



## ATHENS-CLARKE COUNTY COMMUNITY TREE COUNCIL

### COMMUNITY FOREST INFORMATION SYSTEM (CFIS)

### ATTRIBUTE DEFINITION AND PROCEDURES MANUAL

## INTRODUCTION

The Community Forest Information System (CFIS) is being developed under a series of grants funded by the Urban and Community Forest Grant Assistance Program as administered by the Georgia Forestry Commission. This project is a natural follow-on to the Community Forest Cover and Change Analysis (CFCCA) 2000, and the Mapping and Information Management Program (MIMP) 2001 projects, and utilizes the data generated by these projects in establishing the mapping parameters and database fundamental to the development of the CFIS. The following describes the CFIS attributes and the procedures for their acquisition and maintenance.

Mapping Parameters: The mapping parameters used in the CFIS follows those adapted by the ACC Planning Department, and provided to the CTC for use in this project.

- Coordinates, projection and datum: The base map is referenced by the Georgia West State Plane Coordinate System (SPCS) using a Transverse Mercator projection and cast on the North American Datum of 1983 (NAD83). All physical and cultural features are rectified to this coordinate system.
- Initial physical and cultural features integrated into the base map include hydrology (rivers, creeks and streams), and transportation (arteries, major collectors, minor collectors and streets).
- Other pertinent layers of information to be included as overlays are: major drainage basins, 100/500-year flood plains, and zoning classes.
- Vegetative cover: Data acquired June 1, 2000 (and subsequent dates), and analyzed to produce 12 unique classes represents the current land cover as of this date. These classes included four forest classes (dense pine, light pine, hardwood, and pine-hardwood), one transition class (scattered) from forest to non-forest and seven non-forest classes (agriculture, bare soil, kudzu, turf, **hardscape**, **buildings** and water). Attributes accrued for these forest and non-forest classes included: Properties CTC01, Area (acres), and Label (as above).

## SYSTEM ATTRIBUTES-FIXED

### Property

The Property attribute is a given and was established at the beginning. The Property name differentiates one FARMSPRO application from others that may be in the system. All Properties are unique and need not be included in attribute queries unless it is needed as a delimiter.

### Acres

Area in terms of acres is calculated for each cluster at the time the cluster is defined. The area is a standard acre comprised of 43,560 square feet. This is a variable that is always listed second in the attribute list. Clusters can be combined or crated by cutting from existing clusters, and the system adjusts the acreage accordingly.

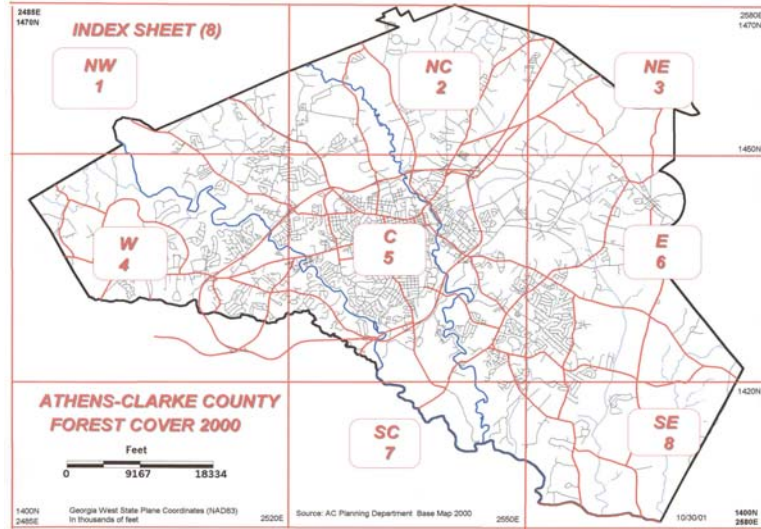
### Label Name

Each cluster is assigned a label name (not code) during the development of the base map. There are 14 descriptive clusters recognized. They are general in nature and are defined alphabetically as follows: (1) Agriculture, (2) Bare Soil, (3) Buildings, (4) Dense Pine, (5) Hardscape, (6) Hardwood, (7) Kudzu, (8) Light Pine, (9) Pine-Hardwood, (10) Scattered, (11) Turf, (12) Water. More specific definitions are provided in the Cover Types and Topography sections of these procedures. The label name is a variable but is fixed third in attribute space. While Labels are alphabetic in format, most other attributes including cover type and topography, will be in numeric code to facilitate search and query procedures.

## CTC ATTRIBUTES-VARIABLE

### County Index Unit (IU)

Arbitrary County Index was established to facilitate location and to generate more manageable units for analysis and inspection. The Index is a 3 x 3 grid reduced to 8 cells (units) of varying size conforming to the irregular county boundary, Figure 1. To be compatible with the Athens-Clarke County base map grid, the Index was designed to have the same extent and with two exceptions, to be in some multiple of 10,000 feet, with the largest unit being 35,000' x 30,000' and the smallest 20,000' x 30,000'



. Figure 1—Clarke County Base Map and Index Unit Grid

### Zoning Code

The zoning code complies with the codes used for the various development zones throughout Athens-Clarke County. Designations followed by square feet or other units represent minimum area (sq. ft), or numbers (units). The zones and their attribute descriptions and codes are as follows:

### Zone Description Code

AR1	Agricultural Residential	1
RS 5	Residential Single Family 5,000 sq. ft.	2
RS 8	Residential Single Family 8,000 sq. ft.	3
RS 15	Residential Single Family 15,000 sq. ft.	4
RS 20	Residential Single Family 20,000 sq. ft.	5
RS 25	Residential Single Family 25,000 sq. ft.	6
RM1	Residential Mixed Density 16 units	7
RM2	Residential Mixed Density 24 units	8
RM3	Residential Mixed Density 50 units	9
C	Commercial, General	10
C-D	Commercial Downtown	11
C-N	Commercial Neighborhood	12
C-O	Commercial Office	13
C-R	Commercial Rural	14
G	Government	15
EI	Employment Industry	16
EO	Employment Office	17
In	Institutional	18
I	Industrial (heavy)	19
P	Parks	20
R/W	Rights-of-Way	21
RS 40	Residential Single Family 40,000 sq. ft.	22

## Stand Labels

Definition: Stands as defined for the CFIS, include the 12 cluster classes or labels as identified in the image classification scheme. These general labels represent the Cover Type *Legend or Key* for the mapping purposes. Each will represent a different color and/or pattern. Unlike a typical forest stand with specific criteria such as site (a measure of growth potential), age (to the nearest year on average) and density (measured in terms of total stem basal area per acre), stands are general classes of forestland including (with code):

<b>Forested Lands</b>	<b>Code</b>	<b>Non-Forest Lands</b>	<b>Code</b>
Dense Pine	04	Agriculture	01
Light Pine	08	Bare soil	02
Hardwood	06	Turf	11
Pine-Hardwood	09	Kudzu	07
Scattered (Cut-Over)	10	Buildings	03
		Hardscape (impervious surface)	05
		Water	12

So general are the classes, there is often more variability within stand clusters than between them. Typically forest stand is maintained as a homogeneous unit of consumptive production (pulpwood, saw timber, poles, pilings, etc.) in terms of cubic feet, board feet, or other local volume measures. In considering the community forest, management objectives are directed toward defining prime areas of cover in terms of composition, structure, condition, density as reflected in crown cover and distribution.

Stand numbers will be sequential and unique by county Index Unit (IU). Each stand will be numbered from 1 to n within each IU. This procedure will reduce the size of the stand numbers (there are over 5,000 stands within the county). It is the combination IU number and the stand number that creates the uniqueness for each polygon (stand). To the degree possible, each IU will have unique non-overlapping stands. Where reasonable, stands will be contained within one of the 15 recognized drainage basins in the county. The 100/500-year flood plains overlay will assist in defining riparian zones and wetland sites. Such sites will be so designated in the "Venue" attribute section of the Community Forest Information System.

## Cover Type

Cover type is an expanded and coded version of the stand labels established initially for the property (see "Labels" above). In most cases, the initial cover types will coincide with the "Labels" and will vary mostly in terms of topography. For example, cover types falling within the 100-year flood plain boundaries will be considered in a wetland environment. Stands will be so classed and can be summarized that way. In rural forested conditions, cover types involve some combination of pine (conifer) and hardwood (deciduous) trees. The cover classification is made for those species dominating the site. While this may seem obvious, consider a partial cut where the residual trees are left to regenerate the site (seed-tree regeneration). If the **regeneration** has taken but the crown cover of the residuals makes up 20% or more, then the residuals

may well still be the dominant stand. If, on the other hand, a light seed-tree or shelter wood cut leaves less than 20% crown closure, then the regeneration may well represent the dominant stand. As a general rule, all stands having dominant crown cover of one of the major species groups (pine, hardwood) of 75% or greater are considered “pure” stands (pine or hardwood). All stands containing a dominant crown cover where major species crown cover is less than 75% but are greater than 25% are considered pine-hardwood cover types.

It should be remembered that these classifications are subjective calls at best, and all depend on the best professional judgment of the field inspector. Making these determinations from only satellite or aerial imagery is even more subjected to personal interpretation. Some misleading situations include spring (leaf-on) and fall (leaf-off) datasets. In the leaf-off situation, and with few exceptions, conifers are the only green tree component readily visible in airborne/space imagery. Thus truly pine-hardwood stands may be classed as pure pine. Conversely, in the leaf-on situation (especially spring) the early flush of deciduous leaves can totally mask the conifer component leading to an over estimation of the hardwood component.

In any case, some level of ground “truth” data collection is required to achieve a reasonable understanding of the real situation existing on the ground. The following list of cover types are designed for eventual inclusion, but for the current project, a small sub set will be used, primarily to differentiate between the wetland and upland situations.

It will be noted that the Cover Type classes are subdivided into forestland and non-forest land. In general, forestland represents those rural lands managed for forest related activities. However there are some smaller woodlots incorporated within the urban and suburban landscape.

Finally, in residential settings especially within the Central Services area of Athens-Clarke County, automated classifications are unpredictable in many cases. For example, many of the urban residential areas have considerable cover classed as light pine. In virtually all cases these stands are dense (60% or greater) hardwoods, but the mixing effect of roof tops, roadways and lawns create a spectral signature similar to light pine. In similar situations, the Pine-Hardwood component represents hardwoods as well, but in this case, light hardwoods (30% or less). The urban residential situation was remedied by adding labels for dense urban residential hardwoods (Urhdwd D) and light urban residential hardwoods (Urhdwd L). These additions will provide unique color differentiation for these urban hardwoods in the legend. The label types for urban residential hardwoods are used for visual reference only and are not included in the forest type definitions. Internal differentiation was accomplished by including the urban residential hardwoods under the Residential cover type (class 95) and utilizing Condition Class to describe the tree component (pine, hardwood, mixed pine-hardwood, etc.).

**Pine Types:** The physiographic province of Athens-Clarke County is the piedmont. This is the natural range for loblolly pine (*Pinus taeda*). Other pine species including longleaf (*P. palustris*), shortleaf (*P. echinata*), Virginia (*P. virginiana*),

and eastern white (*P. strobus*) also occur throughout the area but generally as individuals or small groups standing alone or interspersed with loblolly or various hardwood species. Loblolly pine in its natural range typically includes sweet gum (*Liquidambar styraciflua*) as an associate species such that the species often serves as a good site indicator for loblolly pine

In the basic cover classification of Athens-Clarke County, two pine classes were recognized: dense pine and light pine. Almost without exception, the dense pine component was planted pine some of which was a result of the Soil Bank program (1930's to 1970's) but most of which are much younger being planted under the more recent Conservation Resource Program (CRP). Much of the light pine is found in old established neighborhoods (where pine may not be dominant) and in the rural areas as a result of thinning. On the well-drained (dry) sites, shortleaf pine, southern red oak (*Quercus rubra*), post oak, (*Q. stellata*) and hickory (*Carya spp.*) will occur in loblolly stands. On poorly drained (wet) sites the occurrence of black gum (*Nyssa sylvatica*), water oak (*Q. nigra*), and yellow poplar (*Liriodendron tulipifera*) can be expected in association with loblolly pine.

*Cutover Pine Types:* As the name implies, cutover pine are those areas of pine that have been harvested and left to regenerate naturally. Since inadequate seed trees were left during harvest, the resulting vegetative components represent a potpourri of residual pines (very light over story of suppressed individual trees) hardwood regeneration of unknown origin and invasive weeds and brush.

**Hardwood Types:** Hardwood forest types include those cover types consisting essentially of pure hardwood (deciduous) associations. While often associated with large branches, creeks and river valleys, hardwoods in the piedmont also prevail in upland sites.

Hardwood cover types will include those stands in which hardwood species comprise 75% or more of the crown area of the dominant stand. This percentage is designed as a rule of thumb and is subject to interpretation depending on the individual situation and professional judgment. The names of the types refer to the major species typically found within the association, although the individual species may not occur singly or in combination due to past management practice: The hardwood associations recognized in this database are few because of general broad data resolution and focus on rolling and dissected uplands, creek and river bottoms.

*Oak, Hickory, Gum* (Well drained uplands)

The oak-hickory forest type is considered as an upland hardwood type and includes primarily southern red oak, white oak (*Q. alba*), water oak, post oak, pig nut hickory (*Carya glabra*) bitternut hickory (*C. cordiformis*). Loblolly pine and sweetgum are often in the mix but in lesser amounts.

The oak-hickory forests occurs most often on the upper slopes including the excessively well drained ridge tops, where the trees tend to become scrubby in appearance.

*Yellow Poplar, Sweetbay, Oak* (Creeks, branches and incipient wetlands)

As an upland forest type, the yellow poplar, sweetbay (*Magnolia virginiana*) and oak types represent some of the best growing sites of any wild forest. The type is primarily found in the Middle and Upper Coastal Plain and Piedmont sites in coves and branch bottoms and on the lower slopes. The oaks found in association include southern red, water, white, swamp chestnut (*Q. prinus*), Shumard (*Q. shumardi*) and cherrybark (*Q. falcata* v. *pagodifolia*).

*Beech, Maple, Southern Magnolia* (Lower slopes and branches)

Found primarily in the upper coastal plain and piedmont, the beech-maple-magnolia types generally occur on lower slopes, cove and branch bottom, where it will be found with other moist land hardwoods. The American beech (*Fagus americana*), red maple (*Acer rubra*), southern magnolia (*Magnolia macrophylla*), are typically associated with other species including sweetgum, blackgum, yellow poplar, cherrybark oak, southern red oak, white oak, green ash (*Fraxinus pensylvanica*) and white ash (*F. americana*).

*Sycamore, Elm, Hackberry River Birch, Ash, Spruce Pine:* (First and second bottomland flats). This loose association is an aggregate of first bottom and terrace-land hardwood associations. The species, sycamore (*Platanus occedentalis*), hackberry or sugarberry (*Celtis occedentalis/C. laevigata*), river birch (*Betula nigra*), green ash, and spruce pine (*P. glabra*), are typically found on first bottom flats and river front ridges. While these species can withstand periodic inundations, they cannot withstand permanent water. In associates of these species includes: American elm (*Ulmus americana*), water hickory (bitter pecan) (*C. aquatica*)

*Willow, Cottonwood* (Pioneer first bottomland species)

Blackwillow (*Silex nigra*) and cottonwood (*Populus deltoidies*) represent pioneer species to be found along major creeks and rivers growing on alluvial fans, add-on banks or bars. Most often, these species are found in pure stands, with willow common and cottonwood rare in this physiographic province. Both species are short-lived and are often found in association with sycamore.

*Tupelo, Cypress* (Backwater/swamp)

Bald cypress (*Taxodium distichum*) and tupelo (*Nyssa acquatica*) are found in association in the deep sloughs and depressions of the major river bottoms. The sites for these types are very poorly drained and sometimes contain no other species; however, blackwillow, red maple, American elm, blackgum, pumpkin

ash (*Fraxinus profunda*), overcup oak (*Q. lyrata*), and water hickory are often associates within this type.

**Non-Productive Hardwood Types:** Non-producing lands occur throughout the Athens-Clarke County area and include areas with no trees and various amounts of unincorporated brush (unmerchantable brush), and areas with few trees (less than 20% crown closure) with brush and hardwood saplings dominating the under story (cutover hardwood stands)

Un-merchantable brush includes those areas having species featuring the invasive kudzu (*Pueraria lobata*) and Chinese privet (*Ligustrum sinense*) in association with a wide variety of brush and herbaceous plants. While making up a small percent of the total area, this type is widely distributed throughout the area, and where present effectively prevents any other types of vegetation to become established. The problem is especially severe in small creeks and incipient wetlands.

**Scattered**

Cut over hardwood and pinelands are two of the situations occurring in areas labeled as Scattered. The Scattered class represents special situations including stands that have 20% crown closure or less. These situations include: cut over forest land (pine and hardwood), abandoned farm land (unimproved pasture) and some low density residential areas. The spectral differences are too small, and didn't separate out as separate features in the primary classification.

Using aerial photographs, field inspections and neighborhood street patterns, differences in the Scattered Class will be recognized by the Cover Type and/or Condition Class attributes. Cut over forestland are those lands where the timber has been harvested but no attempt at regeneration has been made. The succeeding stand may contain a variety of species with chances good that the dominating trees are of a species not well suited to the site. In abandoned fields scattered stands represent lands no longer under active cultivation when the imagery was taken. Many of these conditions are ephemeral being caused by standard rotation practices or simply timing of image acquisition. The residential scattered situations include low-density neighborhoods with lots of lawn, shrubs and a few trees along the street. Most of the tree density falls in small backyard woodlots on varying landforms.

**Cover Type**

***Forested Land***

<b>The Pines</b>	<b>Code</b>
Natural Loblolly Pine	01
Planted Loblolly Pine	02
Regenerating Natural Pine	03
Cutover Pine	04

<b>The Hardwood Uplands and Lower Slopes</b>	
Oak, Hickory, Gum	10
Yellow Poplar, Sweet Bay, Oak	11
Beech, Maple, Magnolia	12
Regenerated upland hardwood	13
<b>The Hardwood Bottomlands and Sloughs</b>	
Elm, Ash, Hackberry	20
Sycamore, River Birch, Spruce Pine	21
Tupelo, Cypress	22
Regenerating lowland hardwood	23
<b>The Under Producing Hardwood Lands Code</b>	
Unmerchantable brush	60
Cut-over hardwoods	65
Loblolly pine, hardwood	70
Loblolly Pine, Scrub	72
Regenerating Loblolly pine, hardwood	73
<b><i>Non-Forest Land</i></b>	
<b>The Farm Lands</b>	
Cultivated field	80
Pasture	81
Abandoned field	82
Grass/turf	83
Bare soil	84
<b>The other non-forest land</b>	
Rights-of-way	90
Industrial, commercial (hardscape and associated vegetation)	91
Residential-urban	94
Residential-suburban	95
Parks and campus	96
Bare-soil (Construction)	97
Water	98

## Topography

Five major physiographic provinces occur throughout the southeastern United States: Lower Coastal Plain, Middle Coastal Plain, Upper Coastal Plain, Piedmont and Mountains, Figure 2. Landforms within the provinces make up the topography. Such descriptive terms as ridge, cove, branch, upper slope, lower slope, upland, **creek and** bottomland describe the topography within a region. Topographic features are important because they represent elevations and relief and present visible evidence regarding soil

erosion, likely species distribution, soil characteristics, and growing sites. Athens-Clarke County falls entirely within the piedmont province. The gross features of the piedmont are rugged and highly dissected. The soil is varied ranging from deep, sterile sand and gravel ridges to fertile silt and silt loams of the alluvial out-wash deposits found throughout the area. These characteristics, coupled with the extremes of relief from stream dissection to severe erosion provide a wide range of growing conditions. Although the city of Athens falls on a broad upland between the North and Middle Oconee Rivers, the rest of Clarke County and certainly parts of Athens itself, fit the province descriptions quite well.

The mapping component of the CFIS is currently planimetric in design. Elevation considerations will be deferred to a future time. Because of this, and the base resolution of the imagery used to develop the map, only general topographic types will be recognized at this point of program development.

***Uplands:*** Upland is a term reserved for the rolling lands comprising some of the AC landscape. These lands are generally well drained and support stands of loblolly pine, post and water oaks and hickory. On the better sites, robust stands of red and white oaks and hickory.

***Dissected Uplands:*** A dissected upland is a composite situation where the landform is so broken as to make a definitive stand classification impossible. These lands are not definable using satellite imagery alone. Careful photo interpretation is required to identify these areas. In AC as well as the piedmont in general, dissected uplands are prevalent, especially along the major waterways such as the Middle and North Oconee Rivers. Many of the associated streams and drainages are intermittent in nature.

***High Flat, Prairie:*** Prairie is analogous to a high dry flat in most other physiographic provinces, however unlike a flat, oaks are in evidence. Sometimes this topography is referred to as a pin oak flat.

Associated with hardpan formations, high flat-prairie sites are seldom good, supporting stands of pine with scattered oaks. These topographic configurations are rare occasions in the Athens-Clarke County area.

***Creek-Lower Slope:*** Creek and lower slopes represent those areas supporting minor permanent streams (except in extreme drought conditions). Lower slopes include valley bottoms and the lower slopes that support like vegetation. These areas include the upper reaches of watersheds found throughout this geographical area. Internal water relationships are generally excellent on the lower slopes, and growing sites are of the best in the Piedmont, supporting mixed stands of loblolly pine and the best of the beech-maple, white oak, sweet gum, and tulip poplar hardwood associations.

***River Bottom:*** River bottoms in the Piedmont in general and Athens-Clarke County in particular are considered “red river bottoms” originating near the mountains and being alluvial in nature. The alluvium (water transported soil) is made up of well-structured

soil, silt and silt loams. The Oconee Rivers (North and Middle) are such rivers, and appear reddish brown or brown for most of the year due to colloidal materials being carried in suspension. Red river and creek bottoms not only provide alluvium from their main stream, but in the Piedmont may include areas of alluvial fans formed as outwashes from the highland coves adjacent to the valley. Immediately adjacent to the drainage system, oxbows and sloughs are commonly found supporting a cypress-tupelo vegetative association. Beyond the sloughs and oxbows, lie the first bottoms which flood periodically to considerable depth. Because of their higher elevation than the sloughs and oxbows, drainage is fairly rapid in the first bottoms. In Athens-Clarke County, the Oconee Rivers can be considered juvenile rivers, with narrow first bottoms with steep slopes, and few if any second bottom lands or terraces. Species commonly found in the river bottoms include hackberry, ash, sycamore, river birch, cottonwood and elm.

**Lake or Pond:** There are only a few bodies of water in Athens-Clarke County that are large enough to be classified as a lake, the largest being Lake Chapman in Sandy Creek Park which covers 110 acres. Most other bodies of water would be considered ponds virtually all of which are man-made. Many of the smaller ponds are too small identified by the 28-meter satellite data. Many of the small ponds are considered “farm” ponds to support livestock and irrigation activity. Other ponds have been created as part of a flood control network. In both cases the water level in the ponds will vary widely. During certain seasons, or in periods of little rain, some of the smaller ponds may dry up temporarily. Cypress, willow and tupelo are common species found along the shallow edges of ponds.

**Low Flat-Bog:** Not considered common by any means, low flat-bog topography does occur in the Piedmont and may be in a dish-shaped configuration in which the flat is associated with a hardpan formation. These features may occur on side hills as a result of seepage or springs. Because of poor internal drainage, growing sites are poor for trees, although these sites do support lush growths of lesser vegetation, accentuated by green and saw briars, pitcher plants and wire grass.

Topography	Code
Uplands	01
Dissected Upland	02
High Flat, Prairie	03
Creek Bottom	10
River Bottom	11
Lake or Pond	12
Low Flat-Bog	13

**Age Class**

Age class is a general category in an attempt to classify the recognized stands into one of 5 broad age classes. This is a category that cannot be done in the office alone. Several field samples will have to be drawn to establish a typical age profile for the various conditions existing within Clarke County.

Age Class	Code
<10	1

10-20	2
20-30	3
30-50	4
>50	5

### Site

The variables to be used in establishing site productivity (live crown) will be the same as used in most tree management programs. Site is used in forest management as an indicator of potential fiber production. Such a measure is related to tree size (a function of basal area and height at a given index age, usually 25 or 50 years), which in turn is correlated to crown size. Crowns in aggregate compose the tree canopy for any given stand. Site index values are derived from the relationship of height over age. In urban-community forest applications, direct measurements to obtain age and height data are difficult at best and impossible in many situations. Fortunately there are indirect indicators of site that can be utilized under these conditions. Soil types and topography are two visible indicators that have shown significant correlation with site index. This was verified by an extensive soil-site study conducted by the late St. Regis Paper Company and Duke University in 1963. Using these data based on topographic, soil and/or indicator plant combinations and on site experience, the following subjective index ranging from 1 to 10 was prepared as a relative measure of potential canopy development. The code "1" was used for "no site" to avoid a "divide by zero" situation. The site values then proceed from worse (2) to best (10).

Site Class	Code
No site (already developed or in use)	1
Low wet (poorly drained) flat or bog	2
River bottom overflow (first bottom)	3
Upland ridges and eroded forest/non-forest lands	4
Bare Soil	5
Upland, normal forest conditions	6
Dissected upland forest	7
Upland agriculture/turf	8
Bottomland forested terrace (second bottom)	9
Creek/cove/lower slope forested	10

### Density

Density refers to the crown cover in percent. These are subjective estimates derived from the satellite image data as verified and modified by aerial photographic interpretation and field inspections. Here again, code 1 refers to no density (agricultural field, for example), and then the coding progresses in ten percent increments as follows:

Density Class	Code
No density (non-forest)	01
Crown cover 0-10	10
11-20	20

21-30	30
31-40	40
41-50	50
51-60	60
61-70	70
70-80	80
81-90	90
91-100	100

**Condition Class (Tree dominance.)**

Condition class is a subjective estimate as to the condition of the existing main canopy of the stand in all areas. On forested lands condition will be based on the tree's crown position in terms of dominant/co-co-dominant, intermediate, or suppressed. A dominant/co-dominant tree will contain a live crown to stem ratio of 33% (1/3 live crown ratio). On non-forested lands, the condition class will be used to modify the cover type, especially in residential areas and neighborhoods. Thus, residential cover types (Cover Type 95) can be further described by the condition class. For example, a stand labeled "Light Pine" in a residential area would be classed as Residential in Cover Type, but the Condition Class may indicate mixed pine-hardwood cover. This coding scheme will allow for separate analysis of residential areas without losing specificity of species, density, age or site. Finally, condition class is used as a change indicator. The changes recognized are: Trees to no trees, No trees to trees, and Agriculture/Scattered to No trees.

<b>Condition Class</b>	<b>Code</b>
<u>Forest Land</u>	
Dominant/Co-dominant	1
Intermediate	2
Suppressed	3
Over story/scrub	4
<u>Non-Forest Land</u>	
Residential Pine	5
Residential Hardwood	6
Residential Mixed	7
Residential, less than 10% cover	8
Residential scrub (residuals)	9
Farmland/Grassland	10
Impervious	11
Water	12
Bare Soil	13
<b>Change Conditions</b>	
Trees to no trees	20
No trees to trees	22
Agriculture/Scattered to bare soil	23

## Venue

Venue describes the stand in terms of geo-cultural location, and corresponds in general to those unique site areas as defined in the Athens-Clarke County “Best Management Practices for Community Trees” document. Not only is this attribute of interest to the CTC, but it also develops a sound link between Landscape Management responsible for operational decisions regarding the trees of Athens-Clarke County.

Venue Class	Code
Large Landscape Areas	
• Open and wooded areas, and rural lands	1
• Parks,	2
• Office and Industrial Parks	3
Road Corridors and Frontage	
• Urban Commercial	4
• Urban Residential	5
• Industrial Commercial	6
• Suburban Residential	7
• New Construction	8
Parking Lots	9
Buffers and Residential Woodlots	10
Riparian Zones and Drainages	11
Lakes, Ponds, Borrow Pits	12
Transportation/Utility Corridors	13
Railroad R/W	14

## Risk Factors

Risk factors are those things that have the potential of negatively impacting the stand under consideration. It may be one of the considerations in determining the relative site potential. Factors considered in defining risk included relative location in terms of town, residential and rural, what collateral activity was going on (building and construction), current and future zoning potential, proximity to streets and main arteries, government/institutional or private ownership, and general cover and topography. There are 10 risk factors ordered from highest to lowest risk as described below:

Risk Factor	Code
No Risk	1
In town	2
Suburban fill-in	3
Commercial development	4
Future Zoning	5
New residential development	6
Major road access	7
Government/institutional ownership	8
Rural farmlands	9

Rural dissected forest lands	10
Transportation/Utility Corridors	11
Lakes, ponds and barrow pits	12
Hardscape and buildings	13

**Neighborhood**

Neighborhood refers to the residential neighborhood where the stand is located. The list of currently defined neighborhoods is included in Appendix 1 and on the attached Code Sheet. Because of continuing growth, the neighborhood listing is ephemeral and will be up-dated as needed, but at least on an annual basis. Neighborhood listings are included in the attached Community Forest Information System Attribute Code Sheet.

**Basin**

There are 15 river basins in Clarke County. Each stand will be identified relative to the basin where it is located. The list below moves from east to west.

<b>River Basin</b>	<b>Code</b>
Sulfur Springs	1
Big Creek (BC)	2
Shoal Creek (SHC)	3
Cedar Creek (CC)	4
Trail Creek East Fork (TCE)	5
Trail Creek West Fork (TCW)	6
Sandy Creek (SC)	7
Barnett Shoals Creek (BSC)	8
Upper North Oconee River (UNO)	9
Lower North Oconee River (LNO)	10
Lower Middle Oconee River (LMO)	11
McNutt Creek (MC)	12
Lil Bear Creek (LBC)	13
Bear Creek (BC)	14
Turkey Creek (TC)	15