine tree size and species while Tier 3 serves as an additional unidentified variable. Actual analyses will include numerous Tiers until the final selection of tree species is chosen. Ideally, there will be a few different species to select in each category providing the city with multiple planting options.



Sample Tree Planting Decision Model

Conditions and Assumptions

1. All imagery must be provided to Davey Resource Group at no cost and in a timely manner. Davey Resource Group will sign non-commercial use agreements for the data as needed.
2. Total Project Area is approximately 85.35 square miles, and is defined as the Urban Service Area of Fayette County.
3. All imagery provided will be ortho-rectified, color-balanced, and co-registered by the imagery vendor.
4. Specific criteria on land cover types will be classified by the client and provided to Davey Resource Group through aerial photography, maps, and/or spatially specific photographs. This will help drive the categorization of land cover types into the final land cover map layers and provide the client with an added assurance that the data have been correctly classified.
5. All reasonable efforts will be taken to minimize the manual error correction process.
6. Classification accuracies will vary from that of manual photo interpretation. All parties understand the benefits and cost of using the automated feature extraction for land cover classification.
7. Davey Resource Group will comply with all applicable federal, state, and local laws and codes. Davey Resource Group will assure that its local business license is current and valid.
8. Davey Resource Group will provide all professional liability insurance as required upon receipt of an executed agreement or contract.

Technical Capability and Unique Qualifications

The following assets and qualities of Davey Resource Group demonstrate our ability to provide LFUCG with a high-quality UTC Assessment, Planting Plans, and related services.

Firm Stability

The Davey Tree Expert Company has been in business for over 130 years. It is an employee-owned company that has stood the test of time. While other urban forestry companies and technology consulting firms can and have gone out of business, Davey's history speaks to longevity and security that it will remain successful and able to serve the needs of all clients in the future.

Local Presence and National Support

The Davey Tree Expert Company has been operating in the region since the 1930s when its first office was located in downtown Cincinnati, and expanded to include an office in Louisville. When Davey Resource Group was created in the early 1990s, another Kentucky office was established and currently operates in Boone County. Davey Resource Group has served Kentucky cities, natural resource agencies, non-profits, and planning organizations for over 14 years. Davey Resource Group has solid professional relationships with many of this project's key stakeholders and partners, such as the Kentucky Division of Forestry, local government staff, and the LFUCG itself. Not only are local Davey Resource Group staff highly qualified and fully equipped to provide comprehensive services to our clients, but they are also supported by nationwide staff, technology, and equipment resources.

Unequaled Community Forestry Expertise

Davey Resource Group provides urban forestry assistance to communities throughout North America. The recent recipient of the Beacon Award from the Arbor Day Foundation, Davey Resource Group was recognized for tremendous leadership and guiding influence in urban and community forestry at the community, state, and national levels. This award is a reflection of our goal: to help our clients better understand and care for their urban and community tree resources.

As an employee-owned company, Davey attracts top arborists and urban foresters from around the country who are committed to improving the quality of urban and community forest resource management. This passion for innovation is what sets us apart. Davey Resource Group's urban forestry team includes ISA Certified Arborists, Municipal Specialists, SAF Certified Professional Foresters, and urban foresters with state and municipal forestry experience. Many of our staff have worked for regional governments and understand how partnerships provide the necessary support for urban forestry in our communities.

Our urban forestry projects vary in nature and scope and include the following examples:

- Tree inventories
- Canopy cover assessments
- Natural resource inventories
- Watershed, green infrastructure, and stormwater analyses
- Urban greening and planning projects
- Comprehensive management and master plans
- Invasive species planning and mitigation
- Comprehensive analysis of ecosystem services costs and benefits

i-Tree Cooperator and Leader

Davey recognizes the value of trees and their contribution to improving social and environmental conditions in every community. Our commitment to urban forestry is further demonstrated by Davey Resource Group's ongoing participation in the public–private partnership with the United States Forest Service to assist with and support the creation and continued development of i-Tree. This suite of software tools allows communities to analyze urban forest data and quantify the ecosystem services provided by their urban and community forest resource.

GIS Innovations

Davey Resource Group's GIS services staff applies to each project the same high standards that have come to be expected of The Davey Tree Expert Company. Working in conjunction with urban foresters, environmental scientists, horticulturists, and tree grounds care specialists, Davey Resource Group's GIS services provide high-quality solutions to clients that include local, state, and national parks, utility companies, government agencies, and military bases. Davey Resource Group can help you easily and efficiently manage data and map information with a variety of state-of-the-art software solutions and the latest hardware technologies. Our pledge is to offer GIS expertise in the tradition of excellence that is the Davey Resource Group hallmark and provide dependable services and innovative solutions including:

- GIS Mapping and Remote Sensing Analysis
- Environmental and Land Development Analysis
- GIS Database Construction
- Custom GIS Programming
- 3-D Modeling and Animation
- Creation of Presentation Quality Maps
- Software Sales and Training

Work Experience with State and Local Government and Non-Profit Partners

Davey Resource Group recognizes the many benefits of engaging with state and local government non-profit partners. Whether sharing data or limited resources, public-private partnerships help many communities complete projects that otherwise would not be attainable. Davey Resource Group has worked with numerous local, state, federal, and non-profit agencies on a variety of urban and community forestry projects, including multistate forest inventory analyses and large-scale Tree Inventory, i-Eco, and UTC projects. Davey Resource Group believes urban forestry partnerships also facilitate sharing best practices and offer models of sustainability. Urban forestry innovations should transcend all community tree organizations to help urban forestry professionals everywhere.

Projects That Reflect Our Experience:

- Kentucky Division of Forestry: Ice Storm Inventories and Management Plans for Western Kentucky
- Northern Kentucky Urban Forestry Council: Kenton County Forest Quality Assessment, Boone County Forest Public Health and Safety Report, Kenton County Land Development Process handbook, among other projects
- Northern Kentucky Area Planning Commission: Banklick Watershed Critical Issues Analysis and Public Outreach project
- Sanitation District No. 1: Computer Model to Demonstrate the Effectiveness of Green Stormwater BMPs
- Kentucky cities, institutions, and businesses: Berea College, Brandstetter Carroll, Georgetown, Frankfort, LaGrange, Sisters of Nazareth, Springfield, West Buetchel, Oldham County Park and Recreation District, Camp Nelson and Lebanon National Cemeteries, Bellevue, Newport, Covington, Fort Thomas, Cold Springs, and Florence: tree inventories, management plans, software, tree risk assessments, tree preservation consulting, and special projects
- City of Elgin, Illinois Comprehensive Urban Forest Management Plan and Implementation Program funded through an ARRA grant
- Indiana Division of Forestry Community and Urban Forestry (CUF) Program: State-wide Urban Sample Inventory and Urban Tree Assessment and Statewide Urban Tree Canopy Analysis
- Friends of the Urban Forest: Street Tree inventory in San Francisco with citizen foresters
- TreePittsburgh: Urban Forest Master Plan; i-Tree Streets and Eco analysis

Project Schedule

Our expectation is to complete this project with a fairly aggressive timeline, yet this can be modified to suit the needs of the LFUCG. If optional services are requested, the project schedule will be modified accordingly.

Our large staff of GIS Analysts, Specialists, and Technicians are prepared to support all aspects of this project. Led by a project manager who has worked with municipalities and non-profits throughout the Midwest and a Senior Consulting Urban forester who lives and works in Kentucky, LFUCG can be assured that the team proposed for this project is very capable and experienced and is convenient and ready to respond to LFUCG's needs. In addition, their skills in community based leadership, municipal arboriculture and management, data analysis, writing, and graphic design will combine to support a successful project that is completed on time and within the budget.

Task	Timing
Contract/Agreement Signed	April 15, 2013
Data Acquisition	April, 2013
Task 1. Kickoff Meeting	May, 2013
Task 2: Perform Urban Tree Canopy Imagery Extraction	May, 2013
Land Cover Editing	May-July, 2013
Send Data to LFUCG for Third Party Assessment	July, 2013
Complete UTC Analysis and Deliverables	August, 2013
(Perform additional optional services as requested)	August, 2013
Task 3: UTC-Based Prioritized Municipal Tree Planting Plans	August, 2013
Complete Planting Plans and Deliverables	September, 2013
(Perform additional optional services as requested)	September, 2013
Task 4. Report and Deliverables	October, 2013
Make Final Project Presentation to LFUCG	November, 2013
Project Completion	December 31, 2013

* Final schedule is subject to modification dependent upon changes in base scope and/or acceptance of any optional services described in this proposal.

Pricing

The following pricing is provided for the minimum deliverables of this project as described in the RFP as well as for optional service LFUCG may want to consider. Please know our pricing is negotiable and we can provide more detail as necessary.

Urban Tree Canopy Assessment and Planting Plan		
Task	**Description**	**Cost**
Task 1: Project Orientation and Kick-off Meeting	Kick-off Meeting	$0 (in-kind/value added)
	Project Management	$2,000
	Data Acquisition	$500
Task 2: Land Cover Mapping	Land Cover Extraction	$2,600
	Land Cover QA/QC	$22,150
	Land Cover Error Assessment	$1,000
Task 3a: Analysis and Mapping	UTC Analysis and Mapping	$3,750
	Urban Tree Canopy Factsheet	$0 (in-kind/value added)
	Detailed Land Cover Layer (Buildings, Roads, Ag, Wetlands)	$0 (in-kind/value added)
	i-Tree Ecosystem Benefits Analysis	$0 (in-kind/value added)
	i-Tree Canopy Analysis	$0 (in-kind/value added)
	Historical Image Assessment	$0 (in-kind/value added)
	Public Meeting Support Materials	$0 (in-kind/value added)
Task 3b: Planting Plans	Prioritized Planting Site Analysis and Mapping	$3,750
	Planting Plan Factsheet	$0 (in-kind/value added)
	UTC Calculator	$0 (in-kind/value added)
	Urban Habitat Assessment	$0 (in-kind/value added)
	Map Booklet of Priority Planting Sites	$0 (in-kind/value added)
	Public Meetings	$0 (in-kind/value added)
Task 4: Report and Deliverables	Interim Deliverables	$0 (included in pricing)
	Final Data Deliverables (GDB, metadata, etc.)	$1,800
	Final UTC and Planting Plan Reports	$4,750
	Final Meeting	$0 (in-kind/value added)
	GRAND TOTAL	**$42,300***
	Anticipated Value-Added Services	**$13,560**

* This lump-sum total includes the price to perform a UTC and related services for the Urban Service Area, and includes all expenses for travel and equipment. For bid comparison or other project purposes, this figure can be recalculated upon request, for example, based on a different methodology, accuracy scale, or an increase or decrease of the total square miles of study area. Please contact Davey Resource Group to request this recalculation.

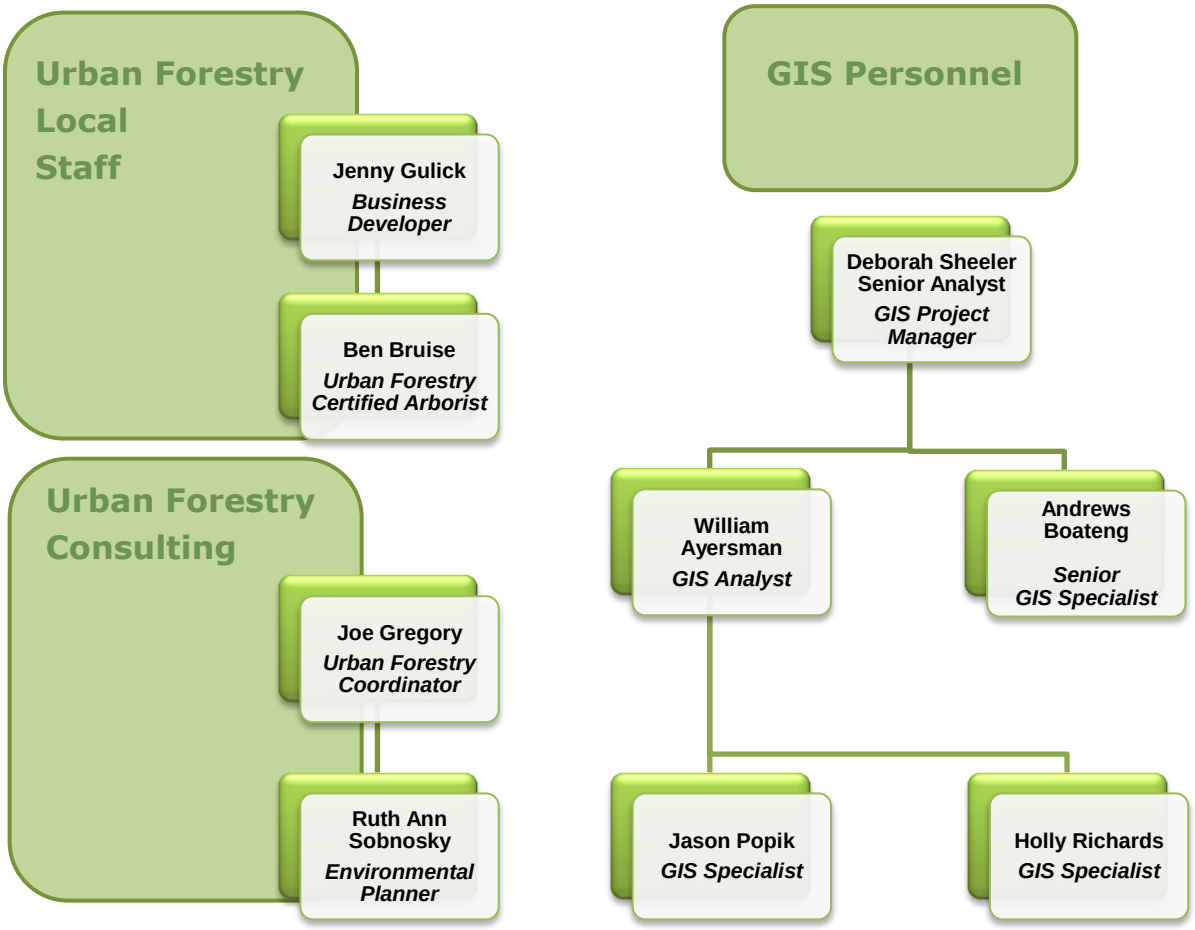
Optional Tasks and Services		
UTC Analysis and Mapping	Comprehensive UTC Report	$9,500
	Canopy “Report Card”	$3,500
	Lexington Urban Service Area Land Cover Wall Map	$1,300
	Update Existing 2007 GIS Layer With 2012	$3,750
	Public Presentation/Workshops	$1,000 each
UTC-Based Planting Plans	Projected Ecosystem Benefits of Newly Planted Trees	$1,500
	Tree Planting Decision Model	$3,000

Davey Resource Group requests that this proposal’s methodologies, services, and prices not be shared with other bidders or be made public at any time, or at least until after an award has been made.

Key Personnel, Company Background, and References

Key Personnel – Staff Qualifications

Davey Resource Group is proud of the personnel we can bring to such an important project. Our team of GIS/IT specialists, urban and community forestry specialists, and management personnel who will support this project have the knowledge, experience, and technology to help the LFUCG succeed. The project team has worked together on many successful tree canopy and community forest management and planting plan projects.



Davey's Key Personnel Resumes

Deborah E. Sheeler, M.A., GIS Project Manager

Ms. Sheeler is a Geographic Information Systems Analyst and Cartographer with over 16 years of professional experience applying advanced GIS and remote sensing technology to environmental analysis. She joined Davey in 1997 and has supervised the GIS department within the Davey Resource Group since 2006. Her current responsibilities include supporting Davey Resource Group's GIS operations throughout U.S. and Canada, and managing Davey Resource Group's custom Asset Manager Software. She has played a key role in managing the research and development of innovative GIS solutions and services for the green industry, focusing on urban canopy effects of stormwater, watershed, ecosystem cost/benefit analysis, and GIS analysis for priority planting locations.

Ms. Sheeler has been involved with vast projects throughout North America. She has extensive knowledge and experience in the application of spatial and remote sensing analysis for urban forestry, utility forestry, land use planning, natural resource management, and natural hazards research. Ms. Sheeler has been the lead GIS programmer for Davey Resource Group's custom ArcPad Tree inventory programs and has built over 250 custom applications since 2006. She also has experience with various GIS programming languages and extensive experience with the utilization, maintenance, and support of tablet computer hardware and global positioning systems (GPS).

Since 2009, Ms. Sheeler has completed and managed urban tree canopy and forest assessments projects for over 25 municipalities, including the City of Anchorage, AK; Roseville, CA; Bonney Lake, WA; Burbank, CA; Elgin, IL; Whitpain Township, PA; Ypsilanti, MI; and the Fort Bragg Army Installation in NC. In 2010, she completed a multi-UTC project as part of the Exotic and Invasive Pest Analysis and Issue Characterization Study, funded by the Illinois Department of Natural Resources and conducted to determine the practicality of using various management tools and strategies to control pest threats to public and private forests within four Illinois cities. In 2011, she also managed a statewide UTC project for the state of Indiana and six communities which was funded by the Indiana Department of Natural Resources.

Her expertise is also in cartography and the creation and design of presentation quality maps utilizing advanced GIS software, and providing clients a visual representation of the final data and/or overall project. As part of her custom outputs, she has generated brochures, pamphlets, factsheets, newspaper articles, map books, and small and large format maps. Her cartographical skills have been recognized and awarded in a number of map competitions.

Ms. Sheeler holds a Master of Arts degree in geography from Kent State University with a concentration in GIS and natural hazards research and a Bachelor's of Science degree in geography from the University of Central Missouri with a minor in earth science. She is a member of the Geographic and Land Information Systems (GIS/LIS) Advisory Committee at the University of Akron, American Society of Photogrammetry and Remote Sensing (ASPRS), Ohio Urban Regional System Association (URISA) Ohio Chapter, and GIS Users of Northern Ohio (GUONO).

Presentations

- 2011 Ohio GIS Conference, "Exotic and Invasive Pest Analysis and Issue Characterization", 2011
- 20th Annual Applied Geography Conference, "Learning from Hurricane Fran: Implications of the National Flood Insurance Program Towards Coastal Settlement", 1997

Publications

- Rohli, R.V., A.J. Vega, Binkley, M.R., Britton, S., Heckman, H., Jenkins, J., Ono, Y., and Sheeler, D., 2001, Synoptic Circulation and Stream Discharge in the Great Lakes Basin, Applied Geography, 21, 369-385
- "Surface and 700 hPa Atmospheric Circulation Patterns for the Great Lakes Basin and Eastern North America and Relationship to Atmospheric Teleconnections", Journal of Great Lakes Research, 1999
- "Blackwater Revisited: A Stage in the Life of a Stream", The National McNair Journal, 1996

William D. Ayersman, M.S., Geographic Information Systems Analyst

Mr. Ayersman is a Geographic Information Systems Analyst with over four years of experience applying spatial analysis and predictive modeling to natural resource issues. Mr. Ayersman has experience and knowledge in the fields of UTC analysis and mapping, forestry resource management, cartography, landscape metrics, and spatial statistics. He joined Davey Resource Group in April 2011.

Mr. Ayersman has been the Project Lead on 15 urban forestry analysis projects which include: West Memphis, AR; Roseville, CA; Tukwila, WA; Whitpain Township, PA; Watsonville, CA; Fort Bragg, NC; Ypsilanti, MI; and the Indiana Statewide Urban Tree Canopy Analysis project funded by the Indiana Department of Natural Resources. The statewide Indiana project, completed in 2011, included a detailed UTC assessment of six cities (Fort Wayne, South Bend, Evansville, Anderson, Cedar Lake, and Madison), in addition to a statistical regional and statewide UTC extrapolation and an environmental analysis to identify threats and environmental pressures for target tree planting areas. He is currently the project lead completing UTC studies for Goshen, IN and Easton, MD.

His daily responsibilities involve remote sensing and image analysis, database and project management, and the creation and design of predictive and suitability models. In addition, Mr. Ayersman has played a key role in the development of Davey's Ecosystem Benefits Calculator spreadsheet tool which focuses on the urban canopy effects of stormwater, watersheds, and ecosystem cost/benefits when planting new trees. He also assisted in the development of Davey's internal Urban Tree Canopy Analysis Cost Estimator tool.

Mr. Ayersman also has experience with transmission right-of-way mapping in which he completed projects for Great Lakes Power and Con Edison. Furthermore, he has strong interests in the research and development of new spatial analysis procedures, timber stand dynamics, LiDAR, and the ecological impacts of invasive species.

Prior to joining Davey Resource Group, Mr. Ayersman worked as a GIS Analyst for the Natural Resource Analysis Center in Morgantown, West Virginia where he collaborated with WV Department of Natural Resources to obtain goals for a wetland predictive model, conducted watershed and remote sensing analysis, and performed predictive/suitability modeling for invasive species. As a graduate research assistant at West Virginia University, he worked with the USDA Forest Service to design and create a spatial predictive model for the spread of emerald ash borer using GIS as well as a role in applying spatial analysis in order to complete his thesis requirements.

Mr. Ayersman holds a Master of Science degree in forestry with an emphasis in GIS and a Bachelor of Science in forest resource management from West Virginia University. He is a member of the Association of American Geographers (AAG), the American Society of Photogrammetry and Remote Sensing (ASPRS), and the Ohio Urban Regional System Association (URISA) Ohio Chapter.

Presentations

- 2011 SER-MA Conference, University of Maryland, College Park, MD, Poster Presentation: "Enhanced wetland detection using feature extraction with topographic derivatives and maximum entropy probabilistic modeling", April 1, 2011
- 2010 West Virginia GIS Conference, Geography Department, Marshall University, Huntington, WV. Presenter: "Identifying infestation probabilities of Emerald Ash Borer in Mid-Atlantic Region.", June 9, 2010

Andrews Atuobi Boateng, M.A., Senior Geographic Information Systems Specialist

Mr. Boateng is a Senior Geographic Information Systems Specialist with six years of experience applying GIS technology to environmental analysis, urban planning, and the support of sustainable development with environmentally friendly solutions. Mr. Boateng also has experience in Urban GIS, Cartography, Sustainable Development, Climate Change Mitigation and Adaptation, Strategic Environmental Assessment, and Greenhouse Gas Inventory Compilation and Management. As a Graduate/Teaching assistant with The University of Akron, Andrews joined Davey Resource Group in May 2009.

Mr. Boateng currently plays a lead role in the GIS mapping process with the USDA for the Asian Long-horned Beetle Survey project in Worcester, Massachusetts. He manages the internal quality assurance and quality control (QA/QC) analysis of the spatial data in addition to the creation of the final cartographic map production. His routine work involves data conversion and manipulation, spatial analysis and interpretation, and the creation and design of cartographic products through use of advanced GIS software. In addition, he played a lead role in the development of Davey's internal Urban Tree Canopy Analysis Cost Estimator tool.

Prior to pursuing his graduate degree, Mr. Boateng worked as a Program Officer with Environmental Applications and Technology Centre, a research and consulting organization with a focus on the implementation of global environmental management. He also worked under the United Nations Framework Convention on Climate Change (UNFCCC) Focal Point at the Environmental Protection Agency, Ghana, West Africa.

He was a delegate at the Consultative Group of Experts Hands-on Training Workshop on National Greenhouse Gas (GHG) Inventories for the African Region-UNFCCC in Pretoria, South Africa and the Twenty-Sixth Session of the Subsidiary Bodies under the United Nations Framework Convention on Climate Change and the Third Session of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol in Bonn, Germany.

Mr. Boateng holds a Master of Arts degree in geography and urban planning from The University of Akron and a Bachelor of Arts degree in geography and resource development from The University of Ghana with a minor in philosophy. He is a member of the American Planners Association - Ohio, the Ohio Urban Regional System Association (URISA), Greenhouse Gas Management Institute, and the Golden Key International Honor Society.

Presentations

- A Spatial Analysis of Maricopa County, Arizona, Department of Geography and Urban Planning, The University of Akron, 2010
- Cuyahoga Falls City Meeting, "Small Area Plan for the East Village Neighborhood", 2010
- United Nations Framework Convention on Climate Change, Ad Hoc Working Group (AWG) on Further Commitments for Annex I Parties under the Kyoto Protocol, Bonn, Germany, May 2007
- Strategic Environmental Assessment of the Ghana Transport Policy, Accra, Ghana, May 2007
- United Nations Framework Convention on Climate Change, Consultative Group of Experts (CGE) Hands-on Training Workshop on National Greenhouse Gas (GHG) Inventories for the African Region, Pretoria, South Africa, September 2006

Joseph Gregory, Coordinator of Urban Forestry Services

Joseph Gregory is an urban forester and Coordinator of Urban Forestry Services for Davey's Natural Resource Consulting group. Mr. Gregory is responsible for oversight of Davey's urban forestry related projects, including supporting business development, staffing, scheduling, and managing tree inventory projects, performing quality control checks, and providing training and professional development opportunities for his arborists. Mr. Gregory is proficient in writing urban and community forestry management plans and providing consulting services to communities. He has extensive experience with GPS technologies, several types of field data collection computers/units, tree inventories, urban tree risk assessment, and the i-Tree suite of software. In the cities of Kent, Ohio; Minneapolis, Minnesota; and Nebraska City, Nebraska, Mr. Gregory oversaw data collection for incorporation into the U.S. Forest Service's UFORE (Urban Forest Effects Model) and STRATUM (Street Tree Resource Analysis Tool for Urban Forest Managers). The UFORE and STRATUM models are components of the U.S. Forest Service's state-of-the-art, peer reviewed, urban and community forestry analysis and benefits assessment software suite called i-Tree.

Mr. Gregory has coordinated numerous municipal inventory projects throughout the United States including Wilmington, Delaware; New York, New York; and Pittsburgh, Pennsylvania. He also serves as the Consulting Arborist to the Borough of North East, Pennsylvania.

He is a Certified Arborist (OH-1420A) with the International Society of Arboriculture and a 2006 participant of the Society of Municipal Arborist's Municipal Forester Institute. Mr. Gregory joined Davey Resource Group in 2001.

Education

- B.S., Conservation, Kent State University, 2001

Certifications/Special Training

- Certified Arborist (OH-1420A), International Society of Arboriculture
- Municipal Forester Institute, Society of Municipal Arborists, 2006
- Trees, People, and the Law Seminar, The National Arbor Day Foundation, 2004

Professional Affiliations

- The International Society of Arboriculture and Ohio Chapter
- The Nature Conservancy

Jennifer Gulick, M.A., Senior Consulting Urban Forester

As a Davey business developer and senior consulting urban forester, Ms. Gulick is responsible for assisting governments, businesses, utilities, and non-profit organizations with various project development and implementation plans. She specializes in urban forestry, park management, and land development programs.

Ms. Gulick joined Davey Resource Group in 1999 after a successful career in municipal government. Prior to joining Davey, she was employed by the City of Cincinnati for 17 years, working in the Public Works Department and the Park Department primarily in the Urban Forest Management program and ultimately rising to the position of Acting Superintendent of Park Operations. There she managed the city's street tree program, park maintenance and horticulture operations, park land management activities, and a citywide greenspace program. Through these responsibilities, she developed effective policies and procedures to create a unique and holistic approach to managing public natural resources.

Ms. Gulick has broad experience in developing urban forestry management plans and maintenance standards; formulating park master plans; performing tree damage and value assessments; project budgeting; communicating with advisory boards, city LFUCG, and citizens; managing personnel; writing specifications; and administering contracts. She also had citywide utility coordinating responsibilities and developed a highly effective program which integrated trees and natural systems into stormwater, gas, water, and electric utilities projects, and one that protected public trees while allowing the utility companies to achieve their goals.

Ms. Gulick has performed a variety of research efforts and literature searches, and prepared related reports for several national projects. These include: *Community Forestry Best Management Practices for Public Works Directors* (U.S. Forest Service grant); *Stormwater and Trees* (U.S. EPA green infrastructure systems publication); and Computer Modeling for Green Stormwater BMPs (U.S. Forest Service grant).

Education

- B.S., Forest Resource Management, 1982, West Virginia University, Morgantown
- M.A., Public Administration, 1990, University of Cincinnati

Certifications/Special Training

- Certified Arborist (OH-0069), International Society of Arboriculture
- Municipal Specialist, International Society of Arboriculture
- Certified Forester (920), Society of American Foresters

Professional Affiliations

- Society of American Foresters – Kentucky/Tennessee Chapter
- Society of Municipal Arborists
- American Public Works Association – National Facilities and Grounds Committee
- Boone County Urban Forestry Commission, Board Member
- Ohio Chapter, International Society of Arboriculture, Past-President
- State of Kentucky, Division of Forestry, Urban Forestry Advisory LFUCG, Board Member
- Northern Kentucky Urban and Community Forestry LFUCG, Board Member
- Cincinnati Branch Professional Grounds Management Association, President
- Kentucky Arborists Association

Publications

- "Preserving Jacksonville's History with Modern Urban Forestry Practices", City Trees, Journal of the Society of Municipal Arborists, September/October 2007
- "Woodscaping – A Natural Approach to Landscaping Your Home", Northern Kentucky Urban Forestry LFUCG, 2001

Presentations

- U.S. Forest Service Southern Urban Forestry Coordinators' Winter Meeting, "Forest Canopy *Analysis as a Community Planning Tool*", January 2007
- Ohio-Kentucky-Indiana Regional LFUCG of Governments: Conservation District Annual Meeting, *"Overview of i-Tree Tools",* March 2007
- Division of Forestry State Arbor Day Celebration and Tree City USA Awards Ceremony, "*Using Partnerships to Increase Urban Forestry Program Resources",* April 2007
- National Arbor Day Foundation's Storms Over The Urban Forest Conference, "*Good Urban Forest Management for Emergency Response and Storm Preparedness",* May 2007
- American Public Works Association's National Congress, "*Urban Forestry Resources for Public Works Managers*", August 2007
- National Arbor Day Foundation's Partnerships in Community Forestry Conference, "Using Partnerships to Expand Urban Forestry Program Resources", November 2007
- Society of Municipal Foresters Annual Conference, "*Using Partnerships to Expand Urban Forestry Program Resources*", October 2006
- Indiana Department of Natural Resources' Urban Forestry Watershed Workshop – "*Using a Stormwater Model for Educating about Green Best Management Practices*", September 2006
- Trees Florida Annual Conference, "*Forest Canopy Analysis as a Community Planning Tool*", June 2006
- Trees Virginia Regional Conference, "*Storm Damage Preparedness",* March 2006
- Kentucky Arborists Association – ISA Certification Training, "*Trees & Construction; Trees, People, & Ecology",* March 2006
- Virginia Department of Forestry Training Workshop, "*Tree Risk Assessment & Storm Damage Management",* January 2006

Ben Bruise, Urban Forester/Certified Arborist

Ben Brusie is an urban forester and site manager with Davey Resource Group. As an urban forester, he manages and conducts tree inventories and composes urban tree management plans. He has gained extensive knowledge with GIS-based pen tablet computers, GPS technology, tree identification, and tree risk assessment. Mr. Brusie has performed public tree inventories in Charlotte and Raleigh, North Carolina; Knoxville, Tennessee; Westmont, Illinois; Biddeford and Brunswick, Maine; Atlanta, Georgia; Seymour, Indiana; Collier County, Florida; and Detroit, Michigan. Mr. Brusie oversaw the implementation of the U.S. Forest Service's i-Tree Inventory Pest Evaluation and Detection (IPED) inventory for the City of Detroit. There he served as site manager, responsible for production, quality assurance/quality control, and data management. Prior to joining Davey Resource Group, Mr. Brusie worked in the landscape division for the City of Bowling Green, Kentucky, where he assisted in the landscape design of City property, planting of trees, tree maintenance, greenhouse operation, and plant health care. He is a Certified Arborist (KY-0754A) with the International Society of Arboriculture and holds a Kentucky pesticide applicator's license (KY1132365). He is also a professional member of the International Society of Arboriculture and the Kentucky Arborist Association. Mr. Brusie graduated from Western Kentucky University with a Bachelor of Science degree in agriculture, with an emphasis in horticulture.

Ruth Ann Sobnosky, M.S., Environmental Planner/Project Manager

Ruth Ann Sobnosky is an environmental planner and project manager with Davey Resource Group, a division of The Davey Tree Expert Company. Ms. Sobnosky holds a Master's of Science degree in Geography with over 11 years of planning experience including work in both public and private sector as an environmental and community planner. Her responsibilities at Davey Resource Group include managing projects that require difficult negotiations with private developers, permitting agencies, and local governments. Ms. Sobnosky manages a variety of natural resource projects, including wetland delineations, wetland monitoring, wetlands permitting and compliance, ecological surveys, environmental planning studies, and grant research and applications. Ms. Sobnosky is also responsible for preparing natural resource materials utilized to educate the public, such as park trail guides and urban forestry PowerPoint™ programs.

Ms. Sobnosky is experienced and knowledgeable with the requirements of the National Environmental Policy Act (NEPA). Prior to joining Davey Resource Group, Ms. Sobnosky's responsibilities included the review, evaluation, and reporting of environmental and socio-economic impacts to fulfill NEPA requirements. This required coordination with public agencies, working with engineers, and initiating and attending public involvement meetings related to the construction of new roads, bridges, and other important public infrastructure in Ohio. Ms. Sobnosky has prepared Categorical Exclusion documents for the Ohio Department of Transportation and environmental assessments for the United States Department of Agriculture and the United States Army Corps of Engineers.

Education

- M.S., Geography, 1988, Southern Illinois University at Edwardsville, Edwardsville, Illinois
- B.S., Geography, 1984, Northern Illinois University, DeKalb, Illinois

Certifications/Special Training

- Ohio Department of Transportation's Section 4(f), March 2008
- Introduction to ArcGIS™ I, Cleveland State University, May 2007
- Ohio Department of Transportation's Categorical Exclusion, September 2006
- Managing the Environmental and Project Development Process (NEPA), March 2006
- Ohio Department of Transportation's Section 106/National Register Eligibility, June 2005
- Ohio Department of Transportation's Project Development Process, March 2005

Professional Organizations

- American Planning Association

The Davey Tree Expert Company History and Background

In 1873, John Davey came to America from England to fulfill a dream—to preserve trees and provide high-quality horticultural services using practical and scientifically based methods. His dream became a reality in 1880 when he founded The Davey Tree Expert Company. Since then, the Company has transformed into a flourishing enterprise that is one of the 20 largest employee-owned companies in America. At Davey, trees were just the beginning of our venture, and we continue to grow to new heights.

The Davey Institute

Among our proud accomplishments is The Davey Institute, launched in 1909 to initiate scientific research in arboricultural practices and to train employees how to better plant and maintain trees. Almost 100 years later, The Davey Institute remains a leader in scientific advancements and education, ensuring the Company's service lines provide the industry's highest quality service. The Davey Institute also has a fully equipped diagnostic laboratory and training facilities.

Davey Resource Group

Davey Resource Group (DRG) is the consulting division of The Davey Tree Expert Company. Established in 1992, DRG offers urban and utility forestry management and natural resource consulting services throughout North America.

DRG's services include:

- natural resource studies and permitting
- ecosystems analysis and mapping
- ecological restoration and mitigation
- environmental planning
- tree preservation planning
- vegetation management along rights-of-way
- asset management and inventories
- tree and forest canopy inventories
- urban forestry management plans

DRG is the leader in urban forestry and has provided expert consulting to a wide variety of clients, including municipalities, parks, cemeteries, golf courses, utilities, and the private sector.

Our team of ISA Certified Arborists, GIS/IT specialists, and highly trained scientists and field staff has the knowledge, experience, and technology to help you succeed in managing and understanding your community forest. Our customized services, which include training, consulting, software programming, and contract forestry, will help you achieve your goals. DRG has inventoried well over 2 million trees while conducting more than 300 urban tree inventory projects. Many of these projects included comprehensive urban forestry management plans and customized software for inventory and data management.

In addition, Davey collaborates with other green industry leaders in developing new technologies to inventory, analyze, and quantify environmental benefits provided by tree populations. A proud example is Davey's role as technical advisor and transfer agent for the i-Tree project, an ongoing public/private urban forestry research collaborative with the USDA Forest Service, National Arbor Day Foundation, Society of Municipal Arborists, and the International Society of Arboriculture. The goal is to improve the understanding of the condition, extent, and benefits of the urban forest.

DRG is committed to continuous improvement and customer service. We know that to be the best, we must always work to be better. Davey understands that innovation, experience, technology, quality assurance, and communication—provided by a well-trained, professional staff—are keys to successful projects and client satisfaction.

References and Examples of Projects

Whitpain Township, Pennsylvania UTC

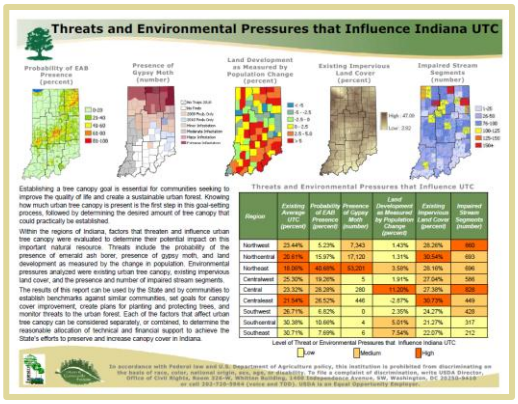
Contact Name: James Blanch **Telephone Number: 610-277-2400**

In April 2012, Whitpain Township contracted Davey Resource Group to complete an urban tree canopy assessment. GIS specialists from Davey Resource Group digitally consolidated all relevant GIS databases describing vegetation types, land use designations, and survey data, as well as the 2010 leaf-on National Agriculture Imagery Program (NAIP), LIDAR data, and any other secondary source data. Utilizing an object-based image analysis (OBIA) approach, DRG performed an automated feature extraction (AFE) process to generate a 5-class land cover layer. GIS analyses were completed to generate the UTC assessment results. Current land cover acreage and percentages for overall township limits, zoning, and watershed were calculated. In addition, Davey Resource Group also determined the possible canopy loss within a proposed park site. The final deliverables included:

- 5-class land cover layer (canopy, impervious, pervious, bare soils, and water)
- Canopy assessment results
- A large format map of the final land cover layer
- A public education brochure/factsheet for town board or public information

Indiana Department of Natural Resources Statewide UTC and i-Tree Benefits Analysis

Contact Name: Pam Louks **Telephone Number: 317-591-1170**



Davey Resource Group conducted a Statewide Urban Sample Inventory (SUSI) and an Urban Tree Canopy (UTC) assessment and analysis for the Community and Urban Forestry Program of the Indiana Department of Natural Resources.

To assess the general condition of Indiana's urban forests for the SUSI, Davey utilized the U.S. Forest Service's i-Tree Streets application to capture forest resource structure, function, and value in 23 communities. Davey Resource Group arborists performed sample street tree inventories in 16 communities; to supplement this effort, existing street tree inventory data were gathered from 7 other communities. These data were compiled within the i-Tree Streets database to compute forest resource structure, benefits, costs, and benefit-cost ratios for all 23 communities. The combination of sample and existing street tree inventories and i-Tree Streets analyses provided scientifically reliable estimations of the urban street tree resource in these communities. Based on these findings, a written analysis was prepared to offer comprehensive insight on the structure of Indiana's urban forests and the value of the statewide resource; this analysis focused on resource composition and value, management trends, and community program costs and future funding challenges.

Davey used advanced remote sensing surveys to measure the UTC of six communities selected from the SUSI project. GIS analysts and specialists from Davey Resource Group obtained 2010 leaf-on National Agriculture Imagery Program (NAIP) and other secondary source data. Utilizing an object-based image analysis (OBIA) approach, Davey Resource Group performed an automated feature extraction (AFE) process to generate a 5-class land cover layer. Additional GIS analyses were completed to generate the UTC assessment results for the following communities:

- Anderson
- Cedar Lake
- Evansville
- Ft. Wayne
- Madison
- South Bend

An additional 102 communities were selected based on population and their UTC was assessed using the U.S. Forest Service's i-Tree Canopy software. The data produced by these two methods were used to determine the average UTC for First, Second, and Third Class Communities. The State of Indiana was divided into nine regions and these data were used to extrapolate regional UTC averages and a statewide UTC average. Within the regions of Indiana, factors that influence UTC were evaluated to determine their potential effect on this important natural resource. Potential threats include emerald ash borer, gypsy moth, and land development (measured by population change). Environmental pressures include existing UTC, existing impervious land cover, and the presence and number of impaired stream segments. Davey Resource Group developed fact sheets to present the results of the statewide analysis and the results of the analysis for each of the six communities; these documents are provided on the Indiana Department of Natural Resources website (http://www.in.gov/dnr/forestry/3605.htm).

Elgin, Illinois Citywide Community Forest Project

Contact Name: Jim Bell **Telephone Number: 847- 931-6124**

Through a unique partnership between the City of Elgin and The Davey Tree Expert Company, Elgin was selected by the U.S. Forest Service to receive American Recovery and Reinvestment Act (ARRA) funding for community forestry services. These services, which included planning, tree planting and maintenance, and natural resource improvement projects, were all provided by The Davey Tree Expert Company and comprised a unique and multi-faceted citywide project.

The goal of the project was to create the foundation for a sustainable community forest management program. A sustainable community forestry program requires a combination of organized leadership, comprehensive information about the tree population, dedicated personnel and contractors, effective public education, and the support of the residents and businesses. An Urban Forest Master Plan was completed for the project, and as a result of Davey Resource Group's expertise and guidance, the City of Elgin now has a firm foundation in each and every one of these important areas.

Much was accomplished during this master planning and implementation project, including:

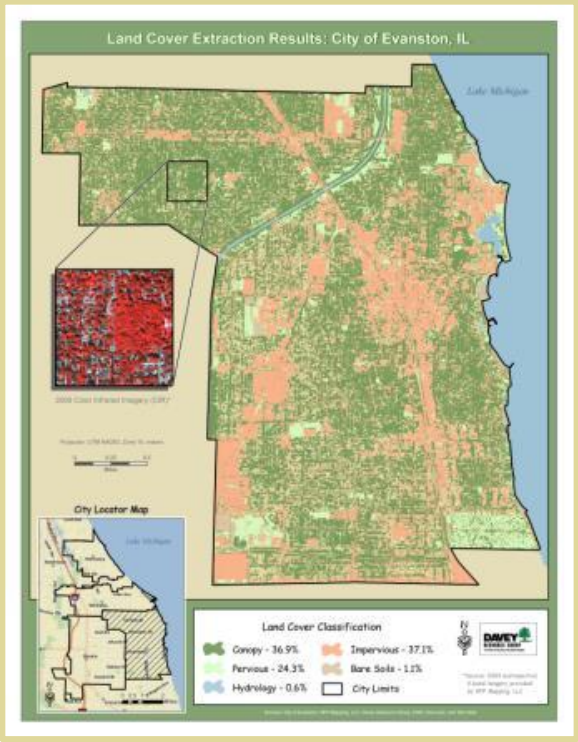
- Comprehensive public tree inventory and analysis
- i-Tree Streets Benefit Analysis
- Urban Tree Canopy Mapping and Analysis
- Urban Wood Waste Utilization Analysis and Plan
- Invasive Species Readiness Plan
- Natural Resource Inventories of Elgin's Planning Boundary
- Natural Ecosystem Restoration Plans and Implementation for Priority Parks
- Risk Tree Reduction Analysis and Implementation

The Elgin community forest master plan project demonstrated the breath of Davey Resource Group's abilities to provide clients comprehensive services for urban forest management. Davey's Resource Group arborists and ecologists performed urban forestry and natural habitat assessments. Our GIS/IT department created maps and customized software to manage inventory and natural resource data. Davey's Residential Services crews and equipment performed tree maintenance, tree planting, and EAB treatments. The scientists at the Davey Institute provided expert guidance and technical expertise throughout the two-year project. The diverse, technical resources and natural synergy of the entire Davey Company allowed the Elgin project to efficiently accomplish its goals and maximize the available funding.

Tale of Four Cities: Community Canopy Studies in the State of Illinois

Exotic, invasive pests can have a devastating impact on a community's forest. It is likely that most communities are working to keep their community forest safe and healthy and lessen the impact of an identified exotic, invasive pest. When a community identifies an exotic, invasive pest and makes a decision to manage this pest, there are a variety of urban forest related tools available. A Tale of Four Cities demonstrates the effectiveness and practicality of using some available urban forest management tools, specifically tree ordinances, management plans, public tree inventories, hyperspectral imagery, i-Tree streets, and urban tree canopy analysis.

Each of these tools were used to analyze the urban forests of four suburban communities in Illinois just north of Chicago, and then evaluated based on their advantages, disadvantages, costs, and deliverables for managing known exotic, invasive pests.

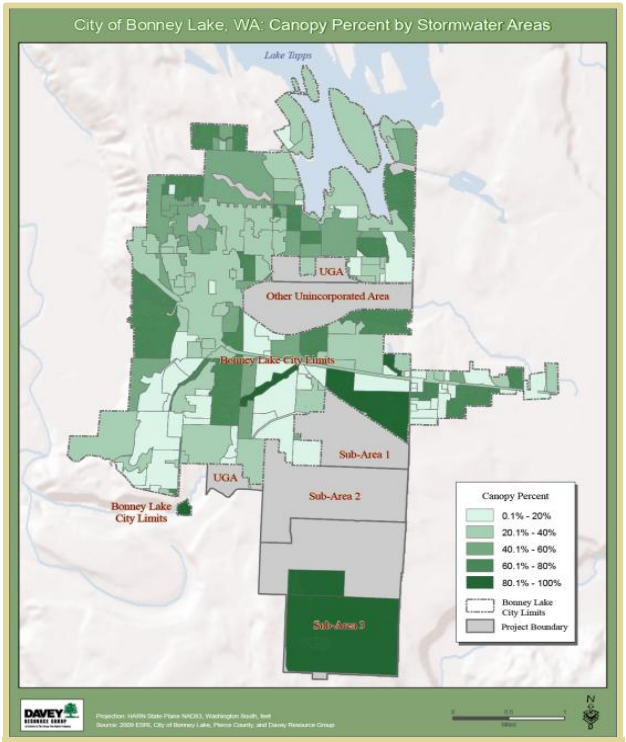


GIS analysts and specialists from DRG obtained leaf-on multispectral imagery acquired in 2009 and other secondary source data. Utilizing an object-based image analysis (OBIA) approach, Davey Resource Group performed an automated feature extraction (AFE) process to generate a 5-class land cover layer. Additional GIS analyses were completed to generate the UTC assessment results. Current land cover acreage and percentages were calculated for the following communities.

- Evanston
- Skokie
- Wilmette
- Winnetka

The City of Bonney Lake, Washington Canopy Assessment

According to Federal Clean Water Act regulations, municipalities must obtain a permit for managing their stormwater discharges into water bodies. Each City's program must identify the *best management practices* (BMPs) it will implement to reduce its pollutant discharge. Nationwide, non-point source pollution is one of the biggest contributors to poor water quality. Non-point source pollution occurs when stormwater and snowmelt deposit surface contaminants into surface or ground water. Preventing non-point source pollution and reducing stormwater runoff is becoming a serious environmental concern for many urban areas.



Analysis of tree canopy cover by Stormwater Management Area highlights additional opportunities for targeted tree planting efforts.

To better understand how trees and canopy cover are affecting stormwater management in Bonney Lake, the City provided Davey Resource Group with a map of stormwater management areas (SWMA). For the purposes of this analysis, a SWMA was defined as the total area managed, or served, by a specific stormwater facility or combined infrastructure (e.g., basin, pond, drainage channel, drains, pipes, etc.) as determined by development, sub-division, and/or drainage patterns. The study analyzed a total of 172 stormwater management areas covering 5,194 acres (8.1 square miles) within the Bonney Lake study boundaries. Overall, stormwater management areas have 2,386 acres (3.7 square miles) of canopy for an average canopy cover of 45.9%.

Of the many findings, forty-six (46) SWMAs were determined to have canopy cover less than 15%. This information is being used by Bonney Lake's City forester, public works, and planning departments to recognize the contribution of tree canopy within each SWMA. If common stormwater events are taxing the capacity of a specific SWMA, the loss of additional canopy within that SWMA should be avoided. In fact, increasing canopy cover by planting additional trees in those SWMAs that are consistently exceeding capacity can be an effective solution for augmenting current infrastructure without the need or construction expense of additional facilities.

Trees Pittsburgh Urban Forest Master Plan

Contact Name: Matthew Erb **Telephone Number: 412-362-6360**

Davey Resource Group prepared the *Pittsburgh Urban Forest Master Plan* in collaboration with Tree Pittsburgh (an urban forestry nonprofit organization), its master plan steering committee, the City of Pittsburgh, Jackson/Clark Partners, and the University of Vermont Spatial Analysis Lab. To serve as the foundation for the master plan, the "2012 State of the Urban Forest" was created using Pittsburgh's existing street tree inventory and management plan, the i-Tree Streets benefit analysis, and the i-Tree Eco analysis. Based on the results of a public outreach campaign facilitated by Jackson/Clark Partners, a 20-year vision for the urban forest was developed with guidance from the project team. Goals and recommendations were established to guide this vision based on five keystones of urban forestry—connect, engage, manage, plan, and protect. Davey Resource Group's senior urban foresters analyzed the current conditions of Pittsburgh's urban forest and examined pertinent urban forestry management issues. Spatial analysis and mapping of the urban forest were essential elements of the master plan. Detailed maps of Pittsburgh's 91 neighborhoods illustrated specific areas where urban tree canopy was deficient or successful programs used to describe techniques to support local implementation. Plan recommendations were designed to be implemented as a coordinated effort by all public and private entities responsible for planting and protecting, and managing trees. The *Pittsburgh Urban Forest Master Plan* may be viewed on the Tree Pittsburgh website (http://treepittsburgh.org/urban-forest-master-plan).

City of Woodland, California Inventory and UTC

Contact Name: Rob Sanders **Telephone Number: 530-661-5959**

As the self-proclaimed "City of Trees", Woodland, California recognizes that trees are of vital importance to the environmental, social, and economic well-being of the City. Determined to be a premier place to live, work, and conduct business, the City's Strategic Plan focuses on quality of life and community vitality. Tasked with caring for Woodland's public trees, the City's Urban Forestry Group assumes a very proactive approach to planning, planting, tree care, and risk management.

In late 2009, the City of Woodland contracted with Davey Resource Group to conduct a complete City-owned tree inventory and an analysis of the structure, associated benefits, and benefit versus investment ratio of this valuable public asset (i-Tree *Streets* analysis). In addition to a resource analysis of public trees, Davey Resource Group conducted a community canopy study of all trees, both public and private within the City limits. The project was funded by a grant from the California Department of Forestry and Fire Protection (CalFire).

While a single, well-placed tree can often provide significant benefits to a private residence or business in terms of energy savings, property value increase, and ambience, it is important to recognize that each and every tree in the community is also working together as a part of a larger system. Woodland's urban forest system is working around the clock to clean the air, reduce energy needs, intercept stormwater, raise property values, reduce the urban heat island effects, and contribute significantly to the character, history, and permanency of Woodland.

Using current, leaf-on, one-meter, NAIP color imagery, combined with an object-oriented classification approach, advanced image analysis, automated feature extraction technology and additional quality assurance processes, Davey Resource Group was able to determine Woodland's canopy coverage to 90% accuracy. Canopy coverage was calculated for parks, tree service areas, City facilities, City rights-of-way, and overall urban forest canopy coverage within the City limits. Defining the structure and extent of Woodland's urban forest canopy establishes a current baseline and provides an opportunity for the community to develop goals and track success in increasing canopy coverage along with associated benefits.

City of Anchorage, Alaska Forest Canopy Mapping and Benefit Analysis

Contact Name: Ms. Patricia Joyner **Telephone Number: 907-269-8465**

In 2010, the City of Anchorage, Alaska contracted with Davey Resource Group to complete an assessment of Anchorage's forestlands. The extensive project included mapping the extent and location of existing tree canopy, analysis of canopy cover relative to land use, and estimations of the forest composition. The assessment considered the value and benefits of these forestlands to people and wildlife. In addition, it identified threats to forest health and sustainability. The process included the collection of inventory samples that were collected to quantify the value of the environmental benefits received annually from forestlands. Public outreach and an online survey provided opportunities for residents to express their views on the value and benefits of Anchorage's forestlands and the strategies for the conservation, protection, and management of this resource. Through this process, Anchorage was found to be in an excellent position to avoid costly reforestation simply by modifying current deforestation trends. The plan drafted by Davey Resource Group acknowledges the vital function of trees and forests and recommends the adoption of proactive conservation strategies by:

Paper Birch/Deciduous Forest

Annual Benefits = $3,673 per acre, including:

- ***304,779 gallons of stormwater runoff***
- ***63 pounds of air pollutants***
- ***21 tons of sequestered CO_2***

Mixed Conifer/Deciduous Forest

Annual benefits = $6,314 per acre, including:

- ***544,561 gallons of stormwater runoff***
- ***78 pounds of air pollutants***
- ***33 tons of sequestered CO_2***

- Establishing criteria to identify significant and high-value public forestlands
- Benchmarking environmental indicators to monitor the success of management strategies
- Creating conservation strategies for tree canopy and benefits that complement city growth and development
- Providing a framework for city planning to include consideration of this public resource
- Identifying creative opportunities to collaborate, share resources, and secure sustainable funding

Portland, Oregon, Canopy Assessment: Past and Future

Contact Name: Angie DiSalvo **Telephone Number: 503-823-4484**

Early in the development of the green industry, Portland adopted the philosophy that trees are part of City infrastructure and that green infrastructure can augment “grey” infrastructure. Designated as a Tree City USA with an active nonprofit tree-planting program (Friends of Trees) and an ambitious Urban Forest Action Plan, the City of Portland made a commitment to plant, protect, and manage the community's tree resources. As a part of this commitment, the City contracted with Davey Resource Group in November 2010 to carry out an urban tree canopy assessment. The purpose of the assessment was to quantify existing urban tree canopy in four land use zones over ten years. High-resolution aerial imagery and point interpretation sampling were used to remotely quantify tree canopy over the City in three (3) time intervals (2000, 2005, and 2010). The results of the study provided a clear picture of the amount of urban tree canopy within each zoning class and demonstrated an increase over the decade. The primary objective was to establish benchmark values to measure impacts of long-term management strategies over time. The data assessed provide an additional measure for developing community goals and urban forest policies. The methods developed for this study were easily replicable by City staff and designed so that this sample can be conducted every five years as part of their on-going urban forestry program reviews.

The assessment determined that Portland has a current overall average tree canopy cover of 33%. While this is below the benchmark of 35–40% desired in the City’s 2007 Urban Forest Action Plan, it is important to recognize that the percent cover is a product of tree canopy over a mosaic of land uses. In 2010, open space featured the highest percent canopy at 68%, followed by residential at 34%, commercial at 14%, and industrial at 9%. Over the ten-year period, across all zones, canopy increased in a statistically significant way.

Communities across the country are finding themselves in the position of reestablishing their urban forests after significant loss of canopy from disease and/or development. Portland has an established trend of canopy increase within the city limits, as well as inter-departmental support for tree planting and very ambitious canopy growth goals. This canopy analysis is one tool managers will use to track canopy change over time. With it, Portland will demonstrate that their innovative planting and management strategies are indeed correlated with canopy growth.

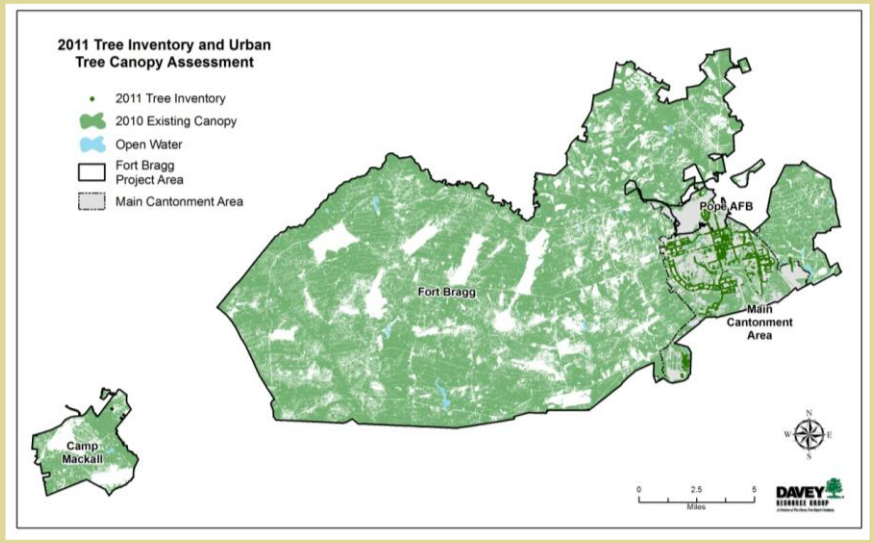
Fort Bragg, NC Urban Tree Canopy Assessment

Contact Name: Julia Love **Telephone Number: 910-494-0180**

With sustainability as a primary goal of Fort Bragg's urban forestry program, Davey Resource Group was contracted to assist the Base in realizing this goal. In 2011, Davey Resource Group conducted a detailed study of and developed a plan for its urban forest to determine how best to increase its sustainability. The study included four main tasks: an urban tree canopy (UTC) assessment, a tree inventory, an i-Tree Streets analysis, and an inventory of streams and wetlands.

GIS basemap layers and aerial imagery were used in the ArcPad custom tree inventory program as a secondary source of reference. The ancillary GIS layers and imagery aided in the canopy assessment process. A large format map and mapbooklet of the tree inventory and canopy assessment were generated with the GIS layers and imagery provided. A Geodatabase of all streams and wetlands was also provided.

All data from the three tasks were analyzed and utilized to develop a seven-year Urban Forestry Management Plan that prioritizes tree maintenance activities, addresses tree planting needs, and focuses on increasing public safety and the sustainability of the urban forest. The UTC project area included Fort Bragg, Pope Air Force Base, and Camp Mackall. The UTC provided estimates of tree and impervious land cover percentages throughout the project area. Land cover data were used as baseline information for future tree canopy goal setting. The inventory included 16,251 trees and planting sites mostly in the Main Cantonment Area. Data about trees and sites collected during the inventory were used to analyze the species, size, condition, and maintenance needs of the Base's managed tree population. The tree inventory database was then loaded into i-Tree Streets, a software tool developed by the United States Department of Agriculture (USDA) Forest Service, to estimate the environmental and economic benefits inventoried trees provide the Base and its community. Davey also created a Companion Document containing a compilation of all information gathered throughout the project's progression including UTC maps, tree inventory frequency reports, i-Tree Streets benefits-analysis reports, and complete methodologies.



Respondent Reference Form

Respondent Name: Davey Resource Group

Reference Company Name: City of Elgin

Type of Business: Municipality

Reference Contact Name: Jim Bell

Phone Number: 847-931-6124

E-mail Address: Bell_J@cityofelgin.org

Period of Time Doing Business with Reference: 2009–2011

Description of Services Provided from Respondent to Reference:

Through a unique partnership between the City of Elgin and The Davey Tree Expert Company, Elgin was selected by the U.S. Forest Service to receive American Recovery and Reinvestment Act (ARRA) funding for community forestry services. These services, which included planning, tree planting and maintenance, and natural resource improvement projects, were all provided by The Davey Tree Expert Company and comprised a unique and multi-faceted citywide project.

The goal of the project was to create the foundation for a sustainable community forest management program. Davey Resource Group achieved this goal by performing a UTC, creating a Master Plan, and developing a unique, professional public education and outreach campaign. The Elgin community forest master plan project demonstrated the breath of Davey Resource Group's abilities to provide clients comprehensive technical services for urban forest management.
(See project description provided previously in this document for further information)

Respondent Reference Form

Respondent Name: Davey Resource Group

Reference Company Name: Fort Bragg

Type of Business: Military base

Reference Contact Name: Julia Love

Phone Number: 910-494-0180

E-mail Address: julia.love@us.army.mil

Period of Time Doing Business with Reference: 2011–2012

Description of Services provided from Respondent to Reference:

Davey Resource Group was contracted to assist the Base realizing their goal of sustainable forest management. Davey Resource Group conducted a detailed study of and developed a plan for Fort Bragg's urban forest to determine how best to increase its sustainability. The study included four main tasks: an urban tree canopy (UTC) assessment, a tree inventory, an i-Tree Streets analysis, and an inventory of streams and wetlands.

All data from the UTC and the other tasks were analyzed and utilized to develop a seven-year Urban Forestry Management Plan that prioritized tree maintenance activities, addressed tree planting needs, and focused on increasing public safety and the sustainability of the urban forest. The UTC project area included Fort Bragg, Pope Air Force Base, and Camp Mackall. The UTC provided estimates of tree and impervious land cover percentages throughout the project area. Land cover data were used as baseline information for future tree canopy goal setting. Davey Resource Group also created a Companion Document containing a compilation of all information gathered throughout the project's progression including UTC maps, tree inventory frequency reports, i-Tree Streets benefits-analysis reports, and complete methodologies.
(See project description provided previously in this document for further information)

Respondent Reference Form

Respondent Name: Davey Resource Group

Reference Company Name: City of Roseville, CA

Type of Business: Municipality

Reference Contact Name: Michael-Gerold Neumann

Phone Number: 916-774-5579

E-mail Address: MNeumann@roseville.ca.us

Period of Time Doing Business with Reference: 2008–2012

Description of Services Provided from Respondent to Reference:

The City of Roseville, California is located in the Sacramento Valley in Central California. The city has a progressive urban forest program that has partnered with Davey Resource Group since 2008. Davey Resource Group has performed a complete inventory of their public trees, and developed a resource analysis through i-Tree to determine the structure, function, and value of their urban forest. In addition, the City of Roseville is a robust user of Davey Resource Group's TreeKeeper 7 software, and utilizes our mobile mapping customized ArcPad data collection program solution for managing their existing street tree inventory, oak tree mitigation, and open space layers.

Currently, Davey Resource Group is engaged in the development of an Urban Forest Master Plan for Roseville. Among other components to the plan, Davey Resource Group is conducting a canopy study which includes the following GIS and remote sensing analyses:

- An initial 5-class land cover layer
- A detailed 10-class land cover layer
- Urban Tree Canopy Assessment
- GIS Analyses for Tree Planting
- Natural Resource Inventory for Preservation
- i-Tree Canopy and Vue Assessments
- Assessment of Future Ecosystem Benefits

The results of this project will include a "Report Card" detailing Roseville's canopy, and whether or not the City has reached its canopy goals. In addition, the study will determine growth and progress for the City's canopy, reaching to the past and looking at the future.

Appendix A
Required Bid Documents

AFFIDAVIT

Comes the Affiant, Marjorie L. Conner, and after being first duly sworn, states under penalty of perjury as follows:

1. His/her name is Marjorie L. Conner and he/she is the individual submitting the proposal or is the authorized representative of Davey Resource Group, a division of The Davey Tree Expert Company, the entity submitting the proposal (hereinafter referred to as "Proposer").

2. Proposer will pay all taxes and fees, which are owed to the Lexington-Fayette Urban County Government at the time the proposal is submitted, prior to award of the contract and will maintain a "current" status in regard to those taxes and fees during the life of the contract.

3. Proposer will obtain a Lexington-Fayette Urban County Government business license, if applicable, prior to award of the contract.

4. Proposer has authorized the Division of Central Purchasing to verify the above-mentioned information with the Division of Revenue and to disclose to the Urban County Council that taxes and/or fees are delinquent or that a business license has not been obtained.

5. Proposer has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky within the past five (5) years and the award of a contract to the Proposer will not violate any provision of the campaign finance laws of the Commonwealth.

6. Proposer has not knowingly violated any provision of Chapter 25 of the Lexington-Fayette Urban County Government Code of Ordinances, known as "Ethics Act."

Continued on next page

7. Proposer acknowledges that "knowingly" for purposes of this Affidavit means, with respect to conduct or to circumstances described by a statute or ordinance defining an offense, that a person is aware or should have been aware that his conduct is of that nature or that the circumstance exists.

Further, Affiant sayeth naught.

Marjorie L. Conner

Marjorie L. Conner, Assistant Secretary and Counsel

STATE OF Ohio

COUNTY OF Portage

The foregoing instrument was subscribed, sworn to and acknowledged before me by Marjorie L. Conner on this the 14th day of March, 2013.

My Commission expires: August 10, 2016

Barbara E. Mast

NOTARY PUBLIC, STATE AT LARGE

BARBARA E. MAST
NOTARY PUBLIC
STATE OF OHIO
Comm. Expires
August 10, 2016

EQUAL OPPORTUNITY AGREEMENT

The Law

- Title VII of the Civil Rights Act of 1964 (amended 1972) states that it is unlawful for an employer to discriminate in employment because of race, color, religion, sex, age (40-70 years) or national origin.

- Executive Order No. 11246 on Nondiscrimination under Federal contract prohibits employment discrimination by contractor and sub-contractor doing business with the Federal Government or recipients of Federal funds. This order was later amended by Executive Order No. 11375 to prohibit discrimination on the basis of sex.

- Section 503 of the Rehabilitation Act of 1973 states:

  The Contractor will not discriminate against any employee or applicant for employment
  because of physical or mental handicap.

- Section 2012 of the Vietnam Era Veterans Readjustment Act of 1973 requires Affirmative Action on behalf of disabled veterans and veterans of the Vietnam Era by contractors having Federal contracts.

- Section 206(A) of Executive Order 12086, Consolidation of Contract Compliance Functions for Equal Employment Opportunity, states:

  The Secretary of Labor may investigate the employment practices of any Government
  contractor or sub-contractor to determine whether or not the contractual provisions specified in Section 202 of this order have been violated.

****

The Lexington-Fayette Urban County Government practices Equal Opportunity in recruiting, hiring and promoting. It is the Government's intent to affirmatively provide employment opportunities for those individuals who have previously not been allowed to enter into the mainstream of society. Because of its importance to the local Government, this policy carries the full endorsement of the Mayor, Commissioners, Directors and all supervisory personnel. In following this commitment to Equal Employment Opportunity and because the Government is the benefactor of the Federal funds, it is both against the Urban County Government policy and illegal for the Government to let contracts to companies which knowingly or unknowingly practice discrimination in their employment practices. Violation of the above mentioned ordinances may cause a contract to be canceled and the contractors may be declared ineligible for future consideration.

Please sign this statement in the appropriate space acknowledging that you have read and understand the provisions contained herein. Return this document as part of your application packet.

Bidders

I/We agree to comply with the Civil Rights Laws listed above that govern employment rights of minorities, women, Vietnam veterans, handicapped and aged persons.

Jennifer Gulick
Signature

Davey Resource Group, a division of
The Davey Tree Expert Company
Name of Business

WORKFORCE ANALYSIS FORM

Name of Organization: Davey Resource Group, a division of The Davey Tree Expert Company

Date: 3 / 12 / 13 **PLEASE SEE ATTACHED FORM***

Categories	Total	White		Latino		Black		Other		Total	
		M	F	M	F	M	F	M	F	M	F
Administrators											
Professionals											
Superintendents											
Supervisors											
Foremen											
Technicians											
Protective Service											
Para-Professionals											
Office/Clerical											
Skilled Craft											
Service/Maintenance											
Total:											

Prepared by: Kathleen Doody Human Resources Manager

Name & Title

co= 0653400

u= 0653400

EQUAL EMPLOYMENT OPPORTUNITY

2012 EMPLOYER INFORMATION REPORT

CONSOLIDATED REPORT - TYPE 2

SECTION B - COMPANY IDENTIFICATION

1. DAVEY TREE EXPERT COMPANY
1500 N MANTUA ST
KENT, OH 44240

2.a. DAVEY TREE EXPERT COMPANY
1500 N MANTUA ST
KENT, OH 44240

c. Y

SECTION C - TEST FOR FILING REQUIREMENT

1-Y 2-N 3-Y DUNS NO.:007903180

SECTION E - ESTABLISHMENT INFORMATION

NAICS:

SECTION D - EMPLOYMENT DATA

JOB CATEGORIES	HISPANIC OR LATINO		NOT-HISPANIC OR LATINO												OVERALL TOTALS
	********** MALE **********								********** FEMALE **********						
	MALE	FEMALE	WHITE	BLACK OR AFRICAN AMERICAN	NATIVE HAWAIIAN OR PACIFIC ISLANDER	ASIAN	AMERICAN INDIAN OR ALASKAN NATIVE	TWO OR MORE RACES	WHITE	BLACK OR AFRICAN AMERICAN	NATIVE HAWAIIAN OR PACIFIC ISLANDER	ASIAN	AMERICAN INDIAN OR ALASKAN NATIVE	TWO OR MORE RACES	
EXECUTIVE/SR OFFICIALS & MGRS	0	0	14	0	0	0	0	0	2	0	0	0	0	0	16
FIRST/MID OFFICIALS & MGRS	9	0	184	1	2	1	0	0	11	0	0	0	0	0	208
PROFESSIONALS	11	1	223	0	3	0	0	0	87	1	0	2	0	0	328
TECHNICIANS	14	3	282	4	0	7	0	0	35	0	0	0	0	0	345
SALES WORKERS	5	0	190	0	0	0	0	0	6	0	0	0	0	0	201
ADMINISTRATIVE SUPPORT	2	13	65	3	1	0	0	0	229	15	3	3	0	0	334
CRAFT WORKERS	690	6	2176	103	28	14	0	0	20	2	0	1	0	0	3040
OPERATIVES	29	0	138	8	0	1	0	0	3	0	0	0	0	0	179
LABORERS & HELPERS	145	1	412	23	7	3	0	0	9	0	0	0	0	0	600
SERVICE WORKERS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	905	24	3684	142	41	26	0	0	402	18	3	6	0	0	5251
PREVIOUS REPORT TOTAL	986	27	3513	129	0	20	39	0	405	14	0	6	2	0	5141

SECTION F - REMARKS

DATES OF PAYROLL PERIOD: 07/08/2012 THRU 07/14/2012

SECTION G - CERTIFICATION

CERTIFYING OFFICIAL: KATHLEEN DOODY
TITLE: HUMAN RESOURCES MANAGER

EEO-1 REPORT CONTACT PERSON: KATHLEEN DOODY
TITLE: HUMAN RESOURCES MANAGER

EMAIL:
TELEPHONE NO: 3306739511

CERTIFIED DATE[EST]: 09/20/2012 03:31 PM

LFUCG MBE/WBE PARTICIPATION FORM
Bid/RFP/Quote Reference # 5-2013

The MBE/WBE subcontractors listed have agreed to participate on this Bid/RFP/Quote. If any substitution is made or the total value of the work is changed prior to or after the job is in progress, it is understood that those substitutions must be submitted to Central Purchasing for approval immediately.

MBE/WBE Company, Name, Address, Phone, Email	Work to be Performed	Total Dollar Value of the Work	% Value of Total Contract
1. NOT APPLICABLE			
2.			
3.			
4.			

The undersigned company representative submits the above list of MBE/WBE firms to be used in accomplishing the work contained in this Bid/RFP/Quote. Any misrepresentation may result in the termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and false claims.

Davey Resource Group, a division of The Davey Tree Expert Company — **Company**

Jennifer Gulick — **By**

March 12, 2013 — **Date**

Project Manager — **Title**

LFUCG MBE/WBE SUBSTITUTION FORM
Bid/RFP/Quote Reference # 5-2013

The substituted MBE/WBE subcontractors listed below have agreed to participate on this Bid/RFP/Quote. These substitutions were made prior to or after the job was in progress. These substitutions were made for reasons stated below and are now being submitted to Central Purchasing for approval. By the authorized signature of a representative of our company, we understand that this information will be entered into our file for this project.

SUBSTITUTED MBE/WBE Company Name, Address, Phone, Email	MBE/WBE Formally Contracted/ Name, Address, Phone, Email	Work to Be Performed	Reason for the Substitution	Total Dollar Value of the Work	% Value of Total Contract
1. NOT APPLICABLE					
2.					
3.					
4.					

The undersigned acknowledges that any misrepresentation may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and false claims.

Davey Resource Group, a division of
The Davey Tree Expert Company — **Company**

March 12, 2013 — **Date**

Jennifer Gulick — **Company Representative**

Project Manager — **Title**

MBE QUOTE SUMMARY FORM

Bid/RFP/Quote Reference # 5-2013

The undersigned acknowledges that the minority subcontractors listed on this form did submit a quote to participate on this project.

Company Name Davey Resource Group, a division of The Davey Tree Expert Company	**Contact Person** Jennifer Gulick
Address/Phone/Email 11018 Harrison Way Walton, Kentucky 41094	**RFP Package / RFP Date** #5-2013 March 18, 2013, 2:00 p.m.

MBE/WBE Company Address	Contact Person	Contact Information (work phone, Email, cell)	Date Contacted	Services to be performed	Method of Communicatio (email, phone meeting, ad, event etc)	Total dollars $$ Do Not Leave Blank (Attach Documentation)	MBE * AA HA AS NA Female
NOT APPLICABLE							

(MBE designation / AA=African American / HA= Hispanic American/AS = Asian American/Pacific Islander/ NA= Native American)

The undersigned acknowledges that all information is accurate. Any misrepresentation may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and claims.

Davey Resource Group, a division of The Davey Tree Expert Company
Company

Jennifer Gulick
Company Representative

March 12, 2013
Date

Project Manager
Title

LFUCG SUBCONTRACTOR MONTHLY PAYMENT REPORT

The LFUCG has a 10% goal plan adopted by city council to increase the participation of minority and women owned businesses in the procurement process. In order to measure that goal LFUCG will track spending with MBE/WBE vendors on a monthly basis. By the signature below of an authorized company representative, you certify that the information is correct, and that each of the representations set forth below is true. Any misrepresentation may result in termination of the contract and/or prosecution under applicable Federal and State laws concerning false statements and false claims. Please submit this form monthly to the Division of Central Purchasing/ 200 East Main Street / Room 338 / Lexington, KY 40507.

Bid/RFP/Quote # 5-2013

Total Contract Amount Awarded to Prime Contractor for this Project_____

Project Name/ Contract # Urban Tree Canopy Assessment and Planting Plan	**Work Period/ From:** **To:**
Company Name: Davey Resource Group, a division of The Davey Tree Expert Company	**Address:** 11018 Harrison Way Walton, Kentucky 41094
Federal Tax ID: 34-0176110	**Contact Person:** Jennifer Gulick

Subcontractor Vendor ID (name, address, phone, email	Description of Work	Total Subcontract Amount	% of Total Contract Awarded to Prime for this Project	Total Amount Paid for this Period	Purchase Order number for subcontractor work (please attach PO)	Scheduled Project Start Date	Scheduled Project End Date
NOT APPLICABLE							

By the signature below of an authorized company representative, you certify that the information is correct, and that each of the representations set forth below is true. Any misrepresentations may result in the termination of the contract and/or prosecution under applicable Federal and State laws concerning false statements and false claims.

Davey Resource Group, a division of The Davey Tree Expert Company
Company

Jennifer Gulick
Company Representative

March 12, 2013
Date

Project Manager
Title

LFUCG STATEMENT OF GOOD FAITH EFFORTS
Bid/RFP/Quote # 5-2013

By the signature below of an authorized company representative, we certify that we have utilized the following methods to obtain the maximum practicable participation by minority and women owned business enterprises on the project. Please indicate which methods you used by placing an X in the appropriate place.

____ Attended LFUCG Central Purchasing Economic Inclusion Outreach Event

____ Sponsored Economic Inclusion event to provide networking opportunities

__X__ Requested a list of MBE/WBE subcontractors or suppliers from LFUCG Economic Engine

____ Advertised for MBE/WBE subcontractors or suppliers in local or regional newspapers

____ Showed evidence of written notice of contracting and/or supplier opportunities to MBE/WBE firms at least seven days prior to the proposal opening date

____ Provided copies of quotations submitted by MBE/WBE firms which were not used and/or responses from firms indicating they would not be submitting a quote

____ Provided plans, specifications, and requirements to interested MBE/WBE subcontractors

__X__ Other

Please list any other methods utilized that aren't covered above.

Please see attached letter for additional information on Good Faith Efforts.

The undersigned acknowledges that all information is accurate. Any misrepresentations may result termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and claims.

Davey Resource Group, a division of The Davey Tree Expert Company	Jennifer Gulick
Company	**Company Representative**
March 12, 2013	Project Manager
Date	**Title**

Firm Submitting Proposal: Davey Resource Group, a division of The Davey Tree Expert Company

Complete Address: 11018 Harrison Way, Walton, Kentucky 41094

Street City Zip

Contact Name: Jennifer Gulick Title: Project Manager

Telephone Number: 859-384-8258 Fax Number: 859-384-8259

Email address: jenny.gulick@davey.com

GENERAL PROVISIONS

1. Each Respondent shall comply with all Federal, State & Local regulations concerning this type of service or good.

   The Respondent agrees to comply with all statutes, rules, and regulations governing safe and healthful working conditions, including the Occupational Health and Safety Act of 1970, *29 U.S.C. 650 et. seq.*, as amended, and KRS Chapter 338. The Respondent also agrees to notify the LFUCG in writing immediately upon detection of any unsafe and/or unhealthful working conditions at the job site. The Respondent agrees to indemnify, defend and hold the LFUCG harmless from all penalties, fines or other expenses arising out of the alleged violation of said laws.

2. Failure to submit ALL forms and information required in this RFP may be grounds for disqualification.

3. Addenda: All addenda, if any, shall be considered in making the proposal, and such addenda shall be made a part of this RFP. Before submitting a proposal, it is incumbent upon each proposer to be informed as to whether any addenda have been issued, and the failure to cover in the bid any such addenda may result in disqualification of that proposal.

4. Proposal Reservations: LFUCG reserves the right to reject any or all proposals, to award in whole or part, and to waive minor immaterial defects in proposals. LFUCG may consider any alternative proposal that meets its basic needs.

5. Liability: LFUCG is not responsible for any cost incurred by a Respondent in the preparation of proposals.

6. Changes/Alterations: Respondent may change or withdraw a proposal at any time prior to the opening; however, no oral modifications will be allowed. Only letters, or other formal written requests for modifications or corrections of a previously submitted proposal which is addressed in the same manner as the proposal, and received by LFUCG prior to the scheduled closing time for receipt of proposals, will be accepted. The proposal, when opened, will then be corrected in accordance with such written request(s), provided that the written request is contained in a sealed envelope which is plainly marked "modifications of proposal".

7. Clarification of Submittal: LFUCG reserves the right to obtain clarification of any point in a bid or to obtain additional information from a Respondent.

8. Bribery Clause: By his/her signature on the bid, Respondent certifies that no employee of his/hers, any affiliate or Subcontractor, has bribed or

attempted to bribe an officer or employee of the LFUCG.

9. Additional Information: While not necessary, the Respondent may include any product brochures, software documentation, sample reports, or other documentation that may assist LFUCG in better understanding and evaluating the Respondent's response. Additional documentation shall not serve as a substitute for other documentation which is required by this RFP to be submitted with the proposal,

10. Ambiguity, Conflict or other Errors in RFP: If a Respondent discovers any ambiguity, conflict, discrepancy, omission or other error in the RFP, it shall immediately notify LFUCG of such error in writing and request modification or clarification of the document if allowable by the LFUCG.

11. Agreement to Bid Terms: In submitting this proposal, the Respondent agrees that it has carefully examined the specifications and all provisions relating to the work to be done attached hereto and made part of this proposal. By acceptance of a Contract under this RFP, proposer states that it understands the meaning, intent and requirements of the RFP and agrees to the same. The successful Respondent shall warrant that it is familiar with and understands all provisions herein and shall warrant that it can comply with them. No additional compensation to Respondent shall be authorized for services or expenses reasonably covered under these provisions that the proposer omits from its Proposal.

12. Cancellation: If the services to be performed hereunder by the Respondent are not performed in an acceptable manner to the LFUCG, the LFUCG may cancel this contract for cause by providing written notice to the proposer, giving at least thirty (30) days notice of the proposed cancellation and the reasons for same. During that time period, the proposer may seek to bring the performance of services hereunder to a level that is acceptable to the LFUCG, and the LFUCG may rescind the cancellation if such action is in its best interest.

    A. Termination for Cause

    (1) LFUCG may terminate a contract because of the contractor's failure to perform its contractual duties

    (2) If a contractor is determined to be in default, LFUCG shall notify the contractor of the determination in writing, and may include a specified date by which the contractor shall cure the identified deficiencies. LFUCG may proceed with termination if the contractor fails to cure the deficiencies within the specified time.

(3) A default in performance by a contractor for which a contract may be terminated shall include, but shall not necessarily be limited to:

(a) Failure to perform the contract according to its terms, conditions and specifications;

(b) Failure to make delivery within the time specified or according to a delivery schedule fixed by the contract;

(c) Late payment or nonpayment of bills for labor, materials, supplies, or equipment furnished in connection with a contract for construction services as evidenced by mechanics' liens filed pursuant to the provisions of KRS Chapter 376, or letters of indebtedness received from creditors by the purchasing agency;

(d) Failure to diligently advance the work under a contract for construction services;

(e) The filing of a bankruptcy petition by or against the contractor; or

(f) Actions that endanger the health, safely or welfare of the LFUCG or its citizens.

B. At Will Termination

Notwithstanding the above provisions, the LFUCG may terminate this contract at will in accordance with the law upon providing thirty (30) days written notice of that intent, Payment for services or goods received prior to termination shall be made by the LFUCG provided these goods or services were provided in a manner acceptable to the LFUCG. Payment for those goods and services shall not be unreasonably withheld.

13. Assignment of Contract: The contractor shall not assign or subcontract any portion of the Contract without the express written consent of LFUCG. Any purported assignment or subcontract in violation hereof shall be void. It is expressly acknowledged that LFUCG shall never be required or obligated to consent to any request for assignment or subcontract; and further that such refusal to consent can be for any or no reason, fully within the sole discretion of LFUCG.

14. No Waiver: No failure or delay by LFUCG in exercising any right, remedy, power or privilege hereunder, nor any single or partial exercise thereof, nor the exercise of any other right, remedy, power or privilege shall operate as a waiver hereof or thereof. No failure or delay by LFUCG in exercising any right, remedy, power or privilege under or in respect of this Contract shall affect the rights, remedies, powers or privileges of LFUCG hereunder or shall operate as a waiver thereof.

15. Authority to do Business: The Respondent must be a duly organized and authorized to do business under the laws of Kentucky. Respondent must be in good standing and have full legal capacity to provide the services specified under this Contract. The Respondent must have all necessary right and lawful authority to enter into this Contract for the full term hereof and that proper corporate or other action has been duly taken authorizing the Respondent to enter into this Contract. The Respondent will provide LFUCG with a copy of a corporate resolution authorizing this action and a letter from an attorney confirming that the proposer is authorized to do business in the State of Kentucky if requested. All proposals must be signed by a duly authorized officer, agent or employee of the Respondent.

16. Governing Law: This Contract shall be governed by and construed in accordance with the laws of the Commonwealth of Kentucky. In the event of any proceedings regarding this Contract, the Parties agree that the venue shall be the Fayette County Circuit Court or the U.S. District Court for the Eastern District of Kentucky, Lexington Division. All parties expressly consent to personal jurisdiction and venue in such Court for the limited and sole purpose of proceedings relating to this Contract or any rights or obligations arising thereunder. Service of process may be accomplished by following the procedures prescribed by law.

17. Ability to Meet Obligations: Respondent affirmatively states that there are no actions, suits or proceedings of any kind pending against Respondent or, to the knowledge of the Respondent, threatened against the Respondent before or by any court, governmental body or agency or other tribunal or authority which would, if adversely determined, have a materially adverse effect on the authority or ability of Respondent to perform its obligations under this Contract, or which question the legality, validity or enforceability hereof or thereof.

18. Contractor understands and agrees that its employees, agents, or subcontractors are not employees of LFUCG for any purpose whatsoever. Contractor is an independent contractor at all times during the performance of the services specified.

19. If any term or provision of this Contract shall be found to be illegal or unenforceable, the remainder of the contract shall remain in full force and such term or provision shall be deemed stricken.

Jennifer Caudill
Signature

March 12, 2013
Date