

City of Charlottesville:

Urban Forest Assessment

18 December 2008



**Prepared By:
Environmental Services, Inc.
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Introduction

Environmental Services, Inc., (ESI) has been contracted by the City of Charlottesville to conduct an inventory and assessment of the health and condition of trees on selected sites throughout the City. The specific goals of the project were to inventory and assess all trees in developed areas of parks, schoolyards, and other properties; produce a database, GIS layers, and a report on the tree inventory; and present findings to the Parks and Recreation advisory board, Planning Commission, and City Council.

After receiving bid approval, ESI met with the City on the 12 June 2008. Areas to be assessed were initially provided to ESI by the City of Charlottesville in their initial Invitation for Bids (IFB) (Addendum A) and were further clarified during the meeting with the City. A memorandum of understanding was prepared by ESI and provided to the City to document the results of the discussion (Addendum B). Further adjustments to the footprint of the areas and parameters to be assessed were made through verbal approval by Tim Hughes during the course of the inventory.

Street Trees Methodology and Qualifications

All fieldwork was conducted as per the International Society of Arboriculture (ISA) protocol as stated in the workbook from the *Guide for Plant Appraisal, 9th edition* (Council 2000) and *A Photographic Guide to the Assessment of Hazard Trees in Urban Areas – Tree Hazard Form* (Matheny and Clark 1994). Fieldwork was conducted from July 6, 2008 to October 29, 2008 by ISA Certified Arborists.

Parameters Assessed

For each tree in the street tree inventories, the following parameters were assessed:

- Unique ID
- Genus – Species was included whenever possible
- Diameter at breast height (DBH) – For multi trunk trees, diameter measurements were sampled according to ISA standards
- Root Condition – Assumed to be average, unless other evidence, such as girdling roots or obstructions such as pavement, were evident
- Trunk Condition – Evidence of mechanical or biological damage, as well as form
- Branch Condition – Evidence of mechanical or biological damage, as well as angle and placement of attachment
- Twig Condition – Evidence of dieback, galls or atypical growth such as witches broom
- Foliage Condition – Evidence of biological damage such as wilt, rust, or blight
- Failure Potential – Based on amount of decay, lean, position, and the combination of all other factors previously mentioned
- Size of Hazard – Approximate diameter of the largest part with failure potential
- Target – Potential target should failure of tree or portion of tree fail, including buildings, utilities, roadways, and people (based upon apparent frequency of use)

- Placement – Includes aesthetic value and functional placement such as spacing and visibility issues, and other limiting factors such as buildings and overhead/underground utilities
- Comments – Comments include details of hazard/health issues and targets, maintenance recommendations, planting spaces and species recommendations, etc.

Valuation

Trees located within urban settings such as, but not limited to, roadway planting strips, playgrounds, and/or parking lot islands where assessed for both valuation and hazard rating using the above-mentioned workbooks. The valuation was determined by multiplying the condition, location and species ratings against the basic tree cost (BTC). Whereas the hazard rating was determined by adding together the failure potential, failure size and target values for each individual tree.

The Condition rating (CR) was determined by adding the values for the condition of the roots, trunk, branches, twigs and foliage; dividing by the total possible points, and multiplying by 100 to achieve a percentage:

$$CR = [(Roots+Trunk+Branches+Twigs+Foliage)/32]*100$$

The Location rating is the average of three sub-ratings: Site, Contribution, and Placement. This helps determine how the tree has been designed into the landscape, how much it contributes, and whether it is "working" to enhance that landscape. In the field we called it placement, and gave it a combined percentage. Whereas the species rating was taken from either the 2007 ISA Mid-Atlantic tree species rating guide, or by determining the rate based on the hardiness zone, growth behavior, and tree form for the individual tree species. The average rating from the range for each species was used in the assessment.

Multiplying either the trunk basal area (TA) or the adjusted trunk area (ATA) measured at breast height to a unit cost of \$75.00 determined the Basic Tree Cost (BTC). The unit cost was established by the ISA Mid-Atlantic Chapter and approved and accepted by the City of Charlottesville. Trees with a diameter of greater than 30 inches used the adjusted trunk area from Table 4.4 found in the Guide for Plant Appraisal, 9th edition. Once the BTC was calculated, it was then multiplied against the Condition, Location and Species ratings each as a percentage to produce the appraised value (AV) for the individual tree:

$$AV = BTC \times \text{Condition rating \%} \times \text{Location rating \%} \times \text{Species rating \%} = \$$$

Per our meetings with the City of Charlottesville, a minimum replacement tree value of \$1,500 was established. This was determined by the cost of purchasing a 2.5 to 3 inch caliper tree from the nursery, preparing the planting site both above and below ground, and guaranteeing/maintaining the tree for two years. Therefore, a minimum tree value of \$1,500 was used and all values \$5,000 or more were rounded to the nearest \$100, while those values less than \$5,000 were rounded to the nearest \$10 per the Guide.

Hazard Rating

Using the *A Photographic Guide to the Evolution of Hazard Trees in Urban Areas* (Matheny and Clark 1994), the Failure potential (FP), Size of defective part (SD), and Target ratings (T) were added together to determine the Hazard rating for an individual tree:

$$HR = FP + SD + T$$

Hazard ratings do not define “danger”, but assist management in prioritizing workloads and help define the seriousness and extent of potential danger to site users.

Condition Rating

The condition rating was derived for each tree by summing the individual scores for roots, trunk, branches, twigs and foliage, dividing by the total possible points (32), and multiplying by 100.

Specimen Trees

Specimen trees were identified as any tree with a DBH greater than 30 inches and a condition rating of greater than 75 points. This formula was approved by Tim Hughes of the City of Charlottesville.

Forested Plots Methodology and Qualifications

Parameters Assessed

Parameters assessed include all parameters previously stated for street trees, with the exception of placement, as it was not applicable to these areas.

Valuation

The same formulas stated above, with some modifications, were used to determine the value and condition of the tenth acre forested plots. Per the City of Charlottesville, the averages for the plots are to be used, the unit cost for a forest grown tree was \$50, and the minimum replacement value was \$500.

Such that the basic tree cost (BTC) for the forested plots was calculated by using the average trunk area for the trees measured and multiplying that by the unit cost of \$50:

$$BTC = \text{Average Trunk Area} \times 50 = \$$$

The averages of all the different tree units measured were used in the formulas to determine the average tree per plot. Such as the average for each of the roots, trunk, branches, twigs, and foliage rates were used to calculate the Condition rating (CR) for the plots:

$$CR = [(\text{Avg.Roots} + \text{Avg.Trunk} + \text{Avg.Branches} + \text{Avg.Twigs} + \text{Avg.Foliage}) / 32] * 100$$

The Location Rating due to being a forested plot was given a constant value of 90% per the City of Charlottesville, and the Species rating was determined by a weighted average per volume of the tree species measured in each of the plots. Then these average ratings were used to calculate the Average Appraised value (AAV) for each tree:

$$AAV = BTC \times \text{Avg. Condition \%} \times \text{Avg. Location \%} \times \text{Avg. Species rating \%}$$

This AAV was then multiplied by the number of trees in each plot to determine the total plot value (TPV) for each site. The total plot values for each site were then summed up and divided by the total number of plots in the site to calculate an Overall Average Appraised value (OAAV) of the tenth acre plots for each of the forested sites:

$$OAAV = \Sigma \text{TPV} / \# \text{ plots}$$

This OAAV can be then used to determine the appraised value of the forested areas by multiplying the number of acres by tenth acre then by the OAAV.

$$\text{Forested area value} = OAAV \times 10 \times \text{number of acres} = \$$$

Forest Condition

In the forested areas we were directed not to determine the hazard rating due to the decrease in targets, but to determine the condition of the plots by adding the averages of the Failure potential (FP) and Size of defective part (SD) for each of the plots. Again, this value does not determine the danger that may be associated with an individual tree, but this plot condition will assist management in shaping protocols for the forested areas located within the City of Charlottesville.

Summary of Findings

As requested by the City of Charlottesville, findings are reported for diameter distributions, genus distributions, and hazard distributions. Shape files for all trees assessed have been created which outline all relevant parameters for each tree. After additional consultation with the City a PowerPoint presentation will be created to highlight all relevant aspects of the assessment.

Diameter Distributions

Diameter distributions have been created from the in field measurements for all trees. The diameter distributions represent the diameter class into which the majority of the trees inventoried fall. From this information additional assumptions can be made with regard to age, risk, and other factors. The majority of trees fell within the 2 inch to 20 inch diameter class (Figure 1).

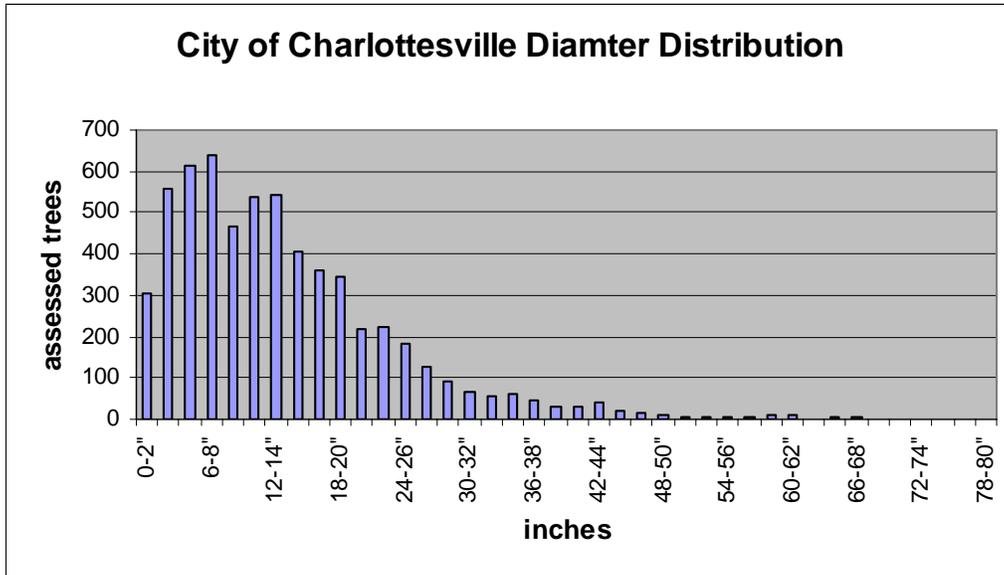


Figure 1 – Diameter Distributions

Genus Distributions

Genus distributions (Figure 2) indicate the overall diversity of trees in the areas inventoried. The largest genus group was Cornus (dogwood) at 14%, followed by Quercus (oak) at 13%, and Acer (maple) at 12%. The “other” genus category is a pooling of all genus with a less than 4 % share of the distribution. A list including the name and number of trees in all genus’s is included in the addendum (ADDENDUM C).

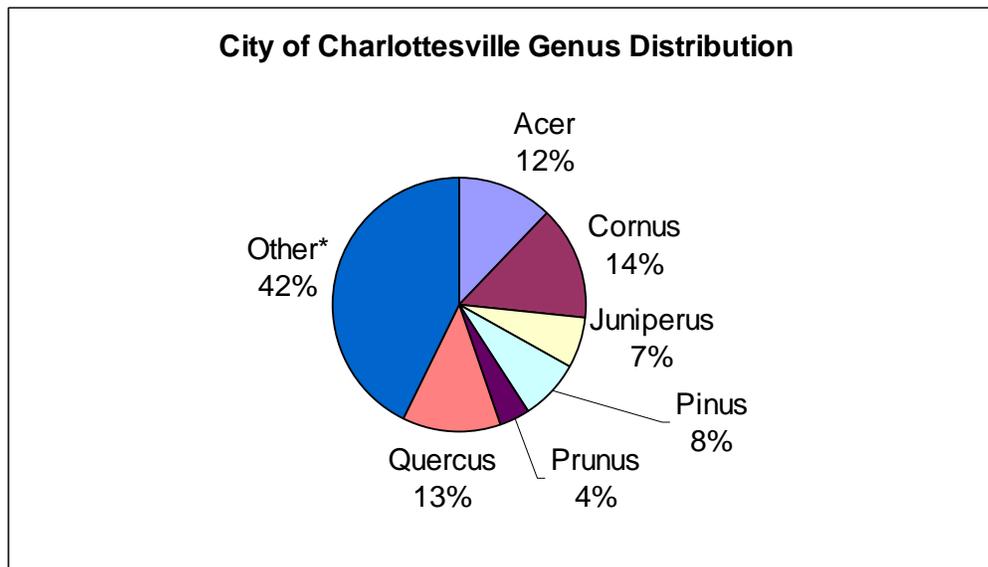


Figure 2 – Genus Distributions

Hazard Distributions

Hazard distributions (Figure 3) have been created from the in field measurements for all trees sampled. This distribution illustrates the proportion of hazard trees within the City.

The distribution indicates that the majority of trees fall within the ‘average’ risk class, with proportionally more weight toward higher hazard trees.

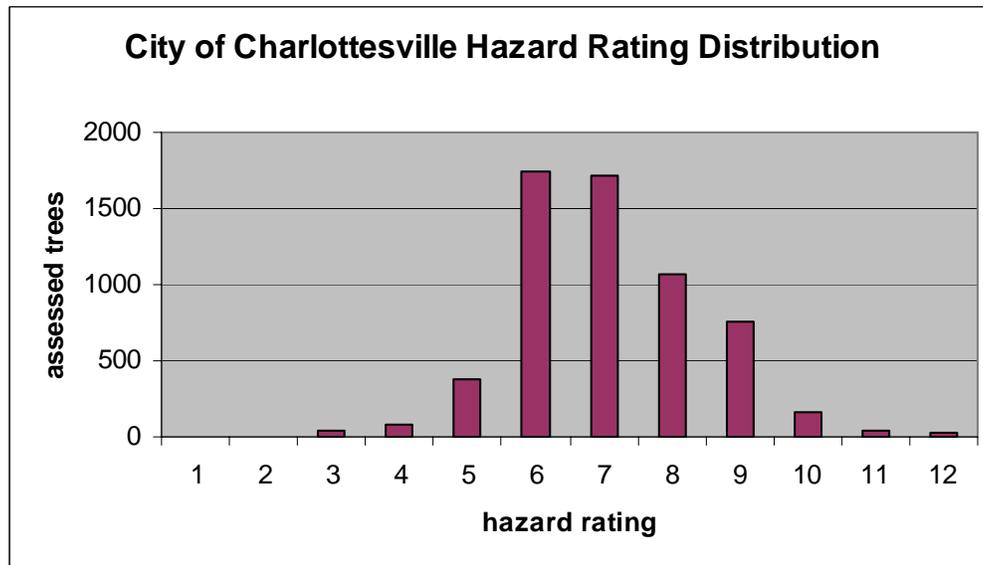


Figure 3 – Hazard Distributions

Shapefiles

Shapefiles have been created which include parameters for each tree or forested plot assessed. For street trees the parameters include a unique tree ID, latitude and longitude, species, DBH, condition rating, hazard rating, appraised value, specimen trees, available planting spaces, and general comments. For each forested plot, the parameters include appraised value and a hazard rating. The shapefiles will be provided to the City under separate cover.

Conclusion

ESI has enjoyed working with the City of Charlottesville and appreciates the opportunity to provide this urban forest assessment. Should you have questions or need further clarification on any item, please contact Shawn McMahon or Vincent Condon at your convenience.

References

Council of Tree and Landscape Appraisers, Guide for Plant Appraisal, ninth edition, International Society of Arboriculture, Savoy, IL, 2000.

Matheny, N. P., and J. R. Clark. 1994. A photographic guide to the evaluation of hazard trees in urban areas. International Society of Arboriculture, Savoy, IL, 85 P. (Second Edition)

ADDENDUM A

**INVITATION FOR BIDS
(IFB)**



Issue Date: April 3, 2008

IFB#: TREE INVENTORY/08-86

Title: Tree Inventory and Assessment

Issuing Agency: City of Charlottesville
Procurement & Risk Management Services Division
325 4th Street, NW
Charlottesville, Virginia 22903

Using Department/Division And/Or Location: **CITYWIDE, Charlottesville, VA**

Sealed Bids Will Be Received Until April 17, 2008 at 2:00 p.m. local prevailing time For Furnishing The Goods/Services Described Herein And Then Opened In Public.

All Inquiries For Information Should Be Submitted in Writing and Be Directed To: Jennifer Luchard at purchasing@charlottesville.org or by Fax: (434) 970-3069.

The face of the envelope or shipping container shall be clearly marked in the lower left hand corner as follows:

IFB#: TREE INVENTORY/08-86
IFB FOR: Tree Inventory and Assessment
OPEN: April 17, 2008

IF BIDS ARE MAILED, SEND DIRECTLY TO ISSUING AGENCY SHOWN ABOVE. IF BIDS ARE HAND DELIVERED, THEN DELIVER TO: City of Charlottesville, Procurement and Risk Management Services Division, City Warehouse, 325 4th St., NW, Charlottesville, VA

In Compliance With This Invitation For Bids And To All The Conditions Imposed Therein, The Undersigned Offers And Agrees To Furnish The Goods/Services At The Price(s) Indicated In Section VIII, Pricing Schedule.

* Virginia Contractor License No. _____
Class: _____ Specialty Codes: _____

Name And Address Of Firm:

Date: _____

By: _____

(Signature In Ink)

Name: _____

(Please Print)

Title:

Telephone Number: _____

FEI/FIN NO. _____

Fax Number: _____

E-mail Address: _____

This public body does not discriminate against faith-based organizations in accordance with the Code of Virginia, § 2.2-4343.1 or against a bidder or offer or because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment.

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- I. PURPOSE: The City of Charlottesville is soliciting quotations from qualified vendors to provide a cost quote for furnishing all necessary equipment and labor to prepare a tree inventory and assessment of all parks, schools, cemeteries, and other public lands in the City of Charlottesville, VA.
- II. COMPETITION INTENDED: It is the City's intent that this Invitation for Bid (IFB) permits competition. It shall be the bidder's responsibility to advise the Purchasing Agent in writing if any language requirement, specification, etc. or any combination thereof, inadvertently restricts or limits the requirements stated in this IFB to a single source. Such notification must be received by the Purchasing Agent not later than five (5) days prior to the date set for bids to close.
- III. SCOPE OF WORK/DESCRIPTION OF ITEM: The contractor shall provide all labor, equipment, tools and incidentals to perform each of the following services using ISA certified personnel:

Contractor will collaborate with the City of Charlottesville Parks and Recreation Department to develop a tree inventory and assessment of City lands.

The goals of the project are to:

- o Inventory and assess all trees in developed areas of parks, schoolyards, and other properties.
- o Produce a database, GIS layers, and a report on the tree inventory
- o Present findings to the Parks and Recreation advisory board, Planning Commission and City Council.

The process of should tentatively begin in early March 2008, with a final report completed tentatively in July 2008. The main work consists of:

Inventory of trees two (2.0) inches or more in diameter (DBH) located on City-owned property as depicted on maps located on City's ftp server and listed below:

- o Parks, including golf courses and Craw memorial garden, and Carver and Key Rec. centers.
- o School grounds
- o Cemeteries (2)
- o City Yard and Public Works Administration Bldg.
- o Fire Stations (Ridge Street and 250 Bypass)
- o Downtown mall and side streets, City Hall and Annex
- o University Avenue at the Corner, between Madison Lane and 13th Street
- o Libraries (2) and Albemarle County Historical Society
- o Health Department
- o City owned lots at Wayland House, Community Attention, McGuffey Art Center, Circuit Court, Juvenile and Domestic Relations Court, Levy Building (old Town Hall), Jessup House, Group Home, and Preston-Morris house.
- o Medians of divided streets (Preston, Monticello Avenue, 5th Extd, Jefferson Park Avenue, 250 Bypass and Long Street, also the small tree islands in the middle of Grady Ave., Fendall, Thompson Rd., Lewis Mountain Rd., and Herndon Ave.
- o Sidewalks and grass strips of streets including West Main Street, Market Street , Monticello Avenue, Melbourne Road, Park Place, Parkway, Locust Avenue, Lexington Avenue, Evergreen Avenue, High Street, Jefferson Street, Altamont Circle, 5th Street Extended, Grady Avenue, Gordon Avenue, Rugby Avenue, Wayside Place, Preston Place, University Circle, University Way, Roosevelt Brown Blvd., 9th Street SW, Belmont Avenue, Avon Ststreet, Monticello Road at Belmont Bridge, Gleason Street, Levy Avenue, and the streets around Friendship Court (Garrett, 2nd, 6th SE).
- o Plot (representative) samples of forested areas of Pen, Riverview, Greenleaf, , Azalea, McIntire, Northeast, Jordan, and Quarry parks, and Meadowcreek Gardens, as well as Jackson-Via, Buford, and Johnson schools, and the City parcel along Meadowcreek near Brandywine Drive. The plot samples are not included in the base bid of the project. A space is provided in the pricing schedule to include plot samples as an add alternate.

Representative plots in the forested areas to be 1/10th acre plots. These will have a radius of 37.25 feet, with one plot per acre or portion of an acre required. Inventory data of representative plots will include Species, Diameter, Condition, and Estimated Appraisal value. If dead trees are encountered in the plots no data will be necessary- please note the number of dead trees and species

Inventory will include:

- Unique identifying number
- Location (Lat/Long and general description)
- Diameter (DBH)
- Species
- Condition (structure, decay, defects, health, hazardous condition)
- Maintenance required
- Visible utilities present
- Hardscape features present
- Estimated Appraisal value
- Champion, Heritage, or Specimen trees (per species) will be noted
- Spaces where trees could be planted in medians

Deliverables from the process will include:

- a written report of the background information
- diameter distributions
- species distributions
- outline of condition classes
- database compatible with iTree software suite
- ArcMAP compatible GIS shapefiles in State Plan 1983 (Feet) Virginia South projection
- a power point presentation for City Council, Planning Commission and Parks and Rec. Adv. Bd.

All printing and reproduction costs will be undertaken by the City of Charlottesville.

A site visit to Charlottesville is highly recommended prior to submitting a cost quote.

Contractor will submit ISA certification numbers for the employees conducting this inventory.

IV. PREBID CONFERENCE: A prebid conference is not scheduled for this project.

V. GENERAL TERMS AND CONDITIONS:

- A. Bids must be submitted in a sealed envelope with the outside marked in the lower left hand corner as follows:
IFB#: TREE INVENTORY/08-86 FOR: Tree Inventory and Assessment
- B. Bids will be time stamped upon receipt and retained unopened in a secure location until bid opening.
- C. No consideration will be given to date of postmark.
- D. The City reserves the right to accept or reject any or all bids in whole or in part and to waive any informality in the bid. Informality shall be defined as a minor defect or variation from the exact requirements which does not affect the price, quality, quantity or delivery schedule.
- E. The specification herein is intended to indicate the character, quality and/or performance of the goods or services desired. Unless qualified by provision "No Substitute" the name of a brand, manufacturer or catalog designation does not restrict the bidder to that brand or

manufacturer. Alternates to the specified goods or service will be considered to the extent that such action is deemed in the best interest of the City.

- F. The City will assume no responsibility for oral instructions, suggestion or interpretation.
- G. Any question regarding the bid documents and/or specifications should be directed to the Purchasing Division and any material change will be submitted to all bidders through issuance of an addendum.
- H. **Any questions related to this IFB MUST be submitted to the Purchasing Division no fewer than five (5) work days prior to the bid opening date specified.** Questions should be in writing and electronic transmission is preferred. Questions submitted beyond the time specified above may be left unanswered if sufficient time does not allow a response to all prospective bidders without causing an unacceptable delay in the process.
- I. Each bid submitted must be and remain valid for a period of at least thirty (30) days from bid opening. Erroneous bids may be reclaimed or superseded any time prior to bid opening time; Modification of or corrections to bids are not acceptable after bids have opened.. Any new bid must be marked as in 1.01 with the additional notation "Supersedes all previous submissions." No bidder may withdraw his bid from consideration after bid opening due to a mistake, except as permitted by Virginia Code §2.2-4330.
- J. Except as otherwise provided, and in accordance with Va. Code §2.2-4342, all proceedings, records, contracts and other public records relating to the City's procurement transactions shall be open to the inspection of any citizen, or any interested person, firm or corporation, in accordance with the Virginia Freedom of Information Act (Va. Code §2.2-3700 et seq). Any bidder, upon request, shall be afforded the opportunity to inspect bid records within a reasonable time after the opening of all bids but prior to award, except in the event the City decides not to accept any of the bids and to reopen the contract. Otherwise, bid records shall be open to public inspection only after award of the contract. Trade secrets or proprietary information submitted by a bidder in connection with this procurement transaction shall not be subject to the Virginia Freedom of Information Act, but only if the bidder (i) invokes the protections of Virginia Code §2.2-4342 prior to or upon submission of the data or other materials; (ii) identifies the specific data or other materials to be protected, and (iii) state the reasons why protection is necessary. A general designation of a contractor's entire bid submission as being "confidential" shall not be sufficient to invoke the protections referenced above.
- K. Each bidder is and shall be subject to the provisions of the Virginia Governmental Frauds Act, Virginia Code, Title 18.2, Chapter 12, Article 1.1. In compliance with this law, each bidder is required to submit a certification that its bid, or any claim resulting therefrom, is not the result of, or affected by, any act of collusion with another person engaged in the same line of business or commerce, or any act of fraud punishable under the Act. Any bidder who knowingly makes a false statement on the Certificate of No Collusion shall be guilty of a felony, as provided in Virginia Code §18.2-498.5. As part of this bid a notarized Certificate of No Collusion must be submitted with the bid. Certificate attached.
- L. Identity of bidders, except in the case of construction contracts, will not be disclosed prior to bid opening.
- M. Include only taxes applicable to the project in this bid. The City is exempt from State Sales Tax and Federal Excise Tax. Tax Exemption Certificate indicating the City's tax exempt status will be furnished by the City of Charlottesville upon request.
- N. Public notice of the award of this contract, or the announcement of the decision to award this contract, shall be given in the following manner: posting of a written notice on the bid board located in the Purchasing Department.

- O. Tabulations of bids are a matter of public record and are available upon request.
- P. Awards shall be based on determination of the lowest responsive and responsible bidder. No contract may be awarded to a bidder who is determined by the Purchasing Agent to be non-responsible.
- Q. All prices submitted must be FOB Destination - Freight Prepaid and Allowed.
- R. In the case of error in the extension of prices the unit price shall govern.
- S. Unless otherwise noted any equipment bid shall be new, unused, of current production and standard to the manufacturer. Where any part or nominal appurtenances of equipment are not described it shall be understood that all equipment and appurtenances standard to or recommended by the manufacturer for complete and safe use shall be included as part of this bid.
- T. The following documents SHALL BE SUBMITTED WITH EACH BID:
 - (a)MSDS: A Material Safety Data Sheet is required for all chemicals proposed to be furnished as a result of this bid. The MSDS must; list all ingredients which constitute more than 1% of the product (.1% for known or suspected carcinogens); identify the product by common or chemical name; provide physical and chemical characteristics of any hazardous components; list any known acute or chronic health effects; specify exposure limits, precautionary measures, and emergency and first aid procedures.
 - (b)CONTRACTOR'S FORMS/BOILERPLATE CONTRACTS: All written agreements, contracts, service agreements, account applications, forms and other documents, of any nature, that the Contractor would require the City to sign in connection with any contract resulting from this procurement transaction, or the performance thereof by the Contractor, must be submitted along with the Contractor's bid. Under no circumstances shall the City be required to agree to any contractual provision (i) that would materially conflict with any provision of this invitation for bids, (ii) that would affect the price, quality, quantity or delivery schedule for any goods or services, or (iii) that would, in the City's sole discretion, materially alter the overall combination of quality, price and various elements of required services that in total are optimal relative to the City's needs, and the Contractor shall not condition its performance or delivery upon any such agreement by the City.
- U. Anti-Discrimination: By submitting their bids, bidders certify to the City that they will conform to the provisions of the Federal Civil Rights Act of 1964, as amended, as well as the Virginia Fair Employment Contracting Act of 1975, as amended, where applicable, the Virginias with Disabilities Act, the Americans with Disabilities Act and 2.2-4311 of the Virginia Public Procurement Act (VPPA). If the award is made to a faith-based organization, the organization shall not discriminate against any recipient of goods, services, or disbursements made pursuant to the contract on the basis of the recipients religion, religious belief, refusal to participate in a religious practice, or on the basis of race, age, color, gender or national origin and shall be subject to the same rules as other organizations that contract with public bodies to account for the use of the funds provided; however, if the faith-based organization segregates public funds into separate accounts, only the accounts and programs funded with public funds shall be subject to audit by the public body. (*Code of Virginia 2.2.4343.1E*).

Every contract over \$10,000 shall include the provisions:

- 1. During the performance of this contract, the contractor agrees as follows:
 - a. During the performance of this contract, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race,

religion, color, sex, sexual orientation, national origin, age, disability or any other basis prohibited by law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

- b. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the contractor, shall state that it is an equal opportunity employer.
- c. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting these requirements.

1 The contractor will include the provisions of No. 1 above in every subcontract or purchase order over \$10,000, so that the provision will be binding upon each subcontractor or vendor.

V. Drug-Free Workplace Clause: During the performance of this contract the contractor agrees as follows: (i) to provide a drug-free workplace for the contractor's employees; (ii) to post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; and (iii) state in all solicitations or advertisements for employees placed by or on behalf of the contractor that the contractor maintains a drug-free workplace. For the purposes of this paragraph, "drug-free workplace" means a site for the performance of work done in connection with the contract awarded to a contractor in accordance with this procurement transaction, where the contractor's employees are prohibited from engaging in the unlawful manufacture, sale distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.

W. The City of Charlottesville does not discriminate against faith-based organizations.

X. Unless all bids are cancelled or rejected, the City reserves the right granted by § 2.2-4318 of the *Code of Virginia* to negotiate with the lowest responsive, responsible bidder to obtain a contract price within the funds available to the City whenever such low bid exceeds the City's available funds. For the purpose of determining when such negotiations may take place, the term "available funds" shall mean those funds which were budgeted by the City for this contract prior to the issuance of the written Invitation for Bids. Negotiations with the low bidder may include both modifications of the bid price and the Scope of Work/Specifications to be performed. The City shall initiate such negotiations by written notice to the lowest responsive, responsible bidder that its bid exceeds the available funds and that the City wishes to negotiate a lower contract price. The times, places, and manner of negotiating shall be agreed to by the City and the lowest responsive, responsible bidder.

Y. It is the policy of the City of Charlottesville to facilitate the establishment, preservation and strengthening of small businesses and businesses owned by women and minorities and to encourage their participation in the City's procurement activities. Toward that end the City of Charlottesville encourages these firms to compete and encourage other firms to provide for the participation of these firms through partnerships, joint ventures, subcontracts or other contractual opportunities. Bidders are asked, as part of their submission, to describe any planned use of such business in fulfilling this contract.

Z. This procurement is being conducted on behalf of other public bodies, in accordance with 2.2-4304 (A) of the *Code of Virginia*. Unless specifically prohibited by the bidder, any resultant contract may be extended to Albemarle County, the University of Virginia, the Rivanna Water & Sewer Authority, the Rivanna Solid Waste Authority, the Albemarle County Service

Authority, the Charlottesville Housing Authority, Region Ten Community Services Board and various other public agencies in, but not necessarily limited to, the central Virginia area in and around Charlottesville and Albemarle County, to permit those public bodies to purchase in accordance with the terms, conditions and specifications of this bid at contract prices. The successful vendor shall deal directly with each agency with regard to order placement, delivery, invoicing and payment

- AA. The vendor is responsible for thorough examination of the documents and the project site prior to bidding.
- BB. Contractors will not be allowed extra compensation for conditions which could have been determined by examination of the documents and/or the site prior to submission of bids.
- CC. The successful bidder shall agree to indemnify and save harmless the City and all of its officers, agents, and employees from all suits, actions or claims of any character, name and description brought for or on account of any injuries or damages received or sustained by any person, persons, or property by or from the said successful bidder or by or in consequence of any neglect in safeguarding the work, or through the use of unacceptable materials in the construction of improvements, or by or on account of any act or omission, neglect, misconduct or negligence of the successful bidder.
- DD. The City shall promptly pay for completed delivered goods or services by the required payment date. The required payment date shall be either: (i) the date on which payment is due under the terms of a contract for the provision of goods or services, or 9ii) if a date is not established by contract, not more than 45 days after goods or services are received or not more than 45 days after an invoice is rendered, whichever is later. Separate payment dates may be specified for contracts under which goods or services are provided in a series of partial executions or deliveries to the extent that the contract provides for separate payment for partial execution or delivery. Within 20 days after the receipt of an invoice or goods or services, the City shall notify the supplier of any defect or impropriety that would prevent payment by the required payment date. In the event that the City fails to make payment by the require payment date, the City shall pay any finance charges assessed by the supplier that shall not exceed one percent per month. In cases where payment is made by mail, the date of postmark shall be deemed to be the date payment is made. Individual contractors shall provide their social security numbers, and proprietorships, partnerships, and corporations shall provide the City with a federal employer identification number, prior to receiving any payment from the City.
- EE. Contractual claims, whether for money or other relief, shall be submitted in writing no later than 60 days after final payment; however, written notice of the contractor's intention to file a claim shall be given at the time of the occurrence or beginning of the work upon which the claim is based. The City has established an administrative procedure for consideration of contractual claims, and a copy of such procedure is available upon request from the City's Purchasing Office. Contractual disputes shall also be subject to the provisions of Va. Code §2.2-4363(D) and (E) (exhaustion of administrative remedies) and §2.2-4364 (legal actions).
- FF. This procurement transaction, and any resulting contract, shall in all aspects be governed by the laws of the Commonwealth of Virginia, notwithstanding conflicts of laws provisions.
- GG. The terms and conditions set forth above within this Invitation for Bids shall be deemed incorporated into any contract resulting from this procurement transaction, as if set forth therein verbatim.
- HH. It is understood and agreed between the parties herein that the City shall be bound hereunder only to the extent of the funds available or which may hereafter become available for the purpose of this agreement.

- II. All contractors and subcontractors performing services for the City are required and shall comply with all Occupational Safety and Health Administration (OSHA), State and City Safety and Occupational Health Standards and any other applicable rules and regulations. Also, all contractors and subcontractors shall be held responsible for the safety of their employees and any unsafe acts or conditions that may cause injury or damage to any persons or property within and around the work site area under this contract.
- JJ. Ethics in Public Contracting per *Code of Virginia, 2.2-4367*: By submitting a bid, the bidder certifies that their bid is made without collusion of fraud and that they have not offered or received any kickbacks or inducements from any other bidder, supplier, manufacturer or subcontractor in connection with their bid, and that they have not conferred on any public employee having official responsibility for this procurement transaction any payment, loan subscription, advance, deposit of money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value was exchanged.
- KK. Immigration Reform and Control Act of 1986: By submitting a bid, bidders certify that they do not and will not during the performance of this contract employ illegal alien workers or otherwise violate the provisions of the federal immigration Reform and Control Act of 1986.
- LL. Antitrust: By entering into a contract, the contractor conveys, sells, assigns, and transfers to the City of Charlottesville all rights, title and interest in and to all causes of action it may now have or hereafter acquire under the antitrust laws of the United States and the Commonwealth of Virginia, relating to the particular goods or services purchased or acquired by the City of Charlottesville under said contract.
- MM. Inclement Weather/Closure of City Offices: If the City of Charlottesville is closed for business at the time scheduled for bid opening, for whatever reason, sealed bids will be accepted and opened on the next scheduled business day, at the originally scheduled time.

VI. SPECIAL TERMS AND CONDITIONS:

- A. CANCELLATION OF CONTRACT: The City may terminate any agreement resulting from this solicitation at any time, for any reason or for no reason, upon thirty days' advance written notice to the Contractor. In the event of such termination the Contractor shall be compensated for services and work performed prior to termination.
- B. BID EVALUATION AND AWARD PROCEDURE: Award will be made to the lowest responsive/responsible bidder based on the TOTAL listed in Section VIII. PRICING SCHEDULE.
- C. ADDITIONAL DOCUMENTS: All contract documents must be reviewed and approved by the City of Charlottesville's City Attorney. The vendor must submit with the bid, any additional documents that will require the City's acceptance and/or signature. These documents must be reviewed and approved by the City prior to award of the contract.
- D. ASSIGNMENT OF CONTRACT: A contract shall not be assignable by the contractor in whole or in part without the written consent of the City.
- E. DELIVERY: State your earliest firm delivery or performance date: **June 30, 2008**. This date may be a factor in making the award.

VII. METHOD OF PAYMENT: The City shall promptly pay for completed delivered goods or services by the required payment date. The required payment date shall be either: (i) the date on which payment is due under the terms of a contract for the provision of goods or services, or (ii) if a date is not established by contract, not more than 45 days after goods or services are received or not more than 45 days after an invoice is rendered, whichever is later. Separate payment dates may be specified for contracts under which goods or services are provided in a series of partial executions or deliveries to the extent that the contract provides for separate payment for partial execution or delivery. Within 20 days after the receipt of an invoice or goods or services, the City shall notify the supplier of any defect or impropriety that would prevent payment by the required payment date. In the event that the City fails to make payment by the require payment date, the City shall pay any finance charges assessed by the supplier that shall not exceed one percent per month. In cases where payment is made by mail, the date of postmark shall be deemed to be the date payment is made. Individual contractors shall provide their social security numbers, and proprietorships, partnerships, and corporations shall provide the City with a federal employer identification number, prior to receiving any payment from the City.

ADDENDUM B



ENVIRONMENTAL SERVICES, INC.
3800 Clermont Avenue NW
North Lawrence, Ohio 44666
330-833-9941 / Facsimile 330-833-9875
www.environmentalservicesinc.com

MEMORANDUM

TO: Tim Hughes

FROM: Shawn McMahan

DATE: 17 June 2008

RE: City of Charlottesville Tree Inventory – Memorandum of Understanding

On 12 June 2008 Shawn McMahan and Vincent Condon with Environmental Services, Inc. (ESI) attended a preliminary meeting to discuss the details and coordination of the awarded tree inventory for the City of Charlottesville. To ensure the consistency of all items agreed upon, ESI is providing the following summary of main points addressed:

1. Tim Hughes will be the City of Charlottesville main contact for issues and in-field questions.
2. All trees will be appraised utilizing the “Guide for Plant Appraisal”, published by the International Society of Arboriculture, copyright 2000.
3. All trees will be evaluated for hazard based upon the guidelines in “A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas”, published by the International Society of Arboriculture, copyright 1994.
4. All field technicians will wear shirts with ESI insignia and hats provided by the city with City of Charlottesville insignia.
5. The City of Charlottesville will provide all ESI field technicians with a letter stating the approval to conduct the inventory on publicly owned properties. The letter will also briefly state the intention of the inventory.
6. The American Forests protocol for the National Register of Big Trees will be used to identify trees of significance. Additionally, trees found with characteristics worthy of recognition that do not qualify under these standards will also be noted.
7. Areas currently proposed for sampling by 100% inventory (street tree areas) which contain a density more appropriate for sampling utilizing the 10th-acre plot methodology, can be sampled using the established plot system.
8. Areas proposed for supplemental plantings will be at least six feet by six feet, and not dominated by adjacent trees.

9. The guidelines for proposed plantings will be taken from the local utility's approved list.
10. Hardscapes will be noted wherever a target or threat to safety exists associated with a tree. Hardscape will only be considered when it is within the dripline of the tree.
11. Multi-stem trunks will be measured at the smallest diameter below the union of all trunks. If the union is below ground, all stems will be measured at breast height and summed.
12. All trees will be classified in 1 inch increments, measured at breast height.
13. In all instances where a sidewalk exists, the area between the sidewalk and street will be assumed to be the right-of-way and will be assessed for trees. Where a sidewalk does not exist, the existing features will be referenced to determine the right-of-way. In problem areas where no indication of right-of-way exists, best judgment will be used.
14. The initial field sampling session of the tree inventory is proposed for the week of July 7th. Subsequent dates will be proposed and submitted to the City following the initial assessment, but will be the week of July 21st at the earliest.

If there are any questions regarding the items covered, please contact Shawn McMahon with ESI at 904-626-6011 or by email at Smcmahon@esinc.cc.

ADDENDUM C

Genus Table for Distribution

OTHER*		Primary Genuses			
<i>Aesculus*</i>	6	<i>Morus*</i>	33	<i>Acer</i>	729
<i>Ailanthus*</i>	17	<i>Nyssa*</i>	29	<i>Cornus</i>	864
<i>Albizzia*</i>	12	<i>Olea*</i>	6	<i>Juniperus</i>	399
<i>Amelanchier*</i>	35	<i>Ostrya*</i>	3	<i>Pinus</i>	461
<i>Betula*</i>	4	<i>Phellodendron*</i>	13	<i>Prunus</i>	230
<i>Broussonetia*</i>	3	<i>Photinia*</i>	1	<i>Quercus</i>	754
<i>Buxus*</i>	3	<i>Picea*</i>	17		
<i>Camellia*</i>	1	<i>Plantanus*</i>	192		
<i>Carpinus*</i>	60	<i>Pyrus*</i>	58		
<i>Carya*</i>	39	<i>Robinia*</i>	67		
<i>Castanea*</i>	4	<i>Salix*</i>	8		
<i>Catalpa*</i>	22	<i>Sassafras*</i>	9		
<i>Cedrus*</i>	3	<i>Sophora*</i>	12		
<i>Celtis*</i>	111	<i>Sorbus*</i>	1		
<i>Cercidiphllum*</i>	8	<i>Syringa*</i>	21		
<i>Cercis*</i>	173	<i>Taxodium*</i>	8		
<i>Chamaecyparis*</i>	35	<i>Taxus*</i>	1		
<i>Crataegus*</i>	69	<i>Thuja*</i>	157		
<i>Cryptomeria*</i>	2	<i>Tilia*</i>	46		
<i>Cupressocyparis*</i>	168	<i>Toxicodendron*</i>	1		
<i>Diospyros*</i>	12	<i>Tsuga*</i>	23		
<i>Fagus*</i>	33	<i>Ulmus*</i>	23		
<i>Fraxinus*</i>	113	<i>Vitex*</i>	4		
<i>Ginkgo*</i>	136	<i>Zelkova*</i>	173		
<i>Gleditsia*</i>	7				
<i>Gordonia*</i>	1				
<i>Gymnocladus*</i>	2				
<i>Halesia*</i>	17				
<i>Heteromeles*</i>	1				
<i>Ilex*</i>	106				
<i>Juglans*</i>	38				
<i>Koelreuteria*</i>	29				
<i>Lagerstroemia*</i>	109				
<i>Ligustrum*</i>	9				
<i>Liquidambar*</i>	58				
<i>Liriodendron*</i>	115				
<i>Maclura*</i>	8				
<i>Magnolia*</i>	43				
<i>Malus*</i>	47				
<i>Metasequia*</i>	1				