1. **Overview Of Project**
   1. The “big picture’’; set the stage for contractor & community participant understanding of the project.

The <state> Urban & Community Forestry program is currently seeking a vendor to provide an assessment of the Urban Tree Canopy (UTC) for the <area of interest>. This Urban Tree Canopy Assessment will pertain to both public and private trees. This funding is provided by the USDA Forest Service (USDA FS). The contract period will be from <beginning> to <ending>.

This project will “allow communities to have tree canopy assessments done for their urban forests and provide them with the tools needed to develop canopy goals and strategies to improve green infrastructure.”

This project is awarded through <state U&CF progam> in cooperation with and funding from the USDA Forest Service State & Private Forestry. The USDA is an equal opportunity provider and employer.

1. **Definitions**
   1. Include all definitions pertinent to the project (and RFP).

AOI Area of interest; e.g. the city limits, watershed

Error Matrix Accuracy assessment matrix (Congalton/Green)

NAIP National Agriculture Imagery Program (FSA)

UFS Urban Forestry South, Athens, Georgia (USDA Forest Service)

UTC Urban Tree Canopy

1. **Project Objective(s)**
   1. Clearly state the overall objective(s). For example…

The objectives for the <area of Interest> are to:

1. establish an urban tree canopy (UTC) baseline of known accuracy and classification methodology that can be used to track canopy gains and losses over time, and
2. develop sound urban forest management policy and plans based on current UTC and ecosystem benefits.

To accomplish these objectives we will:

* determine, analyze, and promote the ecosystem benefits that are derived from the urban forest (UTC),
* set canopy goals, and
* develop street tree/public property planting plans.

These objectives and strategies will be met with the **classification and** **analysis of urban tree canopy and other landcover** from current imagery for the AOI.

1. **Scope Of Work**
   1. This is where you specifically define area(s) for the landcover classification and resulting deliverables. e.g. city, county, or watershed boundary.
2. **Provided Data (from state agency or local participant i.e. city/county)**
   1. GIS and non-GIS data.
   2. Contact for data or on-line availability.
3. **Requirements and Tasks**
   1. All contract requirements should be clearly listed in this section.
   2. Summarize the principal tasks (e.g. classification, planting plan, presentation to council).
   3. ESRI v10 compatibility.
      1. Personal geodatabase for all vector layers
   4. GIS Metadata to current national standards is required.
      1. FGDC Content Standard for Digital Geospatial Metadata
      2. <http://www.fgdc.gov/metadata/csdgm/index_html>
   5. Vendors should clearly explain any NAIP deficiencies that will have to be corrected or accommodated to meet specified accuracy requirement.
   6. Full documentation of classification methodology.
   7. Full documentation of accuracy assessment methodology.
4. **Quality Assurance (QA) and Quality Control (QC)**
   1. This section should clearly state the required accuracy for the classification and other deliverables if appropriate.
   2. Should suggest or mandate a minimum mapping unit (i.e. the smallest area that will be delineated (see example that follows).
   3. Require an accuracy assessment by the contractor to current standards.
   4. Indicate that a 3rd party accuracy assessment will also be done to verify their work.
   5. Require that all methods for classification and accuracy assessment be documented in detail.

The analysis will achieve a minimum of 94% user’s accuracy for tree canopy and impervious classes. Overall accuracy must ≥92%.

Based on the vendor’s classification methodology and other considerations, the RFP response must clearly define the minimum mapping unit (MMU) that will be developed for all deliverables. Based on the objectives of the project, MMU should probably be ≤9 square meters.

The <name of RFP initiator> in cooperation with the USFS will perform a QA/QC check on the image classification deliverables. The error assessment methodology for the QA/QC will be based on ***Assessing the Accuracy of Remotely Sensed Data : Principles and Practices*** (2nd Edition) Congalton Russell G and Kass Green, CRC Press, Boca Raton, FL 2008

All appropriate accuracy assessment techniques will be employed including: Kappa (KHAT statistic) and MARGFIT (normalization). A fuzzy error matrix approach will be used if deemed appropriate. USDA FS (UFS) will consult with NOAA and USFS remote sensing specialists on the accuracy assessment protocol.

Urban Forestry South will additionally calculate metrics as outlined by Pontius in *Death to Kappa: birth of quantity disagreement and allocation disagreement for accuracy assessment*, International Journal of Remote Sensing (Vol. 32, No. 15, 10 August 2011, 4407–4429) for the purpose of a continuing study of UTC accuracy assessment protocols.

Vendor will provide UFS datasets needed for accuracy verification as soon as the vendor has completed their assessment for the project (i.e. prior to final analysis and report generation). This should occur by <timeline date>. (See timeline.) These should include the final classified raster layer with metadata, the narrative description of the classification methodology, the narrative describing the contractor’s error assessment methodology, vector layers associated with the classification and error assessment, and the contractor’s error matrix.

1. **Deliverables**
   1. Clearly list all deliverables starting with the classification and accuracy assessment.
      1. Landcover classification of the AOI

* Classifications will include: bare ground, open space/grass, impervious, water, and tree canopy (UTC)
  + 1. The awarded vendor will provide an accuracy assessment and GIS data including:
* The final draft classification
* Points/polygons used as training sites for a supervised classification
* Accuracy methodology (narrative)
* GIS layer of points/polygons used for the accuracy assessment
* Final Error Matrix with user and producer accuracy by landcover class
* Discussion of accuracy assessment

The accuracy assessment and supporting data listed will be provided to <name of RFP initiator> and UFS as specified in the timeline.

* + 1. UTC Classification GIS Datasets
* Narrative of classification methodology used including software used, references of methods used, processing steps (outline with sufficient detail that work can be replicated).
* Vendor will provide <imagery>[[1]](#footnote-1) as modified just before the first classification step (e.g. the image was purchased and clipped, or photo enhancements).All significant intermediary GIS datasets (<state>, <name of RFP initiator> and USFS reserves the right to request specific intermediary data sets as deemed necessary in the review and delivery acceptance process)
* All final raster and vector GIS datasets with metadata
  + 1. Other Deliverables
  1. If non-NAIP imagery is being specified, consider a contract requirement that purchases the license in the agency and/or city name (and then is used by the contractor for this project only).
  2. Vendor should describe any deviation from deliverables specified in this RFP. This may include vendor clarification language if needed. A simple statement “All deliverables will be produced as specified in the RFP” is sufficient.

1. **Products**
   1. List all written analysis reports required.
   2. Indicate report/analysis/data format needed (this may be redundant).

The awarded vendor must:

* 1. Produce 5 spiral-bound copies of a report that documents the results and methodology
* 2 Provide a 2-page factsheet of the UTC results
  1. Payment Structure.
     1. Number and timing of payments specifically tied to successful timeline completion (milestone)
  2. Timeline.
     1. Begin with RFP release data
     2. Include a pre-RFP conference call (mandatory?)
     3. RFP response deadline
     4. Contract award date
     5. Final draft classification and accuracy assessment (to 3rd party for QA/QC)
     6. Completion
     7. Presentations
     8. All billing completed
  3. Minimum RFP Components.
  4. Company Background and References.
     1. Name, address and telephone number of the vendor’s point of contact for a contract resulting from this RFP.
     2. Vendors should provide name of individual(s) performing the classification and accuracy assessment as well as their experience and education.
     3. A list and/or a brief description of the applicant’s experience with image classification and/or UTC studies.
     4. Vendors should provide a minimum of three (3) references from similar projects performed for private, state and/or large local government clients within the last three years.
  5. RFP & Project Contacts.

1. **RFP Initiator Legal Requirements**
2. **RFP Contacts**
   1. State U&CF Program (or funding agency).
   2. Agency/organization releasing the RFP.
   3. Community contacts.
   4. GIS data contacts.
   5. USDA FS contacts (UFS) – Accuracy Assessment.

The city, county, community (AOI) should provide the following information:

* Square miles of city (or other area) to be assessed (AOI)
* Imagery available by the city and preferred formats for UTC products (e.g. GIS layers, paper maps & reports)
* UTC related issues city would like to address
* Objectives/Goals of UTC Assessment

Other GIS layers (if/as available)

* Current landuse (agriculture, residential, commercial, industrial, public, institutional); whatever they use & have
* Current city boundary layer & any boundaries desirable for reporting (e.g. council districts)
* Street ROW
* Sidewalks
* Recreation facilities

1. Unless precluded by licensing restrictions; if used, NAIP imagery will always included. [↑](#footnote-ref-1)